Implications of a "Trans-European Network for Education and Training" for Decision Makers Involved with Organizational Training Programmes

by Betty Collis
Faculty of Educational Science and Technology
University of Twente, Postbus 217,
7500 AE Enschede, The Netherlands
fax: (+31) 53-356531
Internet: collis@edte.utwente.nl

and Pieter de Vries
Parliamentary Documentation Centre,
University of Leiden, Binnenhof 22,
2513 AA ’s-Gravenhage, The Netherlands
fax: (+31) 70-3563350
Internet: jfrppv@rulmvs.leidenuniv.nl

1 This analysis is based on a study done under contract to the Commission of the European Community, Task Force Human Resources, Education, Training and Youth, under Contract No. 92-001-NIT-109/NL.
**Implications of a "Trans-European Network for Education and Training" for Decision Makers Involved with Organizational Training Programmes**

by Betty Collis and Pieter de Vries

**Abstract**

Increasingly, decision makers in corporate training settings are considering the value of access for themselves, their employees, and their clients, to distributed sources of information and resources and to opportunities for asynchronous communication. To reach the potential of such interconnectiveness, integrated telecommunications-mediated services are becoming a key factor. In Europe, a "Trans-European Network for Education and Training" is in evolution through which multiple activities associated with organizational training may come to be carried out. But for this to materialize, a supply-and-demand mechanism must develop within the training community for such a Network Service. In this article, based on a year-long study funded by the Commission of the European Community, various issues concerning their organization's response to such a Network Service that will confront decision makers involved with training are identified. Also, guidelines and a strategy are suggested for increasing the likelihood that a "Trans-European Network for Education and Training" will develop the critical mass of usage needed to make it a cost-effective resource for training.

**Keywords:** Network, integrated network services, decision makers, corporate and organizational training, strategic planning
Implications of a "Trans-European Network for Education and Training" for Decision Makers Involved with Organizational Training Programmes

INTRODUCTION

Imagine what training would be like if "tele-learning" in the form of effectively organized information, human expertise and training resources, was accessible when and where these resources were needed...

Examples such as these would become part of the frame of reference of the organizational training manager:

- Employees on the workfloors of different small companies are receiving personalized on-the-job training support from a highly skilled trainer from his centre in a distant city

- Workforce members can blend performance support and continuing education from their workplace, thus learning on the job

- Persons whose work circumstances do not allow them to upgrade their qualifications in in-house retraining programmes can still have equitable access, compared to those that do have in-house retraining, to upgrading opportunities

- Employees can study at least part of the time away from their organizational training centres, but with similar access to their trainers and to study resources as if they were involved full time in a course

- Trainers will be able to preview a range of training materials from their own workplaces and be able to obtain relevant materials directly, downloaded into their own personal computers

- Those involved with the upgrading of training curriculum and materials can discuss new ideas and strategies with colleagues and exchange relevant examples without having to leave their workplaces

- Representatives of training organizations can bring their programmes and special features to the attention of potential clients and can broaden the base and range of the market for their services

- Those working together on projects related to training organization can work efficiently as a group without having to travel to face-to-face meetings

These are not theoretical speculations. They are processes that are already beginning to happen in some organizational training settings, particularly in Europe, North America and Australia. But they are happening as isolated pockets of activity, not accessible beyond special circles. How can such opportunities be better extended to a wide range of training settings? How can such processes be improved?

To address these questions in the European context, an initiative called the "Trans-European Network for Education and Training" has been underway in various forms of evolution since approximately 1989 (see, for example, CEC, 1990; D’Azevedo, 1992; and Figueiredo, 1990). The implications of such a Network for decision makers in organizational training centres was part of the focus of a study carried out in 1992 and 1993 by the authors under contract to the Task Force Human Resources, Education, Training and Youth of the Commission of the European Community (Collis & De Vries, 1993). This
article summarizes some main conclusions of the study. Although done in an European context, the considerations facing training managers are common to any setting where access to distributed resources and expertise is needed to significantly improve flexibility in training delivery and support.

WHAT ARE THE CHARACTERISTICS OF A "TRANS-EUROPEAN NETWORK FOR EDUCATION AND TRAINING"?

As a way to address the needs and goals confronting the European training community, the Trans-European Network for Education and Training is being conceived (see, for example, Review Board, 1993) as an integrated service that should meet at least the following requirements:

- facilitating human networks, partnerships between multiple actors for the accomplishment of training projects through the exchange of training materials, methodologies, experience and people

- exploiting thoroughly the potential of open and distance learning systems to deliver high-quality training, especially to SMEs (small- and medium-sized enterprises), which both assist them in exploiting the internal market and in equipping them to master economic and technological change

Need for an Integrated Network Service

Such requirements involve a complex mix of human networking, of human networking facilitated by technical networks, of information services both locally available and distributed, of communal access to shared resources, of support of communication, and of support of group cooperation both face-to-face and when the participants are at a distance from one another.

Telematics services can facilitate this complex mix through the integrated provision of: information services, communication services, group-support services, learning-support services, and transactional services. Some of the main functionalities of these types of services are summarized in Table 1. (For elaboration, see sources such as Brande, 1993.)

Insert TABLE 1 about here

Key Position of Decision Makers in Training Settings

The accomplishment of these goals will require the cooperative efforts of many actors. Technical, organizational, financial and human issues must be considered and addressed in coordinated strategies. But critical to the success of the eventual Network are the many different decision makers whose decisions and policy relative to Network use, maintenance, pricing, services available, and diffusion and implementation support will provide the framework within which the Network will evolve.

