



EDUCATION
TRAINING
YOUTH

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the information society

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Over the past year, the three European programmes for education, training and youth in 1995-99 have finally been launched. The Leonardo programme was given clearance by EU ministers in December 1994, with a budget of ECU 620 million. Socrates and Youth for Europe III, requiring the joint approval of the Council of Ministers and the European Parliament under the co-decision process introduced by the Maastricht treaty, took longer. They were formally agreed in March 1995, with budgets of ECU 850 million for Socrates, reviewable after two years, and ECU 126 million for Youth for Europe.

Meanwhile the Task Force for Human Resources became Directorate-General XXII, under the responsibility of a new member of the European Commission, former French Prime Minister Edith Cresson. So the stage is set for transnational cooperation in these areas across a European Union now including 15 countries.

The new programmes are accompanied by detailed operational documents that have been translated into what are now 11 official EU languages. Information on all aspects of the programmes has been provided in each Member State through a series of conferences that started in May 1995.

At the same time, the various contact points and coordination units that will handle the programmes in each country have been set up at national level and the first calls for proposals went out as soon as was practicable, bearing in mind that Socrates planning has to tie in with the academic year.

These are the bare bones of a process that has already been complex in the policy-making stages and will no doubt continue to be complex during the implementation of the programmes, despite the rationalization and simplification they introduce. The Commission will do everything possible to ensure continuity - requests for participation in Erasmus in 1995 alone currently add up to 163,000 students, 18,000 academic staff and 22,000 institutional partners - and the first few months involve a number of measures to cover the transition period before the new programmes are fully phased in.

While the Commission is responsible for the implementation of the programmes, their management depends on a successful mix of top-down and bottom-up approaches, centralization and decentralization. Getting the balance right at this stage is essential if they are to run with a minimum of bureaucracy and a maximum of efficiency across all the many kinds of partnership they will involve.

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Note to readers

This fourth edition of Le Magazine was originally scheduled for publication in spring 1995. We apologise for having had to delay its appearance for so long, due mainly to the reorganization of the former Task Force into Directorate-General XXII

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Mme Cresson

Investing in intelligence

How do you think education and training can effectively combat unemployment and exclusion?

As Jacques Delors convincingly demonstrated in his White Paper on growth, competitiveness and employment, economic performance in Europe today hinges not only on production costs but also on the quality of education, training and research. Boosting these three factors is a form of "intangible investment" that is proving an increasingly essential key to sustainable growth and the creation of skilled jobs. Education and training, along with research, are thus crucial weapons in the fight against unemployment and exclusion.

They are also an outlet for the creativity every individual needs for personal fulfilment. I must stress this: training and education must not be seen purely as a means of supplying business with skilled labour. The primary aim is to secure opportunities—often in the form of jobs—for all those who have been unsuccessful in the traditional education system. This must be demonstrated in practice through the measures implemented under the European programmes for training (Leonardo) and education (Socrates).

For instance, the use of new information technology - a priority for both programmes - will enable young people who seemed unsuited to traditional education methods to be reintegrated into the school system. That much has been conclusively demonstrated in experiments.

What is going wrong in Europe's education systems?

Education and training systems are too rigid and compartmentalized. There are difficulties with transfers between types of qualification, functions and companies.

The ever faster pace of change generated by technical progress calls for a new approach to education and training. The current system, in which young people leave education with a career path set in stone, is proving increasingly outdated. We must not only send more students and young people on placements in businesses, but also open up far more systematic access to schools and universities for working people. Lifelong learning has to be a priority. It will contribute to maintaining and strengthening the competitiveness of European industry. But it will also allow each of us to control - rather than submit to - new technology, nurture our sense of innovation and creation and improve our understanding of the world around us. It can thus be a powerful force for integration, offering everyone a place in society. There is therefore a vital need to encourage widespread continuation of training throughout people's lives - an aim which is central to the Leonardo programme. This must become a political commitment at the root of national policies, not just a model for a few isolated experiments. I trust that the 1996 European year of education, which is largely focused on lifelong learning, will contribute to raising awareness of this issue throughout the European Union.

What is the situation regarding the implementation of the Socrates and Youth III programmes?

A significant step has been taken with the resolution of obstacles to the Socrates and Youth for Europe decisions within the Council and the European Parliament.

As regards higher education, we have completed the selection of projects submitted under Erasmus and Action II of the Lingua programme for the 1995/1996 academic year starting in September. 137,000 students are eligible for mobility projects as part of their studies, and 14,000 university lecturers are eligible to teach in other Member States.

As for partnerships in the field of school education (Comenius), the Commission proposes to finance 500 partnerships this year, involving 2,000 schools, 800 teacher exchanges and 700 preparatory visits. Where Youth for Europe is concerned, we have endeavoured to ensure continuity in the development of exchanges by making the first selection even before the implementing provisions for the new programme have been adopted. The programme is due to be implemented in full shortly, and we will see to it that, despite the delay, youth organizations have the opportunity to benefit from the new instrument.

Besides the implementation of Community programmes, do you have any new plans?

The Commission will propose a number of measures from its work programme in 1996:

- the development of educational software; I will base proposals in this field on the findings of the task force set up with my colleague Martin Bangemann to promote the emergence of a genuine European educational and cultural software industry;
- increase in exchanges for secondary school pupils;
- extension of the action plan concerning languages for a multilingual information society to include virtual mobility;
- development of a pilot project for technology training in the tertiary sector;
- transnational pilot projects for better integration of vocational training, research and industry (business, science and training campus);
- development of a pilot project for European courses and exchanges of university lecturers; the idea is to create genuinely European masters-level courses through agreements between universities;
- support for European voluntary service experiments; the aim here is not to replace either the military service or the alternative community service in force in a number of Member States, but to organize placements in the social, environmental and cultural sectors - work with young people in disadvantaged areas is one example which springs to mind.

But I would also like to explore other avenues - those identified as policy guidelines in the White Paper on education and training adopted by the Commission on 29 November 1995:

- The first would aim to establish new methods for the validation of skills acquired at European level outside conventional courses of study. All too often, the formal, academic bias of diplomas prevents many workers in vocational training from securing recognition of their professional experience. There is a clear need to identify the most up-to-date general and vocational skills and establish an undisputed validation system, recognised by business and the relevant professional sector, to ensure effective professional mobility for workers.
- The second idea is to promote apprenticeship at European level. Apprenticeship is a tried and tested form of training which has delivered conclusive results in terms of jobs. Supported by a mentoring system and more general parallel classroom training, apprenticeships can give young people practical experience and knowledge of industry and professional life. That is the direction we must move in, and I will be calling in particular for debate on the idea of a European apprentice/trainee charter.
- My third suggestion is to support what are called "second-chance schools" at European level. The idea is simple: to provide young people who have dropped out of traditional education with optimum training and support, to help them recover their self-confidence and get ahead in life. Applying this concept at European level may seem strange to some. How could young people who are marginalized in their own society possibly benefit from a stay in a foreign culture? Simply because a change of environment in these cases can be a powerful spur to resocialization. This has been borne out by various pilot experiments conducted under the Youth for Europe programme, which the European Parliament rightly sets great store by.
- Fourthly, we must encourage proficiency in three Community languages. With this in mind, the White Paper proposes establishing a "European quality label" which would be awarded, in accordance with certain criteria, to those schools which are most successful in developing language learning. Networks of institutions granted this label would be set up. There would also be systematic encouragement for mobility to allow teachers to teach their mother tongue in schools in another country.
- Lastly, a balance must be struck between capital investment and investment in training. It is not enough to make education and training a priority for competitiveness and employment. We must also take practical steps to encourage those businesses and public authorities which have made a substantial "intangible investment" to continue the good work. This implies in particular a review of tax and accounting provisions concerning expenditure on training.



Lifelong learning

Old dogs, new tricks?

The Commission has proposed 1996 as the European Year of Lifelong Learning. EU government leaders, at their European Council meeting in Essen in December 1994, endorsed anti-unemployment policy guidelines giving high priority to lifelong learning and access to continuing training for everyone. The Leonardo programme, adopted by EU ministers on 6 December, stresses the promotion of "lifelong training, so as to encourage ongoing adaptations of skills to meet the need of workers and undertakings".

Why this sudden interest in 'lifelong learning'? It is not a new concept. The need to constantly update and extend knowledge and skills has always existed and both general education and continuing vocational training opportunities have long been available. The new urgency reflects awareness of the speed at which changes are taking place in the social and economic environments. The electronic information age has entered personal and working life and enterprises are introducing new technologies in their design, production and marketing strategies.

It is likely that the pace of change will increase, causing the 'half-life' of knowledge and skills to be reduced even further. In many sectors as much as 15-20% of the existing knowledge base is reckoned to become obsolete every year, while some estimates claim that two thirds of the technology which will be needed by the year 2000 has yet to be invented. The consequence is that those who do not have the capacity to make best use of these new opportunities will find it increasingly difficult to stay in a job. As a response, lifelong learning strategies are rapidly becoming part and parcel of combined economic development and training policies, at EU and national level.

A broader concept of lifelong learning

In the past, lifelong learning was usually regarded as a self-initiated activity, based on private interest and personal development. Now the economic implications are more widely recognized. Enterprises have started to support the continuing training of their staff and sometimes such measures are even included in collective labour agreements. Learning by staff is now being seen as something which contributes not only to personal development but also underpins the economic strength of firms. Lifelong learning as a concept covers the willingness and capacity

of a person to continuously extend and update competences relevant for personal life and / or work-related situations.

Until recently, 'lifelong' really meant up to the mid-40s. Employees over that age were regarded as being not interested in, and/or suited for, training activities. Studies suggest that only between 14 and 18% of all those over 45 and still employed take part in continuing training, compared with 50% of those between 20 and 40. However, demographic trends, and in particular the expected effects of the post-war baby boom on the social security systems, have made policy-makers and both sides of industry more aware of the need to exploit the potential of these older employees.

It was also true that 'learning' was usually regarded as an activity taking place in a school setting in which the roles of teachers and learners were clearly defined. As a result of development work and studies on, for example, the effectiveness of alternance-based training, it has become increasingly clear that knowledge and skills can be acquired in all kinds of different learning situations, such as in-school projects, in-school and firm-associated workshops, simulated firms and real working situations in enterprises. Simultaneously, the features of such environments which have a positive bearing on the outcomes of implicit or explicit, structured or unstructured, learning and training processes have been identified.

A better understanding of the conditions for lifelong learning

The efficacy of learning depends on an interaction between the person and his/her environment, be it in a classroom or a work situation. A listing of relevant features is given in the yellow box (left). Four areas are distinguished:

(1) the willingness and motivation of persons to learn; (2) their level of qualification and their capacity to learn; (3) the training potential of the work situation and of the employees working there; (4) the training opportunities provided by the firm.

The training / learning potential of working situations

1) The willingness to learn

- ▶ motivation to learn
- ▶ active or passive willingness to take part in training
- ▶ barriers to training

2) Level of qualification

- ▶ level of vocational training
- ▶ amount of experience
- ▶ ability to benefit from training

3) Training opportunities

- Features of the occupation being carried out
- ▶ breadth of the tasks being performed

- ▶ number of new problems, methods, techniques, products
- ▶ internal and external regulation opportunities
- ▶ amount of contact with others
- ▶ opportunities to take decisions

Features of the working environment

- ▶ level of feedback, explanation and motivation from colleagues
- ▶ amount of information, handbooks, computer simulations, tutors
- ▶ state of the art of the equipment

4) Training facilities in the working situation

- ▶ structured implicit and explicit training opportunities
- ▶ participation in ongoing innovations

This model is based on a review of literature from, and developments in, Germany, The Netherlands, Japan, UK, USA and Sweden.

Source:

Onstenk, J.
Leren en opleiden op de werkplek. SCO - Max Goote Kenniscentrum, Amsterdam, 1994.



Though all these aspects are important to the success of lifelong learning, the first deserves extra attention. After the end of the compulsory stage, participation in education and training activities is based on personal interest and motivation. If these elements are lacking, success in any post-compulsory learning will be almost impossible to achieve. The second area covers the capacity of an individual to benefit from training and the previously acquired vocational qualification level. The third and the fourth aspects are on the "enterprise" side of the equation. The more a firm provides opportunities for staff to develop and use new insights in a working situation, the more interested employees will be in extending their skills, by participating in lifelong learning activities. In reinforcing their implicit and explicit training strategies, firms can use their staff policies (*e.g. job rotation schemes*); information structures (*e.g. the amount of feedback on achievements made*); and their organizational structure (*e.g. a willingness to accept new procedures*).

Age-group specific applications of the model for lifelong learning

It is clear that not all aspects have the same relevance for all age groups. For the youngest category of people up to age 25, the emphasis must be on area 1, fostering the "learning to learn" skills and the motivation to take part in education and continuing training activities, and on area 2, ensuring that all young people acquire a basic vocational qualification which provides the cognitive basis for training activities later in life.

The second group comprises employees between the ages of 25 and 45. Studies in The Netherlands suggest that 50% of this group were taking part in continuing training activities in 1991, compared with 40% in 1985. Still, within this group, certain subgroups take part less, in particular those with low qualifications (36% with a pre-vocational qualification compared with 47% with a middle and higher level qualification and 89% with a university qualification) and those having lower functions in a firm's hierarchy (28% of this group versus 58% having the highest functions). Some studies also suggest a lower participation rate of female employees.

The last group are employees over the age of 45/50. For a long time, this group tended to be neglected in lifelong learning activities, as illustrated by the very low participation rate. Increasingly, however, firms are introducing age-conscious staff policies in which much more attention is being paid to 'delayed maintenance' of the vocational qualifications of those members of their staff who are senior in terms of age.

Future perspectives

Lifelong learning continues to develop and it is very likely that in the coming years the focus will be on themes such as:

- ▶ Preparing for lifelong learning in initial training. Training methods at this stage must be designed in such a way that they will reinforce the curiosity of young people and their interest in wanting to know more. These positive attitudes are the backbone of any training activity later in life. The development of such attitudes will have to be underpinned by building clear pathways between initial and continuing training.
- ▶ Making maximal use of the hidden training opportunities in working situations. Efforts must be invested in incorporating aspects of training into everyday working situations. The 'learning enterprise', or better still the 'training enterprise', will have to become a reality. In this context, the value of apprenticeship-type learning approaches, i.e. a combination of in-firm and in-school training, is being increasingly recognized, as is the use of the combination of distance learning with 'close' learning, i.e. the discussion of relevant issues in groups.
- ▶ Developing lifelong learning strategies adapted to the needs of various groups of clients. The adaptation of the training model to the opportunities and needs of low-skilled or unqualified employees or of older staff will be a demanding task for those responsible for development and training in firms.

In order to reinforce these and other themes and developments, the Leonardo programme will provide support to transnational pilot projects and exchange programmes on issues in continuing training, as well as to other activities which will promote lifelong learning.



European Year of Lifelong Learning

A Commission initiative

to prepare for the learning society of the 21st century.

Following on the conclusions reached at the European summit in Essen, deliberations on the steps to be taken to follow the "Growth, Competitiveness and Employment" White Paper, the launching of the Socrates, Leonardo and Youth for Europe III programmes and the introduction of an "information society", the subject of lifelong education and training will be widely debated in 1996. On a Commission proposal, the European Parliament and the Council decided on 10 July 1995 to designate 1996 the European Year of Lifelong Learning.

Through a wide range of events, i.e. conferences, training, television programmes, exchange of experience, initiatives to inform the general public, etc., the Year will attempt to increase awareness among the groups concerned of what is involved in lifelong education and training and how this can help ensure that European citizens play an active role in coping with current social and economic change as well

as with the threat of social isolation. This range of initiatives, designed to communicate and inform, covers various phases of education and training, with basic education, initial and continuing training receiving the same attention as adult education. A future issue of *Le Magazine* will list a calendar of events.

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Turning economic growth into jobs

The essence of Essen

Investment in and access to training, the acquisition of qualifications, particularly by young people and the offer of employment or training to all young people were among the key areas for action to fight unemployment agreed at the European Council meeting in Essen on 9-10 December 1994.

The European Council once again made combatting unemployment and the promotion of equality of opportunity top priorities for the Union and its Member States, continuing the momentum for the fundamental reform of employment systems began by the White Paper on growth, competitiveness and employment presented at the Brussels Council meeting over two years ago.

At Essen, the Commission presented the European Council with a plan for "action to turn growth into jobs", which contained a series of proposals for action by Member States to secure lasting job-intensive economic growth. The action plan included a contribution from DG XXII, which set out a number of proposals for action by Member States to improve education and training systems and the support provided to underqualified young people, including:

- The promotion of lifelong learning and access to continuing training through priority to investment in human capital, including tax treatment 'no less favourable' than that given to physical capital investment.
- The development of vocational training policy through partnership between the many interests involved.
- The improvement of methods of anticipation of new skill and qualification needs as well as the diversification of training provision and routes to qualifications.
- Setting national targets for the qualification level of the workforce as a whole.
- The introduction of a guarantee of a training place to young people leaving the education system, with a second chance for those who drop out of the system.
- Wider access to further and higher education for those with vocational qualifications.

The proposals in the DG XXII contribution were based on an analysis of the policies of the Member States for education and training and for help provided to young people, in relation to the proposals in the White Paper. Information was collected in the context of the Commission's preparation of a 'tableau de bord' (management chart), also presented at Essen, which provides an overview of Member States' policies in the seven areas for priority action (including education and training systems and help for young people) identified by the European Council at Brussels.

The exercise was carried out in close cooperation with senior officials (directors-general for vocational training) in the Member States and in consultation with the social partners. The analysis and discussions underlined the fact that whilst systems are very different, many of the problems they face are the same. Many Member States see the need for a more strategic approach to education and training policy and recognize that training provision is largely reactive, being poorly equipped to cope with new skill needs. In addition, they recognize the value of the contribution of the social partners and others in developing and delivering vocational educational and training policy. Furthermore, many Member States are increasingly aware of the need to help those who were unable to take advantage of such provision and who remain underqualified. On the basis of these conclusions the Commission put forward its proposals.

After consideration of the action plan, in the areas of education and training and help for young people, the European Council concluded that measures to be taken should include:

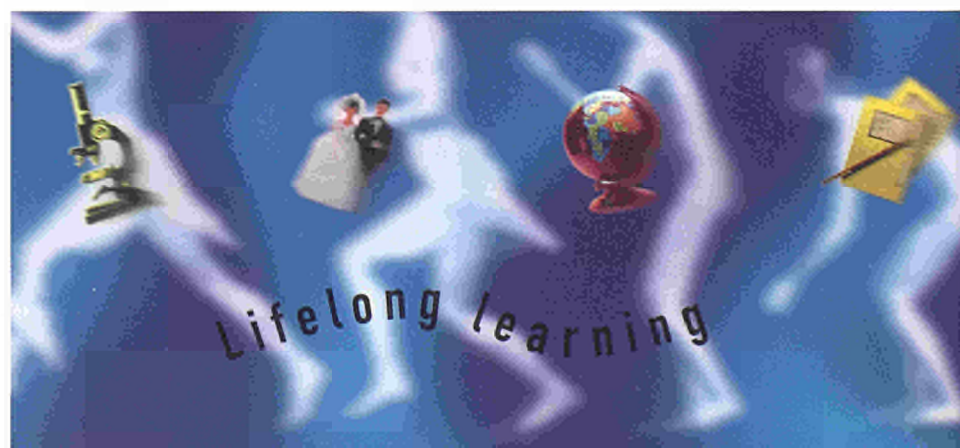
"...improving employment opportunities for the labour force by promoting investment in vocational training. To that end a key role falls to the acquisition of vocational qualifications, particularly by young people. As many people as possible must receive initial and further training which enables them through lifelong learning to adapt to changes brought about by technological progress, in order to reduce the risk of losing their employment..."

"...Particular efforts are necessary to help young people, especially school leavers, who have virtually no qualifications and, by offering them either employment or training."

The European Council also requested the Council of Ministers (labour and social affairs, and economic and financial affairs) and the Commission to keep close track of employment trends, monitor the relevant policies of the Member States and report annually to the European Council on further progress on the employment market, starting in December 1995.

The Council's conclusions provide fresh impetus to the work done in the course of the last year. Over the coming months, the tableau de bord will be revised to reflect the European Council conclusions and enlarged to take in the new Member States. Both it and the proposals in the action plan will be discussed fully with the Member States – and others involved in the training process, particularly the social partners – in preparation for the contribution of DG XXII to the report to the European Council at the end of the year. The Commission will be using the various financial instruments at its control – in the case of DG XXII, the Leonardo, Socrates and Youth for Europe programmes – to support and complement the efforts in the Member States to bring about change.

However, as much of the power to bring about change in education and training lies with the Member States themselves – and not just national governments, but also local authorities, enterprises, the social partners, universities and training and education institutions – DG XXII proposes to continue to facilitate exchanges of information, stimulate debate and prompt action, seeking to be a catalyst for change and necessary reform in education and training and to continue the development of the concept of lifelong learning advocated by the White Paper.





Continuing training and industrial change

What future for regular and continuous access to continuing vocational training?

The European Council summit at Essen in December 1994 underlined the importance of continuing vocational training among the various measures which need to be taken in order to improve employment, competitiveness and growth. Its conclusions presuppose, in particular through the affirmation that a maximum number of people should be able to benefit from training enabling them to learn throughout their lives, that regular and continuous access to such training is a determining factor at Community level for facing up to industrial changes as defined in Articles 123 and 127 of the Maastricht treaty.

EU government leaders thereby placed the spotlight on one of the key concepts already included in the "social charter" (Community charter of the social rights of workers) adopted at the European Council of December 1990 and which, for a number of years, has constituted one of the main training issues in all Member States.

How can we introduce training systems and experiences which reflect the need to promote lifelong training, enabling everyone to undertake retraining, to brush up existing skills or acquire new knowledge? How can we introduce, to use the language of the Leonardo programme, "a permanent adaptation of skills to respond to the needs of workers and enterprises", and in so doing promote a quality of human resources which can truly meet the economic, technological and social challenges with which Europe is confronted?

The answers to these questions can only be fragmentary at present. The few reflections which follow are based on the experience acquired in the context of the Force programme and attempt to indicate possible directions in which practical solutions can be found.

Lifelong training to keep up with the process of change

The Force programme and, more particularly, the "industrial change" projects have clearly shown that companies cannot make do with haphazard and discontinuous training initiatives.

The restructuring of traditional sectors (steelmaking, metallurgy, textiles, etc.), the emergence of new areas of activity (maintenance, security, telematics, the environment, personal services) and the intensification of skills development attendant on the introduction of new technologies, and new organization and management systems, leave companies with a crucial choice. Either they fail to invest sufficiently in skills and risk the consequences or they make a real effort to analyse the development of training and skills needs and to free up the appropriate financial and human resources to meet these needs.

The knowledge and experience acquired by the Force programme, from both transnational projects and in studies, show clearly that both sides of industry have realized the problems posed by the introduction of regular, continuous-access training.

Training efforts have been stepped up (in terms of percentage of employees being given access to training, and of overall financing) while minimum legal or contractual levels of obligatory investment in training (in 5 of the then 12 EC countries) and/or new rules for managing continuing vocational training or access to it to have been introduced.

And they have strengthened the quality dimension of training, insisting particularly on the need to go beyond the simple dimension of adapting training, in order to give employees the means of coping fully with, and if possible anticipating, change. This quality aspect is expressed more particularly in the importance attached to key skills or horizontal skills, i.e. training which can give employees the means to become aware of and face up to the complexity of the changes which are under way.

Analysis of the present situation shows that the various players are fully aware of the importance of establishing regular and continuous access to training, to enable both businesses and employees to take positive action to keep abreast of and direct events when faced with the challenges of competitiveness and employment. The question remains as to the availability of resources to make such access possible in a permanent fashion.

Integrating work and training

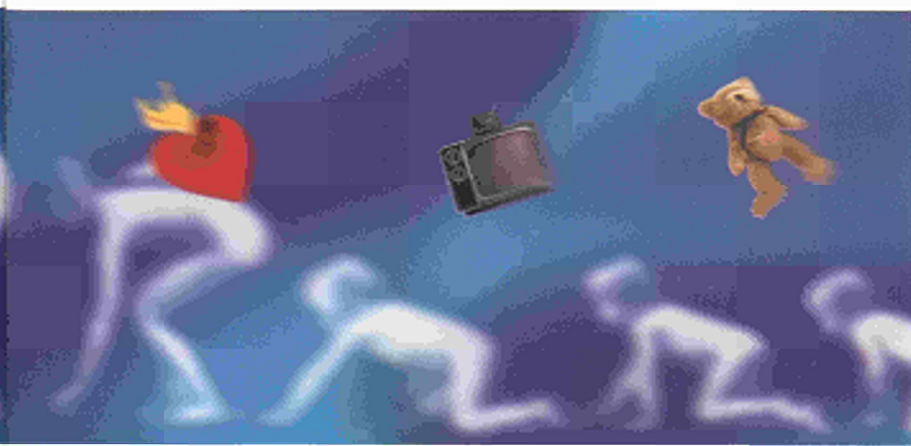
The whole range of Force projects as well as information gathered on continuing vocational training throughout the European Union point towards the same observation: we are seeing a reduction in formal training courses and placements in favour of an integration of training, either during working hours, or, more globally, in an overall process linking the work situation and organization and the appropriation of technological and production processes.

This rapprochement is highly promising in terms of developing lifelong training, as it makes it possible to envisage a permanent process of training close to the daily life of employees. At the same time, it poses a large number of questions on the ways and means of formalizing the acquisition of knowledge and skills, within an organizational environment which lends itself more to social and cultural integration than to a learning process which can be both formalized and validated.

