THE GERMAN ISDN ENVIRONMENT

Supplementary Information: WP 210

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1. ISDN Participants **5/90:**

City	Number	Ranking
Stuttgart	90	1
Munich	77	2
Düsseldorf	65	3
Nürnberg	62	4
Berlin	61	5
Hamburg	49	6
Hannover	44	7
Frankfurt	37	8
Mannheim	37	9
Göttingen	23	10
Total	545	
All other cities together	236	
Total Participants	781	

Source: Amtliches Teilnehmerverzeichnis, May 1990 issue.

2. Update: ISDN Lines in Germany

DBPT has released the following numbers concerning current **ISDN** lines in Germany:

40,000 ISDN channels were sold up to 1. August 1990. That means that 40,000 channels have been authorized, not that they have all been connected yet.

Of these channels, 2000 BRA and 120 **PRA** are used for TELEKOM's internal applications; the rest are for private use.

Up to 1.September 1990: 51,000 channels were sold. That means that between 1. Aug. and 1. Sept., 10,000 more channels were authorized. Of these, 7,200 were BRA; 1,200 PRA.

3. What kinds of advantages does ISDN offer today?

Refer to 1.1.2: Services

ISDN Basic Rate Access (BRA)

* As passive bus
* NT as "release point" (power supply over 220 V-port)
* 2 B-channels (user channels) and one D-channel (control channel)
* **2** connections possible at the same time
* Up to 12 TAE (Telecommunication attaching units) ("Communication outlets")
* Up to 8 data terminals can be connected
* From these - up to 4 speaking terminals (telephone instruments)
* Each instrument can be chosen through the data terminal selection numeral (direct inward dialing)
* Telephone conversations can be further connected internally
* Straight internal conversations not possible, except over switching center (chargeable)
* "Emergency power supply" for one telephone instrument in case of power failure

ISDN: The most important service attributes

* Multiservice operation
* Service exchange during a conversation
* Bus changeover during a connection
* Choice of data terminals
* Call redirection (not in installation)
* Call forwarding (not in installation)
* Three-party conference with 2 external participants (planned for 1990)

4. Supplementary Information about APPLI/COM
(provided by the DBP Telekom)

* The existing applications in Germany do use the APPLI/COM standard, especially the ISDN-PC cards. The DBP Telekom has required that this interface be implemented in all ISDN-PC cards which are offered.

* The APPLI/COM interface is not provided by all manufacturers, as it is a new Interface. It is fixed nationwide, and negotiations for international standardization are currently underway. Many software houses are working on a possible implementation of the APPLI/COM.

* DBP Telekom and Francee Telecom are working together on a common standard at the moment. The concepts are slightly different but they correspond technically for the most part.

* Concerning the German ISDN network: All ISDN So-boards which have permission from the ZZF (Zentralamt für Zulassungen im Fernmeldewesen) may be used on the network. French boards are allowed if permission is granted: they must then be compatible with the 1TR6-protocol.

* The DBP Telekom is already testing ISDN connections with France. The following results can be noted:

** Telephone and telefax Gr. 4 connections are possible via special gateways.

** Connections via X.21/X.25 cannot be realized because different service indicators exist.

5. Perspectives for ISDN Development

Many of the features which are currently on the German network will not be implemented in the European ISDN Network standard. This means that the implementation of hardware with the European standard will have only those features which have been standardized.

Consequently, the standardization will have a larger impact on the European hardware market than it has had up to now on the national one. As long as the national standards still exist, the data terminals offered by TELEKOM still have a chance on the market; however, as soon as the European standard is implemented, the situation will completely change.

In the meantime, the BPM has released a statement, which has been confirmed by DBPT, saying that even after the European standards are adopted, the national norms will still survive. End terminals with a 1TR6 protocol and the new EURO ISDN protocol should also be able to be compatible with each other.

IRIS Media has done some research on the subject at the FTZ (Fernmeldetechnisches Zentralamt) in Darmstadt. It was confirmed there that DBPT is working very hard on the technical side, in order to make this statement into reality.

According to our own conclusions, we believe that the solution will not be a straight network one, but rather a bus adapter one.

According to people in high positions at the DBPT, the plan is to prepare the network nodes by 1992 in such a way that they are connected with the signaling system number 7 and can support the new services of the European ISDN. In 1993 the European D-channel protocol should then also be available to the end user in Germany. The following conventions correspond to the standards:

CCITT: Recommendations for the BRA I 430
Layer 2 of the D channel protocol: Q 920, Q 921
Layer 3: Q 930, 931, 932,933

ETSI: Preliminary Recommendations for the BRA 03/07
Layer 2: 4620,
Layer 3: 4630, 31,32,33

FTZ-Conventions: 1 TR 230, 1 TR 6

6. Development of Private European Networks: An Example

The following serves as a good example of how more and more companies are developing their own networks, as long as there is no public network available for them. This example has been chosen because the railroad companies involved are state-owned or state subsidized (i.e. Deutsche Bundesbahn). It is particularly interesting, as these railroad companies have come together with non state-owned companies, in order to build this network.

Europe's railways are planning to build a telecommunications network right alongside their tracks in a first direct challenge to the state telephone monopolies. So far eleven companies have agreed to use their rail network to give international companies access to advanced economic links throughout Europe.

What would such a network provide? It would allow companies to phone long-distance across Europe for just the cost of a local call; they could also send voice, data and high quality video signals at speeds which are not yet available in most of Europe.

Project Hermes, as it is called. will be headed by a European-American consortium, which would like to expand its current data communications network. Long term goal is to build a high-speed optic fibre network linking cities in France, Italy, Spain, the UK, Germany, Austria, Belgium, Denmark, the Netherlands, Sweden and Switzerland.

Project Hermes will have to go through a long regulatory battle before it gets underway, as the current European rules do not allow for railways (or any other company) to build commercial telecoms networks. However, the consortium will present its plans to the European Commission soon.

To sum the situation up with a quote: "The railways are talking about providing at the flick of a switch the sort of telecoms capacity you have to pay through the nose for and then wait forever for".

The consortium that wants to build the network is composed of the Racal Electronics (UK), two US telecoms companies, Nynex and US Sprint, as well as Daimler Benz, Compagnie de Suez (owner of Banque Indosuez) and Telecolumbus (Switzerland). Germany's Deutsche Bank is also reported as being interested in the project.

Racal currently runs a Civil Service data communications **network** for the British government and is therefore in a good position to win the bid for building a civil service phone network. The company also supplies the Eurotunnel railway link now being built between England and France with fiber optic cables.

Daimler Benz would like to be the first German company under new legislation to build a private satellite telecommunications network.

The American companies are concerned about the state phone operators. Nynex, a regional phone company, and USA Sprint, a long distance operator, are quite competitive. Just as other American phone companies, they are setting up deals in Europe, and are seeking ways to expand their involvement in European business.

The 11 railway companies are part of the 24-country Union Internationale des Chemins de Fer (UIC). They are planning to target large international companies as customers for Project Hermes.

Project Hermes gets its name from an existing European railway data network which was built in 1981, and can be seen in its most basic form as an upgrading of this system.

This network linking European cities would have a capacity four times the largest available outside the UK. Its capacity is large enough that it would bbe able to transmit high quality video signals for video conferences and training. Another advantage: long distance phone calls would be a lot cheaper.

Right now the project has quite a few obstacles to overcome, before it could actually become reality; however, it shows that private companies are willing and eager to build their own networks, should the state phone companies go too slowly in establishing an efficient public network themselves.

Source: European Business, 13.-14.10.1990, P. 22