...three of the most important influences on the successful adoption of technologies in training are management culture (organisational), trainer attitudes, and organizational policy (Lloyd, 1993)

The purpose of this analysis is to examine such an emerging Network from the perspective of decision makers in organizational training settings who will, through their decisions, critically influence the eventual viability of a Network Service for training. Although in this analysis, for space considerations, we focus on these decision makers as part of the "demand-side" for such a service, in practice they will also represent constituencies which will supply resources to such a Network. Figure 1 schematically represents the various decision makers involved in a Network Service for training support and the supply-and-demand dynamic which underlies the Network Service becoming a cost-effective resource for training support (see Landry, 1992, for an analysis which also focuses on the supply-and-demand dynamic for training development in Europe).
DEMAND-SIDE PERSPECTIVES

We can identify at least ten constituencies related to organizational training that may become part of the Demand Side of a Network Service for training (see also, Brande, 1993; and Zimmer & Blume, 1992). These, and their requirements for the Network, include:

- **Policy makers involved with organizational training**
  - wish timely, efficient access to targeted information; getting adequate information rapidly may be more important than detail
  - will want to be made aware of new items of pertinence to them, but will want this well filtered (the "golden bullet" rather than the encyclopedia approach)
  - will want a supplement to the print summaries and memos that come to them normally
  - when they communicate with colleagues, require secure and efficient channels

- **Training curriculum and resource specialists**
  - wish support for working cooperatively with colleagues in other settings, including the sharing and transfer of resources
  - want access to large collections of example materials
  - appreciate coordination of Network services with face-to-face services at regional support centres

- **Managers of day-to-day activities in training centres**
  - want timely information about new programmes and opportunities for exchanges and improved access to resources
  - need occasionally to find specific and up-to-date information about a particular Training Centre or source of training materials
  - want timely information about potential business partners for cooperative activities
  - wish the opportunity to ask specific questions about policy relative to apprenticeships or standardization of qualifications
  - wish their centres to make use of appropriate mixes of media and conferencing for training development, delivery and support

- **Directors of training organizations**
  - want targeted information about new policy relevant to the organization
  - want to be aware of new opportunities for staff mobility
  - wish on occasion to interact with colleagues via professional networks, relating to local issues
  - wish administrative communications for their organizations to be streamlined and handled as efficiently as possible
  - are highly sensitive to the status of their organizations, and wish to be aware of implications of policy and accreditation that may affect the institutions

- **Representatives of professional associations and agencies involved with training**
  - want targeted information about new policies and practices of relevance to their constituencies
  - wish support for working groups and communication relative to the activities of their associations or agencies

- **Researchers involved with training effectiveness**
  - want efficient support for professional communication, for collaborative work on manuscripts and research, for access to pertinent research results
  - want occasional access to discussion groups, when professionally relevant
  - want document formatting preserved when working collaboratively with distant colleagues

- **Trainers and instructional designers already involved in "tele-training" settings**
- Wish support for interactions with students, including ability to share graphic information, to interact with the students in real time and deferred time, and to have timely and efficient movement of student work and instructor comments
- Need support for developing personal relationships among their students and for stimulating cooperative work among the distributed students
- Wish to integrate different forms of conferencing, at least computer conferencing but also probably audiographic conferencing, with other aspects of their distance delivery of instruction and interaction with distant students

- **Trainers**
  - Wish access to appropriate training materials, for preview, and if appropriate, and for convenient purchase
  - Wish on occasion to communicate with colleagues or specialists
  - Want browsing access to a range of training ideas and materials
  - Want the opportunity, when desired, of making contact with other trainers for short-term joint development projects or sharing of resources
  - Need to be able to use the Network from a variety of locations and at a variety of times, with limited or no personal cost and at limited cost to the organization
  - Want to maintain informal information contact with local colleagues, between face-to-face meetings
  - Wish to be on the distribution list of pertinent professional groups, to keep informed about new developments, upcoming meetings, etc.
  - Wish coordination of Network resources with face-to-face services available locally
  - Are considering integrating conferencing into some aspects of their professional work, especially when working with colleagues on planning for local activities, and wish support for setting up such functions
  - Benefit from mentoring relationships between less- and more-experienced colleagues
  - Wish to participate in distributed upgrading training themselves, offered from a distant location but available to the trainer from the trainer's own location [33]

- **Resource centre personnel**
  - Wish support for professional communications and opportunities for information about and previewing of new resources
  - Wish maximal support for locating resources
  - Wish to provide conferencing support and support for on-line searching of resources for their own constituents

- **Workforce clients wishing training or performance support**
  - Wish targeted knowledge about upgrading possibilities, and need ways to quickly follow-up on information obtained
  - Need access to training-related information at no or low-cost
  - May need training-service information to be in mother tongue, with highly tailored user interface and search options
  - When participating in distance-delivered training, need convenient and affordable support for communication, information access, feedback, and group work on assignments

**Demand-Side Requirements for Network Services**

Examining the above scenarios, certain common requirements from the demand side can be seen. These relate to the organization of the Network, the contents and benefits of using the Network, and practical aspects of using the Network. These requirements may be seen to include the following:

- **Requirements Relative to the Design of the Network as an Electronic Environment:**
  - Filtered and efficiently organized access to information, transactions and communication opportunities
  - Single-query searching to both local and remote sources
  - Tailoring of user interface and content to language and appropriate level for the user
A Vision for the Future: Supply and Demand Perspectives

- Convenient, understandable, and attractive user interface through which the user interacts with the Network
- Navigation within the Network and entrance/exit procedures efficient and easy to follow
- User choice of "golden bullet" or encyclopedic approaches
- "One-stop shopping": integrated services
- Standardization in user interaction requirements

**-Requirements Relative to the General Content of the Network:**
- Overview and preview services
- Monitoring and support of conferences and discussions
- Monitoring of timeliness and quality of information and communication
- Relevant information, effectively summarized and indexed, to deal with the "Information Paradox" - too much information, but too little relative to ones specific needs

**-Requirements Relative to Logistical Aspects of Using the Network:**
- Access is convenient
- Flexibility in access possibilities, support for time- and place-independent access
- Technical support available when desired
- Standardization in rate structuring
- Institutional support of use of infrastructure
- User costs well defined and, at least for certain functions, subsidized
- Low-difficulty and low-cost entry level services available

**Perspectives on the Network From the Supply Side**

The list of Supply-Side participants for a viable Network Service for training is too long and too diverse to illustrate here through separate scenarios based on job definition. Instead we simply summarize requirements from Supply-Side constituencies relative to what becomes available through a Network Service for training:

**-Supply-Side Requirements: Control and Profit**
- Profit implications for products, information, and services usually sold to the public; attractive marketing and informational mechanisms via the Network for their products and services
- Copyright and ownership issues
- Quality control
- Maintenance of own identity and communication characteristics
- Competition with own existing channels of communication and services

