

CONFERENCE

“STRENGTHENING EUROPEAN COOPERATION IN VOCATIONAL EDUCATION AND TRAINING

A EUROPE OF SKILLS – LET’S DO THE JOB”

“Vocational Education and Training as a Key Pillar in Realising the Lisbon Goals”

Maastricht, 13-16 December 2004

GROWTH, JOBS AND LIFELONG LEARNING IN A KNOWLEDGE SOCIETY

Maria João Rodrigues

2004.07.12

Paper prepared for the Conference “Jobs for Europe”

Amsterdam 25-26 October 2004

Contents

Main Policy Conclusions	1
1. From Growth to Lifelong Learning	2
1.1. Productivity and human resources in the transition for a knowledge intensive economy	2
1.2. The renewal of the human resources and the role of lifelong learning.....	4
1.3. Lifelong learning in the European Union: the state of the play.....	5
1.4. A European momentum for lifelong learning.....	6
1.5. Taking stock of the national strategies for lifelong learning	7
2. Towards a comprehensive strategy for lifelong learning.....	8
2.1. From the learning system to the strategy for lifelong learning.....	8
2.2. To define the goals for lifelong learning	11
In the meantime, horizontal competences are required to develop all the clusters of activities: electro-mechanic equipment, information and communication activities and biotechnologies.	13
2.4. To create a more diversified supply of learning opportunities	15
2.4.1. To develop the new instruments of e-learning.....	15
2.4.2. To turn schools and training centres into open learning centres...	16
2.4.3. To encourage companies to adopt learning organisations	16
2.4.4. To shape the appropriate learning mode for each target group	17
2.4.5. To spread new learning solutions for the low-skilled workers	17
2.5. To foster the demand for learning and to create a demand-led system:	17
2.5.1. To improve the framework conditions for lifelong learning	17
2.5.2. To develop a dynamic guidance system over the life course.....	18
2.5.3. To renew the validation and recognition system	18
2.5.4. To create compensations for the investment in learning	19
2.6. To spread new financial arrangements in order to share the costs of lifelong learning	19
3. Improving governance for lifelong learning	20
Bibliography.....	23

Main Policy Conclusions

Lifelong learning plays a central role in order to explore the full potential of a knowledge intensive economy for competitiveness, growth and jobs creation with social inclusion. The analysis of the present situation in EU shows very important bottle-necks, in spite of an increasing public awareness of this issue. Following recent policy developments at European level, all Member States are about to define their national strategies to develop lifelong learning.

Some elements of this broader strategy seem to be emerging everywhere such as: lifelong learning as an issue concerning the population as a whole, the importance of basic competences, the role of multiple stakeholders, new funding instruments, the development of multiple pathways and the need to remove obstacles, the potential of e-learning, the need to improve guidance and recognition. By contrast, others topics still seem underdeveloped: the critical role of early childhood learning, the potential of work organisation, the role of collective bargaining, the budgetary implications of the targets for investment in lifelong learning.

Building on a comprehensive analysis of the learning system, this paper puts forward some priorities to be taken into account in these national strategies:

- to define the goals for lifelong learning in terms of not only educational levels but also new jobs profiles and competences;
- to develop a new infrastructure for lifelong learning;
- to create a diversified supply of learning opportunities able to provide more customised solutions:
 - to develop the new instruments of e-learning and to explore the potential of the digital TV
 - to turn schools and training centres into open learning centres
 - to encourage companies to adopt learning organisations
 - to shape the appropriate learning modes for each target group
 - to spread new learning solutions for the low skilled workers
- to foster the various demands for learning and to create a demand-led system:
 - to improve the framework conditions for lifelong learning
 - to develop a dynamic guidance system over the life course
 - to renew the validation and recognition system
 - to create compensations for the investment in learning
- to spread new financial arrangements in order to share the costs of lifelong learning between the various stakeholders and encourage the initiative of companies and individuals;
- to improve governance for lifelong learning.

1. From Growth to Lifelong Learning

1.1. Productivity and human resources in the transition for a knowledge intensive economy

The contribution of human capital has been very relevant for productivity and growth, but it becomes crucial in the transition to a knowledge intensive economy.

Building on the last developments of the economic research (de la Fuente and Ciccone, 2002:11) it is possible to estimate that each additional year of average education level in one country might raise its aggregate productivity by 5% in the short run and by a further 5% in the long run. This last effect translates the role of human capital in fostering technological progress. Furthermore, a comparison across countries in the OCDE zone shows that human capital represents 22% of the productivity increase over the period 1960-90 and 45% of the productivity differences regarding the average in 1990.

The transition to a knowledge intensive economy involving higher levels of human capital is displayed by the sectoral and occupational analysis of the employment trends in the European Union over the second half of the 1990s (Bainbridge and Murray,2004:152):

- jobs in services expanded by 2% a year, accounting for 67% of total employment in the EU in 2001;
- there is a shift from the more basic to the more advanced business and communal service sectors – education, health, social and recreational services- in which a large proportion of the workforce have high education levels. The share of total employment in these advanced services has risen from 26% in 1995 to almost 32% in 2001. This is larger than the share of employment of either the industry or of the basic services such as hotels, restaurants, transport, distribution and personal services;
- there is a parallel shift in the occupational structures within all sectors from jobs requiring physical strength towards jobs requiring intellectual capacity and know-how. Between 1995 and 2001, 80% of the net additional jobs in the EU were for managers, professionals and technicians. With some national exceptions for managers, most of those employed in these occupations have either upper secondary or tertiary levels of education. Nevertheless, there are some remarkable differences across member States (See Table 1).

In the general context of globalisation, the European economy is being redeployed to new sectors and new occupations which have a horizontal presence in all sectors. In order to understand the broader scope of this transition to a knowledge intensive economy, it is important to look inside the black box of the enterprise adopting a more pluralistic definition of the concept of knowledge, which goes beyond the codified scientific and technological knowledge (Griffiths and Guile, 2004). A new kind of enterprise is emerging in all sectors which can be called a knowledge-based enterprise because (Amidon, 2001:140):

- their products or services are more knowledge intensive due to their technological content but also to their more tailor-made relationships with their customers;
- their production systems have a more knowledge intensive management;
- they develop a stronger synergy between marketing, production and research;
- they create customised networks with their suppliers of financial resources, materials, equipment, research, economic intelligence and human resources;
- their work organisation is being transformed into a learning organisation, with more enlargement and enrichment of work and with the emergence of broader occupational profiles;
- last, but not least, competence building is at the heart of building new competitive factors and plays a central role in the general knowledge management to be developed by the firm.

The success of this knowledge-based enterprises also depends on a broader transformation of the process of knowledge creation, diffusion and use. We can say that we are entering a new mode of knowledge creation, diffusion and use due to three main factors (Rodrigues, 2003:5):

- their acceleration by information and communication technologies;
- the increasingly sophisticated procedures to codify, to learn and to manage knowledge;
- the social perception of knowledge as a strategic asset of companies, nations and people;

These three factors are gradually transforming:

- the knowledge creation by professional groups such as researchers, artists, engineers as well as by the different knowledge communities, developing different forms of life, working life, family life, leisure, public space;
- the knowledge diffusion by telecommunications networks, content industries, media, education and training;
- the knowledge use by companies, public services, local authorities, the different actors of civil society and people at large.

This broader transformation is underpinned by the multiplication of new occupational profiles dealing with the creation, the use or the diffusion of knowledge and requiring new basic skills, such as digital literacy as well as many new specific skills.

In conclusion, if the European Union aims at stepping up the transition to a knowledge economy as decided in the Lisbon European Council in 2000, a more ambitious policy for lifelong learning should be developed, in order to raise educational levels, to multiply new occupational profiles and to spread new general and specific skills in the overall population.

Nevertheless the success of this transition will depend not only on the occupational structure of jobs creation and labour demand but also on the

availability of labour supply with the necessary skills. How far can Europe renew its human resources?

1.2. The renewal of the human resources and the role of lifelong learning

The demographic trends underway in Europe are introducing a major limitation in its capacity to renew its human resources by the traditional way of replacing generations. According to the available forecasts (Kok, 2003:13), and putting aside possible effects of external flows, as the old age population grows the working age population will decrease from 303 million today to 280 million in 2030. This means that, even if the EU meets its target of having an employment rate of 70% by 2010, the fall in the working age population over the subsequent 20 years will lead to a sharp decline in the overall volume of employment. The EU25 total employment would begin to shrink after 2010 and would lose an average of one million workers a year. This has a direct impact on the ability to sustain economic growth in the longer term. More precisely, this means that, unless employment rates overcomes 70% and productivity is significantly improved, the average GDP per capita growth will slow down after 2010.

