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Reskilling Europe for the Information Society

Introduction

Without rapid and effective action the majority of Europeans will be among the unemployed have-nots of the Global Information Society. The vast majority of infrastructure and content will be developed and supplied by US-based consortia employing the rapidly developing IT and multimedia skills bases of the Far East. European players will continue to migrate their operations across the Atlantic. Individuals who do acquire marketable skills while working on EU programmes are more likely to practice them overseas than with indigenous suppliers.

The Commission is building on the lessons from the *European Year of Lifelong Learning* with a series of communications on *Learning in the Information Society*. That on *Education* has already been issued and that on *Training* is due in 1997. On 17th January, Sir Leon Brittan, Vice President of the European Union and "godfather" of EURIM, included "reskilling the workforce in and through new technologies, as a normal part of workplace activity" among his six priorities for action in 1997 and encouraged EURIM to submit its views.

Technology assisted learning is widely perceived to be the solution to many of the education and training problems that beset Europe, but progress in large scale delivery, outside a few centres of excellence, is slow. The majority of pilots, even if successful, are not scaled up for live running nor are they replicated elsewhere. Decision taking and procurement are fragmented and slow. Meanwhile we face accelerating change in the skills in current and prospective demand, in the means of delivering learning content, and in the means of assessing and accrediting the knowledge or skills acquired.

We also face an immediate IT skills "crisis". Present shortages of current IT skills will be compounded over the next couple of years by the conjunction of the Year 2000 date problem and the need to re-write financial and administrative systems to handle Economic Monetary Union (almost regardless as to which nations are in the first round).

Summary of Conclusions

1. Education and training policy must better distinguish between core educational and academic skills (which rarely change over time) and vocational and technology skills (where traditional methods can no longer cope with the pace of change).

2. Vocational curricula and course content and delivery must be better related to current and emerging skills needs and employers' recruitment and training plans.

3. Commercial market research and quality assurance techniques should be used to assess skills demand and the relevance and effectiveness of training delivery.

4. High quality multimedia is expensive to produce, requires tutorial support and must be regularly updated. It requires volume throughput to be cost effective.

5. Development programmes must therefore be structured to enable the economies of scale that justify investment in quality.

6. The "Year 2000" and EMU problems should be used as catalysts for wholesale change to the European training infrastructure.

7. Our future skills competitiveness depends on bringing current players together in world class development and delivery teams.

The Pace of Change

The increasing rate of change is such that the "half-life" of IT skills is down to little more than two years. But the time taken to approve new technical degree courses or qualifications in most parts of Europe is at least three years. Even the time to approve shorter publicly funded training programmes, whether National or European, is commonly over two years. Many public sector courses and materials concerned with leading edge skills are therefore out of date before the first student is enrolled. The consequences can be seen in rising student drop-out rates and graduate unemployment.

Education and training decision processes must distinguish between:

- *fundamental skills*, where demand changes slowly (such as literacy, numeracy, languages and academic/professional disciplines);

- *vocational skills*, where curricula may need to change at 12 - 18 months notice (for example demand for new mixes of technology, business and language skills); and

- *product or technology skills,* where courses may need to be developed, piloted and packaged for mass roll out within 2 - 3 months (for example, when a new operating system like Windows 95 or NT rapidly captures a mass market).

Short order retraining commonly requires that trainees already have learning skills from their previous education. It may also require a grounding in relevant vocational/professional disciplines. Thus IT professionals can be rapidly "cross-trained" to use C++ or JAVA, but only if they already have experience of similarly structured languages and methodologies. It is learning and practising the structured approach which takes the time. Similar analogies can be found in most technology-related professional and vocational arenas.

Even allowing for the slower pace of change in basic disciplines, the lapsed time from the identification of emerging needs to the piloting of courses with new technology content must be cut from years to months - with mass replication and roll-out inside the year. The challenge is organisational, not technical. Many private sector IT trainers have long been able to pilot new courses at 10 - 12 weeks notice and then to package them for mass roll out, in the light of feed-back, inside a further 10 - 12 weeks.

