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WHAT WILL HAPPEN TO FRANCE'S MINITEL IN THE INTERNET ERA?

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WHAT WILL HAPPEN TO FRANCE' S MINITEL IN THE INTERNET ERA ?

By

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ABSTRACT

WHAT WILL HAPPEN TO FRANCE' S MINITEL
IN THE INTERNET ERA ?

By

Chrystel Gandon

This case study investigates the chances of survival of the French videotext system, Minitel, in light of the increasing development of the Internet in France. The development of both Minitel and Internet are described in their specific economic, political, cultural and social contexts. Secondary data are used to document the influence and interests of different forces: the State, the public firms, private firms, and marketplace forces. Primary data collection was limited to open-ended free-ranging discussions with 27 managers of Minitel-using firms.

We find Minitel has reached maturity in its life cycle, while the Internet is at the beginning of the innovation development process. Rogers' Diffusion of Innovations hypotheses (1983, 1995) provide a point of departure for the analysis.

To my parents,

To Annie and David,
René, and all my friends who believed in me and gave me the strength to get through it all.

ACKNOWLEDGMENTS

A thesis such as this would not have been possible without the assistance of my professors of the department of Telecommunications, and the staff of the Graduate school. I want to thank them for the knowledge and the help they provided me during the time I was at the Michigan State University.

I would like to thank all the French managers who helped me to collect such interesting data, and the people of France Telecom and the INT who provided me information to write this thesis.

Finally, I would like to thank B. Ayrault, B. Lamirel, and R. Santer who allowed me to live this great and exciting experience in the United States. Each of them will know why I thank him and how he helped me.

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INTRODUCTION

Everyday, headlines of newspapers report the situation in France, with the arrival of Internet. " Is Internet going to kill Minitel?" questioned le Nouvel Economiste, " Beyond Minitel: France on the Internet" wrote the International Herald Tribune , "France Telecom tries to boost the use of Minitel" displayed Le Monde, "France discovers the Internet" claimed Strategies Annee Media. What is happening? The Internet seems to be the de facto standard for the development of the future Information Society. But the Internet revolution is jostling and challenging the supremacy of the French telematics system Teletel , better known by the name of its terminal, Minitel. Minitel was a satisfactory system when it was launched 15 years ago. But today, a competitor has arrived to put it into question.

Each system has its own assets and handicaps. To weigh them and try to make some predictions about the future of the French system, the arrival of Internet was studied in light of Minitel and Internet service providers perception and the predictions of the Diffusion of innovation theory (Rogers 1983, 1995). Beyond merely the survival of Minitel, the expansion of the Internet asks bigger

questions about the place of France within the Information Society. In conclusion, I will try to predict a possible future, based on the conclusions of previous discussions and help from what the managers reported to me during the interviews, conducted as the initial part of this study.

The rationale for this study is to recognize if the French telematics system, Minitel, has a chance to survive the innovation of Internet. The goal of this case study is to answer the following main research question: What are the factors which influence when and whether companies will change theirs servers from Minitel to Internet ?

Specifically, I want to understand:

1/ The perception: How do French managers who provide services on the Minitel perceive both the Minitel system and the newer Internet in the context of their vision of the future of communications? What are the reasons for these perceptions?

The individual perceptions of the managers will help to establish the present French context Internet is just entering. At the same time, the reasons that justify those perceptions will be provided as well as the different reflections about the evolution of communications.

2/ The pros and cons: What are the relative advantages and disadvantages of Minitel and the Internet that could influence the managers' decisions to move their servers from Minitel to the Internet ?

Both Minitel and Internet will be evaluated through the balance managers made between advantages and disadvantages, before taking any decisions for their companies. Strengths and weaknesses of both systems will be emphasized to evaluate their chances in the future.

3/ Contextual contingencies: What are the possible changes in the national economic, political, and technological forces in France that will influence corporate decisions?

1.1 Method

Primary data were collected from France Telecom documentation centers, Ministry, Press and Public relations offices, France Telecom commercial stores, libraries and publications, phone conversations with France Telecom managers (Minitel department of the General Directorate, France Telecom Multimedia, France Telecom Intelmatique), in libraries, ministries, governmental organization for national statistics, bookstores, newspapers, journals for computing and telematics, and Internet servers.

Secondary data collection was made around a series of 27 visits to Managers of Telematics and Multimedia departments. The group is composed of 27 main French companies, having a server on Minitel, that have been chosen to be representative of different activities and different consumers' populations. Face-to-face visits with managers were held during June, July and August 1996, in 26

of the 27 cases. Only one discussion was conducted on the telephone. These meetings were open-ended conversations to allow particular points and questions to be developed, according to the specifics of each firm. Meetings lasted approximately one to two hours. All respondents were guaranteed confidentiality. In return for their participation, I promised those people who helped me to collect data, to write and send them the abstract of what I had learned from this series of interviews, including the main conclusions drawn regarding the topic.