The implications of these very likely scenarios for education and training policies are twofold:

- first, they will play a particular critical role in avoiding labour market mismatches and skill gaps and in increasing the employment rates and the productivity levels;
- secondly, they should be reformed in order to create more learning opportunities for all generations since all of them will be concerned by the renewal of jobs, occupational profiles and skills. The natural replacement of generations will not be enough to ensure this renewal.

It is possible to assess these implications more precisely by comparing the projections of the present occupational trends of the labour demand with the projections of the present educational trends of the labour supply (Bainbridge and Murray, 2004:159-164). The main limit of this exercise is, of course, to assume the continuation of these trends. Under this assumption, these projections show in the labour demand:

- that some 80% of net additional jobs will be for managers, professionals and technicians, while the number of manual workers will decline, especially among skilled operatives;
- that, in 2010, some 42% of jobs in the EU will be for managers, professionals and technicians as against 36% in 2001, whereas 33% will be for manual workers as against 37% in 2001;
- this shift towards higher-level jobs implies that the demand for people with tertiary level education will increase while the demand for those with no qualifications beyond compulsory schooling is set to decline;
- Demand for those with upper secondary education is projected to rise slightly less rapidly than the overall increase in employment.

In conclusion, in all Member States, the great majority of the net additional jobs created will be for those with at least upper secondary education and, more than half, for those with a tertiary level diploma or equivalent. Nevertheless, the demand for those who only have the basic education will remain high due to the need of replacing the workers who will retire from these jobs, leading to important shortcomings in the labour markets.

On the other hand, the projection the educational levels of the working age population (15-64 years old) shows that:

- some 22% of people in this age group will have tertiary level education as opposed to around 19% in 2001;
- around 43% will have upper secondary education as against 40% in 2001;
- accordingly, the relative number with only basic schooling would decline from 41% to 35% over this period.

When comparing these projections for labour demand and supply, we can draw some key challenges for the education and training policies in the years to come:

- first, to pursue the effort to raise educational levels up to the tertiary levels and to cope with some specific shortages of people of this educational level in a number of Member States; this also implies combating drop-outs of young people before concluding the upper secondary education;
- secondly, to provide and to up-date the specific skills of all workers in each level of education;
- thirdly, to enhance the specific skills of those who only have a basic education, in order to rise their employment rates and to cope with the manpower shortages which will emerge in these kind of jobs.

The second and third challenges can only be tackled by a strong development of lifelong learning. Furthermore, the answers to the first challenge should be designed in order to provide a solid foundation for lifelong learning. Therefore, lifelong learning becomes a crucial policy goal in order to foster not only growth and competitiveness and social cohesion, but also the very level of labour supply. Tackling the various skills mismatches in the labour market by an effective and generalised use of lifelong learning is decisive to meet the employment rate of 70% by 2010.

1.3. Lifelong learning in the European Union: the state of the play

The European Union seems to still have a long way to go in order to spread the participation in lifelong learning activities, even if the differences across Member States are quite pronounced (See Table 3). According to the Labour Force Survey, in 2001 an average of 8.7% of employed persons aged between 25 and 64 took part in some form of education or training in the four weeks prior to the survey (Bainbridge and Murray, 2004:101). This compares with the target adopted by the European Union of 12.5% by 2010. Furthermore,

the inequality of access according to educational level is very clear: people aged 25 to 54 with tertiary education were on average 3 to 4 times more likely to participate in training in 2001 than those with only basic schooling. Finally, in most Member States, there is little continuity between initial and continuous training: in the EU in 2001, 45% men between 19 and 22 were not in education and training while this share increases to 64% in the case of men between 23 and 24.

Differences of participation in lifelong learning are also quite clear across sectors and companies. According to the Continuous Vocational Survey, this participation is clearly higher in telecommunications, postal services, transport sectors and financial services. Furthermore, an average of 48% of employees of big companies is participating as against 33% in medium-sized companies and only 19% in small enterprises (See Table 2).

The perceptions of the citizens about lifelong learning should also be taken into account (Chisholm, 2003). Again with many remarkable national differences:

- there is an increasing awareness about the need of lifelong learning even if about 45% of European citizens think lifelong learning is mainly for those who did not do well at school; the idea that this is relevant for everyone at all stages of their lives needs more reinforcement;
- felt lack of ICT skills, among the various kinds of skills, is specially marked;
- informal learning settings are the most popular contexts in which most citizens think they have learned something, in the following ranking order: at home, with other people or in leisure activities; at work, on the job or otherwise; in local resource centres/libraries travelling abroad and social and political work;
- among the various incentives for lifelong learning, the most mentioned ones are flexible working hours, individualised programmes of study, personal choice of methods of study, getting a certificate and having access to individualised guidance and counselling.

1.4. A European momentum for lifelong learning

Lifelong learning was given a crucial political role at European level when the Lisbon European Council in 2000 defined the Knowledge based economy and society as a central concept in the European strategy for growth, competitiveness and more and better jobs. Subsequently, new and more ambitious priorities were adopted in 2002 for education and training, as well as for the employment policies. Moreover, under a new method, the so-called open method of coordination, concrete future objectives were defined for the quality, access and opening of the education and training systems and, regarding the employment policy, new guidelines were adopted with a stronger emphasis on lifelong learning strategies (Com (2003) 176).

More specifically concerning lifelong learning, a consultation based on a European Memorandum led to a Communication by the European Commission and a Resolution by the Council in 2002, committing the Member States to prepare national strategies for lifelong learning. This Resolution also emphasizes the need to promote learning in the work place, to recognise the various learning outcomes, to provide guidance, to spread new basic skills, to mobilise financial resources and to involve all actors. In the meantime, social partners at European level agree a framework for actions on the lifelong development of competences and qualifications comprising four key areas for priority action: anticipating skills needs, recognition, guidance and resources. Finally, a special process for cooperation between Member States in vocational education and training was launched in Bruges-Copenhagen in order to improve the European solutions for transparency, recognition of the qualifications and quality insurance.

Building on these policy developments, a work programme is underway with the label “Education & Training 2010”, identifying the main instruments to create a Europe of education and training and urging the Member States to define their strategies for lifelong learning, as well as to concentrate reforms and investments on their specific priorities in the light of the common objectives (Com (2003)685).

Bearing in mind these developments of the European agenda, a central question emerges: where are exactly the Member States in designing and implementing national strategies for lifelong learning?

1.5. Taking stock of the national strategies for lifelong learning

Designing and implementing a strategy to develop lifelong learning requires a broader and more systematic view on what can be called the learning system, encompassing the various goals, types, places and instruments of learning as well their key framework conditions. When taking stock of the national progress (Com, Progress Report, 2003), this broader view is gradually emerging but still vary in their coherence and comprehensiveness as well in their emphasis: either a cradle-to-grave culture of lifelong learning or a employability-related approach or a social inclusion approach.

Some elements of this broader strategy seem to be emerging everywhere such as: lifelong learning as an issue concerning the population as a whole, the importance of basic competences, the role of multiple stakeholders, new funding instruments, the development of multiple pathways and the need to remove obstacles, the potential of e-learning, the need to improve guidance and recognition. By contrast, others topics still seem underdeveloped: the critical role of early childhood learning, the potential of work organisation, the role of collective bargaining, the budgetary implications of the targets for investment in lifelong learning.

