

## Project Descriptions

### Information Network Services in Finland

The availability of user equipment with network connection and sophisticated information network services are the basis for realizing electronic commerce. National PTTs, private telematics companies, and government agencies are some of the main parties in establishing such a basis. Due to liberalization and deregulation of telecom markets in Europe they have now a variety of choices for new market activities. The article describes the TELMO development project whose target is the planning of the Finnish information network services architecture.

In Finland, the overall existing telecommunications environment provides an outstanding platform for information network services. According to several com-

*\* by Anu Lamberg  
Finnish Ministry of Transportation*

parisons, Finland turns out to be one of the most developed telecommunications technology users in the world. There is a high rate of telephone penetration, 54 main lines per population of 100. Other significant facts and figures tell that Finland's:

- telecommunications tariffs are among the lowest in OECD countries,
- waiting times for telephone installation are short,
- micro-computer and terminals penetration in Finland is very high.

There is also intense competition covering most of the services available from telecommunications providers. Competition and high level of technology together provide a firm base for information network services to emerge.

#### The Potential for Service Usage and Main Applications

According to figures by EIA (European Information Industry Association) in Finland, there were in 1991 20.4 information network services users per population of 1000, a figure exceeded only by France with its broad Minitel usage. It is expected that by the end of the decade almost every organisation and 50 percent of households will be service users in some form and volume.

According to figures by the Finnish TELMO development project, the estimated growth figures for user equipment and networking are shown in table 1. The application areas that are most used include banking systems, electronic mail, messaging systems and directory services. Information services and business-to-business type applications as order entry are also widely used.

#### The Network Architecture

The Finnish network services architecture can be described as follows: The architecture commits itself to the strategy of openness through standardised interfaces. The chosen strategy takes full advantage of rapid development in hardware, software and telecommunications; new innovations and concepts can be adapted to the architectural structure without delay. The open structure also promotes competition within the field; the main competing network operators, the

ad hoc basis. The TELMO project was initiated by the Finnish Ministry of Transport and Communications in 1988. Nation-wide cooperation was started to plan and develop objectives for the project and for a working model for telematic services management in the future. Several ministries, government agencies, institutes, private enterprises and municipalities participated in the effort.

The TELMO project managed to bring all necessary counterparts within a joint framework to establish standards, codes of practice and other mutually agreed development guidelines for the development of telematic services in Finland. It was, for example, decided that in Finland the open coordinated approach was chosen. Thus, a dynamic and competitive environment was founded for information and service providers, network operators and system vendors. As a result, the number of services available and the volume of their usage has developed fairly rapidly. In comparison with other European countries, Finland belongs to the very top in telematics. The TELMO project was completed by the end of March 1992.

	1/1992	1/1993	1/1994	1/1995
<b>Micro-computers</b>				
- households	350'000	400'000	450'000	500'000
- organisations	400'000	450'000	500'000	550'000
<b>Modems</b>				
- households	40'000	60'000	120'000	200'000
- organisations	160'000	180'000	200'000	200'000
<b>Other network connections</b>				
(micros and other terminals)				
- organisations	330'000	380'000	430'000	500'000
<b>Equipment available for network services (potential)</b>				
per population of 1000 (approx.)	106	122	150	180
<b>Estimated number of users</b>				
per population of 1000 (approx.)	20	30	50	70

Table 1: Estimated growth figures for user equipment with network connection in Finland 1992-1995

Finnish PTT and private telephone companies have committed themselves to follow the overall strategy. The architecture is updated and further developed in cooperation between parties interested in telematics. The cooperation is arranged within the Finnish Association for Telematics, TELMO ry.

#### The Telmo Development Project

Information network services have been available in Finland from the mid-70's. During the early stages, their usage was not coordinated and the development of services occurred largely on an

#### Telmo as a Media

At present, the concept TELMO is the overall name for the telematic media for enterprises, public sector as well as the ordinary citizen. Thus, TELMO is not a physical network but the bridge, a conceptual means of communication which brings the information network services and their users together. From the service provider point of view, TELMO is an alternative electronic means to make services available to their customers. From the user point of view, TELMO is an electronic means to satisfy specific needs of, for example, messaging, information

retrieval, teleshopping and entertainment. In both these roles TELMO is, as a media, in competition with other information delivery channels such as newspapers, television and radio.

### Telmo Cooperation at Present

The Finnish Association for Telematics, TELMO ry, was established in 1992 to continue the cooperation activities started during the TELMO project and to promote further development of telematic services in Finland. TELMO ry operates as a cooperative working organisation of its members: users of the services, service providers, network operators, system vendors and governmental bodies.

The main activities of TELMO ry are:

- Provision of standards and codes of practice to promote coordinated and user-friendly usage of open telematic services.
- Promotion of technical and functional quality aspects of the services available, for example, by means of TELMO trademark inspection.
- Launching joint development projects in order to produce generally accepted results to be freely used within the telematics community.
- Provision of information concerning technical, functional and economical aspects of telematic services and their production environments.
- Promoting awareness of telematic services in Finland.