**-Supply-Side Requirements: Time and Personnel**
- Effort needed to prepare and maintain contributions to the Network
- Personnel to be responsible for Network linkage: selection and editorial preparation of information, technical preparation and submission of information, responses to queries about information, maintenance and monitoring of information and conferencing
- Development of skills needed for effective electronic monitoring, communicating, teaching, collaboration
- Investment required in equipment, linkage, coordination
- Time and cost involved in technical compatibility issues

**-Supply-Side Requirements: Coordination and Leadership Concerns**
- Determining leadership in coordinating and organizing ways of participation in the Network

Thus, in summary, Supply-Side participants must see sufficient advantage to themselves to justify the cost, time, and threat to their existing channels of dissemination and service that
contributing to the Network will involve. Demand-Side participants must feel that the cost, time, and effort needed to access the Network pays off for them in services of value, and that the access of the Network in itself is a comfortable and convenient act. Critical to this is a strong management and support infrastructure for the Network itself along with an infrastructure that provides the opportunity for a supply-and-demand driven market to develop. Major issues involving the development of this market, including issues relating to the management of the Network itself, are the focus of the next section.

CRITICAL ISSUES FOR DECISION MAKERS IN ORGANIZATIONAL TRAINING SETTINGS

Demand-Side Decision Makers

Demand-side decision makers in organizational training settings have various categories of issues to consider. These include:

- **Access Issues:**
  - Where is access provided to the Network for constituents? From existing computer locations? From centralized or distributed locations? From home or outside-the-Centre locations?
  - If new facilities are required to expand access to the Network, to what extent are the facilities subsidized? What about at-home connections to the Network? For who? Who pays? Who subsidizes them for users in organizations where network access is not supported?
  - Are new phone lines needed in the training centre? How many?

- **Monitoring and Controlling Subsidized Usage:**
  - How can costs of use be predicted? What are models for phasing in? What are criteria relative to the number of sites involved? The quality and complexity of expected usage? The distances involved? The degree of interaction to be supported? The categories of staff who will be users or supporters of users? Whether usage is to be always available or only available through limited procedures?
  - When potentially relevant information or contacts are located via the Network, how does the individual proceed further to preview, order, join, or otherwise connect with the resources? Can he or she make these decisions independently or must approval be obtained? When the latter, how is this monitored?
  - How much time is reasonable to subsidize for Network access?

- **Supporting Users:**
  - What sorts of local support are to be provided for those using the Network? What about demonstration centres? Technical and professional support? Who makes decisions about these and how are they funded?
  - Who provides initial training for different Network users? How much time should be allocated?
  - Where do users go for help or further training?

Supply-Side Decision Makers

Those making decisions about what to supply to a Network Service for training must react to questions in at least the following categories:

- **Control Requirements:**
  - How will access be controlled to various services? What if a supplier's control requirements restrictions are inconsistent with Network policy about facilitating access to a broad range of training settings?
  - How will copyright be protected?
Critical Issues for Decision Makers

-How well will electronic leakage and electronic corruption be controlled?

-Costs and Profit Considerations:
-Will the Network compete with, or bring business to, existing on-line information and integrated services that already serve organizational training professionals?
-What sort of pricing scheme is realistic for software and products made available via the Network by downloading? By previewing?
-How can pricing be established for transactions via the Network? For value-added services? For information?
-How can cost-effectiveness be calculated for participating in the Network?

-Opportunity Considerations:
-How can one's product or services be effectively marketed by the Network?
-Should CD-ROM producers consider Network access of their resources? Other suppliers of electronically stored information?
-Is there a market for new groups to develop, offering specialized services relative to the Network, for examples, training and support relative to use of the Network?
-Is there a market for support services, such as User Groups' Newsletters (print) to stimulate use of the Network? How can it augment existing services? How should new services be stimulated to establish themselves outside of the Network?

-Implementation Considerations for Network Participation:
-How much, of what information, should be made available on the Network? How often should it be revised?
-If existing dossiers of information are to be made available to the Network, who supports and verifies translation (both technical and language)? How much time lapse is allowed?
-To what extent must suppliers' products be re-tailored or reformatted so that they fit a standard look-and-feel asked for by the Network? How much time, effort, skill, and loss of identity and control is at stake?
-How can information be most efficiently organized for access?

It is one thing to ask such questions. It is another thing to decide how to proceed with responding to them. The next section elaborates a strategy for such a response.

STRATEGIC PERSPECTIVES FOR STIMULATING SUPPLY AND DEMAND

Motivations for a Strategy for Stimulating Supply and Demand

We take as an assumption that increasing the market for a Network Service such as the proposed Trans-European Network for Education and Training will require both a strong supply-side response and a strong demand-side response. It is a reasonable premise that, by increasing the demand for the Network a stronger stimulus will also develop for the supply side. With a stronger supply side:

-Resources and options available via the Network will increase
-More suppliers will be motivated to contribute, given the number who have already made the commitment
-Experience will accumulate more quickly relative to issues of importance to the supply side, such as protection of copyright, pricing strategies, and organizational strategies
-Contact and communication possibilities on the Network will increase
-Recognition of the Network and what it can offer will increase, given the larger numbers of groups and institutions and service providers in contact with it
However, a stronger supply side will not emerge unless some event places an important asset not otherwise (realistically) available on the Network, or unless sufficient demand can be found and tapped. Increasing demand will:

- Create a bandwagon effect
- Increase user familiarity
- Increase user sophistication and expectation of quality
- Increase user confidence in the usefulness and reliability of the Network
- Increase user demand, in that an increasing number of events and services and interaction possibilities will come to the Network

Thus we take as an assumption that increasing demand for a Network Service for training, in numbers and characteristics of users and in depth of usage, is a strategic operational goal. How, given the many issues and questions facing decision makers, should priorities for action be chosen to increase demand momentum? We offer three concepts, that together may help to focus decision making relative to the stimulation of demand for the Network. The first of these involves the idea of "trigger events", the second the selection of a target level of usage combined with a general strategy of how to move a critical mass of users to that level, and the third some guideline criteria for making the strategy more likely to be successful.

**Trigger Events**

"Trigger events" are applications of an innovation that provide a demonstration of potential effectiveness to both the supply and demand sides.