2. Towards a comprehensive strategy for lifelong learning

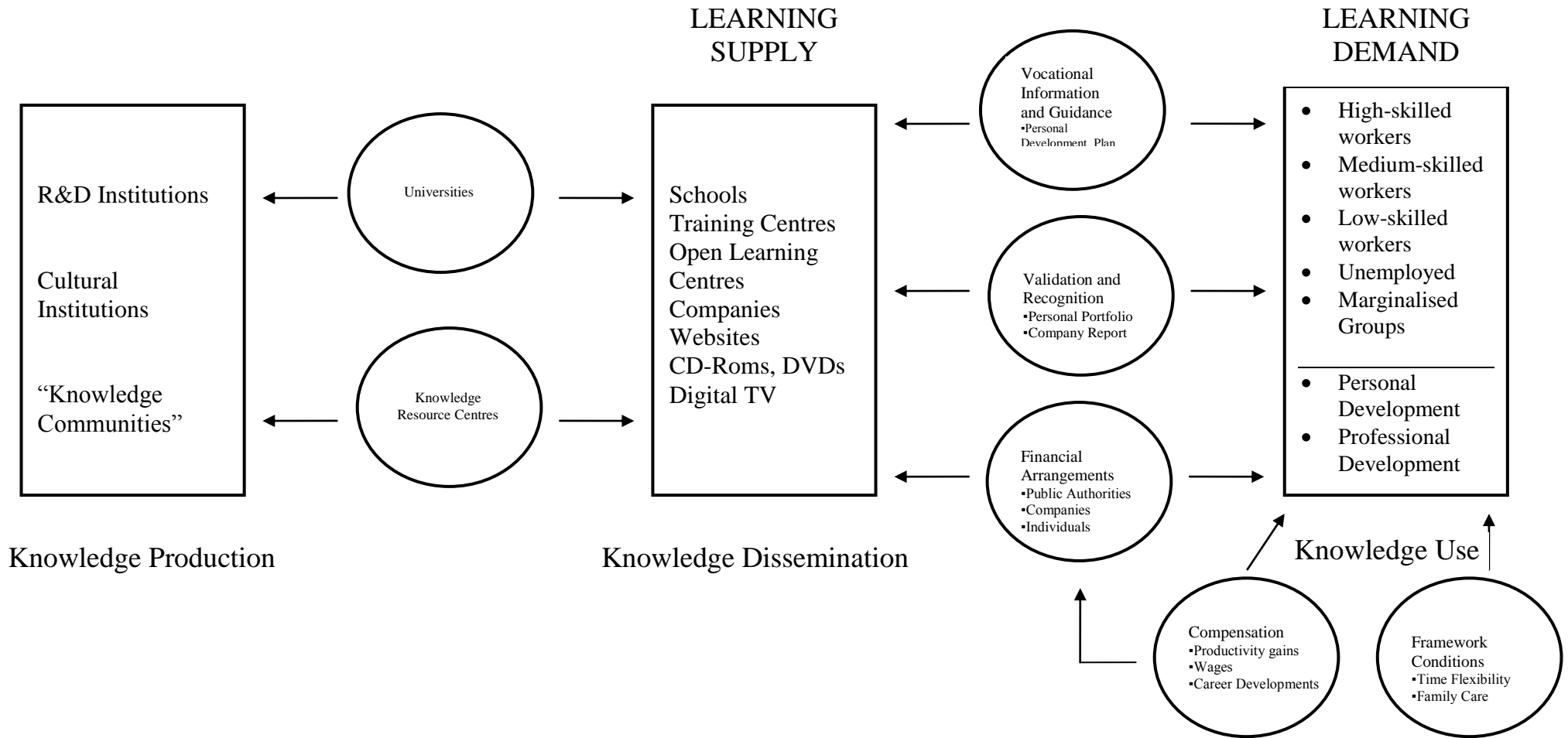
2.1. From the learning system to the strategy for lifelong learning

There is a clear gap between the European ambition to become a dynamic, competitive and inclusive knowledge based economy and the present scope of the learning activities involving both public and private initiatives. In order to overcome this gap we need a more systematic approach on the development of a *learning system*, which should build on the following principles (see Figure 1):

- a/ this approach should take into account the general context of a knowledge-based society;
- b/ lifelong learning is a central activity in a knowledge society because it disseminates the knowledge which is produced to those who might use it. Therefore lifelong learning plays a central role in the chain of knowledge production, dissemination and utilisation;
- c/ in order to analyse the outcome of the autonomous initiatives of the actors of the knowledge dissemination versus the actors of the knowledge utilisation, it useful to speak about the *supply of learning services* versus the *demand for learning services*. As matter of fact we are considering a specific sector of services which is expanding and becoming more complex and sophisticated;
- d/ the supply of learning services is evolving according to the types, places and instruments of learning: schools and training centres might evolve to open learning centres; companies can create more sophisticated learning organisations; e-learning is developing by using websites, CD-ROMS, DVDs and data basis; digital TV can play an increasing role;
- e/ the demand of learning services is very heterogeneous according to the various target groups, from high skilled staff to skilled craftsmen or to marginalised groups and according to their concrete economic, social and cultural activities;
- f/ the demand of learning services depends on some framework conditions, such as the working time flexibility and the family care facilities. This demand also depends on the prospects to get incentives in terms of productivity gains and of personal or professional development, or in terms of salary or promotion to be defined by the labour contract or the collective agreement;
- g/ the interaction between the supply and the demand of the learning services depends on the forecasting and guidance procedures, on the validation and recognition of the learning activities and on the funding mechanisms; in simpler words, well known of economists, the interactions between supply and demand depend on information, value and money;

h/ finally, all the interactions in this chain can be more strongly developed on the basis of a more powerful infrastructure of telecommunications (broadband) and logistics.

FOR A STRATEGY OF LIFELONG LEARNING IN A KNOWLEDGE SOCIETY



These seem to be the main components of what we can call a *learning system*, which will have concrete specificities in each national case. A national strategy for lifelong learning should therefore aim at dynamising this system in order to develop lifelong learning taking into account these national specificities. Nevertheless, beyond these specificities it is possible to identify some general strategic priorities to be taken into account in each national case:

- to define the goals for lifelong learning in terms of not only educational levels but also new jobs profiles and competences;
- to develop a new infrastructure for lifelong learning;
- to create a diversified supply of learning opportunities able to provide more customised solutions:
 - to develop the new instruments of e-learning and to explore the potential of the digital TV
 - to turn schools and training centres into open learning centres
 - to encourage companies to adopt learning organisations
 - to shape the appropriate learning mode for each target group
 - to spread new learning solutions for the low skilled workers
- to foster the various demands for learning and to create a demand-led system:
 - to improve the framework conditions for lifelong learning
 - to develop a dynamic guidance system over the life course
 - to renew the validation and recognition system
 - to create compensations for the investment in learning
- to spread new financial arrangements in order to share the costs of lifelong learning;
- to improve governance for lifelong learning.

In the following sections, we will identify the main obstacles hindering these priorities and we will suggest possible solutions to overcome them, building on the available identification of best practices at international level.

2.2. To define the goals for lifelong learning

The goals of lifelong learning should be defined first of all in terms of education levels and educational attainments. The European Union has recently adopted a short list of common targets, assuming that the upper secondary level seems nowadays the minimal level to provide a solid foundation for lifelong learning. These targets (see Box 1) aim at focusing the investment in education and training in areas with clear value added, in terms of economic growth and employability. This additional effort should combine targeted public investments and higher private contributions (Com (2002) 779).

Box 1

1	By 2010, an EU average rate of no more than 10% of early school leavers should be achieved;
2	The total number of graduates in mathematics, science, technology in the EU should increase by at least 15% by 2010, while at the same time the gender imbalance should decrease;
3	By 2010 at least 85% of 22 years old in the EU should have completed upper secondary education;
4	By 2010, the percentage of low-achieving 15 years old in reading, mathematical and scientific literacy will be at least halved;
5	By 2010, EU average participation in lifelong learning should be at least 12,5% of the adult working population (25 to 64 age group).

Moreover, according to the above presented analysis, two other targets should be added:

- a specific target concerning the education and training of the adult population who only has basic education;
- a general target concerning the pre-schooling education for all children, as it is proved it can play a crucial role in their cognitive development and their subsequent educational and professional performance; this target might be connected with the other already adopted, dealing with the generalisation of child care services.

In the meantime, the EU also agreed on a short list of basic skills which, in addition to literacy and numeracy, should include ICT skills, foreign language, entrepreneurship and social skills.

Lifelong learning activities are very often hindered by a lack of relevant information and awareness about skills needs. Companies complain about education institutions not being able to cope with their needs and education institutions argue they should not be completely subordinated to short term economic needs. Nevertheless, behind the success cases of European regions and clusters we will find new patterns of interaction between skills demand and supply (Stahl, 2001).

