COMMUNICATIONS
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THE MINITEL

November 6, 1986

Seminar Notes

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THE MINITEL

Prof Humblet introducing the topic for discussion stated that "the Minitel" (the French videotex system) is remarkable for two reasons. Firstly, it has been very successful, and secondly it is the only successful videotex system in the world. The purpose of the seminar, he said, is to describe the French experience and examine if it can be repeated in this country.

Philippe Perron - Intelmatique (Paris)

Perron stated that his presentation would try to explain the enormous success of the Minitel and also attempt to discuss how this success could be repeated in non French markets, particularly North America. As at July 1986 the Minitel had more than 1.8 million terminals in operation (of which 180,000 are rented), 40 million calls monthly, and 3 million hours spent (in July 1986) by Minitel users on more than 3000 services.

The reason he said, for the growing acceptance of videotex in France is a combination of the long-term basic strategy of the French Telco and its flexibility to adapt to changes in the market. Also, the French telco had been cautious about what role it should play, and the need to seek alliances with other participants (banks, newspapers, etc.). In other countries however, the roles of the network operator, system operator, service provider and terminal distributor have not reached the same level of balance and maturity. In France, the videotex is successful in both consumer and business markets where the environment has been created for a mass acceptance of

videotex.

Perron asserted that in many cases in the US the variety of services available had reached a fairly high level of relevance even for the occasional user. However, these services are only used by a small population of people who would have participated in any case (e.g. owners of communicating PCs). The reason then for the failure of videotex in most countries is that nobody really needs it. However, the other argument is that it is only by using a videotex that the average person can become familiar with the device. A factor, he added, that has affected the acceptance of the Minitel in France is its ergonomy (i.e. size, weight, etc.) should not frighten the user.

Perron then highlighted issues that should be considered when launching a videotex service. These issues are, the design of service, response time, ease of navigation, etc. Alone however, a good videotex service cannot by itself convince the person in the street to acquire a terminal. First there must be a commitment to videotex terminals.

Discussing the background to the French videotex system Perron stated that at the end of the videotex trials (1980 and 1981), the French Telecommunications Authority (DGT) decided in October 1982 to generalize videotex in France with the opening of its electronic directory service plus a national access service for private videotex host computers. To this was added the distribution of stand-alone videotex terminals, the Minitels, through the commercial network of Telco agencies. He then listed as follows the factors that led to its enormous success, and went on to discuss each in detail.

a) The Minitel
b) The decentralized gateway or access service
c) The flexible billing system
d) The quality of services due to the high level
   of interactivity offered

a) The Minitel - The Minitels are compact, easy to use, portable, stand-alone terminals comprising a 9" black and white screen, an alphanumeric keyboard with 10 clearly identified function keys and a built-in modem. The terminals, Perron said, are leased for FF85 ($13) per month, with maintenance included, for a minimum leasing period of 6 months. The more sophisticated Minitel 10 includes an integrated electronic telephone set and an electronic repertoire for local storage of several videotex service 'phone numbers, and auto dial and auto log-on functions. This is available for a monthly fee (excluding the maintenance charge) of FF60 ($9). The terminal remains the property of the DGT. Since May 1985 a Minitel terminal (with a color screen) is available anywhere in France for FF200 ($31) per month, which covers leasing and maintenance cost. The range of Minitels include special need related Minitels designed and marketed directly by the manufacturers. He added that many Minitel emulators currently change micro computers into Minitels so as to process videotex information locally. The popular micro computers are Apple IIE, MacIntosh, IBM PC and compatibles.

As at July 1986 the number of Minitels installed in France reached 1,889,000 units with 182,000 leased and 35,000 sold directly by the manufacturers. The cumulative population growth is as follows:

June 1983 - 31,000 units

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June 1984 - 280,000 units
                    June 1985 - 850,000 units
                    June 1986 - 1.79 million

The current installation rate is 80,000 per month. The features

of the Minitel have been extended to meet market requirements

expressed by the computer world. The new Minitel (M1B) is a

complete dual-standard terminal, and 500,000 have been ordered by

the DGT as part of a 1 million terminal contract.

b) The Decentralized Gateway Structure - It allows rapid

deployment of Minitels to users and host computers. The existing

Public Packet Switching Data Network (TRANSPAC) serves as the

nationwide backbone for communication between the user and

server. The users connect their Minitels to Videotex Access

Points (VAP) interfacing the public switching telephone network

(PSTN) and TRANSPAC and select the service they wish to access.

