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ABSTRACT

This paper takes the position that the completion of the Internal Market Programme of the European Community will require free movement of persons, goods, capital, and services, which, in turn, will require a service infrastructure that enables fast and reliable flows between the Member States. The paper begins by explaining the rationale and overall objectives of the Transeuropean Networks at the Community level with emphasis on the university sector and its potential partners, the added value of the linking effect between the training resources inside the Community in terms of networks, and networked training activities as a valuable means of technology and knowledge transfer across the Community. It is noted that the skills, versatility, and performance of the present and future workforce will be key factors in making the internal market work fully as from January 1993, and three current joint trans-European partnerships in the field of initial and advanced continuing training--COMETT, LINGUA, and ERASMUS--are discussed. The main model that has been developed is analyzed, showing that its main nucleus remains the university structures with other universities or industries as potential variables. The paper concludes with discussions of three networking formats and their role in the development of European Community programs: (1) networks among partners used to complete a training project; (2) information exchange networks; and (3) telematic networks for open distance learning. (Contains 8 references.) (ALF)

"TRANSEUROPEAN NETWORKS FOR EDUCATION AND TRAINING"

Towards systems and services for effective educational networking in the European Community.

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at
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Chaiman, Ladies and Gentlemen,

First of all, I wish to thank you for your kind invitation to this seminar. It is indeed a big pleasure and an honour for me, to be able to address your meeting on this very important topic. It is also a big opportunity to stress the importance the Commission attaches to this question of trans European educational networking, on the eve of the completion of the internal market and the major stages we have to go through, before we may be able to talk in terms of real European Integration.

As the count-down for the 1st of January 1993 has already begun, the expectations stemming from the setting up of the Internal Market are constantly on the rise. With only 15 months to go for this historical date, a breakdown of the activities engaged to this end, points out that the legislative work achieved is not so much out of schedule: On a total of 282 Community acts supposed to be adopted by the Council for the establishment of the Internal Market, more than 75% have already been adopted, and hopes are that the remaining ones will have been smoothly decided upon, up to the end of 1991. What is even more important, is that already Member States are applying into their every day life more than 150 regulations or directives, concerned with the completion of the Market. But the Market is not still there, because what the Market needs mainly to be established, is not only a - certainly necessary - legislation framework: it is mainly and primarily, free movement of persons, goods, capital and services. All this is impossible without the appropriate service infrastructure, which will enable fast and reliable flows between the Member States. This is why, there is a growing consensus at Community level that to achieve the Internal Market means first of all to establish the missing links and the proper genuine transeuropean networks, in order to give those flows, a suitable context for development.

The purpose of my intervention then, will be to explain clearly the rationale and the overall objectives of the Transeuropean Networks in the global context of training policies, at Community level, focussing mainly on the university sector and its potential partners. I will try to show the added value of the linking effect between the training resources inside the Community in terms of networks, as well as to highlight the overall interest of networked training activities as a valuable means of technology and knowledge transfer across the Community. This is to be described against the background of the Commission's Communication for the Transeuropean Networks[1], as well as against the overall cluster of training programmes that the Commission has launched during the last few years .

There is widespread conviction all around the Community that the success of the completion of the Internal Market Programme will depend heavily on the removal of all barriers imposed to the free

[1] COM(90) 585 on 10.12.90

movement of goods, services, capital and people inside the Community. This objective is doomed to entire failure without the creation of a supportive interlinking infrastructure in technical and non-technical terms, in order to ensure the relevant, absolutely necessary flows between all parties concerned. This is the main idea behind the Commission's Communication on Transeuropean Networks(TN): those flows have to be backed up and completed by the creation of "genuinely" trans-european networks which may be identified in three groups: physical infrastructures, services and legal arrangements. The communication identifies four areas of intervention: transport, telecommunications, energy and training. Though it may seem quite obvious that transport, telecommunications and energy networks are included in the TN, it might not be clear at first sight why someone has to deal with training in the same context. This is a key point that I will try to explain.

To make the internal market work fully as from January 1993, much will depend on the skills, versatility and performance of the present and future workforce. Several key factors will be involved to this end. One of them is obviously the University potential of the Community, already active in many aspects of training and research. The Commission has recently presented a Memorandum on Higher Education for the 90's [2], in which most of the ever changing aspects of the European universities are examined. In a fast changing Europe (which makes part of an ever faster changing world), universities are developing to real knowledge - transfer nodal points inside an ever-increasing knowledge intensive environment.