Drawing some lessons from this experience, the goals of lifelong learning should also be defined in terms of occupational profiles and their specific competences. The purpose is not coming back to the traditional models of forecasting, setting a mechanical and unidirectional relationship between the industrial pattern of growth on the one hand and the skills needs on the other. On the contrary, the purpose should be to develop a permanent interaction between skills and the growth pattern at European, national, sectoral and local levels, involving the relevant actors and taking into account both long and short term needs. The recently created *Skillsnet* should be enhanced in order to provide basic references for this process at European level, building on the already very diversified work across Member States, which combines very different techniques: enterprise and labour force surveys, case studies, expert inquiries, analyses of jobs advertisements, forecasting and scenarios, observatories on skills developments (Descy and Tessaring, 2001).

In a knowledge-based society, lifelong learning can play a central role in paving the way to new areas of jobs creation. Jobs creation is increasingly

intertwined with innovation in all its dimensions: innovations not only in process but in products and services, not only in technologies but in organisation, marketing and design. At the core of innovation there is the capacity to turn knowledge into more added value, and this requires skilled people with specific occupational profiles such as; designers, engineers, different specialists of marketing, management, logistics, telecommunications.

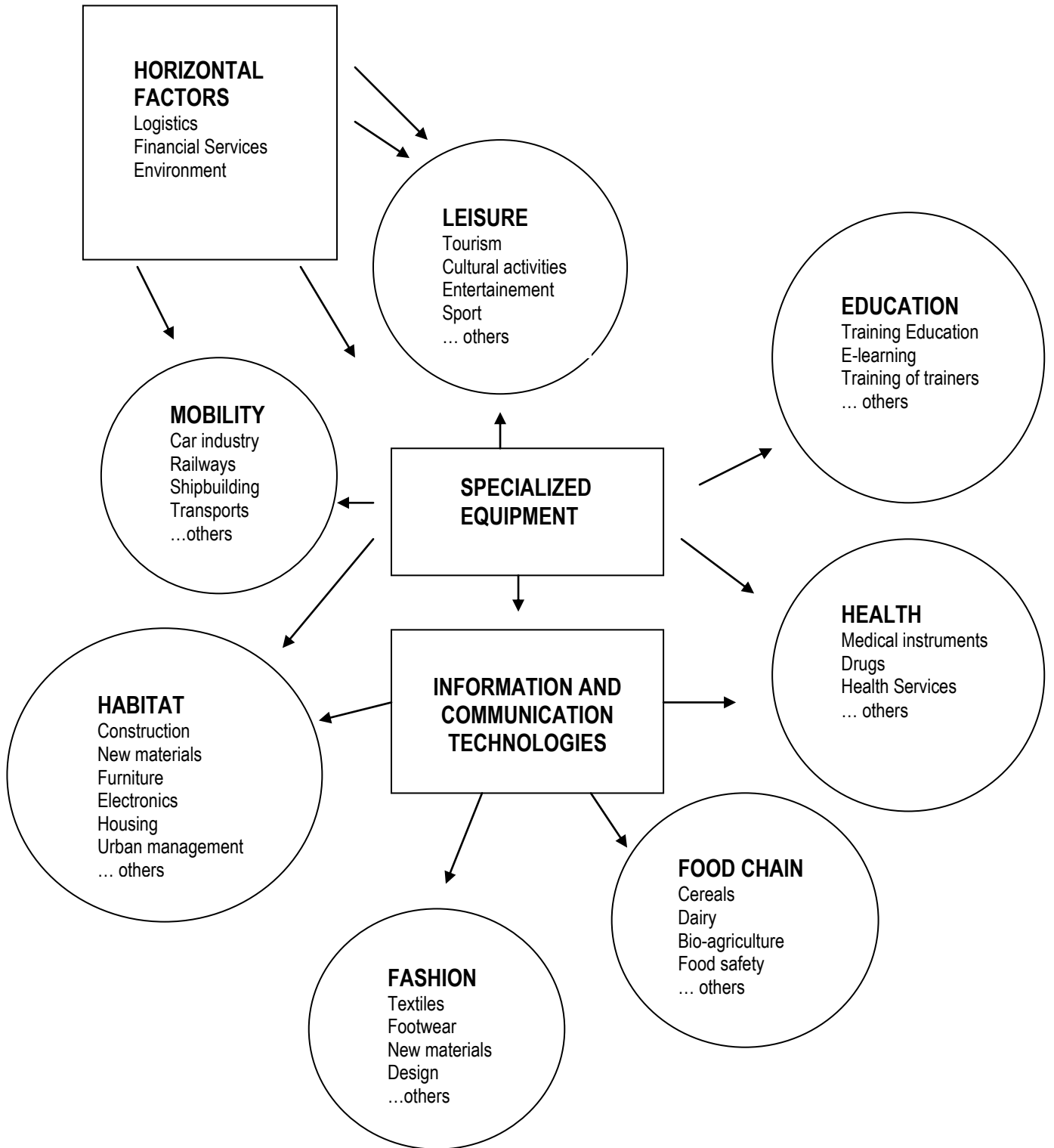
A permanent strategic exercise should be fostered involving the relevant actors at each level, based on partnerships for innovation, jobs creation and competence building. The critical path can be discovered by asking how is it possible to add more value building on the already existent competence. For instance, if we take the general human needs as a reference for associating clusters of economic activity (see Figure 2):

- competences in tourism should be combined with the competence in cultural activities, sport and environment in order to develop the area of *leisure*;
- competences in construction, furniture, electronics, urban management should be combined in order to develop the area of *habitat*;
- competences in clothing, footwear, new materials and design should be combined in order to develop the *fashion* area;
- competences in car industry, transports and logistics should be combined, in order to develop the area of *mobility*.

In the meantime, horizontal competences are required to develop all the clusters of activities: electro-mechanic equipment, information and communication activities and biotechnologies.

Finally, at company level, the identification of new jobs and competences should be developed by the human resources management as well as the negotiation of innovation agreements between social partners.

FIG. 2 A FRAMEWORK TO EXPLORE NEW AREAS OF JOBS CREATION AND COMPETENCE BUILDING



2.3. To develop a new infrastructure for lifelong learning

The information and communication technologies can lead to a radical change in the opportunities for lifelong learning by providing a new kind of infrastructure, a *knowledge infrastructure*, where learning:

- is independent from time and space, allowing more tailor-made solutions, combining different types of learning and different time schedules. This implies the extension of broadband, the reduction of the Internet access prices, the generalisation of the PCs use and of digital literacy;
- is based on a knowledge basis which can be updated much more regularly, which implies to develop the interface between knowledge producers and users. This can be made directly within universities, technological institutes or “virtual communities” but can be fostered in a wide number of schools and training centres by the creation of open knowledge resource centres developing this interface in specialised areas such as environment, design, electronics, biotechnologies or history;
- is available on a multimedia basis and, more precisely in a “hypermedia” basis (Morganti:2001) using image, voice and text to present an information which is extensively organised in many directions on the World Wide Web. This huge potential should be fostered by a strong support to the content industries and organised by the regulation of the cyberspace. The *knowledge resources centres* can also play an important role in this process;
- is developed by an interactive relationship, leading to more tailor-made solutions but also requiring a higher focus of on learning to learn. This implies an important shift in pedagogic techniques as well as the role of teachers and trainers, as we will see below.

The development of this knowledge infrastructure is hindered so far by some market failures, notably because most of the returns of this investment will take place on a longer term. In order to foster private investment in this area, new kinds of public-private partnerships should be launched in line with the recently adopted European Growth Initiative. The expansion of e-learning is also crucial to create the necessary demand to support these new investments in infrastructures.

2.4. To create a more diversified supply of learning opportunities

The access to learning opportunities is being highly hindered by the predominance of the massified and standardised models of education and training activities and the lack of more flexible and specialised solutions. It is up to not only the public but also the private initiative to explore and to expand a wider range of possibilities.

2.4.1. To develop the new instruments of e-learning

With e-learning, students do not need to be tied to one particular location. A flexible and customised service can be provided to meet his/her needs, whether

full-time, part-time, or through study at home, at work or at a local learning centre. For example, it could deliver a learning package on a CD-ROM or DVD sent by mail, or by e-mail, combined with an interactive TV programme, a course provided on the Internet or an evening class. As shown above, these services should be supported by the intensive development of digitalisation and content industries in connection with culture, science and technology creation. Besides broadband networks, this is the broader infrastructure of a learning society.

Last but not least, it also seems very important to fully explore the potential of the digital TV: by multiplying the specialised channels and the introducing more interactivity, it becomes a powerful tool for very appealing learning activities in an blurred frontier with leisure time.