In order to move in the direction of the conclusions of the European Council in Essen, it would appear important to exploit as far as possible the potential of this work/training proximity and more particularly to explore certain lines of effort:

- structuring professional experience, *ex post facto*, through the formalization and validation of knowledge and skills which have been truly acquired;
- the possibilities of marrying together the appropriation of technological processes
- in the work situation and the cognitive mastery of these processes through tutoring or any other form of pedagogic accompaniment;
- using the reduction in formal working hours to promote training actions at the workplace, based on real-life professional situations.

Even if the business is first and foremost a place of production, all the current work on the 'learning organization' gives reason to think that lifelong training will permit a fuller exploitation of the potential offered by the rapprochement of working and training.





Lifelong learning



Different forms of access to training

Analysis of the results of the Force project as well as of continuing vocational training in Europe indicates a widening diversification of both the demand for and the supply of training.

On the one hand, there is training undertaken in, and often by, companies for their employees, which continues to exist and to which priority is given. This training is part of the overall development of the enterprise, and is based on needs analyses which examine the skills available and the skills needed in order to meet existing or forthcoming changes.

On the other hand, new forms of training are appearing, which can be approached from three angles:

- Given the present unemployment situation, which is producing a high degree of exclusion from the world of work, a certain number of employees have become aware of the importance of investing personally in the acquisition of skills in order to avoid finding themselves in a more fragile position either within their company or on the labour market in general. Within this context, more and more self-training and self-learning solutions are developing, decided on and paid for by individual employees and taking advantage of the training resources available on the market (books, magazines, distance or inter-active teaching tools).
- The increasing divergence of interests between the enterprise, with its need for confirmed skills, and the employee, who needs to embed these skills in an individual professional career, is leading, in the context of the principle of co-investment, to a type of joint training which mixes organization-directed and individual-directed training. Current experiments based on the principle of shared time or resources are still too recent to permit in-depth evaluation. But it appears evident that these experiments could well produce specific effects in terms of both the quality and quantity of training provision, and for this reason merit being followed closely.

- The intervention of the public authorities in a field in which, in the words of the White Paper, the problems of growth, competitiveness and employment are increasingly intermixed, means that new means of access are appearing which are promoted, if not financed, by these public authorities. The most significant experiment here is that of "job rotation" in Denmark, a national scheme which allows unemployed persons to be in work and in training whilst the employees whom they replace are entitled to training holidays.

To these different forms of access, we could add the possibility of training leave, which exists in 7 of the 12 EC countries. However, the variety of the types of leave, and in particular the low levels of participation, mean that this form of training is not yet becoming generalized at a Community level.

Be this as it may, a significant increase can be noted in the plurality of forms of training which are being offered and called for. This in turn inevitably increases the growing importance being attached to lifelong training among the problem areas being tackled by European policies.

By way of conclusion

From this brief analysis and discussion of the overall question of regular and continuing access to vocational training in Europe, it is clear that the conclusions of the European Council in Essen on the importance of such access for the economic and social future of Europe, came at a very appropriate time in terms of their implementation.

It would, however, be wrong to believe that the generalization of such access throughout a person's working life can take the form of individual measures which can be transposed to all countries. The few observations which can be made based on the experience of the Force programme and current developments in the area of continuing vocational training in various Member States point to the fact that future solutions for developing genuine lifelong training for

every employee consist of a combination of means: simultaneous access to organizational and individual training, a concerted increase in investment by public authorities, companies and employees, the development of new pedagogical methods for both the acquisition and validation of vocational skills, and more internal and external enterprise training.

And if it is right to speak of new systems or types of vocational training covering the whole of a person's working life, we must think in terms of multi-form and multi-actor systems. The achievement of regular and continuous access to lifelong training requires that the economic and social players as well as the individual as such become increasingly aware of their own responsibilities in an increasingly concerted area of vocational training. The basic momentum underlying the decisions of the European Council in Essen is moving very much in this direction.





**Austria,
Finland,
Sweden.**

Education and training

in the new Member States

Although Austria, Finland and Sweden have recently joined the European Union, they are no strangers to EU education and training activities. Since January 1990 they have worked with a range of different European programmes through bilateral agreements and, as of 1 January 1994, within the broader framework of the European Economic Area. Despite the sometimes marked differences between their education and training systems, the three new EU countries tend to share certain features: the importance they give to adult education, their emphasis on designing systems to provide learning products for lifelong learning and the general view that education and training are not different concepts but go together as different aspects of a continuum.

Austria

By and large, education and training are the responsibility of the Federal Ministry of Education and the Arts, while universities and post-secondary colleges are the responsibility of the Ministry of Science and Research. Only pre-school education depends on the local authorities in each of the 9 provinces (Länder).

The respective spheres of competence are established in the federal constitution (Bundesverfassungsgesetz). Specific laws regulate the school system (Schulorganisationsgesetz) and the university system (Universitätsorganisationsgesetz).

In general, the Austrian education system is quite similar to that of Germany, with 4 years of primary school (Volksschule) followed by 5 years compulsory secondary school, either technical (Hauptschule) which leads to professional training (Politechnischer Lehrgang), or general education (Gymnasium, 8 years) which prepares pupils for university entrance examinations (Matura).

Under certain conditions, special mechanisms exist which enable students to change from one system to the other. Secondary education is divided into two 4-year cycles. The first aims to prepare pupils for professional life (to be completed afterwards in the Kollegs or the Pädagogische Akademie), or to help them gain admission to the higher cycle which prepares them for university.

Professional education

As far as the 14-19 age group is concerned, the Austrian system has two institutional sectors:

1. Dualsystem professional training which combines, in parallel, practical training in the workshop and theoretical education in the vocational school. Around 50% of young people between 15 and 18 years of age follow the Dualsystem which, in principle, lasts 3 years.
2. Middle and higher level professional education (Berufsbildende Mittlere Schulen und Berufsbildende Höhere Schulen), full-time courses of a specialized technical nature focused on specific professions. It lasts 4 years in the middle level and 5 years in the higher level, which after passing the Matura, permits entry to university.

Higher education

The entire university system (access, curricula, duration, etc.) is regulated by a general law (Allgemeines Hochschul-Studiengesetz).

Entry to university (and equivalent level colleges) for all faculties is open to all those who have passed the final examination in secondary school.

There are no other conditions of entry and there is no provision for the establishment of "numerus clausus".



On average, about 60% of students finishing secondary school every year enter post-secondary education (90% in the university sector).

Austria has 12 universities and 6 art colleges, all autonomous, offering a total of 430 study programmes and more than 600 different study options. In 1992 approximately 200,000 regular students were enrolled at universities and colleges, 10% of whom were non-Austrians.

The non-university sector (10 %) includes the Kollegs (teacher training) as well as the Akademien (secretaries and social workers) and training establishments (paramedical sector).

During the 1994-95 academic year, Fachhochschulen were established (some courses are already available, others are still in the planning stage) as new alternatives to university studies. The relevant law was ratified by the Austrian parliament in 1993.

Graduates of Fachhochschulen will be entitled to enrol at universities for doctoral studies in their fields.

From a qualitative point of view, taking the 1988/89 academic year as a reference, about 800,000 students followed compulsory education, more than 300,000 of whom continued within the framework of technical and professional education, and about 70,000 achieved secondary and university level.

Training

The 1969 law on vocational training (Berufsausbildungsgesetz) was the first legal framework in this field and followed on from the law on the promotion of employment in 1968 (Arbeitsmarktförderungsgesetz) and the law on vocational training in enterprise in 1976 (Arbeitsverfassungsgesetz).

As far as the Dualsystem is concerned, the Federal Ministry of Education is responsible for activities in schools (Berufsschule) and the Federal Ministry of Commerce and Industry for training in enterprises. The chambers of commerce participate in the implementation of these different laws at Länder level, following the guidelines provided by representatives of the federal authorities.

Generally speaking, enterprises cover the cost of their in-house training; nevertheless the data available in this area are quite limited, since it concerns small and medium-sized enterprises where there is a high rate of mobility among trained personnel.

Adult education

In Austria as in other Member States, further training and continuing training of adults depends on a certain number of institutions, grouped in this case in the Konferenz der Erwachsenenbildung Oesterreichs, but above all on enterprises, particularly large companies.

Since the 1970s the main aim has been to improve the interface between training and employment, targeting several initiatives on requalification, rather than on high qualifications, to correct the excessive concentration of training in privileged and limited groups.

Features of the Austrian system

- When it comes to the international dimension of higher education in Austria, particularly its openness to the rest of Europe, the country attaches great importance to contacts with academic circles in other countries.
- In this context, there are specific action programmes for the relatively limited non-German-speaking student population as well as specific measures for cooperation in education with Central and Eastern European countries.
- Some criticism has been levelled at training in enterprises because of its alleged obsolescence, particularly concerning technological innovation. Critics have come in part from the most advanced industrial sectors. And the reform of this system has been the object of permanent debate promoted by the unions.

Finland

The general lines of educational policy are decided by the Finnish parliament and implementation is the responsibility of the government, the education ministry and the national boards of general education and vocational education.

The Ministry of Education is responsible for education and research (comprehensive schools, upper secondary schools, vocational institutions and higher education institutions). The ministry is the highest authority in educational administration and nearly all publicly financed educational provisions are supervised and financed by it. The 12 provinces have their own administrative responsibilities and school affairs in each municipality are managed by school boards.

The country has two official languages. About 94% of the population speak Finnish and about 6% speak Swedish, to varying degrees.

The education system

The regular education system in Finland is composed of the comprehensive school, the senior (or upper) secondary school, vocational and professional education institutions, universities and adult education.

There are no pre-primary schools in Finland, but education of this kind is provided at day-care centres (kindergartens), which are under the jurisdiction of the social welfare administration, and linked to the comprehensive schools.

In addition to the regular education system, formal education is also given in music schools, colleges and institutions of physical training, which provide training for both professionals and amateurs.

The comprehensive school provides nine years of general compulsory education for the whole age group. Each Finnish citizen must complete comprehensive school or acquire an equivalent education.

The first six years of comprehensive school (classes 1-6) form the lower level and the following three (7-9) the upper level. In addition, comprehensive school may offer preschool education for six-year-olds and an extra tenth year class for young people who already have a school-leaving certificate. In the lower level, pupils are taught by class teachers and on the upper level by subject teachers.

Post-compulsory (upper secondary) education is divided into general and vocational. After comprehensive school, more than half of each age group opt for general upper secondary school, and less than 40% go directly into vocational education. On the other hand, more than half of the matriculated students pursue further education in vocational institutions after upper secondary school.

Upper secondary school provides three years of general education. The school network covers the whole country. The curriculum is fairly unified, although schools emphasize local aspects in their syllabi and upper secondary school may be required by the government to focus, for instance, on skills and arts subjects. The upper secondary school ends in a national matriculation examination which gives general eligibility for higher education.

Vocational education has been organized into 26 basic programmes, which are further divided into nearly 200 specialization lines. Vocational education is given at school level and college level in all fields. School-level vocational programmes train skilled workers and college-level education prepares students for managerial and planning tasks. In some fields, particularly in engineering, education is given on three levels: school (skilled workers), college (technicians) and higher college level (engineers). There are separate curricula for comprehensive school leavers and for matriculated students.

Vocational programmes take two to three years at school level and three to six years at college and higher college level. Vocational education intended for matriculated students, i.e. education based on the upper secondary school curriculum, is 12 to 18 months shorter than education intended for comprehensive school leavers. Vocational education usually includes work experience.

An apprenticeship scheme exists, but the numbers pursuing it are small and represent less than 5% of those studying in vocational and training institutions. Apprenticeship is regarded as belonging to adult education.

Under an act that came into force in February 1991, college and higher college diplomas provide the same eligibility for higher education as the matriculation examination.

The higher education system comprises 20 institutions of higher education located throughout the country. Of these, 10 are universities, 3 technical universities, 3 schools of economics and business administration, 1 veterinary college and 3 academies of art. The institutions also have a subsidiary units outside the university town, totalling about 250 institutions (115,573 students in 1991). About one third of matriculated students enter universities.



Higher education is organized into degree programmes by fields of education. The degree programmes which lead to the basic (MA) degree comprise 160-180 credits and take six to seven years to complete.

Each institution undertakes scientific research and provides postgraduate education. This is one of the underlying principles in Finnish higher education: teaching is based on research and research is included in studies. University research represents about 20% of total R&D expenditure in Finland.

Apart from research and education, higher education institutions provide scientific, cultural and consultancy services and increasingly take part in science parks, technology villages and similar projects.

Adult education, vocational education and training

An extensive reform of post-secondary education was sanctioned by law in 1978 and implemented at the end of 1988.

The principles of quantitative planning of vocational education were laid down, taking into particular account the need for links with industry and the needs of the economy for trained labour.

Demand is assessed on a forecast of the industrial structure. Vocational education is associated with economic goals, but within a general approach which seeks quality, equality, comprehensive general education and assimilation of humanist ideals.

Aimed at the entire working-age population, adult education is provided by a number of specialized organizations and by upper secondary schools. Universities provide adult education in the form of further education and open university programmes. Increasing importance is attached to a good balance between new theoretical knowledge and practical experience. To this end, a Fachhochschule-type institution (ammattikorkeakoulu) has been introduced on an experimental basis.

People who are unemployed, who are likely to be made redundant or who face a career break can make use of employment training financed by the Ministry of Labour and, to a lesser extent, by the employers who organize in-service training and support individual education projects for their staff by paying course fees and allowing time for study.

The transformation of the Finnish industrial structure over the last 20 years and the high rate of technological development have brought about a new situation where workers have to cope with increasingly demanding tasks. Education has to meet these challenges. The idea of providing a broader education and increasing the general content of vocational education is now inspiring the preparation of a future new educational model.

Greater flexibility, openings for different age groups, wider regional distribution of educational opportunities, equality, decentralization, and a better balance between private and public funding appear to be the main features of future development in the educational/vocational field.

An interesting project is presently under preparation to develop a "citizen's educational record" consisting of a cumulative life record of an individual's achievement in terms of studies and training with different levels of credits.

In the light of recent changes in the ex-USSR, international cooperation is becoming a more and more important issue in the development of Finnish society and this also applies to education and vocational training as regards, in particular, the definition of curricula content.

Participation in education

Practically all children from 7-15 years of age attend comprehensive school, and such schooling is also provided for the disabled. 71% of the 16-19 age group were attending regular schools in 1990, while the corresponding figure 10 years before had been 62%. 48% of those aged 16-18 were studying at senior secondary schools, and approximately 30% at vocational schools. 13.5% of those aged 20-24 years were studying at university in 1990, and 17% at vocational and professional education institutions.

Almost all those studying in senior secondary schools were under 20 years, whereas 40% of those studying in vocational and professional training institutions were under 20 and 60% older than 20. More than 50% of those studying at university were over 25 years.

There is an almost equal split between male and female students at first degree and research degree level, but there is a strong concentration of women students in

education and the humanities. Engineering is the single largest subject area category (22% of all registered first degree level students). Other key disciplines are the humanities (16%), education (15%) and business/management (11%).

The ratio of graduates to student population (first degree level) is relatively low at 11.2%, which suggests a relatively long study duration and a relatively high level of non-completion. The number of foreign students in Finland is very small (1,617 in 1990); of these 38% came from Europe, notably Germany and Sweden. Other countries sending more than 100 students were the USA and China.

Although higher education institutions are located throughout Finland they are mainly concentrated in the regions of Uusimaa (Uudenmaan Lääni), Turku and Pori (Turun ja Poriin Lääni) and Häme (Hämeen Lääni), with a particularly heavy concentration in Helsinki. This reflects the distribution of population. Finland is overwhelmingly Finnish-speaking although the Swedish-speaking minority (6-7%) is relatively well represented in higher education.

Sweden

The Swedish education and training system has undergone a continuous series of transformations since the 1950s. Different education acts have resulted in changes in emphasis and amended political strategy. During this time responsibilities were devolved from central government and distributed among the regions (24 counties or "län") and the country's 286 municipalities. The higher education system was changed in 1977 and subsequently reformed by the Conservative government in 1993.

While the Swedish Ministry of Education and Science is responsible for education and training matters at national level, other ministries assume specific responsibilities for employment and industrial training. Each county has particular responsibilities linked to regional impact, including the provision of certain types of education and vocational training. The municipalities operate some public services such as schools, childcare, housing, cultural and leisure activities, and provisions for the elderly.

Swedish education is substantially financed by public funds (some two thirds of which come from central government). In 1991 the total expenditure on all levels of the education system accounted for 6.5% of GNP, the same percentage as in major OECD countries.

The education system today

Education for young people in Sweden consists of nine-year compulsory education and a voluntary upper secondary school. Compulsory school is divided into three levels, each of which comprises three grades, junior, middle and senior. Children normally begin school at the age of seven (as from 1 July 1991 parents can decide whether their children start at the age of six or seven, and the percentage of six year-olds has now increased to 5.3%).

All pupils take the same subjects until senior level where they can choose to specialize in certain subjects. Joint classes have become increasingly common.

At senior level, subjects such as maths and English are taught at different levels. About 12% of pupils have a mother tongue other than Swedish, the most common languages being Finnish, Spanish, Arabic, Persian and Polish which are spoken by more than 50% of this group. Municipal authorities are obliged to organize language education.

Special classes are also run for disadvantaged groups. More than 90% of all compulsory school leavers go on to upper secondary school where they can choose vocational education or prepare for higher studies. The municipalities also organize education and employment for those between 16 and 18 years of age to help them find jobs or gain admission to higher education.

Upper secondary school traditionally included a variety of course programmes and specialized courses of variable length, but as of autumn 1992 a new upper secondary school has been gradually introduced, in which all course programmes will be three years long and the number of programmes reduced at entrance. About a quarter of all specialized courses are to be moved to adult education during the 1992-1995 period.

Grades are still not awarded until the first term in the eighth grade, but this is currently under review. So far, grades are referred to the normal statistical distribution and are therefore relative, i.e. they refer to the average national level of achievement.

The success rate is one of the highest in the OECD countries, and only 10% of students fail to complete their studies.



European

A youth opportunities scheme completes the system at municipal level, linking work and study programmes in the framework of agreements between the social partners and as a part of school 'follow-up responsibilities'.

Higher education includes traditional university studies, university colleges and –from 1997 onwards– some former post-secondary course programmes.

37 higher education institutions are controlled by the central government, including 7 universities, 7 specialized colleges for technology and medicine, 8 arts and medical colleges and 15 university colleges.

To be admitted, a student must fulfil the general and special admission requirements to a particular study programme or course. Selections are made on the basis of average upper secondary school grades, university aptitude tests and work experience.

There are about 300 study programmes ranging from one year to five and a half. There is also a broad variety of separate courses. Grades are given on either a three-level or a two-level scale: fail, pass and pass with distinction.

Students can receive financial assistance with their studies in the form of a non-repayable grant plus a larger loan from the central government: 70% of first-year students received non-repayable grants and 49% received loans in the academic year 1992/93.

On 1 July 1993 a new higher education act and a new higher education ordinance came into force. These reforms were intended to consolidate some positive aspects of the existing system, such as flexibility of study programmes, content and length, the absence of tuition fees, the particular attention given to adult and further education, the important contribution to result-oriented research and training activities.

At the same time they emphasized deregulation with a view to developing the local authorities' responsibilities, proposed new criteria and guidelines for individual programmes and curricula, introduced a more result- and quality-oriented system for allocations and increased market approach and links with the private sector.

Each university or university college may now admit students more freely. The broad, centrally determined study programmes have disappeared and been replaced by decisions at local level regarding educational programmes and courses and programmes to be offered to students. A new resource allocation system for undergraduate education has been introduced which is based on the number of students registered, the number of study credits achieved, and a special grant to encourage superior quality. A new resource allocation system for postgraduate education and research based on results and activity has been proposed, the aim of these reforms being to attract funds from the private sector.

Further education and adult education

There is extensive adult education in Sweden which provides different types of education: folk high schools, educational associations, municipal adult education and education and training of the labour force, to mention but a few.

Though this sector is essentially managed by the municipalities, it is important to note that some establishments are financed by employers and/ or trade unions.

All tuition is free of charge. About 50% of the adult population participate in some sort of adult education in the course of a year, and more than 70% of adults who return to study at one of the different educational levels usually find a new job within six months.

'Popular education' also worth mentioning with the particular socio-educational significance of the 'study circles' (discussion meetings).

About 30% of the Swedish population take part in more than 300,000 study circles.

The training system

Sweden is oriented towards a general lifelong learning system and training is an essential part of the general education system.

One of the main objectives of the latest reforms was to minimize the negative effects of the previous welfare system on the social security system, which is being gradually transformed from an instrument safeguarding economic security into a general incentive to encourage people to take an active part in working life.

With the agreement of the social partners, "active labour market initiatives" are given the highest priority in the government's budgets to seriously reduce subsidies.

Employment training is an important element of this active labour market policy.

All workers can receive free basic or supplementary training through the services offered via 350 employment offices (municipal level) which also provide placement services to job-seekers and companies.

The national employment training agency (AMU) coordinates about 100 training centres. During 1991 around 300,000 workers participated in some training or retraining activities out of an active population of about 4.5 million, one third still working in the public sector. Specific requalification measures have been launched in the declining sectors (textiles, metallurgy, shipbuilding and wood products) to develop more promising sectors (transport, pharmaceuticals, services).

The management of the system is very market-oriented in close connection with local and regional industrial structures. The AMU board has a tripartite representation of government, employers and employees and it includes the education authorities.

The extremely flexible modules and practices are available at market prices, outside publicly subsidized training.

The AMU group is financially self-supporting and funds its activities entirely from revenue. Specific levy reductions are foreseen for employers who participate in training programmes for their employees. Special grants are available for immigrants, refugees, young people and disadvantaged groups.

Features of the Swedish system

- Virtually no separation between education and training. Training and retraining of the labour force are considered as integral components of the education system.
- Great importance placed on adult education and further education with a wide variety of activities offered in this area.
- The education system is geared towards a lifelong learning system.
- Considerable involvement of local authorities in the management and general direction of the education system.

The role of the European Training Foundation in Turin is to coordinate and support all EU activities in vocational training and higher education as part of the Phare and Tacis programmes for economic restructuring in Central and Eastern Europe and Central Asia.

The new agency, which began operations in January 1995 with a first group of 60 staff, concentrates on policy development, programme design and the monitoring of activities carried out by partners from the EU Member States and the 24 countries concerned.

Human resources development is a key area under Phare and Tacis; it sustains economic and social reform policies in the transition to democracy. Education and training in particular are fundamental issues for the restructuring of the economy and society in a broad sense. The ETF focuses on both initial and continuing vocational education and training, together with retraining for young people and adults, including management training; it is also responsible for the higher education sector, through the provision of assistance to the Commission in the implementation of the Tempus programme.

Vocational education and training Phare countries

New programmes were recently adopted by the Phare Management Committees for Lithuania, Latvia, Estonia, the Czech and Slovak Republics, Slovenia, Romania and Poland. Dealing primarily with initial vocational training, they are designed to assist relevant ministries in these countries in the implementation of fundamental reforms concerning curriculum development of a more coherent reform strategy. The ETF has been responsible for setting up these eight programmes since 1 March 1995, under conventions agreed with the Commission for each programme. Another Phare programme, referring specifically to the European Training Foundation, has the objective of identifying and creating a network of decision-makers in each partner country. These national correspondents will be able to contribute to ETF activities by preparing and carrying out different actions in the field of vocational training.

A pilot project in vocational training reform has already entered its first phase which focuses on the description of the systems of vocational training in the part-

Training Foundation

Flying start in Turin



ner states and an evaluation of the reforms under way. The second phase will provide assistance for Central/Eastern European countries to develop and increase the efficiency of the institutions able to act as an observatory in the fields of vocational training and the labour market and to identify the priority requirements for cooperation.

A specific partnership programme is also being set up. It is principally intended for institutions playing a key role in the field of vocational training, particularly with regard to partnership actions involving enterprises and training institutions. It will deal with the development of qualifications and skills, the training capacities of institutions and the relevance of training to the labour market through actions undertaken in initial and continuing training.

Tacis countries

Preparatory actions to be carried out in a number of partner states are currently being discussed with the Commission and they concern the analysis of the current state of the systems and reforms at political and institutional levels, and the identification and evaluation of organizations dealing with vocational training matters. This will include reports on the initiatives taken in each partner country, the results achieved and the implementation procedures. Initially the ETF will concentrate its efforts on the Ukraine, Kazakhstan and two other countries still to be agreed. Instruments for this include partner conferences, which aim to evaluate programmes and projects, identify failures, examples of good projects and the urgent needs of the countries in question.

ETF Observatory

The objective of the ETF's Observatory is to establish a regular communications network between political decision-makers, education and training experts and the social partners involved in the process of reforming vocational training in the partner countries.

This network will allow a regular and up-to-date information flow on training systems, trends, problems, results of completed projects including information on bilateral and multilateral activities, and training requirements in partner countries. The collection, analysis and exchange of

relevant data will be provide the basis for expert studies, 'transparency' of experience available in EU countries, European institutions and multinational and international bodies.

In this way cooperation among the different promoters of projects/programmes is facilitated and efforts are undertaken to guarantee synergy between the different activities and consistency with the priorities laid down by the partner countries. Results from previous cooperation initiatives can be taken into account on both a bilateral and a multilateral basis.

Management training

The action programme for this sector is currently being drawn up and will be implemented from the start of the second half of the year.

Three main initiatives are proposed for this programme. The first concerns analysis, observations and proposals; these studies and analyses should focus on the characteristics of the needs for training, the local factors determining the success or the failure of training approaches and the nature and level of training available within the partner countries. A thorough evaluation of current programmes and projects will be a starting point.

The second initiative aims at the setting up of small-scale pilot project models directly related to practical, on-the-job training, as well as to the transfer of knowledge through cooperation with Western organizations and enterprises.

The third initiative concerns management training institutes. The development of leading institutes should be encouraged and audit services should be offered in order to raise the standard of training provided and to set up internal self-evaluation.