Discussions were conducted with 27 firms (16 private, 11 public) in the following sector: banking, travel, transportation, newspapers, financial journals, mail order, broadcasting, meteorology, health and entertainment. The following table reports use of Minitel and Internet by the interviewees (July 1996), according to ownership of firm and market.

Table 1 Usage of Minitel and the Internet by firms

	Ownership		Market		
COMPANY SYSTEM	Public sector (11 comp.)	Private sector (16 comp.)	General public (20 comp.)	Specific segments (7 comp.)	Total
Minitel	11	16	20	7	27
Minitel only	5	9	10	4	14
Minitel+Internet	6	7	10	3	13
Internet preparation underway	2	4	4	2	6

Chapter 2

MINITEL AND INTERNET IN FRANCE

Before going further in the discussion of my research question, I will create a picture of the French situation, on both Minitel and Internet systems, today. To understand the following parts, it is important for the reader to have a basic knowledge about Minitel, its uses and its place in households, especially because it is a typically French system. What is presented in the following is my perception of Minitel, and not necessarily the opinion of its operator France Telecom.

2.1 MINITEL

2.1.1 History

The history of Minitel is similar to the story of the telephone in France. In the 1970s, only 16% of French households had a phone. Parallel to the government's perception of the need for "the phone for everybody ", in 1974, it similarly perceived later a need for access to networked information for all. The head of the General Delegation for Telecommunications (the DGT, not yet France Telecom), Gerard Théry, decided to launch a research program to design a terminal.. It had to be simple, solid, made for the general public to replace the

printed telephone directories. At this time, the distribution of those books was free and in 1979, consumed approximately 20 000 tons of paper (the provision for 1985 was 100 000 tons). Another incentive was the pressure of an English competitive videotext system, Prestel , which urged the French government to develop its own system . The original idea- coming from the UK- was to create a system to link, via a " box ", the TV and the phone line. This new market could have been easily and rapidly developed, because of the penetration of both telephone and TV in the households and that it could have created a new market for information, available for a large population and allow for exportation. The first French prototype (named Tic Tac) combined a phone, a modem, a keyboard and a TV screen to display information. The first services were the national telephone directory, the stock exchanges of Paris, the news of the French Press Agency and some games.

In 1978, the Simon Nora and Alain Minc report, called l'Informatisation de la Société (The Informatization of the Society) commissioned by the French Government stated the challenges and opportunities of telecommunications and computer science having to serve the whole population . This report suggested the increase of the on-line services. Thus, the new concept of Telematics arrived in the telecommunications market (marriage of TELEcoms and inforMATICS).

Télématique is always the French word used today for videotext. This is why Teletel was chosen to be the name of the French videotext network.

After being considered backward in telecommunications, for a long time by other countries, in 1979 the French government chose to develop the videotext as a high-tech image of its technology. It was also the means to support the growth of Transpac, the public data network. Even if the British system Prestel had failed, the French government decided to pursue this new technological possibilities. The replacement of the written telephone directory by a telematic service and the free distribution of the terminals, was decided during a meeting of French ministers, in 1979. The French government and France Telecom didn't decide to follow the British experiment of using TV and telephone, but chose the option of a dedicated terminal, the « Minitel ». The goal was to distribute a terminal to all the telephone subscribers. It was supposed to be paid by the replacement of the paper telephone directory. The scope of the initial plan was to distribute 20 millions Minitel, to keep down the unit cost of each device to approximately 500 Francs (100$). Later, the decision of compulsory replacement of the paper phone directory by Minitel, was considered excessive and Minitel was given only to the people who asked for it.

In 1977, the system was tested in Velizy, a town which was representative of the general French population (a mix of urban and rural people, old and new buildings and activities, different levels of incomes). The trial system consisted in

a free distribution of terminals, with access to the French telephone directory and all other existing services. A few service providers were asked to provide access to news, advertising, mail order on catalogs. On May 10, 1981, the experience of Velizy was officially inaugurated : 2500 households received a decoder of the videotext protocol to connect to their TV. Twenty percent of this experimental population accounted for 60% of total connection time. The number of services available increased with time. Some users, specialists of computing, managed to pirate the network and found a way to communicate together. That was the birth of the first messagerie service. This concept was developed later by one firm, Les Dernieres Nouvelles d'Alsace , a local newspaper of the East part of France, and offered as an innovative telematic service. This ability to send and receive messages become a real success right from the start. In 1983, another part of France (Ile et Vilaine), was chosen to extend the Minitel experience and thus it was 250 000 other households' turn to be connected. Due to the competition of TV programs, 30% of the households put the device away in a cabinet.

