From Association Towards Accession in the Tempus Programme

Inventory and Review of Project Outcomes in Hungary, Poland, Bulgaria and Romania

1994-2001
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From Association Towards Accession in the Tempus Programme

Inventory and Review of Project Outcomes in Hungary, Poland, Bulgaria and Romania

1994–2001

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The study reviews the impact of Tempus, an EU assistance programme supporting the reform and development of higher education, in Hungary and Poland, and Bulgaria and Romania, representing the first- and second-generation candidate countries respectively. The study covers the period between 1994 and 2001. The period begins with the emergence of more structured approaches to the reform of higher education in the four countries on the one hand, and the entry into force of the Europe Agreements establishing an association between the EC and the four countries on the other hand. It ends with the final year of their participation in Tempus when the countries were fairly advanced in their higher education reforms, already involved in regular Community programmes, such as Socrates and Leonardo da Vinci, and well on their way towards EU accession. Thus, the impact of Tempus is assessed in the study against the challenges for higher education in a broader accession context which combines the national higher education reforms and the EU accession process. References are also made to the Bologna Process, though the Process itself started too late to be fully reflected in Tempus for the candidate countries.

Over the years, most of the issues highlighted in the national and European contexts were integrated into Tempus priorities. Reflecting similar weaknesses in higher education and thus convergent aims of the reform strategies as well as common European challenges, the impact of the Programme in all four candidate countries followed generally similar lines. Within these broad lines, it varied to some extent, depending on the country-specific needs, the scope of the national Tempus priorities and the response of universities in each country. In general, however, the impact of Tempus at its end hardly justifies a division into the first- and second-generation candidate countries. It would rather seem that Tempus provided more equal opportunities for reform and development, reducing the distances between the four countries, and allowing some of them to catch up in the areas where they had lagged behind at the start of the Programme.

In the context of national higher education reforms, Tempus as a bottom-up programme focused clearly on transformations within universities rather than on policy development at national level. At national level, the Programme mainly introduced some “European” issues such as credit systems or quality assurance into reform policies and contributed to the development of legislation or strategies, in particular in Hungary and Romania. Wider support for the development of policies and strategies, which provided a basis for Tempus priorities, could have accelerated the pace of reform and increased the overall impact of the Programme at university level.

At university level, Tempus supported, though on a different scale, both the modernisation of teaching, targeting mainly degree programmes, and the improvement of university management. In the area of university teaching, the Programme played a major role in the establishment and strengthening of the post-1989 degree structures in all four countries, though its relative importance depended on country-specific needs. In Hungary, Tempus was instrumental in the rapid development of PhD programmes. In Poland and Bulgaria, it accelerated the transition to two-cycle (undergraduate and postgraduate) programmes. In Romania, the Programme was a major breakthrough as it actually introduced short-cycle programmes in areas of key importance for the economy, and first programmes leading to the previously non-existent Master’s degree.

In parallel, Tempus assisted universities in the modernisation of existing curricula, focusing clearly on the development of new courses and the updating of the content of selected existing courses within a curriculum as well as on the upgrading of teaching skills and facilities. As a result, it extended considerably the range of options available to students and improved the overall quality of degree programmes in all four countries. Less
emphasis was generally placed on the review and restructuring of entire existing curricula. As a result, islands of new programmes or new and updated courses were surrounded by those where a more difficult screening exercise should have ideally been undertaken. However, far- or further-reaching structural changes were introduced in particular in Poland and in Bulgaria as part of the transition to two-cycle programmes. Moreover, Tempus can take the full credit for encouraging the first steps towards the flexibility of studies, also combined with some structural changes, in all four countries. It introduced the European Credit Transfer System or ECTS-based credit systems on a wide scale in Hungary, Poland and Bulgaria, and on a more limited scale in Romania.

Regardless of some differences between the countries, changes in the degree structures and the existing programmes were mainly taking place in the subject areas related to the post-1989 economic, social, political and technological changes. This definitely increased the relevance of programmes to the immediate demand on the labour market, though employers were generally not involved in Tempus projects and thus mechanisms for ensuring relevance in the longer term were still to be developed. At the same time, the concentration on these key areas may be considered less desirable from the viewpoint of the overall or balanced development of university curricula.

The impact of the Programme in the area of university management varied, depending on the issues tackled. Its support for strategic planning and management was generally rather limited in scale. However, Tempus introduced the so-called Institutional Development Plans to universities in all four countries, facilitated some structural changes and the development of computerised management tools, mainly in Bulgaria and Poland as well as in Hungary, and revised internal university regulations in Romania. Similarly, Tempus projects focusing on quality assurance were a pilot exercise, contributing to the emergence of a culture of quality and introducing some elements of or tools for quality assurance systems which were still to be fully developed in all four countries.

Considerable progress was made in terms of opening universities to their external environment. Links were established with central and local government, business and industry, and other bodies in all four countries. Romania even created countrywide university-industry networks. Tempus also set up numerous continuing education or training centres in all four countries, technology transfer units mainly in Hungary, Poland and Romania, student counselling centres in Romania, and careers services, public relations and similar offices mainly in Poland. Links created towards the end of Tempus resulted in co-operation agreements and joint follow-up initiatives. However, co-operation did not cover the joint review of degree programmes in the context of labour market needs.

The Programme also increased substantially the efficiency of university administration. More extensive impact was achieved in Poland as well as in Hungary and Bulgaria, where Tempus funds were used to computerise various administrative activities, and to modernise international relations offices, libraries and/or finance services. Universities in Romania focused on the establishment and modernisation of international relations offices.

Overall, in the reform context Tempus brought about visible immediate improvements, and initiated or advanced various lengthy processes. It also contributed to less tangible changes in mentality and the emergence of a culture of change in universities. However, its support could have been more even-handed. The Programme focused on teaching “at the expense” of management, which also limited to some extent its impact in the area of teaching as, especially in the early years, universities were not yet able to manage their extensive autonomy and make the most efficient use of Tempus funds. Moreover, it focused on selected aspects of management and of the modernisation of curricula, more on the academic quality of programmes than on mechanisms ensuring their relevance to labour market needs, and on several subject areas.

In the European context or, more specifically, the context of the main goals which are now common to the Community acquis and the Bologna Process, Tempus supported the first steps towards lifelong learning, and enhanced the European dimension and quality of education. In so far as lifelong learning means creating
opportunities for citizens to acquire and refresh their knowledge, Tempus set up training units and developed the expertise of universities in the assessment of training needs and the design and delivery of courses for adult learners. The capacity to deliver training was developed on a much larger scale in Bulgaria, Hungary and Romania than in Poland. The European dimension was enhanced in all participating universities in the four countries through the involvement in each project of institutions from at least two and often more EU Member States. In addition, however, Europe was introduced into university curricula through full degree programmes or specialisation options in European Studies as well as courses covering European issues. These developments took place on a larger scale in Hungary, Poland and Romania than in Bulgaria. Overall improvement in the quality of education is referred to in the context of the national higher education reforms.

While curricula were modernised primarily in the context of the national reforms, a number of degree programmes restructured in Poland were considered comparable to those in the EU, and some newly established or upgraded programmes, in particular in Hungary, were recognised or accredited by European bodies, networks or universities. Moreover, ECTS was introduced extensively in Hungary, Poland and Bulgaria, and on a smaller scale in Romania. In this way, first or more advanced steps were made towards the recognition of diplomas and study periods.

Furthermore, Tempus proved to be an ideal vehicle for practical preparations for international co-operation in general, and for the participation in the regular Community programmes in particular. Firstly, the Programme paved the way for universities in the four countries to establish multilateral partnerships which were formalised in agreements for co-operation in Socrates/Erasmus, and less frequently in Leonardo da Vinci. Secondly, project formulation and management skills were developed on a massive scale in all four countries. Thirdly, as mentioned before, the Programme enhanced considerably the efficiency of international relations offices. Fourthly, as a contribution towards the elimination of linguistic obstacles to mobility, the teaching of Community languages was improved in particular in Bulgaria as well as in Hungary and Poland. Finally, to attract EU students, courses in Community languages, English in particular, were developed in various areas of study, mainly in Hungary and Poland, but also in Bulgaria and Romania.

One of the requirements specific to the EU accession process is related to the implementation of the EC directives concerning seven regulated professions in higher education, and the strengthening of the capacity of various other sectors to implement the relevant acquis. Tempus provided a modest contribution to the harmonisation of curricula for the seven EC-regulated professions. Only two of these areas, medicine and veterinary science, were covered by Tempus projects. Hungary achieved full compliance with the EC requirements in its veterinary education, and restructured substantially the programmes in all its medical faculties. Veterinary programmes were also fully or largely harmonised in most of the faculties in Poland, while some faculties in Bulgaria restructured their medical programmes in line with the EC directives. No support for the harmonisation of curricula was provided under Tempus in Romania.

By contrast, as part of the so-called Tempus institution building in other sectors, thousands of officials and professionals in central and local government, industry, business and non-governmental organisations across all four countries developed their expertise in a wide range of areas covered by the acquis and accession-related issues. Moreover, numerous publications and other materials were produced in Tempus to facilitate the accession process. As a longer-term investment, the Programme created countrywide networks of universities which are well prepared to deliver cost-effective training to various sectors during the accession process and beyond.

Specifically in the context of the Bologna Process, it is worth noting here that Tempus contributed to the establishment of two-cycle programmes in Bulgaria and Poland where this goal of the Process coincided with the objectives of the reforms in degree structures. In Hungary and Romania, which have different degree structures, Tempus can take credit for introducing a few postgraduate programmes which may now be used as “building blocks” for two-cycle programmes in line with the Bologna Process.
With all four countries now participating successfully in Socrates and Leonardo, Tempus in the European context achieved its general goal of bringing universities from the stage of recipients of EU assistance to the stage of full partners in the EU co-operation process. Moreover, by developing the overall capacities of universities in education and training and enhancing their quality and European dimension, it also created a good basis for the full implementation of the main common goals of the Community and the Bologna Process in and outside the regular EC programmes. The new frameworks for co-operation now need to be used urgently to accelerate the implementation of the EC Directives for higher education and thus to fill the gap left by Tempus.

Summing up, the Programme facilitated and accelerated the accession of universities in the four countries to what may be called the European Community of Higher Education, combining support for the implementation of various tasks specific and common to the national higher education reform and European contexts. Evidently, this would not have been achieved if changes had not been undertaken simultaneously by universities on their own initiative and account. And conversely, the "accession process" in higher education would have taken much longer without the support offered by Tempus. Thus, the Programme accomplished its overall mission. Yet, it is also true that Tempus left in all four countries an uneven landscape or, in other words, created what is often described as islands of innovation rather than implementing or supporting complete reforms. However, a very large number of smaller and bigger islands were created in all universities in Bulgaria and in the overwhelming majority of universities in Hungary, Poland and Romania.

The uneven or selective impact, in particular in the context of national reforms but also in the European context, may be explained by several factors. Higher education policies and reform strategies were only gradually being developed in the four countries, with various issues added "on a rolling basis". Tempus priorities based on these evolving strategies did not always encourage further-reaching changes or a global or structured approach to change in universities. Moreover, several key issues were included in the Tempus priorities towards the end of the Programme when its budget was already reduced, and only a limited number of projects could be funded. At the same time, universities themselves were only gradually opening up to changes. Thus, smaller-scale improvements instead of far-reaching transformations could have been the only realistic option. In addition, the bottom-up approach of the Programme, which relied heavily on the initiative of universities, could not itself guarantee the supply of projects which covered all key issues and involved all or a large proportion of universities. Finally, complete reforms could hardly be achieved in the four countries which have a fairly large or even very large number of universities.

Finally, no general statement can be made about the sustainability of the overall impact because Tempus brought different outcomes. Their sustainability depends clearly on their specificity, but also on other country- or university-specific factors. However, it is clear that feasibility studies, plans or concepts produced in a number of preparatory projects were rather unlikely to be implemented without Tempus funding. By contrast, good conditions for sustainability were created in an overwhelming majority of the implementation-oriented projects in all four countries. This was achieved through the development of the expertise of university staff, the approval of Tempus-supported changes by the relevant university and/or national authorities, and the allocation of necessary funds in university budgets. Moreover, in more recent projects which also involved non-academic partners, formal arrangements were made to provide a basis for future co-operation. Evidently, outcomes that can be maintained and/or developed without putting a heavy strain on university budgets are more sustainable than others. These include, for example, programmes or courses which attracted a large number of students and are funded from regular university budgets, or university services which were extensively modernised under Tempus and thus do not require immediate substantial investment. However, additional support, whether at national or European level, may be necessary for some lengthy and costly processes such as computerisation or the establishment of quality assurance systems, and for initiatives involving external partners such as double-diploma programmes or training for non-academic sectors.
Introduction

1. Tempus Programme in brief

Tempus is a European Union programme which supports the reform and development of higher education in the Central and Eastern European countries, the Newly Independent States, Mongolia and the Mediterranean countries. It was adopted by the Council of Ministers of the European Union in 1990 for the years 1990-94, and was extended for three subsequent phases until the year 2006. Tempus for the Central and Eastern European countries and for the Newly Independent States and Mongolia has been funded through the PHARE and TACIS Programmes respectively. Funding for the Mediterranean countries is provided through the MEDA Programme.

Between 1990 and 2000, Tempus developed gradually to cover 28 Phare and Tacis partner countries which entered the programme in different years. Ten Phare countries associated with the European Union joined regular Community programmes, Socrates and Leonardo da Vinci, in 1998 or 1999, consequently phasing out their participation in Tempus. The present Tempus phase (2000-2006) is open to Albania, Bosnia and Herzegovina, Croatia, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia (“CARDS countries” of Central and Eastern Europe), the New Independent States and Mongolia, and Morocco, Algeria, Tunisia, Egypt, Israel, Jordan, the Palestinian Authority, Lebanon and Syria (“MEDA countries”).

Tempus has supported activities initiated and implemented by consortia of universities and non-academic institutions as well as higher education staff from the EU Member States and the above-mentioned partner countries. This bottom-up approach has been counterbalanced by a top-down framework where the authorities in the partner countries define their national priorities in consultation with the European Commission. Grants for Tempus activities have been awarded in accordance with a competition-based selection procedure where applications are assessed with respect to their compliance with priorities as well as their academic and technical quality.

The total Tempus Phare and Tacis budget in the period 1990-2002 amounted to 929.95 million Euro. Over 90% of the Tempus funds have been allocated to Joint European Projects. Projects of this type, lasting from one to three years, focus on the modernisation of curricula, the development of university management, student mobility, and on the upgrading of knowledge and skills or institution building outside the higher education sector. Smaller-scale Tempus actions include Complementary/Compact Measures designed mainly to support the development of policies and strategies, to improve university management and to facilitate dissemination and networking, which were funded between 1990 and 1997, and Individual Mobility Grants for higher education staff.

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3 Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.
Tempus is administered by the European Commission Directorate General Education and Culture, with technical assistance provided by the Tempus Department of the European Training Foundation in Turin. Tempus Information Points, National Tempus Offices established in the Phare and Tacis countries and National Contact Points in the EU Member States provide information and additional support for the programme.

2. Scope and methodology of the study

Scope of the study

The study aims to review the impact of Tempus as a programme targeting higher education in the broad accession context5 in four candidate countries, Hungary, Poland, Bulgaria and Romania, between 1994 and 2001. The scope of the study is defined on the one hand by challenges facing higher education in the candidate countries in the broad accession context, and on the other hand by the orientation of the Tempus Programme itself.

In strictly legal terms, EU accession requires that the candidate countries fulfil a set of political and economic criteria, and achieve the ability to take on membership obligations, which implies the adoption and implementation of **acquis communautaire**. As regards the political and economic criteria, higher education in the candidate countries may only contribute in the longer term by providing highly qualified professionals for the newly established democracies and market economies. In the shorter term, it has been confronted with the challenge to incorporate the **acquis** covering higher education in the European Union, and to develop the capacity for implementing the **acquis** in other sectors. The challenges for higher education extend, however, beyond the legal requirements as the accession process has taken place in a broader context of transformations within the candidate countries and initiatives in the area of higher education at European level. In view of both the legal requirements and the broader accession context, the challenges for higher education are divided in the study into two strands. These focus on issues specific to higher education and its support for the accession-related preparations in other sectors.

The first challenge may be summarised as joining “the European community of higher education systems”. It comprises three interrelated aspects. Firstly, unlike Western European countries applying for EU membership in the past, the Central and Eastern European candidate countries have been faced with the formidable task to reform their higher education for the new post-1989 political, economic and social realities and growing international co-operation in accordance with their national frameworks. Secondly, given the above-mentioned legal accession requirements, higher education in these countries should be prepared for the implementation of the **acquis** which focus on enhancing the quality and European dimension of education, promoting mobility, facilitating the mutual recognition of study periods and diplomas, and encouraging lifelong learning. Thirdly, this broader accession context has recently been extended by the Bologna Process, an initiative which, while taking up the main issues of the **acquis**, also aims to increase the comparability of degree structures in European higher education systems. For higher education in the candidate countries, this means reform and development within the national frameworks which is, however, geared towards the achievement of the goals set out in the **acquis** and which now also goes beyond the **acquis** to reach the objectives of the Bologna Process.

The second challenge for higher education in the candidate countries has been strictly related to the adoption and implementation of the Community **acquis** in other sectors. This requires the strengthening of democratic institutions, public administration agencies, regional and local bodies, business and professional organisations that have or will have a responsibility in enforcing Community legislation and policies. Special instruments for

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5 This context is only summarised below to explain the scope of the study and discussed in more detail in Part I.

6 A body of legislation, rules, action programmes, etc. developed at Community level over the years.
this process of institution building are envisaged in the pre-accession strategy for the candidate countries. However, in view of the wide variety and geographical distribution of target organisations, universities in the candidate countries were called upon to use their countrywide training network and expertise for the development of knowledge and skills required to implement the acquis in other sectors.

These two challenges for higher education were gradually integrated into Tempus for the candidate countries. In the years 1994–2001, the Programme supported various aspects of reform and development of higher education, incorporating the main issues of the national strategies and the acquis as well as some issues of the Bologna Process, though the Process itself was launched too late to be fully reflected in Tempus. However, as a bottom-up programme, Tempus focused clearly on changes within universities rather than policy development or a systemic reform at national level which were thus supported directly on a very small scale and indirectly through projects at university level. Between 1998 and 2001, the Programme extended its scope to include institution building, and provided a framework for tailor-made training in acquis for non-academic sectors.

In this context, the study analyses the contribution of Tempus towards the reform and development of universities in the four candidate countries, with special regard to the acquis and reference to the Bologna Process, and towards institution building outside higher education as a specific requirement of the accession process. Focusing on quantifiable Tempus outcomes, the study discusses what has actually been achieved and indicates where the Programme could or could not have achieved more in the four countries. It should, however, be emphasised that the basis for comparisons between the four countries is limited by different conditions and needs, and thus by different Tempus priorities and outcomes in the individual countries.

The study comprises four parts which present the strategic context of Tempus in the four countries, the main areas of higher education reform and development in Tempus, Tempus-supported institution building, and the main findings and conclusions for the four countries.

The strategic context in Part I covers selected elements of the higher education frameworks in the four candidate countries which were relevant to Tempus, the EU accession process and the Bologna Process, and Tempus priorities in the four countries as reflecting various national and European strategic issues.

Parts II and III review Tempus outcomes which contributed to the reform and development of universities and institution building outside higher education. Part II discusses the key outcomes in the area of university teaching or, more precisely, curriculum development and university management as these were the two main areas of higher education reform and development supported by the Programme. The chapter on university curricula comprises sections on curricular changes and related developments in both degree programmes and continuing education. Curricular changes are discussed in a breakdown by area of study. The reform of university management in the following chapter is illustrated by the modernisation of management and administration structures, first attempts at implementing internal quality assurance systems, and measures supporting international mobility, including the introduction of the European Credit Transfer System.

Part III provides an insight into training organised as part of institution building in other sectors. It presents a predefined structure of Tempus institution building activities, and an overview of training courses as well as other related developments.

In each chapter, section or sub-section of Part II and III, a fairly detailed description of Tempus outcomes, which are to some extent repetitive by nature, is followed by general comments. Detailed descriptions are included as the basis for chapter- and section-specific comments and for final conclusions from the study, and as a source of information for readers interested in specific Tempus outcomes. Those who wish to obtain a more general picture may focus only on general comments which summarise, explain and assess the impact of Tempus in a given area.

General comments are integrated into and developed further in Part IV of the study which combines a summary of the main findings with general conclusions from Part II and III for the four candidate countries. Part IV includes conclusions concerning the impact of Tempus in the broad accession context, which is divided into the
higher education reform context and the European context, as well as general comments on the overall impact of
the Programme. The conclusions highlight both similarities and differences between the four countries, as well as
the strengths and weaknesses of the Tempus Programme.

Countries included in the study

Hungary, Poland, Bulgaria and Romania have been chosen for the study for four reasons. Firstly, Hungary and
Poland on the one hand and Bulgaria and Romania on the other hand are included as representative of Central
and Southern Europe and first- and second-generation candidate countries respectively. Secondly, in view of the
substantial Phare funds allocated to Tempus in these countries during the years of their participation in the
Programme, there is clearly a need to review the impact of this investment on their higher education. Thirdly, this
Phare investment has led to a variety of outputs illustrating the main lines of higher education development in
the four countries and the main areas of Tempus support for the accession process. Fourthly, while Tempus
outputs in these four countries point to a number of similarities, each of them also followed slightly different
paths to achieve the common goal of higher education development. This combination of similar and different
experiences may be used for the benefit of the countries which already have their own history of co-operation in
Tempus and those which have only recently joined the Programme.

Period covered in the study

The period between 1994 and 2001 covered in the study begins with the entry into force of the Europe
Agreements establishing an association between the European Communities and Hungary, Poland, Bulgaria and
Romania, and ends with the final year of their participation in the Tempus Programme. Moreover, these years
mark what may be called ‘the maturity stage’ of Tempus in these countries, with its priorities first reflecting more
accurately the frameworks for higher education reform and then focusing increasingly on accession-related
issues.

Methodology of the study

The contribution of the Programme to the reform and development of universities and institution building in
other sectors, as the two elements of the overall accession process discussed in the study, is hardly measurable by
nature, and quantifiable indicators to assess such a contribution are hardly available. Thus, the study may only
use the documents defining the broad accession context for Tempus as a frame of reference, take stock of Tempus
outcomes in this context and draw conclusions on this basis.

The broad accession context of the Programme is outlined on the basis of various materials concerning the
reform of higher education in the four countries, the documents setting the pre-accession strategy, the acquis
communautaire for higher education, and declarations and communications underlying the Bologna Process.
The stocktaking comprises outcomes of Joint European Projects (JEPs), as the main Tempus action which
supported the modernisation of curricula and management in universities as well as institution building in other
sectors, and Complementary/Compact Measures (CMEs) which focused on university management. Since the
overall impact of Tempus as a bottom-up programme may only be seen as a cumulative effect of various
individual outcomes, the analysis in the study is based on an almost exhaustive list of outcomes achieved in JEPs
and on outcomes of selected relevant CMEs in the four countries. The study covers 756 (94.5%) of all 800 JEPs\(^7\)
which were implemented in the four countries between the academic years 1994/95 and 2000/01, and 111

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\(^7\) Poland: 222.5 mln Euro; Hungary: 117.9 mln Euro; Romania: 105.7 mln Euro; Bulgaria: 68.9 mln Euro.

\(^8\) Hungary and Poland: 1994; Bulgaria and Romania: 1995.

\(^9\) The remaining 5.5% are JEPs for which Final Report Assessment Sheets or Final Reports were not available at the time of the analysis for the study.
(51.9%) of all 214 CMEs which were funded between 1995/96 and 1997/98\textsuperscript{10}. The main sources of information about project outcomes include full Final Reports submitted by co-ordinators and contractors of JEPs launched between 1997/1998 and 1999/2000, and Final Report Assessment Sheets for JEPs launched between 1994/95 and 1996/97 and for all the CMEs reviewed in the study. In some cases, additional information about project outcomes was collected from reports or project fiches produced by the National Tempus Offices in the four countries.

This document-based approach to stocktaking has its advantages and disadvantages. Its clear advantage is that it allows the study to cover almost all projects as a broad basis for analysis. Its disadvantage is linked to the fact that the reports and papers describe Tempus outcomes with a varying degree of precision or focus in some cases on administrative rather than content-related or quantitative rather than qualitative aspects of projects. Moreover, they provide a ‘snapshot’ of the situation at a certain point of time, usually a few months after the completion of the projects. Thus, they may not reflect fully the dynamics of changes or various processes within universities which, even though initiated or supported by Tempus, take a longer time to become visible. Overall, the material collected in this way is, however, considered sufficient to draw reliable conclusions.

Comments and conclusions are based primarily on the analysis of project outcomes carried out especially for the purposes of this study. In addition, the concluding part of the study takes into account papers and reports on the implementation of the Tempus Programme produced by the European Training Foundation and the National Tempus Offices in the four countries as well as other documents\textsuperscript{11}. However, the extent to which the conclusions may draw on such documents is limited by the fact that they cover the period until 1997 or, in any case, do not include the more recent projects, and/or do not analyse in more detail both strengths and weaknesses of the Programme.

\textsuperscript{10} The 111 CMEs reviewed in the study include 109 projects introducing various changes in university management and 2 studies concerning continuing education which are relevant to the general conclusions from the study. The remaining CME projects, which supported mainly the dissemination of JEP outcomes as well as some curricular changes, are not included in the study because the material collected from the JEPs is sufficient to draw general conclusions.

\textsuperscript{11} See: A full list of references at the end of the study.
I. Strategic context of the Tempus Programme in the four candidate countries, Hungary, Poland, Bulgaria and Romania, 1994–2001

The strategic context for the Tempus Programme in the four countries evolved between 1994 and 2001 as reflecting their increasingly closer links with a wider Europe. Originally, it comprised mainly the national legislation and strategies developed for higher education in the post-1989 period. Following the association agreements concluded with the four countries and the political decisions about the enlargement of the European Union, these national frameworks were reinforced or extended with challenges for higher education related to the EU accession. Finally, at the end of the Tempus Programme for the candidate countries, the EU accession context was further enhanced by the Bologna Process which aims to create the European area of higher education beyond the EU borders.

1. National higher education frameworks in the candidate countries

The four candidate countries, Hungary, Poland, Bulgaria and Romania, are hardly comparable in terms of history, geography, culture and traditions or even the political situation in the pre-1989 period. However, higher education systems in all four countries shared a common legacy of the communist past. Low participation rates, state control, isolation from other sectors, uniformity and inflexibility, overloaded and narrow-scope curricula, emphasis on heavy theoretical lectures, a teacher-centred approach, and politicised teaching in some areas such the social sciences – all these featured prominently across higher education in the post-communist countries.

The differences and similarities between the countries were reflected in the national higher education frameworks which developed gradually in the post-1989 period. Each country chose a different timing and different scope for its new legislation, and adopted a different approach to the provision of degree programmes. However, as a response to common deficiencies in higher education, a number of common issues were tackled in the legislation and/or strategies of all four countries between 1994 and 2001.

The post-1989 legislation granted extensive autonomy to higher education institutions as the key element common to all four countries, introduced accreditation as another common development, though under different arrangements in the four countries, and set up a different structure of degree programmes in each country.

Hungary passed its new Law on Higher Education in 1993, with amendments adopted in 1996 and 1999. Apart from granting autonomy, the new law laid down provisions concerning inter alia three aspects. Firstly, in 1993, it
established formally the Hungarian Accreditation Committee which had operated from 1992. Secondly, in 1996, it defined the structure of degree programmes as comprising 3- to 4-year Bachelor's programmes offered by colleges, one-tier 4- to 6-year Master's programmes and new 3-year doctoral programmes offered in universities. Doctoral programmes replaced the previous system which combined the "university doctor degree", non-existent in Western countries, and a higher degree of "candidate", equivalent to a Western PhD, conferred by the Hungarian Academy of Sciences. And thirdly, in the 1996 and 1999 amendments, it provided for the integration of public higher education institutions by January 2000, which resulted in the reduction of their number from 55 to 33.

The framework for higher education in Poland was set up by the Act on Higher Education in 1990 for the university sector, and the Act on Higher Vocational Education Schools in 1997 for the non-university sector, both laws granting extensive autonomy to higher education institutions. The structure of degree programmes for universities was quite 'flexible', allowing them to offer both one-tier 5- to 6-year Master's programmes and 3- to 3.5-year or 3.5- to 4-year Bachelor's programmes and 2- to 2.5-year Master's programmes as a two-tier structure, and 4-year doctoral programmes. However, college-type higher vocational education schools were entitled to offer only Bachelor's programmes. Both sectors were required to respect the minimum curriculum requirements for degree programmes defined by the Central Higher Education Council. However, while the law for the non-university sector established the Accreditation Commission for Higher Vocational Education in 1997, a relevant amendment to the law for the university sector was adopted only in 2001. As a result, the National Accreditation Commission for both sectors was set up in January 2002. In the years immediately preceding its establishment, quality assessment and accreditation in the university sector were carried out by accreditation commissions set up voluntarily by conferences of rectors of all types of universities between 1998 and 2001.

The basic arrangements for higher education in Bulgaria were adopted in the Law on Autonomy of Universities in 1991 and the Law on Higher Education of 1995, with the latter amended in 1999 and 2000 to clarify further the structure of university degrees. The 1995 law established a basically three-cycle structure of university studies, with 4-year Bachelor's degree programmes followed by 1-year Master's degree programmes (one-tier 5-year Master's programmes to be offered only in some specific areas of study) and 3-year doctoral programmes. Moreover, it introduced a requirement for universities to organise the teaching contents in distinct modules. The law provided also the basis for the development of national curriculum requirements for speciality and specialisation options, and for the establishment of the National Assessment and Accreditation Agency in 1996.

Romania began to build its new higher education framework with the Law on Accreditation of Higher Education Institutions of 1993, which defined criteria and standards for evaluation and accreditation, and opened the way for the establishment of the National Council for Academic Evaluation and Accreditation in 1995. The new legal basis for higher education was, however, provided by the Education Law of 1995 which granted autonomy and defined the structure of degree programmes for universities and colleges as a new structure within universities. For universities, the law introduced a structure comprising 4- to 6-year Bachelor-level programmes, 1- to 2-year Master's programmes, previously non-existent in Romania, and 3- to 5-year doctoral programmes. For colleges, it established new 2- to 3-year programmes leading to a University College Diploma as an alternative to longer Bachelor-level programmes in universities.

While based on different structures and differing in size, the higher education systems in all four countries comprise both public and non-public institutions. The 89 institutions in Hungary included 55 public universities and colleges and 34 non-public institutions, with the number of public institutions reduced from 55 to 30 as a result of their integration in 2000. Poland, with a total number of ca 180 institutions, had 90 public universities and university-type institutions (with 1 semi-public university), and ca 90 non-public institutions which were

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13 With new non-public institutions established in the individual countries, the figures were changing between 1994 and 2001. Therefore, the figures given below refer to 1997 as the mid-point in the period covered by the study.
steadily growing in number between 1990 and 2001. Of all 41 institutions in Bulgaria, 29 were public universities and non-university institutions, 7 were military academies and 5 were private universities. In Romania, where the non-public sector was growing as rapidly as in Poland, higher education comprised 140 institutions, including 48 public institutions and 92 non-public institutions. It is also worth mentioning in this context that both public and non-public institutions were eligible to apply for funding under Tempus in Hungary, Poland and Bulgaria, whereas non-public institutions in Romania were excluded as not yet accredited in accordance with the national law.

Reflecting the common deficiencies in higher education, the strategies for reform gradually developed by the four countries were to a large extent convergent. In brief, the common issues in the strategies of all four countries comprised from the early 1990s the diversification and modernisation of the higher education provision, adaptation of studies to the labour market, and establishment of closer links between higher education and other sectors. From the mid-1990s, the four countries began to place more emphasis on flexibility of studies as part of the modernisation of higher education programmes, and were extending their strategies to include university management and internal quality assurance and assessment.

Within some of these common areas which are relevant for the study, each country followed its own path. The modernisation of higher education provision covered the extending of the range of options available to students, and the updating and broadening of curricular contents in all four countries, but it was also approached differently by each country in accordance with their degree structures. The strategy in Hungary, where the law established doctoral programmes equivalent to those in Western Europe, was designed to introduce new PhD programmes, and to increase the range of courses within existing Bachelor’s and one-tier Master’s programmes. In Poland, where the law provided for both one-tier and two-tier programmes, high priority in the reform strategy was given to the re-establishment of three-cycle (Bachelor-Master-PhD) studies and the introduction of Bachelor’s programmes as an alternative to the prevailing one-tier Master’s programmes. Reflecting major changes in the organisation of studies provided for in law, the strategy in Bulgaria focused on the development of modular curricula for the new three-cycle structure, the first two cycles to be introduced, like in Poland, through the transformation of one-tier Master’s programmes. In turn, the establishment of previously non-existent college programmes and postgraduate Master’s programmes was the key strategic priority for Romania.

While, as part of the modernisation of higher education provision, all four countries aimed from the late 1990s at flexibility of studies, arrangements adopted to support this strategic issue varied from one country to another. The government in Hungary adopted regulations in 1998 whereby higher education institutions were required to introduce a credit system and modular curricula by September 2002. Moreover, to support the development of credit systems, the National Credit Council was set up in 1999. According to a more recent regulation of 2001, the credit systems in Hungarian higher education institutions should be based on the European Credit Transfer System. Modular curricula in Bulgaria were introduced as a requirement in the new higher education law. In Romania, universities were encouraged by the authorities to introduce credit systems based on the ECTS-compatible system which had been used by the Universitaria Consortium of four Romanian universities since 1996. In Poland, no specific arrangements were made by the national authorities. However, like in the case of accreditation, efforts to increase flexibility of studies were encouraged as a joint bottom-up initiative of universities. The existence of an internal credit system was introduced as a pre-condition for accreditation by the above-mentioned university accreditation commissions.

Finally, though the interest in quality assurance and assessment was growing across the four countries from the mid-1990s as a common feature, follow-up arrangements varied again from one country to another. In Hungary, like in the case of credit systems, higher education institutions were required by a government regulation to introduce internal quality assurance systems by December 2002. The authorities in Romania adopted a number of regulations concerning quality management within universities, set up the National Council for Quality Assurance in 1999, and introduced the National Pilot System for Quality Assurance in universities in 2000. The task to develop guidelines and standards for internal quality assurance and assessment systems in Bulgaria was
assigned to the National Assessment and Accreditation Agency. In Poland, where no specific action was undertaken by the national authorities, an existing internal quality assurance and assessment system was a prerequisite for accreditation to be granted by the university accreditation commissions.

Overall, as mentioned earlier on, the national frameworks combined a number of country-specific as well as common issues. Some of the common issues, including in particular the development of university management and administration, quality assurance and assessment systems and credit systems, were inspired or reinforced by the broader European context.

2. EU accession process, pre-accession strategy, and *acquis communautaire* for higher education

*EU accession process*

The accession process was preceded by a number of steps that provided the basis for the gradual integration of ten Central and Eastern European (CEE) countries\(^14\) and the future enlargement of the European Union. Between 1991 and 1996, *Europe Agreements* establishing their *association* with the European Community and its Member States were progressively concluded with the CEE countries\(^15\). The implementation of the Europe Agreements was supported through the *Phare Programme* created by the Community in 1989.

In this context, the decisive step towards the future *enlargement* of the European Union was taken at the Copenhagen European Council in 1993 where the Member States agreed to open the Union to the associated countries that desired to become its members. Moreover, the 1993 Copenhagen Council defined the EU membership or *accession* criteria to be fulfilled by each candidate country. In addition to political and economic criteria, these include the ability to take on membership obligations, which implies the adoption and implementation of Community *acquis*.

The ten CEE countries submitted their applications for the EU membership between 1994 and 1996\(^16\). Between 1994 and 1997, subsequent European Councils\(^17\) adopted a *pre-accession strategy* for the candidate countries and outlined further steps for the EU enlargement. Considering the prospects for the EU in the enlargement context and the progress of the candidate countries towards the Copenhagen criteria\(^18\), the Luxembourg European Council in 1997 decided to launch the *accession process* for all candidate countries in 1998. This decision also provided the basis for the opening of negotiations with five CEE countries in 1998, including Hungary and Poland, and with the remaining five CEE countries in 2000, including Bulgaria and Romania. Moreover, the Luxembourg Council set out an *enhanced pre-accession strategy*, with priorities for each candidate country to be detailed in their Accession Partnerships. The Partnerships were concluded and updated between 1998 and 2001.

The accession process includes the implementation of the enhanced pre-accession strategy, the accession negotiations, the screening of *acquis* in the candidate countries, and a review procedure to assess the progress towards meeting the accession criteria in the candidate countries.

\(^{14}\) Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia.


\(^{18}\) Presented by the European Commission in Agenda 2000 and 1997 Opinions on membership applications.
Pre-accession strategy

The pre-accession strategies of 1994 and 1997 were adopted to support the preparation of the candidate countries for the EU membership, in particular as regards the adoption and implementation of acquis. Both strategies were designed as comprising several elements rather than single documents. The 1994 strategy was based on the Europe Agreements, the White Paper on the internal market\(^\text{19}\), structured dialogue between the Member States and the candidate countries, and the Phare Programme as the key financial instrument. The 1997 enhanced strategy integrated these elements, with the structured dialogue also covering the participation in Community programmes, and introduced the Accession Partnerships as a new element.

The Europe Agreements laid down provisions concerning political and economic relations, and covered the main areas in which the CEE countries should approximate their legislation to the Community acquis. As regards education\(^\text{20}\), instead of specifying the acquis, the Agreement focused on areas of co-operation which would aim at the mutual recognition of study periods and diplomas. Co-operation was envisaged in broad areas such as reform of education, curriculum development and development of university–industry links, as well as in specific areas such as European Studies and Community languages, translation and interpreting, and Community linguistic norms and terminology. Moreover, in the context of co-operation under the Tempus Programme, the Agreement provided the basis for decisions on the participation of the CEE countries in regular Community programmes such as Socrates and Leonardo da Vinci\(^\text{21}\).

The White Paper set out the key elements of the Community acquis to be adopted by the candidate countries for the internal market and related sectors, including agriculture, environment, industry, employment, social affairs and health. In an overview of the acquis for the internal market, it focused inter alia on the right for establishment, freedom to provide services and free movement of persons, pointing to the directives on the mutual recognition of diplomas for professional purposes. Moreover, the White Paper highlighted the importance of training for administrative, judicial and private sectors to increase their capacity for implementing the acquis.

The Accession Partnerships identified priority areas in which each candidate country should still adopt the acquis as well as the main lines and conditions for the financial assistance of the Union. Regardless of the country-specific issues, all Partnerships focused on further approximation of the legislation and/or practices in the internal market areas, financial control, taxation and customs, agriculture, environment, employment and social affairs, and justice and home affairs. Moreover, the Partnerships provided for the reinforcement of the capacity of public administration and other institutions to implement the acquis, including regional and structural policies.

The Phare Programme, which originally provided demand-driven assistance in the restructuring of the economy, was gradually transformed into the key accession-driven instrument. Between 1994 and 1997, it covered various priority areas set out in the documents mentioned above. Since 1998, Phare has focused only on institution building\(^\text{22}\) and acquis-related investment. Institution building is supported through the twinning of administration and agencies in the EU Member States and the candidate countries, and comprises secondments and expert missions.

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\(^{20}\) Article 75 or 76 on Education and Training in the Europe Agreements with individual CEE countries.

\(^{21}\) Relevant decisions were adopted in 1997 for Hungary and Romania, and in 1998 for Bulgaria and Poland.

\(^{22}\) Defined as adapting and strengthening democratic institutions, public administration and organisations that have a responsibility in implementing and enforcing Community legislation, designing management systems, and training a wide range of civil servants, public officials, professionals and relevant private sector actors.
Acquis communautaire for higher education

While the organisation and content of studies in the European Union are the exclusive competence of its Member States, with the Community playing a complementary role, some acquis have been developed for this sector over the years. The acquis relevant to higher education fall into two categories. The first category consists of "soft" acquis which, reflecting the complementary role of the Community, promote the goals of enhancing the quality and European dimension of education and – recently – encouraging life-long learning for the overall development of the Community. The "hard" acquis in the second category cover the area at the interface between higher education and the internal market, and have thus been adopted to ensure the free mobility of persons, freedom of establishment and freedom to provide services by facilitating the mutual recognition of diplomas for professional purposes.

The "soft" acquis comprise resolutions, recommendations and other documents, which are presented to open debates and encourage action in the Member States or justify Community action, and action programmes as instruments to achieve the goals of the Community. The documents setting the overall context for debates and action at Community level focus primarily on ensuring equal and easy access to learning within formal, informal and non-formal settings for all European citizens, and encouraging them to learn at every opportunity and at all stages of their life. These are promoted as essential prerequisites for enhancing employability of European citizens, ensuring their participation in the society, and creating a competitive Europe of knowledge. In this context of lifelong learning, universities are expected to allow citizens to acquire or refresh knowledge and skills, offering – in partnership with other institutions – learning opportunities that are suited to their individual needs in terms of contents and methods, and valuing properly their learning outcomes.

With a view to enhancing the European dimension of education, the acquis encourage the Member States to increase the visibility of Europe in their educational policies and systems. The European dimension should in particular be introduced into curricula for all appropriate disciplines, including literature, languages, history, geography, social sciences, economics and arts, as well as teaching materials and teacher training. For higher education, this means the development of European Studies and modules covering the knowledge about Europe and/or European Union for curricula in various fields of study.

In this context, the Community promotes mobility of all citizens as a tool for enhancing the European dimension and a key to personal development, employability and competitiveness. The acquis focus on removing legal, administrative, financial, linguistic and cultural obstacles for all categories of people. The measures recommended for students include inter alia the development of linguistic skills and cultural preparation, the recognition of study periods through the use of the European Credit Transfer System (ECTS), the introduction of mobility of all citizens as a tool for enhancing the European dimension and a key to personal development, employability and competitiveness. The acquis focus on removing legal, administrative, financial, linguistic and cultural obstacles for all categories of people. The measures recommended for students include inter alia the development of linguistic skills and cultural preparation, the recognition of study periods through the use of the European Credit Transfer System (ECTS), and the introduction of mobility for students, persons undergoing training, volunteers, teachers and trainers.

23 This section refers only to the acquis developed until 2000 as the academic year 2000/01 was the final Tempus year for the candidate countries.

24 Recognition of titles in connection with work to be taken up in a certain profession as opposed to recognition for academic purposes, i.e. continuation of studies, for which the competence in the EU remains at national level.


26 Resolution of the Council and the Ministers of Education meeting within the Council No 88/C 177/02 on the European dimension in education.


28 The European Credit Transfer System, which was established under the Erasmus Programme (1988-1995) and is currently used in Socrates/Erasmus, ensures full recognition of study periods in another university through the transfer of credits between home and host universities. Credits are allocated to all course units in a study programme, awarded to the student upon the completion of such courses units in the host university and transferred to his/her home university upon return from a study period abroad. For more information, see: section on the recognition of study periods in Part II.2.3.
arrangements facilitating the academic recognition, and the improvement of reception facilities for incoming students.

Finally, in the area of quality, the acquis for higher education urge the Member States to establish transparent quality assessment and assurance systems, to support universities in implementing their quality improvement plans, and to enhance co-operation between the national authorities responsible for quality evaluation. Moreover, it recommends that the quality assurance and assessment systems be based on a number of principles. These include independence of quality assurance and assessment bodies, relevance of evaluation procedures, internal assessment combined with external assessment, involvement of all stakeholders, and publication of evaluation reports.

Currently, the main instruments for achieving the Community goals are two action programmes, Socrates and Leonardo da Vinci, based on a number of previous programmes, launched initially for the period between 1995 and 1999, and extended for the years 2000-2006. Socrates aims to strengthen the European dimension of education at all levels, to improve the knowledge of languages, to promote co-operation and mobility, to encourage innovation in education, to promote equal opportunities in education, and thus to advance the idea of lifelong learning. Erasmus, as its component for higher education, supports exchange of students and teachers, development of joint study programmes, intensive programmes, and thematic networks. Designed to foster employability and focusing on initial and continuing vocational training, Leonardo promotes innovative training and guidance practices, and supports the development of materials and methods for improving language skills in various sectors as well as of European expertise.

The “hard” acquis consist of directives, which were as such obligatorily transposed into the national law of the Member States, concerning the mutual recognition of diplomas for professional purposes. In addition to three directives on a general system for the recognition of diplomas in the regulated professions, the acquis comprise special directives for seven regulated professions. These provide for automatic recognition of diplomas awarded by the Member States if they fulfil the minimum requirements for duration and/or content of training laid down in the directives.

3. European-level initiatives in higher education: Bologna Process

The Bologna Process is a pan-European initiative which, though originating within the European Union, extends beyond its borders. It aims at achieving greater comparability of higher education systems in order to enhance the mobility and employability of citizens and to increase the international competitiveness of European higher education. While building on the Sorbonne Declaration of 1998, the Process was initiated with the Bologna

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30 Council Directives 89/48/EEC and 92/51/EEC, Directive 1999/42/EC as updated by the SLIM Directive 2001/19/EC. Under these directives, the host Member State is obliged to authorise a person to pursue a profession if he/she holds the diploma required to pursue that profession in the country of origin.

31 Doctor, pharmacist, dental practitioner, midwife, general care nurse, veterinary surgeon and architect.


33 Joint declaration on harmonisation of the architecture of the European higher education system signed by higher education ministers from Germany, France, Italy and the United Kingdom. The Declaration focused on the creation of a common degree structure (Bachelor’s, Master’s and doctoral degrees) in an open European area of higher learning to improve recognition, facilitate student mobility and employability, and to promote overall development of Europe.
Declaration signed by 29 European countries\textsuperscript{34} in 1999. The signatories committed themselves voluntarily to create the European area of higher education by the year 2010, reforming their higher education systems in line with the following specific objectives:

- adoption of a system of easily readable and comparable degrees;
- adoption of a system based on two main cycles, undergraduate and postgraduate;
- establishment of credit systems such as the ECTS, covering also lifelong learning activities;
- elimination of obstacles to mobility of students, teachers, researchers and administrators;
- promotion of European co-operation in quality assurance;
- promotion of European dimensions in higher education.

The progress in achieving these objectives was reviewed at the follow-up meeting of higher education ministers from 32\textsuperscript{35} European signatory countries held in Prague in May 2001. As indicated by the ministers and the survey-based paper "Furthering the Bologna Process"\textsuperscript{36}, most signatory countries were moving towards a two-cycle degree programmes, credit systems and quality assurance systems. The ministers confirmed their commitment to advancing all objectives of the Bologna Process, and added the following three building blocks to the European area of higher education: lifelong learning, involvement of students, and promotion of the attractiveness of the European higher education area to the world. The next follow-up meeting will take place in Berlin in 2003.

4. Key strategic issues, and Tempus priorities in the candidate countries

**Key strategic issues**

The three sections of the broader accession context define a number of strategic issues which were specific to the national higher education frameworks, the EU accession process or the Bologna Process, and those which were similar or common, thus complementing or reinforcing each other.

In brief, the national frameworks for higher education reform focused on the establishment of new degree programmes, the diversification and modernisation of higher education provision, the improvement of university management and administration, the introduction of quality assurance and assessment systems, and the development of closer links with other sectors.

Some of these issues were also highlighted in the EU accession process and the pre-accession strategy. The strategy provided explicitly for the co-operation between the EU Member States and the candidate countries in the area of education reform, curriculum development and development of university-industry links. Furthermore, the establishment of quality assurance and assessment systems and the improvement of university management emerged in the strategy as part of the Community acquis or as an implicit precondition for the participation in the regular Community programmes. The new elements introduced by the accession process cover specific subject

\textsuperscript{34} Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom.

\textsuperscript{35} 3 new signatories: Croatia, Cyprus and Turkey.

\textsuperscript{36} Commissioned by the Bologna Process follow-up group.
areas, such as European Studies enhancing the European dimension of higher education and Community languages, as well as horizontal issues. The horizontal issues range from the promotion of mobility supported by practical arrangements, the European Credit Transfer System and the mutual recognition of diplomas, in particular in the EC regulated professions, and lifelong learning to acquis-based institution building outside higher education.

In turn, most of the key objectives in the Bologna Process, including the promotion of lifelong learning, credit systems, mobility, quality assurance and European dimensions, coincide with the issues covered by the Community acquis and the EU accession process. The new issue of the Bologna Process is the adoption of degree structures based on two-cycle programmes.

**Tempus priorities in the candidate countries**

Reflecting the evolution of the strategic context for higher education, the emphasis in Tempus priorities of the four candidate countries between 1994 and 2001 shifted gradually from national higher education reform issues towards those directly linked with the EU accession.

Between 1994 and 2001, the priorities in the four candidate countries covered various aspects of teaching and management to support overall development of universities. Introduced originally to support the national higher education reform, these were redesigned or extended to include the pre-accession strategy areas in teaching programmes throughout the period, or to facilitate preparations for the participation in Community programmes during the final Tempus years.

In the area of teaching or curriculum development, the structural priorities for all countries included the establishment of new degree programmes, the modernisation of existing degree programmes, and the development of continuing education in line with labour market needs. As regards new degree programmes, priorities in each country focused on a different level, reflecting its higher education framework. The development of PhD programmes was a top priority for several years in Hungary. The introduction of Bachelor's programmes or transformation of one-tier Master's programmes into a two-cycle structure appeared as recurring themes in Poland's priorities. Bulgaria supported consistently the development of programmes in line with its three-cycle degree structure. The recurrent priorities in Romania comprised the introduction of college-type and postgraduate Master's programmes. These priorities were open to all subject areas in Bulgaria and Hungary, gradually covered all areas in Poland, and comprised a wide range of areas in Romania.

In turn, the priorities concerning the modernisation of existing degree programmes and the development of continuing education were tied to specific subject areas which were common to all four countries. These included in particular the following priority areas of the Phare Programme: management and business, social and political sciences, technology, agriculture, environmental and medical sciences. Moreover, in the context of the acquis for higher education, all countries introduced European Studies, Community languages, the EC regulated professions as well as law in their subject-area priorities.

In the area of university management, all four countries promoted the improvement of management and administration structures as a broader issue and the introduction of quality assurance systems as a more specific issue. The reform of management and administration structures covered, depending on the country, various areas such as information systems, finance, student services, libraries, international relations and/or university-industry links. All or some of these areas appeared as a priority for five years in Hungary, four years in

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37 Priorities were defined only for Joint European Projects.

38 This section provides only an overview of Tempus priorities which are discussed in more detail in the relevant sections of the study.

39 Structural priorities refer to the types of institutions or units (e.g. colleges) to be established or the structure and types of degree programmes and courses to be developed or modernised (e.g. Bachelor's degree programmes) as opposed to subject-area priorities which indicate specific areas (e.g. engineering, economics, agricultural and food sciences).
Poland, three years in Bulgaria and one year in Romania. The introduction of quality assurance systems emerged as a priority in all four countries for the two final Tempus years.

Moreover, as an issue at the interface of teaching and management, all countries promoted the introduction of the European Credit Transfer System or ECTS-compatible credit systems. The ECTS or an ECTS-compatible system appeared in the priorities for two Tempus years in Hungary, four years in Bulgaria, and for five years in Poland and Romania.

Two issues highlighted as an element of the overall development of universities in the broader accession context were not explicitly present in Tempus priorities because they emerged at the end of the Programme for the candidate countries⁴⁰. These are lifelong learning, as an issue common to the acquis and the Bologna Process, and the adoption of two-cycle programmes as the key specific objective of the Bologna Process. However, though emerging too late to be as such integrated in Tempus, both issues slipped to some extent into other priorities. The lifelong learning concept was at least partially reflected in the priorities concerning continuing education in all countries. In turn, a two-cycle structure may be traced in the priorities for the restructuring or development of degree programmes in Bulgaria and Poland where the Bologna Process objective coincided with the main lines of the national higher education legislation or strategy.

Between 1998 and 2001, Tempus priorities were extended to include support for institution building through courses for specific target sectors as identified in the pre-accession strategy. In the priorities for all four countries, these were pre-defined as training courses for public and local administration agencies, regional and local bodies and/or business and professional associations responsible for the implementation of the Community acquis. While Hungary and Poland had broader priorities, covering various areas of acquis, Bulgaria focused on the internal market, and Romania’s priorities comprised environment, transport, agriculture, regional development, labour market and competition.

⁴⁰ The priorities for the last two series of Tempus projects, implemented by the candidate countries in the academic years 1998/1999-2000/2001, were formulated in summer 1997.
II. Main areas of higher education reform and development under Tempus in the four candidate countries, 1994–2001

Between 1994 and 2001, the Tempus Programme supported various changes in university curricula and management as defined in the priorities of the four candidate countries. These two areas of university reform and development were covered by 692 of all 800 Joint European Projects (JEPs) implemented between 1994 and 2001. Generally, reforms in curricula and management were undertaken under separate priorities and projects, though some JEPs combined curriculum development with the introduction of the European Credit Transfer System (ECTS).

554 of the 692 JEPs supporting university reform and development, i.e. an overwhelming majority of 80.1%, were mainly concerned with curricular changes. The remaining 138 projects, i.e. 19.9%, focused on three aspects of management: reform of university management and administration, introduction of quality assurance systems, and implementation of measures promoting student mobility, including the ECTS. The proportions of curriculum development and university management projects are similar in all four countries, indicating a clear predominance of those designed to modernise university curricula.

The larger number of curriculum development JEPs may be explained by at least two reasons. Firstly, while various aspects of curriculum development were present in the priorities during all seven years between 1994 and 2001, university management and/or quality assurance appeared as a priority issue for only four years in Hungary and Poland, three years in Bulgaria and one year in Romania. Secondly, priorities for curriculum development were either tied to or translated into projects in specific areas of study, thus targeting hundreds of faculties and departments. In turn, the priorities concerning university management were addressed mainly to central university level, thus limiting by definition the size of the potential target group and the number of projects to be submitted.

However, the improvement of university management was also supported in 116 of all 214 projects funded within the framework of Tempus Complementary/Compact Measures (CMEs) between 1995 and 1997. Like university management JEPs, the CMEs were generally designed to modernise university management and administration structures, to introduce quality assurance systems, and to facilitate student mobility, in particular through the implementation of the ECTS.

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41 All 800 JEPs are divided in the study into two categories: 692 JEPs supporting university development (curricula and management), and 108 JEPs supporting institution building. Although Institution Building JEPs have also contributed to the development of universities, they were undertaken in response to a specific accession challenge, and are thus described separately in Part III. For breakdowns by country, see: Annex 1, Tables 3 and 4.

42 For breakdowns by country, see: Annex 1, Table 4.

43 For a breakdown by country, see: Annex 1, Table 10.
1. University curricula

Reflecting a wide spectrum of structural and subject-area priorities in the four candidate countries, the 554 curriculum development JEPs comprised the introduction of new or the modernisation of existing degree programmes and continuing education courses in various areas. Generally, the projects represented a wide variety in terms of levels and types of programmes or courses covered. Some of them focused clearly on the development of a curriculum for one level, e.g. a Bachelor’s programme or a continuing education course, some linked several degree levels, e.g. Master’s and PhD programmes, and others integrated curriculum development for degree programmes and continuing education courses. Overall, 496, i.e. 89.5%, of the 554 JEPs were targeted on degree programmes and 216, i.e. 39.0%, cover continuing education, which means that these two elements of teaching activities were combined in a fairly large number of projects. The proportions are similar in a breakdown by country, except for Poland where the share of projects covering continuing education was smaller44.

In a breakdown of the projects in teaching by subject area for all four countries45, a major share was taken by applied sciences and technologies (55.4%). However, this category covered a wide variety of large-scope areas and sub-areas, including engineering and technology and computer science (29.6% jointly), environmental sciences (9.7%) medical sciences (8.7%), agricultural and food sciences (6.0%), and architecture (1.4%). The other leading areas comprised social sciences (12.5%) and management and business (11.4%). These were followed by natural sciences and mathematics (6.1%), languages and literature (5.2%), including mainly Community languages, and teacher education and interdisciplinary areas as part of other areas (3.6% and 3.4% respectively), humanities (1.8%), including only projects in law in three countries, and arts (0.5%). The breakdown indicates a clear predominance of the areas related to economic, social and technological changes in the candidate countries, in particular engineering and technology, social sciences, management and business, medical and environmental sciences, which were as such given priority in the Phare Programme. These areas accounted jointly for ca 60% of all projects. The area breakdowns by country reveal similar patterns, with applied sciences and technologies followed by social sciences, management and business, but the shares of the individual areas vary to some extent from one country to another46.

The area distribution may be explained mainly by Tempus priorities. While all or nearly all areas were open for the establishment of new degree programmes, new programmes were envisaged as an outcome in a relatively smaller proportion of projects. Most of the projects focused on the modernisation of existing degree programmes and the development of continuing education, and the subject-area priorities for such projects covered almost exclusively the above-mentioned Phare priority areas. However, the area distribution is also partly related to the number and size of institutions and faculties providing education in the leading areas, as well as by the number and quality of projects submitted by them under Tempus. Moreover, the area distribution does not provide a full picture of curricular changes because a number of projects in various areas had wider impact through the involvement of several universities from a candidate country which offer courses in a given area.

While curricular changes are described in detail in the following sections, it should be mentioned that the projects also provided funds for a number of other activities. These included the training of academic staff and student mobility, the development, adaptation or translation of teaching materials, and the provision of equipment for new or modernised programmes and courses. Training for university teachers organised in the EU and candidate countries covered both teaching contents and methodology. Students undertook study periods or practical placements at EU partner institutions, or attended short intensive courses. Teaching materials and aids produced under Tempus, which would make a list containing thousands of items, ranged from lecture notes to

44 For breakdowns by country, see: Annex 1, Table 5.
45 For Tempus subject areas, see: Annex 2.
46 For area breakdowns by country, see: Annex 1, Table 6.
special educational software, readers and textbooks, as well as books for wider professional circles issued quite often by leading publishing houses in the candidate countries. State-of-the-art equipment was purchased under Tempus to establish numerous computer laboratories in various areas, language laboratories, specialised laboratories in particular for courses in engineering, environmental sciences, medical sciences and natural sciences, as well as distance learning units. Furthermore, outcomes of projects were as a rule disseminated through Tempus-funded conferences, seminars, publications and project websites, as well as through regular meetings of university rectors and faculty deans in the candidate countries.  

1.1 Degree programmes

Reflecting the overall distribution of curriculum development JEPs, the 498 projects which focused on degree programmes were concentrated in engineering and technology (23.2% as the average for the four countries), social sciences (13.3%), management and business (11.5%), medical and environmental sciences (9.1% each), and agricultural sciences (6.3%). The shares taken by the other areas ranged from 5-7% for natural sciences and mathematics, and languages, 2-4% for humanities, teacher education and interdisciplinary areas to around or less than 1% for architecture and arts. In area breakdowns by country, the leading areas were similar in all four countries, though the shares of individual areas varied between the countries. 

The following sections provide a description of curricular changes and related developments in each of the areas supported under Tempus Programme, and end with brief area-specific comments. The closing section of the chapter presents general comments which summarise the major developments across areas and review the impact of Tempus on degree programmes in the four countries.

The areas covered in the review are divided into the following three groups according to the main reason underlying their more or less visible presence in the Tempus priorities:

- areas emerging as a priority in the context of the acquis communautaire for higher education: European Studies, Community languages, seven regulated professions, and law;
- areas attracting support as linked to economic, social and technological changes: social sciences, management and business, engineering and technology, agricultural and food sciences, environmental sciences;
- areas paving their way for development amid key subject-area priorities: natural sciences and mathematics, teacher education, humanities, arts and other areas.

1.1.1 Areas emerging as a priority in the context of the acquis communautaire for higher education

All areas discussed in this section, though as such representing a wide variety, were included in Tempus priorities as directly linked to the EU accession process. European Studies, Community languages and the seven regulated professions are listed specifically in the acquis and the pre-accession strategy documents. Law as an area of study is not explicitly mentioned in the acquis or the pre-accession strategy, but university programmes in law should by definition include Community legislation as the key element underlying the EU accession process.

47 Given the focus of the study, these activities are not described in detail in the following sections.
48 For area breakdowns by country, see: Annex 1, Table 7.
49 The term ‘area’ refers to the field of study at the university as opposed to the area of a Tempus project. Therefore, for example, elements of European law introduced into degree programmes in business and management are discussed in the section on business and management rather than the section on law or European Studies.
European studies

European Studies were introduced in the Tempus priorities as an entirely new area for degree programmes in the candidate countries in the post-1989 period.

### Hungary: new and upgraded units, new programmes and specialisation options

Between 1994 and 2001, Tempus in Hungary supported the establishment of new Centres of European Studies (Pécs University of Arts and Sciences, Debrecen University) and the development of existing centres (Szeged University of Arts and Sciences, Miskolc University). The centres operate as separate, inter-faculty or faculty-based units within the universities.

European Studies as an area of study were introduced either as a new full degree programme or as a specialisation option within existing degree programmes in political sciences, economics, business and management. Full degree programmes developed under Tempus are available as master-level Specialist Further Education Degree Courses (Universities of Arts and Sciences in Pécs and Szeged, Debrecen University) and as a Bachelor’s programme (D. Berzsenyi College, Szombathely). Moreover, a PhD programme in European Studies is offered at the L. Eötvös University of Arts and Sciences in Budapest on the basis of a convention signed with the School of Social Sciences (EHEES) in Paris, France, for joint supervision of Hungarian PhD theses. Specialisation options in European Studies are provided as part of five-year Master's programmes (Pécs University of Arts and Sciences, Debrecen and Miskolc Universities, Budapest University of Economics and State Administration). The Budapest University of Economics also signed an agreement with the Institute of Political Studies in Paris for joint development and management of the French-Hungarian Programme in European Studies.

### Poland: new units, specialisation options and courses, and model syllabus

Tempus funds in Poland were used to set up and develop inter-faculty and faculty-based Centres of European Studies or European Integration in 15 public universities, and the Inter-University Centres for European Documentation and Research (CEDRs) in three non-public schools.

Programmes in European Studies were introduced mainly as a specialisation option or a set of courses within degree programmes in social sciences, economics, business and management. Specialisation options in European Studies were developed for Master’s programmes in public universities (Warsaw and Wrocław Universities, M. Curie-Śkłodowska University) and non-public schools (Higher Education School of Humanities in Pułtusk), and for Bachelor’s programmes in the three non-public schools which set up the CEDRs. In the Warsaw School of Economics, a Tempus project led to the introduction of new courses in the existing European Studies specialisation which are delivered in English and French, and which are now chosen by a growing number of EU students coming under Socrates/Erasmus. Moreover, courses in European Studies designed in a number of Tempus projects are offered as an optional subject to students of various areas by the Centres of European Studies at the above-mentioned universities.

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50 Only new names of Hungarian institutions introduced after their integration in 2000 are used in the study.

51 The Hungarian higher education law does not provide for the establishment of postgraduate Master's programmes. See: Section on the national higher education frameworks in Part I.1.

52 Jagiellonian University, Cracow, Gdańsk University, M. Curie-Śkłodowska University, Lublin, Łódź University, A. Mickiewicz University, Poznań, N. Copernicus University, Toruń, Warsaw University, Wrocław University; Academies of Economics in Cracow, Katowice, Poznań and Wrocław; non-public schools: School of Management, Częstochowa, Silesian School of Management, Katowice, and School of Finance and Banking, Radom.
Finally, at the end of the Tempus Programme, a model syllabus for programmes in European Studies, developed by the European Institute in Łódź, Wrocław University, M. Curie-Skłodowska University of Lublin and their EU partners, was submitted to the Ministry of Education for approval.

### Bulgaria: new unit and new programmes

Tempus investment in institutional structures for European Studies in Bulgaria was slightly more limited in scale. As an outcome of one project, an inter-university co-ordinating unit called the Euro-Centre was established at the St. Kl. Ohridski University of Sofia to provide a Master's programme in European Integration. Lectures in the centre are delivered by professors from Sofia and other Bulgarian universities and non-academic institutions. However, like in the other three countries, European Studies were also introduced in Bulgaria under degree programmes offered in three universities. These comprise a Bachelor's programme at the A. Kanchev University of Rousse, and Master's programmes at the St. Kl. Ohridski University, Sofia, and the St. Cyril and St. Methodius University, Veliko Turnovo.

### Romania: new units and new specialisation options

Romania established under Tempus the Faculty of European Studies at the Babes-Bolyai University of Cluj-Napoca, the Department of Postgraduate European Studies at the West University of Timisoara, and the chairs of European Studies at Bucharest University and the Al.I. Cuza University of Iasi. In addition to these new units, each of the four universities set up specialised and fully equipped libraries with European documentation.

Moreover, Tempus funds in the Faculty of European Studies at the Babes-Bolyai University were used to develop four new specialisation options in degree programmes. These include credit-based specialisation options in ‘European Studies’ and ‘Management of European Institutions’ as part of Bachelor's programmes in political sciences and economics respectively, and ‘Modern European Construction’ and ‘Comparative European Studies’ as part of postgraduate Master's programmes in political sciences. Furthermore, as a spin-off effect of its Tempus projects, the university signed an agreement with Westfälische Wilhelms-Universität in Münster for the awarding of double diplomas in two specialisation options, ‘European Studies’ and ‘Management of European Institutions’.

The other three Romanian universities, the West University of Timisoara, Bucharest University and the Al.I. Cuza University, introduced European Studies as specialisation options within Master's programmes in political and social sciences. Moreover, two specialisation options in European Studies, European integration and European affairs, were established as part of Master's programmes in economics at the Bucharest Academy of Economic Studies.

### General comments

Overall, Tempus introduced European Studies as a permanent element of higher education in the four countries through the establishment of special units and programmes, enhancing its European dimension and thus advancing one of the goals of the acquis and the Bologna Process. While it may be said that such units and programmes could have been set up in a larger number of universities, those referred to above are considered a good basis for the teaching and further development of European Studies as an entirely new area in the four countries. The units set up in the countries represent a wide variety in terms of their status, ranging from inter-university or inter-faculty centres, faculty-based centres to faculties, departments and chairs. However, they have become an integral part of university structures and are thus financed within the framework of regular university activities, and some of them also organise paid training courses in European
issues for various target groups. Similarly, European Studies found a regular place in the degree structures of the four candidate countries as full degree programmes (Hungary and Bulgaria) or as specialisation options in political and social sciences, economics, business or management (Hungary, Poland, Bulgaria and Romania).

In addition to enhancing the European dimension of higher education in the four countries, Tempus projects launched in the final years paved the way towards the co-operation under the Socrates/Erasmus Programme, ending as a rule with relevant agreements between the universities in the four countries and their EU partners.

Community languages

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<th>Hungary:</th>
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<tr>
<td>new specialisation and programme in translation and interpreting, multimedia–based courses and language courses for specific purposes, and updated PhD programmes</td>
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Reflecting the priorities in Hungary, Tempus language projects were concerned with three aspects of language teaching.

Firstly, Tempus led to the introduction of a specialisation option in translation and interpreting (Szeged University of Arts and Sciences) and of a two-year postgraduate Master’s programme in Hungarian–English–French–German translation and interpreting (Budapest University of Technology and Economics). The latter is the only programme in Hungary which ends with an internationally recognised diploma issued by the French Marc Bloch University of Strasbourg.

Secondly, multimedia language centres and courses were established at two universities (Police Officer Training College, Budapest University of Economics and State Administration). Three other universities introduced courses in English and French for specific purposes (Debrecen University, L. Eötvös University of Arts and Sciences, Budapest, Szeged University of Arts and Sciences).

Thirdly, PhD programmes were updated at two universities (German Language and Literature at P. Pázmány Catholic University, Budapest, and French Literature at Szeged University of Arts and Sciences).

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<th>Poland:</th>
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<tr>
<td>new Bachelor’s programmes in languages, specialisation options in translation and interpreting, multimedia–based courses and language courses for specific purposes, and EU modules</td>
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Languages in Poland were covered by various priorities, including the transformation of five-year Master’s programmes into a two-cycle structure, general development of Community language teaching, the introduction of EU modules into language curricula, and translation and interpreting.

Starting with larger-scale changes, three new Bachelor’s programmes were developed in English and French Studies with a European dimension (Teacher Education Schools in Cracow and Kielce). One of the programmes in English Studies may be considered a model example, with a modular and credit-based structure, and courses in English literature and British history including the history of the European Union and European ideas as an introduction to European Studies.

A European dimension was also incorporated in existing Master’s and Bachelor’s programmes in English Studies (A. Mickiewicz University, Poznań, Silesian University, Sosnowiec, Teacher Training Colleges in Poznań and Częstochowa). The module “European Life and Institutions”, introduced in the four institutions covers a variety of topics, ranging from origins and development of the European Union, legal systems in the EU, economic and environmental issues to gender issues and living styles in the EU.
New specialisation options in translation and interpreting for English, French and/or German were established by language faculties of five Polish universities (Jagiellonian University, Cracow, Silesian University, Sosnowiec, A. Mickiewicz University, Poznań, Wrocław and Szczecin Universities). In addition to specialised translation and interpreting courses and the use of information and communication technologies in translation, the specialisation programmes in two of these universities comprise new courses in European integration, elements of EC law and European economic relations. Moreover, Tempus contributed to the establishment of translation and interpreting facilities, these including a conference interpreting centre (A. Mickiewicz University), interpreting suites (Silesian University) and language laboratories in several universities.