Tempus

The European Training Foundation provides the Commission with technical assistance for the implementation of Tempus (Phare) and Tempus (Tacis). Tempus was launched in 1990 with the overall objective of restructuring and developing higher education in the partner countries of Central and Eastern Europe in the framework of the Phare programme and, since 1993, the Newly Independent States of the former Soviet Union in the framework of the Tacis programme.

A number of changes have occurred since the programme first started in line with developments in the countries concerned. Tempus (Phare), for example, has become much more targeted, increasing emphasis on the definition of priority areas for cooperation set out by the countries themselves. In addition, more and more tasks necessary for the implementation of the programme are being handed over to the National Tempus Offices in each of the Phare countries. These offices already have major role to play in the selection of projects and the distribution of information.

As far as Tempus (Tacis) is concerned, the number of Newly Independent States which participate in the programme is increasing all the time. From an initial three countries in 1993, there are now a total of 11 which will participate in the next selection round.

The main vehicle for cooperation between institutions in the EU and the partner countries is the Joint European Project which aims to promote structural change in university courses and faculties in the partner countries. At present under Tempus (Phare) there are a total of 463 Joint European Projects currently running in 11 Central and Eastern European countries. By the 31 January deadline for new projects to start in the 1995/1996 academic year, approximately 900 applications had been received. The results are expected in the summer of 1996. Other activities including individual mobility grants for teaching staff and complementary measures.

Under Tempus (Tacis) there are a total of 26 three-year Joint European Projects currently under way in three partner countries of the Newly Independent States and 76 pre-JEPs (projects providing support for the preparatory measures necessary to embark on a full Joint European Project) in seven of these countries. Deadlines for new Tempus (Tacis) projects are set for April 1996.

Conclusion

The number of staff at the ETF will increase to 130 temporary agents by the beginning of 1996. In addition, 'guests' from Member States and partner countries, paid by their own governments, can work with it for one or two years to get on-the-job training and become better informed experts. This is the start-up year for the vocational education and training programmes; from the summer of 1996, the foundation will be responsible for all education and training projects within the framework of the Phare and Tacis programmes.

The ETF Observatory will guarantee the active involvement of experts from 15 EU Member States, 24 partner countries, international organizations such as the OECD, the World Bank, the EBRD, the ILO and the Council of Europe, and social partners on a European level. After this start-up period, the ETF will become an important resource centre in its field, coordinating the transfer of experience and expertise in education and training from EU Member States to the partner countries and supporting the development of a skilled and well-trained work force for economies in transition. The development of stable democracies and sound economic structures is best supported by investment in education and training.



The emergence

of the "Information Society"

The digital revolution

a new industrial revolution

Accessing the libraries of the most prestigious American universities, exchanging recipes, knowing everything about this or that encyclopaedia, downloading software, creating a personal database - these are some of the opportunities that will be offered from now on by any basic information industry service. The capacity to access, control the flow of, sort and use a desired volume of information will substantially determine how we lead our daily lives, both in the professional and private spheres. **A revolution is under way** and it is our responsibility not to get left behind.

For this reason, it is first of all necessary to educate and train everyone to use these services effectively. To give a concrete example, choosing a television station 20 years ago did not pose any problems, as there were a maximum of three available. Now we can choose from among more than 30 channels, with the result that our selection criteria have changed completely. The integration of different technologies poses one of the most fundamental challenges our societies have had to face in recent decades. The upheaval brought about by technology is progressively leading towards an "information society". Information technology has established itself solidly in the business world, but has also penetrated daily and family life. The incredible acceleration of technological progress is not only limited to the sphere of industry; from now on it will engender social and cultural change.



The development of NICTs (new information and communication technologies) has changed production systems, work practices and consumer behaviour, the effects of which in the longer term will be comparable to those of the first industrial revolution.

Communication and the sharing of information and knowledge: the keys to the future at the start of the 21st century

This new, vital challenge encapsulated in the expression "the information society" is central to the issues discussed in the Commission White Paper *Growth, competitiveness and employment: the challenges and ways forward into the 21st century*. The White Paper emphasises the importance of this irreversible trend for the future of European society. It views the change taking place as positive and as a means of creating continued and lasting growth, developing competitiveness, creating new forms of employments, and improving the quality of life for everyone in Europe. At the request of the European Council, a high-level working group was set up to prepare a report on specific measures the Community and Member States should take in relation to information infrastructure (Bangemann Report - *Europe and the Global Information Society - Recommendations to the European Council*). In July 1994, on the basis of these recommendations, the Commission invited the Council and the European Parliament, as well as the Economic and Social Committee and the Committee of the Regions, to discuss these problems and lend their political support to the development of the proposed initiative. ⁽¹⁾

Moving towards unprecedented structural change in the economy and society

Europe has every interest in responding to this challenge as the economies which succeed first in managing this change well will enjoy a considerable competitive advantage. This is no longer a technological dream for the next century; Europe is faced with the reality of it, here and now. The same technology that has brought change also brings with it the answers to associated problems. The sooner we enter into the era of a European information society, the better we will be able to react and transform the opportunities it offers into real benefits.

As global competition has become more intense and technological change more rapid, companies have also understood that they must adapt both their production systems and organizational structures. Uncertainty and turbulence reign in today's business world and are inevitably leading businesses to invest in human capital by preparing employees to be more adaptable, flexible and innovative.

The impact of technical and technological progress on growth and employment depends to a great extent on a facility for innovation. This concept of being innovative provides one of the keys to keeping Europe competitive. To give an example, it took 130 years from the invention of photography to achieve wide-scale public use, whereas only three years were needed from the invention of the integrated circuit, the basis of modern electronics, to develop and mass-produce the personal computer. The concept of innovation has altered in meaning in recent years.

It has been realised that passive or "tacit" knowledge plays a key role in creating technological innovation. This tacit knowledge comprises the intangible and unspoken part of what we know, i.e., "we know more than we can express". It comes from personal experience and contact, and derives in part from education. It seems that a country's industrial competitiveness depends to a great extent on spreading this informal knowledge and the strategic role played by the management and understanding of information systems is of particular importance in this context.

Wider access to information makes it easier to identify, evaluate and compete with other participants in the business world, and this factor will force companies from now on to exploit all these new sources of productivity and efficiency. Furthermore, although it is true that the competitiveness of European industry depends partly on its capacity to reduce production costs, access to information will also provide the key vector for promoting innovative and aggressive strategies for capturing new market shares.

An irreversible trend towards a knowledge-based economy

The European summit meeting in Corfu in June 1994 approved the areas of responsibility proposed by the Bangemann Group and it is now necessary to establish the framework required to allow the various measures to be implemented in a cohesive way. Bottom-up type measures are expected to be developed by the private sector in partnership with national governments, regions and towns, especially where the measures concern the general public. In another initiative, and by using resources at its disposal (structural funds, trans-European networks and the fourth research and technology development framework programme), the Commission will help speed up the implementation of the different measures proposed. Whether this involves supporting the development of new technology in specific programmes (particularly telematics and information technology programmes)

or making use of systems such as TEN-RNIS (a trans-European integrated services digital network) and TEN-IBC (an integrated broadband communications network) for the development of advanced communications networks, or whether it involves emphasising the importance of an information society in Community support measures, the Commission will try to ensure that targeted and effective use is made of existing financial resources.

Risks as well as opportunities

Despite the potential represented by the development of an information society, there is just as much uncertainty about it, on an operational and technical level as well as on a social and human one. Uncoordinated approaches have to be avoided at the operational and technical level. The Community needs to develop a regulatory and legal framework, especially regarding access to the market, compatibility between networks, intellectual property rights, data protection and royalties. At the social and human level, there is the need to guard against exclusion on the basis of culture or educational disadvantage and compensate for the deepening of individual isolation created by these new types of service. Finally, unavoidable moral and ethical problems will arise in the area. Although these difficulties should not slow down the process of creating a common information area, they cannot be ignored. They will have to be given the consideration they require.

The five major priorities

set out in the White Paper on Growth

Spreading the use of information technologies

Providing Europe with trans-European basic services

Continuing the introduction of an appropriate regulatory framework

Developing training in new technologies

Strengthening technological and industrial performance

White Paper: Growth, Competitiveness, Employment

(1) *Towards the information society in Europe: an action plan* - COM(94) 347 final - 19.07.94

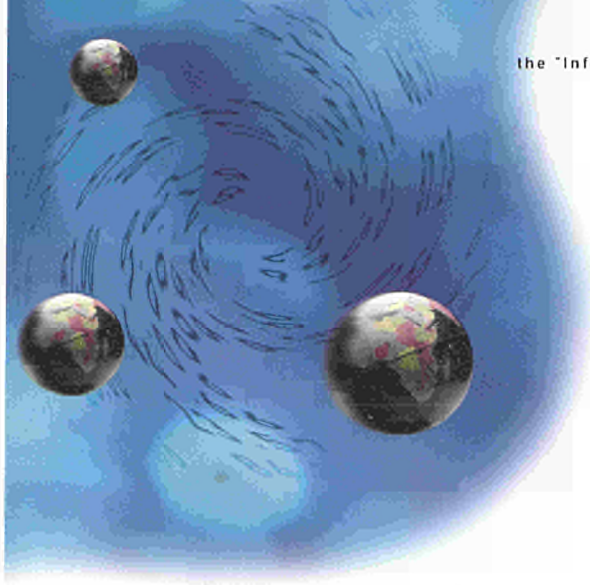
THE INFORMATION SOCIETY

The opening up of a multimedia world (sound-text-image) constitutes a change which is comparable to the first industrial revolution.

Tomorrow is already here: the number of TV channels will multiply by 10, and the number of cable subscribers will triple between now and the turn of the century. In the United States, 6 million people already telework.

The United States have gained a lead: 200 of their largest enterprises already uses information highways. At the heart of the development model for the 21st century: crucial to the survival or decline of Europe.

The opportunity to respond to the new needs of European access to a base of scientific and leisure data; spread of teleworking, development of preventive care and home medicine for the aged.



Getting hold of the intangible

The emergence of an information society will be heavily dependent on the setting up of information highways, i.e. broadband networks allowing the exchange of a great quantity and variety of information. These highways will be used by data-transporters, which are services facilitating access to information (databases), its transmission (electronic mail), its exchange (interactive video) and which offer a certain number of commercial services creating new opportunities in business, health care, education and leisure. A development of this order nonetheless requires the presence of three fundamental elements:

- The integrated management of different projects.
- The interconnection of different networks to ensure the operation of all services on all networks.
- A policy of investment and innovation which will enable the systems to supply a variety of information in a minimum of time.

The new educational technologies are not an end in themselves but provide a means for implementing specific, designated strategies.

The know-how and experience required to set up this «common information area» already exist in Europe. However, it must also be borne in mind that although technological change is accelerating, social structures are relatively more rigid and are often inflexible. Although society may show an extraordinary resistance to change, it is nonetheless necessary to realise the consequences of not investing immediately to help meet the unavoidable challenge represented by an information society.

Because meeting this challenge involves liberalizing infrastructures, establishing an authority at European level, overcoming the problems of standardization, interconnection and system compatibility, dealing with intellectual property rights, respecting the right to privacy and granting legal and data protection, it will first be necessary to establish a statutory and regulatory framework to ensure the free circulation of data transmission services in Europe.

At the same time, it will be necessary to develop networks, basic services, applications and content without ignoring the consequences of this development at community, society and cultural levels.

Finally, it will be essential to promote the cause of this information society by raising public awareness, to win support and approval.

The effective development of an information society is expected to occur in the five priority areas listed in the inset opposite. Disseminating the use of the best information and communications technology applications is viewed as a fundamental objective because it will help achieve growth, increase competitiveness and improve employment prospects. The challenge is not only of a technological but also of an organizational nature. For this reason, it is necessary to catalyse the market and ensure a certain homogeneity at the risk of unwittingly creating a heterogeneous system. It is therefore essential to raise levels of competence to guarantee effective use of the new technologies. Creating a basis for using information technologies by giving potential users better training necessitates spreading a broad basic culture among the greatest number of people possible and providing certain user groups with specialized training. The existence of these new technologies highlights

the importance of training men and women for their use, something considered a key element in maintaining competitiveness. This 'human capital' is a source of creative and dynamic energy and should be regarded as an untapped public resource. Its use will power the growth of the new information society. Education and training are not ignored in the areas of implementation proposed by the Bangemann report and adopted by the Corfu summit. Both distance learning and the development of a network connecting universities and

research centres will be given due consideration in the near future. However, although it is true that the development of new communications and information technologies will considerably change the educational landscape in Europe, it is important not to idealize the arrival of these new possibilities on the market.

From the Gutenberg galaxy to Internet cyberspace

The use of new educational technology is not as recent as might be thought. The Open University was launched in the UK in 1969, for instance, and there was an experiment with educational television in France in the mid-'60s. Although the integration of this new technology into the education and training process has been the subject of numerous studies, it is now about to become a central factor with regard to the preoccupations in the various education systems in Europe.

Through the different EU education, training and technology programmes (e.g. Delta), the Commission has been promoting the development of multimedia systems, products and training material for more than eight years now. Be it through programmes such as Comett, Force, Lingua, Erasmus or other experimental projects (multilateral partnerships between educational establishments),

the distance learning and multimedia dimension has provided input into many projects, and this achievement has furnished the various European participants with knowledge and experience which will help meet the challenges of the next decade.

The new educational technologies are not an end in themselves but provide a means for implementing specific, designated strategies. With the end of the first generation of the various Community programmes, we are now seeing progressive changes in the training market: there is a gradual move from a supply-led situation to one that is demand-led, and users' requirements are now being taken into account. Accessibility, flexibility and user-friendliness appear to be the decisive factors for the success of each training initiative using multimedia and distance learning technologies.

Although, at present, the pace of change demands a far greater level of retraining than was previously the case, it is equally true to say that companies are faced with the following problem: they need to limit and/or reduce training both in terms of cost and the time their engineers spend away from work, while at the same time increasing the volume of training. It is against this background that multimedia and distance learning assume their full importance. New technologies are both a cause of change and a driving force behind it. They not only lead to the adoption of new education and training policies but also provide new methods of education and training. This observation is true at the moment in the field of continuing education but also applies to initial training, where the elimination of distance and physical presence will gradually lead the educational community to rethink its role and redefine the teacher's task as it has been perceived up to now. Furthermore, the development of the concept of virtual mobility, which allows students to take advantage of teaching anywhere in Europe, simply reinforces the gradual change taking place within systems of initial training.

We are currently witnessing the development of a new multimedia economy. The market is still young and in the process of organising itself. One of the current weaknesses, especially in the case of multimedia products, occurs in the area of setting up systems to transmit and disseminate them. These means will be available before long, but in the near future problems will arise in the area of quality certification for products on the market, i.e. who should award certification, and on what basis? They will also occur in the area of intellectual property rights and security of transmitted data. On the other hand, although it is true that access to these products and training material represents a considerable step forward in the learning process, the teaching environment should not be overlooked. The question may be asked whether it is not preferable to have a relatively average multimedia training product in a top-class educational environment rather than a top-class product and no environment at all. Although access to information and these types of

products and services is naturally beneficial, the educational process does not stop at this point. In fact, this is where it begins. This is the level at which considerable structural change must occur, especially in educational and training establishments, if effective, economic and profitable use is to be made of these new opportunities.

At all events, basic services will have to be provided, such as electronic mail, file transfer facilities and interactive multimedia. Although the technologies needed to accomplish this already exist, it will be essential to define clear standards and have sufficient numbers of users at hand. When a critical mass situation has been reached, the number of subscribers to these services could grow exponentially, as has been the case with Internet.

It will not be possible in the future to dissociate producing organisations from learning organisations. This change will be of greater importance than may appear because it challenges the human and organisational structures of every business. Secondly, it highlights the need to re-examine new ways of passing on experience and know-how. The trends we are speaking of cannot be reversed and mastering the intangible will provide one of the main sources of added value for our economies. Our global competitiveness will depend heavily on our capacity to integrate and accept this new paradigm. Communications will largely determine competitiveness in an economy depending henceforth on global trade. Almost every new job will require a capacity to generate, exploit and transmit information. Everyone will be expected to have, at any given time or place, user-friendly, reliable and economic access to different means of communication for voice, text or images. The development of these new tools will also bring about an alteration of behaviour and attitudes. For this reason, we must invest in the younger generation who show none of the aversion to change displayed by the present one, and who, moreover, will prove the best ambassadors for use of these tools in the future.

The recommendations of the Bangemann report

Teleworking: More jobs and new jobs for a mobile society.

Distance teaching: permanent training in a changing society.

Linking universities and research centres: networking Europe's brainpower.

Telematic services for SMEs: relaunching the main driving force of growth and employment in Europe.

Road transport management: electronic roads for a better quality of life.

Air traffic control: electronic airways for Europe.

Health networks: less expensive and more effective health care systems for Europe.

Computerization of calls for tender: more effective and less costly administration

Trans-European public authorities network: more effective and less costly public administration

Urban information highways: bringing the information society into the home.

Taken from the Bangemann report (26 May 1994): Europe and the Global Information Society - Recommendations to the European Council

What is a common information area?

It consists of a number of indivisible levels:

- ▶ The information itself, converted and collated in digital form.
- ▶ The hardware, components and software available to the user to process this information.
- ▶ The physical infrastructure (cable, radio communications networks, satellites, etc.)
- ▶ The basic telecommunications services (electronic mail, file transfer, interactive access to databases, etc.)
- ▶ The applications enabling this area to have the requisite economic and social impact.
- ▶ Users who are correctly trained in the use and potential of these information technologies.

White Paper: Growth, Competitiveness, Employment

Five priorities

Objective

1. Diffusion of best practice in the use of information and communication technologies and the development of European applications in this area.

Means

2. Creation and implementation of a legal, regulatory, standards and political environment.
3. Development of basic trans-European telecommunications services.
4. Organizing specific training cycles linked to the extensive use of information.
5. Harnessing technologies and improving the performance of Europe's information and communications industries.

White Paper: Growth, Competitiveness, Employment

Some significant examples

- ▶ Support within an Erasmus ICP of virtual student mobility in the area of artificial intelligence, using the opportunities offered by Internet (remote information via Internet)
- ▶ Completion under the Comett II programme of more than 4,600 teaching materials, 30% of which include a genuine multimedia component and distance training. Support by Comett for sectoral UETPs (University- Enterprise Training Partnerships) in the area of technology and information.
- ▶ Support for four pilot projects in a joint call for tender in the area of electronic mail for education and training (Task Force, DG XII, DG XIII):
EOUN project (European Open University Network);
HUMANITIES project (Historic Universities Multimedia Network for Innovation in Education Systems);
LOGOS project (adaptation in SME/SMIs);
TELESCOPIA project (Transeuropean Learning System for Crossborder Open and Interactive Applications).

Information Society Project Office

The Commission has set up a special office to act as a main contact point and clearing-house for ideas, information and initiatives in the context of the development of the information society.

The main aims of the Information Society Project Office (ISPO) are to:

- help industry and users contact the Commission and make optimal use of existing instruments and resources;
- act as a broker in information and ideas for interested parties;
- create awareness of the potential impact of the information society;
- address information society issues by providing a forum for pooling relevant solutions;
- facilitate the launch of relevant international cooperative actions.

ISPO Secretariat Freephone

• Belgium	0800 138 91
• Denmark	800 1 88 88
• France	0591 72 27
• Germany	0130 82 19 43
• Ireland	1800 55 32 24
• Italy	1678 76 790
• Luxembourg	0800 29 29
• The Netherlands	06022 20 86
• Portugal	0505 32 96 35
• Spain	900 99 32 90
• United Kingdom	0800 96 21 14

Normal charges

Tel +32 2 296 88 00 89 00
Fax +32 2 299 41 70 80

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e-mail: ispo@ispo.cec.be

Compuserve: 100137,370

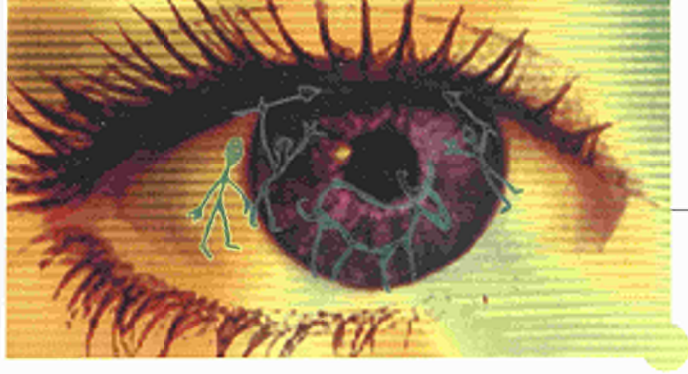
World Wide Web:

<http://www.ech.lu/eudocs/en/bangemann.html>

<http://www.echo.lu/eudocs/en/com-asc.html>

Post

Information Society Project Office
European Commission
BU 24 2/78
Rue de la Loi 200
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The vision thing

Will educators be
the media stars
of the future?

Sir David Puttnam, one of Europe's leading film-makers, is also chairman of the British National Film and Television School, president of the Paris-based training project 'Atelier du Cinéma Européen' and, as a member of the European Commission's think tank on audiovisual policy in 1994, closely involved in arguing the need for new strategies for Europe's audiovisual industries. Here he outlines the coming confrontation of values between entertainment and education: a collision or a merger?

As has happened so often since the Industrial Revolution, technology has run some way ahead of our ability to use it effectively and confidently. The same was true of the film industry, which took almost 20 years to mature from a medium that limited itself to little more than gimmickry and music-hall turns into a medium with genuine creative and artistic possibilities of its own.

There can be no doubt that we are locked into another chapter of that saga today. Astonishing changes are taking place around us in terms of communications technology. On the one hand we hear breathless claims that the printed and written word is already on the way to extinction, and soon we will all be teleworking from home - those of us who have work, that is! On the other hand, gloomy prophecies are made that the rich diversity of cultures around the world is being swallowed up in a rising sea of trivia pumped out by a handful of demonic media barons with the power to transcend any well-meaning regulation imposed by national governments.

Wherever the truth lies between these two lurid extremes, it is now blindingly obvious that one of the most important questions that faces us today is - how can we best draw this new technology from the realm of distant visions into the land of practical reality?

And can we do it in such a way as to bring benefits to the whole of society, rather than simply profits to the powerful few?

I am not for one moment suggesting that film-making, writing, the composition and performance of music, or any other established art forms, are about to disappear. After all, the earliest known works of art we possess are pictures drawn in chalk on cave walls, and subsequent technological development seems not to have rendered that form of expression redundant - indeed, some might gloomily argue that it is flourishing today as never before. The good news is that compared with the talented artists of the Lascaux caves we have a far greater range of media and vastly extended ways by which to express ourselves.

Multimedia is nothing more than another step on a route we've been travelling for thousands of years. It doesn't close possibilities. It only opens them.

Let me start with a very simple example of the sort of thing I mean. Use of the US Internet is currently growing at the phenomenal rate of about 10% a month, and new forms of traffic are being created all the time. Many of the expectations of the Internet focused on its ability to transmit data to large numbers of people very quickly, to allow technical and

scientific collaboration between groups of academics or engineers working at great distances from each other. Few people expected that one of the Internet's side-effects would be the mushrooming of poetry. Perhaps you have seen some of it. Perhaps you are not particularly impressed. The point is that poetry, a medium which has only rarely enjoyed any kind of mass appeal, has suddenly found an outlet that allows poets of any ability and none to let the world judge them.

The audiovisual market is expected to treble in size by the year 2010. The number of broadcasting hours is likely to increase by a factor of 10 over that same period. Everything that has happened recently and is happening now confirms that this likely rate of growth, which we projected a year ago, is very much on course.

Mike Ovitz, who runs the largest and most prestigious talent agency in the world, whose clients are household names of the Hollywood film industry, recently said that in his opinion the best known names, the highest earning stars of 2005 and 2010, would not be traditional movie stars at all but a still-to-emerge generation of teachers and educational presenters who would dominate the TV channels, the CD-Rom market and the cable systems of the world. Given the power of personalities in our society - imagine the impact of having well-known authorities working with your teacher in describing the complexities of the world. Imagine - a little further down the road - that the really well-known personalities are well-known because they are teachers.

Imagine cultural programmes made with the production values and marketing skills of the best commercials, and teaching packages that allow children and trainees to develop at their own speed.

In the same way that generations of working people were motivated to broaden their horizons and improve their job opportunities by going to night school, an effective application of new technology offers the prospect of work-based training coupled with teaching packages which can be used at home on PCs and VCRs.

There is no doubt that educational channels on television and educational software for home computers are going to expand massively in the next few years.

That's edutainment

It can develop in two ways - either it can grow in conjunction with what is already happening in our schools to create a continuum between what happens in the classroom and what happens at home, or it can develop as an alternative to what's happening in schools

- an alternative which is likely to be driven by entertainment values and by the demands of the market rather than by any sustaining vision of educational opportunity.

If we want to nurture the former rather than succumb to the latter, then it is absolutely essential that we have teachers who see this new technology as a useful - indeed an invaluable - educational tool, who have command of the support services and the training that will enable them to be confident masters of its use, rather than fearful victims of its effects, teachers who can interact creatively with the producers and programme-writers to generate new material which works in the real classroom and not just in the development laboratory.

We have at best a couple of years to begin to turn things around, because the biggest and most powerful entertainment and broadcasting organizations in the world all see this as the direction in which to go. They are creating educational programmes which leapfrog over schools and appeal directly to children and their parents. We still have a chance to develop high-quality educational material enlivened with the best techniques of entertainment - but if we don't take that chance quickly we run the risk of losing out in a tidal wave of relatively low-quality and certainly low-price entertainment, sprinkled with just enough educational content to make it attractive to parents.