Although the forms and the scope of training at University level is constantly changing, another important aspect keeps developing, including in particular *the continuing education and training provisions necessary to make the workforce competitive, through European networking of partnerships and joint ventures.*

Over the last few years the Commission has been engaged in an effort of generating joint transeuropean partnerships in the field of initial and advanced continuing training, involving education and training providers as well as both sides of industry. Programmes like COMETT, LINGUA and ERASMUS have generated hundreds of efficient joint training ventures around the Community, led by a common and unique European dimension to training. This approach, might provide a model for the forthcoming years and help to develop more the pattern of transnational training venture, which reflects better the needs of European industry (especially on SMEs level). As networking is a crucial aspect to this development, it is for sure that it will greatly benefit from contemporary information exchange systems, using fully the potential of IT and Communication technologies.

An analysis of the main model that has been developed shows that its main nucleus remains the university structures, with potential variables other universities or industries. It is important to note that universities have developed large training partnerships together in order to promote student and teaching staff mobility, but also in order to boost a comprehensive common approach to academic curicula throughout Europe.

In the wider context of the internal market, it is reasonable to expect that academia, at European level will tend to a greater convergence of their respective curicula, in order to meet the growing demand generated by global change. While this is by no means imposed by the Community, this trend is likely to occur inevitably, simply because there is no other alternative to achieve some common patterns on quality training with regard to European workforce. Changing skill and qualification needs will tend to be a serious factor to count with in each Member State in accordance with the respective developments in all branches of industry, services and agriculture.

The industrial component of this model partnership, is there under a two-fold role: first industry is highly competent in developing concrete - on the spot - applications in order to face its complex training needs; in spite that, the presence of the university component brings in the accuracy of the academic discipline and the analytical methodology to face complex realities. Under a second role, industry brings in to the

[2] COM(91) 349 final on 5.11.91

university component, its highly acclaimed pragmatism and grass-roots approach to training. This complementarity is matched by the fact that industry also provides an ideal test-bed for new approaches to training, while at the same time it generates new demands and concepts related to analyse the scope of educational productivity and provides the best answers to the ever-present skill needs problem.

With regard to the skill needs issue, I cannot resist on pointing to a report, now quite famous all over the training circles throughout Europe, the IRDAC report on Skill Shortages in Europe. In this report, the Industrial Research and Development Advisory Committee of the Commission, has clearly defined the dimensions of the lack of highly specialized workforce in Europe, compared to Europe industrial competitors, USA and Japan. In this report, this independent industrial committee, gave a strong recognition to the Commission's effort to boost Industry-University cooperation at European level, stressing the COMETT programme as a particularly successful example, on combining academic and enterprise forces together for technology transfer through training. And, to no ones surprise, the wish has been expressed for more efforts of this kind to be launched in the future.

What ERASMUS, LINGUA and COMETT have achieved in those few years of their implementation might be described as a huge networking operation through national frontiers, which resulted to the establishment of two parallel large networks (or embryonic networks), concerned with training, at European level. If I qualify them as "embryonic" networks, it is because though they have generated hundreds of transnational partnerships and put many people into communication for training purposes, they still did not manage to put totally their full resources in a shared mode; in other words, to establish more effective communication channels between the training actors, industries and universities involved. In extrapolating this argument, I might add that this is a kind of generalised lack, for education and training at European level.

With respect to the need for the building of the appropriate transeuropean networks in the education and the training field, we might define in a broader sense their nature. To do this we might define our networking concept for the needs of this intervention:

A network might be defined as a *complex system consisting of nodal points and the necessary links* between them. The most important function of a network is the *interaction* between its nodal points. The development of new nodal points is a side effect of this function, which tends to a certain equilibrium, through some development stages. The transposition of the networking concept to the real world, especially in the training field, might be translated to some concrete networking functions. These might take the following forms :

1. Networks residing on a partnership between multiple actors for the accomplishment of a training project (e.g. a COMETT/ UETP[3]).

2. Networks for information exchange (documentary/information oriented).

3. Telematic Networks for open distance learning.

I - The *first pattern* corresponds to the very notion of *training networks*, which remains a central point to the development of the internal market. In establishing the big market, employers and employees have to face the constraints of technological change, and in the same time try to keep Europe's competitiveness worth while. Among the several possible answers to that challenge, *training networks* will continue to play a major role. University and industry will have to co-operate fully , in developing a major cluster of networks for training. Those will be what we might call the immaterial networks for education and training: *those that use networking as a cross-sectoral/cross-regional training pattern.*

If physical networking is important for the development of Community's Human Resources, "immaterial networking" is more than essential. It is up to the power of these networks that *vital information is navigated and transferred*: the whole concept of technology and innovation transfer relies with human centred networks, while young researchers might seek the development of their potential talents in a well defined network concerned with research and development together with technology transfer (*centres of excellence*). It is true that in an era of telecommunications and informatics explosion, the productivity of those networks would be heavily influenced and increased by enhanced telecommunication facilities [3]. Yet the most important infrastructure for global training development will continue to be those immaterial networks, proved to be so effective in the recent few years.