The task is to enable the public sector approval, funding, certification and qualification routines, designed for "batch education", also to handle "just-in-time learning". This probably entails the use of value chain analysis and fast-feed-back quality routines and making much better distinctions between basic disciplines (where traditional approval methods may well continue) and changing technologies or product-specific skills (where new approaches will be necessary). Many public sector education and training organisations may also need to adopt planning and control routines akin to those of the best commercial IT training organisations.

Mismatches Between Demand and Supply

Across Europe, the minimum educational standards necessary for employability and training are rising. There is often graduate unemployment in parallel with skills shortages. There are growing mismatches between employer expectations and educational standards and objectives.

Much of the information used for public sector education and training decisions and careers advice is unreliable, out-of-date and based on one-off, low response surveys of intentions and perceptions.

The most accurate and timely current sources of information on skills needs are the private sector salary surveys and analyses of recruitment advertising. To complete the picture we need to add information from recruitment and contract agencies (including on unadvertised demand) and from commercial training providers (on throughput and forward bookings).

We also need to explore and test ways of improving feedback from recent "graduates", as well as from their employers, to provide better and faster information on publicly funded course quality and relevance. Such feedback should distinguish between skills for life and skills to meet immediate needs. The marketing and monitoring of NVQs and of courses leading to NVQs needs similar attention.

Too few teachers are trained in the use of new technology and newly trained teachers are still arriving with poor, if any, IT skills. Many cannot make time to undertake "off-the-job" training. Head teachers need training in IT strategy, procurement and management. Current changes in employment structures mean that schools and colleges are the largest organisations of which most of their students will ever be a part.

We should use the technology to free teachers from administration and paperwork and to retrain themselves using open-learning facilities (as in

private sector establishments of equivalent size), in-school during breaks between classes or out-of-hours, not merely in-service.

At the other end of the education and training chain, the greatest cause of European competitive weakness is the lack of the attention paid to management education. Business IT skills (including the ability to manage the development and application of multimedia) will be needed by many more than will need technical IT skills.

We need greatly to improve the availability of well-regarded course modules on the application of IT to meet business needs. (eg those from Bradford, Cranfield, INSEAD, Kingston, London Business School, Strathclyde or Templeton)

Changing the Economics of Delivery

Technology assisted learning (both courses and materials) is very much more expensive to develop than the traditional "face to face" equivalent. Given the increasing pace of change the content needs frequent update.

Multimedia materials can be invaluable in developing basic skills and the youngest pupils can derive most benefit, but, it will rarely be possible to cost-justify investment in this enabling technology unless it is intended for use by thousands or millions of students. Material that needs special hardware or software or that will not run over common Internet-compatible networks is also likely to have too small a market to be commercially viable.

Basic literacy, numeracy and learning skills are essential, but national curricula are commonly too narrow to ensure students are well-prepared to compete for employment in global markets. Those supplying materials for local curricula are also denied the economies of scale necessary to justify investment in world-class products.

In consequence most European education, training and multimedia content suppliers are more concerned to sell to the United States and Far East than to other parts of Europe. Those who are successful often then relocate their development and marketing operations. Communications suppliers are also more interested in installing transatlantic capacity than in improving intra-European links in the face of nationalist regulatory barriers. In consequence the ability to rapidly access materials from US-based servers is increasing faster than from European sources. We need to stimulate our local content markets by streamlining regulatory, licensing and funding regimes.

Many schools and colleges now have multiple functions, mixing academic/vocational education, commercial training and "leisure-learning". They are often unable to pool resources funded from different sources to meet common needs. Funding regimes should foster the local bringing together of public and private resources (grants, fees, contracts etc) to meet the education and training needs of the whole community, from children to pensioners, from unemployed to employers.

Urgent priority should be given in National and European programmes to projects which demonstrate the practical interoperability of materials, networks and delivery platforms (hardware and software) from rival suppliers. The projects should involve marketing, delivery, support (technical, tutorial etc) and accreditation routines which cross organisational boundaries as well as demonstrating hardware, software and network interoperability.