Finally, curricula for both language and non-language students were modernised through the introduction of new multimedia-based courses or the updating of courses in languages for specific purposes. These include in particular courses of English and German for Business, Intercultural Business and Management (Jagiellonian University, Szczecin University, Academy of Economics in Cracow) and English for Medical Purposes (Medical Academies of Katowice, Łódź and Warsaw). As another development in the area of languages, the restructuring of curricula for German Studies at Szczecin University was accompanied by the introduction of the ECTS, with credits used both for local students and international student exchange.

### Bulgaria:

**new framework curriculum, new and updated multimedia-based courses and language courses for general and specific purposes, and new courses in translation and interpreting**

Language projects in Bulgaria were funded under the priorities focusing on the improvement of language teaching for non-language students, and on translation and interpreting.

As a step towards overall improvement of language teaching, a joint framework curriculum for the teaching of five Community languages, English, French, German, Italian and Spanish, as well as Russian was developed under Tempus on the basis of the latest international guidelines and introduced in six Bulgarian universities. Moreover, credits were allocated to courses in the framework curriculum in accordance with the principles of the European Credit Transfer System.

Furthermore, Bulgaria invested substantial Tempus funds in language teaching for non-language students. New or updated courses in English, French and German for general and specific purposes were introduced for students of Bachelor’s and Master’s programmes in humanities, social sciences, economics, business and management, engineering, architecture, agricultural sciences and medical sciences at 13 Bulgarian universities. At the same time, the teaching methodology was modernised to include the use of multimedia software and the Internet in addition to traditional language textbooks. For example, a network of Bulgarian universities introduced multimedia-based courses in English for Specific Purposes, including ESP for General Science and Engineering, Electronic and Electrical Engineering, Economics and Management, Business and Business Communication, Tourism and Computing.

Finally, Tempus supported the development of competencies and skills in translation and interpreting at three Bulgarian universities. The St. Kl. Ohridski University of Sofia established the School of Translation and Interpreting, and the language faculties of the St. Cyril and St. Methodius University of Veliko Turnovo and the New Bulgarian University of Sofia introduced translation and interpreting courses for Master’s programme students. Moreover, all three universities were provided with equipment for new specialist training.

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53 Bourgas Free University, St. Kl. Ohridski University, Sofia, K. Preslavski University, Shoumen, P. Hilendarski University, Plovdiv, St Cyril and St. Methodius University, Veliko Turnovo, and Varna University of Economics.

54 A. Kanchev University, Rousse, St. Kl. Ohridski University, Sofia, Varna University of Economics, D. Tsenov Academy of Economics, Svistshtov, Technical University of Gabrovo, Technical University of Sofia and its branch in Plovdiv, Technical University of Varna, University of Architecture, Civil Engineering and Geodesy, Sofia, Varna University of Medicine, Higher Institute of Agriculture and Higher Institute of Food and Flavour Industries, Plovdiv.
Romania:
new specialisation option and courses in translation and interpreting

Reflecting one specific priority included in the final Tempus years, language projects in Romania contributed exclusively to the development of translation and interpreting skills. A new specialisation in translation was developed for language students of Master’s programmes, and new or restructured courses in translation for Bachelor’s and Master’s students were introduced in the language faculties of four universities. The new and restructured courses cover specialist terminology and translation techniques, information and communication technologies in translation as well as cultural studies and European institutions. Moreover, Bucharest University established a special section of Interpreters and Translators in its language faculty.

General comments

The impact of language projects varied generally between the four countries, depending on the scope of the national priorities and the number of universities involved in the projects.

As the only common element, Tempus set up what may be called “centres of expertise” in translation and interpreting at several universities in all four countries to facilitate the transposition of the Community acquis into national law as part of the accession process. In the short term, the effectiveness of this investment may, however, have been limited by the fact that no arrangements were made in the projects to ensure that the expertise thus developed would be actually used by the national authorities in the translation and interpreting of the acquis. The impact of Tempus may therefore be more visible in the longer term when students following new or upgraded programmes in translation and interpreting offer their skills on the market.

Whereas the impact of Tempus in Romania was limited by its priorities to this indirect or potential contribution to the preparations for the accession, Bulgaria, Hungary and Poland also improved language teaching for language and non-language students as part of their higher education reform. In the three countries, the modernisation of language teaching included in particular the introduction of new multimedia-based methodology and language courses for specific purposes. However, while Bulgaria achieved widespread impact through the involvement of faculties at almost half of its universities, a comparable number of projects Hungary and Poland improved language teaching only at individual or several universities.

Moreover, it is worth highlighting several country-specific developments in Bulgaria, Hungary and Poland, even if these may be of little significance to the overall reform of language teaching in view of the small number of universities involved in the projects. The framework curriculum for the teaching of Community languages in Bulgaria is a good example of a systematic approach to more comprehensive review and modernisation of language teaching. This was rather uncommon in Tempus as projects focused generally on the development of new programmes or the upgrading of selected courses within existing programmes. Outcomes in Hungary and Poland are interesting in so far as they illustrate broader trends in degree programmes supported by Tempus across areas. The postgraduate Master’s programme in Hungary, like those in European Studies, extended the current degree structure towards the model established in the Bologna Process. In turn, Tempus projects in Poland strengthened the three-cycle degree structure promoted in the national reform strategy, now also in line with the Bologna Process, and enhanced the European dimension of language programmes through the introduction of various European issues.

Finally, it should be added that further development of language teaching was envisaged in agreements for co-operation under Socrates/Erasmus concluded as a result of recent Tempus projects between the universities in the four candidate countries and the EU Member States.

55 Bucharest University, Babes-Bolyai University, Cluj-Napoca, Al.I. Cuza University, Iasi, and West University of Timisoara.
Seven regulated professions

The professions regulated by sectoral EC directives include doctor, pharmacist, dental practitioner, midwife, general care nurse, veterinary surgeon and architect.

The harmonisation of curricula for the regulated medical professions appeared in Hungary’s and Poland’s priorities for projects launched in the last three years of their participation in the Tempus Programme, i.e. between 1997/98 and 1999/2000, and in Bulgaria’s and Romania’s priorities for the two final years. However, medical sciences and health care were supported under Tempus from 1995/96 as a priority subject area linked to the post-1989 changes. As a result, projects in medical sciences and health care, including the regulated professions, represented a fairly wide variety in terms of scope, aspects and level of programmes covered.

In turn, architecture emerged as a specific priority area only in the two final Tempus years under the harmonisation of curricula for the regulated professions, and no project was funded under this priority in any of the four candidate countries. As a result, the only Tempus projects in faculties or departments of architecture covered urban and regional planning as an area introduced into the priorities earlier on in connection with the post-1989 changes.

Medicine, pharmacy, dentistry, nursing and midwifery

In view of the fact that a number of projects led to cross-curricular changes, covering several branches of medical sciences and/or health care management, Tempus outcomes are presented jointly, with reference, where possible, to the areas covered by the EC Directives.

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<th>Hungary:</th>
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<td>improvement of clinical skills training and upgrading of existing programmes in all universities, and institutional framework for further development of health sciences</td>
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As a major change based on a review of medical curricula in Hungary, clinical skills training and standardised forms of clinical competence assessment were introduced in all four universities offering programmes in medicine (Debrecen University, Pécs and Szeged Universities of Arts and Sciences, Semmelweis University of Budapest). This was combined with the establishment of Clinical Training Centres in the four universities. Moreover, to define the objectives of clinical skills training in line with EC standards, the universities and their EU partners carried out a survey on clinical skills among European medical schools in 20 countries (the so-called EuroSkills Questionnaire), and produced the European Skills Thesaurus and a practical handbook ‘Medical Skills’. The European Thesaurus and the skills handbook are now also used in education and training programmes of EU institutions and institutions in the candidate countries. Moreover, at all four of the above-mentioned universities, curricula for master-level programmes in health sciences were restructured to place greater emphasis on prevention and practical skills; these changes were linked with the introduction of an ECTS-based credit system.

In addition, Hungarian universities established new and/or upgraded existing courses in specific areas. For example, the programmes in pharmacy at the four universities were reviewed to extend the scope of courses in clinical pharmacology and introduce new courses in industry-related medical knowledge. The curricula for dentistry programmes in the four universities were upgraded through the introduction of new courses in infection control and four-handed dentistry. As another common development, the four universities reviewed and developed their courses in histopathology as well as in interdisciplinary areas, e.g. medical technology and biotechnology. Common developments were combined with university-specific changes. These include, for example, restructured neuroscience programmes (Szeged University of Arts and Sciences), a new programme in medical biology based on an internationally recognised model and available in English (Debrecen University), extended courses in biophysics (Semmelweis University of Budapest), and a new PhD programme in oncology (Debrecen and Budapest).
Furthermore, the Council for Health Specialist and Continuing Education was set up under Tempus as a forum for exchange of experience with EU partners and a body contributing to new legislation of the Ministry of Health. Immediately following its establishment, the Council was indeed instrumental in the adoption of several new regulations of the Ministry of Health concerning, for example, requirements for specialist degrees in medical professions.

**Poland:**  
*improvement of clinical skills training, new two-cycle programme and other miscellaneous changes*

Aiming to meet the EC requirements in medicine, Polish universities also focused on the development of clinical skills training. Two medical academies (Medical Academy and Military Medical Academy of Łódź) introduced Practical Clinical Training (PCT) modules, which are fully compatible with those in the EU partner institutions, and one of them set up a special PCT unit. As a result of the restructuring of medical curricula in another school (Collegium Medicum, Jagiellonian University), the number of teaching hours devoted to basic sciences was reduced, more emphasis was placed on clinical problems and cases, and a new course for laboratory clinical skills training was introduced. The new course is already delivered in English. Moreover, the school compiled a list of clinical skills based on the above-mentioned Euroskills Questionnaire, and introduced standardised and internationally recognised forms of skills assessment.

Under other Tempus projects, larger- or smaller-scale changes were introduced into curricula for nursing, public health, family medicine and dentistry. A new two-cycle programme was established in nursing and public health at the Collegium Medicum of the Jagiellonian University. A number of courses within the programme may be delivered in English. The curricula for nursing, public health and family medicine in three other schools (Medical Academies of Katowice, Poznań and Wrocław) were upgraded through the introduction of new courses, e.g. management of family medicine practices, health care management or communication skills. The updating of the curriculum for dentistry in one medical school (Medical Academy of Warsaw) involved primarily the introduction of implant technology courses. Moreover, medical schools broadened the scope of their programmes through their involvement in various initiatives covering interdisciplinary areas. These include, for example, the establishment of the Centre of Medical Physics (N. Copernicus University of Toruń and Medical Academy of Bydgoszcz) and the Faculty of Biotechnology (Gdańsk University and Medical Academy of Gdańsk).

**Bulgaria:**  
*restructuring of existing programmes and improvement of clinical skills training, and new two-cycle programmes in health care management*

Major restructuring of curricula for medicine in Bulgaria was undertaken by its two biggest medical schools (Medical Universities of Sofia and Varna). Both universities established a new modular curriculum, upgraded the contents of courses and, like their counterparts in Hungary and Poland, reduced the number of theoretical lectures and classes in favour of practical skills training. Moreover, the university in Sofia changed substantially its assessment and examination systems, and developed an ECTS-compatible credit system for the first two stages of medical education. Overall, the curricula in the two medical universities were harmonised with those at the EU partner institutions in so far as it was possible within the limits of the Bulgarian law.

Smaller-scale changes comprised the upgrading of courses in surgery (Higher Medical Institute of Plovdiv), pharmacology, toxicology and physiology (Medical Universities of Sofia and Varna), and development of new courses in molecular biology and pathology (Sofia and Plovdiv).

Furthermore, Tempus in Bulgaria supported the development of teaching in health care management and paramedical areas, which extends beyond the scope of the relevant EC Directives, but is important for the overall accession context and the reform of the health care and health insurance system in Bulgaria. The
Medical University of Varna set up a new Faculty of Health Care Management, which became the member of the European Health Care Management Association, and introduced new Bachelor’s and Master’s programmes in Health Care Management. Finally, curricula for three paramedical areas, including primary health care, operational block, and intensive medical care, anaesthesiology and reanimation, were developed for five Bulgarian universities (Sofia, Pleven, Plovdiv, Stara Zagora and Varna).

**Romania:**

new profession and new programmes in nursing, and other miscellaneous changes

One of the major changes in Romania is the introduction of three-year programmes in specific medical areas, combined in two cases with the establishment of new colleges. A new three-year college-type programme in community nursing was introduced at two Romanian universities (L. Blaga University of Sibiu and Transilvania University of Brasov). Following the accreditation of the programme by the Ministry of Education, ‘Nurse with a higher education diploma’ was included in the list of officially recognised occupational categories. The University of Medicine and Pharmacy in Bucharest established the College of Audiology and Auditory Prosthesis Techniques and introduced two corresponding three-year programmes for medical audiology assistants and senior auditory prosthesis technicians. As a joint venture, the university and a medical institute in Bucharest set up the College of Social Assistance, Geriatrics and Gerontology which provides three-year programmes in these areas.

The scale of changes in existing programmes varied from one university to another. The University of Medicine and Pharmacy in Bucharest redesigned its curricula for surgery, cardiology, gastroenterology and endocrinology in accordance with the structure of programmes in the EU partner institutions, and established an ECTS-based internal credit system. Other universities introduced courses in health care management (Universities of Medicine in Cluj-Napoca and Iasi, Transilvania University of Brasov, Ovidius University of Constanta, University of Sibiu) and biomedical engineering and medical physics (Cluj-Napoca). The teaching of medical sciences at the Universities of Medicine and Pharmacy in Craiova and Targu-Mures was modernised through the introduction of methods based on information technology.

**General comments**

Most of the projects in medical sciences were funded in the earlier Tempus years under various national priorities related to systemic transformations in the post-1989 period, and hence the landscape left by Tempus varied from one country to another.

Generally, Tempus seems to have achieved more in terms of reforming higher education within the national frameworks than in terms of transposing the EC Directives into higher education in the EU accession context. The contribution of Tempus to the higher education reform may be seen mainly in two areas. Firstly, the Programme supported the development of the new degree structures in three countries by establishing two-cycle programmes in Poland and Bulgaria and college-type programmes in Romania. These were, however, introduced in a limited number of universities. Secondly, new or updated programmes and courses in health care management in all four countries may be considered a good response to the demand which was growing on the labour market in the context of the reform of the health care system.

As regards the implementation of the EC Directives, it is clear that much remained to be done at the end of Tempus, though the situation varied between the countries. Hungary made considerable progress towards the harmonisation of curricula through the restructuring of programmes in all medical schools and special institutional arrangements. Medical curricula in Bulgaria were restructured substantially at some universities, single universities in Poland introduced small-scale changes, and Romania focused on the national reform issues rather than on the EC requirements.
It is also clear that the harmonisation efforts focused on curricula for doctors and that, as a result, all Hungarian medical schools and at least some medical schools in Bulgaria and Poland restructured substantially their clinical skills training in line with the EC Directives. In this context, it is interesting to note that, according to these schools, the restructured curricula are ‘sufficiently comparable’ with those at EU partner institutions to have reciprocal student exchange, and that greater compatibility could not be achieved in view of the variety of approaches in the European Union. And indeed, student exchange and other forms of co-operation were envisaged in agreements signed by these schools and their EU partners for co-operation under the Socrates/Erasmus Programme. Even though the development of clinical skills training is likely to affect programmes in other medical areas, the restructuring of curricula for other regulated professions under Tempus was much more limited in scale.

The generally limited support for the implementation of the EC Directives is to some extent understandable in view of the fact that the issue appeared in Tempus only in the final years when the list of priorities was rather long and the national budgets for projects were already rather modest. As a result, only few projects could be funded. However, it is also true that few applications were actually submitted in the two final Tempus years. It seems therefore that the national authorities, especially in Poland, Bulgaria and Romania, could have undertaken more consistent or determined efforts to encourage more medical faculties to review and harmonise their curricula in the context of the EC directives.

Veterinary science

**Hungary:**

full compliance with the EC Directives

The only institution which provides veterinary education in Hungary is the Faculty of Veterinary Science, Budapest, of I. Szent University. Aiming to meet the requirements of the EC Directives under its first Tempus project, the faculty in Budapest and its EU partners reviewed thoroughly and restructured accordingly the curriculum for the master-level programme. The restructuring of the programme comprised the introduction of credits, development of new courses in herd health, veterinary ethics and animal welfare, the updating of existing courses in reproduction, pharmacology, animal nutrition, internal medicine, microbiology, and laboratory animal science, and the improvement of clinical training. Moreover, veterinary courses were introduced in German and English to attract international students. The programme in the faculty was developed further in other Tempus projects which introduced multimedia-based courses in information technology. As an additional outcome of co-operation with EU partners, the faculty established a PhD programme in 14 fields of veterinary science. Following the changes outlined above, the Faculty of Veterinary Science in Budapest was accredited as an ‘EU-recognised veterinary training institute’ by the European Association of Establishments for Veterinary Education (EAEVE).

**Poland:**

full compliance with the EC Directives, compatibility, comparability ...

Of all four faculties offering master-level programmes in veterinary medicine in Poland, three were involved in Tempus projects to harmonise their curricula in accordance with the relevant EC Directives. The Faculty of Veterinary Medicine at the Agricultural Academy in Warsaw introduced new courses in veterinary epidemiology and preventive medicine, upgraded the existing courses in statistics and information technology, and modernised its overall management structure. Moreover, as an additional outcome of the Tempus project in the faculty, veterinary courses may now be delivered in English to international students. Following all these Tempus-supported transformations, the Faculty of Veterinary Medicine in Warsaw was

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56 Accreditation granted by the EAEVE on behalf of the Advisory Committee on Veterinary Training of the European Commission is an official confirmation that the curriculum in an accredited training institution complies with the EC Directive for the training of veterinary surgeons.
accredited by the EAEVE as an ‘EU-recognised veterinary training institute’ offering a master-level programme in full compliance with the EC Directives.

The restructuring of the curriculum in the Faculty of Veterinary Medicine at the Warmia and Mazury University of Olsztyn was undertaken in accordance with the conclusions of the EAEVE team from an earlier site-visit, and involved mainly two kinds of changes to ensure the compliance with the EC Directives. Firstly, courses in molecular biology, veterinary surgery, animal reproduction and food hygiene were upgraded through the introduction of new topics for lectures and classes, new teaching aids and textbooks. Secondly, clinical training was strengthened and more emphasis was placed on practical skills, with lectures reduced to cover only the necessary theoretical knowledge. Moreover, as a result of special language training for teaching staff, all courses may now be offered in English and some of them also in German and Spanish.

The Faculty of Veterinary Medicine at the Agricultural Academy in Lublin tackled the harmonisation task on the basis of an earlier Tempus-funded analysis of its curriculum and those at EU universities in the context of the EC Directives. Accordingly, it introduced new courses in veterinary dermatology, molecular biology and zoonoses, and restructured existing courses in biochemistry and preventive veterinary medicine. Furthermore, like in Budapest and Olsztyn, a more practical approach to teaching was adopted, with greater emphasis placed on clinical skills. The curriculum in Lublin is comparable to those in the EU partner universities.

Outcomes of the Tempus projects involving the three faculties were disseminated to the fourth faculty providing veterinary education in Poland.

<table>
<thead>
<tr>
<th>Bulgaria: limited changes</th>
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<tbody>
<tr>
<td>The only Tempus project in veterinary science in Bulgaria focused on the restructuring of clinical courses for the Faculty of Veterinary Medicine at the Trakia University of Stara Zagora.</td>
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<th>Romania: limited changes</th>
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<tbody>
<tr>
<td>The only veterinary project in Romania involved the Faculties of Veterinary Medicine from four universities. The faculties set up new or upgraded existing courses in animal epidemiology, and introduced new courses in veterinary sanitary legislation, including EC regulations.</td>
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<tr>
<th>General comments</th>
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<tr>
<td>Hungary and Poland have successfully used Tempus funds to ensure the compliance of their curricula with the EC Directives, though further encouragement and support was still needed at the end of Tempus for one faculty in Poland. The faculties of veterinary medicine in both countries and their EU partners adopted a systematic and broad approach to harmonisation, starting with a comprehensive review of existing curricula, and introducing new courses or restructuring all existing courses where changes were necessary. It is worth noting in this context that the Polish faculties of veterinary medicine were specially encouraged by the national authorities to submit projects under the priority for curricular harmonisation. The outcomes of their Tempus co-operation confirm that, in some cases of special interest at national level, more efforts should be made than usually to generate the ‘supply’ of a sufficient number of good-quality projects. In Bulgaria and Romania, Tempus did not manage to provide any substantial support for the harmonisation of curricula, which may be at least partly explained by the same reasons as in the case of the regulated medical professions discussed in the previous section.</td>
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57 University of Agricultural Sciences and Veterinary Medicine, Bucharest, Universities of Agricultural Sciences, Cluj-Napoca and Timisoara, and University of Agronomy and Veterinary Medicine, Iasi.
Architecture

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<tr>
<th>Country</th>
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<tr>
<td>Hungary:</td>
<td>no support in the context of the EC Directives</td>
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Under a single Tempus project funded in Hungary, a course in urban and regional planning for BSc students was restructured at Pécs University of Arts and Sciences.

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<th>Country</th>
<th>Description</th>
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<tr>
<td>Poland:</td>
<td>no support in the context of the EC Directives, new Bachelor’s programmes</td>
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</table>

Faculties of architecture in Poland introduced new Bachelor’s programmes in Architecture for Construction (Silesian Technical University, Gliwice) and in Architecture and Urban Planning (Warsaw University of Technology), and a new Master’s specialisation in facility management and quality assurance (Silesian Technical University). The introduction of the new programme in Architecture and Urban Planning at Warsaw University of Technology supported broader changes in the organisation of studies, with five-year Master’s programmes being transformed into a two-cycle structure (BSc followed by MSc programmes). Moreover, a number of compulsory and optional courses were also developed in English for international student exchange.

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<th>Country</th>
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<tr>
<td>Bulgaria:</td>
<td>no support in the context of the EC Directives, new programmes for a two-cycle structure</td>
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In Bulgaria, the University of Architecture, Civil Engineering and Geodesy in Sofia introduced a new modular Master’s programme in Urban Planning and Housing, and a new modular and credit-based Bachelor’s programme in Urban and Regional Planning. Additionally, a list of courses to be delivered in English to international students was prepared in Sofia.

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<th>Country</th>
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<tr>
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Romania did not fund any curriculum development project in architecture or related areas between 1994 and 2001.

General comments

None of the four countries used Tempus funds for an overhaul and, where necessary, overall restructuring of their curricula in architecture in the context of the EC Directives\(^5\). Clearly, again like in the case of the regulated medical professions, special measures should have been undertaken in Tempus to generate the ‘supply’ of accession-oriented projects.

However, as regards the higher education reform, new programmes in Bulgaria and Poland are another contribution to the establishment of structures based on two main cycles which Tempus provided in accordance with the new law in Bulgaria and Poland’s reform strategy, and now also in line with the Bologna Process.

\(^5\) However, it should be added that, according to the EU partners involved in a review under a Tempus CME project, the curriculum for architecture at the University of Architecture, Civil Engineering and Geodesy in Sofia complies with the requirements of the relevant EC directives.
Tempus projects in law, generally rather limited in number, focused on European law as a specific area of law indicated in the priorities of the four countries.

### Hungary:
**EC law in PhD programmes across the country and Master’s programmes of several universities**

In Hungary, Tempus supported three types of changes in degree programmes in this area. Firstly, **new PhD programmes** with a strong EC law component were established in *four of all five* universities providing programmes in law (L. Eötvös University of Arts and Sciences, Budapest, Pécs and Szeged Universities of Arts and Sciences, Miskolc University).

Secondly, curricula for **five-year Master’s programmes** and **PhD programmes**, with common-core courses covering the European institutions, European Court of Justice, EU internal market and Community policies, in the *English* language were developed at L. Eötvös University.

Thirdly, apart from the restructuring of the five-year Master’s programme in European Law, a **new postgraduate Master's programme** in European law was introduced at Pécs University of Arts and Sciences, this to be offered temporarily as a further education programme. Following a pilot phase, the new courses in European law at the university may now be delivered in *English, French or German* by Hungarian teachers. Moreover, textbooks and other materials produced or purchased in a Tempus project were approved as compulsory, recommended or complementary items in the reading lists of all Hungarian faculties of law, including those at the four above-mentioned universities and at the P. Pázmány Catholic University of Budapest.

### Poland:
**EC law in degree programmes of several universities**

The EC law priority in Poland met with a more generous response at the Faculty of Law at Łódź University which set up the **Chair of European Law** and **modernised courses** under its Master’s specialisation in the EC and international law and PhD programme in EC law. Moreover, the restructured courses, including European social law, EU legal order and institutions, fundamentals of European integration and EC business law, may now be delivered in *English and French* by Polish teachers. **New courses** as part of Master’s specialisation options in the EC law were also introduced in the faculties of law of three other universities (Jagiellonian University, Cracow, and Catholic University of Lublin, Warsaw University).

### Bulgaria:
**selected aspects of EC law in degree programmes of several universities**

New courses in European law, focusing on the **protection of human rights**, were introduced at four universities (St. Kl. Ohridski, Sofia, Bourgas Free University, Bourgas, St. Cyril and St. Methodius University, Veliko Turnovo, St. N. Rilski South-West University, Blagoevgrad).

### Romania:
**no Tempus support**

No curriculum development project in law was funded in Romania between 1994 and 2001.

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59 As explained earlier on, the Hungarian higher education law does not provide for postgraduate Master’s programmes. See: Section on the national higher education frameworks in Part I.1.
General comments

The contribution of Tempus in this area varied between the countries, with Hungary offering now a clearly wider range of courses in EC law, new or upgraded courses available in some universities in Poland, and limited or no developments in Bulgaria and Romania.

It is also worth noting that Hungary established another PhD programme as one of the key priorities in the higher education reform. Moreover, like in European Studies and Community languages, it introduced another postgraduate Master’s programme which, though extending beyond its current degree structure, may be used for its future two-cycle programmes in line with the Bologna Process.

Overall, even if full degree programmes in law did not benefit equally from Tempus support across the four countries, elements of European law were introduced into degree programmes or courses in European Studies and various other areas by universities in each of the four countries. Furthermore, European law was taken up again in Tempus institution building projects.  

1.1.2 Areas attracting support as linked to social, economic and technological changes

The areas discussed in this section include social sciences, management and business, engineering and technology, agricultural and food sciences, and environmental sciences. They attracted substantial support in Tempus mainly for two reasons. Firstly, the modernisation of university programmes in the post-1989 period was required primarily in the areas covered by economic, social and technological changes. Secondly, these areas remained in the focus of the Phare Programme for many years, originally in connection with the economic restructuring and subsequently in the pre-accession context, and were thus necessarily integrated into Tempus as a programme funded within the Phare framework. The close link between the Phare orientation and Tempus priorities was in fact a major element taken into account by the Phare authorities in discussions about annual Tempus budgets. As a result, these core areas reappeared consistently in Tempus subject area priorities for the restructuring of existing degree programmes. Generally identical or similar in all four countries, they were defined either broadly, e.g. sociology, economics, agriculture, management or engineering, or as specific narrower sub-areas, e.g. social work, public finance, information technology, agricultural economics, energy efficient technologies, etc. In addition, however, the core areas were covered by the structural priorities for the introduction of new degree programmes, which were open to all or a wide variety of areas.

Social sciences

Hungary:
new PhD programme in sociology, new postgraduate Master’s programmes in public administration, and new and updated courses in other areas

The subject area priorities in Hungary focused on the development of what was defined by the national authorities as ‘new professional profiles’ in social work, public administration and economics. In addition, universities and colleges were given the possibility to apply for Tempus funds under the structural priority for the development of PhD programmes. The projects funded in Hungary covered sociology and social work, public administration, economics, and library science, communication and journalism.

Starting with sociology, a new PhD programme focusing on social stratification and household and family sociology was introduced at the Budapest University of Economics and State Administration, with courses to be delivered in English. New courses with a European perspective were added to those offered under the existing five-year Masters’ programmes in Sociology at the L. Eötvös University of Arts and Sciences in Budapest. The updating of Bachelor’s programmes in Social Work at the J. Vitéz Teacher Training College,

60 For European Studies, see: Section 1.1.1. in Part II. Elements of European law introduced into curricula for various areas of study are referred to in the relevant sections of Part II. Institution building is described in Part III.
Esztergom, and the I. Széchenyi College, Győr, was combined with the introduction of a credit system and the establishment of special departments for social worker training.

As a major Tempus achievement in the area of public administration, two Hungarian universities introduced new postgraduate Master’s programmes. These are offered to different target groups and under different arrangements because, as mentioned earlier on, the postgraduate Master is not recognised as a degree programme in the Hungarian law. The European Master of Public Administration (EMPA) programme at the Budapest University of Economics and State Administration is run for Hungarian and international students as part of their regular studies. Focusing on comparative analysis of public administration issues in the EU and non-EU countries, the EMPA programme is delivered in English as a joint initiative of the network involving seven European universities. In turn, the Master of Public Administration (MPA) programme at Pécs University of Arts and Sciences, which also covers EU issues, was developed for practitioners with a higher education diploma as part of their further education. Moreover, Tempus supported the introduction of new courses, covering inter alia EC law, institutions and policies, in public administration programmes at the Budapest University of Economics and State Administration.

Existing PhD and Master’s programmes in Economics were modernised through the introduction of new courses. The new courses cover, for example, European regional policy (Pécs University of Arts and Sciences), public policy and management (Pécs University, Budapest University of Economics and State Administration) or insurance mathematics at four universities. In turn, the Master of Public Administration (MPA) programme at Pécs University of Arts and Sciences, which also covers EU issues, was developed for practitioners with a higher education diploma as part of their further education. Moreover, Tempus supported the introduction of new courses, covering inter alia EC law, institutions and policies, in public administration programmes at the Budapest University of Economics and State Administration.

Finally, information technology courses were upgraded for Bachelor’s and Master’s programmes in library and information science, information and communication studies, and journalism.

### Poland:

**new Bachelor’s programme, two-cycle programme and specialisation option, and new and updated courses in various areas of social sciences**

The subject area priorities in Poland covered various aspects of economics, social psychology, sociology of democracy, social protection and unemployment, public administration and local government, communication and public relations. Moreover, universities offering programmes in social sciences could apply for Tempus funds in order to transform five-year Master’s programmes into a two-cycle structure. The projects actually funded in Tempus, very limited in number, covered selected aspects of sociology, economics, and library and information science.

As a result of Tempus projects in sociology, three universities offer new or upgraded courses under their Master’s programmes. These include courses in social welfare and social work (Łódź University), social pathology, family issues and information technology (Warsaw University), and sociology of religion (Jagiellonian University, Cracow). The curricular changes in Cracow, while rather narrow in scale, were combined with the establishment of the European Credit Transfer System at the faculty, and co-operation ended with an agreement concluded with the University of Exeter, United Kingdom, for the awarding of a double diploma.

As an example of larger-scale changes at the interface of economics, business and management, a new Training Centre for Social Security Staff, a new Bachelor’s programme in Social Policy and a new specialisation option in social security, business and health insurance were established at the Academy of Economics in Katowice.

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61 Budapest University of Economics, Catholic University of Leuven (Belgium), German Higher Education School of Management, Speyer (Germany), Institute of Political Studies, Paris (France), University of Tartu (Estonia), University of Liverpool (United Kingdom), and University of Vaasa (Finland).

62 Budapest University of Economics and State Administration, L. Eötvös University, Budapest, Debrecen University, and Szeged University of Arts and Sciences.

63 Nyíregyháza College, Nyíregyháza, L. Eötvös University of Arts and Sciences, Budapest, and Budapest University of Economics and State Administration.
The single Polish project in library and information science resulted in the transformation of the five-year Master's programme at Warsaw University into a two-cycle programme. This was combined with the development of new or upgrading of existing courses in information technology, automated information library and information management systems, and EC library law, and the introduction of a large number of courses in English for Socrates/Erasmus students. Moreover, the European Credit Transfer System, used also as an internal credit system, and procedures for self-evaluation were established as a further step towards flexibility, transparency and quality of curricula. The new BA and MA programmes were assessed by the EU partners as fully compatible with 'EC standards', encouraged them to review their curricula, and were used as a model for the restructuring of programmes at three other Polish universities (Jagiellonian University, Cracow, N. Copernicus University, Toruń, Wrocław University).

Finally, following a single Tempus project in media studies, Łódź University now offers a Master's programme with a European dimension, comprising a set of courses which cover EU as an information society, media and cinema in Europe, and gender and European media.

### Bulgaria:

- new Bachelor's programme in social work, new Master's programme and speciality options in public administration, restructured existing curricula in social sciences

The subject area priorities in Bulgaria covered various aspects of economics, social psychology, social and health insurance, political science and public administration. Moreover, like in Poland, universities could apply for Tempus funds under the development of two-cycle programmes, a structural priority open to all fields of study. The projects funded in Tempus focused mainly on social work and public administration.

A new modular Bachelor's programme in Social Work was established at the Bourgas Free University and the St. Cyril and St. Methodius University of Veliko Turnovo. As an example of smaller-scale changes, the St. Kl. Ohridski University of Sofia and the P. Hilendarski University of Plovdiv extended their Master's programmes in Sociology and Human Resources, respectively, to cover new courses in labour market and employment system regulations.

A new modular Master's programme in Public Administration, covering public administration, policy and finance, local government, EU policies and practical skills, was launched at the St. Kl. Ohridski University of Sofia and the P. Hilendarski University of Plovdiv. The programme is addressed to both students holding the Bachelor degree and staff from public administration and local governments. As a spin-off effect, the university in Sofia set up a new Department of Public Administration. Public administration issues were also introduced in the form of new speciality options, including e.g. 'Public Finance', 'Management of Territorial Units', at the Technical University of Gabrovo.

As a rather unusual development in Tempus curriculum development projects, five Bulgarian universities restructured their degree programmes in public administration, psychology and cognitive science following a self-evaluation exercise. The pilot self-evaluation exercise comprised the design and testing of external examination procedures and student evaluation questionnaires, self-evaluation reports and peer reviews.

### Romania:

- substantial investment in new Master's and PhD programmes in sociology, political science and public administration, and in new university units

The priorities in Romania focused on the development of previously non-existent college-type and postgraduate Master's programmes in various social sciences, including sociology, social welfare, unemployment and social assistance, political science, public administration, and mass media. The projects funded in Romania covered mainly sociology and social work, political science and public administration.

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64 D.A. Tsenov Academy of Economics, Svishtov, N. Rilski South-West University, Blagoevgrad, New Bulgarian University, Sofia, P. Hilendarski University, Plovdiv, and St. Cyril and St. Methodius University, Veliko Turnovo.
Starting with sociology and social work, two new Master's programmes, 'Social Work Training' and 'Social Work and Health Promotion', were introduced at the South-West University of Timisoara and the University of Transilvania in Brasov respectively, and the latter also set up a new Department of Social Work. The courses in Brasov are delivered in Romanian and English, and students submit their papers for assessment in either of the two languages.

Exceptionally large-scale changes in sociology and social work programmes were undertaken by the Faculty of Sociology and Social Work at Bucharest University. Firstly, at the bachelor-level, new courses in child welfare, anti-poverty policies and welfare economics were developed, and a comparative European perspective was introduced into existing courses in welfare legislation, social policy, social problems, social services, ethnic minorities and equal opportunities. Secondly, the faculty launched a new Master's programme with a European dimension, focusing on social policy and management. It comprises courses in European social policy, social policy development, European Community justice administration, and management of social work services and health services. Thirdly, a new programme in sociology, with special regard to social policy, was established at the PhD level. And fourthly, a new College of Community Social Workers was set up to provide three specialisation options for community social workers, probation counsellors and social educators. As a result of all these developments, the Faculty of Sociology and Social Work was accredited by experts of the European Commission as a European Study Centre for Social Policy and Employment.

Like those in sociology and social work, Romanian projects in public administration and political sciences led to the introduction of new MSc and PhD programmes and the establishment of new units. New Master's programmes in Political Science and/or Public Administration are offered at Bucharest University, the Babes-Bolyai University of Cluj-Napoca, the A.I. Cuza University of Iasi, the West University of Timisoara, and the National School of Political Studies and Public Administration in Bucharest. The specialisation options in the Master's programmes cover, for example, public policy and management of non-profit organisations (Bucharest University), governance and institutional development (National School of Political Studies and Public Administration, Bucharest) or management and community development (A.I. Cuza University, Iasi). PhD programmes in Political Science were launched at Bucharest University and the Babes-Bolyai University of Cluj-Napoca. In addition, the two universities set up new departments to provide MSc and PhD programmes developed in co-operation with their EU partners.

Under a single Tempus project in economics, widespread impact was achieved through the development of courses with a European dimension, covering inter alia European transition and integration, European monetary integration and EU agricultural policies and markets, for 12 Romanian universities65. In addition, the Bucharest Academy of Economics introduced two new specialisation options in Economics, 'Transition Economy' and 'European Transactions'.

Finally, as a result of a project in mass media, a new Bachelor's programme in Mass Media and a multimedia learning centre were established at the Technical University of Timisoara, and existing journalism courses were updated at the West University of Timisoara and the L. Blaga University of Sibiu.

General comments

Overall, as compared to the areas covered by the common framework of the Community acquis, curricular changes in social sciences were more country-specific. However, there are some major and minor common features which, together with the country-specific developments, point to strengths and weaknesses of Tempus in social sciences.

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65 Bucharest Academy of Economic Studies, University of Agricultural Sciences, Bucharest, Bucharest University, Polytechnic-University of Bucharest, A.I.Cuza University, Iasi, I. Ionescu de la Brad Agricultural University, Iasi, West University of Timisoara, Babes-Bolyai University, Cluj-Napoca, Ovidius University, Constanta, L. Blaga University, Sibiu, University of Transylvania, Brasov, and St. cel Mare University, Suceava.
The impact of projects was generally rather limited in scale, except in Romania where a relatively larger number of universities established new programmes or units and/or updated their existing programmes. The impact in the other three countries may be seen mainly in terms of establishing single model programmes. This may be to some extent explained by the different needs of the four countries, and especially by the pressing needs in Romania where the teaching of social sciences was even more politicised than in the other countries. However, it also seems that universities in the other three countries, and in particular in Poland, did not respond to the priorities which offered fairly wide opportunities for the reform of social sciences. As mentioned earlier on in the study, such a mismatch between the demand and supply is unavoidable in bottom-up programmes unless special encouraging efforts are undertaken by the relevant authorities.

As regards the areas covered, changes were undertaken mainly in social work and public administration and/or political sciences. Other areas, e.g. sociology as such, economics or psychology, barely marked their presence in Tempus either because they were not specifically included in the priorities or because universities did not respond to the priorities by submitting good quality applications.

In terms of reform of the teaching in social sciences, Tempus did above all supply what was missing and needed in the new degree structures and on the labour market as shaped by the new political and social realities. The degree structures were strengthened by a new PhD programme in Hungary, new Bachelor's and two-cycle programmes in Poland, new Master's and Bachelor's programmes in Bulgaria, and new college-type and Master's programmes in Romania. In Hungary, changes extended in fact, like in European Studies, Community languages and law, beyond the degree structure towards two-cycle programmes as postgraduate Master's programmes were not recognised by law as regular degree programmes. In a European context, the new programmes may also be considered another step towards the structure promoted by the Bologna Process. As regards the demand on the labour market, Tempus responded by providing the basis for modern training of social workers in at least one university in all four countries and of civil servants in three countries (Hungary, Bulgaria and Romania).

However, with universities in all four countries focusing on new programmes and/or new areas, existing programmes were largely left outside Tempus. Consequently, as a serious weakness in the areas which were clearly burdened with the legacy of the past, existing curricula in social sciences were generally not overhauled or restructured, and in fact none of the four countries demanded that specifically in the priorities. Review and restructuring was undertaken only in single cases either as part of the transformation of a one-tier Master's programme into a two-cycle structure in Poland, as a result of self-evaluation in Bulgaria or larger-scale changes in one faculty in Romania. Thus, the landscape left by Tempus was rather uneven, with ‘islands’ of entirely new programmes and courses surrounded by those where a more difficult screening exercise should have been undertaken.

Even though more could have been done to reform the teaching in social sciences, the Programme proved effective in the implementation of the Community acquis. Tempus projects enhanced the European dimension of social sciences through the introduction of European or EU issues into degree programmes of some faculties in all four countries. In turn, courses in Community languages in Hungary and Poland and the first successful attempts to implement the European Credit Transfer System in Poland were another step in the preparations for the regular Community programmes.

Finally, it should also be emphasised that the overall results achieved were in some cases confirmed by international accreditation, double diplomas or other forms of recognition, and by agreements for co-operation under Socrates/Erasmus in the majority of more recent projects.
Management and business

Hungary:

new postgraduate Master’s programmes and new courses within existing programmes
in various areas of management and business

The subject area priorities in Hungary focused, like in social sciences, on the development of ‘new professional profiles’ in a wide range of business and management fields, e.g. finance and accounting, portfolio management, capital market, investment banking, business administration.

The key Tempus outcomes in terms of scale are new postgraduate Master’s programmes. A two-year Master’s programme in Property Management was introduced at the Budapest University of Economics and State Administration for various groups of professionals. The programme leads to a double diploma of the Budapest University and the French ESSEC Group. The other four new programmes include Masters in Corporate Management, Business Administration, which is recognised by the International Association for MBA Granting Institutions, in Small and Medium Enterprise Management and Banking and Investment, all launched at Debrecen University. Given the limitations imposed by the Hungarian law, the postgraduate Master’s programmes in management and business administration were developed and are offered under special arrangements accredited by the relevant national bodies and/or within the framework of further education.

As regards existing programmes, in addition to one new specialisation in business management (L. Eötvös University of Arts and Sciences, Budapest), new courses at the BSc, MSc and/or PhD levels were developed in Tempus for six Hungarian universities. The new courses combine management and information technology, e.g. portfolio management, corporate finance and small business management, information technology for management, quality management in software technology. Moreover, five-year Master’s programmes in Finance, Insurance and Economics were modernised through the introduction of new courses in insurance mathematics at four universities which also harmonised their programmes in actuarial studies.

The modernisation of existing degree programmes combined with the development of new courses led to additional outcomes at the Budapest University of Economics and State Administration. Firstly, the university’s International Studies Centre, where all programmes are delivered in English, introduced new core and optional courses for its Master’s programme in Business and Economics, thus also extending its offer for international students. Secondly, the Master of Business Administration programme restructured in Tempus was recognised by the Community of European Management Schools (CEMS), and as a result the university joined the CEMS as its full member. The courses developed for the new curriculum are available in English and some of them also in German. And thirdly, the PhD programme in Management, upgraded in another Tempus project, was accredited as a ‘member’ of the European Doctoral Programmes Association in Management and Business Administration (EDAMBA).

Poland:

new Bachelor’s, Master’s and two-cycle programmes, new specialisation options
and new or updated courses in various areas of business and management

The subject area priorities in Poland comprised, depending on the year, either business and management as a broad area or specific sub-areas such as banking, public and corporate finance, insurance, taxation, etc. Moreover, under the structural priorities, faculties offering programmes in business and management could be awarded funds for the development of new Bachelor’s programmes or the transformation of five-year Master’s programmes into a two-cycle structure.

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67 Budapest University of Economics and State Administration, L. Eötvös University of Arts and Sciences, Budapest, Debrecen University, Pécs University of Arts and Sciences, Budapest Technical College, and Budapest College of Economics.

68 Budapest University of Economics and State Administration, L. Eötvös University of Arts and Sciences, Budapest, Szeged University of Arts and Sciences, and Debrecen University.
In response to the structural priorities, the Jagiellonian University of Cracow transformed its five-year Master's programme in Management into a two-cycle structure. This was combined with the upgrading of contents for a variety of core courses, e.g. macroeconomics, human resources management, strategic management, culture and psychology of organisations, statistics, econometrics, and methods of social and business research.

Other Polish universities focused on the development of new programmes either for the Bachelor's degree or the postgraduate Master's degree, though restructuring or upgrading simultaneously courses at the other level. New Bachelor's programmes were launched in International Business Studies (Academy of Economics, Cracow), Finance/Accounting and Marketing/Trade (Technical University of Łódź), Business Informatics (Gdańsk University) and Management and Marketing (Academy of Agriculture and Technology, Bydgoszcz). Following the introduction of its Bachelor's programme and, as a spin-off effect, a postgraduate Master's programme in English, the Academy of Economics in Cracow joined the network of European Master of Business Studies (EMBS) which involves partners from Denmark, France, Germany, Spain and the United Kingdom. In turn, the development of the Bachelor's programme in Bydgoszcz was followed by the introduction of the European Credit Transfer System.

Two of the postgraduate Master's programmes established under Tempus lead to double diplomas. The first programme in Management of Enterprises, run jointly by the French University of Lyon and the Technical University of Łódź, ends with the French DESS degree and the Polish Master's degree. The second double-diploma programme in Banking and Finance was developed by the School of Commerce in Toulouse, France, and the Silesian International Business School, an inter-university unit of the Silesian University and the Academy of Economics in Katowice. Three other Master's programmes were established in Economics/Business Administration (Gdańsk University), Business Administration and Management (delivered in English by the Academy of Economics in Wrocław), and Business Administration (Szczecin University, Technical Universities of Szczecin and Zielona Góra).

Seven Polish universities established new specialisation options for Bachelor's and Master's programmes, these ranging from financial management, international finance, insurance and management of credit markets to European affairs/Euro-marketing. The specialisation in 'International Finance' at the N. Copernicus University of Toruń is fully delivered in English, and 'Insurance' at the West Pomeranian School of Business in Szczecin comprises some courses to be delivered in English. The Master's specialisation 'European affairs/Euro-marketing' at Łódź University is based on a set of modules covering inter alia economic and social problems of European integration, Euro-marketing, EU Structural Funds and regional policy, accession process, and legislative problems in European affairs.

Like new degree programmes and specialisation options, new or restructured courses were introduced into existing programmes by various types of institutions. The courses cover areas similar to those in new programmes and specialisation options, e.g. accounting, finance, banking, marketing, logistics, logistics and management information systems, etc. They were often introduced in combination with a shift towards practical aspects and skills, problem-based learning and case studies, and in two cases with a credit system (Warsaw University of Technology) or an ECTS-compatible credit system (School of Entrepreneurship and Management, Warsaw). In addition, courses in European issues extended the scope of curricula at two universities. Marketing and management students at the Academy of Mining and Metallurgy in Cracow are offered courses in EC law and national law of the United Kingdom, France, Germany and Italy. Students at the School of Business in Nowy Sącz are introduced to history and economics of European integration, and the legal and financial systems of the European Union.

69 Szczecin and Gdańsk Universities, N. Copernicus University, Toruń, West Pomeranian School of Business, Szczecin, Schools of Banking in Toruń and Poznań, and Łódź University respectively.

70 Gdańsk University, N. Copernicus University, Toruń, Academy of Economics, Katowice, Warsaw School of Economics, Technical Universities of Białystok, Koszalin and Szczecin, Academy of Mining and Metallurgy, Cracow, Warsaw University of Technology, Polish Open University, Warsaw, West Pomeranian School of Business, Szczecin, School of Entrepreneurship and Management, Warsaw, and School of Business, Nowy Sącz.
Bulgaria:
new Master's programmes, new speciality/specialisation options and new or updated courses
in various areas of business and management

The subject area priorities in Bulgaria focused on banking, finance and taxation, but – like in Poland – projects in business and management could also be supported under the structural priority for the development of two-cycle programmes open to all areas.

As a major Tempus outcome in terms of scale, new modular Master's programmes were introduced by consortia involving various types of Bulgarian universities, e.g. ‘classical’ universities, universities of economics, technical universities and/or non-public institutions. Three universities in Sofia (St. Kl. Ohridski University, University of National and World Economics, University of Architecture, Civil Engineering and Geodesy) developed in co-operation with their EU partners three Masters in Business Administration, Management of Information Systems and Logistics Management. The programmes are offered to students of the three universities by an Inter-University Management Centre. As a result of other joint initiatives, new Master's programmes in Business Administration and in Logistics and Entrepreneurship were established at the University of National and World Economics in Sofia, whereas other universities integrated selected modules into their existing curricula.

New speciality in business logistics was introduced together with the European Credit Transfer System at two universities of economics (University of National and World Economics, Sofia, Varna University of Economics), and quality management extended the range of specialisation options and courses offered in a technical university (Technical University of Sofia).

Several universities introduced new or updated existing major courses for students of economics, management and business. The Varna University of Economics extended the scope of its Bachelor's programme with new courses in total quality management and international marketing, and set up a centre to deliver Master's programmes in international marketing. New modules in entrepreneurship and management of small and medium enterprises were integrated into degree programmes at the University of National World Economics, in the St. Cyril and St. Methodius University of Veliko Turnovo, and the Academy of Economics in Svishtov. Moreover, new modules in information technology were offered as a non-major course on a pilot basis to students of management, business and economics at the St. Kl. Ohridski University of Sofia.

Romania:
new Master's programmes in management and specialisation options for universities
and new colleges, specialisation options and courses in banking, finance and tourism for colleges

The priorities in Romania focused on the development of new college-type programmes in business and management, but Tempus funds for business and management were also available under other priorities covering, for example, European Studies or EU modules and degree programmes offered as part of continuing or further education.

As one of the key Tempus outcomes in this area, two Romanian universities introduced Master's programmes. The new Master's programme in Project Management at the Academy of Economic Studies in Bucharest is addressed mainly to specialists working in project management teams. It covers a wide range of issues, e.g. project planning, management and controlling, financial and quality management of projects, quantitative methods in management, statistics, project management information systems and software, project-oriented companies, and project portfolio database. The Master's programme in Management of Business Projects at the Ovidius University of Constanta has been offered so far to postgraduate students holding their first degrees in economics or engineering. Focused more on business aspects, the programme comprises courses in advanced microeconomics, management and project management, methods and techniques for planning, management, project and quality management, risk management, project budgeting, computer programming, etc.

71 Technical University of Sofia, New Bulgarian University, Sofia, Bourgas Free University, D.A. Tsenov Academy of Economics, Svishtov, and University of Economics, Varna.
data systems for project management, marketing and contracting of business projects, and business project auditing. On the basis of documents submitted by the two universities and the Romanian Tempus authorities, the new profession 'Project Manager' was recognised by the Ministry of Labour and included in the official register.

In addition to the new Master's programme, the Academy of Economic Studies in Bucharest introduced two new Master's specialisation options with a European dimension, 'International Trade for European Integration' and 'Intra-European Trade'.

Substantial funds were also used to develop college education. Firstly, 11 new colleges were established within universities or as integral sub-units of universities in other locations to offer three-year programmes in Banking and Finance and Tourism and Hotel Management. Secondly, the range of specialisation options offered at the colleges within five Romanian universities was extended in Tempus to include 'Financial and Bank Management'. Thirdly, new courses were developed in tourism for colleges at four universities, and the College of Geo-Information and Tourism Planning, Babes-Bolyai University of Cluj-Napoca, introduced new or updated credit-based courses in hotel management, financial administration of tourism resources, Geographical Information System, information technology and information management.

**General comments**

Since business and management hardly existed before 1989 and were still quite young a few years later, more was to be built than restructured. Consequently, a wide range of new full degree programmes, specialisation options and/or courses emerged in a fairly large number of universities in all four countries. General development of management and business education is clearly the most distinctive and common outcome of Tempus projects in this area.

In the context of the higher education reform, Tempus projects in business and management tackled several issues highlighted in the national legislation and/or strategies, though their impact varied between the countries.

First of all, the impact of Tempus may be seen in terms of building the new degree structures through the establishment of new Bachelor's and Master's programmes in Poland, new Master's programmes in Bulgaria, and new college-type and Master's programmes in Romania. The Bachelor's programmes in Poland and the college programmes in Romania, offered in both countries as an alternative to longer degree programmes, were at the same time another step towards the diversification of higher education provision. In Hungary, new postgraduate Master's programmes in business and management extended, like in European Studies, Community languages, law and public administration, beyond the current degree structure. The Bachelor's programmes in Poland and the postgraduate Master's programmes in all four countries may also be considered another building block for two-cycle programmes promoted by the Bologna Process, though only Poland and Bulgaria were clearly moving at that time towards a degree structure based on such two-cycle degree programmes.

It is also interesting to note that all four countries introduced postgraduate Master's programmes which are offered to students as part of free-of-charge full-time studies or paid part-time studies, as well as to various circles of professionals as part of their further education. While all of the Masters referred to above were developed as sustainable and relevant to the local context, several other MBA programmes were launched in Tempus with less than moderate success as a one-off initiative for at least one of three reasons. Firstly, the programmes were 'largely imported' and as such unsuitable for the local needs. Secondly, their implementation relied heavily on the involvement of EU partners which could not be financed further upon

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72 Academy of Economic Studies, Bucharest, University of Craiova, Gh. Asachi Technical University, Iasi, Transilvania University, Brasov, Ovidius University, Constanta, and West University of Timisoara.

73 Colleges set up in Gheorghieni, Sighetul Marmatiei, Zalau and Bistrita as sub-units of the Babes-Bolyai University.

74 Transilvania University, Brasov, Babes-Bolyai University, Cluj-Napoca, D. de Jos University, Galati, University of Craiova, and St. cel Mare University, Suceava.

75 Al.I. Cuza University and Gh. Asachi Technical University, Iasi, University of Oradea, and St. cel Mare University, Suceava.
completion of a Tempus project. Thirdly, they were not integrated into regular university activities either for
the reasons mentioned above or because, in the heyday of MBA programmes, they would fail to attract
students or professionals as yet another programme in the same university or in the same town.

In so far as uniform, narrow, theory-based and rigid curricula were a common legacy of the past, the
Programme supported the higher education reform by increasing the range and updating contents of courses
within existing programmes in all four countries. In Hungary and Bulgaria, Tempus increased, even if on a
modest scale, the interdisciplinary dimension of business and management studies through the introduction
of information technology courses. In Poland, though it was not yet a trend, first successful attempts were
made to restructure the existing curricula towards greater flexibility of studies and a greater emphasis on
practical skills.

Moreover, a wide range of new programmes, specialisation options and/or courses may also be regarded as an
immediate and desirable response to the demand for professionals in various sectors of the economy driven
by post-1989 changes. In the context of response to the labour market, it is also worth noting that closer links
with local business were established as a spin-off effect of several projects. This was achieved through the
involvement of enterprises, banks, professional associations and other organisations as advisers in the design
of programmes and courses and/or as target groups for MBA programmes. Joint activities developed in some
cases into long-lasting partnerships confirmed by formal agreements, whereas in most cases served rather as
a preliminary “reconnaissance” exercise.

In the EU accession context, Tempus in Poland and Romania enhanced the European dimension of business
and management education in some universities by introducing specialisation options and courses that cover
European Integration or Community policies. In turn, universities in Hungary and Poland made additional
preparations for co-operation and mobility under the regular EC programmes through the development of
courses in Community languages.

Finally, it should be mentioned that the projects in Hungary and Poland paved the way for some universities to
international networks or double diplomas, and the majority of recent Tempus projects in all four countries
led to agreements for co-operation under Socrates/Erasmus.

Engineering and technology

| Hungary: courses in computer science and information technology across the country, new and upgraded courses in other areas for some universities, and cross-curricular developments |

The priorities in Hungary focused on the development of ‘new profiles’ for the labour market, these including
in particular information technology, technology development and quality management. The projects funded
cover computer science and information technology, mechanical, civil, electrical and chemical engineering,
and material science. In view of the variety of areas, outcomes of the projects are divided for the sake of clarity
into courses in computer science and information technology, new and upgraded courses in various areas, and
cross-curricular developments.

Courses in computer science and information technology across the country

Projects in computer science and information technology linked several universities and/or faculties which
offer degree programmes in computer science or various fields of engineering.

Five Hungarian institutions modernised jointly a number of core courses for students of computer science.
These cover, for example, fundamentals of mathematics and computer science, computer architectures,
information, database and operating systems, computer networks, image software technology and quality
assurance. All upgraded courses may be delivered in English and some also in German. In addition, the project

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76 Szeged University of Arts and Sciences, Debrecen University, L. Eötvös University of Arts and Sciences, Budapest, Budapest Technical
College, and I. Széchenyi College, Győr.
consortium drafted ‘Principles of the credit system for training in computer science at some Hungarian higher education institutions’ which are based on the European Credit Transfer System.

As a result of another initiative which linked four universities\(^\text{77}\), information technology courses at the Bachelor, Master and PhD levels were introduced as new or upgraded for students of computer engineering, electrical engineering, transport engineering and mechanical engineering. The new and upgraded courses include, for example, intelligent systems, artificial intelligence in real-time control and measurement, distributed operating systems, parallel and distributed database systems, distributed business and information systems, network computing, etc. Like computer science courses referred to above, these may be delivered in English. Moreover, through their Tempus projects, Miskolc University and the Budapest University of Technology and Economics joined the so-called EuroMSc network which aims to harmonise information technology courses as a basis for the exchange of students.

New or upgraded courses in various areas for several universities

Each of the projects in mechanical engineering brought different outcomes in two Hungarian institutions involved. The College of Kecskemét launched a new BSc specialisation in product design for students of mechanical engineering, and set up a new Product Design Information Centre. Miskolc University developed new courses in structural integrity for its PhD mechanical engineering programme which may also be delivered in English.

In civil engineering, substantial changes in the teaching load and redesigned criteria for awarding degrees were introduced as a result of the restructuring of PhD programmes at the Budapest University of Technology and Economics.

New courses in material science, covering materials and surface engineering (e.g. structural analysis and materials testing, non-metallic engineering materials), were developed for MSc and PhD students, with upgraded multimedia teaching materials as an additional benefit for PhD students, at five universities\(^\text{78}\).

In electrical engineering, Miskolc University added a number of new courses to its curricula for five-year Master’s programmes (e.g. mechatronics) and PhD programmes (e.g. information technology, mechanics and machine tools). Furthermore, in addition to the modernisation of its courses in energy engineering (e.g. electrical energy, power electronics, electrical drives and electrical machines, thermodynamics, fluid mechanics), the university introduced a special module in European Studies for its engineering students.

Miscellaneous cross-curricular developments

As a cross-curricular and pilot initiative, nine Hungarian universities\(^\text{79}\) implemented modular and ECTS-based Bachelor’s programmes in Civil, Electrical and Mechanical Engineering, following an overhaul of existing curricula.

Under another cross-curricular project, a large number of PhD engineering courses were specially developed in English for both local and international students. These include, for example, research project management, applied mechanics, material science (Miskolc University), software technology, computer aided electronic engineering, micro-processors, and environment protection (Veszprém University).

Quality control courses were modernised for students of various fields at Miskolc University, and students at the Budapest University of Technology and Economics were offered a second degree course in the history of science and technology.

\(^{77}\) Budapest University of Technology and Economics, Miskolc University, Veszprém University, and Budapest Technical College.

\(^{78}\) Miskolc University, Budapest University of Technology and Economics, Veszprém University, L. Eötvös University of Arts and Sciences, Budapest, and West Hungarian University, Székesfehérvár.

\(^{79}\) Pécs University of Arts and Sciences, Debrecen University, I. Szent University, Budapest, Miskolc University, Budapest University of Technology and Economics, Veszprém University, College of Kecskemét, Kecskemét, Budapest Technical College, and I. Szechenyi College, Győr.
As a result of other Tempus projects, new courses covering various environmental issues were introduced for students of various fields of engineering. For example, curricula for chemical engineering were extended to include new courses in environmental oriented chemical process integration (Budapest University of Technology and Economics and Veszprém University), which may also be delivered in English and/or German. New courses in environmental science and management were also incorporated into curricula for BSc, MSc and PhD students of engineering at three other universities (Debrecen University, J. Eötvös College, L. Eötvös University of Arts and Sciences in Budapest).

<table>
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<tr>
<th>Poland: programmes and courses in computer science and information technology, new Bachelor’s programmes and two-cycle programmes, new specialisation options, and new or upgraded courses in various areas of engineering</th>
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Engineering and technology in Poland was covered first by specific subject area priorities, including e.g. information technology and telecommunication, electronics or material science, and later on by two structural priorities, the development of Bachelor’s programmes and the transformation of five-year Master’s programmes into two-cycle programmes.

The projects funded in Poland represented computer science and/or information technology as well as electrical, electronic, mechanical, manufacturing and civil engineering, and material science. Their main outcomes are divided into programmes and courses in computer science and information technology, two-cycle and Bachelor’s programmes, and new specialisation options and new or updated courses in existing programmes.

Programmes and courses in computer science and information technology

As an example of larger-scale changes in this area, N. Copernicus University of Toruń established a two-cycle programme in computer science based on new or substantially modified courses, which may be delivered in English, and new teaching methods with emphasis on individual work.

In terms of scale, these were followed by the introduction of new BSc and/or MSc specialisation options for students of various fields at seven technical universities and one classical university80. Students of computer science may now choose information technology as a new option at Wrocław University, and parallel and distributed processing at the Technical Universities of Gdańsk and Wrocław. Those developed for other fields of study in technical universities include high-performance computing (electrical engineering, Lublin), integrated control system and intelligent controllers (automatics and robotics, Cracow and Rzeszów), computer science (mechanical engineering, Bielsko-Biała), communication and computer technologies integration (electronics and telecommunication, Poznań).

Finally, five technical universities81 introduced new or upgraded courses in computer science or information technology for students of computer science, electronic engineering and/or telecommunication. These include digital control, programming, image processing, neural networks, distributed computer operating systems, parallel and distributed computations, artificial intelligence, advanced modelling languages, computer networks, computer control system design, real time process control, radio- and mobile communication, digital communication and television.

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81 Technical Universities in Gliwice, Łódź, Rzeszów and Warsaw; Academy of Mining and Metallurgy, Cracow.
Two-cycle programmes and new Bachelor’s programmes in various areas

As a result of several projects, two-cycle programmes were established by seven of all 18 technical universities in electrical and electronic engineering, mechanical engineering, civil engineering, material science and as an interdisciplinary initiative linking mechanical and environmental engineering. Where these were based on previously existing one-tier Master’s programmes, the restructuring extended beyond ‘shifting of courses’ to increase flexibility of studies, to place greater emphasis on practical skills, and to update the teaching methodology as well as curricular contents. Moreover, as part of preparations for participation in the Socrates/Erasmus Programme, the faculties involved prepared a number of courses to be delivered in English. As a spin-off effect, some of these faculties were appointed by the university authorities as ‘guides’ in the reform of the study system for other faculties and departments.

Since the faculties involved in these projects restructured their engineering education along similar lines, only two examples from one university are given to illustrate changes supported by the Tempus Programme. The Faculty of Mechanical Engineering, Silesian Technical University in Gliwice, established a new modular two-cycle programme in a new area of Management and Materials Engineering. The new curriculum was designed in accordance with the ECTS and introduced together with an ECTS-based internal credit system. As another step towards greater flexibility and attractiveness of studies, these changes were combined with the reduction of teaching hours to give students more time for individual work at home and in the library, and the introduction of information technology into the teaching methodology. Moreover, all of the above-mentioned changes related to the flexibility of studies were extended to the other three fields of study at the faculty. Finally, following special training for teachers, courses covering ca 15 000 hours for students of the various fields available at the faculty may now be delivered in English. In turn, the key innovations at the Faculty of Civil Engineering in Gliwice, which built a two-cycle structure from its existing five-year programme, include a modular curriculum, a one-semester practical placement based on agreements concluded with local enterprises, reduction of teaching hours and a shift towards problem-oriented teaching. Moreover, courses at the faculty are already delivered in English.

As an alternative to five-year Master’s programmes or as another step leading to a two-cycle structure, Poland also introduced under Tempus entirely new Bachelor’s programmes in electrical or electronic engineering at three technical universities, mechanical engineering and material science, each at one university. The new programmes were developed together with a range of fully modern specialisation options. These include, for example, power systems and management, industrial control and measurement systems, technology and diagnostics in electrical engineering for students of electrical engineering (Warsaw and Wrocław), or communication systems, information transport networks, digital signal processing, and electronic devices and circuits for students of electronic engineering and telecommunication (Poznań).

New specialisation options and new or upgraded courses

New specialisation options were introduced by technical universities in electrical and electronic engineering, mechanical engineering and manufacturing engineering. Those developed for students of electrical and/or electronic engineering include, for example, environmental electronic engineering (Gdańsk), microelectronics, power electronics, electrical technology and management, quality engineering and metrology (Łódź) and digital signal processing (Wrocław). In addition, the faculty in Łódź restructured a large number of core courses, introduced new courses in information technology (e.g. programming, computer networks, VLSI technology, micro-systems, digital system in power electronics, VHDL, Smart Power Device Design), and established an ECTS-based internal credit system. Moreover, courses in the new specialisation
options available at the faculty may be delivered in English. ‘Design and testing of machines’ extended the range of specialisation options in mechanical engineering at the Technical University of Opole. In manufacturing engineering, a new specialisation option in industrial management was introduced together with new courses in queuing networks, scheduling theory, multi-criteria analysis, hierarchical management systems, decision support systems (Academy of Mining and Metallurgy, Cracow).

Under smaller-scale projects, 11 technical universities developed new or updated existing major and non-major courses. New or upgraded courses for students of electrical and/or electronic engineering cover, for example, mechatronics and microelectronics (Łódź), microwaves (Łódź and Warsaw), digital signal processing (Warsaw), and highly processed electromagnetic technologies and devices (Lublin). Students of material science are offered new courses in fracture mechanics (Cracow and Kielce), advanced semiconductor materials (Radom and Warsaw), superconductors and superconductivity, physical properties of new materials, electronic and optoelectronic materials (Szczecin). Examples of new or upgraded in manufacturing engineering include manufacturing processes, simulation, computer aided design and manufacturing, quality management, management information systems (Academy of Mining and Metallurgy, Cracow) and manufacturing control systems, production management and logistics (Technical University of Wrocław). Faculties of mechanical engineering introduced single new courses, e.g. control and management of lean manufacturing in network systems (Gdańsk), quality control and quality assurance in welding engineering (Gliwice).

Miscellaneous changes

Restructuring an existing programme in mechanical engineering, the Technical University of Lublin updated major courses, extended the range of non-major courses, adding arts, market and marketing, finance and banking, accounting, and introduced flexible study arrangements based on tutoring and an ECTS-compatible credit system. A flexible tutorial– and credit-based system or the ECTS for local students of various fields of engineering was also established in department– or faculty-level units at three other technical universities.

As a result of smaller-scale projects, numerous new or modernised courses covering various environmental issues updated or extended programmes for students of engineering at five technical universities. The courses cover a wide spectrum of broader and narrower areas, including environmental protection and management, plastic waste management and recycling, soil and groundwater protection, integrated environmental engineering, environmentally friendly surface finishing, teledetection and GIS.

As an interdisciplinary initiative, the inter-university Centre of Medical Technologies at the Technical University of Gdańsk introduced new courses in bio- and optoelectronics for students of electronic engineering, a specialisation in information technology in medicine, and a PhD programme in Medical Electronics and Informatics.

Bulgaria:
programmes and courses in information technology for various study fields,
new Bachelor’s and Master’s programmes, new speciality options,
and new or upgraded courses in various areas of engineering

Like in Poland, engineering and technology in Bulgaria was first covered by specific subject area priorities, e.g. material science and EU standards in production quality control, and later on by the key structural priority, i.e. the development of two-cycle programmes, open to all fields of study.

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90 Department of Power and Aeronautical Engineering and the English-Medium Studies Centre, Warsaw University of Technology, and International Faculty of Engineering, Technical University of Łódź.

91 Technical Universities of Gdańsk, Gliwice, Szczecin, Warsaw and Wrocław.
The areas represented by projects funded in Tempus include material science, computer science and information technology, as well as mechanical, electronic, chemical, civil and manufacturing engineering. Like in the other countries, the development of programmes and courses in computer science and/or information technology forms a distinct strand in Tempus outcomes. Other projects focused on the introduction of Bachelor's and Master's programmes.

Programmes and courses in computer science and information technology

New modular Bachelor's and Master's programmes in Computer Science and Technology and numerous courses, teaching and self-learning packages, and practical guides were developed for five technical universities (Gabrovo, Rousse, Sofia and its Plovdiv-branch, and Varna). New modules in information technology were implemented as an experimental initiative to extend curricula for students of various fields at four universities92. These include, for example, ‘business informatics’ offered to students of computer science and economics (St. Kl. Ohridski University), ‘computational linguistics’ for computer science and language and literature students (St. Kl. Ohridski University, New Bulgarian University, P. Hilendarski University). Finally, the following courses for students of various fields, including computer science, were updated at three universities in Sofia: multimedia technologies (Technical University), computer systems and technologies (New Bulgarian University) and industrial arts (National Academy of Arts).

New Bachelor's and Master's programmes in various areas for the three-cycle structure

Bachelor's and Master's programmes were established, like in Poland, as entirely new in the areas where they did not exist or as a result of the transformation of five-year Master's programmes.