Here we have one of the greatest expanding industries in the world - the education and training industry. In a global economy, increasingly driven by human skill, it is without doubt the really strategic industry of the future.

We should begin now to develop education and training curricula which use the possibilities of new media positively and imaginatively, which begin to train a generation of teachers to use them and to develop their use creatively. This will provide a market for the talented creators we already produce in such abundance.

We will then have a real prospect of opening up new opportunities for people of every region, of every income group and age to develop their full potential, of creating the best-informed and best-trained workforce in the world, and of sustaining a programme and software industry which will be competing at the leading edge of what is possibly the most exciting industrial sector in the world.

new learning methods

Glyn Martin of The Open University looks ahead to a third-generation relationship between companies, universities and training professionals.



Recent advances in information technology have split the educational world into two camps: those who think there is nothing new happening and that nothing fundamental will change and those who think so many new developments are happening that everything will change. These camps can be termed the traditionalists and the revolutionaries.

The traditionalists say "we've seen it all before". All advances in information technology over the last 50 years, such as educational broadcasting, programmed learning with textbooks, early systems of computer based learning and now CD-Rom, have still left most education and training taking place in classrooms with a teacher or trainer in front of the class. The revolutionaries say this might have been true in the past and may still be true in the state educational system, but in the world of training things have changed and are going to change even more. They also tend to say it is not so surprising to find schools and universities lagging behind the commercial world in their training.

The traditionalists have held the upper hand in this argument for the last 30 years, but their arguments are weakening with the changing nature of work and the sheer weight of technical advance in the field of information technologies.

The future advance of information technology

The advance of information technology is often said to be just the sum of advances in computing technologies and telecommunication technologies, but it is better defined to include advances in the representation and uses of information.

Future developments for technology are difficult to predict and many predictions from the past, such as a helicopter in every garage, now seem ridiculous. However, short-term telecommunications predictions are relatively easy to make, whereas medium to long-term predictions of technological development and their social and market impact are difficult.

The best example of an investment decision which is about to come on stream is the ISDN (Integrated Services Digital Network).



All the major telecommunications companies are committed to implementing this network, which involves the transformation of the telephone network from analogue to digital technology. This year, most of Europe will have potential access to digital services. With the appropriate interface equipment, videophone and fast fax services are easily implemented over the ISDN network. There will be the option to have such interface equipment installed in the desktop computer or as stand-alone devices.

The newly emerging IT technologies of the Internet and CD-Rom will allow further expansion of educational opportunities and new types of universities and schools.

Large and medium-sized companies change their local telephone exchange (PABX) on average once every 10 years and it is likely that all such new PABXs will be compatible with ISDN. As a result, in a maximum of 10 years all those who work in such companies should have access to the digital phone network from their desktop. Amongst other services available to them at their desk will be videophone and application sharing between computers over the ISDN link. The implications for training providers are, to say the least, interesting.

The most difficult factors to estimate when considering the likely impact of IT developments are those concerned with market uptake, such as: how many homes will choose to purchase the ISDN connection? How many videophones will be sold to the home and in the office? Which of the possible new services on ISDN will become commercially successful?

At the beginning of the next century bandwidth will be much cheaper and more accessible than ever before, in the home, on the move and even with global access. The changes that this will bring can only be guessed at, but some have drawn an analogy with the invention of ever-improving printing technologies. In the 15th century printing improvements enabled 20 million books to be produced in 50 years and in the 19th century the invention of the cylindrical roller enabled 2,000 copies of the London Times to be produced every hour. Both inventions produced a rapid decrease in the cost of printed material and, more importantly, in the cost of the information they contained. Whereas better printing technology was one of the factors involved in the growth of education, the newly emerging IT technologies of the Internet and CD-Rom will allow further expansion of educational opportunities and new types of universities and schools.

A brief history of telecommunications

Perhaps the first real application of telecommunications was in 1838 in the UK, when the telegraph was installed on the railway between Paddington and West Drayton. By 1850 the first telegraph cable was laid across the Channel and the first transatlantic cable followed eight years later. By 1870 telegraphic connections were available or planned to India, Australia and China. By then telegraph systems had begun to use Morse code signalling.

In 1876 the telephone was patented by Alexander Graham Bell and within six months of the patent its range had been increased to 12 kilometres. By 1894 there were around 80,000 telephone lines in the UK and in 1947 this figure had grown to 4 million.

In 1887 Marconi erected an experimental wireless station on the Isle of Wight and in 1889 succeeded in sending a signal 60 kms to an approaching ship, thereby enabling the production of an up-to-date newsletter on board. In 1901 the first radio signal was sent across the Atlantic from Cornwall to Newfoundland.

BBC radio programmes began in 1923 and television in 1936. It is interesting to note that John Logie Baird, one of the inventors of television, was also the inventor of cable TV, since he transmitted the first television signals along a telephone cable between London and Glasgow in 1926.

What lessons can be drawn from this brief history of telecommunications?

- The pace of technological development is not always as rapid as it seems. Although it took just over 10 years to increase the range of radio telegraphy from 40 to 2,000 miles, a mass market can take much longer to develop - at least 30 years in the case of television. Even telephones took 50 years to reach 10 lines per 100 people. The analogy today is that the theoretical capacity of fibre optic transmission is increasing rapidly, while the connection of fibre optic to the home seems as far away as ever.
- Improvements which facilitate communication at a distance have become popular and accepted even though there may, as with the case of the telephone, be a group of people strongly opposed to it. The biggest question mark at the moment is over the videophone and its future popularity in the domestic market.

At all events, technological development per se is naturally of less mass-market interest than its applications. The take-off of television, for instance, was helped by the broadcasting of the coronation of Queen Elizabeth II in 1953. Many camcorders were first bought by young parents to film their children. While portability is itself a key

attraction of modern digital devices, manufacturers are keenly aware that a commercial breakthrough may depend on a "must-have" application - could it come from education and training?

Impact on the learner

The effects of IT developments on the learner will be mainly concerned with improving access to information and to teachers. Advances in information technology will give students access to first-class library facilities and databases. Less certain is the extent to which telecommunications developments such as the videophone will enable students to remain at a distance from conventional teachers. This type of teaching is less effective than face-to-face contact and seems to have the same inability to scale up to handle large numbers. One teacher to 10 students on a video conference seems to be gaining status as a magic number.

IT - and particularly multimedia products - also holds out the hope that students will be able to take a more independent approach to learning and browse through knowledge fields. However, giving students access to information and even educational 'nuggets' does not ensure that they will turn them into knowledge and then turn the knowledge into action.

If students bypass their conventional teachers they will also be bypassing their advice, direction and their professional quality guarantee. In short, education and training is a process which involves a range of vital components and services. In the near future there will be networks providing information technology services on a commercial basis which recognize this and provide a full range of services aimed at the education sector. Telecommunications companies throughout Europe have recognized this as an important niche market for their value-added network services and are tempting education and training providers into commercial alliances.

Impact on the teacher

Advances in information technology will affect teachers in two ways:

Greater access to information

Internet has shown the possibility of having global access to information and it is inconceivable that within five years all teachers will not have access to global information databases. The technologies and the functionality of the current network services will seem crude by then and it is likely that services will emerge targeted at teachers. These will offer, on a commercial basis, packaged knowledge services and multimedia educational materials readily adaptable to local teaching needs.

Different ways of teaching

The cost of telecommunication services will soon become so cheap as to put techniques such as videophone and computer conferencing within the reach of all university teachers



and commercial trainers. Whether these will be used will depend on political and market forces. However, what will certainly happen is that the university and other teachers will start to use multimedia teaching nuggets in much the same way as they now use teaching resource packs.

The holy grail for teachers and the information technology industry will remain unattainable for a long time. But when it does arrive it will be an application of information technology which provides a very useful personal support system. A support system which will change the life of a teacher in the way the spreadsheet has changed the life of an accountant.

Impact on training in the workplace

It is in this area where advances in information technology are now being felt and in the future this will profoundly change the nature and scope of training in enterprises. Some new IT advances change training by using IT to replace conventional training. Others take into account the changing nature of work and information management. It is these developments which will have the most profound effect on training.

As far as evolutionary changes concerning the replacement of conventional training are concerned, there will be an increasing use of telecommunication companies' digital networks to extend the reach of training delivery systems. This will be of increasing interest to multinational companies wishing to deliver standardized training to their employees worldwide. Training is also taking place on computer networks and companies will use this for the same purpose. It is likely that specialized value-added network services will be offered to the training community, offering services which package appropriate telecommunication and information services in a trainer-friendly way. The globalization of enterprises will continue to drive these distance learning developments.

Another evolutionary change will be the use of multimedia training techniques to deliver higher volumes of training and also to improve pedagogic efficiency. The driving force for this will be the increasingly rapid technological change affecting some of the commercial world. Enterprises in the forefront of such technology-based training will experience the fastest technology change and globalization.

The nature of knowledge

The real future implication of the Information Society, however, is likely to be more fundamental than simply an evolutionary adoption of information technologies. It will concern the very nature of knowledge and where it resides in a company.

Many industries are now putting more and more specialized knowledge and expertise into the computer systems used to support their staff. Increasingly in such industries staff rely on computer systems to perform their

main job function. This trend has long been in evidence in the aviation industry and now in all forms of advanced technology transportation systems where pilots and drivers rely on computer systems for safety and efficiency. Now it is becoming apparent in seemingly more mundane service industries, such as financial services, where stocks and money markets increasingly rely on computer systems as an integral part of the trading system. These computer systems and their software increasingly contain the commercial expertise of the companies concerned. Insurance companies no longer talk in terms of computer-based training (CBT) for their staff but rather of performance support systems.

Performance support systems are complete computer systems designed to help the employee to perform his or her everyday work. Such a system could contain a collection of reference manuals, computer-led procedures for opening accounts, intelligent help systems and, when appropriate, conventional CBT.

What this means for training in industry is that the distinction between training of staff and the design of intelligent systems to support them is becoming blurred. As this trend continues there will be a change of emphasis between the need to train employees and the need to 'train' their computer help systems. Whilst this might seem an extreme view, there is surely no doubt that this is a trend for the future. As a consequence, training suppliers – and particularly universities – will need to change to a third-generation relationship with industry.

The first-generation relationship was characterized by industries donating money to industry for research and taking results by serendipity. The second-generation relationship is now predominant and is marked by more direct and targeted gifts of money to universities, together with a request for help with training, particularly in the new technologies. Symptomatic of this phase is the concept of lifelong learning being benignly supported by industry even though there is no immediate payback to the company. Universities and other training providers are left to find out for themselves what training they might sell to industry and are encouraged to use commercial marketing skills to sell their products into what could be described as a semi-free market system.

The third generation will be formed, if universities can respond, by a merging of the knowledge-based activities of their research and their training activities. Leading edge companies and leading universities will develop relationships that combine knowledge transfer and specific training in a seamless way. Such a relationship need not be restricted to large companies. Other organizations which merge knowledge bases and training could also be involved. Imagine a university or training provider managing access to information services for a group of SMEs, for example, or for groups of lawyers, farmers or hoteliers. In addition

to managing and filtering relevant information it could also supply its own knowledge and training and make it available to all members of the 'club'. In this way, universities and training companies will no longer be the sole source of up-to-date information, but rather a gateway to other networks, to electronic libraries and knowledge bases.

Conventional training companies without ready access to research departments will have to find from their own resources people who can organize knowledge and 'teach' computer systems as well as people. Trainers could find the raw knowledge on information networks or adapt the knowledge base existing inside the companies to the new training and personal performance support system needs, the latter being more likely.

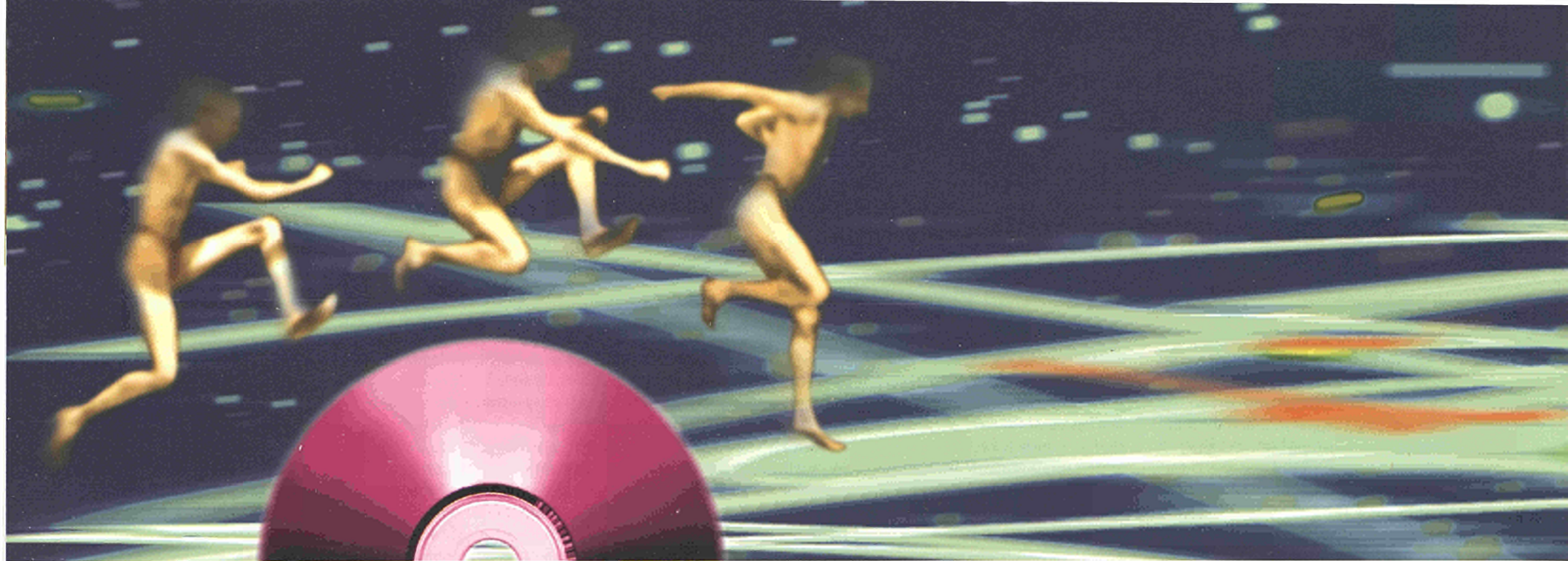
Conclusions

The advances in information which will give rise to the Information Society will change profoundly the education and training environment. Initially, this will appear as a much greater access to information, as well as better and cheaper telecommunications. In time, it will begin to change the nature of education and training due to new delivery technologies and, more importantly, the changing needs of education and performance support tools.

The traditional role of universities in the area of teaching has been to organize the knowledge of their professors into training courses. In future it will be to distribute remotely stored information as well as that residing in their own staff. This could give rise to new models for universities – those which teach, those which organize knowledge with no teaching and the traditional hybrid of both functions.

Learners will take more responsibility for their learning, treating their search for knowledge in the same way as they might search for information to help them do their work. They will still need the support of professional teachers and trainers but more and more of this support will use information technologies.

Training at work will become increasingly associated with the personal support tools which people will use for their work. This will change the relationship between suppliers of education and training and companies. It will mean less emphasis on generic courses and more on training and support tools adapted to specific needs. Now that the new digital networks are reaching peoples' desktops, it is there they will first look for their training.



Information highway driving instructors

Training in the use of electronic information as a strategic resource deserves more attention in education systems at all levels in the European Union. A network of European resource centres could significantly contribute to incorporating training on electronic information provision into general training programmes.

This last decade of the 20th century is often referred to as "the information age". The amount of information being created each day is enormous, and thanks to remarkable developments within telecommunications, the dissemination of information is taking place world-wide.

No business can remain competitive in today's complex world without investing in information tools. Thanks to the developments within computing, even very small businesses can now computerize. Information is a strategic resource and the fourth factor of productivity, alongside capital, labour and raw material.

The availability of information in electronic form greatly improves the possibility of easily retrieving the information needed to form a decision basis in an intelligent way. But many more companies could benefit if they were more readily conversant with on-line databases, CD-Roms, etc. There is an awareness gap.

Education in the European Union does not generally include training in electronic information provision as part of the standard curriculum. Knowledge of such services and training in how to use them are normally obtained via short-term introductory courses and seminars, usually arranged and conducted by the "market spinners" themselves, e.g. database producers and hosts.

It is also typical that established outfits for "training the work force" so far have not done very much about electronic information provision, and this despite the fact that many of them run training programmes on informatics.

There could be many reasons for this. One could be that the need for this type of training does not yet exist, a reason closely connected with the general lack of awareness. Another, much more likely, is that the need is not yet perceived amongst educational institutions at all levels and that there is a lack of qualified teachers to develop and introduce such training. How can training in the appropriate use of available information sources be developed, implemented and continued on a permanent basis, preferably including formal education systems as well as structures for vocational training?

Universities and high schools

With a few exceptions, it is currently possible to leave any university or high school with any qualification in any country of the European Union without ever having been introduced to electronic information provision and without having had the opportunity to use such facilities while studying, e.g. for examinations and theses.

If such courses are offered, they are mostly offered as optional and extremely short-term modules; only in studies strictly related to "information science" are compulsory, longer term modules offered. There are of course good reasons for this, technical as well as economic.

Until very recently access to electronic information sources, especially on-line databases, required special technical equipment and special telecommunication access

procedures, special in the sense that these were not provided as a normal part of the electronic infrastructure at universities. The student may have had access to PCs (personal computers) linked together by LANS, local area networks, and via university networks also linked to similar infrastructures in other universities. But such networks would seldom have interconnections to public networks. As a result, connections to the many hosts offering collectively more than 5,000 publicly available databases, requiring special access procedures and "information access", would not be included in the services displayed on the menu.

The introduction of many of the most commonly used databases on CD-Rom over the last few years has changed the picture dramatically. Now most universities and high schools subscribe to a number of CD-Roms and provide access to them via LANS. Further, the almost revolutionary development of university networks in the last two to three years, and especially the interconnection of these and Internet, has led to the fact that today almost every host and database is accessible via Internet and other academic networks. Technical barriers to access to electronic information sources have therefore been removed by now.

Unfortunately, not quite the same is true of the economic barriers. One of the reasons behind the success of CD-Roms at universities is the cost control element. By subscribing to a CD-Rom the subscriber, i.e. the university department, pays a fixed yearly, quarterly or monthly fee which is (almost) independent of usage, i.e. in practice unlimited access for all students at a fixed price. As far as on-line databases are concerned, the fees paid are calculated as a function of



usage. Letting students have unlimited access to such databases would mean that, even within a very short period of time, the available budget for "information provision" would be consumed.

The costs involved in on-line access to databases comprise:

- telecommunication costs
- fees paid to the hosts offering the services
- fees/royalties paid to the "owner" of the database, i.e. the database producer.

Of these three components, telecommunication does not present a problem for universities thanks to academic networks. There are also very few problems with host charges. The marginal costs for hosts of letting students have access are very limited, and in fact hosts have been very interested in creating academic schemes for universities to promote their services and thus invest in the future generation of on-line users. The main problems are related to the royalties to be paid to the database producers. But even here things are rapidly changing. An example of this is the Institute of Scientific Information (UK), which via Super-Janet, the British academic network, provides access to a number of bases at fixed prices. Although ISI is a pioneer, it is not unique, and many other database producers have or are in the process of adopting similar schemes.

Therefore all universities either have - or will have in the near future - technical and economic possibilities to allow students to access on-line databases as well as CD-Roms, thus providing access to a wide range of databases for teachers and students. What remains to be solved is then the introduction of appropriate training on why, how and for what purpose the facilities are to be used. This will be dealt with later.

Vocational training

Across the European Union there are great differences in how vocational training systems are organized, both the legal basis and the financing. In some countries workers have a right to training and the systems as such are publicly funded. In other countries there are no legal rights and training is performed by private enterprises on a commercial basis. In many countries professional bodies, trade unions, employers' associations and particularly established partnerships between employers and employees are involved in vocational training activities.

Whatever the chosen structure and financial mechanisms, they all have two things in common:

- the objective of vocational training is to enhance the skills and competence of the work force and ensure that the skills and competence are in line with the needs of industry as such, in order for industry to remain competitive or regain competitiveness;
- only extremely few systems/structures offer training related to modern information provision.

Despite the fact that informatics in a very broad sense is dealt with in these systems and that many employees have received training on how to use computers and application software packages, as well as on how to provide input for the development of customized computer systems, access to electronic information sources has seldom been dealt with. As regards middle managers in particular, for whom a number of courses on management tools have been designed and conducted, the gap in awareness and education seems huge.

Where future generations of users/middle management can be reached is by introducing training on electronic information provision at university level. Action for current users/managers has to be initiated in the short term if the competitiveness of European industry is to be ensured. But unlike the university sector where, as mentioned earlier, the technical barriers have already been removed, vocational training systems are generally not particularly advanced. So here an additional effort is necessary concerning advice about infrastructure and procedures.

Available resources

Via the Impact programme (Information market policy actions), the European Commission is involved in the electronic information market in general. In Impact 2 (1991 - 95), one action line is devoted to awareness, user support and training. Under this action line the Commission, in close collaboration with 'national awareness partners', is carrying out a number of awareness activities, e.g. seminars, courses, workshops, exhibitions, etc. As a support for these actions, the Commission offers access to a host, ECHO (European Commission Host Organization). On ECHO potential users can have access to a number of databases, free of charge and in nine official languages of the European Union.

Together with the access training possibilities are also provided, e.g. an on-line system with extensive help facilities and an off-line system, where one can simulate on-line searching on a standard PC.

Within Impact 2 the Commission has also, for the first time, launched concrete training actions as kick-off projects on an experimental basis. In 1992 a project concerning training of trainers in the less favoured regions (LFRs) of the Community was launched. Thanks to the Train-Train project some 150 people in the LFRs were trained during 10 training courses in five countries. In 1993 - 94 a project on training information service specialists in the LFRs (Train-ISS) is being carried out, in which 35 people from the LFRs will be trained over a nine-month period. The course itself will lead to a diploma and with a dissertation the students will be able to obtain a Master's degree. The aim of this project is to provide the LFRs with the necessary expertise to develop the information market further in their regions. A project to encourage universities and high schools to incorporate training on electronic information provision has recently started. This project is carried out on an experimental basis, and the experience gained should be used to analyse how a more permanent infrastructure for such actions can be established within the framework of the general Community policy and programmes for education. The project is carried out in collaboration with the 'national focal points' in the LFRs, the agencies/organizations responsible for the national coordination of activities related to the information market and its development.

These projects are all important for future training actions. They are kick-off actions on an experimental basis, and as integral parts of the projects, the possibilities for transferring the knowledge to other sectors have been emphasized. In addition to training a number of people, Train-Train also produced a more tangible results, notably a Lecturer's Manual, a tool the 150 course participants can use for their own, future courses. The project was carried out by a consortium of business management schools and the manual, a comprehensive training package of about 1,000 pages, has been produced in English, Greek, Italian, Portuguese and Spanish. Last year a mailshot announced it to a substantial number of educational institutions in the European Union, including the





UETPs (University Enterprise Training Partnerships) recognised under the Comett programme. The objective was to inform educational institutions and planners that material which can facilitate their own introduction of electronic information provision exists and that concrete development of such courses can beneficially be based on this material. One immediate example of success can be reported: the material will be used by a number of UETPs, which, within the Comett programme, will carry out some 12 courses in 10 countries this year concerning electronic information provision. This project, Train-Inter, is a good example of how synergy and cross-fertilisation between Community programmes can be established at a very practical level.

Though such projects, and taking into account developments within the university sector concerning infrastructure, technical and economic possibilities, the necessary infrastructure for launching training actions in electronic information provision now exists, as do a number of specialists/organizations for performing such actions, and there is now appropriate training material for such actions.

What remains to be resolved is how to get teachers at universities and high schools, as well as in vocational training systems, motivated and educated to incorporate the training into their normal curricula. This is where the resource centres come in.

Resource centres for electronic information provision

Before considering the organization and functions of resource centres for electronic information provision, it is useful to outline the characteristics of the information sector.

- On the demand side, electronic information provision is inter-disciplinary. Information is important in all subject areas, in all industries and at all functional levels in an enterprise. General knowledge is therefore needed about electronic information provision as such, as well as specific knowledge on how to apply it appropriately in specific subject or industrial areas.
- Information technology and information tools are rapidly changing and the problems of ensuring the links between research and practical application (technology transfer) are perhaps more crucial in this sector than in any other. This goes for the information industry itself, the supply side of the market, as well as for the demand side, i.e. all other economic sectors.
- On the demand side, information provision is global. It cannot simply be looked at from a national point of view.

The only EU infrastructure that properly caters for these three characteristics on both the supply and demand side will be a European network of collaborating resource centres. Each individual centre should be geared towards the national, regional and local needs of the

industry sectors, but between them and in cooperation they would, over time, be able to cover all areas/sectors. With such a structure it would be possible to cooperate concerning the "general aspects" of electronic information provision and, at the same time, to develop the skills and expertise necessary to satisfy the national, regional and local requirements of the enterprises, particularly small and medium-sized enterprises. Taking the global aspects of information provision into consideration as well as the rapidly changing technology, sectoral resource centres, e.g. for the textile industry, etc., could also be envisaged in the network. A structure like this where the appropriate partners, representing knowledge about electronic information provision, knowledge about the application of research results and knowledge about education are brought together, could thus ensure the necessary technical coherence at European, national, regional and local level.

With this structure in mind, with due respect for the principle of subsidiarity and on condition that such centres could form part of national, regional, local or sectoral structures, they could be accommodated within, and achieve financial synergy with, future EU programmes for training and education, notably Socrates, Leonardo da Vinci and the telematics chapter of the fourth Framework Programme for research and technological development. This type of resource centre should preferably be based on existing infrastructures and organizations such as the national focal points established by the Impact programme, the relay centres created by the Value programme, and Comett UETPs could undoubtedly play a catalytic role in this context.