In fact, networking as a means of amplifying the training output, may be achieved through :

- the implication of multiple actors, working in a transnational partnership. This enhances the positive results of training, as it mobilises several partners working for the same objectives, in a truly European spirit;

- by the exchange of training materials, methodologies, experience and people.

Community Training Programmes which have been developed outside of the context of the Structural Funds (up to now) have shared a common horizontal structural pattern: *transnational networking*. The Commission has encouraged bodies of a large diversity, to be associated together and to create regional or sectoral partnerships (nodal points: UETPs[4] under the COMETT programme / ICPs[5] under the ERASMUS scheme), in order to carry out transnational training activities. Those training activities combined with mobility encouraging schemes represent the linking mechanisms of those most complex *transeuropean networks, some of them the first ones to appear in the European scene* after research and infrastructure ones (i.e. communication (radio, TV, transport) telecommunication and energy networks) .

This approach has largely given already its positive effects. There could be not any similar results like the ones that have emerged from the Task Force Human Resources Programmes, if the component of networking were not present. Exchange of ideas, training methodologies, trainers and students multiplied the positive effects of the programmes, allowing for widespread diffusion of their objectives, as well as their improvement through transnational effort.

II- The next type of networks we have to develop in order to enhance the productivity of the first pattern has to deal with the "material" aspect of networking. The first set of this kind of transeuropean networks for training to be devised, within the overall strategy described above, concern the necessary service infrastructure for the production and delivery of training. Some of these facilities, could include: Telematic services (data networks) for documentary or research purposes.

This broad category includes the development of a major European network for data retrieval on European Education and Training Policies and Systems. This network could be built with the contribution of EURYDICE and CEDEFOP and benefit from the experience and data of the Member States. A major tool for policy makers, this network will take also stock of the existing major data bases in Europe and in the United States (like for instance of the EUDISED data base (Council of Europe), available actually on line by the ESA server (ESA-IRS system)).

The development of specialized on-line data bases, on major topics of education and training should also be one of the major goals: a first priority lies with the set up of a data base for higher education in Europe, while a second one would be a data base for vocational training qualifications and training

[3] see for exemple the open distance education and training activities.

[4] UETP - University Enterprise Training Partnerships

[5] ICP - Interuniversity Cooperation Programmes

courses. This latter, should be in accordance with the actual work carried out by CEDEFOP, as well as with the future development of SEDOC.

While on-line databases for the educational researcher are not unknown in Europe, their access and linkage (multiple search possibilities) should be improved in the future. Off-line editions of these databases on optical storage media will have also to be developed, cutting down telecommunication costs. The development of local gateways to trans European services is an objective for nearly all nation-wide level videotex services in Europe.

Last but not least the development of computer electronic conferencing systems (Bulletin Board Systems) will provide the necessary fora for a pan-european dialogue on education and training topics. While this is true already for other sectors, a targeted approach will bring about more tangible results, as thousands of education and training practitioners will have the possibility of "many-to-many" dialogue (replacing the patterns of "one-to-one" (telephone) or "one-to-many" (television) communication).

I could summarize very briefly the reasons, why we need to develop those fast interactive telematic networks for documentation in education and training. Here are some of them:

(a) *to enable national and regional administrations to exchange information on changing skill and qualification needs and training policy responses.*

(b) *to enable employers to comprehend and compare the qualifications and job experience offered by prospective candidates for jobs, especially in respect of access to non-regulated professions;*

As the internal market develops, it is sensible to expect that national (but also regional administrations), will be confronted with the problem of definition and clarity over the professional qualifications of the moving workforce from one Member State to another. Despite the work already achieved in the context of the implementation of the Council Decision of 15 July 1987 (85/368/CEE) with the active participation of Member State experts under the general coordination of CEDEFOP, much remains to be done, especially in the field of non-regulated professions. While this approach covers the semi-skilled or the highly skilled workforce, it leaves out a considerable proportion of professions, at higher education level. Despite the fact that this category is normally treated under the Directive on the General System of Recognition of Diplomas for professional qualifications, it essentially remains a problem area for some of the Member States. This area, (as the previous one) will need special studies for the (coordinated) development or the interlinking of existing databases on qualifications.

(c) *to equip individuals to exercise their right to move by providing easy access to information and (vocational) guidance on job profiles in all sectors and at all levels qualifications and training systems and practices in other Member States;*

In the advent of the internal market, it will be essential for the individuals to get better insights of the labour market situation within the rest of the Member States: first of all, critical information will be required on the exact content of the terms used to describe a given profession within an individual Member State: beyond the work of the CEDEFOP on the comparability of qualifications, a more comprehensive and detailed view is needed. Labour market practices, employment perspectives, unemployment statistics and wage structures within the limits of a given occupational profile will be essential before moving in

another country. In addition to that, a comprehensive information provision on the outline of major national legislation patterns concerning working conditions, workers' rights and obligations will be essential for the moving workforce. This may be achieved only through close cooperation with social partners and Member State authorities, working together with public and private database providers.