A modular two-cycle programme in electronic engineering and communication technologies was developed in accordance with the ECTS and as ‘fully compatible with EC standards’ at four Bulgarian technical universities93. The introduction of a new modular Bachelor's programme in Manufacturing Technologies at five technical universities94 was also combined with some preparatory work for the ECTS. The project consortium drafted documentation for the ECTS, and set up the Association of Bulgarian Mechanical Engineering Faculties, a consultative deans’ committee, to implement the system, and to prepare and submit documentation for new courses and modules to the faculty councils. A modular Bachelor's programme in Material Science and Technology replaced several narrow speciality options at three universities95. Finally, the transformation of five-year Master's programmes led to the establishment of a new modular Master's programme in Structural Engineering and a new modular Bachelor's programme in Engineering Design96, with a new Department of Interior and Furniture Design set up as a spin-off effect of a Tempus project.

New speciality options and new or upgraded courses in various areas

New speciality options were developed in materials science and chemical engineering. Students of material science may now choose polymeric material science (University of Chemical Technology and Metallurgy, Sofia), advanced materials and manufacturing technology (Technical Universities of Rousse and Varna) or modern materials and marketing (Technical University of Varna). Chemical, organic and inorganic chemical technologies and chemical engineering extended the range of speciality options for students of chemical engineering (A. Zlatarov University, Bourgas, and University of Chemical Technology and Metallurgy, Sofia).

The inventory of new and updated courses includes those in non-destructive testing and evaluation and mechanics of materials for students of mechanical engineering, quality control as part of programmes in chemical and mechanical engineering, and medical engineering97.

92 St. Kl. Ohridski University, Sofia, New Bulgarian University, Sofia, P. Hilendarski University, Plovdiv, and St. Cyril and St. Methodius University, Veliko Turnovo.
93 Technical Universities of Gabrovo, Sofia and Varna, and A. Kanchev University of Rousse.
95 N. Rilski University, Blagoevgrad, St. Kl. Ohridski University, University of Chemical Technology and Metallurgy, Sofia.
96 University of Forestry in Sofia.
97 Technical Universities of Sofia and Gabrovo, Technical University and the University of Chemical Technology and Metallurgy in Sofia, and Technical Universities of Gabrovo, Plovdiv and Varna respectively.
As a result of other Tempus projects, students of various fields of engineering are also offered new or updated courses covering business and management as well environmental issues. The new or updated courses include, for example, economics, human resources management, financial, industrial, production and marketing management\textsuperscript{98}, environmental management and integrated multimedia-based environmental education\textsuperscript{99}.

Romania:
new and upgraded courses in computer science and information technology, courses covering quality issues, new colleges, and miscellaneous curricular changes

The priorities in Romania focused on the development of short-cycle engineering education in university colleges, and the introduction of telecommunication and information technology, biotechnology and other interdisciplinary courses, and courses in quality assurance and management into existing curricula. The main outcomes of projects funded in Tempus may be divided into new and upgraded courses in computer science and information technology, courses covering various quality issues, new colleges, and miscellaneous curricular changes.

New and upgraded courses in computer science and information technology

Several universities introduced new or upgraded existing courses in computer science or information technology for students of computer science and various engineering fields. Colleges at four universities\textsuperscript{100} extended their curricula for students of computer science and engineering to include a new course in quality management in computer science. At three universities\textsuperscript{101}, a new course in information technology was introduced as an option within a specialisation or a set of optional courses for computer science students together with a credit system developed for international student exchange. Finally, digital signal processing and distributed processing networks were added to the range of courses offered at six universities\textsuperscript{102}.

Courses covering quality issues

As an element linking various areas of engineering and technology, quality issues were introduced in Tempus projects for students of various fields of engineering and technology. Two larger-scale outcomes of quality-oriented projects include a new Master’s programme in Quality and Reliability Engineering at the Polytechnic-University of Bucharest and, a spin–off effect, a new specialisation in non-destructive testing at the Polytechnic-University of Bucharest and the North University of Baia-Mare. Under smaller-scale projects, degree programmes for students of engineering and design were broadened with new courses in quality products at four universities\textsuperscript{103}. Courses in quality assurance and quality management extended the scope of programmes for students of engineering and technology at five technical universities\textsuperscript{104}. Students of mechanical engineering at the Transilvania University of Brasov and the Technical University of Cluj-Napoca may now follow new courses in product quality assurance. Finally, courses in quality assurance in non-destructive testing were introduced at the North University of Baia–Mare and the Polytechnic-University of Bucharest.

\textsuperscript{98} Technical Universities in Gabrovo, Sofia and Varna, and A. Kanchev University of Rousse.

\textsuperscript{99} Technical University of Varna, A. Kanchev University of Rousse, University of Chemical Technology and Metallurgy, Sofia, and Technical University of Sofia respectively.

\textsuperscript{100} Technical Universities of Cluj-Napoca and Timisoara, L. Blaga University of Sibiu, and P. Maior University of Targu Mures.

\textsuperscript{101} University of Craiova, Gh. Asachi Technical University, Iasi, and St. cel Mare University, Suceava.

\textsuperscript{102} Technical Universities of Cluj-Napoca and Timisoara, Transilvania University, Brasov, University of Oradea, L. Blaga University, Sibiu, and P. Maior University, Targu-Mures.

\textsuperscript{103} Polytechnic-University, Bucharest, Transilvania University, Brasov, I. Mincu Institute of Architecture and Academy of Arts, Bucharest, and D. de Jos University, Galati.

\textsuperscript{104} Polytechnic-University of Bucharest, Technical University of Iasi, University of Oradea, University of Pitesti, and D. de Jos University of Galati.
New colleges and three-year programmes for colleges

Three universities (L. Blaga University of Sibiu, North University of Baia Mare, and the University of Timisoara) set up new colleges to provide new three-year programmes in applied computer science or information technology. Students enrolled in the new programmes may now choose one of the following three specialisation options: industrial informatics, medical informatics and applied informatics in production management.

The other two new colleges, established under Tempus at the Technical University of Cluj-Napoca and the Transilvania University of Brasov, offer three-year programmes in materials and metallurgy technology.

Miscellaneous curricular changes

Four Romanian universities used Tempus funds to modernise their existing curricula for degree programmes in computer science, engineering and electronic engineering. Firstly, the four universities upgraded a number of core courses, including computer aided design, computer networks, object oriented technology, modern techniques for measuring perturbations in electronic systems. Secondly, they used the expertise of their EU partners to develop new courses, e.g. ISO 9000 in software engineering, reliability and quality standards in computer engineering, electronic product test, design and development methodology. Moreover, as an additional outcome, all updated and new courses may now be delivered in English. Thirdly, they introduced the European Credit Transfer System as an internal credit system, with credits allocated to all course units in the restructured programmes. Under the ECTS-based system used for internal purposes, all students sign a study agreement describing courses to be followed at the beginning of each year. Since this is a new arrangement at the four universities, one teacher specially appointed for all students of the same year assists them in the use of the ECTS and monitors the compliance with the ECTS rules.

Under smaller-scale projects, faculties of four universities upgraded a set of existing courses in electrical and electronic engineering. The upgraded courses include, for example, parallel architectures and signal processors, signal processors in digital transmission, signal processors in driving system control and process control, spectrum estimation methods and algorithms, and neural networks. All of the upgraded courses at the Technical Universities of Cluj-Napoca and Timisoara may be delivered in English and some also in French and German. A single project in civil engineering resulted in the modernisation of existing programmes at three technical universities (Bucharest, Iasi and Timisoara).

Finally, Romanian interdisciplinary projects supported the development of new and restructuring of existing courses in biomedical engineering and medical physics (Polytechnic-University of Bucharest, Technical Universities of Iasi and Timisoara, A. I. Cuza University of Iasi, University of Craiova, Technical University and University of Medicine and Pharmacy in Cluj-Napoca). The new and upgraded courses include measurement of biomedical parameters, bioelectromagnetics, biomedical instrumentation, fundamentals of physiology for bioengineering students (Technical University of Cluj-Napoca), and medical image processing, three-dimensional medical models and mathematical methods in biomedicine (University of Medicine and Pharmacy in Cluj-Napoca).

General comments

In all four countries, engineering and technology programmes at a fairly large proportion of universities were definitely upgraded technologically in three respects. Firstly, contents of existing courses were updated in both traditional and non-traditional disciplines in all Tempus projects. The new or updated contents covered issues specific to a given area of engineering and technology as well as quality assurance and management as cross-curricular issues. Secondly and more specifically, courses in information technology were introduced as new or updated for students of various fields of engineering in all four countries. Thirdly, modernisation of curricula, whether through the introduction of new or updating of existing programmes and courses, was

105 Technical University of Cluj-Napoca, P. Maior University of Targu-Mures, North University of Baia-Mare, and University of Oradea.

106 Technical Universities of Cluj-Napoca and Timisoara, Transilvania University of Brasov, L Blaga University of Sibiu.
combined in many cases with the establishment of special laboratories, and in all cases with a substantial investment in state-of-the-art equipment.

In terms of the structural reform of engineering and technology education, the scale of changes was obviously, like in other areas, pre-determined by the scope of the national priorities. Hence, the impact is more visible in three countries. In Poland and Bulgaria, two-cycle programmes were, like in other areas, a contribution towards the new three-cycle degree structure which coincides with the model promoted at present in the Bologna Process. Romania diversified further its higher education provision through the introduction of college-type programmes.

The scope of changes within existing programmes was limited by the fact that comprehensive restructuring of curricula towards greater flexibility was not as such included in the priorities of the four countries. Thus, it was undertaken mainly in the countries which were establishing two-cycle degree programmes through the transformation of five-year Master’s programmes. Hence, more was achieved in this respect in Poland and Bulgaria where the previously existing rigid and overloaded curricula were replaced by modern flexible curricula based on a credit system and/or a modular structure. Still more could have been done in Poland if universities had been more strongly encouraged to establish large national networks for Tempus projects. Even though Hungary and Romania did not follow the same path in Tempus projects, some universities in the two countries restructured their existing curricula and introduced a modular structure and/or a credit system to increase the flexibility of studies. Since the trend towards flexibility is fairly recent in all four countries, more could have been achieved in this respect if Tempus had not been phased out for the candidate countries with the final round of projects launched in 1999/2000.

In so far as the narrow scope and uniformity of curricula were a major deficiency inherited from the pre-1989 period and thus a major issue in the higher education reform, Tempus extended clearly the range of specialisation options and compulsory or optional courses to be chosen by students. Moreover, like in business and management, it paved the way towards more interdisciplinary programmes in engineering and technology through the development of courses covering various environmental protection issues in the four countries and those in business and management in Bulgaria. Though these were by no means countrywide changes, the contribution of Tempus may again be seen in terms of developing some models for several universities which are now available for other universities.

In line with the reform strategies, engineering and technology projects also supported the development of university–industry co-operation, though this element featured much less prominently, and thus was not mentioned earlier on. Nevertheless, several projects leading to the outcomes summarised above were carried out jointly with local enterprises and professional organisations in all four countries. Like in the area of business and management, non-university partners were involved in curriculum development or offered practical placements for students as an integral part of new curricula. Thus, links were established, even if formalised only in single cases, but their sustainability depends obviously as much on the commitment of universities as on the responsiveness of industry.

In the context of the EU accession, universities in all four countries should have been encouraged to introduce into their curricula some elements of European Studies or at least EC industrial and environmental standards, which would also increase the European dimension of engineering education. However, more was achieved in terms of the preparations for the regular EC programmes. Projects in engineering and technology led to the introduction of the European Credit Transfer System or an ECTS-based internal credit system in a larger number of universities than those in other areas. Moreover, as an additional outcome of Tempus projects, universities in Hungary, Poland and Romania prepared a large number of courses which either already are or may be delivered in at least one Community language. All of these courses are available in English, and some of them also in French and German. The preparations undertaken in the more recent projects ended with agreements for co-operation under the Socrates Programme and, in a smaller number of cases, under the Leonardo Programme.
Agricultural and food sciences

Hungary: university-specific changes

Projects in agricultural and food sciences were submitted in Hungary in response to the priorities which focused on agribusiness, and animal and plant health.

Tempus projects led to the establishment of two new Master’s programmes. The first one is a postgraduate double-diploma Master’s programme in Agricultural Engineering at the I. Szent University of Gödöllő. The programme leads to an MBA degree awarded on behalf of the French FESIA Federation by the School of Agriculture in Angers, and a diploma of an engineer specialised in agricultural and rural policy issued by the Hungarian university. The second one is a five-year Master’s programme in Agri-Management established at Debrecen University together with a new agribusiness branch.

New courses developed in Tempus for BSc, MSc and PhD students of agricultural sciences cover aquaculture and fisheries and environmental science and management (Debrecen University) and sustainable crop production (Debrecen University, I. Szent University of Gödöllő and Veszprém University).

Poland: new Bachelor's and Master's programmes, new specialisation options and new courses

Agricultural projects in Poland were funded under the structural priorities concerning the development of Bachelor’s programmes and the transformation of five-year Master's programmes, as well as under the subject area priorities covering agricultural economics and management.

Two projects focused on the establishment of new programmes. The outcome of the first project is a modular and ECTS-based curriculum for a Bachelor’s programme in Plant Breeding, Seed Technology and Agribusiness Management at the Agricultural Academy of Poznań. The new curriculum, which comprises obligatory practical placements for students, was assessed by seed industry experts as the best curriculum in this area in Poland. Curriculum development activities in the project involved the design of new major courses (biology of plant reproduction, principles of genetics, seed production, seed pathology) as well as new courses in financial management, accounting, information management and decision making in agriculture, intellectual property rights and seed law. Moreover, several major courses (seed industry, seed engineering, quality control, dendrology, and nursery material production) were prepared in English for international students. Under the second project, Tempus supported the transformation of the five-year Master’s programme in Food Technology and Human Nutrition at the Agricultural Academy of Szczecin into a two-cycle programme. The restructuring of the curriculum was combined with the introduction of the ECTS. The programmes in the Agricultural Academies of Poznań and Szczecin are regarded by EU partners as ‘fully aligned’ with their curricula.

As a result of other projects, curricula for degree programmes were extended to cover new environmental specialisation options (Agricultural Academies of Siedlce and Warsaw), and quality-oriented options such as ‘Quality Control and Management in Food Economy’ (Warmia and Mazury of Olsztyn), and ‘Analysis and Quality Management’ (Agricultural Academy of Cracow). Changes in Cracow were combined with the establishment of a new department for analysis and food quality assessment and the introduction of the European Credit Transfer System.

As part of larger-scale changes within existing programmes, the Agricultural Academy of Poznań restructured its five-year Master’s programme in horticulture, allowing students to obtain a BSc diploma after eight semesters, and introducing the ECTS for local and international students. Finally, as a result of smaller-scale changes at the Warsaw Agricultural Academy, new courses were introduced in human nutrition, dietetics and consumer studies.
Agricultural projects in Bulgaria were funded under the structural priority for the development of two-cycle programmes, as well as under the subject area priorities covering agriculture and agricultural economics.

Larger-scale changes, ranging from new programmes and new specialisation options to new and updated courses, were introduced by the Higher Institute of Agriculture in Plovdiv. The two new programmes in Plovdiv are the Master’s programme in Horticulture, integrating aspects of economics, management and environmental sciences, and the Bachelor’s programme in Agricultural Engineering. Furthermore, the Institute launched two new specialisation options, ‘Plant Biotechnology’ and ‘Plant Genetic Resources’. A long list of new and updated courses includes mechanisation in agriculture, agricultural production treatment, agronomy and information technology in agronomy, pest and disease management, agribusiness, environmental issues, economics and foreign trade, and marketing and quality control. As a result of all these developments, the institute in Plovdiv signed an agreement with the Free University of Amsterdam, the Netherlands, Göteborg University, Sweden, and the University of Gent, Belgium, for joint course development and recognition of diplomas in plant biotechnology.

Changes in other universities involved in Tempus are more limited in scale. Like the Institute in Plovdiv, the Trakia University of Stara Zagora and the A. Kanchev University of Rousse introduced a new Bachelor’s programme in Agricultural Engineering. New courses developed with EU partners cover food quality control, quality management and packaging, milk and meat processing (Higher Institute of Food and Flavour Industries, Plovdiv) and various aspects of agribusiness (D. Tsenov Academy of Economics, Svishtov, Varna University of Economics, Varna, Trakia University, Stara Zagora). As an additional outcome of the projects in agribusiness, agreements were signed with EU partners for recognition of study periods on the basis of the ECTS.

Universities in each of the three countries discussed above also used Tempus funds to finance the MSc European Food and Beverage Quality Management course which covered quality assessment and management, food safety, marketing and consumer studies, international food legislation, etc. Under each of three separate projects, the course was delivered partly in Hungary, Poland or Bulgaria and partly at EU partner institutions in Denmark, France and the United Kingdom, and ended in some cases with double diplomas. While no specific arrangements were made for the continuation of the course in the three countries, the universities participating in the projects planned to finance it from fees paid by students and their employers.

The priorities in Romania covered agriculture and food processing, but programmes in this area could also be modernised under other subject area priorities, e.g. environmental protection, management or economics.

Larger-scale changes were undertaken only by the University of Agricultural Sciences and Veterinary Medicine in Bucharest. The university in Bucharest restructured substantially its Bachelor’s programme in Economics for agricultural engineers, introduced new specialisation options in milk, meat and wine processing, food hygiene and environmental protection, and upgraded environmental courses for students of agriculture. Selected courses in food hygiene and agricultural economics, introduced as part of broader changes in Bucharest, were integrated into the curricula of three other universities.

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107 Hungary: I. Szent University in Budapest; Poland: Agricultural Academy in Cracow; Bulgaria: Higher Institute of Agriculture and Higher Institute of Food and Flavour Industries in Plovdiv.

108 Agricultural University of Iasi and Transilvania University of Brasov, and University of Agricultural Sciences of the Banatului region, Timisoara, respectively.
Several other universities introduced new or updated environmental courses for students of agriculture. The new and updated courses cover, for example, environmental protection and management, ecology, nature conservation, and environmental protection.

General comments

Curricular changes in this area were generally quite modest in scale, though some universities in all the countries did indeed extend the range of courses available for students in line with the demand for specific new skills and/or knowledge.

The limited impact of Tempus in agricultural and food sciences may be partly explained by the priorities which covered, at least in some countries and years, only specific sub-areas. More importantly, however, projects in agricultural and food sciences not infrequently achieved less than planned. For example, while the original objective was to launch a new programme or specialisation, only a number of courses were introduced. Where new programmes or courses were envisaged for several universities, only some or one of them actually integrated them into regular teaching activities. Partial achievement of the objectives, if explained, was related to the resistance to changes at faculty or university level.

However, though generally less visible in agricultural sciences than in other areas, Tempus brought in each country single benefits which may enhance the cumulative effect of various changes in all areas. Hungary launched another postgraduate Master's programme for future two-cycle programmes. Another two ECTS-based programmes for a three-cycle degree structure in Poland, which are fully compatible with those at EU partner universities, are a development reinforcing the trend towards flexibility of studies. Bachelor's and Master's programmes in Bulgaria were also another building block for the degree structure established by the new higher education law. In Romania, this meant another specialisation option for students as well as a set of environmental courses as another step towards enhancing the interdisciplinary dimension of curricula.

The above-mentioned outcomes may be generally described as a rather limited contribution to the higher education reform and/or single steps towards the establishment of two-cycle programmes promoted in the Bologna Process. The impact of agricultural projects in the EU accession context was, however, even more modest. No attempts were made to enhance the European dimension of degree programmes in this area, even though this could have been easily achieved through the introduction of courses covering, for example, various issues related to the Common Agricultural Policy of the European Community. This element could have been specially emphasised in the national Tempus priorities. As regards the preparations for the regular EC programmes, few but successful attempts were made, though only in Poland, to attract EU students through the introduction of the ECTS and/or courses in Community languages.

Environmental sciences

In all four countries, environmental sciences were covered by the same or very similar subject area priorities, including environment, environmental management and economy in Hungary, environmental protection, engineering and management in Poland, environmental protection and energy saving in Bulgaria, and environmental protection, nuclear safety and radioactivity protection in Romania. In addition, environmental sciences were included in the structural priorities concerning the establishment of Bachelor's and/or two-cycle programmes in Poland and Bulgaria.
**Hungary:**

new Bachelor's and postgraduate Master's programmes, new and upgraded courses

Universities in Hungary introduced new Bachelor's and postgraduate Master's programmes, as well as upgraded their existing degree programmes.

The first of two new postgraduate Master's programmes, both launched by Debrecen University, is a one-year ‘European Postgraduate Course in Environmental Management’ (EPCEM). The course was designed by environmental science departments of Dutch and French universities and Debrecen University which thus became the Central European EPCEM Centre. Delivered jointly in English, the EPCEM comprises lectures and classes in environmental science, policy and management as well as an interdisciplinary research project and an individual internship in a private company, a non-governmental organisation or a government department. The costs of the course are financed from tuition fees and grants awarded by ministries and foundations in the participating countries.

The second Master's programme in ‘Environment and Society’, offered by the Regional Distance Education Centre at Debrecen University, was developed on the basis of a British model and specific Hungarian modules. Delivered as part of general environmental education, it introduces students to theories and perspectives of formal and informal environmental education, aspects of natural and social sciences, global environmental issues, environmental law, economics and monitoring, role of media, community and adult programmes as well as educational research and dissertation writing. In other Tempus projects, Debrecen University also set up a Centre of Environmental Studies, launched a new specialisation in environmental management, and upgraded its existing programmes at the MSc and PhD levels.

The first new Bachelor's programme in Environmental Protection was introduced at Debrecen University for students of animal husbandry and environmental management. The second one, recognised by EU partners as equivalent to their programmes, is the ‘European BSc course in Environmental Engineering’ provided at the I. Széchenyi College in Győr and Pécs University of Arts and Sciences.

Existing environmental programmes at the BSc, MSc and/or PhD levels at eight Hungarian universities and colleges were modernised through the introduction of new courses or the updating of courses already available. These cover various aspects of environmental science, environmental protection and environmental management.

**Poland:**

two-cycle programmes, new Bachelor's programmes, new specialisation options, and new and updated courses

Outcomes of the projects in Poland comprise new degree programmes, new specialisation options, as well as new and updated courses within existing programmes.

Several universities used Tempus funds to move towards two-cycle programmes. In eight universities of different types, Tempus supported the transformation of five-year Master's programmes in Environmental Protection, Environmental Sciences or Environmental Engineering into a structure with a BSc programme followed by an MSc programme. The structural transformations involved substantial restructuring of existing programmes and comprised various other larger- and smaller-changes. For example, the Technical University of Cracow, where the two-cycle programme in environmental engineering is fully aligned with those at EU partner universities, introduced a modular curriculum, with credits allocated to course units in accordance

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110 Free University, Amsterdam, University of Amsterdam, Leiden University, Wageningen University, École des Mines de Paris, École Nationale des Ponts et Chaussées, École Nationale du Genie Rural et des Eaux et Forêts.

111 Budapest University of Technology and Economics, L. Eötvös University of Arts and Sciences, Budapest, I. Szent University, Budapest, Pécs University of Arts and Sciences, Veszprém University, Debrecen University, I. Széchenyi College, Győr, and J. Eötvös College.

112 N. Copernicus University, Toruń, Warsaw University, Agricultural Academies of Cracow, Poznań and Wrocław, and Technical Universities of Cracow, Poznań and Warsaw.
with the ECTS. In turn, the transformation at the N. Copernicus University of Toruń was combined with the updating of courses, e.g. GIS or information technology in environmental planning, protection and management, and the introduction of new teaching and learning methods, including project work and case studies. Moreover, some of the new courses, e.g. planning and environmental protection or environmental audit in Toruń are now available in English.

New Bachelor's programmes in Environmental Protection, as an alternative to five-year Master's programmes, were launched at Gdańsk, Białystok and Opole Universities. As a result of another Tempus project, a new modular and ECTS-based Bachelor's programme in Environmental Engineering is now offered at the College of Environmental Protection in Radom.

As a result of smaller-scale projects, numerous new or modernised courses were introduced into programmes at the Bachelor, Master or PhD levels in technical universities and agricultural academies. Technical universities offer the new and modernised courses mainly as part of degree programmes in environmental engineering but also in other fields of study. The courses cover a wide spectrum of broader and narrower areas, including environmental protection and management, plastic waste management and recycling, soil and groundwater protection, integrated environmental engineering, environmentally friendly surface finishing, teledetection and GIS. At three universities, these changes were combined with other developments. As a result, the new or updated courses may now be delivered in English at the Technical University of Gdańsk (as part of a whole English-language Bachelor's programme in Environmental Protection and Management), Technical University of Szczecin and Warsaw University of Technology. At the Technical University of Szczecin, the development of environmental courses was combined with the implementation of the European Credit Transfer System, following the decision of the university authorities to introduce the ECTS as an internal credit system in all faculties.

Finally, new and updated courses were introduced in Tempus in six of nine then existing agricultural universities. These cover both specific environmental issues, e.g. environmental system analysis, environmental impact assessment, ecological forest management, water and soil management and protection, GIS or European environmental policy, and the use of information technology in environmental protection and management.

### Bulgaria: New Master's Programmes, New and Updated Courses

As a major outcome of Tempus projects in environmental sciences two new Master's programmes were established in Bulgarian universities. The first of them is the 'European Master Course in Environmental Protection and Sustainable Development' launched at the University of Chemical Technology and Metallurgy (UCTM) in Sofia. It covers environmental modules, e.g. general ecology, society, environment and sustainable development, environmental management, environmental impact assessment and auditing, air, water and soil pollution management, as well as information technology modules and an intensive English course. Delivered jointly by the UCTM in Sofia, the European Centre for Pollution Research and the University of London, the programme ends with a project defence and an oral examination, and a certificate issued by the three partners. Following the completion of the Tempus project, the programme has been run successfully as financed mainly from fees paid by students. The second new Master's programme, 'Purification and Control of Natural and Waste Water', was introduced by the St. Kl. Ohridski University of Sofia and the Technical University of Bourgas to broaden the knowledge of those holding a BSc degree in Water Technology or Ecology.

Moreover, existing programmes were modernised in Tempus to include new or updated courses which cover mainly energy efficiency issues as well as the use of information technology in environmental protection and management. New courses in energy conservation were introduced into BSc and MSc curricula at the

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113 Technical Universities of Gdańsk, Gliwice, Szczecin, Warsaw and Wrocław.

114 Agricultural Academies of Bydgoszcz, Lublin, Szczecin, Poznań, Warsaw and Wrocław, and Warmia and Mazury University of Olsztyn (academy transformed into a university).
University of Chemical Technology and Metallurgy in Sofia and Higher Institute of Food and Flavour Industries in Plovdiv. Students at the Technical University of Sofia are now offered new courses in renewable energy sources, and those at the St. I. Rilski University of Mining and Geology follow new courses in energy saving in mines.

Finally, as a cross-curricular initiative, two universities in Sofia (Technical University and St. Kl. Ohridski University) developed a set of modules for integrated environmental education based on the use of information technology. The modules, covering both basic and specialised environmental knowledge, were incorporated into curricula for students of various fields of study, including environmental sciences, at both universities. In addition, the Technical University of Sofia set up a special inter-university Centre for Information and Technological Support to design new environmental courses, collect and process satellite data for training purposes, establish environmental databases, etc.

Romania:
new Master's programmes, new specialisation options, new and updated courses

As a larger-scale outcome of environmental projects in Romania, four new Master's programmes, 'Environmental Sciences', 'Bio-Sensors for Environmental Monitoring', 'Economy and Management of Environment and Natural Resources', and 'Environmental Engineering' extended the range of programmes at five universities.

Two universities, the North University of Baia Mare and the Polytechnic-University of Bucharest, introduced new specialisation options in environmental engineering, and nuclear safety and radioactivity protection respectively.

In turn, larger-scale changes in existing programmes were undertaken by the Polytechnic-University of Bucharest, Technical University of Iasi and the D. de Jos University of Galati. Firstly, the three universities revised and upgraded their courses in production, conversion, distribution and efficient use of energy, this covering changes in the number of teaching hours and content of courses. Secondly, they developed new basic and advanced courses in information technology. Thirdly, they introduced a credit system for the restructured environmental programmes.

Moreover, the Polytechnic-University of Bucharest and the University of Ploiesti offer as a result of a Tempus project new or updated courses in nuclear safety and radioactivity protection.

Finally, the introduction of new courses in environmentally friendly farming technologies was combined with the establishment of a training centre 'Ecoland' at the University of Agricultural Sciences in Bucharest and two Ecoland branches at the Technical Universities of Iasi and Timisoara. In this context, Tempus also provided support for the new UNESCO Chair set up at the University of Agricultural Sciences in Bucharest.

General comments

In all four countries, Tempus left first of all a wide range of new programmes, new specialisation options and/or new and modernised courses in environmental sciences. Thus, its contribution to the reform of higher education may again be seen mainly in two areas. Firstly, Tempus projects strengthened the degree structures through the establishment of Bachelor's programmes in Hungary, Bachelor's and Master's programmes in Poland, and Master's programmes in Bulgaria and Romania. In this way, Poland and Bulgaria, which were building two-cycle programmes in line with their legislation and/or reform strategies, also made another step towards one of the goals now promoted in the Bologna Process. It is also again worth noting that, like in several other areas, Hungary 'extended' its current structure by establishing postgraduate Master's programmes. Secondly, Tempus environmental projects broadened and updated the contents of existing curricula for degree programmes in accordance with the demand for specialists in this area on the labour market.
market. Generally, like in other areas, greater emphasis was placed on new programmes and updated contents than on the overhauling and restructuring of existing curricula. Poland was the only country where existing curricula were restructured to build two-cycle programmes, and where some of such new programmes were based on arrangements increasing the flexibility of studies.

The contribution of environmental projects to the EU accession process was rather modest. None of the projects led to the introduction of European issues into curricula. Like in agricultural and food sciences, the European dimension of environmental education could have been specifically promoted in the Tempus priorities. As part of the preparations for the regular EC programmes, only single universities in Poland introduced the European Credit Transfer System and/or an ECTS-based internal credit system, and few universities in Hungary and Poland prepared their environmental courses in a Community language. However, like in other areas, universities in all four countries concluded agreements for co-operation under the Socrates Programme through their involvement in the more recent Tempus environmental projects.

1.1.3 Areas paving their way for development amid key priorities

This section presents outcomes of Tempus projects in natural sciences and mathematics, teacher education, humanities, arts and other areas. The common denominator for all these areas is their more limited visibility in Tempus priorities for curriculum development in the four countries, though the situation varied from one country to another. Natural sciences and mathematics were listed specifically only in Romania’s subject-area priorities for two years, and represented by chemistry in Poland’s priorities during one year. Similarly, teacher education appeared in Poland’s and Romania’s priorities for two years and in Hungary’s and Bulgaria’s priorities for one year. Romania was the only country to mention humanities in its subject-area priorities for one year, and none of the four countries referred explicitly to arts in its priorities.

However, even though rarely if at all named in the subject-area priorities, natural sciences and mathematics, teacher education, humanities and arts could be and actually were covered by some projects funded under the structural priorities for the development of new degree programmes. Furthermore, curricula for some of these areas could be, though partially, modernised in the four countries under other subject-area priorities. For example, faculties of chemistry could upgrade existing courses or develop new courses covering environmental issues under the priority for environmental protection, and faculties or universities of arts could apply for Tempus funds to introduce or upgrade courses in information technology.

Natural sciences and mathematics

This Tempus category, even if less visible in the priorities, was fairly widely represented by physics, chemistry, biology, geography and, though in a single project, by geology.

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<thead>
<tr>
<th>Hungary: new and updated courses in physics, chemistry, geography and mathematics</th>
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<tr>
<td>A small number of projects funded in Hungary focused mainly on the development of new courses for existing programmes, though also supported some other developments.</td>
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<tr>
<td>The Budapest University of Technology and Economics and its EU partners restructured a PhD programme in physics, defined formal requirements and designed a joint evaluation system leading to the PhD degree. Though the universities issue separate diplomas, the degree is recognised on the basis of bilateral agreements signed by the Hungarian university and its French and German partners. Degree programmes in physics at four institutions also benefited from the introduction of new teaching packages based on information technology and multimedia.</td>
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116 Budapest University of Technology and Economics, Budapest Technical College, I. Szent University, Budapest, and I. Széchenyi College, Győr.
As a result of an interdisciplinary project covering chemistry, Szeged University of Arts and Science introduced a course in environmental chemistry, and PhD programmes in chemistry were extended to cover new courses at Szeged and Debrecen Universities by their EU partners.

Faculties or departments of geography at four Hungarian universities upgraded courses in GIS, spatial economics, regional planning and management (Budapest University of Economics and State Administration, L. Eötvös University of Arts and Sciences, Budapest, Szeged University of Arts and Sciences, Debrecen University).

In mathematics, a new course in applied mathematics was introduced at the L. Eötvös University of Arts and Sciences in Budapest, and new courses in CAE and mathematical methodology extended the scope of programmes at the Master and PhD levels offered by Debrecen University. At the interface between mathematics and other areas, four Hungarian universities117 developed new courses in insurance mathematics.

| Poland: | substantial investment in two-cycle programmes in chemistry, biology, physics and mathematics based on the ECTS rules or an ECTS-compatible internal credit system |

Most of the projects in natural sciences and mathematics funded by Poland, which covered chemistry, biology, physics, geography and mathematics, supported the transformation of five-year Master’s programmes into two-cycle programmes. Under the few remaining ones, new courses were introduced to modernise existing programmes.

A new two-cycle structure was established by faculties of chemistry at six Polish universities118. The curricula at the Jagiellonian University of Cracow are fully compatible with the European standards for chemistry education developed by the European Chemistry Thematic Network under the Socrates/Erasmus Programme. Moreover, the structural transformation in all six faculties was combined with the introduction of the European Credit Transfer System, used both for the purpose of international student exchange and as an internal credit system. Following special intensive language training, the faculties are also prepared to deliver a number of major courses in English. As an additional outcome of its project, the M. Curie-Skłodowska University of Lublin, introduced an internal quality assessment system, even though the system was subsequently redesigned to meet the requirements of the University Accreditation Commission.

The same path was followed by faculties of chemistry at three technical universities in Łódź, Warsaw and Wrocław which introduced two-cycle programmes, combining the transformation of five-year Master’s programmes with the introduction of the European Credit Transfer System for local and international students. In this context, broader restructuring of the study system was undertaken, for example, by the Faculty of Chemistry at Warsaw University of Technology. The faculty changed its procedures for student assessment, diploma work and examination, rearranged courses into blocks, introduced more flexible study arrangements linked with the credit system, and designed new rules for tutors who assist students in their choice of courses under the flexible study system. Moreover, the Tempus project in the faculty brought three spin-off effects. Firstly, a Diploma Supplement was prepared in accordance with the guidelines of the European Commission, Council of Europe and UNESCO. Secondly, new PhD courses were introduced as the third cycle of the degree programmes in the faculty. Thirdly, special arrangements were made for joint supervision of Master’s theses, with the technological part completed in Warsaw and the analytical part at the F. Schiller University of Jena, Germany.

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117 Szeged University of Arts and Sciences, Debrecen University, L. Eötvös University of Arts and Sciences, Budapest, and Budapest University of Economics and State Administration.

118 Jagiellonian University, Cracow, A. Mickiewicz University, Poznań, N. Copernicus University, Toruń, M. Curie-Skłodowska University, Lublin, Warsaw University, and Wrocław University.
Like in chemistry, the key words for projects in biology are two-cycle programmes and an ECTS-based internal credit system. A two-cycle degree structure in combination with the ECTS was established in Tempus projects at faculties of biology at four Polish universities. As part of these transformations, the faculties in Toruń and Poznań updated contents of existing core courses, introduced new courses (e.g. biotechnology), reduced significantly the number of compulsory teaching hours, extended the range of optional courses and, consequently, increased the flexibility of study arrangements. Both universities now have curricula which, according to their EU partners, are fully compatible with ‘EU standards’, and courses which may be delivered in English. As a result of co-operation in Tempus, the faculty in Poznań was also invited by a consortium of EU partners to participate in the joint development of a Master of Science Course in Environmental Management.

A two-cycle degree structure and an ECTS-based credit system were also introduced for physics and mathematics, though each of the areas was represented in Tempus only by two universities. Like in chemistry and biology, the structural transformation was combined in the four faculties with a review and updating of existing core courses for a given field, a shift towards greater flexibility of studies as well as, especially in mathematics, a wider use of information technology. In addition, Tempus projects in these faculties supported, to a lesser or greater extent, the introduction of arrangements aiming to improve the quality of teaching. These include an internal quality assurance system (Warsaw), questionnaires for students, in-class control of tutorials run by junior staff and permanent committees for course updating and teaching materials (Toruń), and the ECTS-based credit system integrated into a computerised system for monitoring student achievements (Wrocław). Finally, as an additional outcome of projects in physics and mathematics, new and modernised courses may now be delivered in English.

Smaller-scale projects introduced “Environmental Sciences” as a specialisation option in geography, biology and geology (Jagiellonian University of Cracow) and updated existing or established new courses in GIS (Jagiellonian University) or GIS, environmental protection, urban planning and management (Łódź University).

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<tr>
<th>Bulgaria: new Bachelor’s and Master’s programmes, and new or updated courses in chemistry, physics, biology, earth sciences and mathematics</th>
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<tr>
<td>Co-operating in a single project, all four universities teaching chemistry in Bulgaria modernised four core modules (organic, inorganic, analytical and physical chemistry) for Bachelor’s programmes. As a result, the BSc programmes were recognised by the EU partners as fully equivalent to their degrees. Furthermore, the four chemistry faculties allocated ECTS credits to course units in their new programmes, preparing for the implementation of the ECTS under the Socrates/Erasmus Programme. Finally, Bulgarian teachers were trained to deliver chemistry courses in English.</td>
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<td>Similar large-scale modernisation was undertaken by the only two Bulgarian universities which offer degree programmes in earth sciences (St. Kl. Ohridski University and St. I. Rilski University of Mining and Geology in Sofia). In order to harmonise, in so far as possible, their curricula with those at the EU partner institutions, the two Bulgarian universities updated a large number of compulsory and optional modules and developed new courses in GIS for both BSc and MSc levels. Moreover, all restructured modules may now be delivered in Community languages.</td>
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<tr>
<td>Under another project, five Bulgarian universities developed new Bachelor’s programmes in Mathematics and Computer Science. The new curricula are also used for the training of secondary school teachers.</td>
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119 N. Copernicus University, Toruń, A. Mickiewicz University, Poznań, Silesian University, Katowice, and Warsaw University.
120 Warsaw University and Technical University of Łódź, and N. Copernicus University, Toruń, and Wrocław University respectively.
121 St. Kl. Ohridski, Sofia, P. Hilendarski University, Plovdiv, K. Preslavski University, Shoumen, and A. Zlatarov University, Bourgas.
122 St. Kl. Ohridski University, Sofia, K. Preslavski University, Shoumen, P. Hilendarski University, Plovdiv, St. Cyril and St. Methodius University, Veliko Turnovo, and N. Rilski University, Blagoevgrad.
Projects benefiting faculties of biology in Bulgaria are in fact situated at the interface between biology and other areas. As an outcome of one Tempus project, students of biology at the P. Hilendarski University of Plovdiv may now choose a new Master's programme in Plant Biotechnology. Under the other two projects, two new Master's programmes in Environmental Biotechnology and Biological and Molecular Sciences were introduced at the St. Kl. Ohridski University of Sofia, and the latter was also launched at the K. Preslavski University of Shoumen and the P. Hilendarski University of Plovdiv.

As a result of an interdisciplinary project covering physics, a new modular Master's programme in Medical Radiation Physics was developed in English for the P. Hilendarski University of Plovdiv, the Plovdiv branch of the Technical University of Sofia and the Higher Medical Institute of Plovdiv. To provide degree programmes and continuing education courses in medical radiation physics, an inter-university centre was set up as an integral unit of the Medical Institute of Plovdiv. Finally, as an example of smaller-scale changes, the Bachelor's programmes in Physics at the P. Hilendarski University of Plovdiv were modernised through the updating of courses in polymer processing.

Romania:
new specialisation options in mathematics, physics and chemistry, and new Master's programmes in biology and geology

Five universities in Romania established new specialisation options in their existing Master's programmes in Mathematics, including applied mathematics and theoretical mathematics, convex analysis and approximation, dynamic systems, numerical approximation, and non-linear analysis in fluid mechanics. Nuclear physics, molecular physics, physics of plasma and solids were added to the range of specialisation options offered under Master's programmes in Physics at two universities (Babes-Bolyai University and Al. I. Cuza University). Moreover, the two universities introduced an ECTS-based credit system. A new specialisation, 'Computer Aided Laboratory and Monitoring Techniques', was also developed in chemistry for the colleges at the Polytechnic-University of Bucharest, the Technical University of Iasi and the Babes-Bolyai University.

Master's programmes in Neurobiology were restructured at Bucharest University, the Al. I. Cuza University and the University of Medicine and Pharmacy in Bucharest, and a new Master's programme in Biology, covering plant genetic manipulation for crop improvement, was developed for the Babes-Bolyai University of Cluj-Napoca.

Finally, a new Geo-Sciences Centre was set up at Bucharest University to provide a new Master's programme in Environmental Geology and Geophysics and short retraining courses.

General comments

In the context of the higher education reform, Tempus projects in Bulgaria and Romania strengthened the new degree structures through the development of new Bachelor's and Master's programmes or Master's programmes respectively. Moreover, like in other areas, existing curricula were modernised through the broadening and updating of contents. Universities in Hungary updated the contents of their programmes. It should also be noted that Tempus outcomes in Hungary and Romania were generally university-specific and may thus be seen mainly as single model programmes or courses. Wider impact was achieved in Bulgaria where all relevant faculties harmonised at least their programmes in chemistry and earth sciences with those at EU institutions.

The impact of the projects in Poland differs from that in the other three countries in so far as the transformation of one-tier Master's programmes into two-cycle programmes was used as an opportunity to restructure substantially the existing curricula in addition to the modernisation of curricular contents. In

123 Bucharest University, Babes-Bolyai University, Cluj-Napoca, University of Craiova, Al. I. Cuza University, Iasi, and West University of Timisoara respectively.
fact, natural sciences and mathematics are the areas where the efforts to introduce modern credit-based curricula, which ensure flexibility and quality, were undertaken most consistently and in a representative number of universities. This also confirmed and reinforced the trend which emerged in Tempus in engineering and technology and, though on a more modest scale, in other areas. In a broader European context, the two-cycle programmes are also a contribution towards the achievement of the main goal of the Bologna Process.

Overall, reflecting the national priorities, the projects in natural sciences and mathematics were designed to support the modernisation of degree programmes rather than the EU accession process. Thus, no attempts were undertaken to increase the European dimension in these areas, and only universities in Poland and Bulgaria introduced the ECTS or an ECTS-based internal credit system and prepared courses in a Community language to prepare for the EC programmes.

Education and teacher training

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<th>Hungary: new and updated courses</th>
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<tr>
<td>Hungary focused clearly on the development of courses in physics, environmental issues and technology offered under teacher education programmes by universities and colleges.</td>
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<tr>
<td>Programmes for teachers of physics were upgraded at the College of Nyiregyháza and the K. Eszterházy College in Eger.</td>
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<td>In accordance with their specialisation, three Hungarian universities developed new or upgraded existing courses covering environmental issues in their teacher education programmes.</td>
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<td>In turn, Budapest Technical College and Miskolc University modernised their technical teacher training programmes, introducing new or restructuring courses in communication, information technology, career guidance, adult learning, educational technology and methodology. Moreover, Miskolc University introduced an ECTS-based credit system into its teacher programmes.</td>
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<th>Poland: new and restructured programmes for two-subject teacher education</th>
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<tr>
<td>Poland continued to modernise under Tempus its teacher education programmes which qualify graduates for the teaching of at least two subjects. Upgraded programmes for two- or multi-subject teacher education, which are now offered at five Polish universities, cover a wide variety of areas, ranging from natural sciences to history and languages. Bachelor’s programmes for teachers of natural sciences and mathematics were restructured at the N. Copernicus University of Toruń (biology-chemistry-geography and physics-mathematics-computer science) and the Teacher Education School in Olsztyn (physics-mathematics). Furthermore, co-operation with EU partners resulted in the introduction of the European Credit Transfer System at both universities. Moreover, Tempus funds at the N. Copernicus University were used to develop new courses in environmental sciences, science and technology in society, and school management, and to set up an Interfaculty Mathematics and Science Teacher Education Centre. In turn, the Teacher Education Schools in Bydgoszcz, Cracow and Olsztyn restructured their curricula to allow graduates to obtain a Bachelor’s degree in English Studies and a Master’s degree in Technology, History or Education/Early Learning.</td>
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124 Szeged University of Arts and Sciences, Debrecen University of Agriculture and I. Szent University, Gödöllő.
Moreover, new curricula for **two-cycle teacher education** covering at least two subjects were developed for the M. Curie-Sklodowska University of Lublin (chemistry-physics, physics-geography), the Teacher Education School in Kielce (chemistry-biology) and Opole University (chemistry-physics, physics-geography, chemistry-biology). This was combined with the modernisation of a large number of core courses and the allocation of credits to courses in accordance with the **European Credit Transfer System**.

### Bulgaria: miscellaneous changes

As a result of the first of four projects covering to a lesser or greater extent teacher education in **Bulgaria**, the curricula for **special education** teachers were restructured at two universities (St. Kl. Ohridski University, Sofia, and N. Rilski University, Blagoevgrad). Under the second project, five Bulgarian universities developed a new **curriculum** for the training of **teachers for secondary economic schools**, and trained their academic teachers to provide new courses covering economics, **information technology** and project management. Five other Bulgarian universities in the third project introduced **information technology** courses, covering introduction to Windows, Internet and e-mail, multimedia in education, etc., for teacher education programmes. Finally, in the fourth project, **Bachelor’s programmes in Mathematics and Computer Science** for secondary school teachers were modernised at five universities.

### Romania: new Master’s programme and new courses

In Romania, four universities introduced a new **Master’s programme in Integrated Education**, with teaching supported by new resource centres (Bucharest University, Babes-Bolyai University, Cluj-Napoca, Al.I. Cuza University, Iasi, West University of Timisoara).

As part of smaller-scale changes, teacher education programmes were extended to cover multi-interdisciplinary courses (Bucharest University) and courses in **information and multimedia technologies** for teachers of languages and other subjects (Bucharest University, Al. I. Cuza University, Iasi, D. de Jos University, Galati, University of Craiova).

### General comments

The outcomes of Tempus projects in this area are clearly country-specific, reflecting the national frameworks and priorities for teacher training, and in some cases even university-specific. Overall, given the limited number of projects, Tempus contribution to the **reform of higher education** was rather selective and may be seen mainly in terms of establishing some model programmes or courses and, as a common development in the four countries, introducing **information technology** into teacher education. In addition, by introducing two-cycle programmes in Poland and Master’s programmes in Romania, Tempus added another building block to the new degree structures set up by the higher education law and/or promoted in the reform strategies.

In the **European context**, it is only worth noting that the two-cycle programmes in Poland coincide with the structure promoted in the Bologna Process, and that several universities in Poland introduced the ECTS to prepare for the participation in the Socrates/Erasmus Programme.

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125  St. Kl. Ohridski University, Sofia, University of National and World Economics, Sofia, Varna University of Economics, N. Rilski University, Blagoevgrad, and St. K. Preslavski University, Shoumen.

126  A. Kanchev University, Rousse, P. Hilendarshi University, Plovdiv, Technical Universities of Sofia and Varna, and New Bulgarian University.

127  St. Kl. Ohridski University, Sofia, P. Hilendarshi University, Plovdiv, St. Cyril and St. Methodius University, Veliko Turnovo, N. Rilski University, Blagoevgrad, and St. K. Preslavski University, Shoumen.
Humanities, arts and other areas

**Humanities**

As a result of two projects in Romania, the Al. I. Cuza University of Iasi launched a new Master's programme in Philosophy and Political Science, and new PhD programmes in Philosophy and Political Science and in Literary Studies were established at the Babes-Bolyai University of Cluj-Napoca.

In Hungary, Szeged University of Arts and Sciences and the L. Eötvös University of Arts and Sciences in Budapest introduced a Bachelor's programme for multimedia literature teachers and literary managers.

Humanities in Bulgaria were covered to a greater or lesser extent by three projects. Under the first one, minimum curriculum requirements were defined for Bachelor's programmes in various areas of Philology at the St. Kl. Ohridski University of Sofia and the P. Hilendarski University of Plovdiv. As a result of the second one, a modular curriculum for Balkan Studies was developed for the St. Cyril and St. Methodius University of Veliko Turnovo. The third one introduced experimental courses in information technology for students of humanities: computational linguistics (St. Kl. Ohridski) and IT support for humanities (St. Cyril and St. Methodius University).

**Arts**

Under a single project in arts in Poland, the five-year Master's programme in Musicology at the Jagiellonian University of Cracow was transformed into a structure with a common core followed by separate strands for BA and MA programmes. The development of a new Bachelor's programme for the transformed structure and linkages with a new Master's programme was combined with the introduction of new courses in history of rock and jazz and the updating of courses in European music. The restructured curricula were submitted to the Ministry of National Education as a proposal for minimum curriculum requirements in musicology. In addition, the European Credit Transfer System was implemented to exchange students with EU partners.

In Bulgaria, the National Academy of Arts in Sofia modernised its courses in industrial arts based on information technology.

In Romania, the I. Andreescu Visual Arts Academy, Cluj-Napoca, introduced a new specialisation option, 'Photo Video Computerised Image Processing', and the European Credit Transfer System, and the Academy of Arts in Bucharest added design to its range of courses.

**Other areas**

Other areas are represented by a single project in physical education implemented by the National Sports Academy in Bulgaria. The National Sports Academy in Sofia established a new Master's programme in three fields, 'Physical Education', 'Sports Training' and 'Sports Management' and introduced the European Credit Transfer System for its Bachelor's and Master's curricula. As a result of the curricular changes, the Academy was invited to join the European Master's Programme in Sports Management and Sports Organisation (MEMOS).

**General comments**

Clearly, humanities, arts and other areas could hardly find their way to Tempus among all key priorities. However, even in these areas, Tempus strengthened the degree structures through the establishment of a new Bachelor's programme in Hungary, another two-cycle programme in Poland and Master's and PhD programmes in Romania. Moreover, supporting the reform of higher education, at least some faculties or universities extended the range of courses, also making a wider use of information technology. Finally, in the EU accession context, Tempus supported single universities in Poland, Bulgaria and Romania in their preparations for Socrates/Erasmus through the introduction of the European Credit Transfer System.
Degree programmes: summary and general comments

In all four countries, curriculum development projects covering degree programmes led to larger- and smaller-scale outcomes, ranging from new or restructured programmes to new and updated speciality/specialisation options and courses within existing programmes. In this way, Tempus supported the efforts undertaken by universities in the context of the national higher education reforms as well as within the broader European context. While some issues highlighted in the national and/or European context were tackled successfully in all or at least some countries, other goals or challenges may have received more substantial support under the Programme.

Generally, the most striking feature of projects covering degree programmes is the great variety of their outcomes which may be easily divided into types, but could hardly be summarised in any other way. It thus seems that universities in all four countries made the maximum use of the newly granted autonomy in their Tempus projects.

In the context of the higher education reform, the Programme contributed to the establishment or strengthening of the post-1989 degree structures. Hungary and Romania introduced entirely new programmes, whereas Bulgaria and Poland also built "new" programmes by transforming previously existing ones.

Degree programmes were generally developed in all areas and at all levels. A large number of new programmes, with at least several in each of the four countries, were established in the areas related to political, economic and/or social changes, these including public administration, political science, social work, health care, business and management, as well as in environmental sciences. Moreover, Poland, Bulgaria and Romania introduced new programmes in engineering and technology, and single programmes in agriculture were developed for universities in Hungary, Poland and Bulgaria. In addition, each country launched single programmes in other areas less visible in Tempus, e.g. multimedia literature education (Hungary), teacher education and musicology (Poland), physical education (Bulgaria), and philosophy and integrated education (Romania).

In Hungary, where the priorities focused on the PhD degree as a new type of university degree compatible with that in Western Europe, Tempus established PhD programmes in sociology, law, veterinary science and oncology. However, it is also interesting to note that the Programme did in fact much to extend the existing degree structure through the introduction of postgraduate Master's programmes in European Studies, translation and interpreting, European law, business and management, agricultural engineering and environmental sciences. Since the higher education law provided only for five-year one-tier Master's programmes, these were temporarily offered under special accreditation arrangements or as part of further education.

Poland, which promoted the three-cycle structure in its reform strategy, introduced entirely new Bachelor's programmes in languages and literature, social policy, engineering and technology, architecture, agricultural and environmental sciences as well as two-cycle programmes, with Bachelor's followed by Master's, in most of the Tempus-supported areas. The two-cycle programmes were mainly based on existing one-tier Master's programmes but also developed as entirely new ones. As a result of Tempus, these are available in particular in engineering and technology, natural sciences and mathematics, business and management as well as in agricultural and environmental sciences, nursing and public health, library and information science, teacher education and musicology.

In Bulgaria, the new three-cycle structure set up by the higher education law was strengthened through the introduction of both Bachelor's and Master's programmes in European Studies, urban planning, health care management, engineering and technology and agricultural sciences. Moreover, those developed specifically for one of these levels include a Bachelor's programme in social work, and Master's programmes...
in public administration, business and management, environmental sciences, biotechnology and physical education.

- **Romania** focused on the establishment of college-type and Master's programmes as entirely new levels introduced by the higher education law. The **three-year college programmes** cover nursing and other health care areas, banking, finance, tourism and hotel management, and engineering and technology. The new **Master's programmes** are offered in sociology and social work, public administration and political science, project management, engineering and technology, environmental sciences and integrated education. In addition, **PhD programmes** were developed in the areas where these had not existed before, including sociology, political science, public administration and literary studies.

While the Programme did not make a massive investment in degree programmes, at least one and often more “model” programmes based on good EU practice were launched through Tempus projects at a fairly large proportion of universities in the four countries. Overall, the contribution of Tempus to the establishment or development of the degree structures was clearly more visible in Bulgaria, Poland and Romania than in Hungary. This may be primarily explained by the country-specific needs and priorities as determined by the national legislation and reform strategies. While structural changes in Hungary were limited to the “top” PhD level, the other three countries embarked on larger-scale transformations which involved two “core” levels of degree education.

As regards the modernisation of existing programmes, another key issue highlighted in the reform strategies, Tempus extended undoubtedly the range of options available to students, and broadened and updated curricular contents. This was achieved through the introduction of new speciality/specialisation options and courses as well as the updating of existing courses. In this way, Tempus also brought existing degree programmes closer to the labour market as the new and updated speciality/specialisation options and courses were an immediate response to the demand for specific knowledge and skills created by the post-1989 realities.

- The range of specialisation and/or speciality options available was increased by a fairly large number of universities in a wide variety of areas in Bulgaria, Poland and Romania, and by single universities in selected areas in Hungary. In response to specific accession challenges, all four countries launched new specialisation options in translation and interpreting for language students, and those in European Studies were also developed in Hungary, Poland and Romania for programmes in social sciences, economics or business and management. The new options offered as a result of Tempus in business and management cover financial management, international finance, insurance and European affairs/Euro-marketing (Poland), business logistics (Bulgaria) and international trade for European integration and intra-European trade (Romania). Those in engineering and technology include, for example, microelectronics, power electronics, quality engineering and digital signal processing (Poland), polymeric material science, advanced materials and modern materials and marketing (Bulgaria), and industrial informatics, medical informatics and applied informatics (Romania). In turn, environmental sciences extended the range of options for students of natural and agricultural sciences in Poland, and students in Romania may now choose a new specialisation in environmental engineering or nuclear safety. In addition, the inventory of Tempus-supported outcomes includes single specialisation options in architecture and in social security (Poland), public administration (Bulgaria) and arts (Romania).

- **New and/or updated courses** were in fact the key outcome of a very large number of projects or an additional outcome of projects which focused on the restructuring of existing or the establishment of new programmes and speciality or specialisation options. Courses were developed or updated in all areas of study, though – like in the case of programmes and speciality or specialisation options – mainly in the areas linked to political, economic, social and technological changes. While most courses were specific to the subject area and could thus hardly be summarised here, it is worth highlighting three types of cross-curricular developments.
Firstly, some courses were developed or upgraded to increase the interdisciplinary dimension of studies. These include both courses in interdisciplinary areas such as medical physics (Poland and Romania), biotechnology (Hungary, Poland, Bulgaria) and biomedical engineering (Romania), as well as environmental education (Hungary, Poland, Bulgaria) and business and management courses (Bulgaria) for students of engineering. Secondly, to enhance the European dimension of studies, new courses covering various European or EU issues were created for a number of universities in all four countries. These were introduced into degree programmes in Community languages, law, media studies, and business and management in Poland, public administration, law, economics and engineering in Hungary, public administration and law in Bulgaria, and sociology, economics, business and management, and veterinary science in Romania. Thirdly, to equip students of various fields with necessary computer skills, information technology courses were developed as new or upgraded within degree programmes in teacher education (four countries), veterinary science and library and information science (Hungary, Poland), business and management (Hungary, Bulgaria), sociology (Poland) and humanities (Bulgaria).

- New speciality/specialisation options and courses were established and existing ones were updated at the college, Bachelor's, Master's and PhD levels in Hungary and Romania, and mainly within the Bachelor's and Master's programmes in Bulgaria and Poland. Like in the case of new degree programmes, the differences between the countries resulted from the needs and priorities of the higher education reform legislation and strategies. Regardless of the level, Tempus in all four countries introduced or upgraded both compulsory and optional courses. It is however worth noting in this context that the development of courses in new areas relevant to labour market needs, which would attract a larger number of students, met in a number of projects with the resistance of professors teaching more traditional disciplines. As a result, they could only be offered as optional courses, which limited to some extent the immediate impact of Tempus.

While substantial funds were invested to launch new programmes and to introduce or update specific speciality/specialisation options and courses, less emphasis was placed in the Programme on the review and restructuring of overloaded existing curricula and the increasing of their flexibility. Overhaul and restructuring of entire curricula were undertaken mainly as a result of changes in the “core” degree structures. Hence, more was achieved in this respect in Poland as well as in Bulgaria which transformed their existing one-tier Master’s programmes into two-cycle programmes.

- The restructuring of one-tier Master’s curricula in Poland involved the introduction of ECTS-based credit systems and/or modular structures, the reduction of the number of teaching hours, the development of a tutorial system and quality-oriented arrangements, and a shift towards practical skills and problem-based learning. Obviously, not all of these elements were present in all programmes restructured under Tempus. However, as a result of Tempus, modern curricula ensuring flexibility of studies are now offered by a fairly large proportion of universities in natural sciences and mathematics, engineering and technology, and by a smaller number of universities in environmental sciences, business and management, and agriculture.

- Transforming their one-tier Master’s programmes, universities in Bulgaria were to some extent required to increase the flexibility of studies by the higher education law which provides for a modular structure of curricula in all areas of study. However, moving beyond the legal requirement, some Bulgarian universities also restructured their curricula, e.g. in medicine, urban planning, engineering and technology, to establish ECTS-based internal credit systems.

- Some support for similar changes was also provided by Tempus in Hungary and Romania. Even though universities were not specifically encouraged to do so under the Programme, some of them did indeed overhaul and redesign their existing curricula. In Hungary, the review and restructuring of programmes in medical areas and veterinary science at all relevant faculties was combined with the introduction of ECTS-based credit systems, whereas several technical faculties screened out and redesigned their programmes in civil, electrical and mechanical engineering to establish modular and ECTS-based curricula.
In Romania, first successful attempts at increasing the flexibility of studies through the redesign of curricula and the introduction of ECTS-based credit systems were undertaken by some universities in medicine, business and management, engineering and physics.

Regardless of the different impact in each of the four countries, it is worth noting that none of them used Tempus funds to review and restructure existing curricula in some areas, such as social sciences, humanities or teacher education, which were highly politicised in the pre-1989 period.

The little emphasis placed in the projects on the restructuring and/or flexibility of existing curricula, except in those transforming existing programmes into a new structure, may be explained by several reasons. First of all, adding a new specialisation or course is evidently an easier exercise than the restructuring of entire curricula, and may have also been the only feasible option especially in the first years when inertia or resistance to further-reaching in faculties was clearly stronger than trends towards innovation. Moreover, the flexibility of curricula emerged clearly in the reform strategies at national level towards the end of or in the late 1990s. In turn, the issue could hardly be integrated into Tempus at that time as the final years of the Programme focused more or exclusively on specific accession challenges rather than on the reform of curricula. Consequently, the review and restructuring of existing curricula or arrangements increasing flexibility of studies were not included as a specific "requirement" in the national priorities. Such larger-scale changes were thus undertaken only by more “ambitious” faculties or universities on their own initiative.

Considering all curricular developments jointly, including new programmes, specialisation options and courses as well as updated contents or restructured curricula, it is striking that Tempus focused clearly more on improving what may be called academic quality of degree programmes rather than on their relevance to labour market needs. On the one hand, as mentioned earlier, it is true that the new programmes, specialisation options and courses were indeed an immediate response to the demand for specific knowledge or skills on the labour market. On the other hand, potential employers participated actively only in a very small percentage of projects, mainly those designed to establish new programmes, and were not involved in a review of the curricular structure or contents. This would have been particularly important in the subject areas where a better balance should be achieved between theoretical knowledge and practical skills. Consequently, no mechanisms were established to ensure that adjustments in degree programmes are made regularly in accordance with evolving and often unpredictable needs on the labour market.

In a review of curricular changes, it is also worth mentioning that the introduction of new programmes and the modernisation of existing ones were combined with the establishment of new units. All four countries set up various new units for the teaching of European Studies, these ranging from inter-university, and inter-faculty or faculty-based centres to faculties, departments or chairs. In other areas, more substantial investment in the institutional structure was made by Romania where Tempus supported the establishment of one university department of social work, one environmental education centre and 18 colleges within universities. The colleges offer three-year programmes in audiology and auditory prosthesis techniques (1), social assistance, geriatrics and gerontology (1), community social work (1), banking and finance (6), tourism and hotel management (4), computer science and information technology (3), and material science and metallurgy technology (2). The inventory of new units in the other three countries is clearly shorter, including two departments of social work and an agribusiness branch in Hungary, a chair of European law in Poland, a faculty of health care management and a department of public administration in Bulgaria. The larger number of new units, and in particular the new colleges, in Romania may be explained by the fact that the development of previously non-existent three-year programmes, as an alternative to longer university programmes, was one of the top priorities in the higher education reform strategy. Hence, the colleges were almost a national-scale investment in a new type of education specifically demanded in the Tempus priorities, whereas the new units in the other three countries were set up in response to university-specific needs as an additional outcome or even a spin-off effect of curriculum development activities.
Designed in accordance with subject-area priorities and/or to modernise programmes in a specific area of study, Tempus projects had “by definition” impact at department or faculty level, depending on the specific organisational structure of universities in the four countries. However, individual projects – mainly in Bulgaria and Romania, but also in Hungary – also achieved more widespread impact at interfaculty level through the involvement of at least two, three or even more relevant universities in accordance with the national priorities or preferences. Moreover, impact at national level was achieved in single projects which brought together all faculties in the candidate country offering degree programmes in a given area (e.g. medicine in Hungary or chemistry in Bulgaria). Since there is a limit to the size of consortia to make projects manageable and effective, impact at national level could hardly be achieved through individual projects in countries such as Poland which have a large number of faculties providing degree programmes in a given area. However, more could have been done in Poland to ensure interfaculty impact of individual projects through the establishment of larger university networks in Tempus projects.

In addition, Tempus projects had some indirect impact extending beyond the project consortia. This meant mainly increased awareness of what innovations were and could be introduced and of how they should or should not be introduced. Dissemination activities organised to transfer such information and experience often reached wide academic circles or even all faculties offering degree programmes in a given area. Moreover, outcomes of some projects, in particular those which involved larger-scale restructuring of curricula, actually encouraged similar transformations in other faculties of the same university or faculties providing degree programmes in the same area at other universities.

In this context, it is also worth noting that single projects led to outcomes which were or might have been of immediate relevance not only beyond the project consortia, but also at national level or to the national authorities. These include a framework curriculum for Community languages in Bulgaria, a model syllabus for European Studies and the curriculum standards for musicology in Poland, curricula for two new professions, “nurse with a higher education diploma” and “project manager”, officially registered as a result of Tempus in Romania. As few isolated examples, these outcomes may have been of little significance in the countries. They prove, however, that even a bottom-up programme as Tempus, which is targeted on individual universities, may in principle support the development of legislation and other arrangements at national level.

Considering the predominance of certain subject areas, the nature of outcomes and the faculty or interfaculty level of its impact, Tempus left an uneven landscape in all four countries. In this uneven landscape, “islands” of new, restructured or updated programmes and courses co-existed beside those where weaknesses of the pre-1989 period may have prevailed over trends towards innovation. However, such bigger and smaller “islands” were created in a fairly large proportion of universities in the four countries, even if curricular changes in degree programmes were not evenly “spread” between universities and within individual universities. Tempus beneficiaries include 21 of 30 public and 3 of 34 non-public institutions in Hungary, 62 of 90 public and 16 of 90 non-public institutions in Poland, 24 of 29 public and 3 of 5 non-public institutions in Bulgaria, and 31 of 48 public institutions in Romania. In each country, these are all or almost all institutions that provide degree programmes in the areas covered by Tempus priorities. The pre-selecting mechanism of the national priorities left outside Tempus mainly the universities which offer degree programmes in fine arts, theology and/or physical education as the areas which were not as such promoted by any of the four countries.

Against this landscape, it would also be interesting to see what effects the projects brought at the universities, and whether and how the specific outcomes of projects were translated into broader changes extending beyond the modernisation of curricula. Such a direct link is rather difficult to identify for obvious reasons as well as those explained in the methodology of the study. However, in each of the four countries, all projects taken jointly encouraged and/or reinforced trends towards innovation. In this way, they contributed undoubtedly to the emerging culture of change which determines to a large extent the success and sustainability of all initiatives undertaken to reform higher education in the four countries.
Moreover, though the projects did not, as a rule, introduce internal quality assurance systems or procedures, they did definitely improve the quality of degree programmes and proved to be a precondition to the accreditation of programmes or university units granted subsequently by the national bodies. This was achieved either through the restructuring of entire curricula in individual projects or as a combined effect of several smaller-scale projects. Furthermore, at the faculties or universities where Tempus supported the extensive restructuring of curricula, the improvement in quality resulted almost immediately in the growing number of students and a higher position in regional or national rankings. In other cases, such developments were taking place gradually as the cumulative effect of numerous smaller-scale changes.

As mentioned above, curricular changes in degree programmes were not, except in a few projects, introduced together with internal quality assurance mechanisms, and such mechanisms were generally not yet in place in the four countries (for quality assurance, see: Part II.2.2.). However, the quality of project outcomes was confirmed directly or indirectly in various ways.

- Firstly, programmes, speciality/specialisation options and courses developed or modernised in an overwhelming majority of Tempus projects were recognised by the relevant faculty or university authorities.

- Secondly, they were accredited by the relevant national bodies, where these existed at that time and where this was required by the higher education law during the lifetime of the projects. For a small number of programmes and courses, especially those of a new type or in new areas, procedures were sometimes extended in time, but accreditation was either at least applied for or granted before the submission of final reports for projects.

- Thirdly, once approved and implemented, new programmes and courses attracted a large number of students, new speciality/specialisation options were chosen by a growing number of students, and attendance at updated courses was higher than before.

- Fourthly, fully modern programmes established under Tempus, especially two-cycle ones based on previously existing programmes, were actually used by the authorities in the same or other universities as models for faculties initiating similar transformations.

- Finally, the quality of new and modernised programmes was recognised at international level. Outcomes were as a rule approved by project management committees composed of the partners from the EU countries and the candidate country. In addition, many new and modernised programmes, particularly in Poland, were assessed by the EU partners as "comparable" or "fully compatible" with those offered at their institutions. Moreover, a few projects led to accreditation by international bodies or agreements and other formal arrangements for the joint delivery of programmes or double diplomas, particularly in Hungary. As a result of Tempus, such internationally recognised programmes are now available in the following areas:

  - European Studies, translation and interpreting, veterinary science, public administration, business and management, environmental and agricultural sciences in Hungary;

  - veterinary science, sociology, and business and management in Poland,

  - agricultural and environmental sciences in Bulgaria, and

  - European Studies and sociology in Romania.

Furthermore, the compatibility of curricula at the faculties benefiting from Tempus in the four countries with those in EU partner institutions was indirectly confirmed by agreements signed at the end of projects for co-operation in Socrates/Erasmus.
The quality of outcomes is also an important factor determining their **sustainability** in so far as it should ensure the continued interest among students in what is offered in degree programmes as a result of Tempus. In this respect, several quality "indicators" were mentioned above, though curricular changes would have ideally been introduced together with some internal assurance mechanisms or under internal quality assurance systems.

Moreover, sustainability was ensured through a number of activities and follow-up arrangements. In all projects, curriculum development activities and the establishment of new units were combined with the training of teachers, the development of teaching materials and the provision of equipment to provide new and modernised programmes, speciality/specialisation options and courses. Curricular changes in an overwhelming majority of projects were, as mentioned earlier on, approved by the relevant authorities and actually implemented during the project lifetime. As a result, outcomes of the projects were integrated into regular teaching activities, and funding was envisaged for them in university budgets.