... an ideal trigger is:

(i) specific: it can be clearly specified and understood by all involved;
(ii) limited: it can be seen to be achieved in a reasonable period of time;
(iii) measurable: it can be determined whether or not progress is being made in its achievement;
(iv) 'hot': it relates to a problem or issue of wide concern within the group; and
(v) catalytic: it makes possible other related and desired changes." (Alshuler, 1987)

Thus it is important that some applications of the Network be identified that meet these requirements. These could suggest some "trigger events" for the emerging Network Service.

**Choosing a Target Level of Usage**

There is much theory and experience to guide and inform us about individuals responding to an innovation, particularly in an training context, that can be helpful in visualizing a target level of usage for adoption of an innovation such as the Network and for anticipating the stages users will go through in order to reach this target level. One such approach is the so-called CBAM Model (Concerns-Based Adoption Model), that has been applied and validated in a number of European settings (see, for example, Berg & Vandenberghe, 1988)

The CBAM Model says that individuals when confronted with an innovation, go through a somewhat predictable series of stages as they evolve toward meaningful adoption of the innovation. Each of these stages is characterized by different sorts of "concerns"; hence the name of the approach. The stages and their associated types of concerns can be described as shown in Table 2 (adapted from Hall, George, & Rutherford, 1978):
Research supports the observation that the majority of users when confronted with an innovation do not go beyond Stage 4; if they become users at all, they find some application that suits a particular purpose that has value to them, they work out a way to use that application for the purpose, and make that way of usage routine (Doornekamp & Carleer, 1993). Relatively few, regardless of the sorts of support and training offered, go beyond into the higher level of adoption of an innovation, until the environment around them has done the adoption for them.

**Combining Trigger Events with Strategies for Moving a Critical Mass of Potential Users to the "Routine Use of the Innovation" Level**

Thus, for the Network, it will be a challenge, but a strategically vital one, to aim for the development of a critical mass of users, moving from Stage 1, through Stages 2 and 3, toward some kind of routine-use pattern characteristic of Stage 4. Finding effective trigger events and making it easy for potential users to experience them may be a key idea, as illustrated in the following example:

- **Moving Users From No Awareness to Interest:**
  - The Network and its services and potential must be brought to the attention of a broad range of potential users. Trigger-event applications are focused upon.
  - This means broad-scale publicity, with a sense of the wide range of possibilities offered by the Network and a sense that those possibilities could become personally relevant.
  - The consequence is to move potential users from Stage 1, No Awareness, to Stage 2, Responsive to Information.

- **Moving Users From Interest Arousal to a Convincing Initial Experience: The Trigger Event**
  - At the Interest Arousal Stage, it must be easy for the individual to get more information. This information should be quick to receive, not require skill in manipulating the innovation in order to receive it, and be handy to access, targeted enough to him or her (in terms of language, needs, and in a style appropriate to the work and social culture of the individual).
  - This means building follow-up mechanisms into all broad scale publicity about the Network, so that it is as easy as possible for the individual to indicate that he or she would like to know more. However strategies must be found to determine the most salient characteristics of the potential user, so that follow-up material offered to him or her (by mail, or face-to-face, or through some other familiar delivery option) will be likely to make the potential user feel that there is something of relevance in the innovation for him or her.
  - Critical at this point is the provision of some opportunity to capitalize on this developing interest; the potential user needs to have a convenient way to try the innovation in a real, hands-on way. This moment should involve little or no financial involvement, little or no disruption in time and effort, even little or no formal or public acknowledgement of interest.
  - The individual should have a threshold-use experience that is confidence building, and productive. Only what he or she needs to know to get to a stage of handling the innovation in a way that convinces him or her that (a) the innovation is personally manageable, (b) that at least entry-level use of it will not involve a long learning curve, a major commitment of time and energy, or potential embarrassment at failure to display competence; and (c) that the use will be productive--will the individual be ready to move to Stage 4.

- **Transforming the Successful Experience Into Routine:**
  - At Stage 4 (Routine Use) the potential user has to find a way to become an independent user, to organize some way of incorporating use of the innovation into his or her professional routine. The "trigger event" application may be the mechanism for this.

**A Closer Examination of Facilitating Routine Use: The "3-A Model"**
The above strategy may be a useful guide, but it is not enough. We need a closer analysis of the Stage 3-Stage 4 transition, in that the experience with computer-based instruction in training settings has shown that the stages of "Information Arousal" and "Hands-On Personal Experience" are necessary but not sufficient to lead to routine use of some aspect of an innovation (see, for example, Pelgrum & Plomp, 1991). The decision to become a Stage 4 user seems to be more complex.

A simple conceptual model has been put forward to help explain this likelihood-of-use decision with respect to an innovation in education. The model evolved from an analysis for The Netherlands Ministry of Education and Science relative to telecommunications use in European secondary schools and the likelihood of such use developing in Dutch secondary schools (Collis & De Vries, 1991). In that 1991 analysis a predictive model was suggested, which has since been examined as a predictor in a number of settings and modified. (For a validation in the middle-vocational education sector, see Collis, Veen, & De Vries, 1993a). The model is now being called the "3-A Model". What is it, and how can it be of help for decision making relative to a Network Service such as the proposed Trans-European Network for Education and Training?

The 3-A Model as a Prediction of Uptake

The three "A"s mentioned in the name of the model stand for the three attributes of

Advantage
Accessibility
Attractiveness

The model simply says that the "sum" of these, conceptually stated, has to be sufficiently strong in order that an innovation be adopted into practice. Figure 2 shows this dynamic.

What do these attributes mean and how might the model be helpful in guiding decision making?

Advantage

Advantage relates to short- or long-term payoff.

Individual, short-term gain
-to do some personally useful activity better, faster, less expensively, more easily, more directly, more professionally or in a more flexible way than would be the case using ordinary procedures

Individual, long-term gain
-to increase one's employability, professional identity, awareness, insight, expertise, and/or circle of contacts

Training Organization, short- and long-term gain
-Better exposure to target market
-Better name and identity recognition
Accessibility has a number of manifestations, ranging from the ease or complexity with which a user can get into and handle an electronic environment, to the difficulty that an individual or a group encounter in having general access to the use of the environment.