2.4.2. To turn schools and training centres into open learning centres

Demands for learning are becoming increasingly diversified. Besides the different degrees of initial education, continuous education and training involves a wide variety of groups in terms of age, skills, gender, social condition, and with for different purposes: getting highly specialised skills for career improvement, searching for a new job, up-dating basic education, integrating in a new country or cultural development.

In order to cope with these new demands, schools and training centres at all levels –also including universities - should evolve to become open learning centres at local level, able to customise their activities for the different groups and purposes. They should organise their curricula in modular flexible units, share resources and build partnerships in order to provide a higher quality service for each specific group. They should also network with research institutions, companies and local actors in order to involve other sources of knowledge and to create their own knowledge base.

Finally, they should develop a multimedia infrastructure, combining access to Internet, with computer-assisted learning, laboratories and practical experience in companies. There are many implications in all this for how the role of teachers and trainers should evolve. The challenge for them is not only a more regular updating to new competences, such as information technologies, but refocusing the core of their activity so as to become a tutor of each individual learning process in a multimedia context. The need for specialised managers able to create the framework conditions for this learning process also becomes more evident.

2.4.3. To encourage companies to adopt learning organisations

Companies themselves can create learning centres networking with other companies, schools, training or research institutions, providing training services targeted to their competitive or social goals (Janssens, 2002). More informal but powerful learning practices can be developed in the workplaces themselves by specific forms of work organisation such as multiskilling, project teams or semi-autonomous teams; there is not one single best way to become a learning organisation, which means that the concrete conditions and goals must be taken into account (Méhaut and Delcourt, 1995). All this means that special

programmes for organisational development and competence building should be launched. Finally, small companies have specific difficulties regarding organisational change and logistic conditions for developing training and they require special assistance from external learning centres and business support services

2.4.4. To shape the appropriate learning mode for each target group

These various possibilities to supply learning activities should be combined in different ways, in order to cope with very different learning needs. For instance, whereas the appropriate learning mode for a top manager might be a DVD sent by e-mail plus a top level workshop, the appropriate learning mode for a high skilled process operator should be a special course plus a lot on-the-job training.

2.4.5. To spread new learning solutions for the low-skilled workers

More particularly, the target group of adults with only basic education should have access, not only to second-chance education, but also to mix programmes combining special education to improve the new basic skills with specialised training courses and with learning organisations. TV programmes in specialised channels can also play an important role as well as language education in the case of ethnic minorities. The development of this kind of solutions should become a top priority for a more inclusive knowledge-based economy. Nevertheless, many of the barriers concerning this kind of adults come from the demand side conditions.

2.5. To foster the demand for learning and to create a demand-led system:

Indeed, even if all the above mentioned priorities regarding supply are implemented, the increase of the learning activities will not be guaranteed. A lot depends on the development of the demand for learning. Furthermore a crucial issue of a successful strategy for lifelong learning is exactly how to create a *demand-led* dynamic in the learning system. This will make learning more effective and, under certain conditions, also more efficient. The demands for learning can be very diversified according to the educational level, the occupational profile, the purpose of the individual and also of his/her employer. Nevertheless there are some general conditions which are critical for the development of learning activities.

2.5.1. To improve the framework conditions for lifelong learning

The first one is time. This is one of the major current bottlenecks in the development of lifelong learning. The equation on “reconciling working with family time” should be extended to “learning time”. This implies, on the one hand, to generalise the access to family care services and, on the other hand, to explore several working time arrangements such as:

- training activity during working hours with sharing the labour costs between the employer, the worker and or the public authorities;

- training partially after the working time;
- time accounts allowing working hours reduction on a annual, monthly or weekly basis which are compensated by overtime working hours in other days;
- training leaves in connection with the customisation of the social benefits.

2.5.2. To develop a dynamic guidance system over the life course

High quality guidance services can play a crucial role in mobilising people for lifelong learning and in creating a dynamic relationship between learning demand and supply as well as labour demand and supply, reducing mismatches and unemployment (Sultana, 2004). These guidance services should be available all over the life course of each individual. Their high quality requires an updated information on occupational trends and profiles, as well as the technical capability to make a *bilan de competences* and to assist each individual to draw his/her plan of personal and professional development.

Even if this remain a basic public responsibility, with a special role to be played by the employment public services, other actors can be encouraged to take part of this activity, such professional associations, trade unions, companies, local authorities or specialised counselling bodies. Moreover, even if the personal relationship with the counsellor is often crucial, some part of these services can be provided by a self-service use of specialised websites.

Finally companies, namely SMES, might also need the access to some guidance services concerning their organisational development, competence building and recruitment policy. This is also the role of specialised business services to be provided by industrial bodies or private firms.

2.5.3. To renew the validation and recognition system

One of the main obstacles felt by both companies and individuals in developing learning activities is the weakness of the existing devices to recognise them a more precise value. This institutional failure should be overcome in order to expand the market for learning activities.

Validation and recognition is a powerful incentive for lifelong learning activities and for creating a stronger synergy between their supply and demand sides. The basic underlying problem is how to measure human competence (Jan van Ravens, 2001). The traditional instruments for that are the diploma delivered by the education systems and the *curricula vitae*, but they are now under pressure from three trends: the increasing flexibility on the labour market, the internalisation of labour markets and the growing awareness of non-formal learning.

That is why a renewal of instruments is crucially needed, building on the emerging assessment practices, such as: the instruments for knowledge management in enterprises; the certification of experts using ISO norms; the public labels and awards to the companies “investors in people”; the intellectual capital reporting covering all the intangible assets of a company; the recognition of informal competences by the education and training institutions. Last, but not

least the personal portfolio can be an effective and flexible instruments to recognise competences by education institutions and employers. The recent *launch of the Europass* should be actively spread and carefully monitored because it can become an useful tool for mobility, not only at European level, but also within each national territory. Europass is a simple European instrument combining the European CV, the Europass mobility, the Europass-Diploma (for high education) and the Europass-Certificate supplement for vocational training.

2.5.4. To create compensations for the investment in learning

To get more value for the investment in human competence is also a basic mechanism to be enhanced in order to dynamise the learning system. The workers can get more value in terms of wage increases, career improvements, personal development and a stronger value in the labour market to be displayed by a richer personal portfolio. The companies can get more value by enhancing their productivity, by improving their staff and by increasing their value in the financial markets, to be displayed in their reports on intellectual assets.

The methods to measure these added values should be further developed. Moreover, the mechanisms of compensation should be made more explicit by both sides and they can also be enhanced by a more precise negotiation of rights, duties and further advantages concerning learning activities, in the framework of the individual labour contracts or of the collective agreements.

2.6. To spread new financial arrangements in order to share the costs of lifelong learning

Nevertheless, the development of lifelong learning still faces another crucial bottleneck, which seems the most difficult one: how is it possible to fund this huge investment when its return is not often felt in the short term? It becomes particularly important to test and to spread new financial arrangements able to mobilise more financial resources. Different arrangements can be chosen according to the political culture of each country, but the basic principle should be to share the costs of this investment between the State, the companies and the individuals, according to the type of education and training at stake.

This means that public funding should have notably the following priorities:

- guaranteeing the access to basic skills with courses provided free at whatever age;
- ensuring free full-time education for young people up to a certain age;
- sharing the cost of learning for young people in work with employers;
- sharing the cost of higher education with students through the fees system and the student support system;
- targeting financial support for adults on those who need it the most, such as unemployed people, people with disabilities, with educational difficulties;
- finally, targeting financial support to address particular skills shortages.

On the other hand, companies are supposed to take the main responsibility for investing in the job related training of their employees, even if some public funding may be justified to support SMEs or to promote broader and portable qualifications which benefit the whole economy. This public support can take the form of tax relief or direct incentives such as loans, grants or training vouchers. As an additional possibility, the levies raised over the pay roll can be used to cover training costs, according to a management by employers or by social partners to be organised at national sectoral or company levels. This is the case of the sectoral training funds or of the company training accounts. The employees can also contribute to this kind of training by participating in the levy schemes. In order to define these arrangements more precisely, it is also important to make the distinction between the direct costs (wages) and all the other indirect costs of the training activities (Pukkinen, 2001).

One of the main difficulties to encourage companies investment in training is the risk of poaching, of losing this investment in favour of another employer, which can be very damageable in cases of skills shortages. A compensation payment should be agreed upon by the involved companies, according to a rule, which can also be enforced by collective agreement or general law. Another solution, which is being used to overcome this risk is to provide a public loan for training to the first employer, which costs should be transferred for the second employer on a time-sharing basis, in the case of transfer of the employee. If there is no transferable loan, the possibility of paying a certain compensation to the first employer should be considered and even included in the labour contract.