The call is routed to private computers providing videotex

services also connected to the TRANSPAC network. The network

protocol uses an international(X29) standard (CCITT) endorsed by all

computer manufacturers. As a result, computers can be used to

provide services to videotex and data processing terminals. The

VAPs are based on digital electronic telephone switches and can

handle 450 simultaneous calls. Acting as tandem switches, they

allow variable billing based on several different rhythms of

telephone pulsing to charge for videotex and communication cost.

                Referring to the videotex network Perron gave the

following statistics:

                        - 35,000 ports (currently 25,000 ports for
                          videotex network and 10,000 ports for the
                          electronic telephone directory service). In
                          addition about 3000 to 4000 ports on videotex

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host computers connected direct to PSTN not
involved in TRANSPAC.
- In July 1986 the videotex network received 24
  million calls (2.52 million hours connect time
  and average session of 6.4 minutes)
- Average use per Minitel has doubled in one year
  (currently 87 minutes per month for videotex and
  20 minutes for the electronic directory)

c) The Billing - The user pays videotex on top of existing
services. i.e. Telco bills an already existing base of telephone
subscribers on their phone bill. It is a flexible and completely
open system which preserves the privacy of the calls. He stated
that there are three billing tariffs, the first two for business
and closed user groups, the third for mass market access.

The latter, called the 'electronic kiosk' causes the
users' telephone meter to receive more pulses covering the cost
of using TRANSPAC (and the telephone network) and also videotex.
The videotex service fee is based on the connect time and is the
same rate for all Kiosk services. The user pays one basic
telephone unit every 45 seconds (FF59.20 per hour), and the
service provider receives 5/8 of the amount collected by the DGT,
the remainder covers communication and administrative costs. The
revenue for this service during the first half of 1986 was US
$51.45 million for 9.35 million hours of connect time and
exceeded by 25% the whole of last year's revenue.

d) The Minitel Services in France - Perron said that there are
more than 3000 operational services on about 2000 host computers
(servers). The electronic directory system (EDS) is the only
videotex service operated by DGT, receiving half of the user
calls. The EDS offers white and yellow pages, and street

directory search, together with a combination of these modes. The EDS he said, received 6U3,000 hours of connect time in July 1986. The remainder of the services are run by private enterprises and are divided into business and general access services. The number of terminals used in business, he said, has reached 7CO,UOO units.

Applications are very diverse and include electronic mail, retail and distribution, inventory control, telebanking (2OU banks and financial organizations are involved), newspapers, electronic chat lines, and magazine services. Perron also mentioned that there has been an increase in calls from other countries for videotex servers, mainly for private business applications.

Having discussed the success factors relating to the Minitel, Perron went on to look at the features that could be duplicated in America. He identified the terminal market as a critical factor for the success of videotex. A company should take on the responsibility to make an important capital investment, and then organize the leasing of terminals. He recommended that the venture should be first launched in a large metropolitan area. Once the venture succeeds in this area other regions could be pursued. Another valuable feature is the ability of the company to work closely with a billing organization (e.g. Telco or CATV operator). Terminal distributors should attract the involvement of service providers such as banks, retail distribution companies, travel and transportation businesses, software houses, electronic mail providers, ASCII service providers, and other service oureau

companies. This will increase the market demand for videotex terminals and encourage larger market participation. He also emphasized the importance, as in France, of an electronic directory service as a vital feature of the videotex system. Perron asserted that America has the financial resources, the products and also a viable strategy which could be harnessed by Telcos, CATV operators, long distance carriers, and/or private investors to implement a successful videotex operation.

Daniel Resnick - Carnegie Mellon University

In analysing the French Minitel system and the experience, Resnick looked at four different aspects; the system's peculiar strengths, its weaknesses, the cautions, and the questions. He stressed the significant difference in the US environment which caused problems when transferring a Minitel type of system to the US.

By way of statistics he pointed out that as at June 1986 there were 22.4 million hours of connect time utilized. Of this, about 50% goes toward consultation of the telephone directory, 25% is used by the service professionals, and 25% are Kiosk calls (teletel 3).