However, it is also worth noting in this context that the maintenance of the enormous amount of equipment purchased in all four countries and of the new units set up in particular in Romania did put a heavy strain on university and national budgets which were already fairly tight.

In more general terms, another element contributing to the sustainability of changes in degree programmes is the **culture of change** which was also created as a combined effect of Tempus projects in all four countries.

In the **European context**, the projects covering degree programmes enhanced clearly the **European dimension** of studies, a key issue of both the Community **acquis** and the Bologna Process.

- A European dimension was by nature present in the projects covering degree programmes which, like all Tempus projects, involved partners from at least two and often more EU countries. Each partner added a different perspective and its own flavour to all new and modernised programmes, speciality/specialisation options and courses, regardless of their subject area.

- Furthermore, Europe was introduced into higher education through **European Studies** offered as full degree programmes, as well as through specialisation options and courses covering a wide range or selected **European and EU issues** (see: overview of programmes, speciality/ specialisation options above). Comparing the four countries, specialisation options in European Studies and the so-called EU courses or modules were developed for a relatively larger number of areas of study and universities in Hungary, Poland and Romania than in Bulgaria. In a comparison by area of study, "European" specialisation options and modules in all four countries were concentrated mainly in faculties offering degree programmes in business and management, social sciences and law, though Poland also enhanced in this way the European dimension of degree programmes in Community languages. This is understandable in view of the fact that these areas were specially promoted in the national priorities, and that the knowledge about the EU is most relevant to those graduating from degree programmes in these areas. Ideally, similar developments could have also been supported in faculties providing degree programmes in other areas as these may normally not be encouraged by the labour market to integrate a European dimension and would thus not develop "European" courses outside EU programmes.

The projects covering degree programmes proved equally successful in preparing universities in the four countries for the **participation in the regular EC programmes**.

- First of all, while some projects were based on previous bilateral co-operation agreements, a large number of them led to numerous new links and multilateral partnerships between faculties in the four countries and those in EU countries.
• Moreover, teaching and administrative staff from hundreds of faculties involved in the 496 projects covering degree programmes had a unique opportunity to develop project design and management skills, and to master administrative and financial procedures as well as the very specific jargon used in EU programmes. That this opportunity was not missed is confirmed by the fact that universities in the four countries were co-ordinators and/or contractors of an overwhelming majority of the projects.

• In so far as the exchange of students in the EC programmes requires a certain degree of compatibility of curricula, it is worth noting again that a fairly large number of programmes developed or modernised in Tempus were considered “compatible” with those at EU partner institutions. Some of them were even recognised in various ways by EU universities and bodies.

• Finally, as regards more practical preparations, a large number of courses were prepared to be delivered in Community languages, mainly in English but also in French and German. These are available in engineering and technology (Hungary, Poland, Romania), environmental sciences (Hungary, Poland, Bulgaria), medical and veterinary science, law, business and management (Hungary, Poland), architecture (Poland, Bulgaria), sociology (Hungary, Romania), public administration (Hungary), library and information science, agricultural sciences, natural sciences and mathematics (Poland), chemistry and earth sciences (Bulgaria).

Overall, the advanced state of preparations was confirmed by agreements for co-operation in Socrates/Erasmus which were signed by Tempus partners upon completion of an overwhelming majority of the more recent projects, and for co-operation in Leonardo as a result of some projects. The greater interest in the future co-operation under Socrates/Erasmus, a programme which provides for co-operation in education rather than in training, may be explained by the “academic character” of projects covering degree programmes. Even though some of the projects established partnerships with industry and other non-academic sectors, which may continue and develop further under the vocationally oriented Leonardo Programme, this was definitely not the main objective of Tempus projects supporting the modernisation of degree programmes.

With few exceptions, Tempus made a clearly more modest contribution towards the harmonisation of curricula for the seven professions regulated by the EC Directives as a specific requirement of the EU accession process. The few exceptions are curricula for veterinary science at the only one veterinary faculty in Hungary and one of four veterinary faculties in Poland, which are now fully in line with the EC Directives, and those in two other Polish faculties which are largely comparable to those at EU institutions. In addition, all faculties in Hungary and some in Bulgaria restructured substantially their medical curricula, and introduced or developed further clinical skills training programmes. None of the four countries funded any project focusing specifically on the harmonisation of curricula in nursing, midwifery, pharmacy, dentistry or architecture in accordance with the EC Directives.

Clearly more should have been achieved in Romania where Tempus offered no support for the implementation of the EC Directives, but also in the other three countries where its impact could be seen in one or two of the seven regulated professions and/or in few of the relevant faculties.

The generally limited Tempus support for the implementation of the EC Directives for the regulated professions may be explained by at least two reasons. Firstly, the priority for the harmonisation of curricula in the regulated professions was introduced too late and/or the Tempus Programme was closed too soon for the candidate countries. This is particularly important in view of the fact that while the list of priorities for the final Tempus years in the candidate countries was overloaded with key accession-related issues, the budgets available to support projects in all these areas were substantially reduced as compared to the previous years. As a result, some initiatives, even if undertaken, could not be funded. Secondly, like in some other areas, the situation in the regulated professions is clearly an example of ‘mismatch between demand and supply’ that results from the in-built mechanism of the Tempus Programme. As a bottom-up programme, Tempus relies heavily on the initiative of universities which do or do not ‘supply’ projects in response to the ‘demand’
expressed in specific priorities. The harmonisation of curricula did indeed appear in the national priorities, but this was apparently insufficient to encourage universities to submit a desirable number of good-quality projects. This proves that, in case of special interest at national level, more determined efforts should be made to encourage the supply of good quality projects.

Finally, a few comments concerning the establishment of two-cycle programmes as one of the key goals of the Bologna Process launched in 1999. Although even the most recent projects covering degree programmes were launched before 1999, any review of Tempus should at least acknowledge the relevance of some of its outcomes to the implementation of the Process.

Of all four countries, Poland seems to be the one where Tempus did most to “advance prospectively” the goal of the Bologna Process. First of all, Tempus projects established at least one model two-cycle programme in a relatively wide range of areas and a relatively large number of universities. Moreover, these models were actually used by other faculties transforming their degree structures. While two-cycle programmes were promoted in the reform strategy, the higher education law also provided for one-tier Master’s programmes, and no special incentive was provided at national level to transform one-tier programmes into two-cycle structures. In this context, Tempus priorities concerning two-cycle programmes exerted some pressure, and Tempus projects offered substantial assistance in the transformation of degree structures. In Bulgaria, all Bachelor’s and Master’s programmes introduced by universities under Tempus to comply with the post-1989 higher education law also moved them closer towards the structure promoted in the Bologna Process. Within the degree structure in Romania, Tempus could only focus on the “upper cycle”, i.e. Master’s programmes, and these were indeed established in the key priority areas. The postgraduate Master’s in Hungary extended beyond the current degree structure, but they may now be considered a set of building blocks for a future structure defined by the Bologna Process.

1.2 Continuing education

The four countries adopted two approaches in the priorities for continuing education under the Tempus Programme. The priorities in Hungary were broad and open to all areas, supporting the overall development of continuing education in line with the needs of the society, the introduction of courses modelled on lifelong learning and, more specifically, the development of university-industry co-operation in response to the needs of the economy. Poland, Bulgaria and Romania focused on university-industry co-operation and continuing education in the areas of engineering and technology, business and management, social sciences, environmental sciences, health care and teacher education as common to the three countries, and agriculture, languages (Bulgaria), and food processing (Romania). While continuing education appeared in the priorities only for the academic years 1994/95 and 1995/96 in Hungary, Poland and Bulgaria, Romania promoted it consistently throughout the period covered in the study.

Continuing education courses were developed either as the key outcome envisaged in some Joint European Projects or as an additional outcome in JEPs which focused on degree programmes. Thus, reflecting both the areas predominating in the priorities of three countries for continuing education and the overall area distribution of curriculum development projects, the projects covering continuing education were also concentrated in several areas. The leading areas comprised engineering, technology and computer science (32.8% as the average for the four countries), management and business (13.4%), social sciences (10.6%), environmental sciences (10.2%) and medical sciences (9.3%). These were followed by agricultural sciences (6.0%), teacher education (5.1%)\textsuperscript{128}, languages and literature (4.2%), natural sciences and mathematics, and interdisciplinary areas (2.8%), humanities and architecture (1.4%). The breakdowns by country were generally similar, though the shares of individual areas varied to some extent between the four countries\textsuperscript{129}.

\textsuperscript{128} Some projects which covered teacher training are included in other subject-area categories, e.g. engineering and technology or environmental sciences, according to the subject area of courses.

\textsuperscript{129} See: Annex 1, Tables 13 and 14.
It also worth mentioning that, in addition to universities from the four countries and the EU Member States, most of the projects involved local non-academic institutions and organisations, including enterprises, chambers of commerce, banks, social sector agencies, hospitals or other health care institutions, professional associations, etc. Representatives of the non-academic world were included mainly as beneficiaries and target groups of continuing education courses, but in several cases were also consulted in the process of course development.

The following sections provide an overview of continuing education courses and other initiatives in the leading areas, including engineering, technology and environmental sciences, management and business, medicine and health care, social work and services, teacher training and other areas. Outcomes of projects in these leading areas are considered a representative sample for general comments which indicate the strong and weak points of the Programme in the development of continuing education.

1.2.1 Engineering, technology and environmental protection

Targeting engineers, universities in Hungary developed and organised in co-operation with their EU partners a number of specialist courses in civil engineering (Budapest University of Technology and Economics), mechatronics (Miskolc University) and environmentally oriented chemical process integration (Budapest University of Technology and Economics, Veszprém University). Moreover, to provide an institutional framework for co-operation with industry, Tempus supported the establishment of a university-level technology transfer centre as an integral unit of Miskolc University.

In addition to the courses upgrading specialist knowledge, longer programmes for the engineer degree were developed by the Budapest University of Technology and Economics, and two postgraduate Master’s programmes covering environmental issues were launched at Debrecen University as part of further education for a wider public.

Universities in Poland set up a number of new faculty- or department-based units, developed short intensive courses and launched other initiatives for local enterprises. The new units include technology transfer centres and various continuing education or training centres at the Technical Universities in Gdańsk (2), Gliwice (1), Łódź (1), Poznań (1), Szczecin (1), Warsaw (3) and Wrocław (3), and the Academy of Mining and Metallurgy in Cracow (3). All the units were recognised by the relevant authorities as integral parts of the university structures.

Continuing education courses were developed in Tempus by the new units as well as by existing faculties and departments. The engineering courses covered various areas, ranging from information technology, industrial systems engineering and restructuring of industry to bridge design, construction and maintenance, metal forming and conversion, control of electrical energy, and medical engineering. Those in environmental sciences focused on energy saving, environmental engineering, protection and management, environmentally friendly surface technologies, pollution risk monitoring, soil and water protection, water and waste water analysis, etc. Upon completion of Tempus projects, some universities planned to deliver the courses on a fee-paying basis.

As an additional outcome of Tempus projects, special databases, which contain technological information or information about local enterprises, were established by the new units as the basis for training activities or consultancy and other services.

130 The Master’s programmes are described in more detail in the section on environmental sciences, Part II.1.1.1.2.

131 Courses in at least one of these areas were introduced by the Technical Universities of Białystok, Gliwice, Łódź, Poznań, Rzeszów, Szczecin, Warsaw, Wrocław and Zielona Góra, and Academy of Mining and Metallurgy in Cracow.

132 Courses in one of these areas were introduced by the Technical Universities of Cracow, Gdańsk, Poznań, Szczecin and Warsaw, Academy of Mining and Metallurgy in Cracow, Agricultural Academies of Poznań and Warsaw, and the private College of Environmental Protection in Radom.

133 The new units at the Technical Universities of Gliwice, Poznań, Warsaw and Wrocław.
In some cases, university-industry links established in Tempus projects were strengthened through the creation of a network involving a larger number of enterprises, an agreement signed with industrial partners or the formal recognition of courses by the Association of Electrical Engineers.

Tempus in Bulgaria supported the establishment of two faculty-based units at the Technical University of Sofia, an Innovative Centre for Open and Distance Learning and Multimedia, offering CD-based multimedia packages and website applications in the area of electronic engineering, and an Education and Training Centre for Non-Destructive Testing. Both centres were set up to provide continuing education courses to professionals, on a fee-paying basis upon completion of Tempus projects, as well as degree programmes for regular students. The centres were integrated into the university structures, and the ODL centre was also recognised as part of the network operating under the Phare Multi-Country Programme for Distance Education.

In addition, courses in finite element method and in material science and technology were developed and organised for engineers by the Technical Universities of Sofia and Gabrovo, and by the University of Chemical Technology and Metallurgy, the N. Rilski University and St. Kl. Ohridski University of Sofia respectively. As a basis for future co-operation, the University of Chemical Technology and Metallurgy signed bilateral agreements with enterprises participating in continuing education courses.

In Romania, new units were set up in almost all continuing education projects in the area of engineering, technology and environmental sciences. A fairly long list includes faculty- or department-based multimedia learning centres at three universities, computer network training centres at six universities and continuing education centres at 12 universities, all recognised as integral parts of the university structures.

Courses offered under Tempus to engineers and other professionals from industry focused on information technology, electric and/or electronic engineering, manufacturing engineering, and various aspects of environmental sciences, e.g. energy and environment, and underwater technologies.

Moreover, some universities in Romania combined the development of continuing education courses with other initiatives. For example, three universities (Technical University of Cluj-Napoca, L. Blaga University of Sibiu, and North-West University of Baia Mare) set up continuing education centres, fully equipped for distance learning, to deliver courses in electric engineering as well as EU Info Centres to provide information about EU industrial standards to enterprises. Arrangements were made to finance their activities from fees paid by course participants and by enterprises contracting other services. The centres became full members of the Romanian National Consortium of the Continuing Education and Distance Learning Centres created in Tempus and the Phare Programme, and were affiliated to the EUCEN (European Universities Continuing Education Network) and

134 Technology Transfer Unit at the Academy of Mining and Metallurgy, Cracow; Technical University in Łódź, branch in Bielsko-Biała; and Continuing Education Centres at the Technical Universities of Gliwice, Poznań and Wrocław.

135 University of Craiova, Gh. Asachi Technical University in Iasi, and St. cel Mare University of Suceava.

136 Gh. Asachi Technical University, Iasi, Bucharest University, Polytechnic-University of Bucharest, Technical Universities of Cluj-Napoca and Timisoara, and Valahia University of Targoviste.

137 Technical Universities of Cluj-Napoca and Timisoara, Gh. Asachi University, Iasi, Polytechnic-University of Bucharest, L. Blaga University, Sibiu, North-West University of Baia Mare, University of Ploiesti, University of Pitesti, Valahia University of Targoviste, P. Maior University in Targu Mures, D. de Jos University in Galati (2), and Merchant Marine Institute.

138 Multimedia centres and computer networking centres at the University of Craiova, Gh. Asachi Technical University, Iasi, St. cel Mare University, Suceava, Bucharest University, Polytechnic-University of Bucharest, Technical Universities of Cluj-Napoca and Timisoara, and Valahia University of Targoviste.

139 Continuing education centres at the Technical University of Cluj-Napoca, L. Blaga University in Sibiu and North-West University of Baia-Mare. In addition, some courses in electrical and mechanical engineering were developed for in-service teacher training and are thus discussed in one of the following sections.

140 Continuing education units at Transilvania University of Brasov, University of Craiova, University of Pitesti.

141 Polytechnic-University of Bucharest, Gh. Asachi Technical University, Iasi, Technical University of Timisoara, D. de Jos University, Galati, and Merchant Marine Institute.
PACE 2000 (Professional and Academic Channel for Europe). In the area of environmental sciences, it is worth mentioning the National Consultancy and Short Course Centre for Environmental Protection in Chemical and Petrochemical Industry set up at the Polytechnic-University of Bucharest. In addition to developing and delivering continuing education courses, the centre compiled a national register of Romanian companies interested in environmental monitoring and protection to identify potential course participants and contractors for other services. During its Tempus project, the centre already managed to generate some income from courses organised jointly by the Polytechnic-University of Bucharest and the Petrol-Gaze University of Ploiesti, as well as from consultancy services.

1.2.2 Management and business

Two universities in Hungary introduced new postgraduate Master’s programmes as part of continuing education or, more precisely, further education. The programmes covered several areas of business and management, including real property management (Budapest University of Economics and State Administration), and small and medium size enterprise management, banking and investment, and corporate management (Debrecen University). As an additional outcome, Debrecen University set up a faculty-based continuing education centre to organise, co-ordinate and strengthen links between the university and the business sector, and to deliver postgraduate programmes, short specialist courses and language courses for fees. Furthermore, to support the development of disadvantaged areas in Hungary, seven universities launched a training programme in tourism management and environmental tourism, leading to the titles of tourism consultant and settlement manager. In turn, in a project co-financed by Hungarian affiliates of multinational companies, the Budapest University of Economics and State Administration organised a number of courses covering marketing and retailing, management accounting, management and human resources management, logistics, communication skills and information technology. The courses were attended by staff from several companies, and by industrial partners from the Hungarian Marketing Association which also included the programme as a compulsory part of its own MBA curriculum. Close links established between the university and the business partners as well as the local Chamber of Commerce were considered a good basis for the delivery of courses and other joint activities in the future.

In Poland, Tempus supported the establishment of several new units and the development of longer training programmes and shorter courses. Continuing education or adult education centres were set up by faculties or departments of economics and/or management at Gdańsk and Szczecin Universities and the Technical Universities of Częstochowa, Gdańsk, Koszalin and Szczecin. New programmes and courses introduced by Polish universities covered ‘classical’ business and management aspects as well as issues of special interest to the agricultural sector. For example, managers from industry and other sectors of the economy were offered postgraduate MBA programmes, and courses in information systems for business applications, financing/accountancy and marketing/trade, and management, financial management and banking. Those designed especially for the agricultural sector focused on business development and management for rural regions, accountancy and planning for farms, and food and agricultural marketing. Although the projects did not lead to formal co-operation agreements, most of the Polish universities involved established closer links with their non-academic partners, and decided to offer continuing education on a self-financing basis upon completion of Tempus funding.

142 These are described in more detail in the section on degree programmes, Part II. 1.1.2.
143 Budapest University of Economics and State Administration, L. Eötvös University, Budapest, D. Berzsenyi College, Szombathely, K. Eszterházy College, Eger, College of Nyíregyháza, Nyíregyháza, Budapest College for Economics, and V. Apor Catholic College, Zsámbék.
144 Gdańsk and Wrocław Universities, Gdańsk University, Technical University of Łódź, and Technical Universities of Gdańsk, Koszalin and Szczecin respectively.
145 Technical University of Częstochowa, Academy of Technology and Agriculture in Bydgoszcz, and Agricultural Academies of Poznań and Cracow.
Course development was also combined with the establishment of new units in Bulgaria. A well-equipped University-Industry Centre for Continuing Education in Management was set up as part of the School of Management at the New Bulgarian University, and accredited by the Institute of Management in the United Kingdom. The centre introduced a number of courses for various management levels, with most of the modules delivered in the distance education system and run jointly by university staff and part-time lecturers from industry. Representatives of enterprises were also involved in the delivery of management courses for small and medium enterprises which were launched by a self-financing Inter-University Entrepreneurship Training Centre at the University of National and World Economics in Sofia. The centre in Sofia was created in Tempus together with three local units at the St. Cyril and St. Methodius University of Veliko Turnovo, the A. Tsenov Academy of Economics in Svishtov and the Technical University of Plovdiv. Two other new units, Inter-University – Enterprise Quality Management Centres, were established at the Technical University of Sofia and the University of National and World Economics as self-financing structures to organise courses in quality management for students, academic staff and enterprises. In addition, courses in total quality management and international marketing for industrial partners and courses in public finance for the Ministry of Finance were launched by other Bulgarian universities.

Business and management projects in Romania led to the establishment of 27 new units. Those which were created only to provide continuing education include six centres of continuing education in banking and finance, four training centres offering MBA programmes, eight university-enterprise centres organising various management courses, and six units of a European Institute of Management delivering courses in enterprise management. In addition, the Academy of Economic Studies in Bucharest set up a centre 'Project Management Forum' to organise courses in project and programme management as well as to carry out basic and applied research, to offer consulting and other services, and to collect documentation. Finally, University Centres for Training and Education in Agricultural Management at the Al.I. Cuza University of Iasi and the Babes-Bolyai University of Cluj-Napoca were designed to serve as continuing education units and as centres of information.

1.2.3 Medicine and health care

In Hungary, a Tempus project involving all four Hungarian universities offering medical education extended in fact beyond the development of continuing education courses. Firstly, the universities created a network of the so-called teaching hospitals, i.e. departments attached to the Hungarian universities which provide conditions for practical training and individual tutoring, and developed rules for their accreditation. Secondly, Education Centres were set up in all four Hungarian universities, each of them comprising a demonstration room, a consultation room, a computer laboratory and a library, and equipped with a camera for feedback and quality control purposes. Thirdly, residency programmes were introduced in all four Hungarian universities. Fourthly, a Council for Health Specialist and Continuing Education (CHSCE) was established as a forum for discussion and exchange of experience with EU partners, a body contributing to new legislation of the Ministry of Health, and a centre for the emerging specialist training system. Fifthly, the project outcomes were indeed instrumental in the adoption of

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146 A. Kanchev University in Rousse, Varna University of Economics and the Higher Institute of Agriculture in Plovdiv, and the Technical University of Sofia respectively.
147 Academy of Economic Studies, Bucharest, University of Craiova, Gh. Asachi Technical University, Iasi, Transilvania University of Brasov, Ovidius University, Constanta, and West University of Timisoara.
148 Gh. Asachi Technical University, Iasi, Technical Universities of Cluj-Napoca and Timisoara, and L. Blaga University, Sibiu.
149 A. Vlaicu University, Arad, E. Murgu University, Resita, University of Agricultural Sciences of the Banat, Timisoara, University of Medicine and Pharmacy, Timisoara, University of Oradea, P. Maior University, Targu Mures, Technical University of Timisoara, West University of Timisoara.
150 Academy of Economic Studies, Bucharest, University of Craiova, Ovidius University, Constanta, Transilvania University, Brasov, Al.I. Cuza University, Iasi, and Babes-Bolyai University, Cluj-Napoca.
151 Debrecen University, Debrecen, Semmelweis University, Budapest, Pécs University of Arts and Sciences, Szeged University of Arts and Sciences.
several new regulations of the Ministry of Health concerning, for example, the statutes of the CHSCE, health specialist training and continuing education, resident system for participants in health specialist training, and requirements for specialist degrees in medical professions.

The outcomes of this project were reinforced by the establishment of Clinical Training Centres, which will also support continuing education, at the four Hungarian universities\textsuperscript{152}, and training organised in the EU partner institutions for Hungarian medical specialists in other Tempus projects. Moreover, as a spin-off of Tempus projects, the Hungarian universities and their EU partners submitted a joint project under the Leonardo Programme.

Tempus outcomes in Poland were clearly more modest in scale than those in Hungary. In co-operation with EU partners and Polish hospitals or other health care institutions, seven Polish medical academies\textsuperscript{153} developed or upgraded a number of short intensive courses and longer postgraduate programmes for health care administrators, hospital directors and general nurses, general practitioners and dental practitioners. These include, for example, courses and/or programmes in family medicine (Cracow, Wrocław), health management (Cracow), hospital management, hospital pharmacies and pharmaco-economy (Cracow, Gdański, Łódź, Poznań), health care management (Katowice, Poznań), and specialist dentistry courses in implant systems (Warsaw). As an institutional framework for continuing education, new units were set up at two universities, the Centre for Interdisciplinary Training at the Medical Academy of Warsaw and the Department of Health Policy at the Collegium Medicum of the Jagiellonian University in Cracow. The new units were integrated into the university structures, and the new courses were introduced as part of regular postgraduate training or continuing education activities, though no agreements were signed at the end of the Tempus projects for co-operation with health care institutions.

Universities in Bulgaria developed a number of continuing education courses in various areas. These include courses for medical staff in pharmacology and toxicology (Medical University of Sofia), and molecular biology and molecular pathology (Medical University of Sofia, Higher Medical Institute of Plovdiv) and courses for paramedical staff (five medical universities in Sofia, Pleven, Plovdiv, Stara Zagora and Varna). Moreover, as an outcome of an interdisciplinary Tempus project, a course in medical radiation physics was introduced by the Inter-University Centre for Education in Medical Radiation Physics and Education at the Higher Medical Institute of Plovdiv. Overall, like in Poland, while closer links were established between the Bulgarian universities and the health care sector, no formal arrangements were made for the delivery of courses in the future.

Like in other areas, Romania invested substantial Tempus funds in four new units. Well-equipped Consultancy Centres for Computer-Aided Learning in Medicine were set up at the Universities of Medicine and Pharmacy in Cluj-Napoca, Targu Mures and Craiova. The centres were provided with electronic teaching materials covering general and specialist topics, e.g. use of Internet, multimedia production and distribution, medical education applications, image manipulation for medicine and medical education, bioinformatics, analysis of medical data, mathematics in medicine, and evidence-based medicine. The teaching materials were made available to general practitioners, who were also offered free access to the Internet, as well as other institutions and instructors involved in continuing education. The fourth new unit is the Centre for Nursing Development established at the L. Blaga University of Sibiu to provide training courses for nurses developed in Tempus, to organise conferences and lectures, and to offer assistance to those engaged in research and seeking funds. Moreover, the centre was designed as a forum for activities of the new Association of University Nursing Colleges which brings together representatives from the whole country. The centre was integrated into the university structure and accredited by the Ministry of Education. As a step towards self-financing, it concluded formal agreements with numerous Romanian and EU non-academic institutions working in the area of nursing. Finally, to continue their Tempus-supported co-operation, the centre and its EU partners submitted a joint project under the Leonardo Programme.

\textsuperscript{152} These were referred to in the section on degree programmes for regulated medical professions in Part II.1.1.1.

\textsuperscript{153} Medical Academies of Gdański, Katowice, Łódź, Poznań, Warsaw and Wrocław, and Collegium Medicum of the Jagiellonian University, Cracow.
Moreover, five Romanian universities (Universities of Medicine in Cluj-Napoca and Iasi, Ovidius University of Constanta, L. Blaga University of Sibiu, Transilvania University of Brasov) introduced courses in health care management.

1.2.4 Social work and social services

The development of continuing education in the area of social work and/or social services was supported in Tempus by three countries: Hungary, Poland and Romania.

Colleges in Hungary introduced two courses in co-operation with their EU partners. The first course was launched by new departments of social worker training at the J. Vitéz Teacher Training Roman Catholic College in Esztergom and the I. Széchenyi College in Győr for staff in social sector institutions who do not hold a higher education degree. The second course, delivered jointly by G. Bárócz Faculty of Special Education (L. Eötvös University, Budapest) and specialist local centres, is a postgraduate programme for managers of social sector institutions and social services. For the regular organisation of the first course, the I. Széchenyi College concluded a special agreement with a local government agency. The second course is provided within the framework of on-going co-operation between the G. Bárócz Faculty and the specialist local centres. Moreover, it was accredited by the Euro-Dir network, a network of manager training centres in the European Union created under the Leonardo Programme.

Two continuing education courses offered as a result of Tempus projects in Poland are addressed to social security workers (Academy of Economics in Katowice) and social services workers (Łódź University). To support training for the social sector, both universities also set up special units, the inter-faculty Training Centre for Social Security Staff (Katowice) and the Continuing Education Centre for Social Services (Łódź). Both centres were established as integral units of the universities, with their status approved by the university authorities. The first course was included in the list of continuing education courses provided on a regular basis by the Academy of Economics in Katowice. In the second case, both the Continuing Education Centre and the new course were approved by the Ministry of Labour and Social Welfare, and an agreement covering joint training initiatives for social services workers was signed by the Centre and five public agencies responsible for social services.

In Romania, the key provider of training in this area is the Faculty of Sociology and Social Work at Bucharest University which, as mentioned earlier on, was accredited by experts of the European Commission as an European Study Centre for Social Policy and Employment. Under its Tempus project, the faculty developed with its EU partners and organised a wide variety of courses. These included, for example, intensive courses for NGO directors focusing on social assistance for groups at high risk (elderly people, abandoned children and young delinquents) and retraining courses for older in-service social workers without a higher education diploma who wish to obtain credits towards a Bachelor's degree. In addition, training courses were provided to academic staff and government officials in the Republic of Moldova, these covering European social policy, child welfare and family policy, social risk and social policy, anti-poverty strategy, etc. Further co-operation between the university and various government agencies and non-governmental organisations is envisaged in formal agreements which cover training, consultancy and research activities.

1.2.5 Teacher training

Projects designed to develop in-service teacher training were financed in Tempus by three countries: Hungary, Bulgaria and Romania.

In Hungary, teachers were offered new short intensive courses or longer programmes in physics and mathematics at Debrecen University, and in mathematics and Austrian German at the L. Eötvös University of Budapest.

Tempus in Bulgaria focused on the introduction of information technology to in-service teacher training, supporting both the establishment of special units as integral parts of university structures and the development
of courses. An Inter-University Centre for teacher training and development of modern teaching methods was set up at the St. Kl. Ohridski University of Sofia, with local centres at four universities. The following three sets of courses were developed and organised: information technology, teaching processes and distance and flexible learning, and management in higher education. Under a second project, interlinked Local Computer Learning Centres were set up at the Free University of Bourgas, the Higher Pedagogical Institute of Shoumen and the St. Cyril and St. Methodius University of Veliko Turnovo. The course in audio-visual methods and information technology for education, developed in the project for the three centres, was offered to secondary school teachers, university teachers and postgraduate students.

Romania established seven new centres which offer training to teachers in specific areas and introduced a wide variety of new courses. The Centres for Continuing Education of Secondary School Teachers of Social Sciences, set up at Bucharest University and the West University of Timisoara, developed and organised courses in educational psychology, pedagogy and methods for teaching philosophy (Bucharest) and psycho-pedagogy (Timisoara). The new Centre for Secondary School Teachers of Earth Sciences at Bucharest University launched courses for beginner teachers, retraining courses for teachers of geology and biology to teach geography, and courses in computer skills and multimedia techniques. Moreover, the project in Bucharest produced a large number of materials, e.g. leaflets, websites, newsletters and press articles, to promote the activities of the centre. In turn, courses leading to a second teaching qualification in ‘Technological Education’ and ‘Applied Informatics’ were introduced by the Adult Continuing Education Centre, a unit established at the Transilvania University of Brasov to provide in-service training of teachers in the area of mechanical and electrical engineering. Moreover, ‘Technological Education’ extended the range of teacher training courses offered at the L. Blaga University of Sibiu and the P. Maior University of Targu Mures. The three universities also used Tempus funds to upgrade their teaching laboratories. Finally, the new Centres for Retraining of Secondary School Teachers of Computer Science at the Babes-Bolyai University of Cluj-Napoca, Bucharest University and the Transilvania University of Brasov launched courses in information technology. All new centres were integrated in the university structures and courses were recognised by the relevant authorities.

In addition, the University of Craiova, the D. de Jos University of Galati and the Al. I. Cuza University of Iasi launched courses in the use of multimedia technologies for language teachers and set up resource and documentation centres to support in-service teacher training. As a result of their Tempus project, the three universities and their EU partners submitted a joint proposal for the Leonardo Programme.

1.2.6 Other areas and other developments

The range of courses offered as part of continuing education was also extended in areas such as Community languages, European studies, public administration and law. Courses in Community languages were offered as a spin-off effect of projects focusing on degree programmes. For example, courses in English, French and German, which were introduced for regular students at four universities in Bulgaria (Technical Universities of Gabrovo, Sofia and Varna, Higher Institute of Agriculture in Plovdiv), may also be followed by university staff, companies, local administration and other institutions. Multimedia-based courses in English and German, developed under Tempus in Hungary for undergraduate students (School of Police and School of Public Administration in Budapest), are also available ‘a la carte’ for public administration staff and police officers participating in continuing education. In Poland, degree programmes served as the basis for courses addressed to professional translators and interpreters (Jagiellonian University of Cracow and Silesian University of Katowice). Furthermore, as a result of Tempus projects, new postgraduate Master's programmes were launched in European Studies (Hungary and Romania), public administration (Hungary and Bulgaria) and law (Hungary). Though extending beyond continuing education in the strict sense of the word, the programmes are offered not only to regular

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154 New Bulgarian University and Technical University of Sofia, Technical University of Varna, and A. Kanchev University of Rousse.

155 These are described in the relevant sections of Part II.1. In addition, courses covering various EU issues were developed as part of institution building and are thus discussed in more detail in Part III.
students, but also as part of further education to wider circles of professionals wishing to upgrade or extend their knowledge and skills. Courses in other areas, e.g. natural sciences, humanities or architecture, were introduced by single universities in only one of the four countries.

As regards other Tempus outcomes, the Institute for Educational Research in Hungary and its EU partners carried out a study covering legislative and financial issues, training of trainers and other aspects of continuing education. A working document drafted as a result of the study was used by the Ministry of Education and the Ministry of Labour to identify needs and priorities for the development of continuing education in Hungary. As part of a study undertaken in Poland, seven technical universities reviewed the legal basis and current practices in continuing education in Poland, classified various accreditation and validation procedures, defined a set of criteria to assess the quality of continuing education, and drafted recommendations for the Ministry of National Education. The outcomes of the project were published in a document “VACANT: validation, credit transfer and quality assessment guidelines for the reformed national continuing education and professional training system”, approved by the Ministry of Education and implemented by the National Network of Technical Universities for Continuing Education.

Continuing education: summary and general comments

Continuing education projects should be considered mainly in the context of the reform of higher education which aimed to develop closer links between universities and their environment, to enhance their responsiveness to the needs of the labour market and to extend the range of higher education courses. The broader concept of lifelong learning was, as mentioned earlier on, introduced too late into the Community acquis and the Bologna Process to be reflected in Tempus, though it was indeed referred to in Hungary’s priorities. However, the comments about the impact of Tempus projects may also be relevant in the European context in so far as lifelong learning implies creating opportunities for adult citizens and establishing partnerships involving universities and non-academic institutions.

Tempus projects may be described briefly as a step towards the opening of universities to their external environment and a rather modest investment towards the development of the capacity to deliver continuing education in all four countries.

In terms of opening to the external environment, Tempus encouraged universities in the four countries to reach out to various sectors and to establish initial or closer links with numerous institutions and organisations. Though a small number of projects led to formal partnerships, a Tempus exercise in continuing education, combined in some cases with other activities such as the establishment of databases, consulting services or information provision, may be considered a bridgehead for further initiatives involving the academic and non-academic sectors. However, it is also self-evident that bridges between higher education and the external world were built rather selectively as continuing education courses were addressed primarily to specific professional groups in the industry, business, health care and social sectors rather than to wider circles of the society. This selective approach was clearly predetermined by the subject-area priorities in Poland, Bulgaria and Romania. In Hungary, where subject areas were not predefined in the priorities, it may be explained by the demand on the local market and/or university-specific needs and interests. Moreover, it should also be noted that Hungary, which referred to lifelong learning in its priorities, launched single programmes for the general public.

156 This paragraph refers to two projects funded under Complementary/Compact Measures which are included in the study because of their relevance to the general conclusions from the study.

157 Academy of Mining and Metallurgy, Cracow, Technical Universities of Gdańsk, Kielce, Poznań and Szczecin, Warsaw University of Technology and Military University of Technology, Warsaw.
As regards the capacity to deliver continuing education, Tempus provided some elements which may be used for further progress in this area. First of all, it created an organisational framework or, more precisely, special units for continuing education. This was clearly the most distinctive feature of Tempus projects in Romania which invested substantial funds to establish 59 new centres in the subject areas referred to above, including 12 units fully equipped for distance education or computer-aided learning. The structural investment was more limited in scale in the other three countries: 23 new units in Poland, 13 in Bulgaria and 4 in Hungary. The other elements are new or upgraded courses and teaching materials combined with the experience in the design and delivery of courses. At a number of faculties in all four countries, these were developed in engineering and technology, environmental sciences, management and business, health care and social work, which were of particular importance in the context of economic and social reforms and the modernisation of industry. While it is true that the courses covered only selected areas, they involved a relatively large number of faculties, in particular in Hungary, Bulgaria and Romania. Tempus beneficiaries include faculties at 16 of all 30 public universities and colleges in Hungary, 30 of 90 public universities and 1 of 90 non-public schools in Poland, 19 of 24 public universities and 2 of 5 non-public universities in Bulgaria, and 27 of 48 public universities in Romania.

Generally, like in the case of projects focusing on degree programmes, the impact of projects may be seen mainly at department or faculty level. However, it is also worth emphasising that the two studies on various aspects of continuing education in Hungary and Poland as well as the institutional and legislative framework for health specialist training in Hungary were a contribution of Tempus to the development of a continuing education system. These outcomes prove on the one hand that even bottom-up projects initiated at university level may in principle achieve an impact at national level, and on the other hand that opportunities offered by Tempus in this respect could have been used to a larger extent by the four countries.

While the outcomes summarised above provide a basis for further development of universities’ capacity to deliver continuing education, some aspects could have been introduced or given more attention in Tempus projects.

- Almost all new centres, many of which benefited from heavy investment in computer equipment, are department- or faculty-level units offering continuing education only in specific areas, and two or even three units were in some cases set up in the same university. Whereas this may be explained by the priorities which focused on selected subject areas in three countries, greater co-ordination at university level would have ensured not only a more efficient use of Tempus funds but also a more extensive impact in universities.

- Some courses, particularly in engineering, environmental sciences, business and management, were developed as an ad-hoc initiative in response to Tempus priorities and based on the ‘assumed’ demand for some specific knowledge or skills. As a result, they were not organised at all or attendance was lower than expected due to the lack of interest among potential participants. Ideally, the Tempus exercise should have been preceded by a more thorough analysis of training needs based on clear methodology and the development of strategies for continuing education.

- The ad-hoc nature of continuing education courses, in particular short intensive courses launched in the first years of the period covered by the study, seems to be confirmed by the fact that many of them did not end with any formal evidence of new knowledge or skills acquired. Thus, certification appears to be another area where further work might be required not only because the issue is obviously important as such, but also because this would help universities to attract a greater number of potential course participants.

More precisely, certificates are mentioned only in a small number of the JEP Final Reports which provide the basis for analysis in the study.
• More could have also been done to ensure the sustainability of the new units and courses, which is of primary importance in view of the fact that the maintenance of the new units does indeed put a heavy strain on the limited university resources. On the one hand, all new units and courses were recognised by the relevant university authorities in the four countries, which was the first and basic step towards their sustainability. Moreover, a number of universities decided to offer the new courses on a fee-paying basis, and some of them even concluded special agreements for co-operation with target institutions. On the other hand, little attention and/or limited funds, if any, were devoted to publicity and promotion, and medium- or longer-term strategies to encourage or retain the interest in continuing education among various target groups and to raise funds were not designed in Tempus projects.

Overall, Tempus would have had a more considerable impact if the development of universities’ capacity in this area had been based on a more comprehensive and structured approach. This would mean covering a full cycle from the analysis of needs to solid basis for self-financing, and reaching out to a wide variety of target groups. The weaknesses referred to above may be explained by several reasons. First of all, they were clearly a price that is usually paid for any pilot exercise, an exercise that was new not only to many universities but also to the national Tempus authorities. Moreover, continuing education was a second priority in Tempus as compared to degree programmes, and continuing education courses were often developed as an additional outcome of projects focusing on degree programmes. Another factor may be the limited interest of target institutions, in particular enterprises, which were primarily concerned with their day-to-day problems, and not necessarily aware of longer-term benefits of university-industry co-operation. Finally, it is also worth noting that these weaknesses were generally rectified in institution building projects as a ‘more mature’ initiative addressed to non-academic institutions and organisations159.

2. University management

Tempus contributed to the modernisation of university management through 138 Joint European Projects, which accounted for 19.9% of all 692 JEPs geared towards university reform and development in the four countries, and 109 (50.9%) of all 214 smaller-scale projects funded within Complementary/Compact Measures160. For the sake of clarity, all university management projects may be divided into three categories in accordance with their main objectives. The first and largest category comprised projects which supported various smaller- and larger-scale changes in university management and administration structures. Projects in the second category were designed specifically to introduce quality assurance in universities. Projects in the third category were linked to university management in so far as they provided an organisational framework for student mobility and the basis for the recognition of study periods, in particular through the implementation of the European Credit Transfer System (ECTS).161

Generally, the projects covered one of the three above-mentioned areas. However, quality issues were also included in some projects which aimed at the reform of management or administration structures, and the implementation of the ECTS was in some cases combined with the establishment of special administrative units162. Moreover, it should be added that the European Credit Transfer System was introduced in a number of projects targeted on degree programmes163.

159 See: Part III of the study.

160 See also: introductory remarks to Part II. Breakdowns by country are given in Annex 1, Tables 5 and 6.

161 For breakdowns by country, see: Annex 1, Tables 9 and 10.

162 These elements are thus included in an overview of projects covering the reform of management and administration structures, and then only referred to in the sections on quality assurance and the ECTS.

163 These are also referred to in the following sections.
As regards the profile of university management projects, funds were awarded for various structural changes combined with the training of staff, the development, adaptation or translation of various materials and the provision or upgrading of equipment for new and extended tasks and activities.

In the context of university management, it is also worth noting that universities applying for Tempus funds from the academic year 1995/96 should have attached to their projects an Institutional (or Faculty) Development Plan, the so-called IDP. Though not required as a pre-condition for eligibility of a Tempus application, an IDP which outlined the university’s development strategy and indicated the link between the project and the strategy was taken into account in the academic and technical quality assessment of applications.

Reflecting the main objectives of university management projects, the following three sections focus on the reform of management and administration structures, the introduction of quality assurance systems, and the arrangements for student mobility, with special regard to the European Credit Transfer System. Each section provides an overview of Tempus outcomes, and the three sections are followed by general comments which assess the impact of Tempus in these areas, highlighting in so far as possible the similarities and/or differences between the four countries.

2.1 Management and administration structures

The reform of management and administration structures was approached in a slightly different way by each of the four countries, with the national priorities for Joint European Projects covering either a wide spectrum of issues or targeted development of specific university services\textsuperscript{164}.

| Hungary: |
| university specific-outcomes, development of concepts and integration plans, modernisation of library services and international relations offices ... |

The improvement of university management appeared in Hungary’s priorities for five years during the period covered by the study in the context of comprehensive institutional development and the implementation of development plans that higher education institutions were required by the national law to draft by the end of February 2002. Originally formulated in a general way as “the development of university management”, the priorities were subsequently redefined to cover the improvement of university management in a wide range of areas. These included human resources and financial management, administration and organisation of education, international relations, quality control and quality assurance, service-oriented and fund-raising activities, university-industry links, and computerisation. As from 1997, projects in these priority areas were also designed to support the integration of higher education institutions\textsuperscript{165}.

One of the projects funded by Tempus assisted the Hungarian Ministry of Education and Culture in the development of a national higher education development plan. The Hungarian Ministry and its EU partners developed guidelines for a national credit system, legislative proposals and guidelines for the accreditation of new teaching methods and approaches, and recommendations concerning a new per capita funding system and financial support for students.

Some of the projects for universities covered a number of priority issues, whereas others focused on one specific outcome or one aspect of university management.

Computerised information systems and various concepts and changes in management and administration

At seven universities, Tempus supported preparations for changes in management and administration. For example, Budapest Technical College and its EU partners carried out feasibility studies covering various staff...

\textsuperscript{164} No priorities were defined for 1995–1997 CME projects which are also included in this chapter.

\textsuperscript{165} For integration of higher education institutions in Hungary, see: Part I.1.
development issues, designed a staff development strategy, and introduced a staff development programme on an experimental basis. I. Szent University of Gödöllő reviewed its existing computer infrastructure and developed proposals for the modernisation of financial management and accounting, and its administrative staff upgraded specialised knowledge and language skills. In the context of planned mergers of Hungarian higher education institutions, five other universities drafted integration plans which focused on the key areas such as organisational structures, infrastructure, training and guidance for administrative staff, staffing levels and credit systems.

Various changes in management and administration were introduced at Miskolc University, Szeged University of Arts and Sciences, and the College of Nyíregyháza. At Miskolc University, Tempus supported changes in almost all areas promoted in the above-mentioned priorities. Firstly, as a step towards a new management system, the existing staff and student registration system was computerised, and a new information system was installed to support administration at the top and middle levels. This was combined in both cases with the training of academic and administrative staff. Secondly, to ensure the integration of distance education in the mainstream university activities, a special management unit was created, links with international distance education providers were strengthened, and new project proposals were prepared. Thirdly, in the area of project and programme management, the University Programme Network was established to co-ordinate the involvement of university units in various educational and research activities, which resulted in the increasing number of submitted and approved applications. Fourthly, the co-operation between the university and non-academic partners was institutionalised through the establishment of a Co-operation Research Centre, the existing technology transfer was restructured, and a new strategy for knowledge and technology transfer was designed for the university. Moreover, in the area of public relations and promotion, the university set up a public relations office, developed a public relations strategy, upgraded its web-based information system, and published materials presenting its teaching and research activities, international co-operation and facilities in the form of books, brochures, CD and video cassettes. In the area of fundraising, the main outcomes are a new university-level strategy and the upgraded specialised unit. Finally, a quality assessment and control system was introduced together with revised regulations for study and examinations.

Szeged University of Arts and Sciences used Tempus funds to accelerate changes initiated earlier on at national level or within the university, and to launch some new initiatives. For example, Tempus supported the implementation of a unified Hungarian student registration database and a unified financial and administration system for the whole university, now integrating several previously separate institutions, and contributed to the upgrading of existing computer centres and student counselling centres. The new activities in a Tempus project included in particular the training of staff and the development of various materials. Special training for the staff working in finance, public relations, student registration and counselling, libraries and computer units was organised to ensure good internal communication and co-operation in the newly integrated university. In turn, the staff dealing with incoming foreign staff and students attended English language courses and computer skills courses (European Computer Driving Licence, ECDL). Finally, a new Erasmus homepage was developed, and a series of brochures, folders and maps was published to promote the university.

Similar changes took place at the College of Nyíregyháza where Tempus provided additional support for the implementation of a national student registration system, the development of a computerised system for finance and accounting, and the establishment of a quality assurance system. Moreover, the college published an institutional quality assurance handbook and various study materials on quality management.

Establishment and development of specialised services

In the area of international relations, College of Kecskemét set up an International Centre to co-ordinate international staff and student mobility, to assist staff and students looking for practical placements in companies, and to raise funds for various activities. Staff of the existing international relations offices at three universities upgraded their management and administrative skills. As an additional support for international

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166 Szeged University of Arts and Sciences, Pécs University of Arts and Sciences, Budapest University of Economics and State Administration, Debrecen University and Veszprém University.

167 ECDL is an internationally recognised qualification which attests to competence in computer skills.

168 Budapest University of Economics and State Administration, Pécs University of Arts and Sciences and I. Szent University, Gödöllő.
co-operation, three universities involved in other projects\textsuperscript{169} produced two publications, "A practical guide to student exchange" and "The handbook of Tempus experience", which were distributed to all Hungarian universities and colleges.

In turn, one faculty of Pécs University of Arts and Sciences established a Counselling Centre to offer job hunting services to students and advice in the area of professional development to junior academic staff.

Three Tempus projects were designed to modernise central libraries, and in particular to establish computerised systems, to extend the range of services and/or to establish library networks. In all three projects, various developments summarised below were combined with the training of library staff.

- Three Hungarian universities\textsuperscript{170} introduced new types of library and information tools and services, made various documents available in the electronic form, and established a database for strategic planning of library and information services. The Internet- and multimedia-based tools and services include a Thesaurus-based search tool, a subject-oriented gateway to the Internet (Selective Internet Guide and Automatic Multi-Level Link-Follower), and automatic management of accessing databases and advanced management of interlibrary lending. The Thesaurus and the Gateway provide quick access to websites, thus increasing the efficiency of search, and ensure greater relevance of the information found. In addition, library users may now access a number of electronic publications, e.g. lecture notes prepared by university teachers, hypertext teaching materials on information technology, degree theses in German language and literature, frequently used historical documents, current periodicals and periodicals of historical value. Finally, a strategic management information system and a database (STRATIS) were established to support decision-making. The new system is used to develop and update medium-term strategies for library and information services, to update the acquisition policy and to design staff training plans, to allocate financial and human resources to various types of services, and to justify budget requests and proposals.

- The main outcomes of another project for five universities\textsuperscript{171} are a joint network protocol, interfaces for transition between the integrated electronic library systems and the common protocol, and a set of rules for using, updating and developing the system.

- Central libraries of four universities\textsuperscript{172} established a common format for a central catalogue system, a central database for records and separate databases for special collections, implemented conversion protocols to accommodate different formats, developed a TinLib surface for incoming search requests, and set up a central common catalogue/database service (AROMO). The AROMO system opened the libraries to the wide public and provided them with access to the Internet library network.

Other developments

Aiming to strengthen university-industry co-operation, four universities\textsuperscript{173} and their Hungarian and EU academic and non-academic partners prepared a report which reviewed the current situation in this area and contained recommendations and a strategy for the national higher education authorities, industry and universities. Five universities\textsuperscript{174} participating in another project made an inventory of their links with external partners, and designed a strategy together with an action plan for the development of external links. The draft strategies were thus ready as an input to institutional development plans to be prepared by the Hungarian higher education institutions. In addition, a French book about 'enterprises initiated by universities' was

\textsuperscript{169} Budapest University of Economics and State Administration, L. Eötvös University of Arts and Sciences, Budapest, and Budapest University of Technology and Economics.

\textsuperscript{170} Budapest University of Technology and Economics, Debrecen University and Budapest Technical College.

\textsuperscript{171} Budapest University of Economics and State Administration, L. Eötvös University of Arts and Sciences, Budapest, Semmelweis University, Budapest, Budapest University of Technology and Economics, and I. Szent University, Gödöllő.

\textsuperscript{172} Budapest University of Economics and State Administration, Budapest, I. Szent University, Gödöllő, L. Eötvös University of Arts and Sciences, Budapest, and J. Kodolányi College, Székesfehérvár.

\textsuperscript{173} Budapest University of Economics and State Administration, Budapest University of Technology and Economics, I. Szent University, Gödöllő, and Semmelweis University, Budapest.

\textsuperscript{174} Budapest University of Economics and State Administration, Debrecen University, Pécs University of Arts and Sciences, Szeged University of Arts and Sciences, and Veszprém University.
translated into Hungarian and distributed among the project partners. Closer links with non-academic institutions were also promoted by the Social Council which was set up at Debrecen University as an advisory body composed of representatives of social partners, business and local administration.

Tempus funds were also used to establish an institutional framework for the training of university leaders and administrative staff. Debrecen University set up a Higher Education Management Centre to provide training to management and administration staff from higher education institutions. The following courses were developed for the centre: introduction to higher education, information technology, human resources management and organisational development, international relations and project management, university/institutional planning and financial management, quality management quality assurance, managing student relations, and teaching methods. As a spin-off effect of this Tempus project, the Centre was also invited to organise seminars for school headmasters and local government agencies. In addition, Tempus contributed to the establishment of the Registrars’ College of Hungarian Higher Education Institutions, an initiative involving the Hungarian Rectors’ Conference.

Staff skills were upgraded at four universities through training in strategic management, and a concept a model student services centre was prepared by the College of Kecskemét.

Finally, in a project linking management and teaching, the faculties of science at two universities developed a uniform course coding system, allocated credits to courses in accordance with the national regulations, and established a web-based system which provides access to information about study programmes. In addition, a special programme was developed to help departments to upgrade curricula, students to plan and modify their study programmes, to see the consequences of modifications in curricula, and to check the consistency of individual curricula.

During the first two years of the period covered by the study, the priorities in Poland focused on the upgrading of finance management, the development of international relations departments and the introduction of computerised information systems in university libraries. In the two final Tempus years, they were extended to cover various aspects of management and administration at university and/or faculty level, including the formulation of an institutional development strategy, the development of strategic and day-to-day management skills, the upgrading of administration and the computerisation of student services.

The projects funded in Poland may be divided for the sake of clarity into two broad categories: those introducing various changes in management and administration, and those focusing on the establishment or development of specialised university services and units.

**Computerised information systems and various other changes in management and administration**

Universities in Poland, co-operating in larger networks or involved as the only Polish partner in a project, introduced changes running across various areas or focused on selected aspects of management and administration.

Far-reaching changes were supported by Tempus at the Academy of Technology and Agriculture in Bydgoszcz. Firstly, the university prepared a new comprehensive mission statement which highlights the quality issue in the context of the prospective introduction of a total quality management system. Secondly, a staff training policy was developed in line with the new mission. Thirdly, as part of the reform of the organisational structure and management system, the responsibilities between the Rector and Vice-Rectors were redistributed, the existing units were restructured and new ones were established. For example, the existing

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175 Budapest University of Economics and State Administration, Debrecen University, Pécs University of Arts and Sciences, and Veszprem University.

176 L. Eötvös University, Budapest, and Szeged University of Arts and Sciences.
Substantial Tempus funds were also used for the computerisation of administration at the Technical University of Wrocław. Moving towards the computerisation of student services, the university established a uniform student service system in all faculties (partly financed by Tempus), and implemented partly an Internet-based enrolment system for a selected group of subjects as well as pilot versions of systems for electronic identification in university laboratories. The other key outcomes in this area included a system for compiling student records (e.g. electronic student records book), which facilitates the exchange of information between the faculties and the central administration, and a computerised system for managing accommodation facilities at the university. In addition, computer and English courses were organised for the staff from all units concerned at both central and faculty level. Another area chosen by the Technical University of Wrocław for its Tempus project was the administration of interdisciplinary studies where regulations for interdisciplinary studies and general rules for the establishment of a managing body were drafted and submitted to the university senate. Finally, first steps towards quality assurance were made by two faculties which introduced procedures for self-assessment, quality assessment and quality improvement, and a decision was taken at university level that each faculty would set up its own commission for internal quality assessment.

As a result of another cross-university project, the Warmia and Mazury University of Olsztyn set up central secretariats for students and examinations, modernised the management of dean offices, and implemented a computerised system for processing student files to facilitate the exchange of data between the university and faculty administration. Moreover, as part of the preparations for Socrates and general staff development, the university developed a concept for processing the ECTS files, and organised for its staff lectures presenting various European issues, e.g. the ECTS, quality assurance, the Bologna Process and the Diploma Supplement.

Faculty-level projects involving four universities brought miscellaneous outcomes. For example, the Faculty of Physics at the A. Mickiewicz University in Poznań modernised its student services, information management and financial management systems, computerised the dean’s office, and appointed the dean’s representative for student mobility to improve the dissemination of information about opportunities in Socrates. Moreover, it introduced the ECTS and a quality assurance system. The Faculty of Chemistry in Poznań introduced a new organisational structure and a new system of faculty management, with teaching activities separated from research and co-ordinated through several divisions responsible for different courses. The Faculty of Chemistry at the Silesian Technical University in Gliwice created a new tool for inputting data about publications of staff members which are the basis for the ranking of staff members and the distribution of funds for research. In addition, a draft concept for a quality assurance system was developed for the faculties of chemistry and discussed by all chemistry faculties in Poland.

177 Faculties of Chemistry at the Jagiellonian University, Cracow, and the Silesian Technical University, Gliwice, Faculty of Ceramics and Material Science at the Academy of Mining and Metallurgy, Cracow, and Faculties of Chemistry and Physics, A. Mickiewicz University, Poznań.
Other Tempus projects focused on one specific aspect of management and administration. One project which involved 16 Polish universities\(^{178}\), including all 15 'classical' universities, focused on the development of computerised data management systems. As a result of the project, 12 of the participating universities\(^{179}\) implemented and tested at various levels an Oracle-based University Study Management System which provides integrated computerised tools for the management of student records, including those for interdisciplinary study and virtual educational network. In addition, the project consortium developed software and procedures for a Centralised Student Admission System, which were implemented during the project by Warsaw University and the Cardinal Wyszynski University.

Other projects brought a variety of outcomes in the area of staff training. A project which also involved 16 Polish universities\(^{178}\), including all 15 'classical' universities, covered several university levels and various areas from institutional management, financial management, human resources management and management of education to management of international programmes and quality management. The main project outcomes are new units and a set of five model courses. The new units were set up at Łódź University, the A. Mickiewicz University in Poznań and the Silesian University in Katowice to deliver the model courses and to serve as national and local training centres. Each of the new courses develops different skills and is addressed to a different target group. These include: team work and problem solving for faculty deans and department heads, strategic planning for administrative directors, communication skills for young teachers, information technology in office work for administrative staff, addressing unexpected problems for international programme co-ordinators, and international correspondence, liaison and information technology for secretaries. The courses were introduced during the project by two universities and made available to the other 14 universities. It is also worth mentioning that, following the first round of courses, hundreds of enquiries about the new rounds were received from young teachers as well as from companies interested in the course for secretaries. As another outcome of the project, a concept of a quality assurance system was drafted for all participating universities.

Other projects in this area supported the establishment of a staff development unit (Technical University of Gdańsk) and systems or programmes for continuing education of university management and administrative staff (Technical Universities of Gdańsk, Cracow and Szczecin), as well as the organisation of staff training courses.

Finally, two Tempus projects contributed to a greater or lesser extent to the development of strategic planning. Wrocław University set up a new Department of Planning and Financial Analyses and a new Commission for Strategic Planning and Development, and prepared 'The Strategy of Wrocław University Development – Evaluation of its Present State and Perspectives for the Nearest Future'. Moreover, training for staff was organised in three areas: computer skills, basic English for finance and management, and specialist financial issues, including EU financial regulations, EU accession issues, the International Accounting Standards and resulting changes in the Polish accounting system in the context of adopting international accounting standards. The main outcomes of a Tempus project at Warsaw University were three documents, 'Mission Statement' and 'Key Strategic Directions for Warsaw University', submitted to the university senate for approval, and information policy guidelines which resulted in the publication of a university quarterly and the modernisation of university websites.

**Establishment and development of specialised university services and units**

The services and units in Polish universities which were established or modernised in Tempus include in particular finance services, libraries, international relations departments, promotion and public relations offices, development offices, liaison offices and careers services.

\(^{178}\) Białystok University, M. Copernicus University, Toruń, M. Curie-Skłodowska University, Lublin, Gdańsk University, Jagiellonian University, Cracow, Łódź University, A. Mickiewicz University, Poznań, Opole University, Szczecin University, Warmia and Mazury University, Olsztyn, Silesian University, Katowice, Warsaw University, Wrocław University, and Catholic University of Lublin, Pontifical Academy, Cracow, and C. S. Wyszyński University, Warsaw.

\(^{179}\) Those listed above except Szczecin and Wroclaw Universities, Catholic University of Lublin and Pontifical Academy.
Finance services

Each of four projects targeted on university finance brought different outcomes. Five Polish universities upgraded equipment in their central finance services, established a compatible computerised financial management system, and improved procedures for current and periodical accounting. This was combined with the training of staff which covered foreign language skills and specialised competence in finance management. In addition, a report presenting suggestions and recommendations was prepared for the Ministry of Education.

A project at Łódź University introduced new specifications for income and expenditure in financial reports, and new unified procedure for budget planning to be applied by all university units, changes in the flow of financial documents, processing of financial data and reporting, and in the institutional system of accounts. All these developments were combined with the upgrading of software for the central finance services and the training of university financial staff.

As a joint initiative of three universities co-operating in the third project, an Inter-University Computer Services Centre was set up at Wrocław University to support further development of finance management. The three universities also upgraded their equipment, and introduced a uniform computerised system for finance management which functioned during the project as parallel to the existing systems. The new system allows the finance services to design a structure of accounts, to record incoming and outgoing amounts, to register invoices and other proofs of payment, to present current operations and balance, and to draw up statements of expenditure and other financial reports. Moreover, courses developing foreign language skills, financial skills and computer skills were organised for the staff in finance services.

In four technical universities, a Tempus project provided mainly the background for future changes in finance management. The main project outcomes included a report presenting a comparative analysis of financial management in the Polish universities and the EU partner institutions, and a set of recommendations for future action, including a future action plan and suggestions for necessary amendments to the existing legislation for finance management. In addition, staff skills were updated, and the finance units were provided with modern equipment.

Libraries

Five Tempus projects launched at the beginning of the period covered by the study focused on the establishment of integrated or compatible computerised library systems:

- The central libraries of nine technical universities established a uniform cataloguing format (USMARC) used in the VTL system, transformed their catalogue formats into a common data exchange format, and installed interfaces allowing each of them to exchange data and access library resources available in the other universities;

- Five other central libraries installed a unified and computerised system (HORIZON) which facilitates the establishment of common databases and the exchange of information about library resources both within the network and between the network partners and other universities which already introduced the same system;

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180 Academies of Economics in Cracow, Katowice and Poznań, Warsaw School of Economics, and Agricultural Academy of Warsaw.

181 Wrocław University, Warsaw University and Technical University of Łódź.

182 Technical University of Gdańsk, Silesian Technical University, Gliwice, Technical University of Wrocław, and Warsaw University of Technology.

183 Academy of Mining and Metallurgy, Cracow, Technical Universities of Cracow, Gdańsk, Kielce, Łódź, Poznań, Rzeszów and Wrocław, and Warsaw University of Technology.

184 Łódź University, N. Copernicus University, Toruń, A. Mickiewicz University, Poznań, and Teacher Training Colleges of Bydgoszcz and Olsztyn.
• The libraries of four universities in Northern Poland\textsuperscript{185}, where the ALEPH system was chosen as the basis for computerisation, integrated their data systems, reloaded records to the ALEPH database, and installed software for full exchange of data with other library systems. Moreover, the four universities signed an agreement to create an Academic Interlibrary Network.

• At three universities in Southern Poland\textsuperscript{186}, Tempus supported mainly the upgrading of computerised library systems in accordance with common guidelines. The developments taking place in all library projects were combined with staff training which covered specialist skills, computer skills and/or language skills. In this context, it is worth noting that Tempus courses organised by the libraries in Southern Poland were attended not only by university staff and students, but also by staff working in local public libraries.

• The central libraries of four universities\textsuperscript{187} established a common data exchange format, common rules for subject-based and formal description of documents, and developed jointly software for searching and exchanging information.

A more recent project supported the preparations for the implementation of a total quality management system in the central libraries which established compatible systems under Tempus earlier on\textsuperscript{188}. The libraries reviewed their current situation, analysed needs of customers, prepared development plans, and organised training for their staff which covered TQM and ISO 9000 requirements as well as computer skills. In addition, the LIBRA system used in the United Kingdom was installed in all four libraries. Finally, structural changes involved, for example, the linking of various units responsible for stock description and acquisitions and the appointment of the library system manager (Cracow), the restructuring of the library into a Centre for Information Resources (Kielce), and the merging of two units into a new Periodicals Department (Bydgoszcz).

International relations offices
Tempus set up entirely new international relations offices at two universities (School of Management, Częstochowa, and Central School of Fire Protection, Warsaw) where such units had not existed earlier on, provided them with equipment, and trained their staff.

The common outcomes of Tempus projects specifically designed for the modernisation of existing international relations offices, which involved jointly 19 Polish universities, technical universities and other university-type institutions\textsuperscript{189}, were upgraded staff skills, modernised equipment and a wider range of functions. Training for international relations officers covered language skills, computer skills, and management of international programmes and projects. All units involved in Tempus projects were provided with computers, software, office equipment and various materials, e.g. handbooks or guides, necessary to manage international co-operation. Linked to this, the profile of the offices was extended beyond day-to-day travel arrangements, organisation of international events and dissemination of information to cover also active promotion of international programmes, in particular Socrates and Leonardo, as well as advice and assistance in project formulation, implementation and monitoring.

In addition, some universities established in Tempus special databases to facilitate the management of international co-operation. For example, the N. Copernicus University in Toruń, Łódź University and the Silesian University in Katowice set up databases for the management of staff and student mobility flows, the implementation of international agreements and the organisation of events such as summer schools and workshops. Warsaw University developed under Tempus a database for the administration and management of student mobility within the Socrates/Erasmus Programme. The databases at the Technical University of Łódź, the Silesian Technical University in Gliwice and Warsaw University of Technology contain information about

\textsuperscript{185} Warsaw University – branch in Białystok, Medical Academy of Białystok, Technical University of Białystok, and Warmia and Mazury University of Olsztyn.

\textsuperscript{186} Academy of Economics and Silesian University in Katowice, and Opolo University.

\textsuperscript{187} Technical Universities of Cracow and Kielce, Academy of Technology and Agriculture in Bydgoszcz, and Szczecin University.

\textsuperscript{188} 4 universities: N. Copernicus University, Toruń, Jagiellonian University, Cracow, Łódź University, and Silesian University, Katowice. 8 technical universities: Academy of Mining and Metallurgy, Cracow, Technical Universities of Białystok, Częstochowa, Gdańsk, Łódź (and its branch in Biało-Biała) and Wrocław, Silesian Technical University, Gliwice, and Warsaw University of Technology. 3 Academies of Economics in Cracow, Katowice and Wrocław, 2 Medical Academies of Gdańsk and Wrocław; Agricultural Academy of Warsaw, and Maritime Academy of Gdynia.
their involvement in international programmes, e.g. partner countries, regions and institutions, areas of co-operation, project identification data, outgoing and incoming staff and student mobility flows, etc. These data are used not only in the management of programmes and projects, but also as an input to content and financial reports.

Finally, Tempus supported the development of publications designed to facilitate the participation of universities in EU programmes. These include, for example, information packages, guidelines for the ECTS in Polish and English, “Student mobility under Erasmus: best practice guide” (Warsaw University), “Study on the achievements of universities in administering Leonardo and Socrates” and “Guide for Erasmus” (Warsaw University of Technology).

Careers services, promotion and public relations offices, liaison offices...

A major investment was made to establish or upgrade units which are responsible for student guidance, promotion and public relations as well as, more specifically, for co-operation between universities and industry. Given the variety of developments in student guidance, promotion and public relations supported in several Tempus projects, including one which involved all 15 ‘classical’ universities, their outcomes may only be listed as follows:

- Białystok University: a new Careers Service;
- Catholic University, Lublin: a new Careers Service;
- Cardinal S. Wyszyński University, Warsaw: a new Development Office;
- N. Copernicus University, Toruń: a new University Development and Promotion Centre, a newly appointed liaison officer for alumni, and the existing Careers Service upgraded;
- M. Curie-Skłodowska, Lublin: a new Careers Service, a new Alumni Association, and a new Advisory Board for Strategic Planning composed of managers of leading enterprises in the region;
- Gdański University: a new central-level Careers Service;
- A. Mickiewicz University, Poznań: a new Careers Service;
- Jagiellonian University, Cracow: two new faculty-level Careers Services (Faculty of Chemistry and Faculty of European Studies), a new position of the Vice-Rector for University Development and his office;
- Łódź University: tasks of the existing Promotion Office extended to cover alumni relations, fundraising and job finding;
- Opole University: a new Inter-university Careers Centre and University Foundation;
- Silesian University, Katowice: the existing Promotion and Careers Office upgraded and its tasks extended to cover alumni activities;
- Szczecin University: four new units including, Information Office (serving also as a contact point for the 5th Framework Programme) and Careers and Promotion Service at the university-level, an Information and Promotion Office at the Faculty of Economics and Management, a Promotion Centre at the Faculty of Service Management, and a new Association of Szczecin Friends;
- Warmia and Mazury University, Olsztyn: the existing Careers Office upgraded;
- Warsaw University: a new university-level Careers Service, and the existing Office for University Advancement upgraded, including the appointment of an Alumni Relations Officer;
- Wrocław University: a new Office for Academic and Regional Grants Development, two new associations (Alumni Association and Polish-German Wrocław University Association), the existing Careers Services and Office for Promotion and Graduates upgraded;
- Technical University of Wrocław: a new Careers Services and a new Public Relations Office;
• Silesian Technical University of Gliwice: a new Careers Services;
• Technical University of Kielce: a new Careers Services;
• Technical University of Cracow: new Careers Services;
• Agricultural Academy of Warsaw: a new Careers Services;
• Warsaw University of Technology: a new Student Counselling and Liaison Office:
• Pontifical Academy, Cracow: the existing Information Office upgraded with a view to transforming it into a Development Office and a Careers Service, and two new bodies (St. Hedwig’s Foundation and PAT Friends Association).

All new and existing units were integrated into the university structures, properly equipped, and their staff was trained for the new or extended functions as well as provided with manuals of good practice which were prepared by the EU partner institutions.

The various central- and faculty-level units set up at eight universities to develop links with industry include University-Industry Liaison Offices189, a Continuing Education and Technology Transfer Office190, Offices for the Promotion of University-Industry Partnership191, and Centres for Technology Transfer and University-Industry Partnership192.

### Bulgaria:
computerisation, restructuring, and development of international relations offices and libraries

Bulgaria introduced the university management issue into its priorities for the last three years of Tempus projects. In the first year, Tempus focused on ‘the introduction of a clear methodology for the improvement of higher education management practice’. In the final two years, university management was included in the priorities in the context of preparations for the participation in the EU programmes, and covered specifically the improvement of financial management, university information systems, and administrative and social services for students.