Finally, when the main purposes are employability or personal development, individuals can also be stimulated to investing in their own lifelong learning by tax relief or direct incentives such as loans, training credits for leaves, grants or training vouchers possibly related with particular savings schemes, which can take the form of individual learning accounts or financial entitlements for learning. The connection of this entitlements with the general system of social benefits across the life course should become a major theme for debate.

3. Improving governance for lifelong learning

From all what was said above is also possible to draw some conclusions regarding the need to improve governance to develop lifelong learning.

The preliminary issue is the very political status of lifelong learning. It is not enough to understand it only as an additional reform to be made in the educational and training systems. What is at stake is a major reorganisation of social life in order to put knowledge as central resource and learning as central activity for all.

This means that in terms of public policies and public administration, lifelong learning is not only a matter for education and training policies, but also for employment, innovation, information society, regional development policies.

More effective mechanisms should be created in order to coordinate these policies at European, national and local levels.

At European level, the experience of the open method of the coordination is increasing the exchange of experience regarding a set of common objectives. This method should now be improved in order to be more instrumental for the next step which will involve all Member States: to prepare their national strategies for lifelong learning. It might be useful to deepen a background discussion on what should be the scope of this strategy and on what are the already available concrete solutions in each of its components.

The development of a European Learning Area can also be fostered by the diffusion of some common European instruments, such as the recently adopted (Council 9283/04) Europass and Common Quality Assurance Framework.

Social partners at European level, both in the interprofessional and sectoral social dialogues, are developing a very promising experience regarding the development of lifelong learning, which should now more actively translated into the national level. Their agreed “Framework of Actions” is focusing key issues, such as the anticipation of skills needs, the recognition of competences and the role of guidance and the financial resources.

The reinforcement of *Skillsnet* as well as other expert communities organised at European level for each issue can also play a key role of catalyst of the above mentioned processes.

Finally, lifelong learning should first of all become a movement of an active civil society building different kinds of partnerships, such as:

- at regional level, the local partnerships for learning, pooling all the available resources;
- at sectoral level, the partnerships for innovation and employment, exploring new areas of jobs creation and competence building;
- at company level, the innovation agreements combining technological and organisational change with internal flexibility, training and working conditions.

In order to create a stronger momentum for lifelong learning, a more systematic debate should be launched in order to define common goals and to clarify the responsibilities of each main actor. Building on the present paper, a method for this debate is summed-up in the following final table.

Table 4 – Sharing Responsibilities for Lifelong Learning

MAIN ACTORS PRIORITIES FOR LIFELONG LEARNING DEVELOPMENT	PUBLIC AUTHORITIES	COMPANIES	INDIVIDUALS	SOCIAL PARTNERS	PUBLIC AND PRIVATE TRAINING SUPPLIERS
To define the goals for lifelong learning: new jobs profiles and competences	<ul style="list-style-type: none"> Forecasting institutions Partnerships for jobs creation 	<ul style="list-style-type: none"> Human resources management Partnerships for jobs creation 		<ul style="list-style-type: none"> Innovation agreements Partnerships for jobs creation 	<ul style="list-style-type: none"> Training development Partnerships for jobs creation
To develop a new infrastructure for lifelong learning	<ul style="list-style-type: none"> Telecommunications and TV regulation Knowledge resource centres 	<ul style="list-style-type: none"> Digital equipment 	<ul style="list-style-type: none"> Digital equipment 		<ul style="list-style-type: none"> Broadband providers Content providers
To develop e-learning activities					<ul style="list-style-type: none"> e-learning products and services
To turn schools and training centres into open learning centres	<ul style="list-style-type: none"> Education and training systems regulations 	<ul style="list-style-type: none"> New kinds of demand 	<ul style="list-style-type: none"> New kinds of demand 		<ul style="list-style-type: none"> Organisational development
To adopt learning organisations		<ul style="list-style-type: none"> Organisational development 		<ul style="list-style-type: none"> Innovation agreements 	
To shape the appropriate learning mode for each target group		<ul style="list-style-type: none"> New kinds of demand 	<ul style="list-style-type: none"> New kinds of demand 	<ul style="list-style-type: none"> Negotiation of training in collective agreements 	<ul style="list-style-type: none"> Product development Marketing
To spread new learning solutions for the low skilled workers	<ul style="list-style-type: none"> To support new solutions To ensure basic education for all 	<ul style="list-style-type: none"> Organisational development 	<ul style="list-style-type: none"> Stronger personal commitment 	<ul style="list-style-type: none"> Special conditions for training 	<ul style="list-style-type: none"> Specialised courses Focus on new basic skills
To improve the framework conditions for lifelong learning: time management, care services...	<ul style="list-style-type: none"> Family care services 	<ul style="list-style-type: none"> Family care services 		<ul style="list-style-type: none"> Negotiation of working time management Time accounts and training leaves 	
To develop a guidance system over the life course	<ul style="list-style-type: none"> To provide guidance services 		<ul style="list-style-type: none"> To develop a personal development plan 		<ul style="list-style-type: none"> To provide guidance services
To renew the validation and recognition system	<ul style="list-style-type: none"> To create centres of competence validation 	<ul style="list-style-type: none"> Intellectual capital reports 	<ul style="list-style-type: none"> To get a personal portfolio Europass 	<ul style="list-style-type: none"> To create centres of competence validation 	
To create compensations for investment in learning		<ul style="list-style-type: none"> Productivity gains Corporate assets 	<ul style="list-style-type: none"> Wage increases Career improvements Personal development 	<ul style="list-style-type: none"> Reciprocal compensations in the labour contracts and collective agreements 	
To spread new financial arrangements to share the costs	<ul style="list-style-type: none"> Basic education for all Improving education of young people Supporting target adult people by tax reliefs or direct incentives 	<ul style="list-style-type: none"> Funding job-related training 	<ul style="list-style-type: none"> Learning accounts or special entitlements for training 	<ul style="list-style-type: none"> Sharing costs in labour contracts or collective agreements 	<ul style="list-style-type: none"> Investment plans

BIBLIOGRAPHY

Amidon, Debra M. (2001), *Innovation et Management des Connaissances*, Paris: Éditions d'Organisation.

Bainbridge, Steve, Julie Murray, Tim Harrison and Terry Ward (2004), *Learning for employment – Second Report on vocational education and training in Europe*, Luxembourg: Office for Official Publications of the European Communities and CEDEFOP.

CEDEFOP, *Skillsnet: about the network*, 2004, in <http://www.trainingvillage.gr>

CEDEFOP (2004), *Getting to Work on LifeLong Learning – Policy, Practice & Partnership*, Luxembourg: Office for Publications of the European Communities.

CEDEFOP (2004), *Learning for Employment – Second Report on Vocational Education and Training Policy in Europe*, Luxembourg: Office for Publications of the European Communities.

CEDEFOP (2002), *Consultation Process on the European Commission's Memorandum on Lifelong Learning – Analysis of National Reports*, Luxembourg: Office for Official Publications of the European Communities.

Chisholm, Lyne (2003), *Lifelong Learning: Citizens' Views*, CEDEFOP Luxembourg: Office for Official Publications of the European Communities.

Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Colardyn, Danielle (2001), "Lifelong Learning: What is New?", in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Council of the European Union (2001), *Report from the Council (Education) to the European Council on the concrete future objectives of education and learning systems*, 5680/01 EDUC23, 12.02.2001.

Council of the European Union (2002), *Council Resolution – Education and Lifelong Learning*, Ref. 8944/02, 30.05.2002.

Council of the European Union (2004), *Draft Council Resolution on Guidance throughout life in Europe*, Ref. 8448/04, 16.04.2004.

Council of the European Union (2004), *Press Release 2585th Council Meeting*, Ref 9283/04, 27.05.04.

Descy, Pascaline and Manfred Tessaring (2001), *Training and Learning for competence*, Luxembourg: Office for Official Publications of the European Communities and Cedefop.

European Commission (1995), White Paper, *Teaching and learning. Towards the learning society*, Brussels.

European Commission (2002), *Joint Employment report 2002*, COM (2002) 621 final, 13.11.2002.

European Commission (2001), *Communication from the Commission - Making a European area of lifelong learning a reality*, COM (2001) 678 final, 21.11.2001.