**Instrumentation level:**
- Ease of interaction with Network, from login through movement and choices within to exit procedures

**Situational level:**
- Possibilities to use at times convenient to user
- Possibilities to use at a variety of locations convenient to user
- Cost-to-use options include alternatives affordable to the user
- Possibilities for choosing amounts of time and costs of access

**Socio-Cultural level:**
- Accessibility not reduced on the basis of geographic location in which user lives, language preference or cultural identity of user, or gender of user
- Inequities of access relative to physical handicaps of potential users reduced as much as possible
- Inequities of access relative to educational background, financial situation, age, and social circumstances of potential users reduced as much as possible

**Attractiveness**

Attractiveness relates to the affective appeal that the user feels with respect to using the innovation.

**Ergonomic level:**
- Usage is comfortable and even pleasant

**Motivational level:**
- User feels sense of intrinsic motivation in the use of the Network; care is taken to the appearance of what the user sees on the screen and the appropriate formatting and presentation of information and communication
- User feels a certain level of interest in browsing through what is available in the Network; as with shop windows or strategic and eye-catching arrays in a market, the user is made aware of what is available so that his interest and motivation is aroused

What does all this mean in terms of decisions and decision makers?

The 3-A Model suggests that the decision to become a user of an innovation can be conceptualized as the “vector sum” of the user's appraisal of the innovation relative to each of the attributes. If the sum is "great enough" so that it approaches some sort of "decision-to-use" level, the individual will become more and more likely to adopt the use of the innovation. If any one of the vectors approaches a so-called "critical lower level", than the individual will not go forward with use of the innovation. In contrast to Figure 2, which showed the model describing a situation where an innovation is likely to be accepted into practice, Figure 3 shows a situation where the innovation's acceptance is not likely to succeed.
As any one of the dimensions - Advantage, Accessibility, Attractiveness - gets stronger, there is more tolerance for limitations in the other dimensions. Accessibility, however, is more of a necessary but not sufficient condition. In itself, accessibility will not lead to adoption. If the Advantage or Attractiveness dimensions are not particularly strong for the user, then the Accessibility dimension must be made as positive as possible in order that the use of the Network be adopted.

If any of the dimensions reaches its critical lower bound, then adoption of use will not occur. In particular, if access is too difficult (expensive, complicated, inconvenient, hard to handle) users will not use the Network, regardless of its advantage to them or attractiveness of organization.

Thus, given the conceptual framework presented in this section, how can these considerations come together to suggest guidelines for decision makers relative to a Network Service for training? In the next, concluding, section such guidelines are given.

**GUIDELINES FOR DECISION MAKERS**

In this strategy, the focus is primarily on guidelines for the "phasing in" period of the Network, the initial period in which building a critical mass of users, relative to certain strategically chosen "trigger-event" applications, is a main operational goal.

**Guidelines for Network-Staff Decision Makers**

Although the focus of this article is decision makers in the training setting, some attention to the decision making that must go on within the organization supporting the Network Service itself must also be considered (in the report by Collis & De Vries, 1993, Network-Service decision makers are given considerable attention). From the preceding analysis, the following points are suggested as keys for strategic planning for Network Staff Decision Makers (the points are lettered to indicate an implied sequence):

(a) Identify particular needs now being felt by potential participants in the Network

(b) Identify those which could serve as "trigger events" to demonstrate potential benefits of a Trans-European Network

... an ideal trigger is:

(i) specific: it can be clearly specified and understood by all involved;
(ii) limited: it can be seen to be achieved in a reasonable period of time;
(iii) measurable: it can be determined whether or not progress is being made in its achievement;
(iv) hot: it relates to a problem or issue of wide concern within the group; and
(v) catalytic: it makes possible other related and desired changes (Alshuler, 1987)

(c) Stimulate and support these trigger events so that their successes can be used as examples for more broad-scale awareness building, as cases for initial familiarization with the
Guidelines for Decision Makers

Network, and as models for types of uses of the Network likely to be accepted as advantageous by respective groups of actors

(d) Make the threshold for initial successful experiences with the Network as easy and accessible and attractive as possible

(e) Adopt a phase-in policy that strategically nurtures supply-side and demand-side interest through the strategy of manageable trigger events rather than the too-quick or too-broad attempts to move into more complex services.

Guidelines for the Preliminary Analysis: Searching for the Trigger Events

Thus a preliminary period of analysis should occur and should involve the Network Staff bringing together key representatives of potential supply-side and demand-side groups. The identification of current frustrations and needs within the supply-side and demand-side groups that can be related to the eventual satisfaction of long-range goals of the Network is critical. Providing the key representatives with familiarization experiences with a range of existing on-line services is important, so that potential trigger events for the Network can be observed through experiences already accumulated with other integrated services.

Guidelines for Decisions About Trigger Events

Certain characteristics of potentially useful trigger events should be noted:

- The events must relate to "hot" issues as perceived by the participants

- A change in the way that the "hot issue" is handled should be seen as desirable; procedures that are running acceptably to those involved (even if they could perhaps run better with changes in delivery strategy) are not effective candidates as trigger events for the Network.

- Careful consideration must be given to the most appropriate media and dissemination channel for different types of information and in support of different types of communication. When fax transmissions or telephone conferencing or currently existing local information channels are appropriate for current needs, do not try to substitute more-complicated channels (such as an on-line service). Again, the "hot issue" is a central criterion.

- It is important that what is chosen as a trigger event be manageable enough so that success can be demonstrated. Long-range goals such as providing equitable access to appropriate vocational training throughout Europe are not effective early-stage incentives for convincing potential participants to make an initial commitment to involvement with the Network.

Decisions About Phase-In Payoff

A major challenge to this phasing-in approach is the fact that payoff for the participants from the supply-side is postponed until considerable consolidation and integration of their resources has occurred. This also means a postponement of major need satisfaction for the demand side.
For the supply-side it may mean that financial support and incentives for contribution must be provided for their participation in the early development of resources appropriate for the Network.

For the demand-side, a few key services should be provided as soon as possible (i.e., "trigger events") to motivate some limited but regular use of the Network for a certain type of information or limited messaging capacity.