We also need readily available, low-cost, high-speed, high-capacity, Internet-compatible Intra-European pathways between our former national telephone monopolies and between them and their new competitors, local and international.

Reducing Market Fragmentation

Less than 30% of the funds available under most National and European training programmes are said to go on delivery as opposed to adjudication, administration and review. The combined bid costs for some schemes are said to be greater than the amounts awarded. We need to rationalise and streamline the agencies and committees administering public sector education and training funds.

There is also a need to greatly improve feedback on current and past schemes, to disseminate information on the availability and quality of existing materials and to facilitate the replication and roll-out of the best. The continued focus on pilots and development projects all too often encourages continued duplication of effort, including the reinvention of square wheels.

Future funding should be focussed on projects which are "scaleable and sustainable". We need to transfer resources from re-inventing methodologies and re-developing materials to replicating what is known to be successful. No proposals for new courses or materials should receive public funding unless there is known to be no suitable equivalent already available at affordable cost and appropriate quality. There is, however, a need for greatly improved information

on what is already available (sources, content, quality, methodology etc).

Building Partnerships

Institutionalised divisions between the different types of education and training operation are unhelpful.

The common conflict between "equity" (one or two systems per school/college) and "critical mass" (to change the way the students learn) is best resolved by the use of shared facilities: thus the school/college is also after-hours study centre, adult education centre and small firms open learning centre.

Sharing requires flexibility in funding, regulation and content licensing. Problems in merging educational organisations and structures (with differences in expectations, values, processes and cultures) are also easier to address when change includes the ability to earn discretionary funding to meet local needs and reduces the need for approval from central agencies.

Regional networks (eg Highlands and Islands of Scotland or Ulster) can probably handle the scale of change in prospect. National systems (eg England or France) appear too hierarchical and centralised to do so in the time available.

Expectations that schools and colleges will individually procure hardware, software, materials and support to address centrally determined curricula could lead to "the worst of all worlds".

Competing international networks might, however, be more effective than regional monopolies in enabling schools, colleges and their suppliers to achieve world-class delivery at affordable cost. Thus a Montessori network serving schools from Sienna to Stornoway might give better service to Salen (a small village on the Isle of Mull) than a Strathclyde network based on Glasgow.

Either way, the spread of multimedia and technology assisted education and training across Europe should be user driven (ie it should meet the known needs of teachers and students). There is still far too much technology-push, including by national and European agencies as well as by suppliers.

Re-Engineering Decision Structures

There is a common need across Europe, as well as within the UK, to streamline the means of agreeing the objectives of publicly funded education and training and of planning, co-ordinating, funding and monitoring delivery to common standards or curricula.

The problem is apparent if one takes a specific area and asks:

- what should be the outputs from schools/colleges?
- what are the processes for achieving those outputs?
- what skills/resources do the teachers or lecturers need?
- how will the teachers/lecturers acquire those skills/materials?
- what is the timescale from start of debate on objectives to start of delivery?

Many skills needed in telecoms, broadcasting, networking and multimedia production are not even acreditable under current processes. But, as in most other markets, EURIM believes competition is likely to provide better answers than central planning.

We cannot afford the delay if programmes for the emergent skills were to be based on yet another layer of professional/academic co-ordinating bodies. Employers should be approached directly to agree common requirements against which competing qualifications can be graded.

The objective should be competitive European markets in internationally accepted qualifications and not just interoperability between national monopolies. At the mass computer literacy level, the European Computer Driving Licence might be used to provide a model. At the professional level a model might be the way in which Surgeons can choose between the examinations of the English, Scottish or Irish Colleges.

We must rapidly restructure our education and training systems around an open and competitive approach to qualifications, courses and materials if we are to educate and maintain a workforce that can compete on equal terms with those of the United States and Asia. The growth of "competing but inter-operable" pan-European development and delivery networks, involving both public and private partners, is also essential to the cost-effective local delivery of life-long learning whether in school, home or workplace.