(d) *to enable workers and their families to move without prejudice to their educational conditions and opportunities, by providing easy access to information on the different education and training systems;*

Speaking about the mobility of the workforce, it is imperative to cater for the provision of the suitable framework that could ease the integration procedures of all those "new migrants" of the future, inside the Community. Moving, "blue" or "white collar" workers, will have to face the same problems of integration, which for their major part are directly linked with family and social life. Among them, questions linked with education and training provision as well as cultural aspects, will be one of the first priorities to meet, in the immediate future. Effective information exchange systems should develop in order to ensure an adequate response to the problem.

(f) *exploit thoroughly the potential of open and distance learning systems to deliver high quality training, especially to SME's which both assist them in exploiting the internal market and in equipping them to master economic and technological change;*

In order to meet the growing demand for human skills in the Community, especially at SME level, Europe has to develop the appropriate structures, tools and methodologies. To enable enterprises (especially those located in the remote and peripheral regions of the Community) to benefit from the latest techniques of open learning, high quality networks should develop in order:

- to ensure effective diffusion of critical information, catering for easy and user friendly retrieval of data regarding standards and legislation at Community level, enabling an efficient functioning of the firms;

- to ensure information diffusion over the possibilities of open and distance training provision all over Europe. To this end, appropriate databases should be developed and/or interlinked.

(g) *enabling those who wish to receive their training, for a recognised period or for the whole duration in another Member State, both in respect of young trainees and of the adult workforce.*

Spending a short or a longer period of initial or advanced training in another Member State, will be a widely accepted pattern for the European in the future. This practice, enhanced by the Community programmes like ERASMUS, LINGUA and COMETT is surely going to develop, irrespective of the relevant Community programmes. As the patterns of study grow more European, it is an absolute necessity to dispose of up-to-date information exchange systems which could keep up with the ever changing education and training systems in the Community. Students, future students or simply members of the workforce need to be fully informed on the possibilities of studying in another European country, by doing also cross-reference queries which enable them to compare future scenarios, regarding qualifications. The appropriate databases need to be developed.

In the field of training, most of the necessary measures must be taken by the Member States themselves, either at national or regional levels as well as involving the social partners. Linked data bases already exist in the field of education and training, at Community level, which require considerable reinforcement in terms of their technical assistance and expansion of access to the wide range of users. Despite that, a lot of work needs to be done at Community as well as at Member State level, in the field of database development. This is not however a technical question; it is much more a problem of content and appropriate structures. A real "*European Nervous System*" on education and training, needs to be developed gradually, incorporating aspects of social and cultural integration, at Community level.

III - The third kind of networks we need to develop progressively and with respect to the user requirements refers to the Telematic services for Open Distance Learning (ODL).

The expected development of open distance learning (ODL)[6, 7, 8] during the '90's will undoubtedly be enhanced by the establishment of telematic services for the production and delivery of training courses. This development, already forms part of the Community R & D policy, within the general scope of the "Telematics Systems in Areas of General Interest" in the R & D Community Programme. It is thus expected that standards will emerge, providing for the interoperability of software and the compatibility of the necessary hardware. Satellite television facilities for the delivery of training courses, might also develop as well .

What clearly emerges from all that, is the need to establish the necessary, widespread, cost-effective and user-friendly technology and management information exchange systems that will enable users to increase their access to education and training resources Europe-wide and share an open system of interactive consultation. It is this need that the development of the telematic networks will serve. But this is not enough: what the Community needs to see developing is the very model of training networks which remains central to the development of the internal market. In establishing the big market, employers and employees have to face the constraints of technological change, and in the same time try to keep Europe's competitiveness worth while. Among the several possible answers to that challenge, training networks will continue to play a major role.

On the eve of the completion of the Internal Market, training would undoubtedly serve, inter alia, as a bridging mechanism between the north and the south of the Community: It will help to establish new knowledge for those who do not possess it and bring along the desired technology transfer to those who need it. In this procedure, the overall role of information diffusion and knowledge transfer mechanisms is vital: the traditional means of cooperation and communication are no longer effective as they have to cope with millions of (so diversified) information seekers: networking becomes thus necessary at Community level to face training needs.

We are heading towards *a policy* aimed in enhancing communication and networking between the training actors in Europe and, at the same time, allow for the consolidation of the already present Community networking structures. The Commission will continue its efforts for the effective coordination of the setting up and the optimization of the functioning of the networks to come.

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6 "Distance Education and Training" a Commission Staff Working Paper , SEC(90) 479 on 7.3.90

7 "Open and Distance Higher Education in the European Community", SEC(91) 897 final on 24.5.91

8 "Memorandum on Open Distance Learning in the European Community", COM(91)388 final on 6.11.91