Projects in Bulgaria, some of them running across several areas, focused mainly on the establishment of computerised systems and networks, structural changes, practical preparations for Socrates and the modernisation of libraries.

**Computerisation and various structural and other changes in management and administration**

Several small-scale projects supported mainly the preparations for future changes. For example, the Technical University of Sofia developed a proposal for a central computerised management system, and tested a new student management system. On the basis of a SWOT analysis and student survey, a strategic development plan was prepared for one faculty at the A. Kanchev University of Rousse. Four universities in Plovdiv193 and their EU partners prepared guidelines for the organisation of social and cultural services for students. In another project, recommendations were presented for the restructuring of management and administration systems at the N. Rilski South-West University of Blagoevgrad and the St. K. Ohridski University of Sofia.

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189 Technical University of Łódź and Agricultural Academy of Wrocław.
190 Academy of Technology and Agriculture in Bydgoszcz.
191 Technical Universities of Szczecin, Wrocław and Zielona Góra.
192 N. Copernicus University of Toruń, Silesian Technical University of Gliwice and Technical University of Wrocław.
193 Higher Institute of Food and Flavour Industries, Higher Medical Institute, P. Hilendarski University and Plovdiv branch of Technical University of Sofia.
At six universities in Plovdiv co-operating in one Tempus project, changes were introduced in four areas. Firstly, as part of the structural development, various new units were set up in three universities. At the Higher Institute of Food and Flavour Industries, these include an international relations office, centres for continuing education, information technologies and communication, and an Internet Teaching Centre. The Higher Institute of Agriculture established a Centre for Information Services and Centre for Language Learning, and the Academy of Music and Dance Arts created an international relations office. The two institutes also reduced the number of existing chairs. Secondly, in accordance with the national guidelines, self-assessment and quality control systems were developed for five universities195 which planned to implement them in the academic year 2001/2002. Thirdly, to facilitate student mobility in Socrates/Erasmus, all six universities designed and implemented a credit transfer system compatible with the ECTS, and adopted financial procedures for student exchange which were published in a special handbook. Moreover, the project consortium prepared a handbook for those interested to apply for Erasmus Institutional Contracts. Fourthly, rules for a staff training system were created for all six universities, and arrangements were made for courses in methodology of teaching in higher education to be organised by the P. Hilendarski University.

Another project involving three of the six universities in Plovdiv196 focused on financial management and information systems. In accordance with a unified approach developed in the project, the Higher Institute of Agriculture and the P. Hilendarski University decentralised financial management, delegating the responsibility to the faculty and department levels. Moreover, all three universities designed in co-operation with their EU partners an integrated information system comprising six main subsystems (personnel, finance, student monitoring and teaching/training co-ordination, Rector’s office and payrolls) and subdivided into modules (e.g. budget planning). At the end of the project, the integrated system, which links all administrative units and the Rector’s office, was fully operational at the Plovdiv branch of the Technical University, whereas the other two universities were at the stage of inputting data into the system. In addition to these developments, the three universities set up new units: departments for information services at the Higher Institute of Agriculture and the P. Hilendarski University, and the University Managers’ Training and Consultancy Centre at the Plovdiv branch of the Technical University of Sofia. Established to train university staff in computer-based technologies, the Centre already organised a number of courses and seminars during the project. The courses held in the project were attended by rectors, deans and heads of departments, and university administrators.

Four other Bulgarian universities197 used Tempus funds primarily to develop a computerised information system which covers the following six subsystems: Educational Process, Library, Financial Accounting, Administration and Economic Matters, Decision Control, and University Media Centre. Moreover, a development strategy as well as various internal regulations and other documents were drawn up to support university management. These include, for example, regulations concerning university activities, circulation of documents and financial activities, research work and teaching staff appraisal, as well as organisational models for administrative units, procedures for financial management, job descriptions, instructions for information services and publishing activities, etc. Before the end of the project, both the information system and internal regulations were implemented by Varna Free University, and approved by the authorities of the other three universities. In addition, all four universities were provided with equipment, and their staff attended courses in university management and administration.

Various administrative activities, such as accounting, drawing up reports on staff salaries, processing student data or registering and processing admission applications, were also computerised at the A. Tsenov Academy of Economics in Svishtov. Moreover, the university also set up a local area network as a result of its Tempus project.

194 Higher Institute of Agriculture, Higher Institute of Food and Flavour Industries, Higher Medical Institute, P. Hilendarski University, Technical University of Sofia – Plovdiv branch, and Academy of Music and Dance Arts.

195 Except the Plovdiv branch of the Technical University of Sofia which is not an independent institution, and its quality assurance system would thus be an integral part of that in Sofia.

196 Higher Institute of Agriculture, P. Hilendarski University and the Technical University of Sofia – Plovdiv branch.

197 Bourgas Free University, K. Preslavski University of Shoumen, St. Kl. Ohridski University of Sofia, and Varna Free University.
Another outcome of Tempus in the area of computerisation is the Bulgarian Academic Network (BANET) established by three universities in Sofia\(^\text{198}\). The three universities set up local backbones and internal infrastructure, and were connected to the Internet and linked with one another. Hundreds of computers connected subsequently to the network provided access to the Internet to ca 2500 university staff and students. To support all these developments, the three universities created network and communication units within their computer centres, and published leaflets and guidelines facilitating the use of the Internet.

One of the two projects focusing on structural changes covered the central level and selected faculties and departments at the University of National and World Economics in Sofia. At university level, Tempus supported the restructuring of the financial and accounting department, the information department and the international relations office. Moreover, the university used the expertise of the EU project partners to develop an international marketing strategy, internal rules and regulations, an outline of functions, job descriptions and quality assurance rules for a new Marketing Department which was being set up in the period of project implementation. The restructuring at faculty level was combined with the introduction of procedures allowing students to provide feedback on the teaching process and the evaluation of the teaching process.

The other project, implemented by the Technical University of Sofia and the A. Kanchev University of Rousse, led to the restructuring of the international relations office in Sofia, which involved the dissolving of the existing unit, the redefinition of its functions and the selection of new staff in a competition. In addition, both universities drafted in co-operation with their EU partners a set of documents which outlined tasks and procedures for all other administrative units, and their staff was trained to use computerised systems for financial management and administration. To facilitate further work on management and administration systems, the Technical University of Sofia set up a centre for university management.

Finally, preparing specifically for the participation in Socrates/Erasmus, five universities\(^\text{199}\) used Tempus funds to train staff from the central management and administration units, to provide them with equipment and information materials, as well as to develop procedures for student exchange and recognition of study periods compatible with the ECTS.

Development of international co-operation and international relations offices

The Medical University of Sofia, the St. K. Ohridski University of Sofia and their partners carried out a feasibility study on the readiness of 26 Bulgarian universities for the participation in regular EC programmes. On this basis, three handbooks, "Readiness of the Bulgarian universities for European integration in the field of higher education", "United Europe and integration in higher education" and "Higher education for Europeans", were produced to encourage and facilitate further development in this area.

One of larger-scale projects supported various developments in three schools of arts\(^\text{200}\) which did not participate in any other Tempus project. The National Academy of Art, where no unit for international co-operation had existed before, set up a new structure called the International Affairs Commission. At the National Academy of Theatre and Film Art, previously existing units were merged into a Centre for International Co-operation, Project Management and Research. The State Academy of Music developed a home page “Network of the Bulgarian Education in Arts”, and started to work on a database containing information about students, academic staff and study programmes. Moreover, new links were established with, for example, the European League of the Institutes of Arts and the Network of the European Continuing Education Centres.

In co-operation with its EU partners, the University of Architecture, Civil Engineering and Geodesy in Sofia prepared a report with recommendations for the university authorities concerning the improvement of international activities. The staff of the international relations office upgraded their language and computer skills, and the office published various information materials, including “The International Students Handbook”, faculty handbooks and leaflets in English, Greek and Russian.

198 St. Kl. Ohridski University, Technical University, and University of National and World Economics.

199 Higher Institute of Agriculture, Plovdiv, Medical University, Sofia, St. Kl. Ohridski University, Sofia, A. Kanchev University, Rousse, and Varna University of Economics.

200 K. Sarafov National Academy of Theatre and Film Arts, Sofia, National Academy of Art, Sofia, and P. Vladigerov State Academy of Music, Sofia.
The international relations office at the Technical University of Gabrovo was modernised through the upgrading of equipment, the establishment of databases containing information about university "internal" events, e.g. seminars, and "external" events and initiatives, e.g. international projects, and the training of staff which focused on staff and student mobility.

Finally, five universities in Plovdiv established a Regional Centre for International Co-operation in Higher Education, collected information about EC programmes, European Information Networks, foundations, etc., and established an inter-university computer link to provide their international relations offices with access to the Internet and EC databases on international programmes.

Modernisation of libraries

The modernisation of central libraries at four Bulgarian universities in Sofia followed several directions. Firstly, while the New Bulgarian University was originally the only one in the consortium to have a strategic development plan for its library, such plans were drawn up as a result of a Tempus project for the other three universities as well. Secondly, as part of restructuring and reorganisation, all four universities established the position of subject librarian. Moreover, structural changes at the St. Kl. Ohridski University involved the reorganisation of several existing departments which provide various library services, and the establishment of an entirely new Co-ordination and Public Relations Department. To improve the efficiency of services, the University of National and World Economics redefined functions for several units and redesigned job descriptions for several positions. At the Technical University of Sofia, multi-task teams were created, with the staff divided into three function-based units: acquisition and cataloguing, circulation, and information services. Functions and project-oriented tasks were combined for the library staff at the New Bulgarian University. Thirdly and consequently, the range of services offered by the libraries was extended to include not only assistance offered by subject librarians, but also a new gateway to unlimited information resources and self-services leading through the library websites. These developments were combined with the upgrading of staff skills for new or extended tasks, and the provision of modern equipment for the libraries. As a spin-off effect of the project, the four universities established the first Bulgarian consortium of university libraries to share the access to the on-line database (Current Contents Connect) through their websites on the basis of licence agreements signed. Finally, it is also worth mentioning that, as a result of all these developments, the libraries attracted many external users, a good example being the Library of the New Bulgarian University which now functions as a public information centre.

Romania: development of university-industry co-operation, student counselling services and international relations offices

University management, which was introduced into Romania's priorities for one year only, covered the restructuring of administration and finance, the organisation of multidisciplinary research centres, and the modernisation of university infrastructure (e.g. libraries).

Four of the Tempus projects funded in Romania led to the outcomes which were relevant to the development of higher education legislation and policy at national level. The National Council for Higher Education Research drafted a document outlining its new philosophy and redesigned tasks. Universities co-operating with national bodies developed a proposal of a national strategy for the funding of universities, legislative proposals concerning income generation in universities in the conditions of autonomy, and a proposal of a human resources policy in higher education covering academic degrees, promotion procedures and remuneration system.

201 Higher Institute of Agriculture, Higher Institute of Food and Flavour Industries, Higher Medical Institute, P. Hilendarski University, and Technical University of Sofia – Plovdiv branch.

202 St. Kl. Ohridski University, Technical University, New Bulgarian University, and University of National and World Economics.

203 The projects involved Ministry of Education, National Council for Higher Education Research, National University Funding Council, National Council for Evaluation and Accreditation, Bucharest University, Technical University of Constructions, Bucharest, and Transilvania University, Brasov.
The projects implemented within universities supported the review of existing management and administration systems and various changes in university management and administration, the development of university-industry co-operation and fundraising activities, and the modernisation of specialised university services.

**Review of and various changes in management and administration**

The main outcomes of projects combining a review of current management and administration systems with training in strategic planning were new University Charters for four Romanian universities\(^{204}\) and an Institutional Development Plan for one university (Transilvania University of Brasov).

Other university-level projects led to the establishment of computerised finance management systems and the modernisation of international relations offices and libraries (Petrol-Gaze University, Ploiesti) or the redesign and simplification of financial and accounting procedures and the restructuring of international relations offices at five universities\(^{205}\). At a lower level, one faculty of the D. de Jos University of Galati restructured its administrative units trained their staff, and implemented a computerised system for all administrative services. The outcomes of the project were published in a manual distributed to all Romanian universities. Similar changes were introduced in a department of the same university which reorganised and computerised its administration and, in addition to this, developed a quality assurance system. The outcomes of the project were presented in a guide for management system, and proposals of the project partners were included in the revised University Charter.

In a project involving four universities\(^ {206}\) which focused on staff development, training needs of administrative staff were identified, new job requirements and descriptions were drafted, and special provisions concerning staff development were introduced into the strategic plans.

In several other projects, training in strategic and change management, organisation and planning was organised for university leaders\(^ {207}\), and intensive courses were held for administrative staff from finance services, international relations offices and libraries\(^ {208}\).

**Development of university-industry co-operation**

In this area, Tempus supported feasibility studies or other preparatory activities as well as the implementation of various concepts. A questionnaire-based feasibility study was carried out, for example, by the Polytechnic-University of Bucharest, the University of Medicine and Pharmacy in Timisoara and its non-academic partners in order to design a regional network for co-operation in healthcare management. The results of the survey were used to define a long-term strategy for co-operation between universities and companies in the healthcare sector and to identify potential sources of local funding. In a follow-up Tempus project, the University of Medicine and Pharmacy developed a database containing information about co-operating universities and companies, and a website presenting various training and research initiatives and events which were organised for interested university and non-university partners. In another feasibility study, the Transilvania University of Brasov and its industrial partners defined basic requirements for the establishment of a centre for human resources development and continuing education, and identified the main areas in which training would be organised for regional and local enterprises. At the University of Craiova, a review of the existing links and the development of a strategy for university-industry co-operation were combined with the establishment of a pilot centre to offer consulting services and training, and the provision of new courses for staff from industry.

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204 A.I. Cuza University, Iasi, Technical University of Timisoara, West University of Timisoara, L. Blaga University, Sibiu.

205 Bucharest University, Polytechnic-University of Bucharest, North University of Baia Mare, Babes-Bolyai University, Cluj-Napoca, and University of Medicine and Pharmacy, Cluj-Napoca.

206 Bucharest University, Gh. Asachi Technical University, Iasi, Babes-Bolyai University, Cluj-Napoca, and West University of Timisoara.

207 North University of Baia Mare, Technical Universities of Cluj-Napoca, Petrosani and Timisoara, A. I. Cuza University, Iasi, University of Bacau, and Valahia University, Targoviste.

208 Bucharest University, Technical Universities of Cluj-Napoca and Timisoara, Technical University of Constructions, Bucharest, and University of Craiova.
One of the implementation-oriented projects, which involved 15 Romanian universities\(^\text{209}\), led to the establishment of a network for co-operation with enterprises and other economic as well as social organisations. The main objective of the network is to improve student practical training, to create a system for continuing education of professionals in enterprises and to stimulate transfer of technologies to industry. The network, officially recognised by the Minister of Education and the university authorities, comprises a Co-ordinating Department and 15 University Departments, one in each of the participating universities. The main tasks of the University Departments include the development of programmes and the organisation of various activities in co-operation with regional enterprises. The Co-ordinating Department co-ordinates activities of the network at national and international levels, disseminates its achievements and distributes information about the relevant legislation within the network. During the project, the network placed a number of students in EU enterprises and organisations, and developed curricula for practical training of students. Combining some features common to the whole network with specific regional and local needs, the curricula cover activities designed to validate students’ theoretical knowledge and a period of work in an enterprise which focuses on problems of common interest. Another major outcome of the project is a monograph on university-enterprise co-operation which presents relevant regulations, structures and approaches in various countries. Finally, it is worth mentioning that the Service for Co-operation between Universities, Enterprises and Institutions/Organisations within the Ministry of Education and the APART Agency for Partnership between Universities and Economic Environment were set up as a spin-off and multiplying effect of the project.

A similar network, which is a part of the international TECHWARE network and brings together five Romanian universities and a large number of Romanian and EU enterprises, was set up in Tempus for co-operation in the water sector. To co-ordinate activities of the network, the Technical University of Constructions in Bucharest created a National/Regional TECHWARE Bureau.

Finally, the Technical University of Cluj-Napoca set up a Research and Development Liaison Office and a Research Centre to improve the management of interdisciplinary research and to strengthen its external links. Moreover, in the context of the planned establishment of small business incubators, rules for their operation and special databases were created for the Technical University of Cluj-Napoca, the Technical University of Constructions in Bucharest and the Transilvania University of Brasov.

**Development of fundraising activities**

Two Romanian universities, the University of Agricultural Sciences of the Banat in Timisoara and the West University of Timisoara, designed in co-operation with their EU partners and started to implement a fundraising policy to balance their limited financial resources. The training organised within the project and the work on the fundraising policy involved various target groups, including the vice-rectors, heads of financial and personnel departments, deans of faculties and faculty members. As the first steps in the implementation of the fundraising policy, the project partners published a handbook on good practice in fundraising, set up databases covering potential contact points and partners for fundraising (e.g. alumni), and developed programmes and courses to be provided to non-academic institutions on a fee-paying basis. These activities were carried out in consultation with local enterprises and authorities, thus providing the basis for preliminary arrangements concerning future joint initiatives.

**Establishment and development of specialised services**

**Student counselling services**

First steps towards the development of student counselling services were supported in Tempus through feasibility studies carried out by five Romanian universities\(^\text{210}\) and their EU partners.

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\(^{209}\) Polytechnic-University of Bucharest, North University of Baia Mare, Gh. Asachi Technical University, Iasi, Technical University of Cluj-Napoca, Technical University of Constructions, Bucharest, Technical University of Timisoara, Transilvania University of Brasov, D. de Jos University, Galati, University of Bacau, University of Craiova, University of Pitesti, L. Blaga University, Sibiu, Petrol-Gaze University, Ploiesti, P. Maior University, Targu Mures, and S. cel Mare University, Suceava.

\(^{210}\) Polytechnic-University of Bucharest, Gh. Asachi Technical University, Iasi, Technical Universities of Cluj-Napoca and Timisoara, and Valahia University of Targoviste.
As a result of projects launched at a later stage, special units called careers offices, career guidance centres or student counselling centres, which offer information, counselling and guidance to students and graduates, were established at 15 Romanian universities. The managers of all units and other staff involved in counselling were trained, the units were provided with both equipment and materials, and databases containing job offers were created for the units. Some events, e.g. Education Fairs, Job Fairs, Education Days or Open Windows Days, were already organised by the units during the Tempus projects and included as a regular activity in their programmes. Moreover, to provide a framework for future activities and networking, 12 of the Romanian universities co-operating in the most recent project created a National Association of Academic Counselling Services which now also involves other Romanian universities.

Moreover, in a project targeted on students but extending beyond counselling, the Polytechnic-University of Bucharest set up a Centre for Professional Communication Skills which provides students with skills necessary for job interviews.

International relations offices

Three small universities (C. Brancusi University, Targu Jiu, 1 December University, Alba Iulia, and E. Murgu University, Resita) and the Transilvania University of Brasov set up an international relations office, desk or department. The newly appointed staff members were trained, and all the units were provided with equipment and materials. In addition to the existing structures, the Polytechnic-University of Bucharest and the Academy of Economic Studies in Bucharest established, respectively, an Information Office and a Student Mobility Office.

As a result of other projects, existing international relations offices at five universities were restructured and their functions were extended to include co-ordination of international programmes and active promotion at national and international level. International relations officers were trained, inter alia, in project formulation and management.

Libraries

Central libraries at the D. de Jos University of Galati and the University of Agricultural Sciences of the Banat in Timisoara were restructured and established computerised systems for cataloguing and accessing documents. Moreover, the D. de Jos University implemented a quality assurance system in its library, and published a manual for library management. Changes at both universities were combined with the training of library staff. At four other universities, the main outcomes of Tempus projects were updated staff skills and upgraded equipment.

2.2 Quality assurance

The introduction of quality assurance and assessment systems emerged as a separate priority or as one of the key priorities in the overall reform of university management and administration for the last two years of Tempus projects in all four countries. Moreover, quality assurance elements or systems were introduced as an additional outcome of curriculum development projects.

211 Polytechnic-University of Bucharest, Gh. Asachi Technical University, Iasi, Technical University of Cluj-Napoca, Transilvania University of Brasov, Bucharest University, Al. I. Cuza University, Iasi, Babes-Bolyai University, Cluj-Napoca, L. Blaga University, Sibiu, University of Craiova, University of Oradea, West University of Timisoara, National School for Political and Administrative Studies, Bucharest, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, G. Enescu Academy of Arts, Iasi, Academy of Economic Studies, Bucharest.

212 University of Craiova, University of Pitesti, Gh. Asachi Technical University, Iasi, A. I. Cuza University, Iasi, and West University of Timisoara.

213 Gh. Asachi Technical University, Iasi, Al. I. Cuza University, Iasi, Babes-Bolyai University, Cluj-Napoca, and L. Blaga University, Sibiu.
In **Hungary**, a Tempus project involving all four universities providing medical education brought several outcomes. Firstly, a well-equipped organisational structure specifically responsible for quality management is now in place at each of the four universities. The new units and bodies at the medical faculty of Debrecen University include the Quality Management Office and the Quality Management Committee as well as quality management groups in all clinics. Pécs University set up a Project Management Office, and Szeged University established a Quality Management Department and a Quality Management Committee for its medical faculty. Quality-related tasks at the Semmelweis University were delegated to the existing Health Service Management Training Centre. Secondly, first steps towards the introduction of a quality assurance system were made by each university. For example, preparing for the ISO 9001:2000 certificate, Debrecen University implemented a preliminary concept of the system on a pilot basis for selected clinics. The results of this stage will serve to build a comprehensive system for patient care. Pécs University outlined the key objectives and elements of an EFQM-based quality assurance system to be developed in detail by its medical faculty staff and external advisers. The Semmelweis University designed and tested EFQM-based self-assessment procedures. Szeged University introduced a number of quality indicators and procedures for auditing patient care in accordance with the ISO 9001:2000 standard. Moreover, all four universities now have a mission statement, diagnostic and therapeutic guidelines and other quality-related documents, and carry out patient satisfaction surveys or take part in the surveys of the Health Insurance Company. Thirdly, the universities developed a special training course, 'Quality Improvement in Health Care', which was included as a compulsory part in their continuing education programmes, as well as teaching materials for the course. These present various quality issues, including quality systems and definitions, quality management and improvement in Hungary, quality measurement, indices, quality assessment standards and processes, critical skills appraisal, clinical guidelines and clinical audit, etc. Moreover, training was organised in the project for physicians, nurses as well as the paramedical personnel. Finally, as a spin-off effect of the project, Szeged University set up the Association of Quality Managers to develop quality education of managers, to design quality improvement programmes and to provide professional support in this area.

Another project led to the establishment of quality assurance systems at the Budapest Technical College, Miskolc University and Veszprém University, and the publication of materials covering, for example, the quality of departments and teaching which were distributed among other Hungarian higher education institutions. The system by the Budapest Technical College was described in a special publication which served as a frame of reference for all other Hungarian colleges in the development of their own systems.

In two other projects, Szeged University of Arts and Sciences carried out a self-evaluation and was audited in accordance with the procedures adopted by the Association of European Universities (CRE), and the College of Kecskemét improved its existing quality assurance system.

First and smaller-scale projects in **Poland** were designed mainly to introduce university staff to the concept of quality and quality assurance systems at EU partner institutions, to design and test tools for quality assurance and to draft recommendations on this basis. The various tools developed and tested included, for example, a student satisfaction questionnaire together with a manual for students, questionnaires for heads of units and students concerning the improvement and monitoring of the quality of teaching, tests for specific subjects, and guidelines for quality assurance in teaching and research laboratories. The development of quality assurance tools was combined with the training of academic and administrative staff.

Universities co-operating in larger-scale projects established internal quality assurance structures and systems or elements of such systems at university and/or faculty level. As a result of the first project at university level, the Silesian International Business School and the Academy of Economics in Katowice introduced a quality assurance system.
assurance system comprising five sub-systems. These include recruitment, quality of curricula, teaching process, practical training and internships, and general performance of the university assessed on the basis of graduates' career paths. The Academy of Economics also set up two new units, an office for the Rector's representative with overall responsibility for quality issues and a Career Centre to carry out research in quality issues. At both universities, these developments were combined with extensive staff training. Moreover, in addition to various documents used in the implementation of the system, the project partners published two books about quality assurance, one also available in English.

The Technical University of Łódź and Warsaw University of Technology established central-level Quality Councils composed of vice-deans, academic and administrative staff, students and external experts. The main tasks of the councils include providing information and services related to the implementation of quality procedures within the university, collaborating with the Rector and the Senate, and liaising with the national quality and accreditation bodies. Moreover, the two universities developed in consultation with their EU partners quality assurance systems together with basic documentation. Both systems cover the organisation of the study system, curricula and syllabi, teaching process (monitoring and evaluation of the process, providing resources, etc.), staff (training and development) and students (students' involvement, co-operation between staff and students). During the Tempus project, several elements of the systems were tested in selected faculties and approved by the university authorities. Finally, like in all other projects, staff members to be involved in quality assurance were trained, and booklets and other information materials were produced, also in English, which present general quality issues, quality assurance systems in the EU partner universities and the concepts designed in the project.

The N. Copernicus University of Toruń set up a quality assessment unit and a working group to design internal quality assessment procedures, established a quality assessment library and website, and published a review on quality of education to promote quality issues in the academic community.

Instead of establishing special units, the Agricultural Academies in Poznań and Warsaw assigned quality-related responsibilities to staff in the university-level departments for student affairs, as well as trained those to be responsible for quality assurance at central and faculty levels. The quality assurance system designed jointly with the EU partners was approved by the university senate in Warsaw, and tested by two faculties, approved by the senate commission and submitted to the university senate in Poznań before the end of their Tempus project.

The Medical Academies of Poznań and Warsaw and the Collegium Medicum of the Jagiellonian University in Cracow introduced a self-evaluation system which covers curricula, individual courses and teaching performance and which is based on student evaluation questionnaires. New methods of self-assessment were presented to the staff of the three universities at special training seminars. Moreover, to provide an organisational framework for quality-oriented activities, the academy in Warsaw set up a department of medical education, and the other two universities extended the tasks of the existing departments to include the monitoring of the teaching process and the improvement of teaching skills. Another major outcome of the project is an external evaluation and accreditation system, designed for and implemented by the recently established Commission for Accreditation of Medical Universities which was involved in the project as a partner. The system was already operational before the end of the project, with the accreditation of ten programmes for physicians completed and the external evaluation process initiated for other disciplines initiated (pharmacy, dentistry, laboratory medicine, health protection). Finally, as a spin-off effect, the Polish project partners developed links with the European Network for Quality Assurance in Higher Education and its sub-network for Central and Eastern Europe countries. In turn, three other medical academies were encouraged by the outcomes of the projects to establish departments of medical education responsible for the quality of teaching (Bydgoszcz and Gdańsk) or a unit specialised in the preparation and evaluation of examinations (Katowice).

Each of three Polish partners involved in another university-level project (A. Mickiewicz University of Poznań, Opole University and Wrocław University) focused on slightly different aspects. Wrocław University designed and introduced an internal system for quality assessment in teaching which covers curricula (updating of curricular contents and teaching methods, printing of information packages), teaching process (student evaluation forms),
teaching conditions (teacher evaluation forms), and results of teaching (graduates and employers evaluation forms). Opole University developed and tested student satisfaction/evaluation questionnaires, introduced some changes on the basis of the first findings (reduced number of students in a group, wider range of optional courses, etc.), and designed a questionnaire for graduates. At the A. Mickiewicz University, Tempus supported mainly the restructuring of the previously existing units into a Students and Teaching Office as the first step towards a central information system.

The university-level project launched in the last Tempus round, which involved 16 Polish universities, including all classical universities and the University Accreditation Commission, supported various developments, depending on the progress made previously by each university in the area of quality assurance. In brief, the major project outcomes for all universities are a glossary of quality assurance terms and manuals on internal and external evaluation, evaluation standards for selected fields of study, and expertise in or increased awareness of quality issues at both university and faculty levels. Moreover, the project contributed to the development of institutional quality assurance strategies and systems at Białystok University, the Catholic University of Lublin, Gdańsk University and the Silesian University of Katowice. Łódź University set up an Accreditation and Quality Assessment Committee, and the Catholic University of Lublin appointed persons responsible for the introduction of quality assurance procedures. Finally, the project introduced on a pilot basis a self-assessment system for chemistry and pedagogy at Opole University, a quality assurance system for pedagogy at Szczecin University, and a quality management system for environmental protection and fishery at the Warmia and Mazury University. As a spin-off effect, the project also paved the way for the universities to quality assurance initiatives undertaken within the European Association of Universities.

As a result of the first of two faculty-level projects, the Faculty of Physics at the A. Mickiewicz University introduced a quality assurance system comprising a number of procedures and arrangements. Firstly, students already fill in a questionnaire about the quality of the teaching process, including lectures, classes, laboratory work and examinations, at the end of each semester. Secondly, those who have just graduated from the university fill in questionnaires which assess the entire period of studies, and alumni will assess the relevance and usefulness of their education in the professional life by filling in a questionnaire at meetings to be organised every few years. Thirdly, competitions for best Master’s degree theses are organised in the faculty. Fourthly, faculty council members provide feedback on the quality of teaching on the basis of their periodical inspection of lectures and classes, and meetings involving staff and students are held regularly to discuss the results of questionnaires. The outcomes of the project were disseminated among all faculties of physics in Poland through the Forum of Physics Faculties’ Deans and Physics Institutes’ Directors as well as through the Regional Forum of the European Physics Education Network (EUPEN).

The Faculty of Economics at Gdańsk University trained its staff, designed procedures and drafted documents for its quality assurance system. Another outcome of the project is a review in English which presents quality assurance systems in the EU partner universities and arrangements adopted by the Polish faculty.

The quality issue in Bulgaria was tackled in projects focusing on quality assurance, accreditation and as part of projects supporting various changes in university management and administration.

In a project focusing on quality assurance, all five Bulgarian medical universities implemented a quality control system for the teaching of pre-clinical disciplines at under- and postgraduate levels. The system comprises two elements: quality assessment of existing curricula, including internal assessment through self-assessment

216 Białystok University, Catholic University of Lublin, M. Curie-Skłodowska University, Lublin, Gdańsk University, N. Copernicus University, Toruń, Jagiellonian University of Cracow, Łódź University, A. Mickiewicz University, Poznań, Opole University, Silesian University, Katowice, Szczecin University, Warmia and Mazury University, Olsztyn, Warsaw University, Wrocław University, Cardinal S. Wyszyński University, Warsaw, and Pontifical Academy, Cracow.

217 Medical University of Sofia, Medical University of Varna, Higher Medical Institute of Pleven, Higher Medical Institute of Plovdiv and Trakia University of Stara Zagora.
reports and external assessment carried out by independent experts, and evaluation of the teaching process. During the project, all five universities prepared assessment reports and submitted them to the National Accreditation and Evaluation Agency.

Another project in quality assurance was implemented at faculty or department level by the N. Rilski South–West University of Blagoevgrad, St. Kl. Ohridski University of Sofia and the Technical University of Sofia. In co-operation with their EU partners, the universities developed tools and procedures for self-assessment and quality control, and introduced some of them on a pilot basis for two speciality options (electrical engineering and pedagogy). At the end of the Tempus project, the system was approved by the faculty councils and was awaiting the approval of the National Assessment and Accreditation Agency. In addition, the project partners produced and disseminated several publications in Bulgarian and/or English. They present quality issues in higher education, a model system for self-assessment and quality assurance in education, selected procedures implemented at the Bulgarian universities in the Tempus project, and recommendations concerning quality in the area of electrical engineering.

In the context of national accreditation requirements, the Higher Institute of Agriculture in Plovdiv designed a strategy leading to programme and institutional accreditation, set up commissions for accreditation at central and faculty levels, and developed a self-evaluation system. As a result of the project, two speciality options offered at the Institute, “Agricultural Economics” and “Agronomy” were accredited by the National Accreditation and Evaluation Agency.

In co-operation with their EU partners, the Technical Universities of Sofia and Varna and the College of Telecommunication in Sofia published a comparative study reviewing EU experience in accreditation, and developed a self-evaluation system for the teaching in electrical and electronic engineering. During the project, self-evaluation was carried out in electro-technology, electronics and microelectronics, and electrical machines at the Technical University of Varna, electro-technology at the Technical University of Sofia, and communication technology at the College of Telecommunication. On this basis, the universities published two documents, “Recommendations for self-evaluation of programmes (courses)” and “Guidelines for the content of reports concerning self-evaluation of a programme (course) at technical universities”.

Following an analysis of the British and French accreditation systems, the P. Hilendarski University of Plovdiv and the A. Zlatarov University of Bourgas introduced common quantitative and qualitative indicators for self-evaluation and a common self-evaluation system. As a result of the project, courses in biotechnology and materials science and a pilot speciality in Molecular Biology were accredited at the A. Zlatarov University and the P. Hilendarski University respectively.

The consortium including three Bulgarian universities218 and their EU partners defined standards and curricula for Bachelor’s programmes in Biology to be adopted at national level, and criteria for self-evaluation to be carried out within the universities as a requirement for accreditation.

Moreover, some developments in the area of quality assurance were supported as part of larger-scale university management projects. For example, self-assessment and quality control systems were developed for six universities in Plovdiv (Higher Institute of Agriculture, Higher Institute of Food and Flavour Industries, Higher Medical Institute, P. Hilendarski University, Technical University of Sofia – Plovdiv branch, and Academy of Music and Dance Arts). The University of National and World Economics in Sofia designed and introduced on a pilot basis a system for the evaluation of the teaching process for one speciality. The A. Tsenov Academy of Economics in Svishtov improved its existing system for the evaluation of the quality of the teaching process by introducing periodical surveys.

218 K. Preslavski University, Shoumen, Medical University of Sofia, and St. K. Ohridski University, Sofia.
First small-scale projects involving jointly five universities in Romania served mainly to collect information about quality assurance systems in EU partner institutions, to identify key issues for further study, and to design preliminary concepts.

Each of the three projects launched at a later stage and designed to implement quality assurance systems adopted a slightly different approach and produced slightly different outcomes. The project involving six Romanian universities and the National Council for Evaluation and Accreditation established quality management structures and systems at university, faculty and department levels. Firstly, quality management structures were set up at the university level by the Technical Universities of Cluj-Napoca and Timisoara, the Polytechnic-University of Bucharest and the University of Craiova, and at the faculty and department levels by the Gh. Asachi Technical University Iasi and the D. de Jos University of Galati. In addition, to monitor the implementation of quality assurance systems, the universities introduced 'quality units' into their organisational diagrams at the university level (Bucharest, Craiova, Cluj-Napoca and Iasi), the faculty level (Craiova, Cluj-Napoca, Galati and Timisoara) and the department level (Bucharest, Galati, Iasi and Timisoara). Secondly, procedures and documentation for quality assurance and management, including manuals of quality assurance, quality system procedures, internal standards and working instructions, were developed on the basis of one common Framework Handbook for quality management and the ISO 9001 standards. Thirdly, self-assessment procedures in the area of teaching, writing diploma projects, documentation flows and the choice of optional courses were introduced in all departments involved in the project, and were applied during the project at university level (Bucharest and Timisoara) and/or faculty level (Bucharest, Cluj-Napoca and Timisoara). Finally, staff responsible for quality management in all universities was trained, and the quality structures were provided with equipment to produce and update relevant documentation.

On the basis of an analysis of the existing quality management models in the second Tempus project, four Romanian universities chose the Pilot Project model recommended by the European Commission, with two of them taking the leading role in its implementation and each of them adopting different arrangements. The Transilvania University of Brasov established a structure which includes the Director General for Quality Assurance at university level, vice-deans for quality assurance at faculty level, and a new Department for Quality Assurance. Subsequently, a pilot evaluation of two courses in the continuing education department was carried out, procedures and documentation were developed, and the quality assurance and management system was fully operational at the end of the Tempus project. At the next stage, the university applied for an ISO 9001 certificate. The Technical University of Cluj-Napoca set up a new Department for Quality Assurance managed by the Director General for Quality Assurance, and carried out a pilot evaluation of its continuing education department. In line with the recommendations of the European Commission, the course evaluation in Brasov and the institutional evaluation in Cluj-Napoca comprised three stages: self-evaluation, peer review, and external evaluation during a site visit. The L. Blaga University of Sibiu created two units, the Council of Research and Staff Performance Appraisal, and the Council for Quality Assurance, and designed a quality assurance system according to the ISO 9000 model. The system was in the process of implementation at the stage of reporting the project outcomes. The D. de Jos University of Galati established a Quality Assurance Office as part of the university senate, and was designing a quality assurance system on the basis of the experience of the other three universities at the time of the submission of the report for the project. In addition to the university-specific outcomes, staff responsible for quality assurance in all four universities was trained in general quality management issues and specific procedures. Finally, the outcomes of the project were disseminated not only through the participation in European conferences, but also at national level. The universities in Brasov,

219 A. I. Cuza University, Iasi, L. Blaga University, Sibiu, West University of Timisoara, Gh. Asachi Technical University, Iasi, and Transilvania University of Brasov.

220 Polytechnic-University of Bucharest, Technical University of Timisoara, Gh. Asachi Technical University, Iasi, Technical University of Cluj-Napoca, D. de Jos University, Galati, University of Craiova.

221 Transilvania University of Brasov, D. de Jos University, Galati, L. Blaga University, Sibiu, and Technical University of Cluj-Napoca.
Cluj-Napoca and Sibiu were involved in pilot projects launched by the National Council for Quality Assurance in Higher Education, and their representatives became members of the National Council for Quality Management.

The main outcomes of the third project in Romania, involving the Technical University of Cluj-Napoca, the Gh. Asachi Technical University of Iasi and the P. Maior University of Targu Mures, are new structures and a survey on the quality of teaching in one field of study. The Technical University of Cluj-Napoca set up a Commission for Monitoring of Teaching Quality at the Faculty of Mechanical Engineering. The new structure at the Technical University of Iasi includes a Centre for Quality Assurance, the Director General for Quality Assurance at university level and vice-deans for quality assurance at each faculty. The new posts were created in accordance with a communication of the Ministry of Education for pilot centres of quality assurance, and they are financed from the ministerial budget. The P. Maior University in Targu Mures established a university-level Quality Assurance Section for monitoring, evaluation and review, and a Quality Leading Group at the Faculty of Engineering to develop a system for collecting data and reporting on the quality of teaching, and to disseminate good practice. All three universities carried out a questionnaire-based survey on the quality of teaching in mechanical engineering and published its results. On the basis of this pilot evaluation, the university-level Quality Council in Cluj-Napoca developed a procedure for student evaluation of teaching quality which was approved by the senate. The outcomes of the project were taken into account in the National Pilot System for Quality Assurance through the direct involvement of the three universities, and were presented to the Education Committee in the Romanian Parliament.

2.3 Specific arrangements for student mobility

Student mobility was supported in Tempus as one of several activities in curriculum development projects and as the key activity of special mobility projects launched between the academic years 1994/95 and 1996/97. The priorities or preferences for mobility projects in the four countries included originally the introduction of a credit transfer system and subsequently the implementation of the European Credit Transfer System or an ECTS-based system for the recognition of study periods. In addition, the implementation of the ECTS or an ECTS-based system was also present as a key or additional element in the priorities for curriculum development projects and university management projects. Overall, it was thus promoted within Tempus for two years in Hungary, four years in Bulgaria, and for five years in Poland and Romania.

Student mobility in all types of projects constituted a large component of the Programme, involving a total of 21742 mobility flows between the four candidate countries and the EU Member States and vice versa in the years 1994–1998. However, the exchange of students between the four candidate countries – as any other Tempus countries of Central and Eastern Europe – and the EU Member States was by no means reciprocal, with the so-called East-West flows clearly outnumbering those from the West to the East. Whereas as many as 18564 flows (85.4% of all student flows) were funded by Tempus as part of the East-West mobility, the number of those from the West to the East reached only 3178 (14.6%).

As regards the types of activities carried out abroad, most students chose study periods at EU universities. For a smaller number of students, the project consortia organised practical placements in enterprises and other institutions or short intensive courses.

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222 Pilot projects in which 10 Romanian universities were selected to implement quality assurance systems.

223 A mobility flow refers to one person travelling from one place to another.

224 Hungary: 5 257; Poland: 10 074; Bulgaria: 1 572; Romania: 4 839.

225 Hungary-EU: 4 213 and EU-Hungary: 1 044; Poland-EU: 8 805 and EU-Poland: 1 269; Bulgaria-EU: 1 402 and EU-Bulgaria: 170; Romania-EU: 4 144 and EU-Romania: 695.
In terms of the organisation of student mobility, there are four aspects which deserve special attention. These include the dissemination of information about opportunities for study abroad and promotion of study opportunities at home institutions, the selection of applicants, the preparation of students selected for mobility, and the recognition of study periods abroad.

Information and promotion

During the first years of the period covered by the study, universities in the four countries focused on the dissemination of information about opportunities for study abroad among their own students, using various methods for this purpose. Firstly, project co-ordinators organised special information meetings for students and/or teachers supervising their studies. Secondly, students could find information about study opportunities in Tempus on notice boards in their faculties and/or at international relations offices. Thirdly, special announcements were made during lectures and classes by teachers involved in the projects. Fourthly, special posters and leaflets were printed and distributed in the relevant faculties. Fifthly, where specific topics, in particular for Master’s and PhD theses, were agreed between the home and host universities, teachers discussed them directly with potentially interested students. While these were the most common methods, some co-ordinators also disseminated information through student self-governing bodies and published announcements in university bulletins or local newspapers.

The promotion of studies at home institutions to attract EU students emerged as a major issue for the four countries in the context of the prospective participation in Socrates and Leonardo. As a result, the more recent projects produced numerous information materials in a Community language, mainly in English, and developed websites at faculty level or at university level.

Selection

Universities in the four countries carried out competition-based selection of students in all cases except where, obviously, the number of applicants was not higher than that of places available, and where students were ‘pre-selected automatically’ by topics to be studied for Master’s or PhD theses at EU partner institutions. The two basic selection criteria were learning achievements (marks) and proficiency in the language of the host country. Moreover, selection panels took into account, for example, testimonials given by teachers, the motivation for study abroad, the link between the student’s interests and/or programme of study at his/her home university and the profile of the EU host university or the involvement in a Tempus project. The selection procedure in most of the projects comprised the assessment of students’ applications and an interview. In this context, it is interesting to note that, though special panels were often set up for selection, students’ involvement in such panels featured less prominently than might be expected.

Preparation

Pre-departure linguistic preparation and, in particular, cultural preparation of outgoing students in the four countries were less visible in the practical arrangements for student mobility. Special language courses were organised in a fairly large number of projects where linguistic skills of most or many students in a group were considered insufficient or where students would follow courses in their second, and often less widely used, foreign language. Such courses were designed to improve the general knowledge of a foreign language or focused on area-specific and specialist terminology. In the other cases, special language preparation was not included either because this was considered unnecessary in view of the results of language tests or because no funds were envisaged for that purpose in the project budget. In some cases language training was combined with an introduction to the culture of the host country, but cultural preparation as such appeared rather rarely as a separate component in the organisation of student mobility.
Recognition

Arrangements for the recognition of study periods abroad were introduced by universities in the four countries in three stages, though this also varied from one university to another. Firstly, study periods at EU universities, even if based on a previous agreement concerning the programme of study, were recognised on a case-by-case basis. As a result, some students and in particular those writing their theses, could continue their studies without any additional workload, whereas others were required to follow all courses included in the curricula of their home universities or at least to take additional examinations upon return. At the second stage, more transparent mechanisms were developed, these including special agreements between universities in the four countries and the EU Member States which covered both the contents and recognition of a study programme abroad. In the same period, first attempts were also undertaken to design and use credit transfer systems or, more specifically, to implement the ECTS or an ECTS-based system. These attempts were, however, undertaken with moderate or less than moderate success as the projects ended with a credit transfer system or the ECTS ‘not established’, ‘partially implemented’ or ‘introduced but not ensuring full recognition’. Finally, the third stage saw either the ECTS systems implemented for student mobility or ECTS-based internal credit systems introduced for local students which were or may be used for international exchange of students.

European Credit Transfer System and ECTS–based credit systems

The ECTS is based on 60 credits which represent the full workload required to complete one year of study, including contact hours, private study and assessment activities. Credits are allocated to course units and awarded to students who have completed them. The ECTS uses three basic tools for the recognition of a study period in another university. These include an information package presenting the university and its study programmes, the learning agreement which describes the student’s programme of study abroad, and the transcript of records which shows the learning achievements of the student prior to and after the study abroad. In addition, marks obtained by the student in the host university are converted into those used in the home university through the ECTS grading scale.

The key feature of ECTS–based internal credit systems developed in Tempus is that credits are allocated to course units according to the principles of the ECTS. Moreover, the establishment of such systems has been often combined with the publication of an information pack, available both as a printed material and at the university website.

In Hungary, Tempus projects focusing specifically on the ECTS introduced the system at faculty or department level for physics, biology, law and French studies at the L. Eötvös University of Budapest, for physics at three universities, and biology at Debrecen University. Moreover, curriculum development projects established ECTS-based internal systems in all four medical faculties and the faculties of civil, electrical and mechanical engineering at nine universities and colleges. Moreover, preparing for the establishment of an internal credit system, five Hungarian institutions drafted ‘Principles of the credit system for training in computer science at some Hungarian higher education institutions’ based on the ECTS.

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226 These are also referred to in the relevant sections on degree programmes in Part II.1.1.
227 Szeged University of Arts and Sciences, Debrecen University, and Budapest University of Technology and Economics.
228 Debrecen University, Pécs and Szeged Universities of Arts and Sciences, and Semmelweis University of Budapest.
229 Budapest University of Technology and Economics, Debrecen University, Miskolc University, Pécs University of Arts and Sciences, I. Szent University, Budapest, Veszprém University, College of Kecskemét, Budapest Technical College, and I. Széchenyi College, Győr.
230 Szeged University of Arts and Sciences, Debrecen University, L. Eötvös University of Arts and Sciences, Budapest, Budapest Technical College, and I. Széchenyi College, Győr.
The ECTS in Poland was implemented as part of student mobility or university management projects by one to five faculties at 19 universities231 and by the Technical University of Wrocław in all its faculties. Some of these universities combined the implementation of the ECTS with the establishment of an ECTS-based internal credit system. In turn, as a major outcome of Polish projects focusing on curriculum development, ECTS-based internal credit systems were established at faculty level in 17 Polish universities232, and some of these were also tested in student exchange. Furthermore, Tempus contributed to the introduction of ECTS-based internal credit systems at central university level at Wrocław University and the Agricultural Academies of Poznań and Warsaw. Overall, as a result of Tempus projects, the ECTS and/or an ECTS-based internal credit system was in place at 25 Polish universities. It was implemented in all faculties of four universities (University and Technical University of Wrocław, Agricultural Academies of Poznań and Warsaw), generally in one to five and often three or four faculties of the other 21 universities.

The projects focusing specifically on the ECTS in Bulgaria resulted in the implementation of the system at one or more faculties of seven universities233 and in all five medical universities234. As part of projects designed to modernise degree programmes, ECTS-based internal credit systems, also used for student mobility, were established by all four faculties of chemistry and two faculties of medicine235. In addition, four technical universities236 drafted documentation for the allocation of the ECTS credits.

The first and small-scale projects concerning the ECTS in Romania led to the publication of guides for the implementation of the system or university information packages, or the pilot introduction of a credit transfer system for selected areas and first years of study237.

More recent projects involving four universities238 supported the introduction of the ECTS and various other developments, depending on the progress made earlier on in the implementation of credit systems. The Polytechnic-University of Bucharest used Tempus funds to improve its previously existing credit accumulation

231 Classical universities (10): Gdańsk University (economics, business administration, environmental sciences), N. Copernicus University, Toruń (economics, management, environmental sciences), M. Curie-Skłodowska University, Lublin (environmental sciences, philosophy, sociology), and Jagiellonian University, Cracow (chemistry, environmental sciences, philosophy, sociology), Łódź University (humanities, sociology, environmental sciences), A. Mickiewicz University, Poznań (chemistry, physics, environmental sciences, social sciences, English language), Opole University (environmental sciences), Silesian University, Katowice (English language), Warsaw University (economics, archaeology, languages, environmental sciences), and Wrocław University (chemistry, environmental sciences). Medical Academies (5) of Bydgoszcz, Gdańsk, Poznań, Warsaw and Wrocław (medicine). Academies of Economics (2) of Cracow and Poznań (economics). Technical University of Cracow (electrical engineering), and Academy of Fine Arts in Cracow (graphic design).

232 Classical universities (8): Jagiellonian University, Cracow (chemistry), A. Mickiewicz University, Poznań (biology, chemistry), N. Copernicus University, Toruń (biology, chemistry, mathematics), M. Curie-Skłodowska University, Lublin (chemistry), Silesian University, Katowice (biology), Szczecin University (German studies), Warsaw University (biology, chemistry, physics), Wrocław University (chemistry, mathematics). Technical Universities (6) of Gliwice (civil and mechanical engineering), Łódź (electronic engineering; International Faculty of Engineering offering programmes in several fields), Cracow and Szczecin (environmental sciences), Lublin (mechanical engineering) and Warsaw (power and aeronautical engineering; Centre for English-medium Studies offering programmes in several fields). Agricultural Academies (3) of Cracow and Szczecin (food science) and Poznań (agriculture and agribusiness).

233 St. Kl. Ohridski University, Sofia, and 6 universities in Plovdiv: P. Hilendarski University, Higher Institute of Agriculture, Higher Institute of Food and Flavour Industries, Plovdiv branch of the Technical University of Sofia and Academy of Music and Dance Arts.

234 Higher Medical Institute of Pleven, Higher Medical Institute of Plovdiv, Medical University of Sofia, Medical University of Varna, and Trakia University of Stara Zagora.

235 St. Kl. Ohridski University, Sofia, P. Hilendarski University, Plovdiv, K. Preslavski University, Shoumen, and A. Zlatarov University, Bourgas (chemistry); Medical Universities of Sofia and Varna (medicine).

236 Technical Universities of Gabrovo, Sofia and Varna, and A. Kanchev University of Rousse.

237 Bucharest University; Polytechnic-University of Bucharest, Technical Universities of Cluj-Napoca and Timisoara, and Transilvania University of Brasov; and Babes-Bolyai University, Cluj-Napoca, University of Agricultural Sciences, Cluj-Napoca, University of Agricultural Sciences, Timisoara, University of Agronomic Sciences, Bucharest, and University of Craiova respectively.

238 Polytechnic-University of Bucharest, Al. I. Cuza University, Iasi, University of Bacau and St. cel Mare University, Suceava.
system (CAS) and to implement the ECTS in all 11 faculties and two colleges in combination with other changes in university management and administration. For example, the university appointed Directors for Education at central and faculty levels, the Credit Commission to design credit-related rules and procedures, the ECTS group to promote the system and special tutors advising students on the use of the credit systems. Moreover, it established the Computerised Management Department and a computerised system to manage the CAS and the ECTS. At the Al. I. Cuza University of Iasi, where an ECTS-compatible system was already in place in all faculties, Tempus supported the development of software for the management of the ECTS and other data concerning curricula, subject areas, students and teachers, etc. In addition, staff at central and faculty levels upgraded their skills to implement the ECTS, and an ECTS information package was published for the whole university. The St. cel Mare University of Suceava and the University of Bacau, which had started to introduce university-level internal credit systems before their Tempus project, published ECTS information packages and trained their staff for the implementation of the ECTS.

Furthermore, like in the other three countries, ECTS-based internal credit systems were established as a result of curriculum development projects for one or more study fields at seven Romanian universities where these had not existed before.

University management: summary and general comments

The impact of Tempus university management projects reviewed below should be seen in the context of higher education reform and the broader European context which are in fact inseparable in this area. This is so because the improvement of university management was a major issue in the national strategies and an implicit precondition for the participation in the regular EC programmes, whereas quality assurance found a prominent place in the national strategies, the Community acquis and the Bologna Process.

First, it is worth noting that single Tempus projects offered support for the development of policies, strategies or concepts at national level for higher education funding, human resources and research in Romania and funding, accreditation and a credit system in Hungary. Like in the case of degree programmes and continuing education, Tempus proved to be a suitable instrument for this purpose, but its potential could have been used to a larger extent in the period when various reform concepts were (to be) developed by national higher education bodies.

At university level, a comprehensive approach to strategic management implies the development and implementation of a mission statement, an institutional development plan, an institutional quality assurance system and strategies covering major areas of activity. The major areas for which strategies should be designed include inter alia education, training and research, staff recruitment, promotion and training, finance management, information management, external links and international relations. A mission statement or an institutional strategy was drawn up as the key or an additional outcome of single Tempus projects in Poland and Romania. As a result of several Tempus projects, strategies were formulated for one area of university services or activity, e.g. library services in Hungary, Poland and Bulgaria, staff training in Bulgaria or fundraising in Romania. However, a relatively large proportion of universities in the four countries worked in their Tempus projects on university- and/or faculty-level quality assurance or quality assessment systems. Overall, the contribution of the Programme to the development of strategic planning and management was thus rather selective, with quality tackled as a key separate issue.

The majority of Tempus projects in all four countries were, however, designed to streamline university structures and management practices, to establish previously non-existent or to upgrade existing services or systems and/or to develop links with non-academic institutions. Thus, Tempus contributed substantially to

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239 Technical University of Cluj-Napoca, P. Maior University, Targu Mures, North University of Baia Mare and University of Oradea (computer science, engineering and electronic engineering), Babes-Bolyai University, Cluj-Napoca (physics) and University of Medicine and Pharmacy, Bucharest (medicine).
increasing the operational capacity of management and administration structures at university level and to opening higher education to the external environment, though its impact in this respect varied from one country.

The practical approach adopted in most of the projects may be partly related to the priorities of the four countries which focused on the improvement of university management in specific areas, such as finance, student services, public relations, university-industry links or international relations, rather than on the development of strategies. These were certainly the areas to be modernised or developed most urgently in the context of both the changes taking place within higher education in the four countries, e.g. the growing number of students and competition between universities, and the demands of international co-operation. However, this approach may be also explained by the fact that a number of universities already drafted their institutional development plans before applying for Tempus funds, especially in the final years of the Programme, prioritised their needs and focused on specific tasks in university management and administration. In fact, for all four countries, such an exercise in strategic thinking was to some extent encouraged by the Tempus Programme itself as an institutional development plan was one of the elements taken into account in the quality assessment of projects. Moreover, in Hungary and Romania, institutional development plans were introduced by the national authorities as a requirement for all universities at the end of the 1990s. Nevertheless, it is also true that institutional development plans submitted as an attachment to Tempus projects were especially in 1995 and 1996 driven by the priorities of the Programme and drafted on an ad hoc basis rather than based on a strategic approach and a thorough analysis. Gradual improvement could be noticed from 1997 onwards.

It may as well be argued that, by focusing on the improvement of efficiency, universities adopted the only realistic approach which ensured the achievement of tangible outcomes within a period limited by the two- or three-year duration of Tempus projects. During a Tempus project, it would have been impossible to design comprehensive and long-term strategies, consult them with the academic community, approve them in accordance with the relevant procedures and implement them, even if on a pilot basis. This is also confirmed by the fact that some universities which set such ambitious objectives arrived by the end of their projects only to the stage when various concepts were drafted or systems were designed but not implemented or implemented partially.

While these general comments in the context of strategic management are applicable to a greater or lesser extent to all four countries, the impact of the projects varied from one country to another, depending on the areas covered and the number of universities involved.

Apart from the introduction of quality assurance systems or elements of such systems, which is dealt with separately below, there were only two elements common to all four countries. Firstly, whether through projects focusing on staff development and training or through all other projects, all four countries made a substantial investment to upgrade general and specialised knowledge and skills of university leaders and staff working at all university levels and in various areas of administration. Even though the contribution of Tempus in this respect is hardly measurable, the Programme created undoubtedly a large pool of professionals who are now prepared to carry out new day-to-day tasks as well as to contribute to strategic management. The large pool of well-trained staff may in fact be considered the key asset to universities of the four countries in their day-to-day administration and in their further work towards strategic management. Moreover, Tempus made a long-term investment in staff development by setting up special centres which provide training to university leaders and higher education staff at one university in Hungary and Bulgaria and three universities in Poland. Secondly, like those covering curriculum development for faculties, projects for university management and administration were a unique and effectively used opportunity to develop project design and management skills at central university level. This investment did facilitate the entry into and participation in the regular EC programmes.
The contribution of Tempus to the development of university management and modernisation of university administration in Hungary was generally rather selective, though the outcomes were clearly of substantial importance to the individual universities participating in the projects. While the projects involved in total 11 of all 30 Hungarian public universities and colleges and one private college, only three of them used Tempus funds to introduce larger-scale changes in several areas of management and/or administration. However, Tempus left fully modern libraries at seven of the 30 public institutions, and five of them upgraded their international relations offices. In these two areas, Tempus can definitely take the credit for improving substantially the management and efficiency of services. In addition, several universities trained their staff in university management and/or drew up strategies or concept papers for one area of university activities. However, some of the strategies or concepts could not or could only partly be implemented during the projects due to the various uncertainties related to the integration of public universities and colleges. Overall, the rather limited or selective impact of the projects in Hungary may be to a large extent explained by the changing legislative framework within which the integration of the public higher education sector was taking place until the year 2000.

University management projects in Poland covered jointly a wider range of areas than in the other three countries, and involved 39 of all 90 public universities and 2 theological universities. Those benefiting from Tempus projects included all classical universities and academies of economics, most of the technical universities, and several agricultural and medical academies. The opportunity to use Tempus funds for the modernisation of management and administration was clearly not used by other types of universities, in particular teacher education schools, academies of physical education or schools of fine arts.

The contribution of Tempus to the development of tools for strategic management was rather limited. Only one Polish university drew up a mission statement and introduced subsequently changes in management and administration, two universities produced a mission statement or an institutional development strategy, and three universities designed strategies for their libraries. However, Tempus improved clearly the management of university activities and the efficiency of their services in several areas. This was achieved through the comprehensive modernisation of central libraries at 18 universities, international relations offices at 19 universities or the establishment of new units for international co-operation at 2 universities, and the streamlining of finance services at 10 universities. Some of the universities improved the quality of services in two or more of these areas. Moreover, Tempus provided considerable support towards the introduction of integrated computerised information systems; some universities managed to implement comprehensive information systems, and others moved closer to this stage by installing systems which cover finance management, study management or student registration. This also increased the efficiency of administration, but at the same time facilitated the transition from fragmented faculty- or even department-driven management to a more co-ordinated institutional approach. In turn, a better start in the professional life should be ensured for students and closer links with the external environment should be developed through the units responsible for student counselling, information, development, promotion and/or liaison which were set up or upgraded at 30 universities. Finally, it is worth noting that, while a larger number of universities could have generally been involved in Tempus projects, most of the projects involved three or more universities and some even all 15 classical universities. They may thus serve as a good example of networking which turned out to be more difficult in curriculum development projects.

The landscape left by Tempus was slightly different in Bulgaria where university management projects involved jointly 13 of all 29 public universities and 3 of 5 private universities. While Tempus provided some tools for strategic management, including institutional development plans as well as various internal regulations for four universities and operational procedures for all administrative units at two universities, these were actually implemented during the projects only by one university. In terms of improving management and increasing the efficiency of university administration, the impact of the projects may be
seen mainly in two areas: international relations and information systems. In the area of international relations, the outcomes of Tempus ranged from the establishment of a new structure in two universities or the restructuring of the existing office in another university to upgraded staff skills and equipment, new procedures and documents for student mobility now available at 15 universities. Integrated information systems were developed for 7 universities, though implemented fully or partially by 4 universities. Moreover, it is worth noting that, like in Hungary and Poland, the central libraries at four universities proved to be the section of university services which used Tempus funds for extensive modernisation based on a strategic development plan.

- The projects in Romania involved jointly 31 of all 48 universities, including 12 where Tempus supported changes in at least two areas of university management or administration. Overall, the three areas where the impact of Tempus was most visible are university-industry co-operation, student counselling and international relations. A solid basis for university-industry co-operation was created for 16 Romanian universities, with all of them being members of sustainable networks for university-industry co-operation, and some also co-operating with enterprises to implement their fundraising policy or prepared to set up small business incubators. In turn, by creating or upgrading student counselling units at 15 universities and setting up the National Association of Academic Counselling Centres, Tempus offered substantial support for the implementation of a new regulation of the Ministry of Education whereby all universities were required to offer such services to their students. Since the activities of student counselling services are by definition based on links with potential employers, this investment also contributed further to the opening of the Romanian universities to their external environment. In the area of international relations, Tempus provided the basis for or improved the management and efficiency of activities through the establishment of new units at three universities and the restructuring and modernisation of existing offices at 11 universities.

Finally, though this was by no means a development on the national scale, it is worth emphasising that Tempus created a legal framework for improved management and administration at five universities which drafted or revised their statutes on the basis of arrangements tested and proven at EU partner institutions.

- Projects designed to introduce quality assurance systems involved 7 of all 30 public institutions in Hungary, 23 of 90 public universities and 2 theological universities in Poland, 14 of 29 public universities and 1 of 5 private universities in Bulgaria, and 9 of 48 public universities in Romania. The proportion of the participating universities ranged thus from 18.7% in Romania, around 25% in Hungary and Poland to almost 50% in Bulgaria. The scale of involvement may be considered quite satisfactory in view of the fact that internal quality assurance was still a new issue when the last two series of Tempus projects were launched at the end of the 1990s.

- In general terms, Tempus created or at least contributed substantially to the emergence of the so-called quality culture by presenting basic concepts, increasing the awareness of the need to develop internal quality assurance systems, promoting good practice examples and providing assistance in the design and implementation of internal systems. Within the universities participating in Tempus projects, the success in building a quality culture was to a large extent ensured through the involvement of various target groups in numerous training courses, seminars and discussions as well as study visits to the EU partner institutions. However, the quality culture was also extended beyond the project consortia through the promotion of project outcomes at various national fora and the dissemination of special publications produced by the project partners.

- More specifically, Tempus projects provided an organisational framework for quality-oriented activities and supported first steps towards the introduction of quality assurance systems. Unless special units had existed before, structures responsible for quality were established at university level in Hungary, Poland and Romania, and faculty level in Poland and Romania. Universities in Bulgaria, except one, focused exclusively
on the development of quality assurance systems. As regards quality assurance systems, only single or several universities in each of the four countries reported that an internal system had been implemented. At all other universities, some standards, procedures or components of a system were designed and tested, mainly in selected faculties or for selected areas, and a comprehensive system was still to be developed, approved or implemented. In some cases, e.g. in Bulgaria, the “selective” approach seems to have been determined by the national arrangements whereby Bulgarian universities were required first of all to introduce a self-evaluation system as a precondition for accreditation. Although details about systems to be implemented are not available for all projects, it is clear that while some universities already chose one specific model as a framework for their activities in Tempus, others were testing various procedures and approaches in a less structured way.

- Finally, it should be noted that Tempus in Poland and Romania also contributed to the development of national assessment and accreditation systems through the direct involvement of relevant bodies in the projects and the use of project outcomes in national-level initiatives.

Overall, Tempus projects may be described as a pilot exercise in quality assurance, and their impact was limited by several factors. Firstly, at the time when Tempus projects were planned and/or launched, detailed concepts and guidelines for internal quality assurance systems at national level in the four countries had only been or were yet to be drafted. Thus, universities were left very much on their own. In Poland and Romania, it was in fact their expertise and experience gained through experiments in the Tempus projects that would be then used for concepts and arrangements at national level. More could have perhaps been achieved if developments in this area had followed the opposite order. Tempus funds could have been used first to design guidelines for internal quality assurance in a “policy development project” at national level, and subsequently to implement them at university level. In the order actually chosen, at least some outcomes of Tempus may turn out to be unsustainable in case they do not fit in with the system introduced later at national level. Secondly, since the priorities for the last two Tempus years were overloaded with various issues and the budgets were largely reduced, funds could be awarded only for a small number of projects. And thirdly, it normally takes around five years to design and implement a university-level quality assurance system, whereas Tempus projects could only have a two-year duration as the Programme was already ending for the candidate countries.

Finally, as regards arrangements for student mobility, wide dissemination of information about study opportunities among local students and transparent selection procedures were clearly the strong points in all four countries. Arrangements in these areas were clearly comparable to those adopted by universities in the EU Member States under the regular EC programmes. While little was done at the beginning to attract EU students to the four countries, Tempus ended with a large pool of promotional materials available in each of the countries. This was certainly an investment facilitating the participation of the four countries in the regular EC programmes. Language preparation for outgoing students was quite satisfactory, but more attention should have definitely been given to cultural preparation. In the area of recognition of study periods, progress was made gradually from ad-hoc and subsequently more transparent arrangements to the introduction of the European Credit Transfer System or ECTS-based internal credit systems which may be used for the recognition of study periods in student exchange.

The ECTS and/or an ECTS-based internal credit system was implemented in at least one faculty at 12 of all 30 (40.0%) Hungarian public institutions, 25 of 90 (27.7%) public universities in Poland, 13 of 29 (44.8%) public universities in Bulgaria, and 12 of 48 (25.0%) public universities in Romania. These figures may be generally considered a good result of Tempus projects in view of the fact that the ECTS in the EU Member States was first implemented on a pilot basis in a narrow circle and only gradually extended to cover a larger number of institutions. Moreover, it worth noting that the range of areas in which the universities introduced the ECTS or

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240 The varying degree of precision in the description of project outcomes was referred to in the section on the methodology of the study.

241 Breakdowns by faculty/area varied almost from one university to another and are given in the previous section.
an ECTS-based system was much wider, in particular in Poland, than in the pilot ECTS scheme implemented in the EU and the EEA countries between 1988 and 1995.242

These overall figures should, however, be supplemented with some comments to highlight the specificity of the pilot exercise in Tempus. Firstly, it is striking that many of the projects referred to above led to the establishment of an ECTS-based internal credit system rather than the implementation of the ECTS as a tool used specifically for the recognition of study periods abroad. The ECTS as such was actually implemented for student exchange only in a number of universities in Poland, Bulgaria and Romania.

Secondly, except in Poland, the ECTS was introduced mainly within curriculum development projects or projects specifically designed for this purpose rather than student mobility projects, even though the priorities for the latter promoted ECTS-based credit transfer systems or the ECTS itself. Thus, student mobility projects did not prove to be an ideal vehicle for the implementation of the ECTS. One of the reasons is that the proper implementation of the ECTS, and in particular the allocation of credits to course units, required at least some restructuring of curricula, and this was not as a rule envisaged in 'practically-oriented' student mobility projects.

Thirdly, a relatively large proportion of the universities implemented the ECTS or ECTS-based internal credit systems during the final Tempus years when student mobility was gradually being phased out. Thus, the systems could be properly tested only in larger-scale student exchange taking place subsequently within the Socrates/Erasmus Programme.

Generally, with the use of the ECTS for a double purpose, to increase the flexibility of studies for local students and to facilitate international student exchange, Tempus projects supported in their own way the modernisation of degree programmes and the preparations for the participation in the regular EC programmes.

The sustainability of the outcomes achieved in various university management areas under Tempus was ensured in most cases through their integration in the regular activities of the universities involved during the lifetime of the projects. Moreover, investment in some cases, such as the modernisation of university administration, was indeed substantial, and only modest further outlays will be required to maintain the results. Furthermore, the national higher education frameworks in the four countries and the European context will both continue to provide incentives for the maintenance of the achievements and for further development in areas such as strategic management, quality assurance and credit systems, in particular the ECTS.

However, it should be noted that Tempus also supported a number of feasibility studies and other preparatory initiatives, mainly within the Complementary/Compact Measures, which either did not bring any tangible outcomes or did not lead to the stage of implementation. In these cases, universities should have ideally been encouraged to undertake follow-up activities to reinforce trends towards change and innovation as well as to ensure efficient use of Tempus funds.

Furthermore, as a more specific point already made before, better conditions for the sustainability of outcomes in the area quality assurance could have been created if Tempus projects had been implemented within a clearly defined framework at national level.

242 The following five areas were selected for the pilot ECTS scheme in the EU and EEA countries: business administration, chemistry, history, mechanical engineering and medicine.
Finally, it is worth highlighting that some of these larger- and smaller-scale changes brought immediate effects still during the implementation or shortly after the completion of the projects. For example, the new or modernised international offices established new links for their universities, applied successfully for grants in other Phare or regular EC programmes, in particular Socrates/Erasmus, and managed efficiently their international projects, including student exchange. The various units responsible for the relations with the external environment raised additional funding for their universities, and university-industry co-operation resulted in the redesign of curricula for degree programmes or the joint development of continuing education courses. Student counselling offices and careers services found jobs and successfully placed the first cohorts of graduates in various companies and institutions.

In other cases, the changes introduced through Tempus in university management or administration, alone or in combination with other developments, led to the accreditation of programmes, faculties or universities by the relevant bodies or ensured for them a higher position in the regional or national rankings.

In more general terms, like curriculum development projects, those for university management and administration contributed jointly to the emergence of a culture of change where trends towards innovation were gradually prevailing over resistance to changes. Similarly, even if a direct link may be hardly identifiable, the projects did certainly develop the capacity of central university level to manage the extensive autonomy through the involvement of university leaders and the substantial investment in staff training.