In 1984, the system was made available to the general public with 145 services. The concept of kiosque videotext came into effect. The kiosque tariff system collects a charge from the telephone subscriber for the services he/she uses, based on the call for one of the several specific numbers. France Telecom records in its electronic equipment, the number of minutes of connection for each service

and pays back its share to the service provider. The main user's telephone bill includes taxes of Minitel connections and France Telecom acts as an intermediary between the service provider and the customer, and behind the kiosk tariffs is the distance independent tariff of Transpac.

A Parisian newspaper, Le Parisien Libéré , became the main provider for information, games, messagerie, this proved a major source of revenue. The messagerie service was always successful, and the DGT (General Directorate for Telecommunications) also sponsored a large number of weekly journals. The goal was to create new services and traffic, to get incomes from the videotext network and to make it profitable.

During the Spring 1985, there were 1100 services. Most of them were messageries, among them the on-line sexchat, known as Minitel Rose (The early preoccupation with on-line sexchats influenced global image of the French system). During August 1985, a million connection hours was reached. Two years later, it was 4 million. Users checked their bank accounts, found information on trains schedules and booked their seats via Minitel. In October 1987, two other connection levels were put into service, that were reserved for the professional telematics, with professional databases. These databases usually included high value-added information, access to which was other networks around $ 100 to $ 200 per hour.

2.2 MINITEL TODAY

Over 26, 000 services are offered today on Minitel: everything from the governmental information to stores catalogs, home banking, shopping, trains and airlines reservations, retail of goods or everything that meets the needs of users, residential and business populations. The index of the Minitel directory lists today 40 different themes and approximately 860 alphabetical headings. The different service providers can be identified through their dial code (for example: 3615 MARLBORO or 3615 COKE). Thus, it is easy to associate a Minitel service with the firm and its products. The MGS (Minitel Guide des Services) is the primary research tool of France Telecom. It is a simplified indexing service which groups short descriptions and addresses of all available services into a list of categories and sub-categories.

Around 6.5 million Minitel terminals have been distributed free to regular telephone subscribers by the government-owned, France Telecom. Since then, other hardware has been developed, as well as a free and freely-duplicable Minitel terminal emulation software, thus adding several million additional access points to the system. Three new devices appeared during the last two years: Minitel Photo, a Minitel that can display pictures (on black and white), TVR Teletel Vitesse Rapide or Teletel high speed. TVR increases the transmission speed from 1200 bits/second 8 times to 9600 bits/ second. Today, users can have high speed

access through four different terminals. The most recent terminals, Magis and Magis Club have higher picture definition and can read credit cards, which is really useful for tourism, TV shopping, mail ordering, and transportation service providers. The user only needs to insert his credit card on the slot to be read, and dial his personal code with the same security level as in a store. The subscriber has to pay a monthly fee for these advanced terminals -Magis: 55 Francs (11$), TVR: 80 Francs (16 $).

The following figure summarizes the evolution of the Teletel network, and shows how the system developed according the advance of thetelecommunications technology.

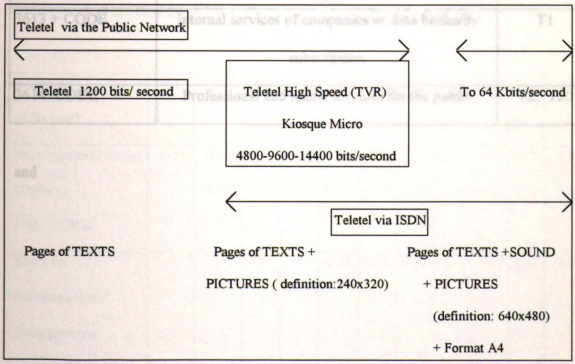

Figure 1 Evolution of the Teletel network (source: France Telecom)

Today a full range of access levels is available for different telematics services. Tables 1 displays the classification of the access codes according to the distribution of the different types of services, and the prices charged for the consultation of each one.