The following list was cited by Resnick as reasons for the success of the French videotex system:

- Nationalized telephone system
- Single system of telephones for the entire country
- State funding for technological development

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(telecommunication and computer technology)
            - Low level of penetration of micro computers in
              the home and office market
            - Concealed costs for use (billing is such that
              the user has difficulty identifying the cost due
              to the Minitel)
            - Society which has a strong unsatisfied need for
              communication
            - Slow pace of development
            - A lower level of keyboard skills
            - A general interest in word games, puzzles,
              chess, etc.
            - Investment (by DGT) in Minitel as a potential
              export item

2/3rds of the media companies with press services have also

begun message services (and games) which are major revenue

generators. The five major message services on Kiosk are Le

Parisien, Le Nouvel Observateur, Funitel, Ludotel-Mylwatel,

Liberation.

        Resnick pointed out that the well planned French system

exceeded its original growth expectations. In this context he

referred to a resulting problem which occurred recently when the

central 'TRANSPAC' system "crashed" for a couple of days.

        Resnick then discussed a survey of the system conducted

in April 1986. Of the 1400 households interviewed, 88% he said,

claimed they were satisfied with their terminal and the uses to

which it was put. Most said they knew how to use it (64% as

against 39% the previous year). However there were some problems

that came to light:

                    - Small set of users (2/3rds less than 40 years
                      old and 1/2 are white-collar cadres or members
                      of the liberal professions)
                    - Infrequent use (most terminals used only once a
                      week or less)
                    - 50% of the users only look up 'phone numbers
                      (least expensive)
                    - Most users do not use the Kiosk and services
                      (perhaps out of ignorance of what is available,
                      and also because of the cost)

- Only 6% of Minitel owners use their terminals on
  a daily basis
- Close to half (46%) of the Minitel owners
  consider the cost of use to be prohibitive.

Problems related to the Minitel operation are firstly,
that of unauthorized private use of business facilities (where
the employer effectively pays for non-business calls). However,
this, he said, is being gradually restricted by employers.
Secondly, there is the problem of recovering costs. Resnick
asserted that the whole operation is not yet profitable.

In closing, Resnick noted that the French have proved
themselves in the past at developing an idea, while often other
countries have taken the original idea and made more progress
with it (e.g. the department store concept). In this regard, he
alluded to the possibilities that may exist for implementing the
videotex idea in the US in a form different to that used in
France.

Gary Arlen - Arlen Communications Inc.

Arlen began by asserting that nowhere else is the
status of videotex as clear as in France. There are companies in
the US, he said, which have spent sums upto $500 million on
videotex systems without success and certainly not in the same
form as the Minitel.

Videotex delivers useful information in a cost
effective manner suitable for untrained users. In this regard
American companies, he noted, "have floundered a little". There

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are 40 operating videotex systems in the US, the largest of which
is 'CompuServe'. The US has approximately 900,000 videotex users
in quasi-residential systems (mainly PC users), and 250 in-house
corporate systems.

Arlen categorized videotex activities into four groups:
system operators, information/service providers (e.g. electronic
banking), carriers (probably telco or even a cable company), and
hardware suppliers (such as IBM, DEC, etc.). The four sections
of videotex operations tend to be much more diverse in the US,
than they are in France. To give an idea of the various parties
involved in videotex, Arlen listed some of the trade names
together with the company responsible.

- CompuServe (H&R Block)
- The Source (Readers' Digest)
- GEnie (General Electric)
- Pulse (New York Times)
- Trintex (joint venture of CBS, Sears, and IBM)
- CNR (joint venture of Citicorp, Nynex, and RCA)

Of the above list the last two have been announced but have yet
to begin active operations. A list of leading US videotex and
telebanking systems together with service area and number of
subscribers is given in exhibit A. The above structure of the US
videotex industry contrasts sharply against the uniform Minitel
plan of operation in France. Arlen mentioned that there were
more new players preparing to enter the US market with videotex
and electronic banking services. e.g. American Airlines, and
American Express.

Arlen stated that, while computer bulletin boards are
very popular with "people who are into computers", customers
probably would not want to pay the telephone company for a

similar videotex service. Distinguishing between information and transaction service he stated that videotex is not just an electronic publishing medium but rather a transactional medium. While predicting a "shake-out" of the videotex industry as a result of cable shopping and other transaction oriented services he foresaw the involvement of telephone companies, newspapers, and banks in the videotex service/industry.