Other Tempus “products”, such as strategies for fundraising, development plans for libraries or staff training policies, may by nature bring effects only after a longer period of time.
III. Tempus-supported institution building in the four candidate countries: 1998-2001

Tempus institution building\(^{243}\) focused on the development of expertise in various institutions and organisations that have a responsibility in implementing and enforcing Community acquis. Institution building was introduced into Tempus priorities for the two final rounds of projects involving the candidate countries which were launched in the academic years 1998/1999 and 1999/2000.

The priorities for Hungary promoted the development of the higher education institutions' capacity to train prospective civil servants in EU policy matters and those currently working in public administration, and to provide training or retraining that can satisfy the requirements resulting from the approximation of Hungarian law. Poland’s priorities covered courses in EU-related matters for professional groups which were or would be involved in the implementation of tasks stemming from the accession process and future EU membership. The target groups included central, regional and local administration, university administration, members of the parliament and parliamentary services, and lawyers.

Institution building in Bulgaria was designed to support the organisation of a national system and strategy for training in public administration, and the organisation of training for specialists in the areas related to the EC Internal Market. In this context, the following specific areas were listed in the priorities: finance and tax policy, public administration, social insurance, quality control standards and Community Law. Romania’s priorities covered the improvement of public administration skills and the development of a variety of EU-related courses. These included specialised courses in Community law and those facilitating the process of approximation of law, courses focusing on specific sectors (e.g. environment, transport, agricultural economics, regional development, consumers, labour, trade and competition), and multidisciplinary courses in European Studies.

In total, Tempus funded 108 institution building projects, which represented 13.5% of all 800 Joint European Projects launched in the four countries between the academic years 1994/1995 and 1999/2000. The shares of institution building projects in the individual countries varied from as much as 17.2% in Hungary, 16.2% in Romania and 15.3% in Bulgaria to only 9.6% in Poland.\(^{244}\) As regards areas targeted in Tempus institution building, the projects may be divided into those combining a wide range of public administration areas and EU- or accession-related issues, and those focusing more clearly on one specific area or sector. In a breakdown for all four countries\(^{245}\), the largest proportion of the projects (29.6%) tackled various public administration areas and EU- or accession-related issues, whereas environment, agriculture, justice and home affairs, and finance and business were the leading areas in sector-specific projects (13.0%, 10.2%, 9.3% and 8.3% respectively). The remaining projects covered quality standards, regional policy and development, social welfare, transport, education, health, cross-sector issues, and other areas such as customs or media, with their shares ranging from 5.5% to 1.9%. The area distribution varied, however, from one country to another. For example, most of the projects in Hungary were sector-specific, with only 6.9% combining various areas of public administration and/or EU issues. Moreover, Hungary had a much larger share of projects in agriculture (20.7%) and was the only country

\(^{243}\) For a broader definition of institution building adopted in the Phare Programme, see: footnote 21 in the study.

\(^{244}\) See also: Annex 1, Table 3.

\(^{245}\) For an overall breakdown and an area breakdown by country, see: Annex 1, Table 11.
which funded projects in health (10.3%). In Poland, general accession and public administration projects represented in turn a much larger share than those in the leading areas (40.6% as compared to 18.7% in environment, 12.5% in justice and home affairs, and 9.4% in agriculture). The proportion of projects dealing with a wide range of public administration and accession issues was also large in Bulgaria and Romania (45.0% and 29.6% respectively). However, the shares of projects in agriculture were rather small in both countries (5.0% and 3.7% respectively), whereas the leading areas included quality standards (15.0%) and justice and home affairs (10.0%) in Bulgaria, and environment and finance (14.8% each) in Romania.

The following two sections outline the structure of institution building activities, and provide an overview of training activities for target groups as well as other project outcomes in all of the above-mentioned areas or sectors. The descriptive parts are followed by general comments which summarise and evaluate the impact of the Programme in this area.

1. **Predefined structure of institution building activities**

Unlike for continuing education projects, the structure of training and related activities for institution building projects was to some extent predefined in a model example presented in the Tempus Guide for Applicants. A model project in the Guide was based on a network bringing together not only institutions from at least two EU Member States and one or more universities from the candidate country, like in all Tempus projects, but also non-academic institutions and/or organisations from the candidate country. Non-academic institutions and organisations were thus involved as project partners and as representatives of target groups for training. The key activities in the model example included an analysis of training needs in target groups, identification of resources required to provide training, retraining of teachers or trainers from the candidate country, development of courses and training materials, and delivery and evaluation of courses.

Moreover, additional desirable elements of institution building projects were specially highlighted by representatives of the European Commission, the European Training Foundation and the National Tempus Offices during information meetings for potential and successful applicants. In particular, project consortia were encouraged to incorporate language and computer training components into their courses, to offer training to a significant number of civil servants and other professionals in the candidate country, and to organise study visits to EU Member States for course participants. Furthermore, it was emphasised that projects should create a basis for follow-up activities, which could include arrangements for future delivery of institution building courses and/or the integration of courses into regular degree programmes.

2. **Overview of training courses and related developments by area**

This section provides an overview of training activities and related developments, the latter including in particular new training units and various publications supporting both training and the accession process in the four candidate countries. Like in the sections on degree programmes and continuing education, outcomes of institution building projects are presented by area of training and by country within the individual areas. The overview starts with the leading areas and ends with those represented by single projects.
2.1 Public administration, and general EU and accession issues

Projects covering a wide spectrum of EU- and accession-related and/or public administration issues were funded by all four countries.

Hungary funded two projects covering a wide spectrum of public administration and EU-related issues. In the first project, which involved the Budapest University of Economics and State Administration, the Distance Study Centre of Hagen Distance University in Budapest, central and local government bodies\textsuperscript{246} and EU partners, training needs were identified during meetings of focus groups in all participating counties. Institution building courses, which were developed jointly by all academic and non-academic partners, included the following modules:

- Europe and Hungary: introduction, milestones of integration, EU accession and Hungarian public administration;
- EU institutional, legal and financial dimensions: institutional and decision-making systems, economic and financial systems, principles and practice of law approximation, EU: bureaucracy and national public administration;
- regionalism and self-governance in the EU: EU regional policy, development of regional policy in Hungary, local governments in the accession process; and
- project management: practices in the EU Member States, project planning and writing.

The specialist modules were combined with an EU-related English course, and a European Computer Driving License\textsuperscript{247} course. Depending on the modules, training was based either on traditional lecturing or interactive training methods. Training materials were developed in the form of textbooks, e.g. "European Union, integration and public administration", course-books for language training, as well as a pilot computer-assisted student manual for specialist training in the distance education system. The courses were first delivered jointly by the EU and Hungarian partners to 120 civil servants from the non-academic institutions and, subsequently, to 250 civil servants by Hungarian trainers trained in interactive adult training methodology. The training part in Hungary was followed by study visits to EU institutions. After the completion of the courses in the project, several arrangements were made to ensure their continuation in the future. The language course and an improved version of the specialist training courses were accredited for further training of civil servants, and the language course was already provided on a regular basis in two counties at the time of reporting on the project outcomes. The courses will also serve as the basis for a new postgraduate programme at the Budapest University of Economics and State Administration. Finally, as a spin-off effect of the project, an agreement was signed by the county public administration offices and the university to organise summer practical placements for graduate students. Moreover, preliminary arrangements were made between the academic and non-academic partners for co-operation under a joint Leonardo project.

An analysis of training needs was also carried out by Debrecen University, Mayor's Office in Debrecen, the Hajdu-Bihar County Assembly and their EU partners. On this basis, the consortium developed courses covering the history of the EU, EU enlargement issues, including Hungary's accession prospects, financial issues and the introduction of Euro, and political and practical implications, cross-cultural communication and fast services to citizens, as well as an English language course. The courses were delivered jointly by EU lecturers and Hungarian trainers trained by the EU partners to ca 80 participants, including staff from the two non-academic partner institutions and Debrecen University. As a follow-up to the project, a language course was organised for local government staff by Debrecen University. Moreover, the university and the Mayor's Office signed a co-operation agreement, and applied jointly for funding in Leonardo.

\textsuperscript{246} Ministry of Home Affairs, and County Public Administration Offices in Bekes, Heves, Somogy and Komarom-Esztergom.

\textsuperscript{247} An internationally recognised qualification attesting to computer skills.
All institution building courses and seminars in Poland were based on an analysis of training needs carried out through questionnaire surveys or consultations with non-academic target institutions. Co-operating with various academic and non-academic institutions\textsuperscript{248} and EU partners in its three projects, the Jagiellonian University of Cracow in Poland developed courses for local government and business circles. The first course covered common EC policies, Structural Funds and assistance pre-accession funds, access to EC documents, EC law on environmental protection, and town and country planning, and the Charter of Fundamental Rights. It was attended by 59 officials from the Małopolska Province Governor’s Office and the Cracow Municipality. At the end, the participants prepared a presentation, took an examination and obtained certificates. The course was followed by study visits to EU institutions. The second course, which attracted over 270 participants from the same local government bodies, focused on the structure and decision-making processes in the EU, structural and pre-accession funds, European models of public relations, social marginalisation and mobilisation, social communication and institutionalisation, European education, and European models of culture management. The third course, which was delivered to over 250 business representatives from the Cracow Chamber of Commerce and Industry and the Chamber of Crafts, comprised the following modules:

- EU law: general principles; EU regulations concerning taxes, duties and customs; partnership law; freedom of business activities and services;
- EU law and its impact on Polish regulations: relations between internal and EU legal systems, and related adaptation problems; public law and administrative law in the EU; legal issues for small and medium companies; impact of the EU Member States’ and EU law on Polish companies; labour law and social law in the EU Member States;
- regional politics and policies: Europe of Regions, EU regional policies, regional economics, structural funds and regional development, interregional co-operation, interaction between public, private and voluntary agencies, trade between the EU Member States;
- EU institutions and principles of subsidiarity: introduction to EU institutions and integration, subsidiarity in EU law, management of EU funds at local level;
- small and medium enterprises, and business lobbying in the EU: lobbying in the EU, business information, small and medium enterprises in the EU, fairs in the EU, commercial offers from the EU Member States, information sources, investors lobbying in local authorities, private and public sector in the development process, export offers, principles of business negotiations, ISO 9000, 14000 and 18000, new approach directives, and total quality management;
- Euro in the EU and associated countries: Euro and its impact, business with European partners, banking procedures, setting of payment conditions in agreements, Monetary Union and its implications, changes in foreign currency regulations.

The quality of the course was evaluated by the participants in a specially designed questionnaire. After the course, study visits to the EU were organised for a smaller number of the participants. The three courses were provided jointly by EU lecturers and Polish trainers trained by the EU partners. The trainers used various training materials, including legislation, various papers and press articles, and readers and books specially developed in the project, e.g. “Europe of Regions”, “EU law in business”, “Negotiations in the EU”, “Toward what kind of Europe are we heading” and “Euro: common currency”. As another project outcome, the Jagiellonian University set up a faculty-based on-line European Career Centre to offer information and advice concerning internship and employment opportunities, EU programmes and grants, and a European Training Centre. After the completion of the project, several follow-up initiatives were undertaken by the Polish and EU partners. Firstly, the Polish non-academic institutions introduced on a regular basis various training programmes which are based on the project outcomes, and these are delivered jointly by their own trainers and experts from the Jagiellonian University.

\textsuperscript{248} Teacher Education School of Cracow, Małopolska Province Governor’s Office, Cracow Municipality, Cracow Chamber of Commerce and Trade, and Cracow Chamber of Crafts.
University. Secondly, the modules developed in the project will be included by the Jagiellonian University in the curriculum for European Studies as well as offered in the form of weekend courses, and several modules are already offered as part of the existing degree programme for students of law. And thirdly, formal bilateral partnerships were established between the Polish academic and non-academic partners, and between the Polish and EU partners. For example, the Teacher Education School of Cracow signed an agreement with the Cracow Chamber of Commerce and Trade to organise a joint internship programme and a course in business French. On the basis of another agreement, the Cracow Chamber of Crafts will be involved in a doctoral programme in political sciences offered by the Jagiellonian University. In turn, preliminary contacts during the study visits led to a co-operation agreement between the Cracow Chamber of Commerce and its French partner.

The Academy of Economics in Cracow set up a Regional Centre for European Integration (RCEI) to provide training, information and consulting services, and trained a pool of experts who will co-operate with the Centre on a regular basis. Experts were selected not only from the university, but also from the non-academic partner institutions, these including the Małopolska Province Governor’s Office, the Cracow Municipality, the Regional Development Agency and the Cracow Chamber of Commerce. The courses were organised in the following modules: foreign investment in Poland, tourism as a development opportunity for the Małopolska region, sustainable Tourism, Euro: monetary policy of the EU, Agenda 2000, transportation and infrastructure, environmental protection and alternative sources of energy, and lobbying in Brussels. Training materials were published in the form of four guides: “Internet sources of information on EU Structural Funds for Poland: a guide for municipalities”, “Services for investors in Poland: a handbook for civil servants”, “Foreign direct investments: from theory to practice” and “European grant management: a handbook for project managers”. The courses were delivered jointly by the Polish and EU partners to 154 participants from the non-academic partner institutions as well as professional associations, private companies and banks, and higher education institutions. As a spin-off effect, the contents of the courses were included as an integral part of staff training plans in some non-academic institutions, e.g. the Province Governor’s Office. After the completion of the project, the RCEI extended its information and consulting activities in response to the increasing number of enquiries and requests from various non-academic institutions. The courses launched in the project will be offered on a commercial basis.

An institution building project which involved Łódź University, the Łódź Municipality, the Łódź Province Employment Department and their EU partners started with the training of multipliers recruited from both the Polish university and the non-academic institutions. The training programme for the project target group comprised a series of lectures and workshops, an English language course, and study visits to EU institutions. The lectures were arranged in two blocks:

- Economic issues: goods and services markets in the European integration process, capital and labour markets in the European integration process, economic and monetary and its implications, Poland’s policy for foreign investors, EU sector policies for goods and services markets, EU regional policy, EU policy for small and medium enterprises, EU transport policy, EU consumer protection policy, and EU social policy; and

- Legal issues: European institutional law, European labour law and European economic law.

During the workshops, which combined presentations with teamwork exercises, selected topics such as EU institutions, EU regional policy, EU social policy and employment strategy, and EU programmes were discussed in more detail together with examples of specific projects funded in the EU programmes. Trainees were provided with various training materials, including books and brochures on specific topics listed above as well as manuals for EU programmes, model contracts and applications. The training programme was delivered jointly by EU and Polish trainers to 100 participants from Łódź University and the two local government bodies participating in the project. As a follow-up to the project, the Łódź Municipality prepared a proposal for the continuation of the lectures and workshops, and several projects were developed by Łódź University for and together with schoolteachers and other staff of educational establishments. Moreover, as a spin-off effect of the project, special posts for EU programmes were created in the two local government bodies.
The European Institute in Łódź and its EU partners organised a series of seminars devoted to the following topics:

- European integration process: history, institutions and decision-making process,
- EC law and policies: an overview, and legislation and policies for specific sectors, including in particular EU regional policy, regional funds, Structural Funds and the Cohesion Fund, EU social policy and the European Social Fund, EU agricultural policy, EU environmental law, EU competition law and policy, EU policy for the development of small and medium enterprises;
- Single European Market;
- EU policy towards Central and Eastern European applicant countries;
- EU documentation;
- public procurement;
- practice of cross-border co-operation between local authorities; and
- project design for European funds.

Training materials used during the seminars by EU and Polish lecturers were published in a new European Integration series of the European Institute. The seminars attracted 120 participants from 15 Province Governors’ Offices selected in co-operation with the Ministry of Home Affairs and Administration as the non-academic project partner. The trainees were awarded certificates of attendance. After the seminars, a smaller number of the trainees undertook internships in EU regional agencies. To provide services to regional and local administration bodies in the future, the European Institute set up an Information, Training and Consultancy Centre. As a follow-up to the project, the European Institute and the Łódź Province Governor’s Office signed an agreement to establish a Regional Council for European Education and Information.

The programme developed by the Academy of Economics and Administration, the Teacher Education School of Kielce, the Świętokrzyskie Province Parliament and their EU partners comprised:

- training in self-assertiveness and communication;
- seminars presenting a wide range of issues, e.g. EU institutions, EU law, EU regional policy and Structural Funds, EU educational programmes, support for small and medium enterprises, pre-accession funds, and the development strategy for the Świętokrzyskie Province; and
- workshops where selected topics, e.g. the regional development strategy for the province, unemployment issues and applications for external funding, were discussed in more detail.

Training materials included papers on specific topics, “The strategy for the development of the Świętokrzyskie Province” and “The operational programme of the regional development of the Świętokrzyskie Province”, “Economic policy for less developed areas”, as well as a software for the preparation of a local development project. The training was organised by the Academic Centre for European Studies set up within the project at the Academy of Economics and Administration, and delivered by EU lecturers and Polish trainers from both Polish universities and the Province Parliament trained by the EU partners. 149 training participants represented the municipalities of the province. In addition, the Academic Centre created an advanced communication and on-line training system which allows trainees to download reference materials, to upgrade software developed as training materials in the project, and to access seminars and workshops through an Internet website. Moreover, a Network of Local Experts and an Association of Local Experts were established to ensure the continuation of training and co-operation with the non-academic partners. The network brings together the key trainees whose main task is to offer training and expert advice to the entire province. The association was set up to disseminate information about the European Union and Poland’s accession, to design standards for local development projects, to mobilise municipalities for common tasks, etc. As a spin-off effect of the project, the Academic
Centre was appointed by the Province Parliament as the unit co-ordinating co-operation in the field of higher education which will be carried out on the basis of agreements concluded between the province and three regions in the European Union.

Seminars organised by Wrocław University and Technical University focused on Phare cross-border projects for small and medium enterprises, Structural Funds, the legal basis for regional policy in Poland, EU programmes in education, training, research and technology, and practical advice for potential applicants. The seminars were attended by ca 200 participants from the non-academic partner institutions, these including local government bodies and training centres, and the two Polish universities. Materials produced in the project included lecture notes for the seminars as well as "The guide to foreign funds" and two directories, "Scientific research and services offered by the Technical University of Wrocław" and "Scientific research and services offered by Wrocław University". The guide and the directories were distributed to regional and local authorities, chambers of commerce, commercial companies as well as other universities. Co-operation between the Polish academic and non-academic partners will continue through Liaison Offices set up at the two Polish universities, and "The Lower Silesia Forum" created in the project as a framework for lectures, seminars and workshops on key problems in regional economic development and EU support programmes.

In co-operation with its Polish partners and EU institutions, the Pułtusk School of Humanities organised postgraduate programmes which covered general knowledge about the EU, Polish reforms and integration process, including specialist issues for different target groups, social communication and organisation of international exchange, and skills needed for integration process. Lecture notes and other training materials were developed for each module. The postgraduate programmes, which the Pułtusk School of Humanities offered in its two institution building projects, were attended by a total number of 388 officials from 16 Province Governors' Offices and the non-academic partner institutions. The trainees were required to write a paper and take an examination, and obtained state-recognised certificates. The recruitment of another group of trainees started before the end of the projects. Co-operation with non-academic institutions will continue through the Postgraduate Centre of European Self-Government and Public Administration set up in the project at the Pułtusk School of Humanities, and on the basis of agreements with the province authorities to be signed soon after the completion of the projects. As a spin-off effect of the projects, trainees from local government bodies and the Pułtusk School established an association, "Euro-development", which aims to support regional co-operation.

The A. Mickiewicz University of Poznań and its EU partners developed a series of courses "Practising United Europe" which covered various EU and European integration issues, and English and German language courses. The courses "Practising United Europe" were delivered jointly by Polish and EU lecturers to 148 local government officials, Board Guard officers and Police officers in the Wielkopolska Province.

Finally, a project involving the Białystok School of Public Administration, the Parliament of the Podlasie Region and their EU partners covered more general public administration issues. The Białystok School launched a postgraduate programme "Human Resources Management in Public Administration" which ended with a diploma recognised by the Ministry of National Education. The programme was delivered jointly by retrained university teachers from the Białystok School and experts from non-academic institutions, including the Marshal's Office in Białystok. The trainers used both papers and articles prepared by the EU partners and a textbook "Human Resources Management in Public Administration" developed in the project by the Polish and EU partners. During the project implementation, the programme was completed by 200 participants from local government bodies, the Podlasie Province Governor's Office and the Province School Inspectorate. To provide a framework for the future delivery of the programme, the Białystok School set up a Centre for Postgraduate Studies in Human Resources Management in Public Administration in the project. As a spin-off effect of the project, the School

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249 Mayors' Offices in Wałbrzych and Jelenia Góra, and Lower Silesia Province Governor's Office.

introduced new courses in local development management and labour market and a new specialisation "Human Resources Management" into its degree programmes.

In Bulgaria, some project consortia carried out preparatory activities which extended beyond an analysis of training needs. Extensive preparations were undertaken, for example, in a project which involved the Bourgas Free University, the New Bulgarian University of Sofia, the P. Hilendarski University of Plovdiv, Bulgarian local government bodies and non-governmental organisations and EU institutions. The Bulgarian universities and their EU partners reviewed the existing Bulgarian legislation, developed a Local Government Training Needs Assessment System, carried out a survey of training needs, and held interviews with local government staff. Specialist modules developed for target groups on this basis covered local government administration, legislation for local government, relations with citizens, municipalities in the conditions of privatisation and market economy, management of human resources, legal regime of social activities in municipalities, and financial policy and activities in the municipality. In addition, the target groups were offered a course in information and Internet technologies, and courses in English and German. Training was delivered jointly by EU lecturers and Bulgarian university teachers. The trainers used materials provided by the EU institutions and those developed as entirely new by the project partners. The courses were attended by ca 120 municipality officials from the partner institutions. To provide a framework for future co-operation, the project partners established a Local Government Training Network. At the time of reporting on the project outcomes, the members of the Network were discussing an agreement with the Bourgas authorities whereby courses would be delivered on demand by the Bulgarian universities and funded by the regional and local government bodies.

The scope of a project involving the St. Kl. Ohridski, the Technical University of Varna, the National Associations of Municipalities and of Secretaries of Municipalities in the Republic of Bulgaria, and their EU partners extended in fact beyond institution building courses. Firstly, mixed teams of experts, who represented the academic and non-academic project partners, reviewed the legislation for local government in the EU Member States and submitted specific proposals for changes in the Bulgarian law to the competent expert bodies and the relevant national authorities. Some of the proposals were already adopted by the Bulgarian Parliament at the time of reporting on the project outcomes. Secondly, the expert teams assessed the organisational structure of two pilot municipalities, prepared proposals for changes which were implemented by the two municipalities, and drafted general recommendations for local government bodies in Bulgaria. Thirdly, the following specialist modules were developed on the basis of an analysis of needs: structure, statutes and powers of local authorities, finance, budget and management of municipal property, local development, organisation of municipal activities and public services, and provision of information for local authorities' activities. The specialist modules were combined with an English language course and an information technology course. Training materials were published the form of a "Manual for Local Government", with 1000 copies distributed to local government bodies under the project and another edition of the book to be financed on a commercial basis after the completion of the project. The training courses, attended by municipality officials, were based on multimedia methods and carried out jointly by Bulgarian academic and non-academic experts and EU lecturers. In addition to the outcomes listed above, the St. Kl. Ohridski University of Sofia established a special training unit to organise institution building courses in the future. In order to ensure financial independence of the unit, the expert teams involved in the project designed new training initiatives and programmes in social work, public relations, ethnic problems, environmental protection, tourism and electronic commerce. Funds for the new programmes will be obtained in tender procedures. Moreover, a co-operation agreement between the National Associations of Municipalities and Secretaries of Municipalities and the St. Kl. Ohridski University was to be signed soon after the completion of the project.
In another project, four Bulgarian universities designed first “The strategy and system for training of administrative staff working in the field of higher education” and identified training needs through consultations with target institutions. On this basis, the universities and their EU partners developed six modules for different target groups:

- Academic administration, including university structure, administration and vision, finance, marketing and management, international projects, quality assurance, skills development for students, teaching and learning, research parks, public relations, and information and Internet technologies – for university administration;
- National administration, including management and marketing in the field of education, communication skills and public relations, and information and Internet technologies – for the Ministry of Education and Science;
- Local administration, including management and marketing, administrative law, sociology and social policy, information and Internet technologies – for regional and local authorities;
- Business administration, including business management and marketing, financial management and financing, administrative and financing law, and information and Internet technologies – for universities, the Ministry of Education and Science, regional authorities and municipalities, and the Association for Military Law;
- Financial administration, including models and mechanisms in financing academic institutions, financial management and investment, financing law, and information technologies in finance and accounting – for universities, the Ministry of Education and Science, regional authorities and municipalities, and the Association for Military Law;
- Social administration: management and marketing of social services, labour law and social insurance, organisation behaviour: culture and ethics, information and Internet technologies – for universities, the Ministry of Education and Science, regional authorities and municipalities, and the Association for Military Law.

In addition, language training was organised for the Ministry of Education and Science, regional authorities, municipalities and universities. For each of the topics covered, including English, the Bulgarian partners developed training materials, e.g. “Management and marketing in the field of higher education”, “Bulgarian administrative law: public administration of the Republic of Bulgaria”, “Financial management and investment”, “Labour law and social security” or “English for administrative staff”. The courses, which ended with certificates, were attended by 221 participants from the Ministry of Education and the regional and local authorities of six cities as the non-academic project partners. In the future, courses will be offered by a network of training units. These include a Centre for Training of Administrative Staff set up at the Technical University of Sofia, the existing Centre for Public Administration at the New Bulgarian University, and a Centre for Training of Administrative Staff to be created by the Varna Region and the Varna University of Economics. As a spin-off effect of the project, an English-Bulgarian Consortium was established by two British project partners, two Bulgarian universities taking part in the project, the Varna Free University Association and the Varna District Government authorities to support co-operation between the two countries in the area of public administration.

The Centre of European Studies in Sofia, the New Bulgarian University of Sofia, the P. Hilendarski University of Plovdiv, Bulgarian non-academic partners and EU universities designed courses according to a questionnaire-based analysis of training needs and a evaluation of pilot training sessions. The training programme comprised theoretical lectures, presentation of good practice examples, case studies and exercises concerning the following topics:

252 New Bulgarian University, Sofia, St. Kl. Ohridski University, Sofia, Technical University of Sofia, and Varna University of Economics.
253 Sofia and Varna regional authorities, and Municipalities of Veliko Turnovo, Lovetch, Vratsa and Panagurishte.
These courses in EU- and accession-related issues were combined with an English language course and training in information and communication technologies. Training materials for the courses were collected in several publications, e.g. "European programmes: a guide", "Local and regional bodies in the process of European integration", "The administrative reform in the context of Bulgaria's European integration", a textbook on European integration for municipalities and a glossary of EU terminology. The courses were attended by 131 municipal officials selected through the non-academic project partners, as well as representatives of local media and non-governmental organisations. The courses ended with an extensive evaluation involving all trainees. After the courses, study visits to EU institutions were organised for the best trainees. As another key outcome of the project, a Local Administrators' Continuing Training Centre (LACTEA) was established by the Centre of European Studies in Sofia. Lectures and experts for the Centre, including university teachers and staff from the non-academic partner institutions, were trained in the EU partner institutions. After the completion of the project, the Centre planned to offer the courses on a commercial basis, apply for grants and derive income from publications. As the first wide-scale promotion activity, the Centre distributed the project publications to the National Library, the National Assembly, the EC Delegation, regional information centres, libraries of all universities where EU-related subjects are taught, European Documentation Centres in Bulgaria, public agencies and high-level politicians.

To design its institution building courses, the St. Kl. Ohridski University of Sofia distributed a questionnaire to mayors of all Bulgarian municipalities, carried out a separate survey among citizens as end users of municipality services, and held consultations with local officials. On this basis, the courses were developed jointly by the St. Kl. Ohridski University, the European Policy Forum, the National Association of Municipalities in the Republic of Bulgaria, and EU project partners. They covered the fundamentals of management and economics, sociology of transition, European dimensions in territorial management, traditions of Bulgarian municipality, including local public finance management, labour and social legislation of the EU, computer skills and English language skills. Training materials were designed in a way to allow self-study and self-assessment, and were modified on the basis of feedback provided by trainees at the end of each session. Training was organised in the form of lectures given mainly by Bulgarian trainers trained during study visits to EU institutions, and followed by discussions and
teamwork. The courses were attended by 150 officials from 28 municipalities. As regards the continuation of the courses, the St. Kl. Ohridski University introduced the curricular contents into its postgraduate programmes which are in line with the government policy concerning additional qualification requirements for civil servants. As a spin-off effect of the project, the European Policy Forum, which monitors the accession process in Bulgaria, extended the scope of its activities to include developments in the area of regional co-operation.

Another Bulgarian project led to the establishment of a Centre of Excellence in Information Society Technologies at the St. Kl. Ohridskii of Sofia and a branch of the centre at the St. Cyril and St. Methodius University of Veliko Turnovo. The contents and web-based methodology for institution building courses were defined on the basis of consultations with target institutions participating in the project, an analysis of job descriptions of potential trainees and a questionnaire concerning their individual needs. The courses were designed as independent modules to be studied separately, and may be divided into the five main groups:

- European integration courses, including Bulgaria and Europe, fundamentals of European law, information society: legal issues, fundamentals of public administration;
- professional courses, including employment services, economics and role of banks;
- educational technology courses, including fundamentals of education and training system design, human resources development;
- technology courses, including Internet technologies, office automation; and
- language courses, including English for European Integration Purposes, Public Administration Communication Skills in French.

Training materials were developed as entirely new or were based on those available at the EU institutions, and included tests for self-evaluation, self-development sheets, instructional cards, and lists of information sources. The consortium designed a flexible training system, with all modules available at the project websites and intranet sites of the partner institutions, and training delivered in the distance education system through a web-based Instructional Environment. All modules and training materials were evaluated by the trainees in an appreciation questionnaire, and modified in accordance with their feedback. The courses combining various modules were attended by 600 participants from public administration agencies and research institutes.

Co-operation in the design and delivery of the courses encouraged the partners to undertake a number of follow-up initiatives. Firstly, the Centre designed a credit system for all its courses, and courses were already delivered jointly by all Bulgarian partners to non-academic target groups on a commercial basis. Secondly, a Bulgarian Telework Association was established by all partners to develop further the outcomes of the project. Thirdly, an agreement was signed between the St. Kl. Ohridski University and the University of Twente to deliver jointly a Master’s degree programme in Educational Training Systems Design. Fourthly, an application for Leonardo was submitted jointly by the University of Sofia and the French partner. Fifthly, the Centre was invited to participate in eGovernment initiatives in Bulgaria.

EU-related issues were also combined with more general professional knowledge and expertise in courses developed for non-governmental organisations by four Bulgarian universities and their EU partners. The courses covered human behaviour and interpersonal relations, public relations, finance and accountancy, management of investment projects, internationalisation of business and trade, regional development and European integration, EU for regional development, public groups of interest, lobbying, funds for education and science, computer skills and specialised language skills. The modules were organised in various blocks for target groups with special

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255 Ministry of Education and Science, Ministry of Foreign Affairs, National Employment Agency, International Banking Institute, and Bulgarian Institute for Legal Development.

256 A. Tsenov Academy of Economics, Svishtov, St. Cyril and St. Methodius University, Veliko Turnovo, Technical University of Gabrovo, and A. Kanchev University of Rousse.
interest in education, European integration, ecology, medicine and health, business and trade, and youth problems. Training materials were published in the form of:

- **practical guides**, e.g. "Human behaviour and interpersonal relations", "Internationalisation of business and trade for NGOs", "Development and management of international programmes and projects for NGOs", "Specialised courses in information technology"; and
- **textbooks**, e.g. "Human rights and minority groups", "Developing and managing projects in the field of education and science", "Management of investment projects", "Problems of regional development, education and science", "Ecological legislation", and "Language training: English".

The courses, which ended with certificates, were delivered by Bulgarian trainers to 928 participants who represented 36 non-academic project partners. These included local government bodies, chambers of commerce and industry, business and professional associations, foundations working in the field of health, ecology and civil society, and youth organisations and groups from Gabrovo, Veliko Turnovo, Rousse and Svishtov. As another project outcome, the Technical University of Gabrovo and the A. Tsenov Academy of Economics in Svishtov set up training centres for non-governmental organisations.

In consultation with non-academic institutions, the Trakia University of Stara Zagora, the A. Kanchev University of Rousse and their EU partners developed a set of specialised courses, a language course and a course in information technology for regional and local government bodies, and health and veterinary administration. The specialist courses focused on public budgeting and self-governance, management of administrative work, quality in public administration, public relations, state and local institutions, tax administration, planning municipal revenues and expenditure, and social networks. Training materials were published in the form of:

- **practical guides** for quality management, budget accounting management, organisational change management, as well as computer software and specialist English; and
- **textbooks** presenting issues such as public management, regional development and authorities, human resources development, decision-making management, budget management, public relations, veterinary management and the EU legislation, health management work group management and leaders, etc.

Training was delivered by Bulgarian trainers trained at the EU partner institutions. The courses were attended by 2104 participants from regional and local administration agencies in five towns and the National Veterinary Service in Sofia.

Finally, the A. Kanchev University of Rousse, the N. Rilski South-West University of Blagoevgrad, the New Bulgarian University of Sofia and their EU partners developed courses covering European judicial and civil law, and political, economic and administrative issues. Training was delivered jointly by Bulgarian and EU lecturers on the basis of materials available at the EU partner institutions and translated into Bulgarian. The courses were attended by ca 180 participants from the National Assembly of the Republic of Bulgaria, the Ministry of Justice, the Central Union of Co-operatives and the Union of Bulgarian Scientists as non-academic partner institutions.

In most projects funded for Romania, courses were developed on the basis of an analysis of training needs or non-academic partners were involved in course development. Institution building courses offered in Tempus by the L. Blaga University of Sibiu and its EU partners were also designed in accordance with a strategy for training which focused first on the Sibiu region and would be subsequently extended to cover administrative units with similar problems. The training programme for target groups comprised the following core and complementary courses:
core courses in legal subjects: structures and powers of public administration, status of civil servants, responsibility of civil servants in the European context, contractual relationships in public administration, public administration and human rights, administrative jurisdiction, budget and local finance in the European integration perspective;

core courses in economic and political subjects: administrative decisions in the context of accession-related approximation of law, public management, management and marketing of public services, local public services in the European context, local development in a transborder context;

core courses in general subjects: current problems of European integration, basic public administration issues in the European context, town planning and environment, public image and public relations;

complementary courses: demographic statistics, European demography, economic policies, local finance in France, environmental policy in France, responsibilities of public administration in France, public administration law, European Convention on Human Rights and French jurisdiction, basic public administration issues in France, European integration process, European economic growth, banking theory, and information technology.

To deliver the courses, Romanian lecturers adapted existing training materials and produced entirely new ones. As regards methodology, the courses combined lectures with case studies, discussions and exercises. The core courses were delivered by Romanian teachers, and the complementary courses were held by the EU partners. Each session was evaluated by trainees in a questionnaire, and all sessions were subsequently reviewed in a global evaluation. The courses were attended by over 1000 participants from local government bodies. Each trainee was required to choose at least 10 core courses to obtain a certificate of the L. Blaga University; separate certificates were issued for the complementary courses. To provide a framework for the future delivery of courses, the L. Blaga University set up a Centre for Training of Civil Servants.

In consultation with local government bodies and a non-governmental organisation, the Transilvania University of Brasov, the Petrol-Gaze University of Ploiesti, the L. Blaga University of Sibiu and their EU partners developed and organised two types of courses:

- courses in taxation, public accounting and budget execution, public marketing, public management, administrative law and EC law, urban management and rural development, information and communication technology, which were delivered by Romanian lecturers; and

- pilot courses in local administration, rural development, Geographical Information Systems (GIS) in local government, GIS applications for urban monitoring, information technology in management, tourism and regional development, which were delivered by EU lecturers.

Training materials were published in 21 readers and books, “European Union and European Communities”, “Budgetary procedures and economic problems in the transition countries”, “Strategic management in public administration”, these available either in a Community language, mainly French, or in Romanian. Training was based on traditional lecturing as well as interactive and computer-based methods. The courses, which ended with certificates, were attended by over 200 participants from the non-academic partner institutions and the three Romanian universities. As an additional training activity, the consortium organised conferences devoted to selected topics, e.g. public administration in France, European law and urban development, tourism, and EU enlargement. In the future, institution building courses as well as consultancy services will be provided on a commercial basis by the Regional Centre for Public Administration set up in the project at the Transilvania University of Brasov. Moreover, at the time of reporting on the project outcomes, the Romanian universities and their non-academic partners were discussing joint applications for grants in the Leonardo and Phare 2000 programmes.

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Each of three Romanian universities which co-operated in another institution building project introduced courses focusing on different issues for their non-academic partners. The courses in Bucharest University covered European institutions, public finance and taxation, material law and Community policies in the EU, management of human resources and public administration ethics, analysis and evaluation of public policies, and Social Europe. The courses were attended by 232 participants from the Romanian Parliament and public administration agencies, including the Ministries of Education, Foreign Affairs and National Defence and the Government Public Information Office. The Babes-Bolyai University of Cluj-Napoca organised courses for 304 officials from seven municipalities. The courses may be divided into three thematic groups:

- public administration issues: constitutional relations between central and local administration, institutional reform in public administration, local administration and decentralisation, funding for local administration, public communication and public relations, evaluation of public administration, conflict management, evaluation of programmes in public administration;

- European integration; and

- information technology and modern languages.

The courses at A. I. Cuza University of Iasi, attended by 120 officials from four municipalities, focused on the management of community resources, communication techniques in public institutions, relations between legal, moral and political dimensions of public administration in Romania and in the context of European integration. At all three universities, the courses were delivered jointly by EU and Romanian lecturers. The trainers used various materials concerning Community legislation and reform of Romanian public administration which were published in three volumes available in French: “Decentralisation and efficiency in administration”, “Romanian system of administration: legal basis and practice”, and “Reform of Romanian public administration and absorption of acquis communautaire”. To continue their institution building activities, Bucharest University set up an Institute of Administration and Public Policy, and the Babes-Bolyai University of Cluj-Napoca established a Centre for Analysis, Management and Public Policy.

In consultation with local government and professional bodies259, the West University of Timisoara and EU partners developed courses in marketing, strategic planning and innovation, project management, monitoring and assessment, international networking, Internet and intranet, financial European support for Romania, acquis communautaire and EU enlargement, and economic development and industrial policy. Training materials for the course were developed in the form of CDs, lecture notes and a handbook “Management of public administration and local economic development”. Training focused more on practical than on theoretical aspects, was based on interactive methods, and combined lectures and discussions with study visits and project work. The courses were delivered jointly by EU partners and Romanian trainers trained at the EU partner institutions. The target group was composed of 33 high-rank officials from public and local administration as well as younger staff in junior positions. After the completion of the project, the West University of Timisoara planned to deliver the course in the distance education system through the Internet, targeting local government bodies outside Timisoara. As a spin–off effect of the project, the course served as the basis for a new postgraduate programme in public administration management and local economic development to be launched in May 2002.

In co-operation with their EU partners, the Academy of Economic Studies in Bucharest and the D. de Jos University of Galati developed a set of modules for continuing education providers and local government agencies participating in the project260. The modules covered the management of local public services, urban management, management of European projects in local government areas in the context of European integration, local administration in the EU, and the transposition of Community standards into national law. Training materials available at the EU partner institutions were adapted to the specific context and needs in Romania. The course was delivered jointly by EU lecturers and Romanian trainers, trained by the EU partners, to 200 participants from...

259 Timis Prefecture, Timisoara Mayor’s Office, and Timisoara Chamber of Commerce and Industry.

260 Centre for Continuing Education of Local Administration Staff, and Association of Romanian Department Councils.
the two Romanian universities and the non-academic partner institutions. As a follow-up to the project, an agreement for joint training activities was signed by the Academy of Economic Studies in Bucharest and the Centre for Continuing Education of Local Administration Staff.

Courses developed in a project involving the University of Oradea, the Technical University of Timisoara, local government bodies and EU institutions covered public administration issues and environmental topics. These included, for example, management of EC projects in public administration, management of services in public administration, management of funds and budget strategies in public administration, and marketing and institutional relations, and ecological technologies and waste treatment. Training combined theoretical lectures with presentation of case studies and good practice examples, discussions and analysis of documentation. Most of the courses were delivered by EU lecturers, but Romanian teachers were trained to offer the courses in the future. The target group for the courses was composed of 287 officials from the non-academic institutions participating in the project, staff from local enterprises and experts from the Association for Environmental Protection. After the completion of the project, the University of Oradea planned to provide the courses in a continuing education centre set up in the project.

Courses offered at the Gh. Asachi Technical University and the A. I. Cuza University of Iasi covered regional and European integration, career planning and development, public services marketing, green and social marketing, project management, public administration in the social partnership, local budgets and financing sources, and urban and environmental management. Training, which combined theoretical lectures with interactive workshops and teamwork exercises, was delivered jointly by EU lecturers and Romanian trainers trained by the EU partners. The course and the summer school were attended by 238 participants from public administration and local government bodies as the non-academic project partners as well as from local companies. As another key outcome of the project, the Technical University of Iasi set up a Regional Training Centre for the Development of Public Administration.

2.2 Environment

Environmental projects were funded by all four countries.

In Hungary, the L. Eötvös University and the I. Szent University of Budapest launched courses concerning inter alia Geographical Information Systems (GIS) and their practical application, Geographical Positioning Systems (GPS), recent developments in environmental monitoring and protection, and relationships between natural and social environment, and specialist English courses. Training materials, offered by EU partners or specially developed for the courses, included booklets covering GIS-GPS in nature conservation, environmentally sensitive areas, wetlands and their management, management of protected areas, biological monitoring, environmental education, and a course-book for practical English. The courses, which combined lectures and discussions, were delivered jointly by Hungarian teachers trained in EU partner institutions and the EU partners. The target group of 94 participants represented the Hungarian Authority for Nature Conservation and national parks. Upon completion of the courses, the participants were awarded credits and certificates. In the future, the courses will be offered on the basis of earlier co-operation arrangements between the Hungarian universities and the Authority for Nature Conservation which provide for joint teaching activities. Moreover, as a spin-off effect of the project, the courses and the training materials were used for the development of a new environmental specialisation at the L. Eötvös University.

261 Bihor Department Council and Oradea Municipality and Prefecture.

262 Ministry of Education, Iasi Prefecture, Department Council and Directorate for Labour and Social Protection, Centre for Training and Retraining of the Unemployed in Iasi.
In the second Hungarian project, Debrecen University and the Budapest University of Economics and State Administration launched a full-time course in environmental management and policy in English, and part-time courses in environmental impact assessment and management and in regional development and policy in Hungarian. The environmental courses were combined with general and specialist English courses. Ca 80 course participants were selected by ministries, regional administration and other project partners.

Preliminary arrangements for the continuation of the courses were confirmed by letters of intent signed by the partner institutions.

In consultation with professional associations and local government bodies as non-academic project partners, the I. Szent University of Budapest, the Budapest University of Technical and Economic Sciences and EU partners developed courses combining several environment-related issues. The courses covered healthy and friendly housing, use of earth and wood in environmentally friendly housing, energy saving in buildings, rural housing, eco-tourism and bio-climatic dwellings in Hungary. Training materials were published in six textbooks, and electronic versions of the materials were made available on the project website. The courses were organised for 120 participants from local governments and other decision-making bodies, construction sites, design offices and universities. As a spin-off effect of the project, the I. Szent University developed a new postgraduate programme on the basis of the institution building courses.

Environmental courses in Poland combined specialist issues with EC legislation and policies, with training needs and topics in all projects identified through questionnaire surveys or jointly with non-academic partners. The Technical Universities of Szczecin, Łódź and Wrocław launched courses covering environmental education in the EU, environmental policy in the EU, and environmental legislation and policies at regional and local levels in the EU. Materials used in lectures and presentations of case studies were published in a book "Environmental protection: selected issues". The courses were offered by Polish teachers trained at the EU partner institutions. The target group of 398 trainees was composed of school teachers, representatives of local government bodies, the Province Funds for Environmental Protection and Water Management in Łódź and Szczecin, the Union of West Pomeranian Communes, and journalists from local TV and radio stations. Upon completion of the courses, the trainees were awarded certificates. The project also encouraged several follow-up initiatives. Firstly, closer links established between the Polish universities and non-academic institutions were confirmed by formal arrangements. The Fund for Environmental Protection in Łódź provided financial support for the publication of the above-mentioned book in 1000 copies and another book to be based on course materials. Upon the completion of the project, an environmental expert network, involving the university, industry and government bodies, was set up in Szczecin as an advisory board for regional and local authorities. The project co-ordinator was appointed as a member of the scientific board for environmental issues at the Province Governor’s Office. Moreover, trainers from the three Polish universities were invited to give lectures in local schools. Secondly, the expertise and materials developed in the project were used to define new topics for Bachelor’s and Master’s theses at the Polish universities. Thirdly, a memorandum signed between the three Polish universities and the Dutch Hogeschool Zeeland in Vlissingen allows students to complete the final year of study in the partner institution and obtain a double diploma.

The scope of training offered by Warsaw University of Technology and the Silesian University of Katowice may be illustrated by the following topics:

- environmental issues, including social negotiations in solving environmental problems, social aspects of environmental protection, environmental impact assessment, systems analysis in environmental protection, municipal waste management, management of groundwater, protection of underground water, control of air pollution, and sustainable tourism.

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263 Ministries of Environmental Protection and Regional Policy, Agriculture, and Culture and Education, Regional Environment Inspectorate, Hungarian Regional Development Centre, and Phare Regional Development Programme Management Unit.

264 Hungarian Federation of Rural Tourism, National Federation of Disabled Persons’ Federation, Hungarian Federation of Roofing Constructors, and Győr and Debrecen Municipalities.
EU components, including EU institutions, environmental auditing system in the EU, municipal waste management in the EU as well as specific Community directives.

To provide training, the two Polish universities set up faculty-based Eco Training Centres. Training was organised in the form of seminars comprising lectures, presentations of case studies, discussions and field demonstrations, and was delivered by Polish trainers from both the academic and non-academic institutions trained at EU universities. The seminars were attended by 904 participants, including staff from local government bodies, community leaders selected via the Polish Ecological Club and teachers from schools in the Warsaw and Silesia provinces. In addition, study visits to EU institutions were organised for a number of staff working in commune councils. As regards the continuation of the seminars, no specific arrangements were made, but both Polish universities planned to hold the courses in their newly established centres, using also the trainers from the Polish non-academic partner institutions. As a spin-off effect of the project, several training modules were integrated into a degree specialisation by Warsaw University of Technology, and into postgraduate courses by both Polish universities.

A special training unit, called the Public Administration Environmental Training Centre, was also created in a Tempus project by the Technical University of Gdańsk. The environmental issues selected for institution building courses in Gdańsk included, for example, environmental impact assessment procedures, control of emissions to air, and integrated pollution prevention and control. These were combined with topics specifically related to the EU accession, e.g. general EU issues, EU institutions, Community legislation concerning environmental protection, air, noise, water protection, and waste management, as well as changes in Polish environmental legislation required for the EU accession. The courses, which comprised lectures and exercises, were based on training materials in the form of CD-ROMs and one handbook including texts concerning the implementation of the EC Directive on integrated pollution prevention and control in Poland. The materials were also distributed to ca 800 local authorities in Poland. Training was delivered in Polish by a mixed team of trainers from the Technical University of Gdańsk, the Province Governor's Office and a local consulting company who had been trained in EU partner institutions. The target group of trainees comprised 151 environmental officers from the Province Governor's Office and county-level bodies. At the end, the courses were evaluated by the trainees in an appreciation questionnaire. Additional training was provided to a group of environmental officers during their study visits to EU institutions. In order to ensure the continuation of training after the completion of the project, the newly established Public Administration Environmental Training Centre sent out letters, promoting its courses and enquiring about potential financial contribution, to all province-level environmental departments. The courses covered, for example, environmental impact assessment procedures, control of emissions to air, noise, water protection, and waste management, as well as changes in Polish environmental legislation required for the EU accession. The courses were attended by 451 participants from both Polish universities. As a spin-off effect of the project, several training modules were integrated into a degree specialisation by Warsaw University of Technology, and into postgraduate courses by both Polish universities.

The Agricultural Academy of Warsaw set up a Centre of Excellence in Environment, Water and Agriculture to offer institution building courses. In co-operation with ministries, another public body and EU partners265, the Agricultural Academy developed courses in environmental protection and land management. The environmental courses covered, for example, information systems for environment and agriculture in the EU, European integration and the Common Agricultural Policy, environmental impact assessment, EC Framework Directives concerning environmental protection, and social participation and access to information in environmental decision-making processes. The courses were organised for 308 officers from province-level environmental departments. The courses in land management focused on cadaster systems and regional planning in the EU, pre-accession funds, project identification and formulation, information technology in land management, and legislation concerning land ownership transformations. The courses were attended by 451 participants from Offices of Geodesy and Cartography at regional and local levels. In both cases, the trainees obtained certificates signed by the faculty authorities and the project co-ordinator. After the completion of the project, the Centre planned to deliver courses on a fee-paying basis and to apply for additional funding to the SAPARD/Phare Programme. As a spin-off effect of the project, some of the environmental courses developed for the target

265 Ministry of Environmental Protection, Natural Resources and Forestry, Ministry of Agriculture and Food, and National Fund for Environmental Protection.
groups were introduced by the Academy into the curriculum for degree students. The outcomes of the project were disseminated through the project website, the Geodetic Review journal, and at an international conference on rural management and cadastre.

The last of the six environmental projects in Poland was designed not so much to train specialists in energy issues as to raise awareness of course participants and to encourage them to use the knowledge acquired in the identification and solution of problems. Topics and materials for training were selected jointly by six Polish universities, Polish non-academic partner institutions, including the National Fund for Environmental Protection, the Union of Communes “Polish Network of Energy Cities” and the Polish Foundation for Energy Efficiency, and EU partner universities. Courses were divided into three modules, policy, financing and technology, with each of them focusing on different aspects of energy sustainability, e.g. biomass for energy production, generation and use of electrical energy, sustainable transport in cities. The courses, which comprised lectures, workshops, round table discussions and site visits, were delivered in Polish by trainers from the above-mentioned universities and non-academic institutions, and in English by EU lecturers. Lectures given by EU speakers were translated into Polish. The courses brought together ca 100 representatives of municipal authorities, business circles and non-governmental organisations. Upon the completion of the courses, the participants obtained certificates issued by the Tempus project consortium. Although the courses were not evaluated formally at the end, their content and methodology were modified during training in accordance with the feedback given by the trainees. As an additional training activity, study visits to EU institutions were organised for a smaller group of the trainees. In the future, training will be delivered on demand within the framework of on-going co-operation between the Academy of Mining and Metallurgy, the PNEC and the PFEE.

The co-operation between the university and the non-academic institutions was also strengthened by several follow-up initiatives involving Tempus institution building trainers and/or trainees. These include in particular the establishment and official registration of the Polish Association for Sustainable Energy Development and the association "Bio-energy for Rural Development", the Cracow Institute for Sustainable Energy, and the bio-monthly periodical "Pure Energy" for awareness raising.

As a result of a single project in Bulgaria, the St. I. Rilski University of Mining and Geology and the University of Forestry in Sofia organised in co-operation with their EU partners a set of theoretical and practical courses in environmental issues. The courses covering basic principles of sustainable development and ecological management of natural resources, GIS applications in environmental management, and environmental management of waters and mineral resources were combined with practical field training in environmental management of natural resources. Training was delivered mainly by EU lecturers to 54 participants from the Ministry of Environment and Waters, the Ministry of Agriculture and Forestry, the National Forestry Board, Directorates of National Parks, and Regional Environmental Inspectorates and the two Bulgarian universities. In addition, the two universities set up an Inter-university Training Centre for Environmental Management of Natural Resources to organise institution building courses in the future.

In Romania, five universities developed in co-operation with their EU partners four specialist modules combining theoretical and practical elements and an intensive course of practical English focusing on legal and economic terminology. Topics for training were defined in consultation with non-academic target institutions. The modules covered environmental economics and legislation, and EC environmental policy, environmental economics, finance and green accounting, leadership and human behaviour, environmental project management, and marketing, and business and environment, environmental econometrics, and environmental information technology. The courses were delivered jointly by EU lecturers and Romanian trainers trained at the EU partner institutions. The 753 course participants represented various public institutions, including the Ministry of Industry and Trade, the Ministry of Water, Forestry and Environmental Protection, the Romanian Waters

266 Academy of Mining and Metallurgy, Cracow, Technical Universities of Cracow and Gdansk, Academy of Economics, Cracow, Warmia and Mazury University, Olsztyn, and Agricultural Academy of Lublin.

267 Polytechnic-University of Bucharest, Technical University of Constructions, Bucharest, Transilvania University, Brasov, A. I. Cuza University, Iasi, and University of Craiova.
Authority, and the Employers’ Organisation for Electricity, Petrol and Gas, as well as several non-public institutions. At the end, a survey was carried out among the trainees to evaluate the courses, and the trainees were awarded certificates. Another key outcome is a set of 13 books issued by official publishing houses, some of them also available in the electronic form. These include, for example, "Environmental economics", "Human resources management: a European overview", "European business and the environment", "European environmental policy", "Green accounting", "European integration, environmental law and legislation", "EU programmes for environmental protection", "Management of environmental projects", "Environmental information technologies", and "Introduction to communication and culture". In addition, the unit delivering the courses in the project was established formally as the Ecolex Training Centre at the Polytechnic-University of Bucharest, and the University of Craiova set up an environmental training centre. Moreover, documentation centres were created within the existing continuing education departments at the Transilvania University of Brasov and the A. I. Cuza University of Iasi. As regards the continuation of the courses, preliminary arrangements were made by the partners and, at the time of reporting on the project outcomes, discussions were held to formalise links with the Ministry of Water and Environmental Protection. It is also worth mentioning that the Ecolex Centre became a founding member of the new Association of Tempus Continuing Education Centres (ASTEC) which brings together all training centres set up within Tempus in Romania.

In another environmental project, involving the Transilvania University of Brasov and the North University of Baia Mare, training needs were identified through a questionnaire survey carried out among non-academic partner institutions. On this basis, the Romanian universities and their EU partners launched two postgraduate specialisation courses in strategic environmental management and environmental quality monitoring, and 30 short continuing courses. The short courses covered, for example, environmental legislation, monitoring of environmental quality, ecology and sustainable development, methods for environmental measurements, environmental data collecting and processing, and information technology, communication techniques and modern applied languages. The courses were developed together with 40 specialist and language handbooks, e.g. "Waste management", "Water pollution, monitoring and treatment", "Ecological rehabilitation of degraded industrial sites", "Modern techniques for environmental monitoring", "Education for sustainable development", and "English Language in the Environmental Field" and "Romanian-English and English-Romanian Technical Dictionary". Most of the courses were organised at the Continuing Education Centre of the Transilvania University of Brasov. Both the postgraduate and short intensive courses were delivered by the newly trained Romanian trainers and EU lecturers. The postgraduate courses were attended by 73 participants and the short courses attracted over 300 trainees, with both target groups including monitoring engineers, environmental inspectors and teachers. The course participants were delegated by the public and professional bodies participating in the project as well as by private companies. At the end of each edition, the courses were evaluated, and the trainees were required to write a paper and were awarded certificates. As regards the delivery of the courses in the future, an agreement was signed by the Continuing Education Centre at the Transilvania University of Brasov and seven non-academic Romanian partners of the project which covers the organisation of training courses, symposia and other joint initiatives. Moreover, the Centre applied for grants in the Leonardo Programme and, jointly with the City Council of Brasov, in the SAVE Programme.

Bucharest University and the North University of Baia Mare organised courses in sustainable management of natural capital for 162 participants from central and local government bodies, and professional associations. Training materials developed for the courses in English were translated into Romanian and published in two volumes: "Sustainable management of natural capital: fundamentals and tools" and "Natural capital management: case studies".

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Finally, botanical gardens in four cities were selected as the only the target group and non-academic partners in a project involving five Romanian universities and EU institutions. Following an analysis of training needs carried out jointly with the botanical gardens, the five universities and their EU partners developed four modules for the management of botanical gardens (directors, scientific managers, leaders, researchers, etc.) and one module for other staff members (technicians, administrators, landscape and herbarium staff, laboratory staff). The modules for the management covered the European concept of botanical garden, involvement of botanical gardens in plant conservation in Europe, research activities of botanical gardens: European requirements and guidelines for basic and applied research, botanical gardens: new dimensions in ecological education. The module for the other staff categories focused on the involvement of Romanian botanical gardens in the implementation of European strategies and standards for plant conservation. In addition, training in the use of personal computers was organised for both groups. The courses were attended by 126 participants, including 47 in the management group and 79 in the other group, who represented 95% of the management and 80% of the other staff categories in the botanical gardens. The courses for both groups, which combined theoretical lectures, presentations of case studies and discussions, were delivered jointly by Romanian and EU teachers. Each module ended with a certificate issued by Bucharest University. In addition, study visits to EU institutions were organised for the management group. As another key outcome, the project consortium published “The Association of the Romanian Botanical Gardens: a new step towards European Integration”, a book presenting the current situation of the Romanian botanical gardens and their development strategy designed in accordance with European standards and requirements. Copies of the book were provided to the trainees, and were also requested by other botanical gardens, dendrological parks, national and local organisations, universities and schools. Finally, the project also brought various spin-off effects. Bucharest University introduced a new course in plant diversity conservation into its Master's degree programme in Taxonomy: Flora and Fauna Conservation. As regards additional benefits for the botanical gardens, the project contributed substantially to the establishment of the Association of Romanian Botanical Gardens (ARBG). Moreover, the ARBG became a member of the Balkan Ecological Network, which brings together ecological and environmental organisations from Albania, Bosnia and Herzegovina, Bulgaria, Greece, Macedonia, Montenegro, Romania, Slovenia, Turkey and the Federal Republic of Yugoslavia, and of the Tempus Association of Continuing Education Centres (ASTEC). All these key outcomes and spin-off effects of the project provided the basis for a number of follow-up initiatives. These include, for example, a national-level ecological project to be carried out by all botanical gardens for school children and teachers, training projects to be implemented jointly by the ASTEC members, and the promotion of ecological education through the Balkan Ecological Network.

2.3 Agriculture and food

Agricultural projects were funded by all four countries.

Projects in Hungary extended beyond agriculture, integrating in addition issues related to regional development and environment as well as general EU and accession issues. Training needs and topics in all projects were defined on the basis of questionnaire surveys or jointly with non-academic partners. Courses developed in a project involving Szeged University of Arts and Sciences comprised four specialist practically oriented courses and additional professional development courses. The first specialist course introduced topics related to rural and regional development, and environmental protection. The accession component included, for example, regional policy in the EU, structure of agriculture and environmental elements in the Common Agricultural Policy, Structural Funds, SAPARD and Phare regional development funds, tasks for Hungary in the harmonisation of environmental protection in agriculture. These were combined with rural tourism, rural development in the South Great Hungarian Plain, and planning and projecting. The other specialist courses were organised in three “agricultural” blocks:

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270 Bucharest University, Ovidius University, Constanta, A. I. Cuza University, Iasi, Babes-Bolyai University, Cluj-Napoca, and the P. Maior University, Targu Mures.
animal health, including e.g. veterinary control of live animals and animal products, animal health information systems, reports and certification, transport of live animals, food hygiene, safety and HACCP food quality control, major diseases and veterinary medicines, animal welfare in the EU and Hungary, utilisation of waste materials, ENAR System, and official veterinary work and private practice in the EU and Hungary;

■ plant health and seed, including e.g. EC legislation for plant health, new plant protection law in the accession context, EU conform systems for qualification of propagating material, seed and plant certification, EC marketing programmes for plant propagating material, and the IPM in environmentally friendly plant production;

■ family farm organisation, including e.g. historical background, rural development and family farms in the EU and Hungary, family farming technologies in plant and animal production, bio-farming in the EU, financial support for family farms and application procedures, co-operation in the EU, professional and political organisations of farmers in the EU.

The specialist courses were followed by study tours to EU institutions. The additional training component comprised a course of English focusing on the professional terminology for Hungarian trainers, the target group from the agricultural sector and language teachers, and courses in information technology, and communication, public relations and marketing for the main target group. Training materials were developed for each course, including English. The courses were organised by the Centre of Excellence, a unit set up in the project at Szeged University, and delivered by newly trained Hungarian trainers and EU lecturers. The target group consisted of 157 agricultural experts from the southern part of the Great Hungarian Plain who were selected by public institutions and agricultural organisations. The quality of training was evaluated in a questionnaire distributed among the trainees. Upon completion of the courses, the trainees obtained certificates issued by the Ministry of Agriculture and Rural Development and Szeged University of Arts and Sciences. As a spin-off effect of the project, the acquis courses were integrated into degree programmes at Szeged University of Arts and Sciences. After the completion of the project, further courses for specialists in agriculture and rural development were organised jointly by the university and the Ministry of Agriculture. Moreover, the links developed between the university, its Hungarian non-academic partners and EU institutions resulted in joint applications for grants in Tempus/Tacis, Leonardo and bilateral programmes.

Courses developed by Debrecen University, the Ministry of Agriculture, the Public Administration Office and the Chamber of Agriculture in Debrecen, and their EU partners were divided into general and specialist modules:

■ general modules: European studies, EU agricultural law, EU Agricultural Policy, EU public administration, EU budgeting guidelines, financing in the EU, project management in the EU, information technology for agriculture, and English language;

■ specialist module: agricultural administration and rural development, including chambers of agriculture in Hungary and the EU, regional and rural development in the EU, EU land information, agricultural aspects of environmental protection, quality assurance in agriculture, and information technology for agriculture;

■ specialist module: environmental management, including EU game and fishery administration, veterinary administration, forestry administration, plant and soil protection administration, administration of national parks, and agricultural aspects of environmental protection.

The courses were organised for 101 participants from the Chamber of Agriculture, bodies representing agricultural interests, regional offices of the Ministry of Agriculture, and land registration offices, with the specialist modules offered to them in accordance with their specific field of work. Training was based on materials developed in the project on the basis of Hungarian and EU professional literature, and published in a

special collection and a practical handbook. All training materials and other publications acquired by Debrecen University are available in an Agricultural EU-Information Centre set up in the project. The courses launched in Tempus will be introduced into the existing degree specialisation for sectoral administration managers, and will be used to establish a new six-month postgraduate programme combining courses in EU agricultural issues with intensive English and German language courses.

The project involving the P. Pázmány Catholic University of Budapest, central and regional authorities and other bodies, and their EU partners extended beyond agriculture towards economics, business, finance and law. The training programme comprised the following modules:

- economics, business and finance: economics and international economics, general and applied statistics, banking system, securities markets and insurance, state budget, corporate management and finance, business ethics, accounting, foreign investment in Central and Eastern Europe, specialised financial institutions, and European economic integration;
- law: general provisions of the Civil Code, banking and securities regulations, private international law, tax and customs regulations, corporate law, labour law and social security, and competition and cartel law;
- agriculture: agricultural economics, agricultural law, agricultural policy in Hungary, the Common Agricultural Policy, EU support programmes, and EAGGF payments;
- general subjects: language and practical computer skills.

Training materials developed for the courses included in particular three books, "Agricultural law", "Information and regulation system in the agricultural sector from the viewpoint of the EU accession" and "Control system of the EU Common Agricultural Policy", published in the series "EU conform subsidy system in the agricultural sector". Moreover, the project partners produced studies on specific issues and various short information materials. The courses were delivered jointly by newly trained Hungarian trainers and EU partners to 200 specialists from the Agricultural Intervention Centre and the National Board of Customs and Excise. The trainees who passed an examination were awarded certificates. In addition, study visits to EU institutions were organised for a smaller group of the trainees. After the completion of the project, the P. Pázmány University organised further courses in response to the demand from the Ministry of Agriculture, agricultural joint ventures and councils for agricultural products. Furthermore, the outcomes of the project were used in degree programmes at the university. The book "Agricultural law" was included as a compulsory item in the reading list for students of law, and one of the course modules was integrated into the agricultural specialisation within European Studies.

Agriculture was also combined with business, languages and information technology in a project carried out by the Budapest University of Economics and State Administration, the Ministry of Agriculture and Regional Development, the Agromarketing Centre and their EU partners. Like in the previous project, the courses were divided into the following specialist and general components:

- specialist training which combined lectures, consultations with experts and analysis of practical examples: micro- and macroeconomics, including markets and market regulations, instruments of EU economic policy, EU business environment; economic policy and institutions in the agricultural and food sectors, including requirements for the candidate countries, European business law, legislation for the agricultural and food sectors, the Common Agricultural Policy, structural policy in the EU; marketing environment of the agricultural and food sectors, including international marketing, customers behaviour, market research, support for Hungarian enterprises and sectors to achieve EU-level competitiveness;
- general courses: German and English language, including EU-related terminology, communication skills, and information technology.

272 Ministry of Agriculture and Rural Development, Public Administration and Regional Policy Office, Rural Credit Guarantee Foundation, and National Board of Customs and Excise.
Training materials were translated from Community languages and developed by Hungarian trainers. The target group of the courses was composed of experts in agricultural and market policy, staff from market research institutions, and other professionals working in these fields. In total, the courses were attended by 197 professionals. Training ended with examinations and presentations, and the trainees were awarded certificates. In addition, study visits to EU institutions were organised for those who completed the specialist courses.

The training programme developed by the I. Szent University of Budapest, Veszprém University, the Hungarian Academy of Sciences, the Research Institute for Soil Sciences and Agricultural Chemistry and EU partners comprised courses focusing on agricultural issues and a course in computer skills. The specialist courses covered general EU issues, the National Agri-Environmental Programme, land use, nutrient supply and plant protection in sustainable agriculture, crop production, soil tillage, plant breeding, animal husbandry and animal health in the accession context, EU requirements for grassland farming in Hungary, and horticulture in the accession period.

Training, which combined lectures and presentations of case studies, was delivered jointly by newly trained Hungarian trainers and EU lecturers. The 199 specialists attending the courses represented two regional networks of the Ministry of Agriculture and Rural Development, the agronomist network and the network of plant health and soil conservation stations. To obtain a certificate, the trainees were required to write an essay and pass a test.

Finally, a consortium involving the West-Hungarian University of Székesfehérvár, the Ministry of Agriculture and Regional Development, the Institute of Geodesy, Cartography and Remote Sensing, the Institute of Professional Development in Agriculture developed courses related to the agricultural sector but focusing on land administration. The courses were organised for 190 managers, administrators and technicians working in land and cartographic administration. To deliver the courses, Hungarian trainers were trained by EU partners in specific land administration issues as well as in methods of multimedia and web-based delivery of courses and production of materials. The courses were recognised by local industry, and course documentation was submitted to the Ministry of Agriculture for accreditation. As a follow-up initiative, the courses will be offered by the West-Hungarian University to technical school students on the basis of a relevant agreement signed by the university and Hungarian Technical Schools.

Unlike those in Hungary, all three agricultural projects in Poland focused on issues specific to the agricultural and food sectors. Following an analysis of training needs, the Warmia and Mazury University, the Agricultural Academies of Cracow and Wrocław, local government and professional bodies, and EU partners developed jointly a course in European Studies for the Agro-Food Sector. The course covered EC and Polish legislation, developments in the approximation of Polish law, pre-accession and accession funds, including Structural Funds, milk and dairy products, meat technology, organic food production, vegetable and food processing, food hygiene, common market programmes, and common environmental policy. The original content of training was modified after the first project year on the basis of feedback given by trainees. Training materials, prepared in Polish or translated from English, were published with ISBN numbers and are now also available in the National Library. During two years of the project, training was delivered jointly by newly trained Polish trainers and EU lecturers to 4500 participants from the non-academic partner institutions. The trainees obtained certificates signed by the university authorities and the project co-ordinator. After the completion of the project, further courses were organised by the Polish universities for 750 participants from local governments and business circles. As a spin-off effect of training, many local governments started to establish EU offices.

The second project led to the development of a part-time postgraduate programme in agricultural and food policies in the European Union and relevant training materials for the Agricultural Academies of Lublin and Poznań. The programme comprised lectures, classes and seminars delivered jointly by newly trained Polish trainers and EU lecturers, and a practical placement in an EU institution. Trainees were delegated by the non-academic partners, including the Chambers of Agriculture and Province Governor’s Offices in six cities, and

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273 Polish National Committee of the International Dairy Federation, Regional Centre for Development of Agriculture, Chamber of Agriculture, and Province Governor’s Office in Olsztyn.
associations of producers. During the Tempus project, 58 trainees completed the programme and obtained diplomas signed by the rectors of the universities. The programmes were accredited by the university authorities, and will be offered in the future by regional training centres set up at both Polish universities. Further co-operation with the non-academic sectors is envisaged in agreements between the universities, local governments, secondary schools and the Chambers of Agriculture.