### Working Programme

TELMO ry has prepared a working programme for the time period 1993 - 1994. According to the programme, special actions are planned to promote awareness of the open public information network and the services available within it. The open public network TELMO is considered as a means of communication which gives a number of value adding features for information and service providers. Its advantages will be justified in technical, functional and economical terms. Moreover, service providers are also urged to market their services more actively. The development work, as a coordinated joint effort by the members of the TELMO ry association, will be directed during the time period 1993 - 1994 in such priority areas as:

- *Security matters and user identification:* certain services in the network, especially in banking, insurance and telepayment, require specific actions in this respect.
- *New terminal technology:* examples are smartphones, and the usability of such innovations in service definition and operation.

- *Smartcards:* the technology and its advantages in user identification and development of new services.

Moreover, there will be continuous working programmes to produce new standards in the field and to keep the existing set of standards and codes of practice up to date. TELMO ry will establish in 1993 an information service function. Its objectives are:

- to systematically process and deliver information concerning telematic services and their usage, and
- to perform quality follow-up of the services and manage the TELMO trademark function.

Additionally, TELMO ry will arrange special interest group activities for its members in areas of their mutual interest.

- Telematics in business-to-business applications will expand as a cost-effective alternative for customer service.
- Ordinary citizens will become familiar with services available in the network; so far many of the services have been considered expensive but competition and quality improvement actions will make services more attractive.
- Foreign and international network services will be used to a greater extent; the information network will be gradually seen as an international media and resource.

Moreover, the chosen strategy of openness built upon standardised interfaces will provide effective interoperability. In this respect, electronic data interchange (EDI) and information network services within the scope of TELMO are related in

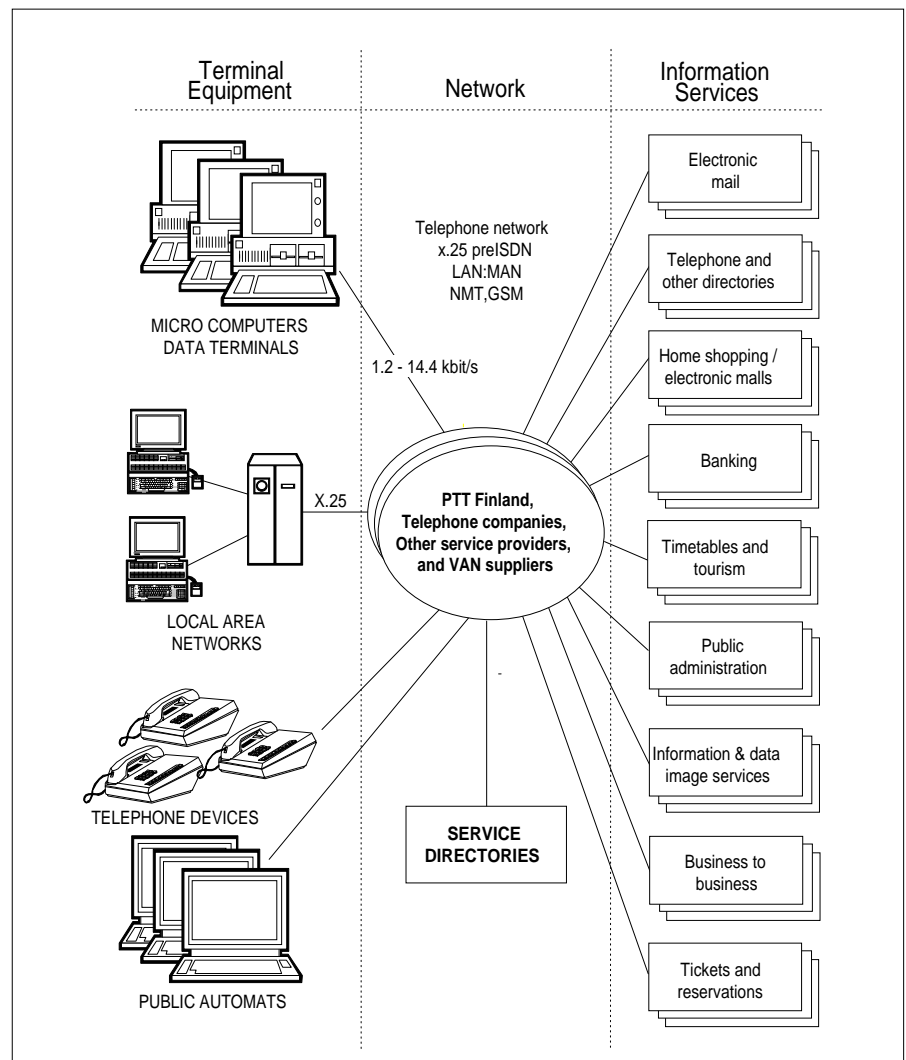


Figure 1: The Finnish information network services architecture

### Future Trends

The Finnish environment provides an outstanding platform for development of information network services in the future. Usage volumes and the number of new services are in steady growth. In the near future, it is expected that:

setting objectives for practical interoperability. ■

\* Anu Lamberg works for the Ministry of Transport in Helsinki, Finland.