Discussing social and public policy issues, he pointed out that pricing is a lot more complex in the US particularly because advertisers are cautious. There is also the issue of competition and the question whether people have the time for what videotex has to offer when compared with all the other information systems in the US. There are in addition, he said, uncertainities about the perceived value of videotex. He also discussed briefly other foreign videotex systems that are mostly supported by their respective governments.

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- Canadian  - Telidon
- UK        - Prestel
- France    - Teletel
- Germany   - Bildschirmtext
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In closing, Arlen summarized the key issues relating to videotex development in the US. It should, he said, use existing networks, systems, terminals, and resources to provide information services. Also, videotex should integrate with other office or home applications and provide specialized services when necessary. He asserted that technology was currently far ahead of demand for the services provided and several companies are in the process of seeking an answer to home information requirements in order to provide appropriate services.

Speakers' Comments and Responses to Questions

A question was asked regarding the Minitel system, as
to whether they planned to supply every house. Also there was an
inquiry as to whether the price charged for the use of the
Minitel was too high. Perron responding stated that their
projection was to have 8 million sets for about 23 million
households (approximately 33%). He commented that this seemed to
be the optimum penetration figure according to their market
research. As for the price, he said that using the Minitel
excessively, just like the telephone would result in very high
'phone bills. Responding to the question of DGT's ties with the
State, he said that it was government backed only insofar as
parliamentary approval was required before undertaking major
investments. For financing DGT relied totally on the money
market. Pertinent financial figures for DGT (for 1985) are:

              Revenue   - $12.7 billion
              Investment - $ 4.6 billion
              Net margin - $ 1.6 billion

Clarifying DGT's relationship with TRANSPAC Perron stated that
DGT was a client of TRANSPAC but did not own it.

A member of the audience inquired whether the US has
the right structure of telecommunication industry for the
introduction of new services. He referred to the regional
telephone companies compared with the single telephone company
operation in France and other European countries. Resnick in
response stated that monopoly has its public functions, be it the

State or AT&T which provide the necessary critical mass. He

added that the stronget case for videotex in this country is

based on the functionality of marketing opportunities and

electronic banking opportunities.

The question of the need for a long-term perspective

was raised by a member of the audience who objected to Resnick's

negative comment about the Minitel system being used (regularly)

by only 6% of owners. Resnick agreed that a long-term

perspective was important for the growth of the industry.

LEADING U.S. VIDEOTEX AND TELEBANKING SYSTEMS

Service Name/System Operator	Service Area	Number of Subscribers
A-T VIDEOTEXT/Tiffin-Advertiser Tribune	Seneca County, OH	150
AMERICAN PEOPLE LINK/American Home Network	National	16,000
CNR PARTNERS/Citibank, Nynex, RCA	National	(start date not set)
CITINET/Applied Videotex Systems	Boston	20,000
COMPUSERVE	International	350,000
COVIDEA/AT&T-Chemical Bank-Time + Bank of America	NY and CA	45,000 (estimate)
DELPHI/General Videotex Corp.	International	-NA-
DIRECT ACCESS/Citibank	New York	22,000 (estimate)
DOW JONES NEWS/RETRIEVAL	International	280,000 (estimate)
EASYLINK/Western Union	International	130,000
EXCEL/Manufacturers Hanover Trust Co.	New York	4,000 (estimate)
GENIE/General Electric Info. Services Co.	National	25,000
NYTEX/NY Telecomputing & Videotex	Hudson Valley, NY	2,000
PROJECT VICTORIA/Pacific Bell	Danville, CA	5,000 (1987 test)
QUANTUMLINK/Quantum Computer Services	National	20,000 (estimate)
THE SOURCE/Source Telecomputing Corp.	National	70,000 (estimate)
SPECTRUM/Chase Bank by TV/Chase Manhattan Bank	New York	5,000 (estimate)
STARTEXT/Ft. Worth Star-Telegram	Dallas, Ft. Worth	2,268
TRANSTEXT/Integrated Communication Systems (test)	Roswell, GA	about 200
TRINTEX/CBS-IBM-Sears	National	(starts 1988)
VICOM INFORMATION SERVICE/Chillicothe Telephone	South Central OH	100 (test)

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