Courses for rural community leaders in the third project, based on an analysis of training needs, were developed jointly by five Polish universities, local government bodies, professional associations 274 and their EU partners. The topics of the courses included accession requirements, the Common Agricultural Policy, EU assistance programmes for the agricultural sector, models of consulting services in selected EU Member States, agricultural unions and organisations in the EU, environmental protection in agriculture, and the role of leaders in the development of rural areas. Training materials prepared by the Polish and EU partners presented numerous practical examples and case studies. The development of the courses and training materials was co-ordinated by the Training Centre for Local Community Leaders (TCLCL) a training and information unit created in the project at the School of Higher Vocational Education in Tarnów. The courses, which comprised lectures and discussions, were delivered by Polish trainers from the Polish universities and the non-academic partner institutions trained in EU partner institutions. The courses attracted 2076 participants, including farmers, representatives of farmers’ organisations, advisors, businessmen and local government staff. Upon completion of the courses, the trainees obtained certificates signed by the Rector of the School in Tarnów and the Head of the TCLCL. In addition to the courses, study visits were organised for a smaller group of the trainees to meet their counterparts in the EU Member States. The courses launched in the project provided the basis for the establishment of a new Bachelor’s programme in Agro-Economics.

In a single project in Bulgaria, which involved three universities275, the Ministry of Agriculture, the Bulgarian Industrial Associations, the Federation of Credit Co-operatives, the Union of Food Producers and their EU partners, training needs and topics were identified in a survey and in consultation with the non-academic partners. Courses covered European integration policy and its impact on the agricultural sector in Bulgaria, management of agricultural systems, and European business environment of food industry companies. Training materials included a textbook containing all lecture notes. The courses were delivered by Bulgarian trainers, trained in the EU partner institutions, to 179 administrators, farmers and managers selected via the non-academic partner institutions as well as university teachers and students. As regards the future, the Bulgarian universities planned to offer similar courses in their continuing education departments, and to include the project courses in their Master’s programmes in European Integration.

In Romania which, like Bulgaria, funded only one agricultural project, the Gh. Asachi Technical University of Iasi, the Technical University of Cluj-Napoca and the Transilvania University of Brasov set up Centres for Continuing Education in Agricultural Engineering and developed courses for the new units. Training courses were designed on the basis of a questionnaire sent to the non-academic partner institutions, these including the Ministry of Agriculture and Food, District Directorates of Agriculture, the National Agency for Consultancy in Agriculture and Chambers of Commerce. The full training programme comprised six specialist modules, and preparatory courses in English and computer skills. The specialist modules covered modern techniques and technologies in agricultural farms, information systems, technology transfer and consultancy in agriculture, environmental engineering in agriculture, management and marketing in agriculture, strategies and policies in the restructuring of agriculture, and funding and credits for agriculture in Romania and the EU. Training materials included 16 textbooks in Romanian and English, e.g. "Modern techniques and technologies in animal production engineering", "Applied marketing in agriculture", "Sources of energy in agriculture", "Technology of machinery

274 School of Higher Vocational Education, Tarnów, Agricultural Academy of Cracow, Jagiellonian University, Cracow, N. Copernicus University, Toruń, and University of Opole; Kielce Chamber of Farmers, Małopolska Association for Development of Agriculture, Cracow regional authorities, and Tarnów local government bodies.

275 Higher Institute of Agriculture, Higher Institute of Food and Flavour Industries, and P. Hilendarski University.
maintenance" and "Primary processing and storage techniques for agricultural products", as well as lecture-supporting materials and CD-ROMs. In all three Continuing Education Centres, the courses were delivered by newly trained Romanian trainers to 96 specialists from the non-academic partner institutions. Upon completion of the courses, the trainees obtained certificates. As an additional project outcome, the three Centres created specialist libraries, established a database which covers professional literature, European legislation, information concerning technology, business and research activities, etc., and were connected to the McGraw-Hill on-line database. After the end of the project, the three centres planned to deliver the courses on the basis of a co-operation agreement with the Ministry of Agriculture and the National Agency for Consultancy in Agriculture.

2.4 Finance and business

Projects focusing on finance and/or business were funded by Hungary, Bulgaria and Romania.

Two of four projects in Hungary covered various financial issues and were addressed to a wider professional audience, whereas the other two ones focused on the training of auditors. Two courses in finance and accounting were developed jointly by the Budapest College for Economics, the Budapest Chamber of Industry and Trade, the Hungarian Employers’ Association, the State Audit Office, and their EU partners. The first course comprised five modules: the impact of Euro on Hungary, financial control in conformity with EU requirements, the accounting system of non-profit organisations, information technology, and English for finance and accountancy. The modules in the second course included EU taxation, comparative accounting, consolidation, public finance, and English for specific purposes. Training materials for both courses were developed as entirely new or were based on textbooks and lecture notes available at the Hungarian College. The courses were delivered by Hungarian trainers trained in Hungary and in the EU institutions. The two courses attracted jointly 806 participants from public administration, local governments and non-profit organisations. As a spin-off effect of the project, training materials and contents were introduced into regular programmes of the Budapest College for Economics, and the Hungarian State Audit Office included one of the modules in its professional training programme.

Two courses for auditors were developed by the Budapest University of Economics and State Administration and its EU partners on the basis of a recent study on the Hungarian audit system produced by the Government Control Office. Both courses covered SWOT analysis, analysis of group interests, Logical Framework, and EU indicators in auditing. Training materials included publications acquired previously, and materials specially prepared for the courses, e.g. EC regulations with a commentary, and materials about the public finance control systems in Germany and the United Kingdom. The courses were delivered by Hungarian teachers trained in the EU institutions and experts from the Hungarian State Audit Office. The first course was attended by 167 auditors and control specialists with a higher education degree who worked in the Government Control Office, the National Customs Office, and other central and local government bodies. The 134 participants in the second course were auditors and control specialists without a higher education degree who were selected from central and local government bodies. In addition to the courses, study visits to EU institutions were organised for a smaller group of the trainees. At the end of the project, an agreement concerning joint training activities was signed by the Budapest University of Economics and State Administration and the Hungarian State Audit Office.

In Bulgaria, which funded one project in finance, a National University Centre for Public Sector Economy was established as a unit of the University of National and World Economics, Sofia, together with local centres at the Varna University of Economics and the A. Tsenov Academy of Economics in Svishtov. The project consortium, which also involved the Ministry of Finance, the National Audit Office, the Union of Taxpayers and EU institutions, developed courses in public sector economics, taxation, public sector auditing and local budgeting, and various training materials, including a book "ABC of Bulgarian Taxation and Social Security". The training materials were distributed to the National Assembly, the Council of Ministers, the Ministry of Finance, the National Audit Office, the National Library and all university libraries. To deliver the courses, Bulgarian university teachers were trained...
during study visits to EU partner institutions. The courses were organised for several target groups at national and local levels:

- distance education course in public sector economics: 162 public and local administration staff, including managers and experts, recruited through announcements in newspapers;
- course in taxation: ca 100 civil servants and other staff, including managers and tax experts, from the Ministry of Finance and the Agency for Government Revenue;
- course in public sector auditing: ca 100 managers, experts and auditors from regional audit offices;
- course in local budgeting and finance: ca 100 mayors and budget experts recruited through the National Association of Mayors and non-governmental organisations, “Association of Danube Region Mayors” and the Foundation for Local Government Reforms.

For future co-operation, a network was established which involves the Bulgarian universities, the Ministry of Construction and Regional Development, the National Institute of Social Security, the Institute of Market Economy and international bodies. Moreover, the University of National and World Economics will provide training to the National Institute of Social Security on the basis of an agreement signed between the two institutions.

In two of four projects in Romania, universities set up continuing education centres to provide training in Community acquis and/or business and finance. Regional University Centres of Continuing Education for Small and Medium Enterprises were set up as faculty-based units at five universities: the Academy of Economic Studies in Bucharest, the Ovidius University of Constanta, the University of Craiova, the University of Pitesti and the Valahia University of Targoviste. Following consultations with the non-academic partners, including central government and professional bodies as well as numerous local enterprises, the project consortium developed a set of courses and published 10 books as training materials. The topics covered in the courses and training materials included, for example, Community institutional law, Community legislation for the business sector, change management, human resources management in small and medium enterprises, economics of enterprises, and negotiations and communication. To deliver the courses, Romanian teachers were trained in EU institutions. During the project, training was organised for over 300 participants from small and medium enterprises and other non-academic partner institutions. The courses ended with examinations, and the trainees obtained certificates recognised by the Romanian Ministry of Education.

An Institutional Continuing Education Network (CONED) was established in the second project by three universities, four non-academic partners and EU institutions. The CONED centre at the Technical University of Cluj-Napoca was provided with substantial resources: Virtual University, a web server, database and library, and multimedia training materials; special laboratories at the other three universities were equipped for web-based teaching and learning, and for the production of multimedia materials. On the basis of an analysis of training needs in the target groups, the project partners developed the following four web-based interactive courses:

- European business environment: EU internal market, trade policy, competition policy, foreign trade policy and environmental policy, European Monetary Union and monetary integration;
- quality management: concept of quality, from quality assurance to total quality management, information systems in quality management, control in total quality management, quality and economic effectiveness, education for quality, and quality and reliability;

276 Ministry of Labour, National Agency for Employment and Training, Social and Economic Council, and Bucharest Chamber of Commerce and Industry.

277 Technical University of Cluj-Napoca, Babes-Bolyai University, Cluj-Napoca, Transilvania University, Brasov, County Council and Chamber of Commerce, Industry and Agriculture in Cluj-Napoca, Romanian branch of the Carpathian Euroregion Union, and Foundation for Promotion of Small and Medium Enterprises in Brasov.
■ European management: main features of European management, multicultural Europe, main European management models, Euro entrepreneurs, Euro managers; and

■ Information management in organisations using Intranet/Extranet Technology: information systems, representing data in information systems, integrated information systems, business process modelling, Internet/Intranet technology, HTML, Intranet options, and mini-project specification.

Romanian university teachers were trained by their EU partners to develop web-based training materials and to deliver multimedia-based courses. The courses were organised in six Romanian cities for 294 participants representing the member institutions of the CONED network. To create a formal basis for future co-operation, the Romanian universities applied for the recognition of the CONED to the Ministry of Education, and signed agreements with the non-academic partners which cover joint identification of training needs, delivery of specific courses on demand and use of the web-based Virtual University.

A consortium involving five Romanian universities278, Chambers of Commerce, county and municipal authorities in five Romanian cities, and their EU partners launched DESS (master-level) programmes in Administration and Business Management and in Local Administration. The programmes comprised the following modules:

■ Business Administration and Management at the Transilvania University of Brasov, the D. de Jos University of Galati and the Valahia University of Targoviste: external strategies, ethics, tourism, establishment of business, business simulation games, export, financial analysis, marketing, and human resources:

■ Local Administration at the Babes-Bolyai University of Cluj-Napoca and the University of Pitesti: human resources, local marketing, ethics, local finance, public services, public markets, decentralisation and urban policy.

The programmes were delivered by EU lecturers to 422 participants. Of all 422 trainees, who obtained a French DESS diploma, a smaller group was qualified for another diploma programme or selected for more advanced training in France, the latter including trainers from the Romanian universities. The DESS programmes were recognised by the three Romanian universities and accredited by the Ministry of Education. As another outcome of the project, the three universities established a framework for future co-operation with non-academic partners. The universities in Galati, Targoviste and Pitesti set up internship offices to liaise with local government and industry, the university in Pitesti created a centre of excellence to pool resources and expertise for the development of the region, and the university in Cluj-Napoca signed agreements with local government bodies.

Finally, in co-operation with the Romanian Association of Business Partnerships and their EU partners, the Academy of Economic Studies in Bucharest, the Petrol Gaze University of Ploiesti and the Valahia University of Targoviste organised short and longer courses for local enterprises. The short courses covered professional communication, economics of enterprises and information technology for management. The longer courses focused on accounting, law and taxation. Overall, 128 persons taking part in the short courses were awarded certificates of attendance, and 72 of those who completed the longer courses obtained certificates of competence.

2.5 Justice and home affairs

Projects in justice and home affairs were funded by all four countries.

Courses in Hungary were targeted on police, army, border guard, customs officers and disaster prevention staff. Specialist modules, communication modules and language training modules for all these target groups were developed jointly by the D. Berzsenyi College of Szombathely, its EU partners, the Hungarian Ministry of Home

278 D. de Jos University, Galati, Transilvania University, Brasov, Babes-Bolyai University, Cluj-Napoca, Valahia University, Targoviste, and University of Pitesti.
Affairs, the International Police Association, and representatives of target groups. The specialist modules covered EU institutions and policies, European information sources, and European integration and the enlargement of NATO from a legal perspective. The communication courses comprised modules in human interaction, self-assertiveness and intercultural communication, and a practical interactive defence programme. Courses of English and German focused on specialist terminology. Training materials included a textbook comprising chapters on EU information sources, EU integration policies, EU institutions, implications of Community law for Hungary, NATO enlargement, Schengen Agreement and Europol, course-books for English and German, and materials for self-study. The specialist and communication courses were delivered to 745 participants, including 405 border guard officers, 258 police officers, 64 army officers, 12 customs officers and 12 disaster prevention staff. The language courses were attended by police, border guard and army officers. As regards follow-up activities, the Hungarian College was requested to provide training for prison guards, migration officers and taxation department staff. Moreover, at the time of reporting on the project outcomes, discussions were held with the Police to develop jointly a course in youth protection and crime prevention for trainee teachers. Finally, the college and its non-academic partners organised meetings to look into funding possibilities under the Phare Programme, Leonardo, Socrates/Minerva, OISEN and civil protection programmes.

Courses specifically designed for police and border guard officers were developed on the basis of a training needs analysis by the Police Officer Training College of Budapest in co-operation with the Hungarian National Police Headquarters, the National Border Guard Headquarters and EU partners. The courses comprised a specialist component and language training. The specialist component covered EU-related issues, e.g. EC regulations and Schengen border control standards, as well as other legal issues, organisational and technical aspects of police and border guard work, and working methods. Training materials for the courses included two books in German, “Co-operation of Police Forces in Europe” and “Combating crime without frontiers”. The courses were delivered to 335 police and border guard officers. At the end, the trainees were required to take an examination and were awarded certificates.

Poland funded projects targeted on police officers and justice administration. As a preparatory activity in the project for police forces, which involved Warsaw University, the Police Academy of Szczytno, non-academic partners representing the Polish Police and EU institutions, university and police teachers were trained in the issues and terminology related to the EU Third Pillar. The courses developed for the Police covered general EU issues, EU institutions and legislation, EU Single Market, Common Foreign and Security Policy (Second Pillar), justice and home affairs (Third Pillar), Schengen Agreement, human rights in the EU, and the Polish road to the EU. To deliver the courses, the partners produced a textbook “Polish Police on the road to the European Union”, published in 2000 copies, and a five-language multimedia dictionary of the Third Pillar Terminology available on CD-ROMs in 1500 copies. The courses were attended by 150 police officers. All trainees obtained certificates issued by the Police Headquarters and Warsaw University. As a spin-off effect of the project, a new course covering the EU Third Pillar issues was introduced by Warsaw University, and the textbook and the dictionary were included in the list of compulsory teaching materials for police officers at the Police Academy in Szczytno.

In another project, training needs of justice administration and border guard were identified by the Jagiellonian University of Cracow, the Institute of Forensic Research and their EU partners on the basis of a questionnaire sent to target institutions. Training for the two target groups covered teaching, training and quality assurance, investigative psychology, examination of DNA, examination of handwriting and documents, and analysis of illicit drugs. Training materials prepared for the courses included a book, “Scientific evidence in a court trial”, and lecture notes. Following the training of Polish trainers from both the Jagiellonian University and the Institute of Forensic Research at the EU institutions, the courses were delivered to over 200 participants selected by the Ministry of Justice and the Border Guard units. As a follow-up initiative, the Polish and EU partners signed a declaration to establish an Education Centre of Forensic Science at the Jagiellonian University. The Centre will offer training courses in forensic chemistry, forensic biology and forensic psychology to justice administration.

279 General Police Headquarters and the International Police Training Centre in Poland.
and border guard officers in Poland, professional groups in other Central and Eastern European countries, and graduate and postgraduate students of various fields. Moreover, an agreement was signed by the Jagiellonian University and the Institute of Forensic Research to organise joint activities in forensic chemistry.

In a project addressed to justice administration, courses in EU institutions and legal systems were delivered by Polish trainers from the N. Copernicus University of Toruń and the Regional Consultancy Centre for Development of Agriculture and Rural Areas in Przysiek who had been trained by their EU partners. During the courses, the trainers used books and papers already available at the project partner institutions, as well as materials for computer-based training and a book “Justice and Home Affairs in the European Union” produced in the project. The courses, which ended with a diploma issued by the N. Copernicus University, were attended by ca 50 judges, prosecutors and local government officials from the Regional and District Courts, the Regional and District Public Prosecutors’ Offices in Toruń, and the Province Governor’s Office. In addition, study visits to EU institutions were organised for a smaller number of the trainees.

Finally, in co-operation with the Ministry of Justice and EU partners, Łódź University organised practical training in EC law and the interpretation of the European Court of Justice (ECJ) decisions for 50 civil law judges, and courses for interpreters and translators of legal texts. In both cases, training was delivered jointly by Polish trainers, trained by the EU partners, and EU experts, and was based on reference materials purchased in the project as well as on translated texts of ECJ cases. As a spin-off effect of the project, representatives of Łódź University, judges and translators established a non-profit foundation “UNI-IURIS” to continue the project activities.

In Bulgaria, three universities, the Central Prison Administration bodies in four cities, the Association for Reintegration of Offenders, the Bulgarian Helsinki Committee and their EU partners developed jointly pilot modules for prison management and other prison staff. The full training programme comprised specialist modules covering probation, probation services and probation hostels, sentence planning and management, plenipotentiary programmes, and life sentence in the United Kingdom, as well as a course in computer skills and an English language course. Training materials, which were also designed to support practical work, were published in six books and distributed to penitentiary establishments throughout the country. The courses were delivered jointly by EU lecturers and newly trained Bulgarian trainers to 60 participants, including senior prison management and other prison staff working with offenders in prisons and those serving sentences in prison hostels. Training in Bulgaria was followed by study visits to EU institutions. Moreover, the project brought several spin-off effects. Firstly, its outcomes served as the basis for drafting a law to amend the Act on Execution of Sentences which introduces fundamental changes in the penitentiary legislation in Bulgaria. The bill was approved by the Council of Ministers and submitted to the Parliament. Secondly, two programmes designed by the project consortium, risk assessment and sentence planning, and community service, which were entirely new for the Bulgarian penitentiary system, were approved by the authorities. The first programme should soon become compulsory in all prisons and all places of imprisonment throughout the country, and the second one was introduced in two prison hostels on an experimental basis. Thirdly, at the time of reporting on the project outcomes, the Bulgarian universities were developing new courses and a new specialisation for probation officers.

The project consortium in Romania, which involved Bucharest University, the Polytechnic-University of Bucharest, the Public Ministry and EU institutions, organised training seminars on combating corruption and organised crime, as well as computer courses for 60 prosecutors. The seminars covered, for example, investigation techniques and methods for organised crime, corruption and financial offences, international legal assistance in criminal matters, public prosecutor’s offices specialised in organised crime in Italy and Spain, European criminal law and protection of the EU financial interests, and European Convention on Human Rights. Training materials, including EC legislation, criminal and criminal procedure codes of EU Member States, papers and articles, were provided by the EU partners; some of these were published in a book “The fight against

280 The Final Report for the second Bulgarian project was not submitted by the time of analysis for the study.
281 St. Kl. Ohridski University, Sofia, Bourgas Free University and Varna Free University.
corruption and organised crime. The seminars were held by experts from the EU partner institutions. In addition to the seminars, the EU partners organised training periods for the prosecutors which combined courses and study visits to judicial institutions. As another key project outcome, a Centre for Continuing Training of Prosecutors was set up within the Prosecutor’s Office at the Supreme Court of Justice.

2.6 Quality standards

Projects dealing with quality standards were funded by Poland, Bulgaria and Romania.

The only one project funded in Poland, which involved the Technical University of Szczecin, the Association of Polish Mechanical Engineers and Technicians, and EU institutions, focused on the integration of Polish research laboratories in the European system of accreditation and certification. The training programme developed by the project consortium combined theoretical and practical aspects of accreditation. Courses covered, for example, accreditation of a research laboratory, major steps in accreditation and certification on the way to the European Union, introduction to the European system of research laboratory accreditation, as well as guidelines for drafting quality manuals, procedures, instructions and reports, and for carrying out internal audits. Training materials for the courses included lecture notes and abstracts summarising relevant EC regulations. The courses were delivered jointly by EU experts and Polish academic staff and non-academic trainers to 260 engineers from regional and supra-regional companies. Upon completion, the trainees obtained certificates issued by the Technical University of Szczecin. As another key outcome of the project, a university-level Accreditation and Certification Centre was set up at the Technical University of Szczecin to promote quality and to offer training and consulting services in the area of accreditation, certification and quality systems. The Centre established a database covering companies which had already implemented a quality management system, and those which were and were not interested to introduce such systems. The database will serve to identify target groups for future training and consulting activities.

In the first of three projects in Bulgaria, which involved Bulgarian universities, public administration agencies, professional associations, and EU partners, the scope for training was defined in consultation with the non-academic partners and in the context of the European Quality Policy designed by the European Commission. On this basis, the project consortium developed five specialist modules, a module in Business English, and a module in information technology. The specialist modules included fundamentals of European integration and the National Accession Strategy, Total Quality Management: European model for business excellence, tools for quality improvement, quality culture and implementation of quality improvements, and EC regulations and international standards (ISO 9000/2000 and ISO 14000). The courses together with training materials were developed by Bulgarian trainers trained by the EU partners. Training for the target group, which combined lectures and case studies, was delivered mainly in Bulgarian. In total, the courses were attended by 222 participants from public and local administration, companies and professional associations, and civic society structures. Further on, the courses were included by the Bulgarian Industrial Association and the two Bulgarian universities in their regular training programmes. As an additional outcome, a Joint Centre for Business Excellence (JCBE) was set up by the two Bulgarian universities to assist the Ministry of Economy in the development and implementation of a quality management system, and to advise companies which intend to introduce quality management systems.

In the second project, a Centre for Training in EU Industrial and Ecological Standards was set up at the Technical University of Gabrovo together with regional units at the University of Chemical Technology and Metallurgy in Sofia, the University of Rousse and the University of Veliko Turnovo. Training contents were defined by the four universities and their EU partners in co-operation with the non-academic institutions participating in the project, these including the Ministry of Environment and Waters, the Committee for Standardisation and Metrology, Bulgarian Industrial Association, and Bulgarian Federation of Consumers.

282 New Bulgarian University, Sofia, University of Chemical Technology and Metallurgy, Sofia, Ministry of Industry, Committee of Standardisation and Metrology, Bulgarian Industrial Association, and Bulgarian Federation of Consumers.
Metrology, and the Scientific and Technical Union of Textile, Clothing and Leather Producers. The following specialist courses were developed for target groups:

- European industrial standards (quality management): European industrial standards (ISO 9000), elements of quality management systems according to ISO 9000, quality management systems, methods and techniques for quality management, measurement and control of product and process quality characteristics, measurement and control of measurement devices in quality management systems, systems, products, processes and services of auditing according to ISO 10011, quality management and company re-engineering;
- European ecological standards (environment management): European ecological standards (ISO 14000), elements of environment management systems according to ISO 14000, environment management systems, legal aspects of ISO 14000 application;
- metrology and standardisation: calibration of measurement devices, metrologic supervising, measurement and control of product and process quality characteristics, legal aspects of metrology, standardisation and accreditation activities;
- control and testing methods: quality assessment of polymer consumer goods through the application of European standards, application of European standards for ensuring quality in textile and leather industries, measurement and control of product and process quality characteristics, measurement and control of measurement devices in quality management.

The specialist courses were combined with intensive computer and language training. The relevance and quality of training was evaluated by trainees in a questionnaire. During the two project years, the courses were attended by 1115 participants from state owned and private enterprises, regional centres dealing with standardisation and environmental protection, municipal and district authorities, and public administration agencies. Those who completed the courses obtained a certificate, and are fully qualified to implement ISO standards and to work in quality control positions. In the future, the existing and new courses will be delivered by the centres set up in the project. Moreover, preliminary discussions were held to transform the centre in Gabrovo into a training unit of the State Agency for Standardisation and Metrology.

The third project led to the establishment of a Centre for Technical Legislation and Quality Management (CTLOM) at the Technical University of Sofia, with adequate equipment provided and Bulgarian trainers trained in EU partner institutions. The project consortium, which also involved the Council of Ministers, the Ministry of Economy, the Bulgarian Union of Standardisation Bodies and their EU partners, developed six modules concerning EC directives and standards for safety and quality control of industrial products. The course was organised for 139 staff from public administration agencies, representatives of regional and local authorities, staff from non-governmental organisations and large commercial companies delegated by the non-academic partners, and university teachers. To provide the courses, 23 textbooks were adapted for specific needs in Bulgaria or developed as entirely new in the project. In addition, a library created at the CTLOM was provided with numerous publications with summaries in Bulgarian, including documents related to the European technical legislation, standardisation and conformity assessment, accreditation, quality management, and Bulgaria's integration with the European Union. Preparing for future activities, the Technical University of Sofia signed an agreement to transform the CTLOM into a branch of the Institute for Public Administration and European Integration with the support of the Ministry of Economy. Moreover, an agreement was concluded with a Greek project partner to establish a Balkan Centre for training in the field.

A unit specialised in quality, called the Centre of Excellence in Quality, was also set up the Gh. Asachi Technical University of Iasi as a result of a single project in this area funded by Romania. Course contents were defined on the basis of an analysis of training needs carried out by all project partners, including the Gh. Asachi Technical University, the Polytechnic-University of Bucharest, various Romanian non-academic institutions and organisations and their EU partners. The courses were developed jointly by the EU partners, and Romanian Ministry of Public Works and Land Planning, National Network of Construction Laboratories, and companies.
university teachers and staff from the non-academic partner institutions trained in the EU partner institutions. The training programme comprised the following modules: introduction to quality assurance, European legislation, EU structures, quality costs, role of standards in quality assurance, from quality assurance to organisational excellence, human resources management in quality assurance, and quality system design, and English and computer skills for quality assurance. The content of training was modified after the first round of courses on the basis of feedback given by trainees. To deliver the training, the project consortium developed eight textbooks issued by an official Romanian publishing house, and the Romanian partners were provided with quality assurance manuals. In total, the courses were attended by 192 participants from the non-academic institutions participating in the project. The trainees were required to present a project on quality system design or improvements based on specific needs of their companies, and were awarded a diploma in “European Dimensions in Quality Assurance”. In the future, new target groups for training will be attracted through the newly established links with the business sector as well as through the Board of Trustees supervising the Centre of Excellence. As a spin-off effect of the project, most of the participating companies created and introduced new quality assurance procedures in accordance with EU standards, and the courses will be used as the basis for an International Master Programme in Quality Management at the Gh. Asachi Technical University.

2.7 Regional policy and development

While various regional issues, including e.g. EU regional policy and Structural Funds, were integrated into training courses for other sectors, projects focusing specifically on regional policy and development were funded by Hungary, Poland and Romania.

In Hungary, a consortium involving Miskolc University, local government bodies in Miskolc and EU partners, developed a course “Regionality and public administration in the European Union” based on a survey of training needs in the target group. The course comprised six EU-related modules: European integration and history of EU institutions, institutions and legal system of the EU, regional policy of the EU, regional funds and programmes in the EU, project management and monitoring, and financial system and budget of the EU. Additional training components covered methodological fundamentals of regional development projects and relevant case studies, formulation of project proposals, and EU-related language. Training materials were published in the form of textbooks. The course, which combined lectures with the development and presentation of case studies, was delivered by Hungarian trainers trained in the EU institutions. It was attended by 210 participants, including civil servants and other officials from public and local administration, and managers responsible for regional development projects. At the end, 196 trainees took an examination and were awarded certificates. The training course was followed by study visits to the EU for a smaller group of the trainees. As a follow-up to the project, several initiatives were taken by Miskolc University and its non-academic partners. Firstly, an improved version of the institution building course was accredited by the Hungarian Institute of Public Administration as an advanced training programme, and three courses were organised within this framework in 2001 by Miskolc University. The improved course was launched in addition to advanced training courses already offered by the university on a regular basis to secondary school teachers. Secondly, the university and the Miskolc county authorities signed an agreement to design and implement a development strategy for the county in compliance with EU requirements. Thirdly, at the time of reporting on the project outcomes, the university and local government staff were working jointly on a new modular programme “Professional training programme for regional development” supported under the Phare Pilot Programme Fund. Finally, agreements concerning future co-operation in various areas, including research and student exchange in Socrates/Erasmus, were concluded with the EU partners.
In the second project, courses were developed jointly by Pécs University of Arts and Sciences, various Hungarian non-academic partners and EU institutions. The training covered trans-European networks, comparative European regional policy, European political geography, European regional planning, local economic development and partnership building, rural development, and specialist language skills. The courses were delivered by Hungarian trainers. Trainers used various publications available earlier on, as well as papers and other training materials specially prepared for each of the course modules. A long list of project publications included, for example, “Transport and regional development in Europe”, “Opportunities for cross-border co-operation in Hungary after the EU accession”, “The role of regional planning and programming in preparations for EU accession”, and “Rural development and finance in the EU and Hungary”. The courses were attended by 132 mayors, staff from local government, county chambers, regional development agencies, development consultancy agencies and Phare offices, and ended with an examination. In addition, study visits to the EU countries were organised for a smaller number of the trainees. As a follow-up, Pécs University and its EU partners applied for grants to organise courses within Phare 2000 in Hungary, and an international summer school on “Regional policy issues of the EU enlargement” under “The support for European integration activities organised by the academic world”. Moreover, the course in European regional policy will be integrated into a new postgraduate programme at Pécs University.

The consortium in the third project, involving the S. Tessedik College of Békéscaba, local government, other bodies and EU partners, developed a training programme for local governments and tourist agencies. The programme comprised courses in rural development and rural tourism, environmental management, special tourism, communication and public relations, and language and computer training. Training was provided jointly by Hungarian trainers trained by the EU partners and EU lecturers. The trainers used translated materials and those specially developed in the project. The courses were attended by 95 participants from the non-academic partner institutions. In addition, study visits were organised for a smaller number of trainees.

In one of two projects in Poland, an inter-faculty European Regional Policy Training Centre was set up at Wrocław University to organise training in EU issues and to offer advice in this area to government agencies, business and other institutions. At the preparatory stage, EU partners trained experts for the Centre selected from three Polish universities participating in the project, the Lower Silesia Province Governor’s Office and other local government bodies as non-academic partner institutions. Training courses for project target groups were developed in consultation with the non-academic partners. The courses covered EU regional policy and Structural Funds, adaptation of regional policy in Poland to EU requirements, regional co-operation in the European integration process, and dialogue with Europe. Training materials included papers concerning the topics of the courses and a study on the development of the Silesian Region produced by the experts of the Centre and the Department of Regional Policy. The materials were also distributed to various local institutions and organisations, and made available in the Internet. The courses were attended by 150 representatives of the non-academic partner institutions, the Silesian Chamber of Commerce and local businesses, special government funds, non-governmental organisations, and the three Polish universities. The trainees were awarded certificates. After the completion of the project, co-operation between Wrocław University and the regional and local authorities participating in the project continued in various ways. For example, the European Regional Policy Training Centre was approached for opinions concerning a regional development strategy designed for the Lower Silesia province and suggestions based on the experience of the EU Member States in the implementation of a regional policy.

284 Ministry of Environment and Regional Policy, National Association of Local Governments, Regional Development Centre, Hungarian Academy of Sciences, and Hungarian Chamber of Commerce and Industry.

285 Ministry of Economy, Local Government of Szarvas, Association of Local Governments in Békéscaba, and Southern Great Plain Tourism Committee in Gyula.

286 Wrocław University, Technical University of Wrocław, and Academy of Economics in Wrocław.
The A. Mickiewicz University of Poznań, the Collegium Polonicum of Viadrina, local government bodies and EU institutions, which co-operated in the second project, focused on the management of urban development. Institution building activities comprised the following:

- Training courses in modern management of urban development, which ended with certificates and were organised for 81 officials from the municipalities involved in the project;
- Study tours to cities in the EU partner countries for 235 officials from the municipalities;
- Conferences on revival and development of Polish towns in the context of experience of the EU countries, and threats and opportunities for Polish towns in the context of European integration, attended by 110 persons; and
- Seminars on experiences in town revival in the EU and its relevance for the revival of towns in Poland, housing issues, e.g. strategies, financing and management, partnerships between towns, modern town management, and co-operation between municipalities and inhabitants.

Training materials were published in “Modern urban development management”, a collection of project documents, reports and content-oriented materials, and a manual “Basic problems in the management of urban development: experience of the EU countries”. As a spin-off effect of the project, the A. Mickiewicz University established a new Master's degree programme inSpatial Management, with a speciality option “Development and revival of towns and rural areas”.

In a single ‘regional’ project in Romania, the Ovidius University of Constanta set up a Regional Centre for Continuing Education in Regional Development, and the project consortium developed a set of courses covering EU regional policy, and Structural and Cohesion Funds together with training materials. Preparatory training was organised by EU institutions for Romanian trainers from the Ovidius University, and local government and professional bodies as non-academic partners in the project. The courses for target groups were delivered jointly by EU and Romanian trainers, and were attended by 200 participants from the non-academic partner institutions, the Ministry of Development and Prognoses, and the District Attorney Office. The trainees obtained certificates issued jointly by the EU project partners and the Ovidius University.

### 2.8 Transport

Projects in transport were funded by Hungary, Poland and Bulgaria.

In a single project in Hungary, four universities, sector ministries, public and professional bodies and their EU partners developed jointly a course in road transport on the basis of an analysis of training needs. The course, entitled “Euro conform complex retraining of specialists in road transport”, covered safety on roads, car automation, legislation for road transport, and information technology. A long list of training materials included an overview of EU legislation and standards for road transport and environmental protection, and papers focusing on specialist road transport issues, e.g. modern traffic management systems, GPS, traffic safety diagnostics, brake systems, lighting and signalling devices in motor vehicles, etc. The course was delivered partly in English, as a form of language training, and partly in Hungarian to 430 participants. The course participants, mainly engineers, production engineers and technicians, were selected from the non-academic partner institutions and the Hungarian universities. At the end, the trainees were required to write a paper and were awarded certificates.

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287 Gorzów, Żagań and Žary Municipalities.
288 General Office for Agriculture and Food, South-East Regional Development Council, Constanta County Council, and Chamber of Commerce and Industry in Constanta.
289 Budapest University of Technical and Economic Sciences, Budapest Technical College, Miskolc University, and I. Széchenyi College of Győr; Ministries of Transport and Economy, Transport Controlling Authority, Road Controlling Authority, and National Association of Car Repair Workshops.
As another outcome of the project, a faculty-based unit at the Budapest University of Technical and Economic Sciences was developed into an Euroconform Further Training Centre. After the completion of the project, preliminary arrangements were made by the Hungarian universities to offer short courses in road transport as well as a course in English for specific purposes jointly with industrial partners. Moreover, the training materials were used in degree programmes for engineering students.

The first of two projects in Poland led to the establishment of a Centre for Integration of Transborder Administration at the Merchant Maritime Academy of Szczecin. Topics for training at the Centre were defined in consultation with non-academic project partners, these including the Maritime Office, the Inland Shipping Office and the Customs Office in Szczecin, and the Pomeranian Border Guard. The training programme combined area-specific issues, e.g. transport systems in the EU or logistics and management in European transport, with specialist English and German language training. Training materials included various course-specific papers and a book “Selected problems of integration of transborder administration”. The courses were delivered jointly by the Merchant Maritime Academy and its EU partners to over 400 participants from the non-academic partner institutions. Upon completion of the courses, the trainees obtained certificates. The training part in Poland was followed by study visits to EU institutions. As regards follow-up initiatives, the courses served as the basis for two postgraduate programmes, Logistics and Management in European Transport, and Integration of Transport Systems in the EU, now offered by the Merchant Maritime Academy in Szczecin. Moreover, preliminary arrangements were made by the non-academic partner institutions to allocate a part of their limited budgets for the continuation of the courses developed in the project.

In the second project, Gdańsk University developed courses in EU maritime economics and maritime English, total quality management in transport, EU maritime safety and maritime law in co-operation with the Harbour Administration in Gdańsk and its EU partners. The list of training materials contained a book “Maritime Law”, a collection of documents, articles and lecture notes. The courses were delivered by the EU partners to 101 participants, including staff from the ports administration in Gdańsk and Gdynia, the Polish Ocean Lines, the Ministry of Transport, local governments in Gdańsk and Gdynia, and teachers from Gdańsk University. Upon completion of the course in maritime law, the trainees obtained a diploma issued by Gdańsk University and the EU partners. In addition, a group of staff from the target institutions undertook short retraining periods in EU institutions. As a follow-up, the courses launched in the project are now offered by Gdańsk University as “European Study Courses for Polish Maritime Sector” on a regular basis.

The Technical University of Varna in Bulgaria set up a university-level Continuing Education Centre, launched courses in ports and logistics, marine environment, marine engineering, and new information technologies, and developed training materials for the four courses. The courses were attended by ca 400 participants from customs administration agencies and maritime companies who obtained certificates upon their completion.

### 2.9 Social welfare

One of four institution building projects in social welfare was funded by Hungary, and the three other ones were launched in Romania.

The I. Széchenyi College of Győr and the I. Szent University of Gödöllő in Hungary assessed training needs together with local government bodies and specialised services 290, and their EU partners. On this basis, they developed the following courses in social and community services:

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290 Győr and Jászberény country and town councils, Győr Family Assistance Service and Regional Resource Centre, and Szolnok Human Service Centre.
role and functions of the EU;

■ social and community services in the EU Member States;

■ changes and trends in social policy of the EU Member States;

■ European declarations and agreements, and their impact on Hungarian social policy;

■ problems in Hungarian social policy and social/community sectors and services;

■ co-operation between social and community services in the EU Member States and Hungary, between services and local governments, and between governmental and voluntary services;

■ processes and main methods of inter-professional practice;

■ co-operative processes, project work, development of organisation and time management;

■ lobbying, resources, public relations and marketing in social and community services;

■ linking Hungarian and EU services;

■ information technology in social and community services.

Training materials were collected in two publications: "Success of human rights in Europe and in Hungarian practice" and "Inter-professional collaboration and social work". As another preparatory activity, Hungarian teachers were trained by EU partners in inter-professional co-operation and open learning methods. The courses, which comprised residential training and distance education modules, were delivered by the two Hungarian higher education institutions to 120 participants from the non-academic partner institutions.

Each of the three projects in Romania tackled different social welfare issues. The first project, involving five Romanian universities, local government and professional bodies, enterprises and EU partners focused on the professional integration of young people. As a result of a background analysis, the consortium produced three reports on the professional integration of young people in Romania, measures designed to adapt job offers to demand, and on advantages and disadvantages of the systems existing in the EU countries and their transferability to Romania. Professional integration courses developed on this basis covered communication, marketing, business environment, organisation of an enterprise, information technology and office work, and languages. The courses were delivered by Romanian teachers trained by the EU partners, and attracted 109 unemployed persons interested to enhance their employment chances. To provide a framework for the delivery of the course in the project and in the future, the Romanian partners established a network based on new units and co-operation agreements. The new units, a Staff Training and Development Centre, a Professional Integration Office and a Regional Centre for Professional Training and Retraining, were set up at the Academy of Economic Studies in Bucharest, the West University of Timisoara and the Ovidius University of Constanta respectively.

The other two universities, the Babes-Bolyai University of Cluj-Napoca and the A. I. Cuza University of Iasi, concluded agreements with the Agencies for Employment and Training whereby training will be financed from grants awarded by the agencies and fees paid by enterprises.

As a result of co-operation with non-academic institutions and EU partners in the second project, the West University of Timisoara and the University of Medicine and Pharmacy in Timisoara developed postgraduate DEA programmes and short intensive courses in child abuse and protection. At the preparatory stage, the EU partners organised retraining courses and practical placements for Romanian teachers, and the project consortium translated and prepared a set of training materials comprising psychological tests for children and parents, video-cassettes and CD-ROMs. The programmes and courses were delivered jointly by newly trained Romanian

291 Ovidius University, Constanta, Academy of Economic Studies, Bucharest, A. I. Cuza University, Iasi, Babes-Bolyai University, Cluj-Napoca, and West University of Timisoara; Department Agencies for Employment and Training in Timisoara, Cluj-Napoca, Constanta and Satu-Mare, Chambers of Commerce in Cluj-Napoca and Constanta, and Directorate for Labour and Social Protection in Iasi.
teachers and the EU partners. The DEA programme, which ended with a diploma, was attended by 50 experts from units of the Timisoara Directorate for Child Protection and other public and non-academic institutions, including associations and foundations responsible for child protection, in eight regions\textsuperscript{292}. The short courses were organised for 450 practitioners from all the regions who, depending on the topic, obtained certificates issued by the West University of Timisoara and/or the Ministry of Labour, the Ministry of Health or other organisations. To provide a framework for further activities, the West University of Timisoara set up a centre for continuing education, research and consultancy. At the time of reporting on the project outcomes, the University of Timisoara was already carrying out research projects in co-operation with central government bodies, e.g. the National Agency for Child Protection and Adoption. As a spin-off effect, the project encouraged the development of new legislation for the prevention of child abuse, neglect and maltreatment in the relevant Romania ministries and the establishment of specialised sections for the prevention of child abuse in the Directorates for Child Protection. As regards higher education, courses in maltreatment of children developed in the project were introduced by other Romanian universities in Bucharest, Cluj-Napoca, Iasi, Bucharest, Oradea and Targu Mures.

The third project was targeted on those working with several socially disadvantaged groups, including old and young people, abandoned children and the unemployed. As a preparatory activity, the A. I. Cuza University of Iasi carried out an analysis of needs in co-operation with local government and other bodies\textsuperscript{293} and EU partners. Courses for the target groups covered:

- social intervention, resources, techniques and methods;
- organisation of intervention projects;
- work with disadvantaged groups;
- exclusion of young people;
- long-term unemployed;
- gerontology: cultural perspective;
- third age: problems and solutions in France;
- use of Rorschach test in diagnosis for alcoholics;
- general problems in studying and evaluating personality;
- teaching approaches for children with learning difficulties;
- maladjustment, deviations and delinquency in school environment;
- Romanian lyceum students, drugs, alcohol and cigarettes.

Training materials were published in four volumes available in French, "Psychological and social intervention in socially disadvantaged groups. Strategy and methodology", "The Third age. Knowledge and intervention", "Evaluation, counselling and intervention in socially disadvantaged groups", and "Human resources and strategy for assistance". The courses were delivered in French and English to 56 social workers, psychologists, educators and doctors selected via the non-academic partner institutions. Upon completion of the courses, the trainees obtained certificates of competence. As a framework for future activities, the A. I. Cuza University established a centre for training in analysis and intervention for disadvantaged social groups, and arrangements were made to organise training courses in social assistance for the Inspectorate for the Disabled in Iasi.

\textsuperscript{292} Timis, Hunedoara, Caras-Severin, Constanta, Mehedinti, Neamt, Arad and Bucharest.

2.10 Education

Institution building projects focusing on education were funded by Bulgaria and Romania. In a single project in Bulgaria, which involved four universities, the Ministry of Education and Science and other institutions, training was combined with some legislative developments. Following a review of recent trends in European higher education, the partners drafted a proposal for an improved State Register of Speciality Options and a proposal for changes in the higher education law which were approved by the Council of Ministers. Institution building courses, which covered legislation and practices adopted by the EU Member States in the area of higher education, were organised for ca 150 persons, these including policy makers and university management and administration.

In Romania, following an analysis of training needs, six universities and their EU partners developed courses covering the methodology and other issues related to adult education, retraining of staff from academic and non-academic institutions, as well as information technology and language skills (English, French and Spanish). Training materials were prepared jointly by the academic and non-academic partners, and published in 12 books, e.g. “Communication, counselling and management”, “Quality management in higher education”, “Organisation of activities in continuing education”, “Management of higher education in a learning society” and “Legislation elements of higher education”. To deliver the courses, Romanian trainers were trained at EU partner institutions. The courses were attended by 185 education decision-makers and other staff from the three Romanian universities and the non-academic partner institutions, these including the Ministry of Education and local government bodies. To provide a framework for further co-operation with non-academic institutions, the D. de Jos University of Galati established a Department of Excellence. Moreover, bilateral agreements were signed by almost all project partners, and the Department of Excellence organised further courses in response to enquiries received from local authorities and enterprises in the neighbouring counties.

2.11 Health

Institution building projects in health were funded only in Hungary. In the first project, the Semmelweis University of Budapest, public bodies and professional associations carried out an analysis of information and training needs, and the EU partners trained Hungarian teachers in the areas identified in the analysis. Courses developed for target groups covered co-operation of physicians, pharmacists and nurses in a hospital, joint treatment of professional and economic issues in an institution, legal environment of a healthcare institution, role of the civil society in healthcare control, adaptability of healthcare institutions, languages, and information technology in health care. Training materials were collected in a book “The key questions of integrated hospital functioning” which was published in 5000 copies and also made available in the electronic form. The courses were attended by 665 participants, with 350 registered for more than two courses. The participants were physicians, nurses, pharmacists, economists, IT specialists, lawyers and teachers from Hungarian hospitals and healthcare other institutions. After the completion of the courses, study visits to EU institutions were organised for a smaller number of the trainees. As regards follow-up initiatives, the Semmelweis University planned to monitor information needs of Hungarian hospitals and provide updated information at the project website.

294 P. Hilendarski University, Plovdiv, Technical University of Sofia, University of Chemical Technology and Metallurgy, Sofia, and Medical University of Varna.
295 D. de Jos University, Galati, Valahia University, Targoviste, University of Bacau, Petrol-Gaze University, Ploiesti, P. Maior University, Targu Mures, and Ovidius University, Constanta.
296 District Education Offices of Braila, Buzau and Vrancea Counties, Galati County Council, and Local Authority for Labour and Social Assistance in Galati.
297 Institute for Initial and Continuing Education of Health Staff, National Health Insurance Fund, Hungarian Hospital Association, Hungarian Medical Association, Hungarian Chamber of Pharmacists, Hungarian Pharmaceutical Society, and National Association of Local Governments.
Moreover, the project management group was requested by the National Health Insurance Fund to collect up-to-date information about developments in European health insurance systems.

Co-operating with the National Public Health Service, the National Association of Local Governments and the Debrecen Municipality in the second project, Debrecen University developed the following courses:

- Comparative health policy in the EU Member States, including health needs and determinants, EU public health policy and other policies affecting EU health policy case studies, health target programmes, healthcare reforms in the EU, role of market forces, databases, decentralisation of healthcare policy;
- Comparative EU health care management, including history of healthcare management, healthcare systems, healthcare structure in Central and Eastern European countries and the EU, healthcare reforms in the EU;
- Health promotion, including social and cultural dimensions and determinants of health, approaches and methodology of health promotion, basic documents related to health promotion, health policy and health-related issues of the EU accession, health promoting institutions.

Training materials were published in three books: "Comparative health policy in the EU countries", "Comparative EU health care management and "Health promotion in the EU". The three new courses together with a revised course in health economics and a specialised English language course were organised for 97 public health specialists from various regions of Hungary. In addition, a number of the course participants took part in study visits to EU institutions and field trips in the EU partner countries. Several initiatives were undertaken as a follow-up to the project. Firstly, a co-operation agreement signed earlier on by the National Public Health Service and the Debrecen University was to be renewed as a result of the project. Secondly, the specialised English course was organised for target groups selected by the National Public Health Service, with costs covered by the National Office of the Chief Medical Officer. Thirdly, a number of those participating in the institution building courses enrolled in Master's programmes offered by the Debrecen University. Fourthly, all courses delivered under the project were integrated into the European Master of Public Health (EMPH) programme developed by the Association of Schools of Public Health in the European region (ASPHER). The Debrecen University planned to launch the EMPH programme in September 2002 for local and international students. Fifthly, training materials for two project courses were adapted for use in the distance education system.

In the third project, which involved the Semmelweis University, the I. Szent University of Budapest, research institutions, professional associations298 and EU partners, institution building courses were combined with the establishment of a food intolerance databank. The courses covered, for example, basic medical and dietetic topics, types of allergy and food intolerance, evaluation of foodstuffs, food safety and security, health, food and nutrition policy in Hungary, EU health policy, harmonisation of health legislation, and an overview of developments in the EU Member States. Training materials were collected in a book "Hungarian Food allergy and food intolerance bank: about food allergy for everybody". Training was delivered jointly by Hungarian and EU teachers and experts. The courses were attended by 239 medical and food industry experts, including dieticians, family doctors, and health inspectors, catering managers and food industry experts, from the non-academic partner institutions and other organisations. Most of the participants passed examinations and were awarded certificates, whereas others obtained credits. At the end, the courses were evaluated by the participants in a specially designed questionnaire. As regards the second main project outcome, the Hungarian Food Allergy and Food Intolerance Databank Foundation, with its seat at the Semmelweis University, was set up and registered by the Hungarian Society of Nutrition and the Hungarian Society of Allergology and Clinical Immunology. The Food Intolerance Bank (FIB) collected data about foodstuffs free from certain allergens and intolerant factors from food industry enterprises, and published them special booklets. The booklets were distributed to hospitals, allergologic and gastrointestinal centres, dieticians, health inspectors and medical experts. To ensure the funds for the updating

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298 Central Food Research Institute, Food Industry Committee of the Hungarian Academy of Sciences, Hungarian Association of Dieticians, Hungarian Society of Allergology and Clinical Immunology, and Hungarian Society of Nutrition.
of booklets, the FIB intended to sell the textbook produced in the project, and to organise courses on a fee-paying basis. One training course was already organised after the completion of the project.

2.12 Other areas

The projects outlined below focused on one area or combined several areas. Hungary funded a project in engineering, a project in sports and an interdisciplinary project. In co-operation with the Hungarian Chamber of Engineers and EU partners, Pécs University of Arts and Sciences, the Budapest University of Technical and Economic Sciences and the Budapest Technical College developed a training programme which comprised:

- General knowledge courses, including standardisation in Hungary and the EU, planning competencies in the EU, information technology, basic knowledge of public relations, EU procedures for public tenders and purchase;
- Professional knowledge courses, including e.g. structure of Eurocodes, structure of reinforced concrete, steel and composite structures, geotechnics, seismic design, timber structures, fire protection, building management, building structures, water supply in civil engineering;
- Professionally oriented English language course; and
- Practical placement in EU companies for the best trainees.

Training materials for each course were produced in the electronic form and made available on CD-ROMs. To deliver the courses, Hungarian teachers from the three universities were trained by the EU partners. The courses were organised for 234 civil, electrical and mechanical engineers from the Hungarian Chamber of Engineers. At the end of the project, the three Hungarian universities planned to use the training materials in retraining courses and degree programmes.

In the project focusing on sports, the Semmelweis University of Budapest, the National Office of Physical Education and Sports, the Hungarian Olympic Committee and EU institutions prepared a comparative study on the Hungarian sports administration system, and organised courses for ca 330 senior and middle-level staff from the non-academic institutions. At the end of the project, the National Office of Physical Education and Sports intended to approve the courses as the main retraining programme for sports administrators in Hungary.

Debrecen University developed courses in eco-tourism, quality assurance and EU trade regulations. Each course comprised a professional module, an information technology module and a language module. The courses were organised for 85 participants from the Chamber of Commerce and Industry and the Chamber of Agriculture as the non-academic project partners, as well as industrial enterprises and public sector institutions. In addition to the courses, study tours to EU partner countries were organised for a smaller number of the trainees.

The N. Copernicus University of Toruń in Poland organised courses in information management for regional and local administration. The courses covered information technologies, Internet information resources, and European information policy. Training materials were produced in the form of support papers, a package for distance education and a book "EU information policy and local administration". The courses were delivered by EU experts and Polish trainers, trained by the EU partners, to 82 course participants from the Municipality of Toruń and the N. Copernicus University of Toruń. Upon completion of the courses, the trainees obtained certificates signed by the N. Copernicus University. As a follow-up to the project, the university planned to offer two courses, "Internet information resources" and "EU information policy", to local administration as well as cultural institutions such as libraries, museums, archives and galleries. Moreover, co-operation with the municipality would continue on the basis of an agreement signed earlier on.
Bulgaria funded a project targeted on the media. As a preparatory activity, an analysis of training needs was carried out jointly by the St. Kl. Ohridski University, the Technical University of Sofia, Bulgarian media partners\(^\text{299}\) and EU institutions. On this basis, the partners developed the following modules:

- management process in the media;
- work of regional correspondents;
- European integration and the media, and European integration and media legislation, including e.g. Bulgarian legislation for radio and TV, approximation of Bulgarian law in the accession context, united Europe from the ancient times to the mid-20th century, public opinion and European integration, EU and media, EU programmes, Eastern Europe and accession challenges, and Bulgaria in the accession process;

- information technology in journalist work, and

- specialist terminology in the main Community languages.

Training materials were published in the form of handbooks, e.g. "Civic society and the electronic media", "European integration and the media", "Management and legislation in the electronic media", "Politics, media and the European Union". Other handbooks, e.g. "Journalistic notebooks", "Information technology for journalists", "Change management in the media", and "Introduction to radio and TV journalism", were prepared for printing at the time of reporting on the project outcomes. Language and information technology courses were delivered by Bulgarian teachers; other courses were held by EU lecturers, but Bulgarian teachers were trained to deliver them in the future. The courses were attended by over 150 practising journalists, mainly from the Bulgarian National Radio and TV. As an additional project outcome, a Centre for Continuing Education of Journalists was set up at the St. Kl. Ohridski University, with the Technical University of Sofia to play a major role in the development teaching materials and training in the use of modern technologies. Some arrangements were also made at the end of the project to ensure further co-operation between the academic and non-academic partners. Firstly, the non-academic partners were invited to be members of the Centre's management board. Secondly, short-term agreements for the delivery of courses were already signed during the project. Thirdly, longer-term co-operation agreements were negotiated with several media institutions at the time of reporting on the project outcomes.

Romania funded one project in customs, one project in information technology and one project covering several areas. Five universities\(^\text{300}\) involved in the customs project set up Centres of Excellence in European Customs Procedures. On the basis of an analysis of training needs, the universities developed in co-operation with their partners the following courses:

- multilateral framework for international trade, including customs policy, non-tariff policies, export promotion policies, trade policy regulations in Romania, the World Trade Organisation, trade blocks, Romania's integration with the EU;

- international business and trade, including Romania's framework for business and trade, the company in international business environment, international contracting, foreign trade operations, international payments, international trade financing, taxation in Romania; and

- Business English.

\(^{299}\) Bulgarian National Radio and Television, State Telecommunication Commission, Television "7 days", and Association of Bulgarian Broadcasters.

\(^{300}\) Academy of Economic Studies in Bucharest, A. I. Cuza University, Iasi, Babes-Bolyai University, Cluj-Napoca, Ovidius University, Constanta, and West University of Timisoara.
The original contents of the courses were modified on the basis of feedback provided by trainees at the end of the first project year. Training materials for the courses were published in two volumes, and two books, "EU customs policy" and "Romania’s trade policy", were prepared for publishing at the end of the project. Training was based on active learning methods, including simulations, debates and case studies, and was delivered by Romanian trainers trained by EU partners. The courses attracted over 130 participants from public administration and its regional bodies, and professional bodies participating in the project\(^301\), as well as non-governmental organisations. At the end, each trainee was required to prepare a final paper and obtained a certificate. Moreover, they evaluated the courses in a specially designed questionnaire. Finally, the project encouraged the partners to undertake several follow-up initiatives. Firstly, an agreement was signed with the General Directorate of Customs for another series of institution building courses. Secondly, all five universities applied for the accreditation of the Centres of Excellence with full support of the Chamber of Commerce. Thirdly, the Academy of Economic Studies in Bucharest and the French project partner agreed to offer jointly a Master’s programme in International Business.

In the project focusing on information technology, the University of Pitesti, the Transilvania University of Brasov and EU institutions developed ECDL\(^302\)-accredited courses and English language courses in accordance with training needs identified by the non-academic project partners\(^303\). The courses were organised in accordance with the structure of ECDL courses, and covered basic concepts and information technology, using computer and managing files, Word processing, spreadsheets, databases and filing systems, and English for public administration. Training was based on ECDL handbooks and several information technology handbooks developed by Romanian trainers. The courses were delivered mainly by Romanian trainers. The ECDL-accredited courses were attended by 814 participants and the English course by 70 participants from the non-academic project partner institutions as well as local government bodies. Upon completion of the courses, the trainees obtained certificates. For the delivery of courses in the future, agreements were signed between the academic and non-academic project partners.

The last project, which involved three universities, local government and professional bodies\(^304\), other non-academic institutions and EU partners, covered a wide range of areas and a large geographical zone around Bucharest. To provide an organisational framework for courses, the partners set up a Regional Training Centre for the Muntenia Region in Pitesti and its satellite structures. On the basis of an analysis of training needs, the following courses were organised with and without Tempus funding:

- modules offered by the EU partners, including European administrative law, European management – ideas, features, specific measures, impact on the activities of target groups, and information technology;
- modules developed in the project, including evaluation techniques in European continuing education; role of communication in European integration; European management: fundamentals of enterprise economics for managers and engineers, and development of training for and in an enterprise; and European languages: information technology and language learning; and
- miscellaneous courses developed and delivered without Tempus funding: specialised engineering topics, French language, Social assistance for children, European management: management of human resources, logistics, and information technology.

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\(^{301}\) Ministry of Industry and Commerce, General Directorate of Customs and its regional agencies, and Chamber of Commerce and Industry in Bucharest.

\(^{302}\) European Computer Driving Licence, an internationally recognised qualification attesting to computer skills.

\(^{303}\) Chamber of Commerce and Industry and Agencies for Employment and Training of Arges and Brasov, and Foundation for Promotion of Small and Medium Enterprises in Brasov.

\(^{304}\) University of Pitesti, Valahia University, Targoviste, and University of Craiova; department, prefecture and/or municipal authorities of Arges, Dambovita Pitesti and Targoviste, School Inspectorate of Arges, and Chambers of Commerce and Industry of Arges and Dambovita.
Training materials were produced in the electronic form, as well as in the form of Power Point presentations, transparencies, etc. The courses were delivered by the EU partners, but Romanian teachers were trained to deliver them in the future. All courses jointly were attended by over 100 participants from the non-academic partner institutions, the Ministry of Education, universities and companies. Further co-operation between the universities and the non-academic institutions is based on agreements signed as a result of the project. These include long-term agreements with trainers from the partner institutions, an agreement with the Chamber of Commerce and Industry in Arges to carry out a questionnaire-based analysis of training needs in enterprises, and agreements with local government bodies to define training needs in line with the future economic development. Finally, it is also worth mentioning that the Muntenia Regional Centre became a member of the ASTEC, a national association of continuing education centres set up in Romania within the Tempus Programme.

Institution building: summary and general comments

Institution building projects should be reviewed primarily in terms of their contribution to the development of expertise required to adopt and implement the Community acquis outside higher education because they were launched as a Tempus package specifically designed for this purpose. However, as training and networking projects, they may also be seen as a part of the universities’ efforts developing their capacity to deliver continuing education, lifelong learning and links with the external environment.

As regards the development of accession-related expertise in other sectors, Tempus projects did undoubtedly provide extensive support for this process in all four candidate countries. A direct link between Tempus outcomes and the progress in the implementation of the acquis is by definition hardly identifiable. However, the impact of Tempus institution building projects may be seen through a wide spectrum of training topics as well as the size and range of target groups in all four countries.

First of all, it should be emphasised that, while individual project consortia focused more clearly on the Community acquis and others on areas of professional competence not directly linked to the acquis, Tempus projects taken jointly combined a "compact version" of European Studies with "classical" continuing education or retraining. Thus, trainees in the target sectors enhanced their understanding of the Community acquis and accession-related issues, as well as developed general or field-specific expertise required for the performance of their regular professional tasks. Moreover, trainees were equipped with both theoretical and practical knowledge as courses and other training events usually combined lectures, presentations of case studies and good-practice examples, discussions and often also project work and exercises.

Courses or modules focusing on the Community acquis introduced trainees into a wide range of issues, these including the history, institutional, legal and financial framework of the EU as well as EC sector-specific legislation, policies and support programmes, and often combined with relevant developments in the candidate country. The thematic scope of training organised for target groups is not fully reflected in the statistical distribution of projects by area as projects covering a wider spectrum of EU-related issues often provided a more profound insight into sector-specific acquis, and courses in sector-specific projects also included more general modules. Overall, in addition to increasing their general awareness of EU issues, smaller or bigger target groups in all four countries enhanced their understanding of the acquis for the priority sectors and areas of the pre-accession strategy where training was necessary to accelerate progress towards meeting the EU membership criteria. These include EC law and polices for environment and agriculture, competition, trade and finance, the EC internal market, the EC social and regional policy, as well as the acquis for justice and home affairs. In addition, however, each of the four countries trained under Tempus a number of professionals in the acquis for other areas, e.g. health in Hungary, transport in Hungary, Poland and Bulgaria or industrial standards and education in Bulgaria and Romania. While these areas were not specifically listed as the top priority in the pre-accession strategy, Tempus facilitated in this way overall preparations for the EU accession.

See: Section 2 in Part I of the study.

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undertaken in the individual countries in accordance with specific needs of target institutions and organisations.

Looking into the breakdowns by area, training contents and target groups, it may always be argued that more support could have been provided for the development of *acquis*-related expertise in specific sectors. For example, within the priority sectors of the pre-accession strategy, Bulgaria and Romania could have funded a larger number of projects in agriculture and justice and home affairs. In the area of justice and home affairs, Hungary could have targeted the judicial sector in addition to police, army, border guard, customs officers and disaster prevention staff. Poland could have launched projects focusing specifically on the *acquis* for the business and finance sectors. However, one should bear in mind that Tempus budgets in the two final years were relatively small and institution building, like the harmonisation of curricula for the EC regulated professions306, competed for these limited funds against a number of other top priorities. Thus, “gaps” in the key sectors could have been filled only if the institution building component of the Programme had remained open for the candidate countries for a few more years towards or until the accession.

Topics related to broader professional development were introduced into institution building projects as a response of higher education institutions to the new legislation in the candidate countries which provides for continuing education or regular retraining of civil servants and other professional groups. Within this component of the projects, a large number of professionals in all four countries upgraded their specialist knowledge and skills in a range of areas which could hardly be summarised. Courses covered national sector-specific legislation, institutional and financial frameworks, and specific narrower areas such as policy and strategy development, management of public funds and services for central and local government, accounting and auditing for the finance sector, Geographical Information Systems for environmental experts or food processing for the agricultural sector. Furthermore, trainees from target institutions and organisations developed their general knowledge and skills, e.g. human resources management, project management and communication skills in all four countries, and language and computer skills mainly in Hungary and to a slightly lesser extent in Bulgaria and Romania. Language and computer training, as the two desirable elements highlighted during information and promotion campaigns for Tempus applicants, were clearly a weakness of institution building projects in Poland. Generally, this part of Tempus institution building activities did certainly increase the overall effectiveness and efficiency of target institutions and organisations, thus also facilitating indirectly the implementation of the Community legislation and policies.

Tempus institution building projects also proved effective in reaching various target groups and a large number of professionals across the four countries. The training network created in Tempus institution building projects covered all regions in the four countries, even though the proportion of higher education institutions involved in the projects varied from around 50% in Hungary, Bulgaria and Romania to only ca 30% in Poland307. As regards the types of target institutions and organisations, the main beneficiaries are regional and local administration (70-80% of projects in each country), public administration (between 12% and 60%), professional bodies and associations representing mainly business and industry (between 25% and 48%), and non-governmental organisations (between 6% and 25%).308 The other ones include in particular educational institutions, enterprises and the media.

The figures confirm that Tempus institution building reached successfully its targets in the administrative and private sectors as two of the three priority sectors listed in the pre-accession strategy. However, more could have been offered to the third judicial sector, in particular in Hungary, Bulgaria and Romania, as judicial administration represented only a small fraction of the figures given above for public, regional and local administration.

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306 See: Section 1.1.1.1 in Part II of the study.
307 For details, see below.
308 For target group breakdowns, see: Annex 1, Table 11.
Finally, to illustrate the scale of impact, it is worth mentioning that the total number of trainees, or “Tempus graduates” as they were called in some projects, reached almost 6,450 in Hungary, almost 12,000 in Poland, and exceeded 7,000 in Bulgaria and Romania. In addition, a multiplier effect was achieved in all four countries through various dissemination events organised within the projects as well as special seminars and meetings held in target institutions after the completion of the projects.

- Although the priorities for all four countries focused clearly on training, the impact of Tempus institution building extended beyond the improved level of expertise in target groups, with some project outcomes providing at least modest or indirect support for the overall accession preparations.

Firstly, numerous publications produced in Tempus as training and supporting materials did and/or may still serve various purposes. For example, specialised publications, such as “Bulgarian administrative law”, “Romanian system of administration: legal basis and practice”, “EU law in business” in Poland, “ABC of Bulgarian taxation and social security”, “Water pollution, monitoring and treatment” in Romania or “Agricultural law” in Hungary, are an ideal reference book for professionals. For those who evaluate the state of play in various sectors or develop legislation and policies, Tempus offered studies and reviews, e.g. reports on professional integration systems in the EU countries and their transferability to Romania or reviews of legislation for local government in the EU countries and Bulgaria. Other documents such as a development strategy for a province and an operational programme for regional development in Poland may be used as models by other institutions and regions. Finally, practical guidelines in “Manual for local government” or “European programmes: a guide” in Bulgaria, “Services for investors in Poland: a handbook for civil servants” or “European grant management: a handbook for project managers” in Poland facilitate the implementation of regular and accession-related and other tasks.

Secondly, the preparatory work carried out by several Tempus project consortia in Bulgaria actually led to amendments in the national law, e.g. penitentiary legislation, regulations for local government or the register of speciality options for higher education, and the restructuring of pilot municipalities.

And thirdly, Tempus projects contributed to the establishment of closer links between non-academic institutions in the candidate countries and their counterparts in the EU Member States. This was achieved primarily through the in-built twinning mechanism of Tempus projects which are implemented jointly by all project partners. In addition, twinning was supported through study visits to EU institutions, another element in the recommended structure of institution building projects, which were organised for trainees on a larger scale in Hungary and Poland and on a slightly more modest scale in Bulgaria and Romania.

- While Tempus institution building activities were not specially designed to support the reform of higher education or the development of lifelong learning, the projects funded in all four countries contributed to a greater or lesser extent to a number of desirable developments in these areas.

Firstly, unlike continuing education projects as their less successful predecessors, institution building projects developed close, strong and lasting links between higher education and various non-academic institutions and organisations, including central and local government bodies, professional associations, public and private companies, and non-governmental organisations. This was achieved through the joint implementation of activities throughout the project cycle, starting from the identification of training needs and/or the definition of training programmes, and ending with the provision and evaluation of training. At least to some extent, such close co-operation was encouraged through the predefined structure of projects and recommendations given during information campaigns for Tempus applicants. However, even if “stimulated” externally at the beginning, genuine links created between the academic and non-academic sectors in all four countries were confirmed by numerous agreements for the continuation of courses and various other follow-up initiatives, including the establishment of networks and joint bodies.

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See: Section 1.2 in Part II of the study.
Secondly, Tempus institutions building projects developed the capacity of universities in all four countries not only to train staff from specific sectors in EU- and accession-related issues, but also – more generally – to deliver continuing or further education. The most evident and tangible project outcomes in this context were a large pool of trainers trained in both EU-related or other topics and methodology of training, and a vast amount of high quality and often multimedia-based training materials. However, Tempus did much more to develop the capacity of universities in this area by encouraging them, again partially through the recommended features of projects, to adopt a structured approach to training. The key elements in the structured approach included:

- analysis of training needs to ensure the relevance of courses, which was carried out either through questionnaire surveys in a fairly large number of projects or at least through consultations with target groups;
- development of curricula and training materials, which was included as a "standard element" in all projects, but also as an activity involving target groups in many projects;
- choice of suitable training methodology, which in most or even all institution building projects meant combining traditional lecturing with more interactive methods;
- training of trainers organised as a "standard element" of projects;
- on-going and final evaluation of the relevance and quality of training, which was carried out through appraisal questionnaires in a fairly large proportion of projects, though was still more often based on oral feedback given by trainees;
- certification or validation of learning achievements, an area where considerable progress was made as compared to the continuing education projects, and where even credits were introduced for adult learners by single project consortia, but which may still deserve more attention in some universities;
- arrangements for the continuation of training in the future, an element which was clearly a major strength of institution building projects.

Even though, as indicated above, some of the recommended elements were not included by all project consortia, Tempus institution building projects created what may be called “centres of expertise” in acquis-related training and continuing education. Set up as separate units within the university structure or as teams of teachers/trainers equipped with adequate resources, such centres exist now in a fairly large number of higher education institutions which were involved in institution building projects. These include 18 of 30 public institutions in Hungary, 28 of 90 of public universities and 3 of 90 non-public schools in Poland, 16 of 29 public universities and 3 of 5 non-public universities in Bulgaria, and 23 of 48 public universities in Romania. The "centres of expertise" in all these institutions are well prepared to serve as countrywide networks for lifelong learning initiatives, which would be an indirect contribution of Tempus to the implementation of the acquis for the education sector.