For both the supply-side and the demand-side, a selection of an appropriate target sector for a first focus on Flexible on-the-job training and professional support - should be identified and made a priority for first field testing and implementation.

Thus,

-The target group must be well-defined enough to reach and well-supported enough in their circumstances so that their access to the Network is not a major constraint (Accessibility);

-Their training and performance-support needs must be well-enough defined and not currently well-enough met, so that the advantage of their flexible access to the Network is demonstratable (Advantage); and

-They must be homogeneous enough so that the tone and style as well as contents of service provision to them can be tailored for relevance and attractiveness (Attractiveness).

Such a target group may not be the key long-range target of the Network, but is important as a strategic target from "trigger event" principle.

So far, these have been guidelines for those involved in overall strategic planning for the emerging Network, the so-called Network Staff decision makers. Guidelines for decision makers from the supply and demand sides of the Network are also relevant.

**Phasing-In Period: Guidelines for the Demand-Side Decision Maker**

From the demand-side in organizational training, at least ten types of groups were identified:

- Policy makers involved with training organizations
- Curriculum and learning-resource specialists for training
- Managers of day-to-day practice in training centres
- Directors of training organizations
- Representatives of professional agencies and associations involved with training
- Researchers investigating training effectiveness
- Trainers
- Trainers and instructional designers already involved with distributed training
- Resource-centre personnel
- Workforce members wishing performance support

Decision makers from each of these groups should:

(a) Stimulate effective ways to identify and prioritize short-term needs within their constituencies
Guidelines for Decision Makers

(b) Be alert to needs that could be advantageously addressed through an integrated on-line Network Service for training

(c) Develop procedures so that representatives of the constituent group communicate to Network Staff the prioritized needs of the constituency and the form and type of response to those needs most appropriate to the constituent group

(d) Allocate support for selected staff for participation in the further working-out of how the constituent-group needs could be effectively and attractively addressed through well-tuned Network services.

(e) Allocate support for personnel needed to serve as liaisons between the Network and the constituency, keeping the constituency informed about services available on the Network and procedures for accessing those services, and keeping the Network staff informed about reactions and experiences of the constituent group.

(f) Be sensitive to facilitating accessibility to the Network, including issues related to when, where, how often, and using what procedures, constituents will be supported in Network access. Consider in particular how flexible access can be facilitated and how appropriate technical support can be made available.

(g) Take advantage of opportunities offered through Network mediation for making contact with other decision makers with similar constituencies to participate in moderated discussions relating to key issues and experiences relating to Network support and Network relevance to constituency needs.

Phasing-In Period: Guidelines for the Supply-Side Decision Maker

Decision makers from each group of supply-side constituents should:

(a) Stimulate the identification of short- and long-term gains to be made from participation in the Network, based on various projections of Network functioning

(b) Support the analysis of what issues and assurances relative to protection of intellectual property, quality control, copyright and ownership, and profit implications for existing products and distribution channels are most critical to participation in the Network

(c) Designate representatives to track such issues and to serve as liaisons with the Network staff for efficient two-way exchanges of projections and requirements

(d) Once some level of decision has been made about participation in the Network, allocate appropriate resources for the training and support of the personnel needed for professional preparation and management of Network-offered services

(e) Take advantage of opportunities (both mediated by the Network and outside) to discuss experiences and concerns with colleagues from similar constituencies; be as up-to-date as feasible with respect to trends and developments in electronically offered products and services in order to make decisions that relate to future projections of the market for educational information and support in as strategic a manner as possible

Timing the Decisions: Early Adopters, or Wait-and-See?
Guidelines for Decision Makers

Decision makers are faced with a time dilemma in responding to these guidelines. The time dilemma relates to when and how much to invest in the Network in its early phase-in period. There will be a natural tendency to postpone substantial investment in the Network until its viability and market are established.

However, postponement also means:

- Loss of opportunity to benefit in "trigger events" of the Network
- Loss of opportunity to influence the Network in its development
- Loss of opportunity to benefit from early incentives and support made available to the Network
- And more fundamentally, failure to support the growth of an effective and efficient Trans-European Network for Education and Training, and the consequences of the lack of development of such a Network for the long-range competitive advantage of the European workforce and the long-range social health of the citizens of the European Community

Thus, even in early days of the Network, caution may be counter-productive, not only from the overall perspective of stimulating a supportive infrastructure for tele-training, but also from the perspective of the training organization itself. (See also, Collis, Veen, & De Vries, 1993b)

Guidelines for the Priorization of Issues: Phasing-In Period

Many issues confronting decision makers relative to a Network Service for training have been identified as salient. Not all can be addressed at the same level of intensity at the same time. Some issues will have different aspects when the Network is in its phasing-in period than they will when more mature and far-reaching services are being offered by the Network. Which issues might require most particular consideration in the phasing-in period of the Network?

In our longer analysis (Collis & De Vries, 1993), we prioritize issues requiring immediate attention from decision makers at the corporate and governmental level and from Network Staff decision makers. Here we summarize what we see as the four priority issues for those making decisions about the demand-side of organizational training and six priority issues for those making decisions about the supply-side of organizational training.

- Priority Issues for Demand-Side Decision Makers
  - How can the needs of constituents be best analyzed so that appropriate trigger events might be identified for the Network?
  - How can persons be supported to serve as liaisons between the constituency and the Network?
  - How can threshold access to the Network be facilitated so that an initial need of constituents can be met as simply and attractively as possible?
  - How can the decision makers themselves become better informed about issues, alternatives, and new developments related to Network participation?

- Priority Issues for Supply-Side Decision Makers
  - Will the Network compete with, or stimulate, existing services and activities in which supply-side groups are involved?
  - How can optimal input be obtained to make projections about the costs, risks, and benefits to be obtained from different levels of Network participation?
  - What will be the major concerns and changes that will arise from potential Network participation and how can these be addressed before disruption occurs in the current operation of the group?
- How much time and resources can be committed to the Network before cost-recovery is possible?
- What new training and skills will be required of staff responsible for Network contributions and liaison?
- How can the decision makers themselves become better informed about issues, alternatives, and new developments related to Network participation?