Functions of the resource centres

Resource centres for electronic information provision should be involved in all kinds of training at all levels concerning electronic information provision. Their activities would be:

- To develop education and training for the information industry itself and for existing and potential users in all economic sectors, particularly SMES, i.e. the supply side as well as the demand side of the market.
- Via training and education, to support and ensure the proper application of results achieved in the European Union research and technological development projects in the area, especially by SMES.
- To offer technical and practical support to universities and other educational establishments to incorporate training in electronic information provision tools and methods into all course curricula.

The resource centres would of course have to work within legal frameworks at national level and their activities should also be in line with and complementary to national activities which could be different across the Member States in the European Union. Despite this, there is a good, common starting point.

While actions supported by the Impact programme provide an initial basis, there is still much to be done, particularly regarding support to universities and other educational institutions.

It is vital that these institutions undertake training themselves. The fundamental problem to be solved appears to be how to motivate and educate teaching staff. With a multidisciplinary European network as a support, the resource centres would be able not only to teach teachers the general aspects of electronic information provision, but also the aspects relevant to specific departments, e.g. how to teach teachers to teach about legal information sources, chemical engineering sources, economic information sources, etc.

One of the main challenges is that of investment in education and training. If we want to see genuine integration of the information society in our daily lives, we have to develop awareness in everyone. And while this particularly concerns universities, they represent only the first stage of a more extensive process which will have to involve schools. After all, the information society truly belongs to the next generation.

While we have to take legal, administrative and technical issues regarding the development of the information society on board, we mustn't miss the boat as far as investment in education and training is concerned. This is the true key to success and the challenge is not for tomorrow but for today.

Daniel Deberghes
DG XIII, European Commission

Ortelius

The European Database

on higher education

A database on higher education in Europe, called Ortelius, was created last year with the Commission's financial backing for a number of reasons, the foremost being the need to encourage greater cooperation among Member States and to consolidate mobility, particularly for students, by providing them with the information they need.

The aim is to provide a reliable and accessible means of facilitating information flows between institutes, public bodies, teaching staff, students and enterprises. The function of the database is also to coordinate communication between those involved in the European dimension in education and training.

Following a Community call for tender, the task of creating the database was entrusted to an Italian consortium composed of two public institutions (the Università degli Studi di Firenze and the Biblioteca di Documentazione Pedagogica) and two private companies (Olivetti and Giunti Multimedia).

Telematic access

CeSIT (the information and telematic services centre of the University of Florence) is the data transmission node within the Ortelius system and enables users of the database on higher education in Europe to access the data in a variety of ways. Access is available through:

- Internet and multi-protocol international research and academic networks. For a number of years now, CeSIT has been the node for the Italian GARR academic and research network which in turn is connected to the main European and international networks. Access protocols are currently TCP/IP and Decnet.
- Switched telephone lines. Access ports are available at 2400 b/s VT 1xx and up to 14400b/s for SLIP protocol users.
- The public network (in Italy access is provided by ITAPAC) through X25, X28, X32 protocols.

ISDN and Videotex connections are currently being set up.

Users can access data in an interactive mode or through e-mail to the Query Server. Batch Server functions are carried out by a VAX 4500 digital system at the CeSIT which can cater for most of the e-mail box protocols used on the international networks: SMPT, Decnet and Bitnet. Communication with X400 environments is currently being activated.

The information 'totem'

Because Ortelius is an ideal tool for meeting the constant demand for information, a special system has been developed in a number of European institutions of higher education. The system consists of a series of totem-shaped multimedia information stands which can be consulted free of charge and do not require any previous experience of computers on the part of the user.

This is a self-service system. Each stand is equipped with a user-friendly terminal, including a keyboard which can be used to enter questions and a monitor to view the answers, help messages and a guided tour across the system. The totem can be considered as one of the instruments of the project because, apart from providing a clear and comprehensive illustration of Ortelius and on how to gain entry to it, it also provides immediate access to some of its functions.

Integrated, multifunctional, multilingual

The core of the Ortelius system is the database on higher education in Europe, which was established in response to the EU mandate to create a concrete and reliable tool for the promotion of student mobility at a European level and to bridge the information gaps hindering this process. The database, however, was not

conceived exclusively for students; it caters for a wide range of users including teaching staff, policy-makers, administrators and indeed anyone who would like to know more about mobility and cooperation opportunities, policy-making and programmes in this area. This means that users can base their study and career choices on concrete data. The architecture of the system is therefore fairly complex, in terms of both data content and information technology. The retrievable data not only cover the higher education systems in the EU countries at a macro level, but also provide details on specific institutions by describing their structure and composition (faculties, university departments, laboratories, libraries, computer centres, etc). Detailed descriptions of teaching programmes, the qualifications they lead to, and their recognition at national and European level are also available.

The European dimension is further boosted by a data bank which is entirely devoted to inter-university cooperation programmes (ICPs) and contains retrievable data on the institutions which participate in them, whether as coordinators or partners, as well as the names of the people responsible for the programme in each institution, the disciplines covered and the type of financial aid available.

ECHO

ECHO (European Commission Host Organization), the Commission's server, was created in 1980 to encourage the development and promotion of electronic information services within the European Union.

Even if European databases, accessible at any time, are one of ECHO's most attractive services, they are just one of the many offered currently.

ECHO's different functions are:

- A demonstration and diffusion server, which, in particular, demonstrates the advantages of the use of electronic information services in enterprises, in both socio-economic and research contexts. Most of its databases are available in a number of European Union languages.
- Help for new users through a freephone number covering most of Europe, awareness-raising seminars, distribution of documentation and diskettes providing training in on-line interrogation (multilingual).

Particular attention is paid to the Community's more disadvantaged regions.

- Online access to **The M Guide** (directory of electronic information services available in Europe) and to **The Experts Guide** (directory of persons and organizations proposing expertise in the information services market).
- Introduction of innovative projects demonstrating natural language access, multilingual interrogation of databases, **EDI** (Electronic Data Interchange) and voice recognition and synthesis.

The databases break down into four main areas

User assistance:

CCL-Train (on-line training in user-friendly interrogation language);
The M Guide (practical information on databases and databanks and their contents, also on database and access suppliers);

Printed products published annually

- The Postgraduate Directory
- Student's Guide per Area of Study
- The ECTS Directory
- The European Student's Guidebook
- Directory of Institutions of Higher Education
- The Distance Learning Report
- The User's Handbook on On-line Services

CD-Rom

Although the CD-Rom contains some of the data already contained in the on-line services and the printed products, its data and maps can be consulted with the added advantage of hypertext technology. It also offers very useful summaries of courses and a number of multimedia paths which, for technical reasons, could not reside on the central computer of the databanks. The production of Ortelius guides, directories and reports in floppy disk format will increase in the near future.

In order to guarantee high-quality, reliable, complete and updated information, the data collection process has been decentralized by allocating responsibility to national agencies in each country. These agencies were identified with the help of the national units of the Eurydice network, which for many years has been responsible for the dissemination of information on systems of higher education in Europe and developments at national and EU level.

In addition to this core information, there are a number of other data banks which contain supplementary data. These data banks offer information which enables users to further their knowledge through guided searches and to browse through the system and retrieve the information they need.

The data bank on the profiles of national higher education systems in the EU is the most closely linked to the central Ortelius database. It provides a detailed panorama of the systems of higher education in the various Member States of the EU and therefore enables users to put the data on the institutions into the contexts of the national systems they belong to. This data bank offers a wealth of both general and detailed information which has been organized into a logical sequential structure, covering aspects ranging from the history of the various systems to the duration of the academic year. The sources are reliable because the data is extracted from the dossier prepared by the national units of the Eurydice network.

The other data banks in the Ortelius system have a specifically European Union dimension. They contain data supplied by the Commission in Brussels in response to the internationally recognized need to provide students, teaching staff or anyone else concerned with a guide on EU activities in terms of education opportunities, legislation and publications.

There are three specific data banks which focus on the following areas:

- EU programmes and actions in the education and training field which have any bearing on higher education and which contribute to mobility in a significant way.
- Educational policy statements in the European Union. Users can consult the texts of treatises, recommendations, resolutions, directives, decisions and regulations.
- Bibliographic references to documents, studies, reports and analyses promoted by the European Commission in the field of higher education.

Ortelius products

Because of its wide range of products, users can access Ortelius services in a variety of ways. Each Ortelius product has been designed to suit the specific nature of the information it contains. This has led to a whole line of products which complement each other. The central database and the other on-line services are reserved for information which needs to be continuously updated and which, due to its

complexity, must be stored in a highly structured database. The printed products, on the other hand, were developed to deal with specific topics and provide a space for all the information which could not be included in the on-line database. These products were conceived as personal reference tools that the user can continuously refer to for guidance on mobility in higher education and practical information on day-to-day living in the European cities in which institutions of higher education are located. The CD-Rom products were devised to broaden the range of products and to offer an access mode which combines text and graphics. They also give users the added facility of navigating through this complex world with the help of hypertext technology. Last but not least, the *Ortelius Report* is a communication tool within the Ortelius system for the dissemination of information on higher education and mobility in the European Union.

CORDIS

CORDIS (*Community Research & Development Information Service*), an information service managed by DG XIII, is one of the services available on ECHO as part of the VALUE programme.

The primary objective of CORDIS is to disseminate publicly available information from the Framework Research Programme and all RTD (*research and technological development*) activities and their results, so as to increase awareness of these activities and facilitate interaction and cooperation between programmes and programme players, and to help promote cooperation with similar RTD activities being undertaken at Member State level.

The following CORDIS databases are currently accessible:

- **RTD-Programmes:** This is the heart of CORDIS, giving details on the programmes through which the Commission finances and undertakes Community RTD policy.

- **RTD-Projects:** Further detailed information on RTD activities within Community RTD programmes, in particular on studies and project contents (*general information, project timetables and partners*).

- **RTD-Publications:** Bibliographical references of more than 50,000 documents linked to the above-mentioned projects (*certain publications can be ordered directly*).

- **RTD-ComDocuments:** Information on Commission communications to the Council and Parliament on RTD activities.

- **RTD-Acronyms:** Explanations of the many acronyms and abbreviations taken from Community RTD activities.

- **RTD-News:** Latest information on all aspects of Community activities in the RTD area (*including announcements of calls for tender*).

- **RTD-Results:** Results and prototypes from RTD activities (*Community and other*).

- **RTD-Partners:** Presentation of organisations seeking partners for RTD programmes or projects (*Community and other*).
- **RTD-Info-Points:** Organizations in Member States which furnish assistance, at national or regional level, in the area of Community RTD activities.

General contact point

For ECHO
(*certain countries have introduced freephone numbers*)

ECHO
European Commission Host Organisation
BP 2373 - L 1023 Luxembourg
Tel: + 352 / 34.981.200
Fax: + 352 / 34.981.234

For CORDIS
Tel: +352 34.981.240
Fax: +352 34.981.248.
<http://www.cordis.lu>

News on-line with Echo facts for users (*selected information in the area of electronic information and ECHO*) and with

The M News archive (*e-mail version of M News from DG XIII's IMPACT programme*);

XIII Magazine (*e-mail version of DG XIII's regular magazine*);

DUNDIS (*Directory of United Nations information systems and databases*); and

UNESIB (*bibliographical references of documents published by UNESCO*).

• Research and Development:

CORDIS (*RTD-Programmes, RTD-Projects, RTD-Publications, RTD-ComDocuments, RTD-Results, RTD-Acronyms, RTD-News, RTD-Partners, and RTD-InfoPoints - see CORDIS box*);

BIOREP (*biotechnology projects in the European Community*);

DOMIS (*information sources in the materials area*);

EUREKA (*EUREKA projects*); and

EURISTOTE (*directory of 15,000 theses and studies written and carried out since the '50s*).

- **Linguistic services:** **EURODICAUTOM** (*linguistic database of technical and scientific terms*); and **THESAURI** (*thesaurus directory*).

- **Industry and Economics:** **TED** (*public calls for tender in 80 countries*); **JUSLETTER** (*legal events and legislation in Europe*); **MISEP** (*Community and national texts on employment policy in Europe*); and **EMIRE** (*introduction to national legislation on employment and industrial practice*).

General contact point:
(*freephone numbers also exist for certain countries*)

ECHO

European Commission Host Organisation
BP 2373 - L 1023 Luxembourg
Tel: + 352 / 34981-200
Fax: + 352 / 34981-234
WWW access to ECHO and I'M Europe:
<http://www.echo.lu/home.html>

Key data

on education in the European Union

As an open European area for education and training begins to emerge, greater understanding of the organization and functioning of the education systems of the EU Member States is becoming increasingly necessary for policy-makers and a wide range of education professionals. This need is all the greater because of the diversity of the education systems, which imposes strict demands of rigour and reliability on comparative analyses capable of shedding light on the educational challenges confronting Europe.

The European Commission, which is interested in developing an observatory facility for comparing the directions in which education systems are changing, has recently published the first of a projected series of annual reports - *Key data on education in the European Union*. Combining graphical presentations and statistics on all levels of education, the report presents indicators essential to a proper understanding of the current situation in the education systems together with in-depth analysis on a particular question of Community interest. The topic selected in 1994 - one of prime importance to the development of Europe - is language learning.

The 1994 report, covering 12 countries, is designed to provide easily-read information from which the reader can immediately pick out features of interest. It includes a number of graphs with brief commentaries on the main points they reveal. Published as part of a series of studies by DG XXII, it will be available in all nine official languages of the European Union.

An original approach: linking the qualitative and the quantitative

This first report is the product of close cooperation between the former Task Force (now DG XXII), Eurostat and Eurydice. It aims to ensure complementarity between the quantitative statistical data and the qualitative descriptive information. All the qualitative data on the education systems, which accompany the statistics, contribute to nuancing the possible interpretations and make for greater reliability.

For example, of the 67 million pupils and students in the education systems of the European Union, over one third are at primary school. However, considerable variations may be observed between Member States, with actual proportions ranging from 25% to 50%.

These variations are due to some extent to demographic factors, and certainly to the uneven development of higher education across the Member States. Differences in the duration of primary (or "basic") education in individual Member States constitutes another major factor. In practice, examination of the various education structures demonstrates that this level of education can last for between four and nine years, depending on the country in question.

The necessity for education indicators on a regional basis

The statistics relate as far as possible to the regional level, at which different economic, social and cultural characteristics are frequently revealed. The subdivision used here is that of level 1 of the nomenclature of territorial units for statistics (NUTS), which was devised to provide a single and coherent schema for regional statistics in the European Union.

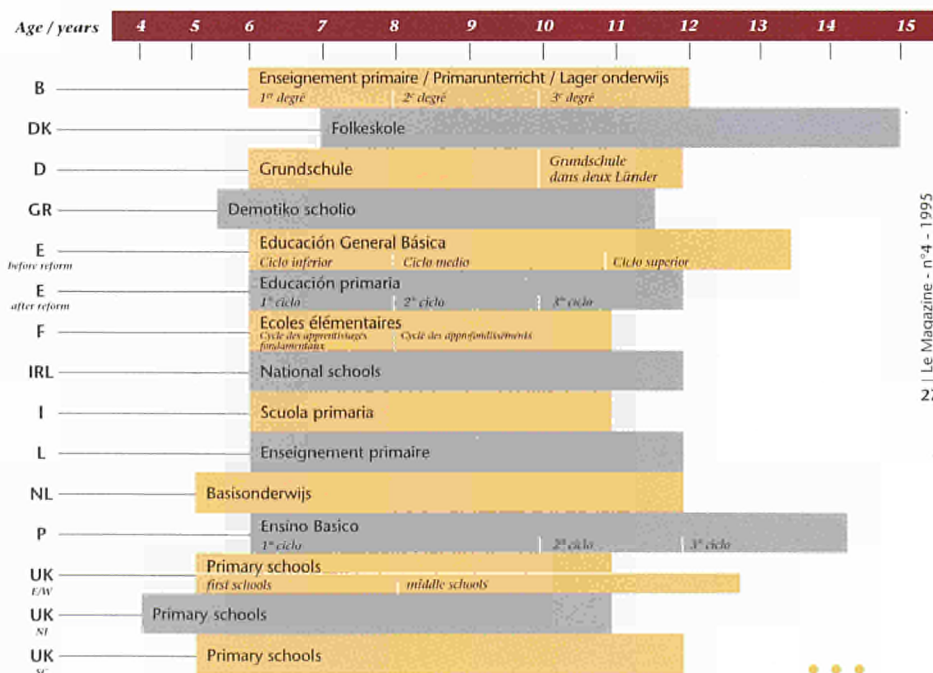
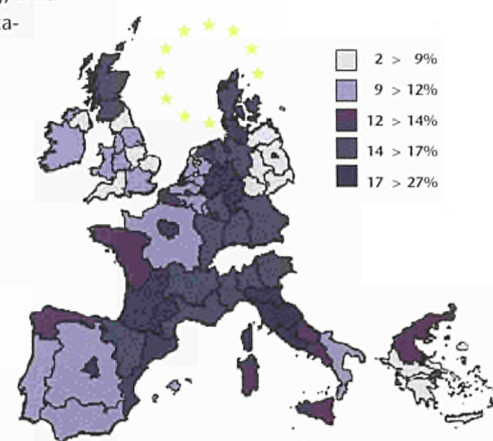
This first effort brings out the major inequalities which still remain in access to education and which are frequently obscured in the national statistics.

Higher education accounts, on average, for 14% of all those in education. However, the relative share of education represented by this level varies from 9% to 16%, depending on the Member State. Analysis at the regional level reveals even greater variations, as some regions well endowed with universities draw considerable numbers of students from adjacent regions and other countries. This is the case in Belgium, in the Brussels region; in Germany, in the regions of Berlin, Hamburg and Bremen; and in Spain, in the Madrid region.

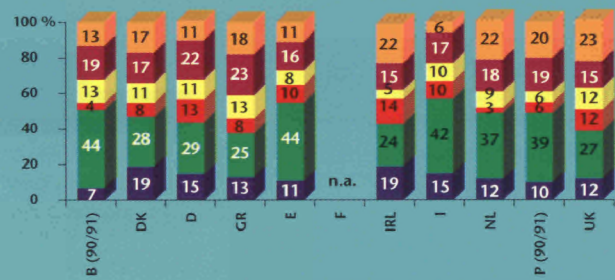
A broad spectrum of indicators

In each chapter, and as far as reliable statistics could be obtained, a variety of aspects are examined. In addition to a detailed description of school provision by level of education, presented on a comparative basis, information is presented on school time, subjects taught at different stages of education, some features of the different forms of assessment, the duration and requirements of teacher training, and data on equality of opportunity in education for girls and boys.

The statistics on fields of study in higher education show that, in 1992, the social sciences group was by far the most popular choice throughout the European Union. More than one third of higher education graduates qualified in the social sciences, business and law group, which led the field in seven of the 10 Member States for which data were available.



A varied range of indicators



- Literature, Religion, Theology, Fine Arts
- Science and Mathematics
- Engineering, Architecture, Transport
- Social sciences, Business, Law
- Medicine, Health, Hygiene
- Others

Explanatory note

The fields of study presented here include several branches.

Eurostat generally distinguishes between six fields of study:

- ▶ Fine Art and Applied Arts, Humanities, Religion and Theology
- ▶ Social and Behavioural Sciences, Commercial and Business Administration, Law, Mass Communications
- ▶ Natural Sciences, Mathematics and Computer Sciences
- ▶ Medical Sciences, Health
- ▶ Manufacturing Sciences, Engineering, Architecture and Town Planning, Transport and Telecommunications
- ▶ Others: Education; Agriculture, Forestry and Fishery; Services sector; others unspecified.

At the present stage, not all countries classify all areas of study in the same way. There are still slight variations and care is required in making international comparisons. The European rates have been calculated on the basis of the total number of students or graduates broken down by field of study for the 10 Member States for which data are available.

Language learning

The entire second part of the document is devoted to the subject of foreign language learning, with an analysis of the impact of the Community's Lingua programme. Some of the results of the Eurobarometer⁽¹⁾ survey on this subject are included, providing evidence of a positive trend in foreign language learning by people in all EU Member States over the last 30 years. As the graph based on the statistics demonstrates, there are fewer young people than older people who have never learned a foreign language; of all the languages studied, English has shown the most spectacular development.

The place of foreign language learning today in the various education systems is the result of a similar development. The analytical description undertaken by Eurydice in this field gives details of the points of time at which foreign language learning is introduced in the curricula – sometimes at a very early stage – and whether it is compulsory.

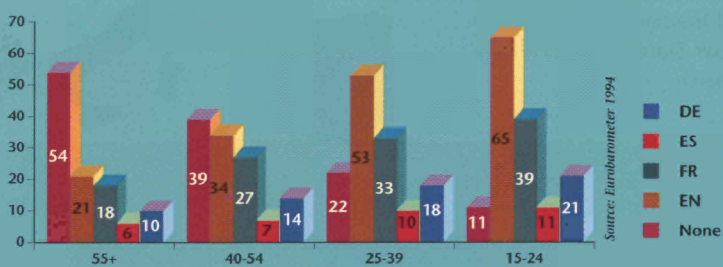
Conclusion

Education is a vast subject. For this reason, and in view of the short space of time within which this first issue of the report was prepared, *Key data on education* makes no claim to being exhaustive; but it does include a certain number of statistics indispensable to an appreciation of the education systems. It is also necessary to stress that the report constitutes a pressing invitation to the Member States and the Commission to pool their resources and make progress towards the establishment of the common reference base which is essential to improving cooperation in the field of education at EU level. In the event, despite all efforts to fill the many gaps in the data and to compensate for the limitations on their comparability, the publication still includes some approximations and some gaps.

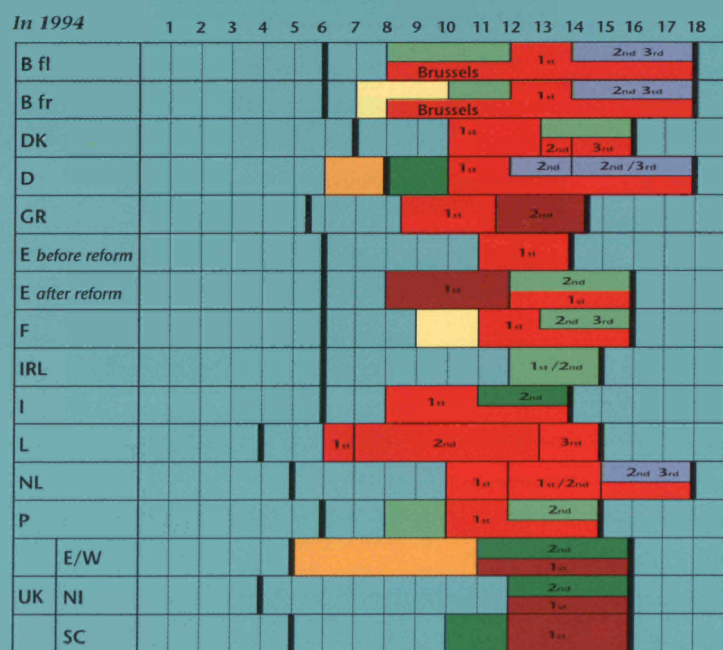
The 1995 edition includes information on the education systems of the three new Member States (Austria, Finland and Sweden) and some new indicators. Attention is focused particularly on teachers, the topic analysed in the second part of the report.

(1) Eurobarometer 41, Brussels, European Commission, 1994, p. 105.

Knowledge of foreign languages in the EU, by age groups



Foreign language teaching during compulsory schooling



- foreign language obligatory
- foreign language optional
- obligatory foreign language teaching recently introduced by law and still to be fully implemented
- limited teaching of optional foreign language
- experimental early learning scheme
- limited early learning, depending on individual schools
- 2nd/3rd foreign languages obligatory or optional depending on courses chosen by pupils
- | beginning/end of compulsory schooling

UK: in Wales, learning a foreign language is not obligatory for the 14-16 age-group



Equal opportunities

Women and Training

50 projects which challenge European traditions

A collective agreement on equal opportunities between the social partners at ENEL, the Italian public electricity board, which aims to influence corporate culture and change attitudes by providing awareness-raising training for employees of both sexes.

A special training course run by 70 of the 104 Chambres de Métiers in France for spouses who are co-entrepreneurs in small businesses, revolving around four modules (communication, management, secretarial skills, marketing techniques), helping women assume responsibilities within the business. The course culminates in the "Auxiliary to the Head of a Craft Business" certificate, a diploma officially recognized at baccalauréat level.

Tailor-made theoretical and practical training in painting and decorating for women returners to the labour market which includes confidence-building, basic training in a second European language and enterprise skills and leads to a European vocational certification validated by the London-based City and Guilds.

Improving the self-esteem and motivation of women workers in the cleaning sector in Ireland with the active participation of the social partners.

Swedish trade unions and employers' confederations join forces to define an "ideal" training model for unqualified women workers. The employment of a local woman coordinator, acting as an interface between the trainees and the training promoters, turns out to be a key factor in the success of the initiative.

A training course organized by the Fyn Savings bank in Denmark quadruples the number of women in management posts in the space of a few years (considered by the management to be a commercial must for the bank if it wants to attract more customers). The secret of this project's success lies in a method encouraging the women to define a long-term career plan, flexibly integrating the different phases in their personal lives.

A vocational training module for women returners in the Netherlands chosen to coincide with areas where a lack of qualified labour exists. Developments on the local employment market are closely monitored and reflected in the training given, after consultation with employment agencies, representatives of business and trade unions.

A non-profit organization in Greece catering for the need to adjust teaching methods to behavioural differences between men and women as regards learning new technologies. (Men take a more empirical approach – push the button and see if it works – whereas women like to know the operating rules and understand the overall logic of the system).