European Commission (2002), *Action Plan for skills and mobility*, COM (2002) 72 final, 13.02.2002.

European Commission (2002), *Communication from the Commission – European Benchmarks in Education and Training: Follow-up to the Lisbon European Council*, COM (2002) 629 final, 20.11.2002.

European Commission (2002), *Investing in Human Capital: The efficiency of public expenditure and other policies*, COM (2002), ECFIN/634/02, 17.12.02.

European Commission (2003), *Communication de la Commission – Investir efficacement dans l'éducation et la formation: un impératif pour l'Europe*, COM (2002), 779 final, 10.01.2002.

European Commission (2003), *Communication from the Commission – The role of the universities in the Europe of knowledge*, COM (2003) 58 final, 05.02.2003.

European Commission (2003), *Proposal for a Council Decision on Guidelines for the Employment Policies of the Member States*, COM (2003) 176 final, 08.04.2003.

European Commission – Directorate-General for Employment and Social Affairs (2003), *Human capital in a global and knowledge-based economy – Part II: assessment at the EU country level*, Final report, April 2003

European Commission (2003), *"Education & Training 2010" -§The success of the Lisbon strategy hinges on urgent reforms*, (Draft joint interim report on the implementation of the detailed work programme on the follow-up of the objectives of education and training systems in Europe), COM(2003) 685 final, 11.11.2003.

European Commission – Directorate-General for Education and Culture (2003), *Implementing lifelong learning strategies in Europe: Progress report on the follow-up to the Council resolution of 2002 – EU and EFTA/EEA countries*, 17.12.2003.

European Commission, (2004) *Jobs, Jobs, Jobs – Creating more Employment in Europe*, Report of the Employment Taskforce, Luxembourg: Office for Official Publications of the European Communities.

European Ministers of Vocational Education and Training and European Commission (2002), *The Copenhagen Declaration” - Declaration of the European Ministers of Vocational Education and Training, and the European Commission, on Enhanced cooperation in vocational education and training*, Copenhagen, 29 and 30 November 2002.

European Parliament and Council of the European Union (2003), *Decision No. 2318/2003/EC of the European Parliament and of the Council of 5 December 2003 adopting a multiannual programme (2004 to 2006) for the effective integration of information and communication technologies (ICT) in education and training systems in Europe (eLearning Programme)*.

ETUC, UNICE and UEAPME (2004), *Framework of Actions for the Lifelong Development of Competences and Qualifications – Second Follow-up Report*, 05.03.2004.

Fuente, Angel de la and Ciccone, António (2002), *Il Capitale Umano in un'Economia Globale Basata Sulla Conoscenza – Relazione Finale*”, Rome: Fondazione Taliercio and European Commission.

Gordon, Jean (2001), “New Challenges for Vocational Education”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Griffiths, Toni and David Guile (2004), *Learning through work experience for the knowledge economy – Issues for educational research and policy*, Luxembourg: Office for Official Publications of the European Communities and Cedefop.

Hamel, Gary and Aimé Heene (eds.) (1994), *Competence based Competition*, West Sussex: John Wiley & Sons.

Janssens, Jos (2002), *Innovations in Lifelong Learning – Capitalising on ADAPT*, Luxembourg: Office for Publications of the European Communities and CEDEFOP.

Laderrière, Pierre (2001), “Lifelong Learning: A Challenge for Public Authorities”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Morganti, Luciano (2001), “Educational Hypermedia: Challenges and Perspectives for Lifelong Learning”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Méhaut, Philippe and Jacques Delcourt (1995), *The Role of the Company in Generating Skills: The Learning Effects of Work Organisation – Synthesis Report*, Luxembourg: Office for Official Publications of the European Communities and CEDEFOP.

OECD (1996), *Lifelong Learning for All – Meeting of the Education Committee at Ministerial Level, 16-17 January 1996*, Paris: OECD.

OECD (1998), *Human Capital Investment*, Paris: OECD.

OECD (2000), *Where are the Resources for Lifelong Learning?*, Paris: OECD.

OECD (2000), *From Initial Education to Working Life: Making Transitions Work*, Paris: OECD.

Pukkinen, Tommi; Clemens Romijn and Sarah-Elson Rogers (2001), *Funding Continuing Training in Small and Medium-sized Enterprises – Discussion and Case Studies from Across the EU*, Luxembourg: Office for Official Publications of the European Communities and CEDEFOP.

Ravens, Jan Van (2001), “Towards a Framework for Assessment Practices in the Context of Work and Learning: Measuring Human Competences”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Rodrigues, Maria João (2003), *European Policies for a Knowledge Economy*, in, Cheltenham: Edward Elgar.

Sellin, Burkart (2002), *Scenarios and Strategies for Vocational Education and Lifelong Learning in Europe – Summary of Findings and Conclusions of the Joint Cedefop/ETF Project (1998-2002)*, Luxembourg Office for Official Publications of the European Communities and CEDEFOP.

Sohlman, Asa (2001), “Roles and Responsibilities of the Individual – Opportunities and Threats”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Stahl, Thomas (2001), “The Learning Region and its potential Roles in Lifelong Learning”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Sultana, Ronald G. (2004), *Guidance Policies in the Knowledge Society – Trends, Challenges and Responses Across Europe – A Cedefop Synthesis Report*, Luxembourg: Office for Official Publications of the European Communities and CEDEFOP.

Wikström, Solveig and Richard Normann (eds.) (1994); Barbro Anell, Göran Ekvall, Jan Forslin, Per-Hugo Skärvad, *Knowledge and value*, London: Routledge.

Wurzbug, Gregory (2001), “Financing and Resources: Potential Consequences of Shifting the Frontier between formal and non-formal Learning”, in Colardyn, Danielle (ed.) (2001), *Lifelong Learning: Which Ways Forward?*, Bruges: College of Europe.