Thirdly, as a spin-off effect, institution building projects enhanced the European dimension of degree programmes and extended the range of options available to students through the introduction of EU-related courses. It is worth noting in this context that new courses were introduced in the fields of study, such as law or agriculture, where the contribution of Tempus to the modernisation of degree programmes was rather limited.310

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310 See: Section 1.1 in Part II of the study.
In the context of both the preparations for the accession and the development of the capacity to deliver training, institution building projects were clearly a Tempus success story. Regardless of some minor gaps or weaknesses, institution building was a large-scale, cost-effective operation with extensive and long-lasting impact in which more could have realistically been achieved only if the Programme had not been phased out for the candidate countries. Indeed, the decision to phase out the Programme seems to be premature in view of the fact that much was still to be done for the accession and that, unlike curriculum development, institution building activities as such could not be continued in the regular EU programmes.

The success results from an ideal combination of a clear goal of the EU accession, a common cause to be advanced through joint efforts of the academic and non-academic sectors, a stimulating national framework set by the new legislation for the retraining of professionals, and a structured approach to training. The same combination is a basic precondition for the sustainability of outcomes achieved in institution building projects. Two elements, national legislation and structured approach to training, and seem to be well established in the candidate countries. In turn, the European context will continue to provide strong incentives for the organisation of both specific institution building courses and various other training activities beyond the accession. Firstly, the EU Member States are expected to adjust regularly their administrative capacity to the evolving needs of the acquis, and the state of play in this area is reviewed periodically by the European Commission. And secondly, with lifelong learning as one of the top priorities in political agendas, universities will be called to increase constantly the learning opportunities for adult citizens.
IV. Main findings and general conclusions

The impact of Tempus in the four candidate countries within the broad accession context followed general similar lines. These reflected overall convergent aims of reform strategies and common European challenges, a similar orientation of priorities defined for Tempus within this broad accession context, and the same objectives predefined for Tempus projects in all countries. Within the generally similar lines, the impact varied to some extent between the countries, depending on country-specific needs, the period during which certain issues were promoted in Tempus priorities, the scope of the specific priorities and the response of universities to the priorities.

The conclusions concerning the contribution of Tempus towards the achievement of various goals set for higher education in the national reform context and in the European context, as the broad accession context, are followed by comments on the overall impact of the Programme and its sustainability in the four countries. In all sections, a summary of or references to the relevant Tempus outcomes are included to support the conclusions and comments.

Tempus in the context of national higher education reform

Development of legislation, strategies and other arrangements at national level

1. Since its beginning, Tempus has been designed primarily as a bottom-up programme for universities and thus as a tool for the implementation of reform. However, it contributed in some ways to the development of legislation, strategies or other arrangements at national level.

   1.1 The Programme inspired higher education legislation and policies in so far as certain “European issues” were first promoted in Tempus and emerged subsequently at national level, in particular in Hungary and Romania. Institutional development plans, ECTS-based credit systems and internal quality assurance systems appeared first in Tempus and were then introduced into law in Hungary and into law or national initiatives in Romania. In Poland, its influence may be seen at “national level” in so far as ECTS-based credit systems and quality assurance systems were introduced as a requirement for accreditation by inter-university accreditation commissions.

   1.2 In all four countries, the expertise developed by academic teachers participating in Tempus projects was used through their involvement in working groups set up by the national authorities to design, for example, national accreditation or quality assurance systems, or in various national bodies.

311 Detailed outcomes, comments and figures are included in the relevant chapters and annexes.
1.3 Tempus consortia involving national bodies developed proposals for amendments in higher education law in Bulgaria, national strategies for higher education funding in Hungary and Romania, and concepts of accreditation and credit systems in Hungary. Single universities in Bulgaria and Poland prepared proposals for model curricula, curricular requirements and standards in one or two areas of study.

1.4 The specific outcomes achieved in Tempus projects at university level were integrated, for example, in the concepts of quality assurance or accreditation systems which were being developed by the national authorities in Romania and the inter-university accreditation commissions in Poland.

Regardless of the differences between the countries, the Programme seems to have influenced policies and arrangements at national level more as a spin-off effect of its priorities for universities and projects implemented by universities than through its direct support. The direct support was provided through Complementary/Compact Measures. The (potential) role of this Tempus action seems to have been underestimated in view of the fact that national legislation, policies and various arrangements were being only gradually developed between 1994 and 2001 in all four countries. On the one hand, the opportunities offered through Complementary Measures between 1994 and 1997 could have been used to a larger extent, in particular in some countries.

The limited use of the CMEs may be explained at least by several reasons. Firstly, Tempus was generally perceived as a programme for universities, the CMEs were only a complementary action in the Programme, and policy development at national level was only one of the options available within the CME strands, with all the other ones being addressed to universities. Secondly, the action was not promoted within the countries or in various national bodies as extensively or intensively as the Tempus actions for universities. Thirdly, the financial support for individual CME projects was rather limited as was their duration. Fourthly, the limited use of the CMEs may be also related to the inertia in the national bodies, though it should also be emphasised that the action was phased out in Tempus exactly at the time when policy development and planning were gaining momentum in the four countries.

**Implementation of reform within universities**

2. Supporting the implementation of reform within universities, Tempus focused generally more on various aspects related to the modernisation of teaching or, more precisely, degree programmes rather than on the improvement of university management. These two broad areas for reform were not generally supported in parallel. Since the development of university management is by nature a gradual and lengthy process and the contribution of Tempus was rather modest, the slower changes in this area limited also to some extent the impact of the Programme in the modernisation of degree programmes. (See also: comments in point 3.1 concerning the management of Tempus in universities.)

**Development of university management**

3. Autonomy newly granted to universities in all four countries by the post-1989 law required fundamental changes in university management. These included in particular designing strategies for development in the new environment, adapting structures and adopting mechanisms for efficient management of activities, creating links with external environment, ensuring the quality of teaching, and upgrading university administration. These elements, if included, emerged in the priorities at different points of time and mainly at the end of the Programme. A broad approach to university management was reflected in the priorities for several years only in Hungary where, however, the impact of the Programme was to some extent limited by the changing legislative framework for the integration of public universities and colleges. As a result, targeting university management selectively, Tempus achieved rather modest impact in the area of strategic
planning and management, provided "only" initial support for quality assurance, and achieved very good results in terms of developing external links and increasing the efficiency of university administration.

Strategic planning and management

3.1 Overall, the tangible contribution of Tempus to the development of strategic planning and management was rather modest in so far as few projects were submitted and funded, and they involved a relatively small number of universities. This may be explained by the fact that the issue was listed specifically only in Hungary for several years and in Poland for the last two years of the Programme. Moreover, at the end of Programme when most of these projects were launched, the Tempus budgets were reduced, and planning and management was competing for funds with other key issues.

Nevertheless, Tempus can take some credit for putting strategic planning on the agenda of all participating universities in all four countries as it introduced the very concept of an institutional development plan already in 1995, which was earlier than in the regular EC programmes. Moreover, such plans were indeed taken into account in the assessment of applications. The quality of first plans, which were not infrequently general and/or driven by Tempus priorities, clearly indicates that strategic planning was then at an early stage of development. In this context, the Programme also created, though at a later stage, a good basis for strategic planning and management through the extensive training of university leaders and staff in the four countries.

Institutional plans and overall development strategies were gradually developed by universities without substantial support from the Programme. While most universities in the four countries already had their institutional development plans in the late 1990-ties, few of those were actually prepared in Tempus projects. Within overall institutional development plans, only several universities used Tempus funds to develop strategies or plans for university services (e.g. libraries in Bulgaria, Hungary and Poland) or an area of management or activity (e.g. staff development in Bulgaria, and fundraising in Romania).

Similarly, structural changes designed to improve university management were undertaken largely outside Tempus, though a few universities in Bulgaria, Hungary and Poland used Tempus funds to start the restructuring process or to support changes initiated earlier. However, more substantial support was provided by the Programme, though mainly in Poland and Bulgaria and on a smaller scale in Hungary, for the development of management tools such as computerised information systems at central level. In Romania, Tempus created a framework for modern management in several universities which drafted or revised and adopted university charters based on those at EU partner institutions, but its support ended at this initial stage.

Various processes in strategic planning and management would have been and were initiated in most universities in the four countries without substantial contribution from Tempus, and reached an advanced stage at least in some countries and/or in some universities. However, structural changes were among many other priorities in the universities' agendas and other key items in their budgets. Thus, the expertise of EU partners and Tempus funds could have been used more extensively to accelerate change processes in general, and in particular to encourage and support universities where the central level was less responsive to innovative concepts or where difficulties emerged at the implementation stage.

Management of Tempus in universities

The development of strategic planning and management can be illustrated by changes in the management of Tempus in universities as the Programme itself was implemented in the conditions of autonomy and encouraged the maximum use of autonomy through its bottom-up approach.

The quality of institutional development plans submitted in 1995 and 1996 was, as mentioned above, rather low in all four countries, and Tempus projects were originally prepared mainly by EU partners,
though universities in the four countries were gradually taking over the role of co-ordinators and contractors. The role of international relations offices was generally limited to the dissemination of information and distribution of materials. Projects not infrequently covered a rather narrow scope and involved small groups at department level. Cross-curricular issues were tackled separately in several department- or faculty-level projects. Several units were sometimes set up within a faculty for the same or similar purposes. In brief, this was a situation where international relations were administered on a day-to-day basis rather than managed, and autonomy was used extensively at department and faculty level while it was not yet managed effectively at faculty and university level.

The years from 1997 onwards saw more elaborated institutional development plans as well as pro-active and co-ordinated approaches at faculty and university level in the four countries. International relations offices in many universities were already initiating and carrying out various promotion activities, offering assistance and actually involved in the development, implementation and dissemination of Tempus projects. Many or even most applications were prepared by universities in the four countries in consultation with EU partners rather than by EU partners for the universities in the four countries. The proportion of projects co-ordinated by universities in Bulgaria, Poland and Romania and in Hungary reached around 90\% or 100\% respectively in 1997 and 100\% in all four countries in 1999. Between 1997 and 1999, Polish universities were contractors in slightly less or more than 90\% of projects, and the corresponding figures for the other three countries rose from around 50\% to 100\% in Bulgaria, from around 80\% to 100\% in Hungary and from around 60\% to 80\% in Romania. Gradual changes in management were also reflected in the growing number of Tempus projects designed for faculty or university level and involving wider circles of faculty or university stakeholders, and effective co-operation and cross-fertilisation between various projects at faculty, inter-faculty and university level in all four countries.

These changes were taking place as a result of various processes and initiatives within and outside universities. However, they may also be seen as a cumulative effect of Tempus university management projects (see: below) and, more generally, of the "exposure" to models of management adopted in EU partner institution through all Tempus projects.

Universities and their external environment

3.2 As a cumulative effect of projects focusing first on continuing education, and subsequently on university management and institution building, the Programme contributed gradually between 1994 and 2001 to the opening of universities to the external environment.

With a few exceptions, "external environment" in Tempus meant mainly selected or specific sectors and professional groups rather than society at large. This was clearly because, in accordance with the national priorities, most of the projects were specifically designed to introduce training courses or supported other initiatives in the areas of strategic importance to the economy or the accession process. Thus, through all these projects, links were established with public administration and local government bodies, various public-sector institutions and organisations, business, industry and non-governmental organisations. In so far as the countries can be compared, universities in Bulgaria, Hungary and Poland seem to have established in Tempus more extensive links with public administration, local government and various public-sector bodies than with enterprises. Romania, where partnerships were also created between universities and public institutions, clearly outperformed the other three countries in the development of university-industry co-operation. Investing consistently throughout the Tempus years in various initiatives involving industry, Romania created countrywide networks which bring together a large number of universities and enterprises.

As a more tangible contribution, Tempus set up a variety of units which provide an institutional framework for links with the wider world. These include hundreds of continuing education and other training centres in all four countries, as well as technology transfer units mainly in Hungary, Poland and Romania,
careers services and/or student counselling centres mainly in Poland and Romania, and public relations, promotion or information offices mainly in Poland.

External links were developed according to the same pattern in all four countries. In the first years, co-operation between universities and non-academic institutions and organisations seems to have been “imposed” by Tempus priorities. Non-academic institutions and organisations were more often included in the list of partners than actually taking part in the activities, and the projects were not infrequently ad-hoc and one-off initiatives. The projects launched towards the end of the 1990-ties were already based on networks, with non-academic partners fully involved in various activities. Links created in most of the recent projects were formalised in co-operation agreements and resulted in various joint follow-up initiatives. While the co-operation with non-academic partners did not cover the joint review of degree programmes in the context of labour market needs, it brought some spin-off effects for degree programmes such as the introduction of new courses and the placement of students in companies.

This transition reflects changes taking place within universities, but also within the Programme itself where an increasingly stronger emphasis was placed in the selection and monitoring of projects on networking and joint follow-up activities.

Quality assurance

3.3 Arrangements for external evaluation and accreditation at national level were developed in the four countries gradually and at a different pace. In all four countries, however, internal quality assurance systems within universities, which need at least several years to be developed and fully implemented, were still a new issue at the end of the 1990-ties. The issue emerged in Tempus earlier than in national policies and only for the two final years of the Programme. Moreover, national arrangements for internal quality assurance systems were in place only in Hungary at the time when the most recent projects were implemented in Tempus.

In this context, two-year Tempus projects were a pilot exercise which introduced the issue into university agendas, contributed to the emergence of quality culture through training activities and discussions involving wide circles in universities, and provided a basis for future developments. In Bulgaria, Tempus projects introduced self-evaluation systems in a large proportion of universities as required for accreditation, some universities combined elements of self-evaluation and quality control in their systems, and comprehensive quality assurance systems were yet to be developed. In Hungary, Poland and Romania, quality assurance systems were established in a few universities where preparations were more advanced, while other universities set up units responsible for quality, developed tools and could only start to implement systems.

University administration and services

3.4 Unlike the development of strategic planning and management, the opening to the wider world and the introduction of quality assurance, which are all lengthy processes, the modernisation of university administration and services is a specific task which can be accomplished within a relatively short time. In general, Tempus tackled this task successfully, increasing substantially the efficiency of university administration and/or extending the range of services. Its impact varied, however, from one country to another. The most extensive impact was achieved in Poland where Tempus funds were used to computerise various administrative activities, to restructure and/or modernise finance services, international relations offices and libraries, and to set up careers services in a fairly large proportion of universities. This was at least partly related to the fact that the modernisation of administration was promoted in the priorities for several years and individual Tempus projects involved at least several universities. In Bulgaria and Hungary, where university administration was also computerised in some universities, a large number of universities upgraded international relations offices or set up new units for international co-operation, and/or
modernised fully their library services. In Romania, Tempus projects set up student counselling offices and created or modernised international relations offices in a large proportion of universities. Apart from single initiatives, the issue of computerisation did not appear in Tempus projects, and changes introduced in several libraries were less advanced than in the other three countries.

Establishment and strengthening of degree structures

4. Another formidable task facing universities and highlighted in the strategic context for Tempus in the four countries was the establishment or strengthening of the degree structures in accordance with the post-1989 legislation and/or reform strategies. This task was fully reflected in the Tempus priorities where the development of new types of programmes or programmes leading to the newly established degrees appeared as the key item for projects launched until the academic year 1997/98 in all four countries. With a relatively large number of projects submitted and funded in response to this priority, the Programme played generally a substantial role in building the new structures in all four countries. However, its impact and “relative importance” depended very much on the specific needs in each of the four countries.

PhD programmes introduced or restructured in Tempus were instrumental in the rapid and comprehensive development of education at this level in Hungary where the previously existing degree was replaced with PhD equivalent to that granted in the EU. By introducing new programmes and restructuring the existing programmes in a number of universities, Tempus in Poland actually encouraged and accelerated the transition to two-cycle programmes, which was not required by law but promoted in the reform strategy. In a fairly large number of universities in Bulgaria, Tempus supported and facilitated the process of establishing two-cycle programmes in accordance with the higher education law. In Romania, the Programme was a major breakthrough as it introduced short-cycle practically oriented education in the areas of key importance to the economy in most universities and first programmes leading to the previously non-existent Master’s degree in various areas.

Modernisation of existing curricula for degree programmes

5. At the same time, high priority in the reform strategies in all four countries was given to the modernisation of existing uniform, overloaded and inflexible curricula which covered a narrow scope, placed a heavy emphasis on theoretical knowledge and were not adapted to the needs of the labour market. Like the development of the new degree structures, the modernisation of existing curricula was one of the main objectives of a large number of Tempus projects launched until the academic year 1997/98. The impact of the Programme indicates clearly that stronger emphasis was placed in the national priorities and projects on selected aspects of rather than a global approach to the modernisation of curricula.

New courses and updated course contents

5.1 Generally, the projects focused on the development of new courses and the updating of contents of selected existing courses within a curriculum rather than on the review and restructuring of entire existing curricula. As a result, Tempus created “islands” of new programmes and new or updated courses which co-existed with those where more extensive reforms were needed. This may be explained by several reasons. Firstly, the modernisation of existing curricula was understood in the national priorities mainly as the introduction or updating of programmes and courses in the areas related to political, social, economic changes or technological changes. “Restructuring”, if included in the priorities, did not indicate desirable directions of changes. The only exception was Poland’s priority concerning the transformation of one-tier programmes into two cycles, which covered the review and restructuring of curricula as well as the introduction of a credit system. This was, however, related not so much to the modernisation of existing curricula as to the change in the degree structure. Secondly, this resulted from the lack of strategies and co-ordination at faculty level as combined with the bottom-up approach, especially in the first years of
the period covered by the study. Thirdly, a piecemeal approach to the modernisation of curricula may have been the only feasible as well as an easier option, especially in the first years when trends to preserve the status quo were stronger than those towards innovation.

Extended range of options and improved quality

5.2 In this context, Tempus extended considerably the range of options and improved the overall quality of degree programmes. This was achieved through the establishment of a large number of entirely new programmes and the introduction or updating of hundreds of courses in the overwhelming majority of universities in all four countries. The quality of provision was also improved through the use of teaching materials developed or updated and the equipment purchased in the projects. While, partly due to the methodology of the study, a transition from the teacher-centred to the student-centred approach would be rather difficult to follow, Tempus projects clearly resulted in the wider use of information technology in teaching methodologies. Information technology was introduced on a larger scale in various areas, ranging from engineering and technology to humanities (e.g. in Bulgaria) and teacher education (in all four countries).

Regardless of some differences between the four countries, this investment in diversity and quality was made mainly in the priority areas related to political, social, economic and technological changes, and on a modest scale in other areas, e.g. teacher education, humanities and arts. In this way, Tempus increased "in a leap" the relevance of programmes to the needs of the labour markets in the post-1989 period in all four countries. At the same time, the strong emphasis placed on a number of strategic areas may also be seen as less desirable from the point of view of overall or balanced development of university curricula.

Structural changes and flexibility of curricula

5.3 Even though the national priorities did not place special emphasis on the restructuring of entire programmes, Tempus played a role in structural changes within existing curricula and encouraged first steps towards flexibility of curricula. Further-reaching structural changes were taking place mainly as part of changes in the degree structures, whereas the flexibility of studies was encouraged in Tempus through the priority concerning the introduction of the ECTS and/or ECTS-based credit systems. These developments were taking place in the projects mainly towards the end of the 1990-ties.

Since extensive restructuring of curricula was undertaken mainly as part of changes in the degree structures, more was achieved in this respect in Poland and Bulgaria where universities were transforming one-tier programmes into two cycle programmes. The restructuring of one-tier programmes in Poland often involved the reduction of the number of hours, changes in the proportion of subjects and a shift towards practical skills, and the introduction of the ECTS or ECTS-based credit systems referred to separately below. As a result, such model programmes were established in a number of areas and in a fairly large proportion of universities, and actually encouraged similar changes in other faculties or universities. In Bulgaria, Tempus contributed to the establishment of modern curricula through the development of two-cycle programmes for a fairly large number of universities, which involved not only the restructuring of existing programmes for two cycles, but also the reorganisation of curricular contents into modules as required by the national law. The experience shared by EU partners was also of major importance because the transformation of one-tier programmes was not limited in the projects to the mere reduction in the number of hours for courses and the shifting of courses between the two cycles.

In all four countries, Tempus increased the flexibility of studies through the introduction of the ECTS or ECTS-based credit systems, which was also combined with some structural changes in existing curricula. In this respect, Hungary and Bulgaria outperformed the other two countries by establishing the ECTS or ECTS-based systems at faculty level in a large number of universities, and Poland was well ahead of the other countries as regards the range of areas where the ECTS or ECTS-based systems were introduced.
Generally, Tempus can take the full credit for encouraging the establishment of credit systems in the four countries because, as mentioned earlier on, this issue emerged first in the Programme and was only at a later stage introduced into the national legislation or national-level initiatives in Hungary, Poland and Romania.

It is also worth noting that, though Tempus did not support the introduction of credit systems on a national scale, universities in the four countries were not lagging behind some of their partners in the European Union. Some EU countries have only recently established national credit systems for all programmes (e.g. Austria and Denmark) or for selected programmes (Germany and Italy). Others (e.g. France and the French Community of Belgium) are currently establishing such systems in response to the Bologna Declaration.

Degree programmes and labour market needs

5.4 Finally, as regards the relevance of degree programmes to the needs on the labour market, Tempus in all four countries responded to the immediate demand on the labour market through all new and updated programmes and courses in the various key areas related to the post-1989 changes. However, with a few exceptions, potential employers were not as a rule involved or did not play any active role in the development and updating of programmes or the review and restructuring of the existing curricula.

Curriculum development projects were used mainly as a “rapid response” instrument to launch programmes and courses in the areas of strategic importance to the economy, even if with no or limited involvement of potential employers. At the time most of the projects were implemented, co-operation with other sectors, if already established, did not cover degree programmes, and mechanisms to ensure regular adaptation of curricula to the specific and evolving needs of the labour market were generally not yet in place.

Progress in this respect can be only gradually made as a result of various pressures inside and outside the universities, but also as a spin-off effect of other Tempus projects developing closer links with the external environment and introducing quality assurance systems (see: points 3.2. and 3.3.).

Changes in degree programmes: subject areas covered

6. In the projects which established new and modernised existing degree programmes, clearly more was generally done in all four countries to develop the priority subject areas linked to the post-1989 economic, political, social and technological changes, as well as to the European context (for European Studies, see: point 10 below). However, some differences between the four countries may be seen within subject areas, regardless of whether these were or were not specifically listed in the priorities (see: comments at the end of sections on subject areas in Part II). For example, Hungary clearly outperformed the other three countries in the reform of teaching in medical areas, with far-reaching changes introduced in Tempus by all of its medical faculties. In Poland, a fairly large proportion of universities established through Tempus fully modern curricula in natural sciences. Unlike the other three countries, Bulgaria improved the teaching of Community languages for non-language students in a large number of universities. Romania, especially as compared to Poland, invested effectively substantial funds to develop the teaching of social sciences. These differences result not only from the country-specific needs as reflected in the priorities, but also from the number and quality of Tempus applications submitted in response to the priorities. Some of the areas included in the priorities were clearly underrepresented in the projects funded in Tempus. This indicates a mismatch between the demand as expressed through the priorities and the supply of projects by universities, which is unavoidable in a bottom-up programme unless special encouraging efforts are undertaken by the national authorities.
Summing up...

7. Overall, Tempus brought about considerable and visible immediate improvements, and initiated and advanced various lengthy processes in both university teaching and management. Moreover, as a cumulative effect of all its projects, it contributed undoubtedly to changes in mentality and the emergence of a culture of change in all participating universities. All this should and did facilitate all other initiatives undertaken to reform and develop university teaching and management.

At the same time, however, the support provided by the Programme was rather unbalanced in so far as it focused heavily on teaching “at the expense” of management. In both areas, the support was in turn rather selective as the projects focused on some aspects of management, on some aspects of the modernisation of curricula, the academic quality of programmes rather than on their relevance to labour market needs, and on a number of subject areas.

The uneven and rather selective impact of the Programme in the context of higher education reforms may be explained by several limiting factors which set the framework for its implementation. Firstly, the national frameworks were not yet fully defined and evolving, and the Programme itself offered rather limited support for policy development at national level. Secondly, the national priorities themselves generally focused on selected aspects of the development of university management and the modernisation of existing programmes rather than promoting a global approach to transformations. Moreover, reforms were most urgently needed in the subject areas related to the post-1989 changes, and hence these were especially promoted in the national priorities for Tempus. Thirdly, universities were not prepared in the first years to “manage” properly the bottom-up approach and thus to ensure the maximum impact of Tempus projects. Fourthly, the national higher education reforms were in fact supported mainly through projects launched during only four years between 1994 and 1997, and universities were only gradually opening to further-reaching changes in that period. The years 1990-1993 were a start-up phase focusing on staff and student mobility, and the final two years of the Programme were devoted mainly to a set of specific accession issues, even if these covered also partly university management. Finally, during the four years between 1994 and 1997, various reform issues were tackled by universities at the same time and were in fact also competing for Tempus funds with European issues.

Tempus in the European context: the EU accession process and the Bologna Process

8. Tempus aimed to bring universities in the four countries – as in the other present candidate countries – closer to their partners in the EU, to establish a basis for co-operation, and ultimately also to pave the way for them to regular Community programmes. At the same time, it was used to prepare universities for the implementation of the goals of the acquis in the area of higher education, which are implemented through regular Community programmes and which have now also been taken up in the Bologna Process. Moreover, it served as an instrument facilitating the adoption or implementation of the Community acquis as a specific requirement of the EU accession process. These objectives were achieved to a greater or lesser extent in the Programme as a cumulative effect of all activities carried out from its beginning. Several steps made towards the EU as part of the national higher education reforms are reviewed above. A few others were encouraged specifically by the challenges of the European context.
Preparations for co-operation and participation in regular Community programmes

Partnerships and agreements for co-operation

9. First of all, the Programme opened the way for universities in the four countries to hundreds of multilateral partnerships, and Tempus partnerships established in an overwhelming majority of the more recent projects were actually formalised in agreements for co-operation in Socrates/Erasmus and, though less frequently, in Leonardo.

The larger number of agreements for co-operation in Erasmus resulted obviously from the fact that most Tempus projects covered the modernisation of degree programmes, carried out with limited or no involvement of non-academic partners, while a relatively small proportion supported the establishment of links with various sectors of the economy. In other words, the Programme focused clearly more on the academic aspects of education than on its relevance to labour market needs. The two aspects would have ideally been more balanced not only from the point of view of the national higher education reforms (see: point 5.4), but also in the context of the preparations for the participation in the regular EC programmes.

Comparability and transparency of curricula, and recognition of diplomas and study periods

10. Academic co-operation based on partnership in general and mobility in particular requires at least a certain degree of comparability and transparency of curricula. To facilitate mobility, the Community acquis and the pre-accession strategy for the candidate countries encourage universities to introduce various arrangements for the recognition of diplomas for academic purposes and study periods undertaken abroad. In this context, Tempus offered substantial support for the modernisation of curricula (see: point 5), assisted universities in their first steps towards the mutual recognition of diplomas, and achieved a lot in terms of facilitating the recognition of study periods.

10.1 A number of degree programmes modernised in Tempus, in particular in Poland, were considered by EU partners comparable to or compatible with those offered in their universities. In the context of the comments on the modernisation of degree programmes (see: point 5), it is worth noting that the programmes recognised by EU partners in this informal way were mainly those where universities restructured entire curricula, going beyond the introduction of new or the updating of selected courses.

10.2 A few projects led to the recognition or accreditation by international bodies, agreements and other formal arrangements for the joint delivery of programmes or double diplomas. The impact of the Programme in this area is more visible in Hungary which promoted consistently the issue in its priorities and established several new postgraduate programmes which are recognised at international level or delivered jointly by Hungarian and EU universities. The achievements in the other three countries are, however, also worth noting because single programmes at various levels in one or two areas were recognised by an international body or an EU university as a result of further-reaching changes in the existing curricula.

10.3 As regards the transparency of curricula and the recognition of study periods, Tempus allowed the four countries to outperform in a sense the EU Member States in the introduction of the European Credit Transfer System, which is also now a major issue in the Bologna Process. Comparing the four countries, more was achieved in Bulgaria and Hungary as the ECTS was introduced in some faculties of a large proportion of universities, and in Poland where the range of areas covered was much wider than in the pilot ECTS scheme for the EU Member States (1988-1995). However, since the ECTS was not infrequently introduced in projects which did not cover larger-scale student mobility, the system was still to be tested in the Socrates/Erasmus Programme.
Practical preparations

11. Finally, Tempus proved to be an effective instrument for more practical preparations for co-operation and mobility within or outside the regular EC programmes.

11.1 Project formulation and management skills were developed on a “massive scale” in all four countries. This is confirmed by the fact that university leaders, academic teachers and administrative staff in most of the universities in each country carried out successfully various tasks related to the functions of co-ordinators and contractors in the majority of the projects launched from 1995 onwards. (See also: point 3.1.)

11.2 The Programme improved considerably the efficiency of the university administrative units which are directly involved in international co-operation, such as international relations offices and finance departments, and improved the quality of other services, e.g. in libraries, which might also benefit incoming international students and staff. The impact of the Programme in this area varied to some extent between the four countries (see: point 3.4).

11.3 Some support was also provided in the Programme for the elimination of linguistic obstacles to mobility. Tempus improved the teaching of Community languages for both language and non-language students through the introduction of multimedia-based methodology and language courses for specific purposes in a large number of universities in Bulgaria and some universities in Hungary and Poland. Moreover, even though on a modest scale, Tempus projects increased the attractiveness of universities in the four countries for EU incoming students through the development of courses for various areas of study to be delivered in Community languages, mainly in English. These are available as result of Tempus in a larger number of universities and/or faculties and a wider range of areas in Hungary and Poland than in Bulgaria and Romania.

11.4 As regards the organisation of student mobility, the universities participating in Tempus projects adopted methods for the dissemination of information about study opportunities abroad and transparent mechanisms for the selection of students which are used by EU universities in the regular Community programmes. Preparatory language courses were organised when needed, but more attention should have perhaps been given to the cultural preparation of outgoing students.

Towards the common goals of the acquis and the Bologna Process for higher education

12. The three main goals of the Community acquis which have also now been taken up in the Bologna Process are lifelong learning, and enhanced European dimension and quality of education.

Lifelong Learning

12.1 The goal of lifelong learning emerged too late to be fully integrated in Tempus for the candidate countries as the priorities for the final years were defined in 1997. Nevertheless, in so far as this overall goal means creating opportunities for citizens to acquire and refresh knowledge and skills, Tempus projects taken jointly developed the capacity of universities to deliver training suited to the needs of target groups. It is true that, in accordance with the priorities and objectives defined for continuing education, university management and institution building projects, training activities were addressed to specific sectors and professional groups rather than to the general public. However, hundreds of training units set up in Tempus and the expertise developed by academic teachers can be considered a good basis for future lifelong learning activities addressed to a wider range of target groups.

The capacity to deliver training was built gradually in Tempus and, like in many other countries, further progress is still needed in this area. At the beginning, training activities were not infrequently prepared and organised without a clear methodology, though it would be unjustified to question their value as a pi-
lot exercise. At a later stage, and particularly in institution building projects, universities were moving towards a more structured approach to training. In most of the participating universities, this covered a thorough analysis of training needs, the development of curricula and training materials, the choice of a training methodology suitable for adults, and extensive training of trainers in area-specific issues and training methodologies. Moreover, training courses ended as a rule with an evaluation, even if it was still more often based on oral feedback from the trainees than on satisfaction surveys. While learning achievements were evaluated and confirmed by a fairly large number of the participating universities, assessment and certification are the two areas where further work would still need to be undertaken.

In this context, it is worth emphasising that the gradual improvement in the development and delivery of training was encouraged by the Programme itself. For example, a model structure of activities was introduced for potential applicants and seminars for successful applicants were held before the start-up of projects to ensure that the key activities and elements would be given proper attention during the implementation stage.

While the four countries were following the same trends, the capacity to deliver training was developed through Tempus by a much larger proportion of universities in Bulgaria, Hungary and Romania than in Poland. To illustrate the scale of investment made through Tempus, universities in Romania, where the Programme achieved most widespread impact, set up over a hundred of continuing education and other training centres.

**European dimension**

13. The European dimension of higher education was by nature enhanced in all participating universities in the four countries through the involvement of institutions from at least two and often more EU Member States in each Tempus project. Each of them added its own perspective to transformations taking place in university teaching and management.

However, in response to the national priorities for curriculum development projects in all four countries, Europe was also introduced into university curricula through full degree programmes or specialisation options in European Studies and courses covering either a wide range of or selected European issues. With such programmes, specialisation options and courses now existing in a fairly large proportion of universities, Tempus created a good basis for further development in this area. Comparing the countries, European Studies, European specialisation options and/or EU modules were introduced on a larger scale in Hungary, Poland and Romania than in Bulgaria.

In a breakdown by area of study, European specialisation options and modules in all four countries were established mainly in business and management, social sciences and law, though some universities in Poland also introduced European issues into their degree programmes in Community languages. Since Tempus as a Community programme offered unique opportunities to enhance the European dimension in this way, the national priorities could have also encouraged more strongly the development of "European" specialisation options and courses for a wider range of areas of study. These may have included, in particular, teacher education, humanities and arts. The integration of EU modules in teacher education would be a desirable investment with a clear multiplying effect as secondary schools in the four countries are now required to introduce or introducing on their own initiative European issues in their curricula. Arts and humanities were generally left outside Tempus as strong emphasis was placed in the Programme on the areas directly related to the post-1989 changes (see also: point 5.2.). In this context, a priority encouraging the development of EU modules in arts and humanities would have given them the only opportunity to enhance the European dimension of their degree programmes.
Finally, Tempus also enhanced the European dimension of studies, though on a more modest scale, through the establishment of jointly delivered programmes and those leading to an international recognised degree (see: point 10).

Quality

14. The contribution of Tempus to the improvement of quality is reviewed in the context of the national reforms in points 3.3. and 5.2 above. One comment is, however, more relevant in the European context. The introduction of internal quality assurance could only be a pilot exercise as the issue itself was new in the four countries, national arrangements were generally yet to be developed, and many universities were as a result experimenting with various approaches in their projects. In these early years of experiments, more could have perhaps been achieved if universities had been encouraged to use as their framework some tested-and-proven arrangements, such as the model designed in the European Commission's Pilot Project for Evaluating Quality in Higher Education.

Towards the specific requirements of the EU accession process

15. In addition to the various issues referred to above, which are common to the EU accession process and the Bologna Process, Tempus integrated in its two final years two challenges specifically related to the EU accession process and highlighted in the pre-accession strategy. Firstly, the Programme was used at its end as a “rapid reaction” instrument to support institution building or, more precisely, the development of expertise required for the implementation of the acquis in various sectors. Secondly, it aimed to facilitate the implementation of the EC directives concerning the harmonisation of university curricula for the regulated professions as required for the mutual recognition of diplomas for professional purposes and the free mobility of professionals. While both challenges were fully reflected in the national priorities for all four countries, the Programme did paradoxically more for other sectors than for higher education in this area. In this context, it seems that Tempus should have continued for a few more years precisely because it proved so successful in institution building, and because it had only slim chance of success in the harmonisation of curricula for the regulated professions.

Institution building in various sectors

16. Tempus institution building projects, which supported the development of expertise required for the implementation of the acquis in various sectors, were undoubtedly a success story. First of all, thousands of officials and professionals in public administration and local government, industrial and business associations and non-governmental organisations across all four countries developed their expertise in a wide range of areas covered by the acquis and accession-related issues, as well as upgraded their general professional skills. Moreover, like for universities, Tempus proved to be a good twinning instrument for many institutions and organisations involved in the accession process in the four countries which established links with their counterparts in the EU Member States. And finally, Tempus consortia in all four countries produced numerous publications, such studies and practical guides, and other materials which are of wider use in the accession process and beyond the accession date. Realistically, more could have been done for institution building only if the Programme had not been phased out for the candidate countries.

As compared to other forms of support for accession-related institution building, Tempus projects clearly had a number of advantages. Firstly, through their networks established earlier on in and outside the Programme, universities in the four countries had access to experts representing a wide range of areas covered by the Community acquis. Secondly, with the strong emphasis on the training of trainers in Tempus, the projects developed local expertise which is and will be readily available when needed. Thirdly, the network of universities covers the entire country and can thus target easily various institutions and groups of professionals at central, regional as well as local levels. The closeness to the target groups does also ensure
the cost-effectiveness of training offered by universities. For all these reasons, it would have been desirable to continue with the support for institution building in the Programme for a few more years until or closer to the accession.

Moreover, institution building was facilitated by Tempus through the development of skills required for the translation and interpreting of the Community acquis in at least several universities in each of the four countries.

Finally, it is also worth noting that many young graduates who already now work or will work in the key sectors covered by the acquis have followed or will follow degree programmes in areas such as public administration, business and management, environmental sciences or health sciences modernised in Tempus projects.

Harmonisation of university curricula for the seven regulated professions

17. The Programme provided clearly a more modest contribution to the harmonisation of curricula for the seven regulated professions covered by the EC directives. The harmonisation projects funded in Tempus covered only curricula for medicine and veterinary science. In these two areas, Hungary outperformed the other three countries, achieving full compliance with the EC requirements in its veterinary education, and restructuring substantially the programmes in all medical faculties in line with the EC Directives. Veterinary programmes were also fully or largely harmonised through Tempus in most of the relevant faculties in Poland, and some faculties in Bulgaria used Tempus funds to introduce far-reaching changes in their medical programmes which are in line with the EC requirements. No support was provided in Tempus for the harmonisation of curricula for the regulated professions in Romania.

The limited support for the implementation of the EC Directives may be explained by at least two reasons. Firstly, only a small number of applications or even no applications were submitted in some areas covered by the Directives and/or some countries. This is another example of a mismatch between the demand as expressed in the priorities and the supply of projects by universities, which can be avoided in a bottom-up programme only when universities are specially encouraged by the national authorities to submit applications (see also: point 6). Secondly, only a small number of projects could actually be funded in the two final years of the Programme when the list of the priorities was overloaded with various issues and the budgets for all four countries were substantially reduced.

Towards the specific goals of the Bologna Process

18. Finally, a few comments about the adoption of a degree structure based on two-cycle programmes as the issue specifically covered by the Bologna Process. The Bologna Declaration was signed too late to include the issue in the Tempus priorities for the candidate countries. However, it is worth noting here again that Tempus contributed to the establishment of two-cycle programmes in Bulgaria and Poland where this objective of the Bologna Process coincided with the requirement of the national higher education law or the priorities in the reform strategy respectively (see also: point 4). In Hungary and Romania, which have different degree structures, Tempus can take credit for introducing a few postgraduate programmes which, however, may now be used as “building blocks” for two-cycle programmes in line with the Bologna Process.

The conclusions of a seminar held in Helsinki in 2001 in the context of the Bologna Process emphasised the importance of accommodating a diversity of individual, academic and labour market needs in two-cycle programmes, and in particular in Bachelor-level programmes. In this context, two-cycle programmes established by Tempus in Bulgaria and Poland seem to cater well for individual and academic needs, with their wider variety of options available for students and updated and extended curricular contents. Their relevance to local labour market needs may, however, still need to be enhanced as they were developed with no or limited involvement of potential employers (see also: point 5.4.). This would concern in particular the
areas of study where the relevance of programmes to labour market needs requires a stronger emphasis placed on practical skills rather than on theoretical knowledge.

**Summing up...**

19. Overall, Tempus integrated, though to a varying extent and at different points of time, all issues which were relevant to higher education in the EU accession process and which were highlighted in the *acquis* and/or the pre-accession strategy. The objectives of the Bologna Process could only be reflected in so far as they coincided with the main lines of the Community *acquis* and the national higher education reforms. Since universities were tackling simultaneously a variety of issues and some of these emerged in the final years, some processes could be initiated, advanced or even completed, and others would still need to be supported in a different framework.

With all four countries now participating successfully in Socrates and Leonardo, Tempus achieved its main goal of bringing their universities from the stage of assistance received from the EU to the stage of co-operation with EU partners, and leading them to the regular EC programmes. Moreover, by developing the overall capacities of universities in education and training and enhancing the quality and European dimension of higher education, it also created a good basis for the full implementation of the main common goals of the Community and the Bologna Process in the regular EC programmes.

Within the time limits set by its duration, the Programme also fulfilled its task of preparing for the accession the various institutions and organisations in the sectors covered by the Community *acquis*. However, the task itself has not been completed yet in the four countries, in particular in Bulgaria and Romania which, according to the recent evaluations of the European Commission, need to continue their efforts to transpose, implement and enforce the *acquis*. These efforts may be supported by universities which developed in their Tempus projects extensive expertise in various areas related to the EU accession.

Finally, the process of implementing the Community legislation for the regulated professions in universities reached only a very early stage in the Tempus Programme. However, the relevant universities or faculties in all four countries may now use the opportunities offered by Socrates to harmonise their curricula for the regulated professions in the framework of co-operation with partners in the EU Member States.

**Overall impact of Tempus and its sustainability**

**Impact**

20. Tempus facilitated and accelerated the *accession of universities* in the four countries to what may be called the European Community of Higher Education, combining the support for the implementation of various tasks specific and common to the national higher education reform and European contexts. Evidently, this would not have been achieved if changes had not been simultaneously undertaken by universities on their own initiative and account. And, conversely, the “accession process” in higher education would have taken much longer without the support offered by Tempus. Thus, it may be said that the Programme accomplished its *overall mission*, though it could have ideally ensured a *better balance* between developments in university management and teaching, between academic aspects of degree programmes and their links with labour market, and between various areas of study. In other words, the overall picture was indeed bright in a bird’s eye view, but some “gaps” can be clearly seen when one looks at the impact more closely or through a magnifying glass.
Islands of innovation and complete reform

21. In the areas which received more or less substantial support, Tempus left in all four countries an uneven landscape or what is often described as "islands of innovation" within departments, faculties and/or universities. The island character of the impact was unavoidable as a bottom-up programme relies heavily on the initiative of universities and thus cannot itself guarantee that projects submitted will cover all priority areas and involve all or a large proportion of relevant universities. Moreover, the scope of changes introduced in individual projects was predefined by their types and objectives which cover curriculum development, university management or institution building separately. Furthermore, the projects in all four countries tackled a wide variety of priority issues; the wider was the spectrum of the issues, the more limited was the support for each individual issue. In addition, the island-like impact of the Programme in its final years was partly determined by the disproportion between the long list of the priorities and the modest budgets available in all four countries which allowed to fund only several projects covering a given priority issue. Nevertheless, it is at the same time true that the size of the islands created in the four countries was limited to some extent by the selective approach to the modernisation of management and existing programmes adopted in the national priorities and/or in the projects submitted by universities.

Within these limitations, Tempus created however a very large number of islands of innovation across higher education in all four countries, and all the islands had a considerable cumulative effect in the various areas of its impact reviewed above. Such islands were created in 22 of 30 public universities and colleges and 6 other institutions in Hungary, 67 of 90 public universities and 18 non-public universities in Poland, all 29 public universities and 3 of 5 private universities in Bulgaria, and 46 of 48 public universities in Romania. In a large proportion of these universities, Tempus supported changes covering at least several subject areas and often at least one area or aspect of university management. Those which were left outside the Programme or which created only few islands of innovations include mainly universities and/or faculties, depending on the structure of higher education in the country, that offer programmes in areas such as fine arts, humanities, theology, teacher education and physical education. These universities and faculties were generally excluded from projects designed to modernise curricula by the Tempus priority subject areas. While they could and some of them did submit projects for the improvement of management, their chances of benefiting from the Programme were to some extent limited by the stronger emphasis placed in the priorities on teaching than on management and the lack of experience in applying for Tempus funds. Overall, the impact of the Programme was extensive, though – again from this point of view – it would still need to be more extensive to ensure all-round or balanced development of higher education.

The large number of islands created in a large proportion of universities resulted not only from the sheer number of projects funded, but also from the involvement of several universities in individual projects. In this respect, the projects designed to modernise degree programmes in Bulgaria and Romania as well as in Hungary achieved a much more widespread impact than those in Poland as they often involved at least two or three and sometimes even more universities. University management projects had, in turn, more extensive impact in Poland as most of them brought together at least three and some of them more than a dozen universities.

Finally, it is also worth mentioning that, while most projects created islands of innovation in individual universities or in a number of universities, a few projects actually led to what may be called a complete reform in a given area. For example, complete or comprehensive reforms of curricula were carried out in Tempus projects at all medical faculties in Hungary and all faculties of chemistry in Bulgaria. Since there is a limit to the size of the consortia to make projects manageable and effective, such extensive impact at “national level” could hardly be achieved in case degree programmes in a given area are offered by a large number of universities in a country.
Differences and similarities between the four countries

22. Comparing the impact of Tempus in the four countries, one could hardly find a basis for a conclusion that the overall reform or development of universities reached in the Programme a more or less advanced stage in one of them or another. It rather appears that the weaknesses of the Programme or "gaps" in its impact and their underlying reasons, as discussed above, were generally common to all four countries. The strengths or achievements were more country-specific and issue-specific as each of the four countries outperformed the others in at least some areas benefiting from the support of the Programme. Generally, Tempus provided clearly more equal opportunities for further development, reducing the distances between the four countries, and allowing some of them to catch up in areas where they had been lagging behind at the start of the Programme.

The division into the first- and second-generation candidate countries would thus not be very relevant in this context. And indeed the more or less substantial progress in the reform of higher education within and/or outside the Programme was not a factor that determined the accession dates and timetables for the first- and second-generation candidate countries. With the organisation and content of studies in the European Union being the exclusive competence of its Member States, no indicators or targets to measure the progress in reforming higher education were defined for the candidate countries. The Progress Reports, in which the European Commission assessed the progress towards meeting the accession criteria in the candidate countries, focused on the participation of their universities in the regular EC programmes, and all four countries did join the programmes as one generation.

Sustainability

23. Finally, any general conclusion about the sustainability of the overall impact would be a misleading oversimplification because Tempus left in the four countries various incomparable types of outcomes which range, for example, from development plans, elements of quality assurance systems to new programmes and courses or upgraded administrative units. The sustainability of outcomes varied obviously depending on their specificity, but also on a number of other factors such as the existence or absence of arrangements at national level, the stage reached by a university in a reform before or during a Tempus project, its financial condition, etc. Nevertheless, it is possible to indicate some more general “trends” when outcomes and projects are reviewed in various breakdowns.

To illustrate the varying degrees of sustainability, a distinction can first be made between the projects which supported only preparatory measures such as feasibility studies or the development of plans, strategies and concepts, and those which provided support for a full cycle from preparations to implementation.

Preparatory projects

In some cases, outcomes of the preparatory projects proved to be "sustainable" as they were translated subsequently into national law and other arrangements or implemented by universities mainly in other Tempus projects and less frequently on their own account. However, the sustainability of the outcomes achieved in a number of other preparatory projects in all four countries seems to be questionable in so far as they were not even partially implemented and/or no specific arrangements were made for their implementation. This was mainly due to the resistance, inertia or at least the lack of commitment at faculty or university level and/or the lack of funding in the universities. In such cases, developments should have clearly been monitored more closely, and universities should have been encouraged to apply for support from the Programme.
Implementation-oriented projects

An overwhelming majority of the implementation-oriented projects in all four countries created good conditions for the sustainability of their outcomes. The expertise of university leaders, teachers and administrative staff, as appropriate, was developed through their direct involvement in the preparation and implementation of changes as well as through extensive training. Curricular, structural and other changes were approved by the relevant university and/or national authorities. Moreover, as reported by project co-ordinators and contractors, the outcomes of the projects supporting transformations in universities, e.g. degree programmes or university management, were integrated into regular university activities and funds for new or extended activities were reserved in university budgets. In the case of more recent projects involving universities and non-academic partners, agreements or other arrangements were as a rule made to provide a basis for future joint activities.

However, regardless of the steps taken in the implementation-oriented projects to ensure the sustainability of outcomes, some outcomes are more sustainable than others for the reasons mentioned above. For example, programmes and courses which attracted a large number of students and are funded from regular university budgets can be “maintained” as well as developed further without putting a heavy strain on university budgets. Further modernisation of university services, which received extensive support under the Programme, would not require substantial investments either.

By contrast, other investments made in Tempus such as the establishment of various units, with an exceptionally large number particularly in Romania, or well-equipped specialised laboratories increased substantially the maintenance costs for universities. While funds for such units were, as mentioned above, reserved at the end of the projects, it would be interesting to see how the tight university budgets were coping with such additional expenditure after a period of several years.

Similarly, some lengthy and costly processes initiated or advanced but not completed in Tempus may not be self-sustainable, though chances of continuity also seem to vary from one country or university to another. For example, Tempus projects introduced certain elements of quality assurance systems in all four countries, while full systems were yet to be established. Such outcomes appear to be more sustainable in Hungary where the universities were required by law to introduce quality assurance systems and supported by the national authorities in this process. In Poland and Romania, certain initiatives were undertaken by inter-university accreditation commissions or national bodies respectively, but specific arrangements at national level and financial support from the national authorities were still necessary to ensure the sustainability of the outcomes achieved in Tempus. In Bulgaria, the self-evaluation systems introduced in Tempus are a sustainable outcome in so far as they are required by law and the efforts towards the establishment of full quality assurance systems can hardly continue without special incentives or support at national level. Another example is the computerisation of university administration. The outcomes of the projects are sustainable in a number of universities, particularly in Hungary and Poland, which started the computerisation process on their own account and used Tempus funds as an additional support. In turn, further support may be necessary in a few universities, for example in Bulgaria and Romania, where computerisation relied heavily or exclusively on Tempus funding and was not completed in the projects.

In a different breakdown, outcomes of the projects introducing changes within universities were for obvious reasons more sustainable than those achieved in the projects which supported various initiatives involving also external partners, in particular non-academic partners. For example, programmes and courses introduced in Tempus for regular degree students were generally a sustainable outcome. This would not necessarily be true in the case of a few degree programmes established in Tempus which are delivered jointly by universities in the candidate country and their EU partners. While some of the networks generated or obtained the necessary funds, the sustainability of such joint or double-diploma programmes depends in most cases on the funding provided at European level, in particular through the European Community programmes. Similarly, training courses for adult learners and various other initiatives involving universities.
and other institutions which were launched in Tempus do almost in all cases require additional financial support to be continued, which is obviously related to the scarcity of funds available in both the academic and non-academic sectors. While a few mixed consortia had their own funds or applied successfully for grants under the EC assistance and co-operation programmes, further or regular support may also need to be offered at national, regional or local level to ensure the sustainability of their activities.

In more general terms, in so far as the sustainability of the outcomes is at least to some extent determined by the framework in which they are implemented, it is finally worth emphasising that the Programme contributed substantially to the emergence of a culture of change in universities. Moreover, the overall political context is now more conducive for the maintenance and further development of the various Tempus outcomes than it was at the end of the Programme for the candidate countries. The Bologna Process is fairly well advanced, the candidate countries are involved in the implementation of the future strategic goals and objectives set for education and training systems in the European Union, and the national higher education legislation and strategies are gradually revised and refined.
List of references


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Bulgarian Tempus Office, Tempus in Bulgaria, Sofia, 1996.


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Europe Agreements between the European Communities and their Member States on the one hand and Bulgaria, Hungary, Poland and Romania on the other hand.


Resolution of the Council and representatives of the governments of the Member States, meeting within the Council, concerning an action plan for mobility, 2000.

Resolution of the Council and the Ministers of Education meeting within the Council No 88/C 177/02 on the European dimension in education.

Sorbonne Declaration signed by higher education ministers from Germany, France, Italy and the United Kingdom, Sorbonne, 1998.

Annex 1: Tempus budget and number of projects

Table 1: Tempus budget (in mln Euro)

<table>
<thead>
<tr>
<th></th>
<th>1990-1993</th>
<th>1994-1999</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>59.9</td>
<td>58.0</td>
<td>117.9</td>
</tr>
<tr>
<td>Poland</td>
<td>97.5</td>
<td>125.0</td>
<td>222.5</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>30.6</td>
<td>38.3</td>
<td>68.9</td>
</tr>
<tr>
<td>Romania</td>
<td>41.7</td>
<td>64.0</td>
<td>105.7</td>
</tr>
<tr>
<td>Total</td>
<td>229.7</td>
<td>285.3</td>
<td>515.0</td>
</tr>
</tbody>
</table>

Table 2: Total number of Joint European Projects approved for funding

<table>
<thead>
<tr>
<th></th>
<th>1990-1993</th>
<th>1994-1999</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hungary</td>
<td>186</td>
<td>169</td>
<td>355</td>
</tr>
<tr>
<td>Poland</td>
<td>248</td>
<td>333</td>
<td>581</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>112</td>
<td>131</td>
<td>243</td>
</tr>
<tr>
<td>Romania</td>
<td>94</td>
<td>167</td>
<td>261</td>
</tr>
<tr>
<td>Total</td>
<td>639</td>
<td>800</td>
<td>1440</td>
</tr>
</tbody>
</table>

Table 3: JEPs supporting university development and institution building (number and in %)

<table>
<thead>
<tr>
<th>JEPs supporting:</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>University development</td>
<td>140</td>
<td>82.8</td>
<td>301</td>
<td>90.4</td>
<td>111</td>
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<tr>
<td>Institution building</td>
<td>29</td>
<td>17.2</td>
<td>32</td>
<td>9.6</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>169</td>
<td>100.0</td>
<td>333</td>
<td>100.0</td>
<td>131</td>
</tr>
</tbody>
</table>

312 The last series of two-year Tempus projects was approved for funding in 1999.
Table 4: JEPs supporting university development (number and in %)

<table>
<thead>
<tr>
<th>JEPs supporting:</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Teaching</td>
<td>109</td>
<td>77.9</td>
<td>237</td>
<td>78.7</td>
<td>95</td>
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<tr>
<td>Management</td>
<td>31</td>
<td>22.1</td>
<td>64</td>
<td>21.3</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>100.0</td>
<td>301</td>
<td>100.0</td>
<td>111</td>
</tr>
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Table 5: JEPs in teaching, covering degree programmes and continuing education (number and % of all JEPs in teaching)

<table>
<thead>
<tr>
<th>JEPs supporting:</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Degree programmes</td>
<td>107</td>
<td>98.2</td>
<td>216</td>
<td>91.1</td>
<td>88</td>
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<tr>
<td>Continuing education</td>
<td>52</td>
<td>47.7</td>
<td>70</td>
<td>29.5</td>
<td>40</td>
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</table>

Table 6: JEPs in teaching, covering degree programmes and continuing education, by area (number and in %)

<table>
<thead>
<tr>
<th>Area</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Humanities*</td>
<td>5</td>
<td>4.6</td>
<td>3</td>
<td>1.3</td>
<td>1</td>
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<tr>
<td>Social Sciences</td>
<td>18</td>
<td>16.5</td>
<td>31</td>
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<tr>
<td>Management &amp; Business</td>
<td>14</td>
<td>12.8</td>
<td>28</td>
<td>11.8</td>
<td>10</td>
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<tr>
<td>Natural Sciences &amp; Mathematics</td>
<td>6</td>
<td>5.5</td>
<td>18</td>
<td>7.6</td>
<td>3</td>
</tr>
<tr>
<td>Applied Sciences &amp; Technologies</td>
<td>53</td>
<td>48.6</td>
<td>135</td>
<td>57.0</td>
<td>53</td>
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<tr>
<td>Medical Sciences</td>
<td>11</td>
<td>10.1</td>
<td>15</td>
<td>6.3</td>
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<tr>
<td>Engineering &amp; Technology</td>
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<td>17.4</td>
<td>70</td>
<td>29.5</td>
<td>17</td>
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<tr>
<td>Information Technology &amp; Computer Science</td>
<td>5</td>
<td>4.6</td>
<td>15</td>
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<tr>
<td>Agricultural &amp; Food Sciences</td>
<td>9</td>
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<td>10</td>
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<tr>
<td>Environmental Sciences</td>
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<tr>
<td>Architecture &amp; Planning</td>
<td>1</td>
<td>0.9</td>
<td>5</td>
<td>2.1</td>
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</table>

313 The figures do not add up to the total number of JEPs because some projects covered both degree programmes and continuing education courses.

314 Some projects may in fact be classified in more than one category. For example, a project concerning information technology courses for teacher education programmes may be classified in both 'IT and computer science' and 'Teacher education'.

190
<table>
<thead>
<tr>
<th>Area</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Arts &amp; Design</td>
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<td>Languages &amp; Literature</td>
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<td>4.6</td>
<td>11</td>
<td>4.6</td>
<td>10</td>
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<tr>
<td>Other Areas</td>
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<td>10</td>
<td>4.2</td>
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<tr>
<td>Teacher Education</td>
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<td>Interdisciplinary Areas</td>
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<td>2.1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>109</td>
<td>100.0</td>
<td>237</td>
<td>100.0</td>
<td>95</td>
</tr>
</tbody>
</table>

*Hungary, Poland and Bulgaria: these include only projects in law; Romania: one project in philosophy.

Table 7: JEPs covering degree programmes by area (number and in %)\(^\text{315}\)

<table>
<thead>
<tr>
<th>Area</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
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<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Humanities*</td>
<td>5</td>
<td>4.7</td>
<td>3</td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>18</td>
<td>16.8</td>
<td>28</td>
<td>13.0</td>
<td>9</td>
</tr>
<tr>
<td>Management &amp; Business</td>
<td>14</td>
<td>13.1</td>
<td>24</td>
<td>11.1</td>
<td>10</td>
</tr>
<tr>
<td>Natural Sciences &amp; Mathematics</td>
<td>6</td>
<td>5.6</td>
<td>18</td>
<td>8.3</td>
<td>3</td>
</tr>
<tr>
<td>Applied Sciences &amp; Technologies</td>
<td>52</td>
<td>48.6</td>
<td>122</td>
<td>56.5</td>
<td>47</td>
</tr>
<tr>
<td>Medical Sciences</td>
<td>11</td>
<td>10.3</td>
<td>14</td>
<td>6.5</td>
<td>10</td>
</tr>
<tr>
<td>Engineering &amp; Technology</td>
<td>18</td>
<td>16.8</td>
<td>62</td>
<td>28.7</td>
<td>16</td>
</tr>
<tr>
<td>Information Technology &amp; Computer Science</td>
<td>5</td>
<td>4.7</td>
<td>14</td>
<td>6.5</td>
<td>1</td>
</tr>
<tr>
<td>Agricultural &amp; Food Sciences</td>
<td>9</td>
<td>8.4</td>
<td>5</td>
<td>2.3</td>
<td>9</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>8</td>
<td>7.5</td>
<td>22</td>
<td>10.2</td>
<td>9</td>
</tr>
<tr>
<td>Architecture &amp; Planning</td>
<td>1</td>
<td>0.9</td>
<td>5</td>
<td>2.3</td>
<td>2</td>
</tr>
<tr>
<td>Arts &amp; Design</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Languages &amp; Literature</td>
<td>4</td>
<td>3.7</td>
<td>10</td>
<td>4.6</td>
<td>10</td>
</tr>
<tr>
<td>Other Areas</td>
<td>8</td>
<td>7.5</td>
<td>10</td>
<td>4.6</td>
<td>7</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>5</td>
<td>4.7</td>
<td>5</td>
<td>2.3</td>
<td>2</td>
</tr>
<tr>
<td>Interdisciplinary Areas</td>
<td>3</td>
<td>2.8</td>
<td>5</td>
<td>2.3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>107</td>
<td>100.0</td>
<td>216</td>
<td>100.0</td>
<td>88</td>
</tr>
</tbody>
</table>

*Hungary, Poland and Bulgaria: these include only projects in law; Romania: one project in philosophy.

\(^{315}\) Some projects may in fact be classified in more than one category. For example, a project concerning information technology courses for teacher education programmes may be classified in both ‘IT and computer science’ and ‘Teacher education’.
### Table 8: JEPs covering continuing education by area (number and in %)\(^{316}\)

<table>
<thead>
<tr>
<th>Area</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Humanities(^*)</td>
<td>2</td>
<td>3.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>11</td>
<td>21.2</td>
<td>5</td>
<td>7.1</td>
<td>4</td>
</tr>
<tr>
<td>Management &amp; Business</td>
<td>6</td>
<td>11.5</td>
<td>13</td>
<td>18.6</td>
<td>4</td>
</tr>
<tr>
<td>Natural Sciences &amp; Mathematics</td>
<td>4</td>
<td>7.7</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>Applied Sciences &amp; Technologies</td>
<td>23</td>
<td>44.2</td>
<td>48</td>
<td>68.6</td>
<td>24</td>
</tr>
<tr>
<td>Medical Sciences</td>
<td>4</td>
<td>7.7</td>
<td>3</td>
<td>4.3</td>
<td>6</td>
</tr>
<tr>
<td>Engineering &amp; Technology</td>
<td>11</td>
<td>21.2</td>
<td>21</td>
<td>30.0</td>
<td>7</td>
</tr>
<tr>
<td>Information Technology &amp; Computer Science</td>
<td>1</td>
<td>1.9</td>
<td>10</td>
<td>14.3</td>
<td>0</td>
</tr>
<tr>
<td>Agricultural &amp; Food Sciences</td>
<td>3</td>
<td>5.8</td>
<td>1</td>
<td>1.4</td>
<td>6</td>
</tr>
<tr>
<td>Environmental Sciences</td>
<td>3</td>
<td>5.8</td>
<td>11</td>
<td>15.7</td>
<td>5</td>
</tr>
<tr>
<td>Architecture &amp; Planning</td>
<td>1</td>
<td>1.9</td>
<td>2</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>Arts &amp; Design</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Languages &amp; Literature</td>
<td>2</td>
<td>3.8</td>
<td>3</td>
<td>4.3</td>
<td>4</td>
</tr>
<tr>
<td>Other Areas</td>
<td>4</td>
<td>7.7</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>4</td>
<td>7.7</td>
<td>0</td>
<td>0.0</td>
<td>3</td>
</tr>
<tr>
<td>Interdisciplinary Areas</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>52</td>
<td>100.0</td>
<td>70</td>
<td>100.0</td>
<td>40</td>
</tr>
</tbody>
</table>

\(^*\)Hungary, Poland and Bulgaria: these include only projects in law; Romania: one project in philosophy.

### Table 9: JEPs supporting university management (number and in %)

<table>
<thead>
<tr>
<th>JEPs supporting:</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Management &amp; administration</td>
<td>15</td>
<td>48.4</td>
<td>25</td>
<td>39.0</td>
<td>11</td>
</tr>
<tr>
<td>Quality assurance systems</td>
<td>2</td>
<td>6.4</td>
<td>11</td>
<td>17.2</td>
<td>2</td>
</tr>
<tr>
<td>ECTS &amp; mobility arrangements</td>
<td>14</td>
<td>45.2</td>
<td>28</td>
<td>43.8</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>100.0</td>
<td>64</td>
<td>100.0</td>
<td>16</td>
</tr>
</tbody>
</table>

\(^{316}\) Some projects may be classified in more than one category. For example, a project concerning information technology courses for future teachers may be classified in both 'IT and computer science' and 'Teacher education'.

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\[^{316}\] Some projects may be classified in more than one category. For example, a project concerning information technology courses for future teachers may be classified in both 'IT and computer science' and 'Teacher education'.
### Table 10: CMEs supporting university management (total number included in the study)

<table>
<thead>
<tr>
<th>JEPs supporting:</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; administration</td>
<td>11</td>
<td>25</td>
<td>12</td>
<td>31</td>
<td>79</td>
</tr>
<tr>
<td>Quality assurance systems</td>
<td>2</td>
<td>6</td>
<td>5</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>ECTS &amp; mobility arrangements</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>37</strong></td>
<td><strong>18</strong></td>
<td><strong>37</strong></td>
<td><strong>109</strong></td>
</tr>
</tbody>
</table>

### Table 11: JEPs supporting institution building by area (number and in %)

<table>
<thead>
<tr>
<th>Sectors/Areas</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Agriculture &amp; Rural Development</td>
<td>6</td>
<td>20.7</td>
<td>3</td>
<td>9.4</td>
<td>1</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>Environment</td>
<td>3</td>
<td>10.3</td>
<td>6</td>
<td>18.7</td>
<td>1</td>
</tr>
<tr>
<td>Finance, Business &amp; Management</td>
<td>4</td>
<td>13.8</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>3</td>
<td>10.3</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Justice &amp; Home Affairs</td>
<td>3</td>
<td>10.3</td>
<td>4</td>
<td>12.5</td>
<td>2</td>
</tr>
<tr>
<td>Public Administr. &amp; EU – General</td>
<td>2</td>
<td>6.9</td>
<td>13</td>
<td>40.6</td>
<td>9</td>
</tr>
<tr>
<td>Quality Standards</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>3.1</td>
<td>3</td>
</tr>
<tr>
<td>Regional Policy &amp; Development</td>
<td>3</td>
<td>10.3</td>
<td>2</td>
<td>3.1</td>
<td>0</td>
</tr>
<tr>
<td>Social Welfare</td>
<td>1</td>
<td>3.5</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Transport</td>
<td>1</td>
<td>3.5</td>
<td>2</td>
<td>6.3</td>
<td>1</td>
</tr>
<tr>
<td>Interdisciplinary</td>
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<td>6.9</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3.5</td>
<td>1</td>
<td>3.1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>29</strong></td>
<td><strong>100.0</strong></td>
<td><strong>32</strong></td>
<td><strong>100.0</strong></td>
<td><strong>20</strong></td>
</tr>
</tbody>
</table>
Table 12: Target groups for institution building activities  
(number and % of JEPs involving the main target groups)  

<table>
<thead>
<tr>
<th>Target group</th>
<th>Hungary</th>
<th>Poland</th>
<th>Bulgaria</th>
<th>Romania</th>
<th>Total/Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Public administration</td>
<td>18</td>
<td>62.1</td>
<td>4</td>
<td>12.5</td>
<td>12</td>
</tr>
<tr>
<td>Local government</td>
<td>20</td>
<td>69.0</td>
<td>24</td>
<td>75.0</td>
<td>15</td>
</tr>
<tr>
<td>Professional bodies and associations</td>
<td>11</td>
<td>37.9</td>
<td>8</td>
<td>25.0</td>
<td>6</td>
</tr>
<tr>
<td>Non-governmental organisations</td>
<td>3</td>
<td>10.3</td>
<td>2</td>
<td>6.3</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>13.8</td>
<td>6</td>
<td>18.8</td>
<td>7</td>
</tr>
</tbody>
</table>

A number of projects involved more than one target group.
Annex 2: Tempus subject areas

**Humanities**
- History
- Archaeology
- Philosophy
- Law
- Theology
- Other Humanities

**Social Sciences**
- Sociology
  - Social Welfare
- Psychology and Behavioural Sciences
- Political Science
- Economics
- Public Administration
- European Studies and International Relations
- Library Science, Communication and Journalism
- Other Social Sciences

**Management and Business**
- Management
  - Health Management
  - Agro-business
  - Personnel Management and Industrial Relations
- Business Administration
- Applied Economics
- Finance
  - Accountancy
  - Banking
  - Insurance
  - International Finance
  - Public Finance
- Marketing and Sales Management
- Tourism and Leisure
- Other Management

**Natural Sciences and Mathematics**
- Mathematics
- Physics
- Astronomy
- Chemistry and Biochemistry

**Earth Sciences**
- Geography
- Geology
- Meteorology

**Biology**

**Other Natural Sciences**

**Applied Sciences and Technologies**

**Medical Sciences**
- Medicine and Surgery
- Dentistry
- Nursing
- Pharmacy
- Medical Technology
- Health Care
- Psychiatry
- General Practice

**Engineering and Technology**
- Mechanical Engineering
- Civil Engineering
- Electrical and Electronic Engineering
- Chemical Engineering
- Metallurgy and Mining
- Material Science
- Manufacturing Engineering
- Computer Aided Engineering
- Biotechnology

**Information Technology, Computer Science and Software Engineering**

**Agricultural and Food Sciences**
- Agriculture
- Animal Protection and Husbandry
- Veterinary Science
- Forestry
- Fishing
- Food Science and Technology

**Environmental Sciences**
- Soil and Water Sciences
- Energy Efficiency
- Nuclear Safety
Inventory and Review of Project Outcomes in Hungary, Poland, Bulgaria and Romania – 1994–2001

Architecture, Urban and Regional Planning
  Architecture
  Urban and Regional Planning
  Conservation of Cultural Heritage
  Transport and Traffic Studies
Other Applied Sciences

Art and Design
  Art
  Music
  Design
  Performing Arts
Other Art and Design

Languages
  Modern European Languages
  Translation and Interpreting
  Linguistics
  Literature
Other Languages

Other
  Interdisciplinary Studies
  Education and Teacher Training
  Multidisciplinary Studies

Institution Building
  EU policy matters and "acquis communautaire"
  Approximation of law
  Pre-accession strategy
  Harmonisation of curricula in EU regulated professions
  European studies
  Public administration

University Management
  Integration of Institutions
    Integration of or co-operation between institutions
    Other
  University Strategic Planning
    Mission statement and institutional profile
    Strategic development plans
    Strategic management
    Other
  University self-evaluation
    Evaluation and monitoring systems
    Internal quality assurance systems
    Other
  Modernisation of Administration Services
    Human resource management (academic and administrative staff)
    Information management systems, including financial administration systems
    Library management
    Research and training, including structures for technology transfer
    Links with industry and employers
    Fund-raising strategies
    Internationalisation, comprising specific measures to enter the EU educational programmes
    Open and distance learning and/or life-long learning activities
    Public relations, community relations