These are just a few of the examples to be found in a compendium of good practice, titled *Women and training in Europe: 50 projects which challenge our traditions*, produced under the auspices of the social dialogue and launched at a conference in Brussels in early March.

The compendium was produced by an ad hoc group of social partner representatives with Commission support following a recommendation contained in the 'joint opinion' on women and training produced by the social partners (ETUC, UNICE and CEEP) in 1993.

The method used

The compendium is not intended to be a scientific document, but rather an illustration of the variety of activities possible in the area of training for women. It is hoped that it will stimulate ideas and suggest new possibilities.

In it, the ad hoc group has sought to highlight the main themes identified in the joint opinion on women and training. The selection of projects is broad. An effort has been made to cover the various groups of women concerned, the various types of training and the different forms of commitment by the social partners. The decision was also taken to include not just projects open only to women but also projects striving to change cultures by ensuring better awareness of the issue of equal opportunities.

Collecting information and 'extracting' experience from the grassroots level was not easy. In no country is there a centralized information service on the training of women either within employer- and trade union-led organizations or through nationally coordinated bodies. It was necessary to call on diverse information sources and networks at European, national and regional levels: employers, trade unionists, researchers, consultants, businesses, public and private bodies. Indeed, in many cases, examples emerged

from individuals contacted by chance in other contexts who happened to be aware of successful work in the area.

In all, 104 projects were identified. Each of these projects was then analysed in the light of a number of criteria agreed by the ad hoc group. These criteria relate to the process by which the project was implemented, the results (for both women and companies), the transferability of actions to other groups, countries and contexts.

At the end of this analysis, 50 projects were selected. They have been grouped around a series of key themes, each representing one of the core issues:

- How can women be encouraged to take up training?
- How can they be (re)integrated into the labour market?
- How can women be given the confidence to take on jobs with responsibility or in certain male-dominated areas?
- How can change be anticipated through training in the event of industrial restructuring?
- What support measures should be put in place to enable women to benefit from training, particularly in rural areas or areas of industrial decline to which they are tied for family and practical reasons?

Gaining a clearer picture

The 50 projects included in the compendium fall into very precise social, political and legislative contexts. They are rooted in a range of instruments and have access to a variety of funding sources. The instruments in question vary to a considerable extent from project to project. They may be Community programmes or initiatives, laws or programmes at national and/or regional levels, interprofessional or intersectoral collective agreements or company-level agreements.

A variety of routes

The 50 projects described in the compendium are not 'model' initiatives, in so far as they do not offer a miracle cure to all ills. They simply have the merit of touching upon important issues, exploring new paths and illustrating a wide range of possible solutions.



The projects respond to very different situations. However, in spite of this diversity they share a number of common features. The results they achieved give tangible proof of the usefulness of positive actions in promoting equality of opportunity. Above all, these projects demonstrate that vocational training for women is a complex and qualitative process, spanning a number of phases.

A successful project requires a long-term approach, comprising awareness-raising, various types of support and individual monitoring. The 50 projects illustrate that the active involvement of women in each of these phases is a vital ingredient for success. Lastly, they emphasise that vocational training initiatives stand to gain from being part of an integrated initiative for equality of opportunity.

Linking the economic and the social

The projects described have one key common feature: a strong tendency to link up the social interests of workers with the economic objectives of employers. When a company decides to invest in the vocational training of women, it only stands to gain: in terms of employee motivation, quality of production or services, financial and sales results...

The social partnership between employers and unions is more than just an asset. It enables more focused objectives, more targeted methods and, last but not least, better results from training.

Prior identification of needs: a prerequisite for efficiency

Many of the 50 projects undertook a study to identify the issues to be tackled before beginning any training activities. Studies were conducted by consultants hired by the company, research institutes or trade unionists. In some cases, the local labour market was analysed in detail. In others, the various teaching methods were critically compared, or the needs of companies identified so that training could be matched to them.

Raising personal motivation

Another lesson to be drawn from the projects is that a considerable effort is needed to encourage women back into vocational training. They must be given a little push, to overcome their initial reservations and make allowance for the obstacles ahead. This motivation must be encouraged at secondary school level, determinant for many aspects of later behaviour.

Many projects chose to begin with pre-training designed to overcome prejudices about new technologies, make good any lack in schooling and set women on the track of a positive future. This pre-training helps boost the success rate of the training courses.

The priority given to the training of trainers forms part of this step-by-step approach, where care is taken not to rush things.

Not just childcare...

Once the women have actually decided to take a course, their difficulties are not over. They have to muster all their forces if they are not to be thrown off course by various obstacles in their path. Childcare solutions must be found and timetables adjusted to help women combine training and family responsibilities. However, this is not all.

The 50 projects highlight various other kinds of specific support that can be just as useful. If a woman works part time, hours in training over her normal working time are paid. In rural areas, solutions are found to the problem of distance, ensuring that training is as close as possible to the place of work or home.

Several projects used a "contact person" or a "psychological assistance service" to whom women could freely turn in the event of a problem during training.

Using the right methods

Women take a different approach from men, for a range of social, cultural and psychological reasons. Some of the projects seek to make allowance for this, adopting specific teaching techniques. Emphasis is consequently placed on group dynamics, listening to what people say, allowing for the different aspects of their personality...

Passing on the message

How to ensure that vocational training projects for women do not remain isolated initiatives, with no impact on mentalities and policies?

Several projects are striving to weave a network of exchanges between the various initiatives, helping them "learn to learn" and thus pass on the message. For example, women trade unionists train other women to become Equal Opportunities Officers, or family helps are taught how to train their colleagues in dealing with sexual harassment.

An investment for the future

In many projects, an attempt is made to draw men into the change of mentalities and practices in the company. Other examples show that training designed for women can also produce changes advantageous for men, too, or test methods benefiting both sexes. In any event, equality of opportunity is also a matter for men and investment in training for women is an excellent way of injecting innovation into the overall vocational training environment.

The way forward

It is hoped that the compendium will be disseminated as widely as possible, not only in trade union and employers' circles but also among a much larger public concerned by the issue of equal opportunities and women's training in particular. It is also hoped that the examples will serve as inspiration and will result in the putting together of some really innovative projects under the

Leonardo programme, which spells out more clearly than was the case in the past its commitment to equal opportunities. This commitment may take the form of a provision of positive measures geared towards aiding women returners to the labour market to reintegrate and towards breaking down gender segregation in the labour market, and the promotion of measures designed to bring about changes in mainstream training supply which makes it more suitable for women's needs. This could include proposals such as new methodologies, easier accessibility and accreditation of prior learning.

The compendium makes no claim to be complete or comprehensive but it does have the virtue of being a first step. DG XXII would be pleased to receive any contributions and suggestions for a second compendium in this area.

To receive a copy of the **Joint opinion on women and training** (available in 9 Community languages) or the compendium of good practice (EN, FR, DE), please contact:

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B-1040 Brussels,
tel. +32-2 295.37.95,
fax +32-2 295.56.99.



The new generation of EU education, training and youth programmes moved into action in the second half of 1995 with the establishment of the national agencies in the Member States, the distribution of operational documents (vademeccums, guidelines for applicants) and the organization of launch conferences at national level.

So the patchwork of previous programmes has now been rearranged and rationalized under three distinct headings, Socrates, Leonardo and Youth for Europe III, while cooperation continues to develop under the Tempus programme with Central and East European countries and former Soviet Union states.

This section of Le Magazine looks back over the pioneering role of the first-generation programmes in these areas, which accomplished so much of the groundwork and provided the basis of practical experience on which the new programmes have been constructed. And Cedefop, the European centre for the development of vocational training, provides a glance at the training systems in the new EU Member States.

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Exchanges of information in the service of cooperation in education

"...to help to improve the quality of education, the specific objectives of the [Socrates] programme shall be... to foster exchanges of information and experience so that the diversity and specificity of the educational systems in the Member States become a source of enrichment and of mutual stimulation."...

"Actions supported in this field will ensure the availability of information [Eurydice] aimed at various target groups, and in the first place at those responsible for national education policy, on educational systems and policy, reforms, innovations and the results of research in education."

It is in these terms that the Socrates programme confirms the importance of exchanges of information for Community cooperation in education.

The recognition in the Maastricht treaty both of education as a new area coming within the European Union's field of competence and of the key role of exchanges of information - further confirmed in the Socrates programme - mark a turning point and are opening up new prospects for Eurydice.

Exchanges of information organized by Eurydice: origins and content

Eurydice, the education information network in the European Union and the EFTA/EEA countries, had its origins in the first Community action programme for education. Adopted in 1976, this programme already mentioned the importance of exchanges of information in contributing to mutual understanding and greater cooperation between Member States. The network, which became operational in 1980, now comprises 20 units, based for the greater part in the education ministries, in all Member States of the European Union and the EFTA/EEA countries. Exchanges between units are activated and coordinated by a European Unit set up by the Commission in Brussels.

During the network's initial period of activity (1980-86), the content of exchanges of information was determined primarily by the priority themes referred to in the first action programme of 1976 - the teaching of foreign languages, cooperation in the field of higher education, young people's transition to adult and working life, and education for the children of migrant workers.

Community action in most of these areas later developed in the direction of the creation of major programmes (such as Lingua, Erasmus and Petra) with their own information infrastructures, allowing Eurydice gradually to affirm its identity as an information

network more clearly specializing in the educational systems and policies of the Member States. The extension of the network to the EFTA/EEA countries in January 1994 has proved a valuable addition both to the exchanges of information and to users of it, in view of the different educational situation in each of these countries.

Products and services in continuous evolution

The network's inquiry system, in the form of exchanges of questions and answers between national units, is the main instrument which has been at the disposal of education authorities since 1980 to enable them to bring a European dimension into their processes of educational reform. The increase and diversification of the demand for information, in both quantitative and qualitative terms, and the development of computerization revealed the inadequacy of these arrangements and the need to adapt them to the new demands.

A textual database on education systems has therefore been developed and it will gradually replace the question and answer system and provide rapid access to detailed, reliable and up-to-date information for policy-makers and education experts. This comes from the national dossiers prepared by each national unit, with financial support from the European Commission, the entire project being coordinated and computerized by the European Unit of the network. The database (EURYDOS) was installed in each education ministry in 1993 and is currently being tested by the various units in the network. It is intended to make the database accessible to a more general public as quickly as possible on CD-Rom or any other medium.

A common bibliographical database for the network is also being prepared in parallel to this textual database.

The network's publications are another medium contributing to information exchange and the increasing degree of mutual understanding within the Union. Typical of this aspect of the network's activity is the reference document on the *Structures of the Education and Initial Training Systems in the Member States*, providing descriptive information and complementing the computerized database.

Since 1992, the Commission and the European Unit, with the support of the national units of the network and outside experts, have given further impetus to the production of comparative data and analyses on topics of particular importance to Community cooperation in education. Documents have been published on subjects as varied as measures to combat failure at school, the organization of school time, the main systems of financial assistance for students, requirements for entry to higher education, pre-school and primary education, and the in-service training of teachers.

The contribution of the Eurydice European Unit, at the end of 1994, to the Commission's new annual report *Key data on education in the European Union* is evidence of its developing role in observing and providing comparative analyses on the education systems. This is the new role which the European Unit will be increasingly called upon to play in the implementation of the Socrates programme, in close cooperation with the Commission, with the support of the network, and calling on specialized expertise from within the Member States.

Eurydice's specialization will be facilitated by the specific practical provisions of the Socrates programme, which include the provision of support for activities such as data collection, the preparation of comparative studies on important topics and analyses of trends, the dissemination of this information through appropriate information and communication channels at national, regional and Community level, and the creation of Community databases on education.

Making the fund of information processed by Eurydice accessible to the various interest groups in the education world will be a major concern in the coming years and will require the development of close relations with existing information channels and networks in the Member States and at EU level, as well as with interested publishers, both public and private.

External cooperation

Eurydice and Cedefop are the organizations primarily concerned with providing information in the education and vocational training fields. Their cooperation has led to joint terminology work and ongoing exchanges of information. Closer cooperation has also developed in the areas of databases and publications.

Eurydice also maintains regular contacts with the European and international bodies involved in the provision of information on education. Here, the European Unit of the network has made its expertise available to the Commission in the preparation of the *European Education Thesaurus*, produced jointly by the Council of Europe and the Commission. Eurydice has developed close cooperation with Eudised, the Council of Europe's network for educational research. Eurydice's new orientation towards information making use of the results of educational research should lead to further cooperation in this area.

Looking ahead

The establishment of three new programmes - Socrates (which includes Eurydice), Leonardo and Youth for Europe III - brings with it both new dynamism and a coherent organization of the exchanges of information expected from the partnerships between the Commission, the national agencies of various programmes, the Eurydice units and the information channels at national, regional and EU level. Eurydice will have a specific role to play in this scenario as an information network specializing in educational systems and policies. In addition to its responsibility for the activation and coordination of the network's activities, the Eurydice European Unit will, from July 1995, have a new and important role on behalf of the Commission, observing and analysing needs and issues common to the education systems of the European Union. This new phase in the development of Eurydice, defined within the framework of the Socrates programme, will be crucial to strengthening cooperation in education within the EU.

12 + 3:

Austria, Finland, Sweden

more of the same or different approaches?



The enlargement of the European Union to 15 Member States presents new opportunities and challenges. In education and training, those involved in EU-level organizations have already been working for some time in an area larger than the 12 Member States, particularly following the arrangements concerning the European Economic Area between the Community and the EFTA countries. The new Member States have already been involved in some Community programmes, such as Erasmus and Comett.

The three new Member States are of similar size and have a relatively high level of economic development, so are their training systems similar? Which of the 'old' Member States do they most resemble in this respect? Given that some economic and educational indicators in areas such as the participation rate in the education system, the level of education of the work force and demographic and employment market trends are similar, a number of similarities between these systems might be expected. Another expectation would be that the training systems in Finland and Sweden would display characteristics akin to that in Denmark, because of Nordic and Scandinavian links, while due to the inheritance of a common language and many traditions, the Austrian system would be similar to that of Germany.

A major contrast between the new Member States is that while Sweden and Finland, like Denmark, have a single, comprehensive-type school for the whole period of compulsory education, pupils in Austria, after four years of primary school, must choose between the lower secondary school (Hauptschule), which provides a further four years of education and orients pupils towards an apprenticeship and vocational schools, and the first cycle of academic secondary education (Unterstufe der allgemeinbildenden höheren Schule). This contrast is even greater at the end of compulsory education, where in Austria a choice between seven different types of schools and company-based apprenticeship must be made, while in Sweden some 90% of the entire age group enters the upper secondary school three-year programme; 90% of these complete this programme within four years.

It is interesting to note that although there are very different paths to vocational training in the three systems, OECD figures show that at the age of completion of upper

secondary education (i.e. 18), the percentage of those who have followed a vocational-oriented education and training programme in Sweden (60%), although lower than that for Austria (73%) and Germany (93%), is considerably higher than in many other EU countries (e.g. France 45%, United Kingdom 16%). This is due to the fact that within the upper secondary school, the majority (since the most recent - 1992 - reform, 14 out of 16) of the programmes are vocationally-oriented, while two lead directly to further academic studies. This reform was also concerned with ensuring the quality and relevance to the employment market of these programmes, and provides that a minimum of 15% of the education in these 14 programmes takes place at a workplace outside the school. In addition, it listed eight core subjects (Swedish, English, mathematics, civics, religious education, general science, physical education and arts activities) to which approximately one-third of the minimum teaching time is allocated. From the above it follows that Sweden does not have an employer-led apprenticeship system.

In Finland the vast majority of pupils enter upper secondary education, with only a small proportion entering apprenticeship, although this number has increased by 40% from 7,200 to 10,000 during the 1990s due to the active promotion of apprenticeship by the social partners. In Austria, on the other hand, about 50% of the age group participate in a dual system which has many similarities with that of Germany. Although the numbers of participants in the apprenticeship system in Austria has fallen sharply in absolute terms due to demographic trends, as a percentage of the relevant age group it has remained almost static (1980 45%; 1987/88 49%; 1993 46%). Nevertheless, a recent survey indicated concern by employers about the costs of the apprenticeship system, its length and the detailed regulations governing it. The regulation of the in-company component of the system is the responsibility of the Federal Ministry of Economics, which issues training ordinances.

As far as the organization of schools is concerned, the Swedish reform places great emphasis on giving a large amount of independence to each individual school. Schools belong to the municipalities and, within the limits of the budget they receive, municipalities and schools have a

considerable degree of independence regarding precisely how the money is used, as long as the overall objectives are attained. In Finland also there is a tendency to move ownership of the schools from the state to the municipality and to increase the amount of freedom of the schools.

In both Finland and Sweden, adult training is primarily the responsibility of companies, although there is some provision geared particularly towards the unemployed, organized by the employment ministry. Sweden also provides adults with the opportunity of participating in programmes very similar to the upper secondary education provided for young people. In Austria there has been an increase on both the demand and the supply sides for continuing training, with new providers emerging, particularly independent training and consultancy partnerships. Chambers of commerce and industry play a key role.

Cedefop (the European Centre for the Development of Vocational Training), like other EU organizations, is in the process of integrating the new Member States into its activities, while establishing links with the remaining EEA countries, particularly Norway and Iceland. As a result, reports on the coherence between compulsory education, initial and continuing training and adult education, in both Sweden and Norway, have been completed as part of a Community-wide Cedefop project. Work is also advancing in order to ensure the participation by these countries in the preparation of monographs describing the vocational training systems, the documentary information network and qualifications. In addition, the first issue of the *European Journal of Vocational Training* this year will deal with aspects of the training systems in the new Member States and the implications of EU membership for these systems.

Erasmus highlights

"To make an end is to make a beginning" (T. S. Eliot)

Erasmus ends this year in its present form only to be relaunched within the new Socrates programme, which will give new impetus and structure to the European Union's actions in higher education.

Erasmus is about radical change through cooperation and mobility. In just seven years, this innovative programme has changed European higher education for good, catching the imagination of staff, students and a broader public. But to what extent has it achieved its objectives?

Erasmus cooperation has helped higher education adapt to change and create a new type of graduate to compete with the best in an increasingly internationalized world market. Even more ambitious than the original 10% student mobility target was the infrastructure of inter-university cooperation programmes (ICPs) that assured the proper preparation and full recognition of study abroad.

ICP networks also provided for staff exchange, the joint development of curricula and the launching of collaborative intensive courses. They have been the structural core of Erasmus but have been complemented by four very important additional measures:

- student mobility grants managed through National Grant Awarding Agencies;
- the ECTS pilot project of transferable study-abroad course credits (see box);
- study visits grants;
- grants for associations and publications.

Erasmus has been open to all eligible institutions and to all levels of student in all subject areas. This comprehensive concept does much to explain why Erasmus was so quickly recognized as an attractive and transparent opportunity, simple to access and manage.

Study abroad used to be dominated by postgraduate researchers or the relatively wealthy, and inter-institutional cooperation was restricted to a relatively small number of well-known universities. Erasmus totally transformed this situation. Although 5,000 institutions are technically eligible, many are very small or on the secondary/higher education boundary. Most major higher education institutions, and over half of all institutions that can realistically participate, now do so and there has been significant progress in non-university sector involvement.

Student access is impressive: 138,000 students are eligible to move within Erasmus this year and nearly two-thirds will do so with an Erasmus student mobility grant. Many will also receive complementary national or regional grants. Since 1987/8, 490,000 students have had access to Erasmus study abroad and many more have benefited in other ways. Student mobility remains short of the 10% target but the programme has made a very significant contribution and has established a pattern of 15-20% annual growth.

The benefits to students have been genuine. Regular research reveals that Erasmus mobility leads to real academic and linguistic achievement, and to greater cultural and political awareness. There is now an impressive mobility infrastructure. Arrangements for the preparation and reception of study-abroad students are immeasurably improved; international offices exist in many institutions to provide continuing student support and a special action has helped identify facilities for handicapped study-abroad students. Affordable accommodation remains a problem, but many universities have come up with imaginative solutions.

Erasmus support has helped promote a wide range of student associations. Some, like Mosaic, are linked to university networks but most are subject-area based. They help represent student interests to Erasmus programme managers and several now have offices in Brussels. The Erasmus Student Network (ESN) is a more comprehensive body and many of its institution-level groups take an active role in the orientation of Erasmus students.

Students also contribute to the institutions and countries they visit. One translated medieval Danish plays, and then toured medieval English plays over Jutland; another helped establish an annual French Week in Sligo (Ireland) and later returned to establish a marketing/export agency.

Many higher education staff directly benefit from Erasmus; up to 10,600 will this year undertake teaching exchanges and others will participate in intensive courses and in the development of common curricula. A further 1,700 teachers and administrators will undertake Erasmus-funded study visits to plan future cooperation, to lecture and to gather information.

In addition more than 12,000 academics and administrators are actively involved in managing the Erasmus programme on the ground. A crucial role is played by this army of highly motivated staff members, who generate new ideas and are almost entirely responsible for the grassroots management of ICPs and ECTS. They also provide the pool for Academic Advisory Groups (AAGs) and other ad hoc bodies that assist the European Commission in the annual selection process.

Erasmus has created a critical mass of European higher education staff committed to inter-institutional cooperation and to integrating a European and international dimension into the life of their institutions. This will be crucial under Socrates, when ECTS becomes more generalized and contractual arrangements become more institutionally based. There is also an interesting trend for academics and administrators associated with Erasmus to move into key international education positions.

These developments have been mirrored by the activities of higher education associations operating on a European scale. Most have been supported by Erasmus and are usually subject-area based; for example ELIA covers the arts, ESSE covers English studies, and ECSA covers European integration. The most significant general association is the European Association of International Educators (EAIE), which has done much to create a new cadre of professional study-abroad administrators. EAIE is a new forum within which the internationalization of European education can be discussed.

What of the impact on the participating higher education institutions themselves? Over 1,700 currently participate in 2,505 approved Erasmus and Lingua ICPs, but this threefold growth in institutions and more than doubling in the number of ICPs (since 1988/89, the first full year of Erasmus) considerably underestimates the picture. Departmental involvements increased nearly four times over the same period and planned student mobility increased by over 800%. Other activity indicators show a similar picture of sustained internal ICP growth complemented by new applications for funding which typically represents around 20% of total demand. This momentum has been maintained despite decreases in Erasmus grant levels to institutions and students. The phrase "take-off" describes the point at

which economies move into self-sustained growth and it is an appropriate concept for Erasmus too; international cooperation promoted by Erasmus is now an integral part of European higher education and the momentum exists to carry it forward.

Institutions have had to adapt to the demands for cooperation and mobility channelled through the programme and study abroad has become an essential course component in many subject areas. Many higher education institutions have grouped together into large transnational associations, such as Sigma, and ICP partners of every type and in every subject area routinely cooperate across frontiers in course innovation. Erasmus helps institutions do things together that they would not do alone.

ICPs can establish distinctive reputations beyond the university world; for example the Time (Top Industrial Managers for Europe) network of 23 technical universities across 11 countries has attracted considerable interest and sponsorship from industry. Some ICPs, like the European Physical Society's project that links every department of physics throughout Europe, are pioneering new forms of cooperation. One artificial intelligence ICP is even using Internet to prototype an Erasmus 'virtual university' (see box).

No subject area, not even artificial intelligence, is too specialized for Erasmus and all major subject areas are now properly represented in the programme, although certain subjects, such as education, were identified for special encouragement to ensure that very well-represented subjects, notably business management, did not take a disproportionate share of the limited resources available. The ground has been well prepared for the rationalization, under Socrates, of some Erasmus activity across subject-area lines.

There is a good balance by participating country although some countries, especially those with an underdeveloped tradition of inter-university cooperation, were badly represented at the beginning and special information campaigns were mounted to rectify the situation; study visits (see box) played an important part in this process. Additional measures were also taken to encourage participation by universities in ex-East Germany and in the EFTA states when they became eligible to participate. The emphasis has now shifted to under-represented institutional and student types, and to under-represented activities.



Non-university participation is actively encouraged and additional resources have recently been given to postgraduate/teaching staff mobility programmes, and to open and distance learning. Such measures reflect the continuous process of monitoring and evaluation which has generated a wealth of raw data, covering every aspect of student mobility and inter-institutional cooperation, that simply did not exist before. Much has been analysed and published for the Commission by researchers at the University of Kassel, but there is plenty for other researchers to work on.

Perhaps one of them will write the definitive overview of Erasmus 1987-1995, but there is already no doubting the significance

of its achievement. It has decisively internationalized the European higher education sector and is a model for similar initiatives in other regions. Through ECTS and other study-abroad recognition systems developed within ICPs, it has contributed significantly to true mobility and to a European market for qualifications. It has also encouraged higher education institutions to improve and innovate through the cooperative use of Europe's rich resources. Above all, it has given thousands of higher education staff and hundreds of thousands of European students the educational opportunity of a lifetime. Europe will be a better and altogether more interesting place as a result.

Erasmus

Erasmus in cyberspace

DG XXII has established an **Erasmus Gopher** on Internet, thus opening an electronic access to key information which was hitherto only available in printed form.

The Erasmus Master Gopher was opened on 9 January 1995 on the following server: **erasmus.ulb.ac.be** (port 70). To access it, viewers need a connection to Internet and a file browser such as *Hgopher for Windows*. The Erasmus Gopher can also be read via a *World Wide Web browser*. (*gopher://erasmus.ulb.ac.be*).

This modern electronic information system offers up-to-date online information such as guidelines for applicants, a description of the ECTS pilot project, data on the visits programme, contract models, regional statistics on selected programmes, the results of the latest selection of inter-university cooperation programmes (ICPs) and other practical information for all who work in the area of inter-university cooperation in Europe.