**Guidelines for Decisions Requiring On-Going Attention**

Guidelines for decision makers relative to stimulating the phase-in period of the Network have been the focus so far of this Chapter. However, as has been clear from the preceding analysis, a plethora of issues will require on-going concern during the evolution of the Network. Many of these might significantly benefit from explicit dialogue among decision makers from the supply- and demand- constituencies and Network Staff decision makers. We conclude with a suggestion as to which issues might most benefit from this sort of synergistic interaction:

- Instrumentation Issues, Particularly with respect to the User-Interface Design and to the Language Options Offered
- Integration of Local and Network Resources
- Measurement and Evaluation -Selection and Index Procedures for Information
- Best-Choice Media for Different Sorts of Information and Communication Needs
- Monitoring and Support Options
- Issues Related to the Organization, Filtering, and Presentation of Targeted Information

**REFLECTIONS ON THE GUIDELINES AND ON THE EMERGENCE OF A NETWORK SERVICE FOR TRAINING**

This report was based on major needs relating to training in the European Community. The needs were related to goals for the Community: powerful and visionary goals that transcend education and training as discrete activities in order to embed them in a social platform based on equity of opportunity for participation in high-quality training regardless of personal circumstances related to location, language, or socio-economic advantage. In the context of these goals, the idea of a Trans-European Network for Education and Training has begun to emerge.

The Network has not yet been well defined, although aspects of its ambitions and prospective services have begun to be clarified. Some of its central characteristics have been globally agreed upon: that electronic networking would be used to facilitate human networking, as well as providing an integrated environment in which resources and information supportive of flexible learning and professional development can be located and accessed. It is also clear that some kind of well-managed, appropriately organized and broadly accessible set of integrated electronic and human services is needed to transform the Network from a metaphor to a functioning environment.

While the Network may shape new human communities, it will, at least initially, be primarily a service channel for existing communities, groups of constituents associated through their types of work or their interests related to training. Thus the persons making decisions for those various constituencies relative to their involvement with the Network are critical actors in the development of the Network as a complex service. This analysis has therefore focused on the decision makers, and issues of relevance to them.
Many issues were identified, and a strategy suggested to guide the various groups of decision makers toward the goal of activating the potential of the Network.

But strategies and guidelines may, even at their most insightful, bear little resemblance to the way events actually proceed, especially events relating to a complex undertaking with highly ambitious goals. And even with no "Trans-European Network", the electronic interconnection of persons and resources involved with training will continue to develop, albeit in a fragmented and unequally available fashion, as it is already happening throughout Europe and the world. What, then, on reflection, are overall guidelines and suggestions from this report, even if a Network Service for training evolves in a slower and less complete way than its conceivers would hope? We offer the following:

**General Guidelines for Decision Makers Relating to On-Line Services for Training**

- Be well informed about the experiences of others with regard to on-line mediation of training; pay particular attention to signs of market acceptance or rejection, to problems relating to access and ability to use.

- Be alert for opportunities to stimulate the sharing of experiences and insight, taking particular effort to represent a mix of perspectives.

The results coming from the 1991-1994 Phase of the DELTA Project are an excellent example of this (CEC, 1993). Some examples include:

- The ACT Consortium has been focusing on the linkage of information, training resources, and tutoring and training environments; their experiences are invaluable for those wishing to see integrated on-line Networks as full-service, "one-stop shopping" for education and training.

- The ARTICULATE Consortium is monitoring the acceptance and uptake of various combinations of advanced technologies for learning and training and is developing a general method for evaluating the effectiveness of, among others, learning activities distributed via telecommunications; their results should be carefully studied.

- The SMILE Consortium is showing the importance of local training support centres for small and medium-sized businesses wishing to make use of new technologies for their employees' training needs; the whole issue of how best to support on-line services for training needs careful consideration and the SMILE Consortium can bring important insights. (A similar sort of support construct can be seen in the "EuroStudy Centre Concept", being implemented by EADTU, the European Association of Distance Universities).

- Also, the MTS Consortium is investigating computer conferencing used in conjunction with other training materials, while the COSYS Consortium is working on standards and strategies for the problem of how to produce modules or objects of learning materials for later "just in time" access from the workplace.

- Be realistic about the role and influence of a Network

- Listen more to decision makers and those with experience in implementation problems in the workplace and training centre and comparatively less to technologists

Needs and the persons involved with the needs, not the technology, should always come first in decision making about the Network. Research and new technical developments should continue to
Reflections on the Guidelines and on the Emergence of The Network
demonstrate options to the Network, but the Network itself must offer a service that is
affordable and easy to use as major criteria. What can work best in practice, given the
realities of the particular circumstances, should be a guideline criterion for media choice
and continual investigation should go on as to the most cost-effective media mixtures for
communication and information transfer and educational support in different situations.

-Be prepared for subsidization for a long period

-Remember the "three As" of advantage, accessibility, and attractiveness

-Search carefully for trigger events and facilitate them as carefully as possible; disseminate their results effectively

REFERENCES

Alshuler, A. (1987), Promoting Innovation: How Development Groups can Impact the Host
Institutions, RMIT Seminar, Melbourne, Australia.

Berg, R. van den & Vandenbergh, R. (1988), Onderwijsvernieuwing op een keerpunt. [Educational
Renewal at a Turning Point]. Zwijsen, Tilburg, The Netherlands.

Brande, L. van Den, (1993), Flexible and distance learning, John Wiley & Sons, Chichester, UK.

Collis, B., & P. de Vries (1991), Telecommunications in Secondary Education, PRINT-VO (Ministry of
Education), Hoovelaken, The Netherlands.

Collis, B., & De Vries, P. (1993), The Emerging Trans-European Network for Education and Training:
Guidelines for Decision Makers, Task Force Human Resources, Education, Training and Youth,
Commission of the European Community, Brussels.

Collis, B., Veen, W., & De Vries, P. (1993a), The CISO Project: Recommendations for an On-Line


Commission of the European Communities. (1990), Towards Trans-European Networks for a
Community Action Programme. Communication from the Commission to the Council and the European

Commission of the European Communities, (1993), Overview of the Telematics Programme for
Flexible and Distance Learning (DELTA). DG XIII, Brussels.