Table 1

Employment in broad sectors of activity by educational attainment, 2001																
	% total employed in each sector															
	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EU
Agriculture																
Basic school	54.5	38.3	25.0	87.4	86.0	42.7		81.4	44.4	49.1	43.6	98.4	36.6	38.0	50.8	64.3
Upper secondary	36.0	55.1	56.5	11.5	9.0	50.2		16.4	54.1	46.4	50.0	0.9	50.9	53.8	36.4	29.1
Tertiary	9.5	6.6	18.5	1.1	5.0	7.0		2.2	1.5	4.5	6.4	0.6	12.5	8.2	12.8	6.6
Engineering																
Basic school	31.9	23.7	15.7	32.6	46.1	24.7		46.6	25.5	30.1	15.0	77.5	17.2	17.9	27.1	27.6
Upper secondary	40.8	57.2	58.0	51.7	19.5	50.6		46.5	54.3	50.1	69.7	17.4	49.2	65.0	44.3	49.0
Tertiary	27.3	19.1	26.3	15.7	34.4	24.6		6.9	20.2	19.9	15.3	5.2	33.6	17.1	28.6	23.4
Other industry																
Basic school	39.4	29.1	21.4	52.5	64.5	35.8		62.2	39.7	42.7	23.4	88.9	28.3	29.3	36.7	42.5
Upper secondary	38.9	56.3	62.0	37.9	17.8	49.2		33.7	49.5	44.9	65.8	7.9	49.7	60.4	42.1	43.4
Tertiary	21.7	14.7	16.5	9.5	17.7	15.0		4.1	10.8	12.4	10.7	3.2	22.0	10.3	21.2	14.0
Construction																
Basic school	50.8	22.4	17.9	69.3	75.3	38.5		71.7	69.1	44.0	23.1	92.4	34.1	26.7	28.4	45.2
Upper secondary	40.6	68.7	63.1	25.4	12.9	54.5		24.2	27.3	49.4	68.5	4.7	49.5	69.6	57.3	43.6
Tertiary	8.6	8.9	19.0	5.3	11.8	7.1		4.1	3.6	6.6	8.4	3.0	16.3	3.8	14.3	11.2
Transport																
Basic school	35.6	35.9	22.5	41.8	63.2	36.6		60.6	50.5	45.2	23.2	85.6	28.7	29.0	39.7	43.0
Upper secondary	50.3	57.6	64.5	49.9	21.9	52.3		35.4	44.9	49.6	70.2	12.1	55.5	61.5	48.7	46.8
Tertiary	14.1	6.4	13.0	8.3	14.8	11.1		4.0	4.5	5.2	6.5	2.2	15.8	9.5	11.7	10.3
Other basic services																
Basic school	36.1	23.2	16.7	33.9	51.9	30.2		43.7	30.5	35.4	16.5	72.1	29.1	21.2	37.8	33.5
Upper secondary	43.7	60.4	68.5	51.7	23.7	49.2		49.4	55.6	49.6	72.8	21.2	42.6	67.3	43.7	49.9
Tertiary	20.2	16.4	14.8	14.5	24.4	20.6		6.9	14.0	15.0	10.7	6.7	28.3	11.5	18.5	16.6
Advanced services																
Basic school	15.5	14.4	12.7	9.2	30.2	21.6		18.1	17.0	19.4	13.2	45.6	18.5	14.2	20.8	19.1
Upper secondary	27.9	50.9	54.1	47.3	22.6	35.3		55.2	42.4	42.6	63.6	30.6	36.5	53.3	38.8	42.9
Tertiary	56.6	34.7	33.2	43.5	47.1	43.1		26.7	40.6	38.0	23.2	23.8	45.0	32.6	40.4	37.9
Education																
Basic school	8.0	11.8	6.8	3.6	9.7	12.5		13.4	7.9	7.1	5.7	32.8	6.7	7.6	17.7	12.1
Upper secondary	13.0	26.2	27.8	13.6	7.3	23.2		45.5	17.2	19.6	33.5	13.1	24.9	26.8	20.3	24.7
Tertiary	79.0	62.0	65.3	82.8	83.0	64.3		41.1	74.9	73.4	60.8	54.1	68.4	65.6	62.0	63.2
Health																
Basic school	18.3	14.1	14.8	16.8	20.3	24.3		25.3	28.6	17.8	14.5	56.1	13.3	10.3	26.3	21.2
Upper secondary	31.0	45.6	53.0	35.0	22.9	37.2		41.5	52.3	51.2	61.6	14.2	44.6	54.4	29.3	40.5
Tertiary	50.7	40.3	32.2	48.2	56.8	38.5		33.2	19.2	31.0	24.0	29.7	42.1	35.3	44.5	38.3
Public administration																
Basic school	29.8	9.8	9.5	14.8	29.0	28.5		30.9	33.5	17.3	11.2	61.0	12.7	10.2	20.2	22.3
Upper secondary	42.7	53.3	57.6	48.7	28.7	47.4		53.2	52.9	49.4	72.5	22.6	30.3	46.8	43.7	48.6
Tertiary	27.5	36.8	32.9	36.4	42.4	24.1		15.9	13.6	33.2	16.3	16.4	57.0	43.0	36.1	29.1

No data for IRL

Source: Eurostat, EU Labour Force Survey

Table 2

Rate of participation in continuing training by size of enterprise, 1999																
	% of total employees															
	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK	EU
Total enterprises																
Total	41	53	32	15	25	46	41	26	36	41	31	17	50	61	49	40
Women		54	29	16	26	44	43	23	39	35	32	17	53	61	46	38
Men		52	34	14	25	48	40	27	34	44	31	17	48	60	50	41
10-19 employees																
Total	18	49	24	1	8	18	21	8		37	25	2	39	47	34	19
Women		58	25	2	9	22	29	6		30	23	3	47	48	42	21
Men		46	23	1	8	16	18	9		40	26	2	34	47	29	19
20-49 employees*																
Total	21	47	26	4	12	25	33	14	19	36	24	6	38	53	36	25
Women		49	27	5	12	26	37	12	21	28	28	5	47	55	47	27
Men		46	25	3	12	24	29	14	19	39	21	6	34	52	31	24
50-249 employees																
Total	39	50	27	10	20	38	41	20	31	42	29	12	41	53	44	33
Women		50	25	10	20	35	39	17	36	36	30	10	44	52	54	33
Men		50	29	10	20	40	43	22	30	44	28	13	40	53	38	32
250+ employees																
Total	59	55	35	25	42	58	57	45	49	43	37	35	58	67	52	48
Women		55	30	28	39	54	54	43	49	37	37	33	59	68	45	43
Men		55	39	24	44	60	60	46	49	46	37	36	57	67	56	50

* Includes 10-19 in Luxembourg

Note: No breakdown by sex in Belgium – Source: Eurostat, CVTS, 1999

Table 3

Men and women employees participating in training by education level, 2000															
% men/women employees in each category															
	B	DK	D	EL	E	F	I	L	NL	A	P	FIN	S	UK	EU
Men 25-29															
Low	3.4	11.6	6.2	0.5	2.0	2.0	1.4	2.3	21.9	8.7	2.5	8.6	10.6	15.4	6.7
Medium	9.7	25.6	14.7	2.2	13.4	4.0	9.6	3.7	36.1	10.8	21.8	27.7	15.2	22.3	14.5
High	21.5	46.3	14.6	3.6	13.9	8.6	12.9	16.2	32.2	35.2	18.1	34.8	30.5	33.8	19.3
Men 30-39															
Low	2.2	13.5	2.1	0.1	1.0	1.1	1.6	2.1	13.8	5.3	0.9	10.6	7.2	13.6	4.7
Medium	7.4	19.9	5.0	1.0	5.2	1.8	6.6	7.1	25.6	9.1	10.4	18.9	14.0	24.1	9.9
High	16.3	27.1	7.5	1.4	8.9	6.0	10.3	7.5	25.0	16.6	11.8	32.7	23.1	31.1	14.1
Men 40-49															
Low	5.2	6.9	1.2	0.1	0.5	0.6	1.4	2.3	9.8	3.7	0.5	12.2	9.6	10.8	3.6
Medium	8.6	18.0	2.4	0.1	2.3	1.0	6.2	6.8	16.7	7.6	3.9	16.1	14.9	19.4	7.1
High	12.6	32.8	4.8	0.5	6.1	2.4	8.5	11.5	17.9	17.9	7.6	34.4	22.9	29.7	11.5
Men 50-64															
Medium	2.3	8.6	0.4	0.0	0.3	0.4	1.2	1.2	4.5	2.9	0.1	9.8	6.6	6.3	2.4
High	6.0	9.3	1.2	0.6	1.1	0.4	3.8	7.3	9.7	5.1	1.9	14.8	13.1	12.4	4.9
Low	9.2	23.6	3.2	0.6	2.6	1.0	6.5	2.6	10.5	11.6	3.4	27.4	18.9	23.9	9.0
Women 25-29															
Low	5.7	34.6	6.9	0.0	3.1	3.4	2.7	3.6	14.9	2.0	3.3	22.8	22.2	19.2	8.4
Medium	8.0	35.0	11.2	2.3	13.1	4.9	10.9	5.9	26.8	13.1	14.5	31.6	20.1	32.6	15.5
High	15.5	29.7	14.1	4.0	16.0	10.6	13.9	12.1	31.4	26.0	12.9	33.4	32.2	42.9	20.6
Women 30-39															
Low	4.1	17.7	1.8	0.5	1.9	1.6	2.0	1.1	13.9	3.9	2.2	12.1	17.7	18.4	6.2
Medium	5.6	21.1	4.6	1.1	5.9	2.3	6.9	6.4	18.2	7.8	5.6	22.9	19.3	28.0	10.4
High	12.2	26.0	9.2	1.6	8.9	5.2	10.5	8.2	21.1	21.1	8.8	32.9	25.0	40.6	15.9
Women 40-49															
Low	1.6	13.9	1.3	0.0	1.4	1.0	1.8	2.2	8.5	2.4	0.8	11.3	11.8	17.3	4.8
Medium	6.8	22.8	2.6	0.7	3.9	1.5	8.2	8.9	17.0	8.9	5.8	22.1	13.9	30.8	9.7
High	11.7	32.8	7.4	0.9	8.6	3.9	11.2	10.0	23.0	18.6	11.1	37.6	30.2	45.7	16.1
Women 50-64															
Medium	3.1	6.3	0.4	0.0	1.3	0.5	1.3	1.6	5.3	0.8	0.3	11.7	8.2	13.3	3.9
High	4.9	17.8	1.9	0.4	2.9	0.9	6.4	2.7	13.3	6.2	0.0	20.9	15.2	25.4	8.5
Low	11.4	34.8	5.0	0.0	3.6	1.5	8.9	8.9	21.1	12.1	2.4	35.1	27.9	42.3	14.5

No data for IRL – Source: EU Labour Force Survey