Erasmus study visits

Erasmus study visits have played a very important role in preparing the ground for cooperation activities and for taking the programme into new areas. In 1994 a total of 1,650 persons, equally split between men and women, were funded and nearly two thirds of all visits involved the planning or extension of ICP activity. The rest were information visits and a few (8%) teaching visits. The study visit scheme is extremely flexible and simple to manage and has been especially important in encouraging involvement in Erasmus by higher education institutions in under-represented areas. For instance, the Commission specifically used study visits to promote activity with the five new German Länder and with Greece and there has also been an emphasis on the non-university sector. Study visits cover both academics and administrators; although the overall funding is relatively modest, there has been an enormous dividend in the form of increased understanding and better preparation of future actions.

ESN and IMISO

More than 20 student associations have been supported through Erasmus, two of the more unusual being ESN and IMISO. ESN, the Erasmus Students Network, traces its origins to the first meeting of Erasmus students in Ghent in January 1989. The 35 participating students were very enthusiastic about Erasmus but were concerned at the lack of practical support at institutional level for incoming students. They resolved to create a network in all participating states to ensure better preparation, better service at host institutions, and a better use of the Erasmus study abroad experience. ESN now provides strong support to students participating in Erasmus and in a wide range of other programmes. There are more than 60 sections in 14 European countries.

IMISO, the intersectoral Meeting of International Student Organizations, was founded in March 93 and groups together four independent subject-area student organizations covering management/economics, agriculture, medicine and law. With more than 150,000 active members in over 200 higher education institutions and a small office in Brussels, IMISO provides effective coverage in all participating states, a global student forum and a student voice in the development of mobility and cooperation within a multidisciplinary context.

European Credit

Transfer System (ECTS)

ECTS was launched in 1989/90 as a six-year pilot project within Erasmus. Initially limited to five subject areas (business administration, chemistry, history, mechanical engineering and medicine) and 84 higher education institutions, ECTS now covers 145 institutions. ECTS operates on the basis of 60 credits for a full one-year course-load and the system is complemented by an ECTS grading scale, a series of information packages which describe the courses available at the participating institutions, individual learning agreements between the students and institutions involved, and standardized transcripts to record student achievements in terms of grades and ECTS credits.

The experience to date has been so encouraging that the Commission is progressively extending ECTS. During a transition phase, ECTS will be adopted by other institutions and in other subject areas and networks. In addition to the many ICPs which have adopted ECTS principles, no less than 1,000 departments in 350 institutions (including over 200 institutions which have not participated until now) have submitted ECTS development proposals.

Lingua in higher education

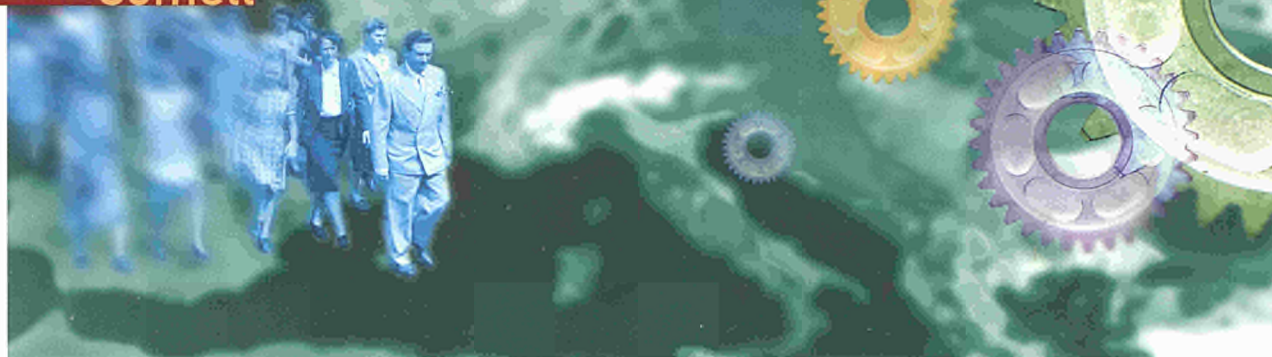
The Lingua programme was adopted in 1989 to promote foreign language competence in the European Union. Lingua covers a wide range of actions including in-service training, language training in the workplace and the promotion of language-related youth exchange. Action II of Lingua, specifically related to the promotion of language learning in higher education and the initial training of future language teachers, is modelled very closely on Erasmus and its ICPs; student grants and study visits have been managed conjointly. Because of the relatively limited funds available, especially in the early years, priority was given to initial teacher training and to actions in the less widely-spoken European Union languages. Nearly a fifth of all approved ICPs are language/literature related and there is currently a 50:50 split between Erasmus and Lingua (action II).

As with Erasmus, many of the features of Lingua (action II) will be found within the new Socrates programme, although in a different form.

Internet and Erasmus

Many ICP coordinators and institutional directors already use Internet on a regular basis. Some ICPs are going much further and one, coordinated by Kingston University near London with nine partners in six countries, has begun to trial a 'virtual university' that will use the Internet to bring many of the advantages of physical mobility to the thousands of students within the ICP who are unable to study abroad for whatever reason. The pilot project will focus on the added value of multilingual Internet resources to support advanced level courses in informatics/artificial intelligence. A draft student *Internet guide to ICP-UK-1429/11* has already been produced and Internet access will ensure that all students participating in this ICP will follow the same core curriculum and have equal access to institution-specific course modules. Further information can be obtained from Chris Hutchinson (e-mail: chrish@isys.kingston.ac.uk).

Comett
Comett
Comett



As a new generation of Community programmes gets under way, the time has come to take stock of past measures. Have the programme objectives been achieved? What lessons can be drawn from past experience? How can we capitalize on the knowledge and know-how gathered both from the various projects set up throughout the EU and EFTA countries and from management of the programmes themselves? This is a mammoth exercise, which far exceeds the scope of this article.

The Comett programme had three main objectives: (1) improving training in advanced technology, (2) developing highly skilled human resources, (3) increasing the competitiveness of European industry. Comett combined the four following elements: (1) university-enterprise cooperation in (2) initial and continuing education for (3) technological development within the framework of (4) transnational partnerships.

Comett's main priority was to develop cooperation between universities and industry in the areas of both initial and continuing technological training. Three main strands were established for this purpose, namely:

- a programme for in-house student placements in other Member States and exchanges of staff between industry and universities;
- the development of joint transnational training projects in the form of short training courses and projects for designing training materials based on the various media and technologies available;
- the establishment of networks of university-enterprise training partnerships (UETPs), on a regional or sectoral basis. These partnerships between the academic and business communities formed the backbone of the programme. Their main purpose was to identify priority areas for technological training, in line with changing skills requirements in a sector or region, and generate new training initiatives at transnational level.

Transnational partnerships were the cornerstone of the Comett programme in its three areas of activity, whether in achieving its short-term objectives (such as the implementation of a specific training scheme) or in pursuing longer-term aims such as establishing new forms of dialogue and cooperation between the academic and business communities.

What have been Comett's main achievements? The aim here is not to give an exhaustive list of quantitative results, but to highlight a number of points which illustrate the impact of the main measures implemented in the course of the programme's five years of operation.

What have been the most striking features of the Comett programme?

Three elements stand out:

- the management system established at Community level;
- the networking of bodies operating directly in the field;
- the daily contact with project promoters and the various authorities responsible for the activities of the programme as a whole.

First, the management system. The Comett programme has been managed in such a way as to ensure direct access for project promoters to the Community authorities in Brussels, thus allowing small organizations to benefit from support for innovative projects. The Community's key role in this area is worth underlining, for

without it no transnational dimension would have been possible. The first generation of Community education and training programmes provided for no real transnational strategy, although many operators were concerned about the transnational dimension. It was under the impetus of the Community that the idea of transnational partnerships was first mooted. It then gathered momentum as national and regional initiatives emerged in support of the principle. This is doubtless the mechanism which made it possible to set up many truly transnational projects. In this respect, the Technical Assistance Office played a vital part in creating cooperation links at European level between all projects.

Second, we should mention the creation, development and pursuit of the UETPs - a major innovation in the field of training. These "structuring" partnerships fit into a long-term strategy and generally go far beyond the framework of a mere cooperation project. Their purpose is to map out new avenues for debate and practice in the future. These new networks are more than simple partnerships and are likely to continue promoting projects outside the sphere of the programme. The UETPs are comparatively recent form of organization, acting as an interface between industry and universities with respect to developments in training. For this purpose, they establish partnerships between a large number of customers who may have differing aims, while preserving a consistent development policy at internal level and controlling the risk - inherent in such activities - of scattering efforts. The UETPs are gradually establishing themselves as the centres of a web of contacts and interfaces, and the network established throughout the EU and EFTA countries has provided them with a very valuable tool for this purpose. The future of these university-enterprise cooperation frameworks now depends on their ability to make proper use of the various skills available within the network and provide their own input.

No discussion of the Comett programme and its various accomplishments would be complete without a mention of the key factors in its development and success. Comett's first major achievement was to promote awareness, amongst all those involved, of the real need for European university-enterprise cooperation on training in the specific area of new technology, on a transnational basis. This awareness was reflected at all levels of programme implementation: projects, national information centres, the Comett Experts Group, project advisers and the Comett Committee. All made a decisive contribution to the smooth running of the programme, and the ability of all those involved to get to understand each other and work together will undoubtedly have been one of the major factors in its success. The working relationships have made consistently constructive input. The underlying principle of ex-ante trust and ex-post monitoring made it possible to establish relationships based on mutual confidence which contributed to the quality of the projects carried out.

The following points may be mentioned by way of example:

- The quality of the individual projects, the promoters' enthusiasm and the genuine desire to develop new approaches to partnership at European level have all been factors in the programme's success. In this respect, pride of place should go to the UETP network as a whole, which through dynamism, professionalism and team spirit upheld the values promoted by the Comett programme and kept the ball rolling day after day.
- The Comett Committee provided valuable support in launching the programme in the Member States and EFTA countries. The programme and all the projects have benefited from its members' commitment and professionalism, in a friendly and open atmosphere worthy of note.
- The continuous support and advice offered by all Comett experts must also be mentioned. The varied backgrounds of group members (from universities and industry alike) offered a wealth of diverse skills in terms of both expertise on specific issues and recommendations on developing the programme.

- The project advisers, for their part, made a particularly useful contribution to supporting the development of the various pilot projects by providing assistance for coordinators.
- No praise is too high for the Comett information centres located in each of the participating countries. They acted as essential multipliers for disseminating information, supporting project promoters in a variety of ways, promoting the programme in the countries involved and working closely with the relevant national authorities.

Many operators and institutions are - quite rightly - uncertain about the need for partnerships and the benefits they can bring. There is no recipe for a partnership's success. Very often, only experience counts, along with the following:

- **A degree of failure in the past is the best indicator of success in the future.**
The development of a partnership is a process of trial and error. New projects face tough competition and it is up to them to secure a foothold in the complex world of the training market. Those partnerships which survive grow stronger and more flexible as a result, having achieved a coherent balance between innovation and management, and between organization and development.
- **Excessive stability is the best indicator of failure in the future.**
Partnership structures which have not had to confront the issue of their long-term future and have been unable to build up sufficient experience in their sector will run into trouble as soon as they encounter problems for which they are not prepared. It is not enough just to be successful in a buoyant market, since a lack of competition can result in disaster. They must keep a close eye on market developments, and innovate and diversify while keeping in touch with the world around them.

And so we conclude our overview of just some of the more significant factors in the development of the Comett programme.

When the Eurotecnnet programme was launched in 1990, new information technology equipment was already commonplace in most factories and offices. However, there were still very different views among managers and workers concerning the impact this would have on the way work would be organized in the future, and on the kinds of skills and qualifications that would be required. Reactions to the adoption of IT ranged from reluctance to naive enthusiasm, often without adequate consideration of the changes it would bring.

Eurotecnnet set out to address the issue through establishing a network of innovators in the Member States who were concerned with the relationship between human competence and new technology. Transnational partnerships and European conferences and working parties were used to examine a series of themes.

One of the central themes related to the assumption many people have about technology as being largely a deterministic factor to which organizations and people can only adapt in a rather fatalistic way. Studies carried out in Eurotecnnet showed a different picture. It was those companies which paid attention to designing technology which supported human skills, taking work organizational factors into account, which derived greater benefits than those which tended to be overly adaptive to the technology.

Another finding related to the kinds of skills which people need to acquire in a technological environment. Innovative vocational education and training systems are no longer putting the main focus on equipping people with individualistic skills of a purely technological nature, but rather on the organizational aspects of work and technology. This means that people acquire core competencies such as the ability to take initiatives, engage in abstract thinking, work in a team, self-learning competency and so on. The proactive learning environment existing in successful high-technology companies was described as that of a 'learning organization' in another of Eurotecnnet's studies. A learning organization attempts to involve all employees in achieving organizational effectiveness, through the integration of work and learning. This creates an environment of continuous improvement, in which the learning power of all employees is harnessed. The company therefore increases its reservoir of skills it can call on to respond quickly to new technological or market demands.

The big questions for any Community programme coming to its end are what difference did it actually make to the people it was meant to serve and what does it offer for the future? The best people to answer are often those who have been directly involved in its activities and here we look at three different aspects of Petra - placements, partnerships and guidance - through their eyes. These contributions are not meant to be representative but simply illustrative of the fact that Petra has had a real impact on policy and practice, at a number of different levels.

Opening up Europe to modern 'journeymen'

A view from Germany

With the unification of the two Germanies in October 1990, the European Community programmes were opened to the new German Länder and we in Brandenburg have attempted to make good use of this opportunity.

The Land of Brandenburg (pop. 2.6 million) is seriously affected by structural change including the break-up of whole sectors, such as the textile, steel and chemical industries, and a drastic reduction in agricultural production. Young people in particular are threatened by unemployment and this can lead to a loss of perspective and direction and a consequent sense of frustration. The Community education, training and youth programmes are important building blocks for the development of a regional labour market policy which takes account of their needs.

Since 1992, Brandenburg has both promoted and provided financial support for international vocational exchanges and placements through the Ministry of Labour, Social Affairs, Health and Women. Our primary objective is to give young people in initial vocational training an opportunity to benefit from a period of training and work experience in another European country. The scheme was conceived and is now being run by BBJ Servis Potsdam - a non-profit organization providing advice, consultancy and project management services in the youth field.

The majority of the exchanges and placements are financed through a combination of contributions from the Petra programme, the Land of Brandenburg and to a limited extent by training providers and the young people themselves. As a result, the number of participants has increased considerably from less than 100 in 1992 to 330 in 1993 and over 750 in 1994.

In addition to training institutions, local businesses have participated in transnational placements. An example is Heidelberger Druckmaschinen AG (manufacturers of printing presses) which last year sent 24 third-year apprentices from its plant in Brandenburg to a training centre in Lombardy in Italy, on a production technology course. The young Brandenburgers - all apprentice industrial mechanics - worked together with Italian trainee printers who were learning to use printing presses manufactured by the Brandenburg company. For Heidelberger Druckmaschinen AG the most important educational objectives were:

- to develop social competence within the German group and with the Italian trainees;
- to enhance the personal development of the apprentices;
- to increase their motivation for improving foreign language skills;
- to learn about new technologies.

The first concrete outcomes were a publication on the cultural and work-related content of the experience in Italy, jointly developed and produced by the young people themselves, and an agreement that Italian trainees will pay a return visit.

The Brandenburg scheme is a pilot project and one of the first of this kind in Germany. Through participation in transnational exchanges and placements, which frequently also involve return visits to Brandenburg, young people outside higher education are given an opportunity to discover Europe, to get to know other training and production systems, to experience a different culture and in this way to widen their horizons. In addition, for the fight against racism and intolerance, direct experience of living and working in another European country is a much more effective instrument than any theoretical course as an individual's view of the world is formed through personal experience.

We plan to expand the scheme in 1995, particularly by linking a regional programme for labour market integration of young adults with transnational exchanges and placements through a new transnational vocational qualification module. In this way, young people who gain employment through subsidized-wages incentives will get a chance to improve their market value and to obtain foreign language competence. For enterprises this will mean investment in the professional know-how of their employees and thus a sharpening of their competitive edge.

The development of stable partnerships between vocational training providers in Brandenburg and other European regions is establishing the basis for the integration of transnational experience as a permanent feature of initial vocational training, allowing our young people to benefit from a modern form of the tradition of journeying, once common practice among craftsmen.

Mutual understanding and mutual recognition

A view from Ireland

When we joined Petra's European network of training partnerships, our project was already a national partnership involving the Vocational Education Committees (VECs), teachers and students in Galway and Cork and the National Council for Vocational Awards (NCVA) in Ireland. We wished to examine and facilitate the process by which qualifications achieved by the clients of our institutions could receive mutual recognition in other Member States. A secondary aim of the project was to expose teachers more extensively to the process of school assessment toward national awards, away from what is largely a central examination system.

The Petra programme offered us the opportunity to meet project groups from Germany and the United Kingdom. This paved the way to the establishing of a transnational partnership working towards European studies modules which would have mutual recognition. The principal German partner is Hüls AG, based in Marl, in association with the chamber of industry and commerce in Münster. The UK partners are North Tyneside College of Further Education with the Business and Technology Education Council (BTEC). The partnership quickly developed the content of the European studies modules and activity moved on to the comparison of these draft modules for similarity of content and level. In 1992/93, we concentrated on the difficult, crucial area of mutual confidence in assessment and student outcomes which led to a joint statement of mutual recognition, formally signed by the relevant bodies in Münster last September.

During our work together other contacts were made, the most fruitful of which were with the Stockholm Board of Education and Suomen Lukemiesten Kauppaopisto in Helsinki, both of which joined the partnership as associate members. In the view of Tarja Hoyer, coordinator for the Nordic partners, the partnership produced "a very fruitful cooperation between the pilot schools in the countries concerned, which made the Nordic countries more acquainted with the working methods in a EU programme."

The quality of agreement between the partners has been excellent and the partnership has achieved all its primary objectives within the timeframe set. However, definition was one of our major areas of difficulty. All partners had to understand and take account of the different approaches to student assignments and time-constrained testing. There were certainly very many different perceptions, but these were all openly discussed and met to the degree which the partnership could accept. There were also different interests related to the state of change of each of the partners' certifying bodies. These, likewise, were discussed and taken into account in the partnership activities and outcomes. Such major difficulties as did occur were central to the process of mutual recognition and articulation of qualifications. It is because of, not in spite of, those difficulties that the partners claim such a successful outcome to their work over the

last couple of years. As Mary Powell, BTEC corporate development director, reported: "Feedback from BTEC centres about the European studies module has been extremely positive. Our centres have shown that they believe the transnational recognition to be of benefit to their students by their willingness to adapt their assessment strategy to meet the requirements of the agreement."

And Hermann Bromme, training at head of Hüls, said: "We are very proud to be associated with this successful project. As far as we know, the mutual recognition on this qualification really is a first between partners from outside Germany and a partner from industry being part of the dual system. Hüls as a major exporting company is very much in favour of all initiatives to find transnationally recognized qualifications. The European studies module will certainly be an integral part of the in-company training".

In the partnership, we realised that there was wide scope for both professional and personal development in a European context. This applied to the members of the management group, the working group of teachers and also to the students. Galway City VEC teachers, for example, felt that students had clearly been helped to "broaden their perspectives in such an ever-changing environment."

This Petra partnership completed its contract in 1994 but our agreement on mutual recognition for the European studies modules remains in place, with each partner responsible for continuation of the mechanisms which form part of that agreement. Now joined by the Ministero della Pubblica Istruzione, Italy, we are continuing that work through a comparative study of initial vocational training qualifications in business studies in Germany, Italy, Ireland and the UK, with close information links to the Nordic network.

Our partnership looks forward to a consequential, much more extensive, EU-sponsored project leading to larger scale mutual recognition agreements on qualifications in the future.

To quote Cynthia Fogarty, chief executive of the National Council for Vocational Awards, "Recognition is particularly important as it offers the opportunity to holders of national awards to gain access in a real way to the jobs market in Europe and beyond".

All of this work began with a modest project and will reach into the future, well-equipped with our philosophy of partnership based on our Petra experience.

Careers guidance: the role of employers and trades unions

A view from Brussels

Employers' organizations and trades unions, referred to collectively as the social partners, have a very important role to play in the careers guidance process. Petra was the first European Community programme which attempted to bring this role to bear by actively involving the social partners in developing the European dimension of vocational guidance. The Petra conference on the new role of vocational guidance in the single European market, held in Rome last November to review the achievements of the programme in this respect, also presented us with a very valuable opportunity. It enabled the social partner representatives to highlight, in discussion with officials from European institutions and guidance services, the contribution which we can make to ensuring effective guidance provision. It also helped to increase awareness that the issue of vocational guidance is inseparably linked with the range of education and training issues which the social partner organizations, headed at European level by UNICE (the Union of Industrial and Employer Confederations of Europe), ETUC (the European Trades Union Confederation) and CEEP (Centre for European Public Enterprises) have been working on together for a number of years under the auspices of the 'social dialogue'.

The social partners feel that careers guidance is about assisting people, throughout their working lives, to develop and put into practice their personal and career plans. In the development of these plans, careers guidance should inform individuals of the realities of work, of developments in trades or professions, and of the economic reality of the labour market. The aim should be to help individuals identify their aspirations and competences, and thus to increase the likelihood that they will find and pursue careers that are right for them. In turn, if these goals are achieved for a large number of individuals, the European economy should exhibit less mismatch between supply and demand of labour resources, and higher productivity from employees who are well matched to the needs of particular jobs.

Individuals will increasingly need effective guidance due to the significant impact of

industrial restructuring on patterns of employment. We have already experienced an increase in part-time work, temporary jobs and self-employment. This looks set to continue. There is also a continuing shift from manufacturing into services and a decline in manual work. Organizational structures are 'flattening' in line with the need for businesses to have low costs, flexibility, and to effectively exploit the single European market. These changes will mean that individuals will need more than a narrow, technical understanding of their jobs. Employers are looking for employees who can be trained quickly for jobs that may often change. Individuals should therefore be encouraged to invest in transferable skills – language or mathematical skills, for example – and develop an openness towards lifelong learning.

Thus, individuals will have to be encouraged to take responsibility for their more frequent career decisions, and to seek impartial guidance for those decisions throughout their lives. Companies are less able to offer 'jobs for life', and will offer employees career paths that are less and less clearly defined. Career progression therefore will be seen as a step by step accumulation of transferable skills and experience.

The social partner organizations form part of a group of important actors in society that are well positioned to assist individuals in their career and personal planning. The role of the social partners must be to ensure an effective link between such planning and the realities of the world of work. They should work in partnership with guidance providers to provide information and work experience for individuals. As guidance is provided by a wide range of different sources, it is important that the social partners work not only with professional guidance services, but with schools and within the local community. Petra has created new opportunities for transnational exchange and cooperation to develop their role in this field.

The conference in Rome included working group discussions on this issue. Members of the working group felt that the social partners have an important role in validating the information being provided to those seeking guidance. It is very important that this information, and the images held of particular crafts or jobs, are correct and up to date. Further, it was felt that the social partners could be providing more help to guidance services

to anticipate general changes in skills needs. This information could then be passed on to help individuals plan. Some members of the working group felt that new forms of partnership at local level may have to be developed in order to ensure that guidance remains accessible, independent and of high quality. It was clear at the workshop that there was no shortage of innovative best practice in social partner involvement in vocational guidance. It seemed that the problem might lie in the communication of this best practice between countries, sectors and at local level.

The social partners have agreed to continue discussion on the issue, aiming to produce a statement in mid-1995 that may feed into the policy debate on the future of the Leonardo programme.

The European Commission launched Force in 1991 to help change the culture of European continuing training. The programme set out to do this by helping companies, training providers and social partners tackle the problems of the quantity of continuing training available, its accessibility to workers of all kinds, and of the content, quality and relevance of the training on offer.

The past four years have seen:

- A remarkable response to Force, especially from companies and social partners - more than 3,000 have joined project partnerships.
- The production of a range of influential surveys of continuing training in key European sectors and in relation to contractual policy.
- The production, for the first time, of comparable information about continuing training - laws, programmes, initiatives, national and company expenditure - enabling Member States, companies, unions and trainers to describe and understand more fully their field of activity.
- A series of defining events and conferences - including Europe's first major continuing training conference in Rome in June 1994 - bringing together the key people in continuing training in Europe.
- Emerging from Force's 720 projects and their 6,000 partners, a body of European training needs analyses and training products, covering virtually every economic sector, every country and region, every type of business and every level of employee.

Changing attitudes

Continuing training is no longer simply a matter of periodic retraining to cope with new processes or machines or management methods - it is now also an essential tool in making workers employable for life. Continuing training is therefore an aspect of lifelong learning.

Training strategy is now increasingly discussed and planned in the light of the rapid and continuous industrial change taking place in throughout European and world labour markets. The methods of analysing the training and skill needs resulting from industrial change have been greatly developed in Force projects and studies during the last four years, and as a result Force has assumed a place as one of the significant instruments of change in training.

Changing behaviour

Force has established, for the first time, an active European continuing training network of companies, trade unions, social partners and training organizations of all kinds. The significance of this will last well beyond the end of Force as a programme. The size of the network - more than 6,000 organizations of which more than 3,000 are individual European companies - establishes its importance. The fact that it covers virtually every sector of activity in the European economy ensures its relevance. The fact that its members have all come together in order to design and carry through projects of mutual interest and advantage means that in many cases the links will be long-term, and in most cases the desire to create further transnational working links is equally strong.

Most striking of all has been the enthusiasm of small and micro companies which have taken part, and their belief that their success in their local and national economies depends on their ability to benefit from the best of European training.

The essential practicality of what Force has set out to do in relating training innovation to the analysis of real training needs is embodied in the two types of projects which have been offered to project promoters - the pilot projects, co-investing in the production of training products and programmes, and the qualification projects enabling companies, and principally small companies, to undertake training needs and skill needs analyses. This approach has ensured that Force has established a link between demand and supply.