D'Azevedo, R. C., (1992), Trans-European networks for education and training: Towards systems and
services for effective educational networking in the European Community. A presentation to
"Gespräch mit Forschungs- und Technologietransfersstellen an deutschen Universitäten", organized by
the Vertretung der EG-Kommission in der Bundesrepublik Deutschland.

Doornekamp, B. G., & Carleer, G. (1993), "De invoering van computers in de klas". [The
Implementation of Computer Use in the Classroom.] In J. Moonen (Ed.), Is er toekomst voor Computers
in het Voortgezet Onderwijs? [Is there a Future for Computers in Secondary Education?] (pp. 119-178).
Academic Book Centre, De Lier, The Netherlands.
Reflections on the Guidelines and on the Emergence of The Network


Zimmer, G., & D. Blume (Eds.) (1992), Open Learning and Distance Education with Computer Support. Volume 4 in the series "Multimedial Learning in Vocational Training". Verlag und Software, Nurnberg.
Reflections on the Guidelines and on the Emergence of The Network

Table 1. **Main Functionalities of Telematics Services Relevant for the Support of Organizational Training**

| Information Services                                                                 | - Interactive online data base services  
|                                                                                     | - An intermediate information service to supply "first aid" information, avoiding information overload, by means of ...  
|                                                                                     | - Streamlined and categorized news services, linked to more detailed information relative to the news items including source documents  
|                                                                                     | - Overviews of new information  
|                                                                                     | - Overviews of what is available, where, through on-line information  
|                                                                                     | - Responding to personal requests for information  
| Communication Services                                                             | - One-to-one messaging (electronic mail)  
|                                                                                     | - One-to-many messaging ("bulletin boards")  
|                                                                                     | - Many-to-many discussions (computer conferencing, with appropriate monitoring)  
|                                                                                     | - Running "forums" (combination of one-to-one, one-to-many, and group discussions concerning particular topics)  
|                                                                                     | - Opportunities to locate appropriate partners for "communities of practice"  
|                                                                                     | - Opportunities for mentoring relationships to be established between experienced and beginning professionals  
| Group-Support Services                                                              | - Support for setting up and maintaining common-interest groups  
|                                                                                     | - Support for "virtual meetings and seminars" through computer- and audiographic conferencing  
|                                                                                     | - Support for group coordination  
|                                                                                     | - Support of group social dynamics, through strategies such as tracking of inactive members and maintenance of member information  
|                                                                                     | - Support for the group on execution of a communal task  
|                                                                                     | - Support, and in some cases take the initiative, in the preparation of (face-to-face) meetings, conferences, workshops, courses  
| Learning-Support Services                                                           | - Support for real-time and delayed-time interaction between trainer and clients and among members of a training group  
|                                                                                     | - "Electronic Chalkboards" for conceptual elaborations  
|                                                                                     | - Facilitating access to appropriate training materials "just in time", as needed  
|                                                                                     | - Facilitation of links among training organizations for cooperative projects  
|                                                                                     | - Indexing of training resources and of sources of information about the resources  
| Transactional Services                                                              | - Telematic preview, ordering, payment, and delivery of training materials (including paperware, audio-visuals, and educational software) to trainers, to clients, and between trainers and clients  
|                                                                                     | - Telematic location, tailoring, ordering, payment, and delivery of targeted information  
|                                                                                     | - Use of file-transfer capabilities for the development and versioning of courseware and software and other digitized training material  
| Integrated Services Support                                                         | - Integrated support for "one-stop shopping" and single-environment communication and cooperative work not only for client-users of the Network but also for groups involved in the development and organization of training materials and other products related to the underlying support of training activities  

Figure 1. *Categories of Decision Makers Affecting the Viability of a Network Service for Training Support*
<table>
<thead>
<tr>
<th>Stage</th>
<th>Type of Concern</th>
<th>Action Toward the Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Unawareness</td>
<td>None</td>
<td>Total inaction</td>
</tr>
<tr>
<td>2.Information Level</td>
<td>&quot;Should I know something about this?&quot;</td>
<td>Casual interest in obtaining some information</td>
</tr>
<tr>
<td>3.Initial Personal Skills Level</td>
<td>&quot;How does this work? Will I be able to figure it out and handle it?&quot;</td>
<td>Wants to have the chance to try it out and to have enough skills to do so</td>
</tr>
<tr>
<td>4.Level of Routine Use of Some Aspect of the Innovation</td>
<td>&quot;Is there a manageable way that I can come to regularly use this innovation so that some need of mine is met?&quot;</td>
<td>Has found a use for the innovation and a handy way to execute that use, so that it becomes routine</td>
</tr>
<tr>
<td>5.Extended Impact Level</td>
<td>&quot;Are there other aspects of my educational practice that could benefit from a broader use of this innovation?&quot;</td>
<td>Begins to change aspects of professional routine to incorporate more of the innovation's potential</td>
</tr>
<tr>
<td>6.Contributor's Level</td>
<td>&quot;How can I work together with others to exploit the value of this innovation?&quot;</td>
<td>Becomes involved in collaborative activities associated with the innovation</td>
</tr>
<tr>
<td>7.Leadership Level</td>
<td>&quot;How might educational practice be changed through exploiting this innovation? How should the innovation itself be altered?&quot;</td>
<td>Develops a leadership role, after reflection, contributes to the evolution of the innovation itself</td>
</tr>
</tbody>
</table>

Adapted from Hall, George, & Rutherford, 1978.
Reflections on the Guidelines and on the Emergence of The Network

Figure 2. 3-A *Model for a Successful Innovation*
Figure 3. A Model "Likely Not to Succeed"
Reflections on the Guidelines and on the Emergence of The Network

Autobiographic Notes:

Dr. Betty Collis is an Associate Professor in the Faculty of Educational Science and Technology, University of Twente, in The Netherlands. Her background is in the measurement and evaluation of computer-related applications in educational and training. She has worked on numerous European and international projects relating to telecommunications-applications and their implications for training.

Drs. Pieter de Vries is a Researcher at the Parliamentary Documentation Centre, affiliated with the University of Leiden, in The Hague, The Netherlands. He specializes in projects relating to the organization and management of on-line information for educational and training institutions.

Collis and De Vries have worked together for approximately five years on a series of projects commissioned by national or international bodies relating to the facilitation of telecommunications use in education and training.