Changing policy and practice

Force projects have already made a major contribution to changing the context and the content of European continuing training.

- The consequence of structuring Force to encourage companies and other training users to analyse and specify their training needs, and then to design their own train-

ing programmes and courses has been that large numbers of them have designed new approaches to training at the workplace. What is even more significant is that they have produced an enormous range of projects which advance and develop the integration of training in work organization.

- By involving SMEs actively in projects in higher proportions than any previous training programmes have managed to do, Force has at least launched a new series of initiatives in this most difficult of areas. Force projects have made real innovations in the training of small business counsellors, in the creation of networks of small business owners, and in the creation of relationships between large and small business which encompass both trading and training. This has very often been embodied in a mutual quest for quality. Even with small businesses figuring as more than half of all the company partners in Force, there is still plenty to do. The programme has only just begun the process of drawing significant numbers of small businesses into European continuing training networks, but this beginning will be seen to have been of great significance.
- Force has been concerned with the amount and quality of training available to the whole of the labour force. It has been as concerned with the most poorly qualified as with managers and technicians. It has encouraged project sponsors to target small companies, and companies and sectors employing part-time and seasonal workers.
- Force projects are producing work of real importance for women's access to continuing training. This is emerging from a number of specifically targeted and dedicated projects, but is also integrated into a large number of other projects which are not primarily about equality of opportunity, but which are about efficient, modern training for both men and women.
- Force projects and the sectoral surveys have been heavily involved in focusing attention on training needs arising from the creation of new occupations. These include the burgeoning fields of services to companies which are progressively subcontracting and outsourcing activities previously carried out internally, as well as personal social services, new occupations

related to the environment and to safety issues, the expansion of the arts and cultural industries, and new rural and tourism enterprises.

Changing strategy

It is perhaps too early to be confident about predicting all the long-term effects of Force, but some of the impact of the programme is already visible and widely acknowledged:

- Force has provided a setting in which the social partners have, for the first time, become widely active in continuing training; this is already ensuring that training and skill needs are an accepted part of joint planning through works councils and other methods, and of contractual agreements between employers and employees and their representatives.
- The focus on specific sectors - retail, food and drink, automobile sales and maintenance and road transport - in the forecasting, design and delivery of training has given both a European scope and a scientific precision to an activity which has previously only been undertaken infrequently and without the benefit of a common focus and methodology.
- A parallel focus on local and regional continuing training resources and initiatives has enabled Force to attract a significant involvement of SMEs and of micro enterprises; it has also enabled a link to be forged between those concerned with economic development and the creation of new kinds of jobs and those concerned with the creation of continuing training facilities and programmes.

Finally, Force has convinced many companies, trade unions and training organizations that continuing training is a European subject, and that one of the most efficient ways of identifying and designing the best training is to form working partnerships with the best practitioners in other Member States. They have made their own equation between transnationality and innovation, and transnationality and efficiency.

Language learning for teaching, communication and business

The Lingua programme's wide-ranging activities have prompted considerable change in the teaching and learning of foreign languages in Europe. From the start, it has given priority to the less widely used and less taught EU languages, encouraging a broader range of language teaching in schools. And Lingua has involved a wide range of people in working life.

Thousands of teachers have spent time out of the classroom updating their linguistic skills in the country of the language they teach, gaining more confidence in their spoken language, catching up on cultural changes and collecting authentic materials which bring a fresh spark to the classroom. Foreign language teachers wishing to develop new or dormant language skills have also been provided for under Lingua, as have teachers of other disciplines who find that a module of their course needs to be taught in the target language or include work experience abroad. Early language learning has been given a boost, with numerous language learning initiatives for primary school teachers. And Lingua has paid particular attention to the 'LWULT' – less widely used and less taught – languages of the European Union.

Networks of teacher training establishments aiming to create new approaches and activities have been supported through Lingua's European cooperation programmes (ECPs). One example is the "Atlantic" ECP, involving INSET institutions in Cornwall, Finistère, Galicia and Portugal, whose coordinator feels: "It is important not just to train the teachers but also to inspire them. Language teachers need time abroad; they also need quality time with colleagues from other countries, time to spend immersing themselves in the culture... Our courses aim to give a motivating experience with long-lasting benefits."

Benefits of such courses can be far-reaching, as this participant's comments reflect: "I had done no German since 0-level in 1958. This course prepared me to start teaching beginners in year 7, now years 7 and 8. I would not have entertained the idea without this course. My standard rose from very poor to a basic competence in written and spoken German. The course enabled the school to start the move towards 50% German and 50% French, working up from year 7. We have also been enabled to offer two lan-

guages to every pupil, and consequently the new school curriculum is giving an extra hour to modern languages in the school week."

This particular ECP has had an impact on regional policy too. Cornwall has seen a huge increase in demand for languages at secondary and primary level over the last three years: the ECP has helped to fuel demand and to feed in ideas on policy and training from elsewhere.

A recent symposium on ECPs held in Ghent (Belgium) provided a forum to consider how what has been achieved can best be shared. It was also an occasion to discuss developments within the Socrates programme, in which ECPs will continue to thrive (chapter III, action 1).

Many future foreign language teachers and students of languages have been able to spend part of their course abroad within the context of an inter-university cooperation programme (ICP). This has given them a real opportunity to master the language, immerse themselves in a foreign culture and experience a feeling of European citizenship. This type of mobility will be further supported in Socrates (chapter I, action II). Language assistantships for future language teachers are also to be introduced (chapter III, action I).

The joint educational project (JEP) has proved particularly successful as a means of motivating foreign language learning and improving communicative competence. Primarily targeted on young people in professional, technical or vocational training, JEP activity involves collaborative work over a period of time during which an exchange takes place. It is normally centred on a theme of common interest, often curriculum-related, and the young people work towards an end product. This task-oriented, very practical approach to Language acquisition has helped to remove the academic aura which surrounded language learning.

Two such participants made the following comments: "I have enjoyed every aspect of my BTEC programme but the Lingua exchange must rate as the most enriching part of the whole programme. I never thought that I would get the opportunity to practice my business-related skills in another country - it was wonderful to be able to do the kind of assignment work that we do here in Armagh in such a different context. The IT facilities in Lycée Saint Paul were very interesting and our school is definitely a century ahead in terms of equipment and facilities. The French students were friendly and helpful and some of them were very good-looking! "Our experience in Orléans certainly broadened our horizons and for many in our group the prospect of living and working in France in the future seemed more of a possibility than it had previously done. The importance of learning a second language also became apparent very soon. While almost all of the young people we met speak a little of another language, in the North of Ireland this would be unusual."

The above project was carried out between Saint Catherine's College, Armagh, Northern Ireland and the Lycée Saint Paul, Orléans. It was an entrepreneurial exchange forming part of a business studies course. The UK students were to market their local apple juice to the French and the French students Orléans wine to the Northern Irish. The visit to France involved a mini 'trade delegation' and market research, culminating in tastings in supermarkets where the UK students had to convince French businessmen of the commercial viability of Armagh apple juice.

Young people undergoing training in hairdressing and beauty therapy from the Netherlands and Italy carried out a JEP. A trilingual –Italian, English, Dutch– "Glossario Multilingue del termini tecnici per i settori Parrucchiere-Estetista" was published as a result.

Initially, partnerships tended to form between the Member States of the languages that were taught in school, but there has been an increasing trend towards diversification. A topic-oriented partner finding system was set up to encourage flow away from the Member States with the dominant languages. Some very successful partner fairs also helped to get projects involving the LWULT languages off on a firm footing.

Meeting with project leaders and participants has been crucial in the development

of the JEPs. The first working conference on JEPs, in Venice in February 1993, provided an opportunity to thrash out some of the practical aspects of running a JEP and formed the basis for a handbook which was published last year. The European seminar in Albertville in May 1994 proved to be an invigorating experience where young people described what their involvement in a JEP had meant to them.

In economic life, and Lingua's focus here has been on SMEs, much has been done to raise the level of awareness for the need for foreign languages. Language audit –the process which enables a company to clarify its business objectives in the context of its contact with foreign language environments – has also been a key activity: if this is not properly done, the solutions are unlikely to be right. Self-audit tools have been designed which can help a company to analyse some of its own needs. The publication *Language Audits and Needs Analyses*, resulting from a symposium held in Saarbrücken, has been welcomed as a valuable account of current practice.

Lingua has been concerned with making systems and materials available at "the point of need", tailored as far as possible to the special requirements relating to the situations in which the users will learn and use these languages. Emphasis has been placed on the use of new technologies and techniques which facilitate self- and distance learning, thereby offering a more flexible approach to language learning in working life. A joint Lingua/Delta conference, *Foreign Language Learning and the Use of New Technologies*, in London in January 1993 stimulated knowledge-sharing in this field.

The train drivers and managers on the Eurostar service have benefited directly from a Lingua-supported course, *En train de parler*. When the decision was taken that the service would run capital-to-capital through the tunnel without changing crew, a vital language training need was identified. It was essential that all operational staff acquired a level of French appropriate to their duties so that a safe, high-quality service could be run. For *ab initio* learners, 600 hours of language training was delivered in manageable chunks of two- or three-week modules and interspersed with operational and technical training over a period of 15 months.



And Europe for youth

The Formavoc project is aimed at skilled and manual workers in the metal manufacturing sector. It consists of a software glossary of 600 terms specific to metal manufacturers in Spanish, German, English, French, Italian, Dutch and Portuguese, with exercises and use in syntax. Designed as an open system, it allows new terms, digitized images and illustrations to be introduced.

These are examples of around 200 products which have been developed over the past five years. The details of these will be published shortly in a computerized *Lingua Products Catalogue* which will be disseminated through the EuroInfo Centres and other appropriate networks. Support for this type of activity continues in the Leonardo programme, strand III.1, where transnational exchange programmes for language training institutions are introduced.

The LWULT languages are a priority across the programme, and in order to ensure the availability of courses for these languages, materials development in this area has been encouraged. One such project has focused on the development of a course for Dutch as second language. It includes authentic European source material of a traditional type, computerized tutorial teaching software and interactive distance teaching material with a European dimension.

Sometimes existing materials have been adapted for LWULT languages. *Gaelmedia* is a successful adaptation into Irish of a BBC Welsh course and *Muzzy* the adaptation into Irish of an English-language cartoon course for children.

Productive alliances and partnerships have been forged through Lingua projects at both national and transnational level. Foreign language providers, publishers and software developers, vocational and continuing training institutions, and end user organizations (sectoral, trade union, professional, etc.) have all been encouraged to work together. Many of these organizations had never collaborated before. The effect of this has been to spread existing expertise in a variety of fields – foreign language teaching, teacher training, open and distance learning, technology-enhanced learning – across the whole of the EU. These partnerships form a solid foundation for future activity in the new programmes, where the promotion of language skills remains a crucial factor in making wider and easier communication possible across Europe.

As it turns out, the fact that the Youth for Europe programme is now entering its third phase is not a reason for celebration – at least not for everyone. Looking back... in 1986 and 1987 the European Commission and the European Parliament began to examine ways of making life in Europe easier for young people. Special attention was given to assisting those young people who had no access to existing Community programmes, such as Erasmus, or who were considered disadvantaged for whatever reason.

The idea quickly became a reality. In 1988, Youth for Europe was launched, its main objective being to promote bilateral and multilateral youth exchanges. Rapid negotiations between Member States and with the Commission made this possible, thanks to a firm determination – despite limited financial resources at the outset – to create something completely new and to state unequivocally that “We take young Europeans seriously”. This was the first programme to be established outside a school or vocational context which provided young people from diverse socio-cultural backgrounds with the opportunity to share new and structured learning experiences. From then on, intercultural learning became an integral part of youth exchanges.

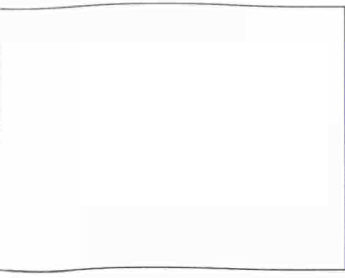
In 1992, the second phase of the programme was able to start directly after its first year of operation, despite the reductions of the Commissions proposal which certain Member States had demanded. The European Parliament was able to go some distance towards cushioning the impact of these cuts by making additional funds available to the Commission, thus enabling some of the activities originally planned for the programme to be implemented. It was then that the ‘priority actions’ in the youth field were first established. Youth pilot projects, designed specifically to promote and support initiative, creativity and solidarity among young people, played a particularly important role. At a political level, significant weight was given to cooperation with young people in Central and Eastern Europe (as well as in Latin America and the Maghreb countries) by promoting conferences, study trips and youth exchanges between these countries and the Member States of the European Community. Finally, there was the challenge of develop-

ing and fostering cooperation between Member States as regards the European dimension in the initial and further training of youth workers. This took place in a new and very much broader context than that of earlier projects under Youth for Europe, which had been limited primarily to training for youth exchanges.

Today, young Europeans recognize the value of Youth for Europe as a programme which meets their need to take on a more active role in society and to broaden their horizons; which helps them prepare for the difficult living and working conditions existing in Europe’s multicultural societies; which helps them to develop their own sense of identity, founded not in neo-nationalist ideologies but rather in the prospect of peaceful coexistence on the basis of mutual tolerance and respect for the dignity of others; and which is seen as an opportunity for young people themselves to take concrete action to combat social exclusion and marginalization, and every other form of oppression and discrimination.

The following three accounts of a youth exchange, a youth pilot project and an East-West exchange project give personal views of the Youth for Europe programme in action.

■ In September 1993, Berlin provided the backdrop for the production of a film about multicultural societies in Europe by a group of young people from Germany, Greece, Italy and the United Kingdom. For Kevin G., an unemployed video trainee from Aberdeen, taking part in the exchange project gave him the opportunity to travel abroad for the first time. This is what he had to say about it:



"Looking from an island, Europe looks daunting and massive. I learned that it's not that big. It has a wealth of different cultures that are worth experiencing and learning basic foreign language skills is not that difficult.

"I learned that it is relatively easy to pack up everything, move 100 miles and set up home in a different country. The problem is being accepted by your new host! I can understand why some German citizens resent such migrations. If you lose your job to a foreigner who is willing to work for less pay, then surely this can only build resentment. In prosperous times, when there are jobs aplenty, nobody minds, but when 200 or more apply for the same job, and someone from a different country gets it, I think it's bound to build tension. I think people from different countries need to spend more time together. This trip was ideal. I don't think the problem is with young people, but at least this way we may not solve the immediate problems, but we are positively building for the future.

"I think the European Community should fund more of these exchanges. A 'common European home' will take more than just opening the borders. If we are to live together, under the same flag as it were, then we must begin to respect and understand each other's needs. Living under the same roof with other young people of different nationalities was an ideal introduction. We, who took part in the exchange, can do little about the present, but it is our ideas and our opinions and what we learn about each other in these exchanges that may help to shape the future.

"Yes, it has made me want to travel more in Europe. This was undoubtedly the greatest experience of my life. I would love to do something like this again."

■ Youth Pilot Projects can also provide a totally new experience for those involved. For many young people, taking part in a youth project at local level may constitute their first involvement in structured youth activities of any kind. This was the case for Jamal T., who writes about how he came to take part in a local youth project in Brussels which set out to examine issues related to immigration and mixed cultural identity:

"The first day was the turning point in what, until then, had been a monotonous and boring time in my life; it was a day when being young took a new dimension. Where to, how and

with whom? I didn't know anything about the Oranger or Molenbeek, nothing about those who would soon become my friends and confidantes. People were talking about cameras, the big picture, immigration. But above all else, they were talking about me, about us.

"So who is this us? It's me, it's most of my friends. It's also all those people who at a given moment in time left behind their family, country and friends for better days elsewhere, often despite their reservations. By taking part in the Oranger video group, I was finally able to do something that I had always wanted to do: to talk openly about things that really matter to me. I got the feeling I had come to the right place, because people were listening to me. We all had so much to say, and we had to say it with style. And that's what we learned to do, often indirectly.

"We couldn't just deliver some pre-prepared speech on immigration and all the relevant issues. It was a question of listening, listening more and then listening even more. Listening to whom? To all those who knew more than we did, and all those who had already thought about the subject. We conducted interviews, took part in discussions, heard what people had to say, organized encounters before taking the floor individually and personally. All this often went on under the scrutinizing eye of the video camera. That's right! We had to tape everything and to do so we had to learn how to use the video: microphones, camera, booms, cutting table. Believe me, it was hard work, but even so, an interesting and rewarding experience.

"And why? Because it seemed to us that this was the best way to achieve a greater impact on the general public. This approach allowed us to get our final product, which was called "1+1=3", on television (TV5, RTBF, Arte, 21). We had delivered our baby into the world, perhaps a little prematurely, but it was in good health and weighed in at 28 minutes. Thousands of viewers were able to judge for themselves just how fruitful our labours had been. I hope we succeeded in raising their awareness."

■ Young people from Spain, France, Greece, Italy, Portugal, the United Kingdom, Belarus and the Ukraine came together in the Netherlands to tackle the theme "Being young in Europe". For Kathy E., a young leader from the UK, the exchange provided a unique

opportunity to meet groups from Eastern European countries and to prepare the ground for future cooperation with them:

"I thought there was a good mix of groups and particularly enjoyed meeting people from Belarus and the Ukraine.

"I found it frustrating not being able to communicate with some people because I cannot speak any other languages properly. However, I looked for other ways of communicating and with the Ukrainians and Belarussians. I wrote questions in English that they could read and asked translators from their country to help out. I shared photos and information about myself and my home and my organization. I am going to write to several people and hope to set up exchanges with the Ukraine and Belarus next year, and also Spain and the Netherlands.

"I know more about the Ukraine and Belarus and have made new friends. I have corrected any misconceptions about these countries that I had gained from the media in our country. I have become closer to my group and really enjoyed being with them. I am very proud at how well they have integrated and how mature and happy-go-lucky they have been. I intend to concentrate on learning French and Spanish to a higher level and to find out more about the histories and customs of the countries of the groups we have met during this exchange."

Does a nostalgic glance back into the past necessarily imply a condemnation of the future?

Of course not. In qualitative terms at least, Youth for Europe III represents a step in the right direction. It provides a more coherent response to current social changes in Europe. It makes available to young people model learning situations which will assist them in their difficult transition to adulthood, helping them to find their way in our multicultural social structures that are becoming ever more open. The support measures in particular, and above all the training of those who work with young people, ensure the necessary awareness for what former Commission President Jacques Delors described as follows, (in a television interview on 26 April 1994):

"We must fight the minimalists, who are everywhere to be found. There are those who say: I want no part of that Europe, I want something different - a something which they have never defined. There are those who

would like to reduce Europe to a Europe of tradesmen, to a vast free-trade zone. One cannot fall in love with a growth rate, one cannot fall in love with a Europe of tradesmen. What we need is a Europe of the soul, a Europe of the spirit, and a spirit of family... Europe is the common good, it is respect for others, it is the ability to live together, it is understanding. That is what Europe is all about. "

With its proposal for the third phase of Youth for Europe, the Commission – actively supported by the European Parliament on many key issues – has done everything it could to give young people the opportunity to take an active part in building such a Europe.

Glossary of information network technology

Network (LAN, WAN). Server. Client-server

A computer network essentially comprises a group of computers interconnected in a specific way. Some networks have a central computer to which the others are connected and which acts like the conductor of an orchestra, offering particular services to other computers. This is described as multi-user mode, where resources are shared by various users. This central computer is generally called the server and the others the clients. Other networks operate on a more loosely configured basis where the client and server roles are distributed among the computers depending on task and /or timing. The Internet global network provides an example of such a system.

Looking more closely, a distinction can be made between a Local Area Network, a LAN, limited in size and usually serving one office or a group of buildings close together, and a Wide Area Network, a WAN, which overcomes the technical limits of LANs. At one time or another it makes use of external communications carriers, i.e. telephone services, leased dedicated lines, analogue broadcast, satellites, etc.

Teleworking

The term teleworking is used to designate distance working on a continual and permanent basis. It involves giving the employee the opportunity to work at a location geographically removed from that of his or her company, the location often being the employee's home. Teleworking does not simply require the company to set up an appropriate technical system. It equally, and to a greater extent, demands the creation of a communication policy, both on a technological and human level, for inside and outside the company. This concept, which presents enormous opportunities for everyone involved, is now developing along with other phenomena such as personal and intellectual mobility and growing market globalization.

Information highways

These are high-throughput information networks. At present, the normal carriers used in telecommunications (copper cables) are capable of transmitting large amounts of data over a limited distance only.

A growth in information requirements, the diversity of consumers (individuals, companies and families) and the precise nature of demand (legal documents, invoicing, orders, technical research, leisure activities, home movies, miscellaneous timetables, reservations, formalities, miscellaneous results) has meant that cur-

rent telecommunications networks have reached their limits. For technical reasons, they are not yet able to transmit sound, images or mixed-media material in near real-time, i.e. without a timelag between transmission and reception.

The purpose of having information highways is to develop the new telematics services on a high-performance low-cost basis.

Internet

This is a network of worldwide interconnected networks. More than 30 million users and a vast range of services interact on this network. It is an open system where all networks and computers connected to it are completely free to communicate with each other. For the past one or two years, Internet has had a very user-friendly interface, allowing everyone to access data when he or she wants without having to be an expert or computer scientist.

There are several navigation tools available to help users become familiar with this environment, learn about the various services available, find the information required and make new contacts. They are generally called browsers, navigators or visualisers, and examples of these tools are HGopher, Mosaic and Netscape.

HGopher is principally a menu-based query system for servers using Gopher files, i.e. information in text file form only. Mosaic and Netscape are also navigation tools but handle World Wide Web type files. This system is sometimes called WWW or Web, and conveys the image of a worldwide spider's web. These files use Hypertext technology, or

what is more accurately described as Hypermedia, as this system can deal with still and animated graphics, sound and text. Each of these browsers accesses Internet using a series of user-friendly exploration programmes for on-line services.

Internet gives a foretaste of what information highways might achieve when public and private communications carriers increase their throughput and transmission quality.

Team work (group work/groupware)

Teleworking, the globalization of markets, the emergence of increasingly complex projects requiring the contribution of experts from different disciplines located in different places and the need for ever quicker responses have meant that several people who do not necessarily know each other have to work together from one day to the next, often in an exceptionally result-oriented environment.

The advent of new information technology (communications networks, increasingly powerful computers, friendlier than ever user interfaces allowing the exchange and questioning of ideas) has created a new approach to team work and how to meet its demands.

The appearance of new services will challenge certain communication and work practices. Even though the human factor is decisive in ensuring success, those involved have to understand and digest the potential offered by technological tools to enable

substantial progress to be made with a variety of often complex projects. The new technologies taken together represent communication tools which will improve working conditions. In addition to stimulating information flow to ensure company success, group work will also facilitate considerable cultural exchange and enhanced mobility. As a result, it will lead to greater trust and mutual understanding between geographically distant team members.

ISDN

ISDN stands for Integrated Services Digital Network. This system comprises relatively high-throughput telecommunications lines, although throughput is not yet very high at approximately 64 kbauds per second. Quality is recognisably better than when using normal telephone lines. Although it does not provide the same throughput as leased dedicated lines, such a system offers the advantage of forming a country-wide network enabling transmission of a large amount of data to another user without being first required to lease a special connection between two given points.

The number of ISDN users in Europe is increasing on a daily basis. This type of service is nonetheless designed for use with a temporary rather than permanent connection to make it profitable. In contrast, a dedicated line is available to the user at all times while it is being leased.

Rightsizing

The arrival of networks on the scene has made it possible for companies to optimize the use of their resources. In computer jargon, this optimization process has become known as rightsizing. Other terms are also in common usage. Downsizing describes the process of reducing the amount of resources used by replacing a mainframe (large centralized computer) by networked personal computers. Upsizing involves moving from the use of several stand-alone PCs to having a company PC network which also makes use of higher performance servers. The existence of these three terms indicates to what extent PC networks have grown in importance for company information systems in recent years.

Ethernet

This is a widely used local network because it is easy to install and offers a comparatively high throughput rate, one of the highest available up to recently. It generally offers a theoretical transmission rate of 10 MB per second. The latest technology makes it possible to reach a theoretical 100 MB per second. This improvement in Ethernet's performance provides a temporary solution to the problem of creating a widespread market for ATM standard products.

ATM

ATM is an acronym for Asynchronous Transfer Mode. Projects based on this standard first began operation in 1984. ATM is a high-throughput network technology which, in the near future, will make it possible to integrate all types of networks (private and public LANs and WANS) and the information transmitted (data, images and sound). The communications protocol, which involves cutting the information to be transmitted into fixed-size packets, interacts with a virtual circuit where it is not necessary to transmit packets at a specific frequency, thus giving rise to the name asynchronous transmission. Its high throughput and asynchronous nature will make it the natural successor to Ethernet and essential for all multi-media communication and information highway purposes.

Router

This is a piece of electronic equipment of essential importance in multiple protocol communications networks, i.e. where information from different networks is exchanged using different protocols. This equipment makes it possible to transmit various applications or information independently of the protocol they use and translate the data received into a form understandable to another network. With the opening of different company networks to the outside world and the development of worldwide markets requiring rapid expansion of transmission between systems in a way not previously experienced, this type of equipment is expected to grow rapidly in importance and eventually become irreplaceable.

Modem

This is a piece of equipment which, on the one hand, converts information from the computer into a form suitable for telecommunications transmission, and on the other hand, receives the signal at the other end of the line and converts it for acceptance by the other computer. Modem is an acronym and comes from MODulator-DEModulator, which conveys this idea of conversion. The modem is the black box (external desk-top model or installed as an electronic card inside the computer) which calculates how to transmit and receive information by telephone or between several computers. Several types of modem are available and vary particularly according to the type of communications line used, transmission speed, the communications protocol and the type of job to be done.