Table 2 The different access levels for telematics services

CALL NUMBER	SERVICES	TARIFF
3605 (free call)+ CODE	Direct Marketing, Advertising	T 0
3613 + CODE	Internal services of companies or data banks/by subscription	T1
3614+CODE	Professional and useful services for the public	T2, T20

and

CALL NUMBER	SERVICES « KIOSQUE MINITEL »*	TARIFF
3615+ CODE	Services for the public	T 2, T32, T34 T36, T44
3616+ CODE	Professional services	T2, T34,T36
3617+ CODE	Services for the public, with a high added value	T2, T44, T46 T60
3628, 3629	Professional information and data bases, with a high added value	T60, T70

* The cost of these services includes the share that France Telecom gives back to the companies, suppliers of services on Minitel.

Table 3 The different tariffs on Minitel (Tariffs of January 1996)

Reference of the tariff	T0	T1	T2	T20	T32	T34	T36	T44	T46	T60	T70
Price/minute (Francs)	Free	0,13	0,37	0,37	0,85	1,01	1,29	2,23	3,48	5,57	9,21
(Dollars)		0.02	0.07	0.07	0.17	0.20	0.26	0.45	0.70	1.11	1.84
(+tax 20,6%)		*		*							
Share for the companies Francs/minute		0	0	0	0,48	0,62	0,90	1,73	2,85	4,77	8,19
(Dollars)					0.10	0.15	0.18	0.35	0.57	0.95	1.64

* These access numbers have the same discount than the telephone according the different periods of the day.

The 3614 is a non commercial service, which offers information for the public, and people pay only the cost of the transmission, carried by France Telecom. The cost of a 3614 Consultation is around 22 Francs (4,4$) per hour. The 3615 offers news, newspapers, radio, mail orders, catalogs, transportation schedule, messages exchanges, on-line products and games. It costs around 76 Francs (15,2$) per hour.

Several tariffs exist on the same call numbers. The choice is given to the firm which offers the service, according the value of the information it provides. For example, on the 3615, there are other tariffs which cost around 50 Francs (10$), 60 Francs (12$). The Tariffs are similar for the 3616. However, one can find the first level of professional information for 140 Francs (28$) per hour, on the 3617 or the 3627. (Here, one can find the financial information of all the French companies). The two last numbers are reserved for the data bases. The « 3628 » (Internal Directories of companies), costs 350 Francs (70$) per hour and the 3629 (for legal and financial information, decisions of the Court of Law...) costs 550 Francs (110$) per hour.

Since the opening of the TVR (High speed Minitel code 3623), other levels of tariffs have been created. On the 3623, one can't find games or messageries as only professional services are allowed, with specific contracts set with France Telecom, according the content of the services.

The follow

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Table 4 Ta

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high spee

The following table displays the costs for users and the revenue for service providers of the servers available at a high speed transmission rate (Kiosque TVR).

Table 4 Tariffs of the Kiosque TVR

	Access Codes	Cost for the User Francs/minute (tax included)	CODE of the TARIFFS	SHARE for the Service Provider Francs/Hour ($/hour) and (Francs/minute)
No Reversion	3623	0,59	T24	0
KIOSQUE TVR (high speed)	3623	1,27	T36	33,37 Francs (6.67$) (0,556 Francs)
	3623	2,19	T44	75,28 (15$) (1,254)
	3623	5,48	T60	226,31 (45.25$) (3,771)
	3623	9,29	T72	402,36 (80.47$) (6,70)
	3623	5,48	T61	198,85 (39.77$) (3,314)
	3623	9,29	T73	374,93 (75$) (6,248)

Since the beginning of 1995, France Telecom proposes a new offer the KIOSQUE MICRO. The services micro are the telematics services that can be reached, via the Kiosque Micro, from a computer equipped with a specific software and a modem. This Kiosque has three missions: the telematics with the micro presentation (norms Vemmi or Siam), the access to the IAP (Internet Access Providers) and a rapid access to Minitel services. These telematics services take advantage of the presentation and conviviality, available on a computer. The access to these services are an 8 digits phone number and similarly to the other services, several levels of tariffs are available and share given to the providers of services. Only some activities are allowed to be represented in this offer, and it benefits from a specific correctness guide. Costs and tariffs of this kiosque are different from the regular Minitel access.

Table 5

Service w
...version
Services
Micro
Service
Micro
Services
Micro
Services
Micro

Table 5 The tariffs of the Kiosque MICRO (February 1995)

	Phone number to access the service	Cost for the User (includes tax) Francs ($) / Minute	Code of the tariff level	Share given back to the service Provider Francs ($) / Hour
Service with no reversion	36 01 14 14	0,593 Franc (0,1186$)	T24	0
Services Kiosque Micro	36 01 16 16	1,27 (0,254)	T36	33,37 Francs (6,674$)
Service Kiosque Micro	36 01 17 17	2,19 (0,438)	T44	75,28 (15,056)
Services Kiosque Micro	36 01 28 28	5,48 (1,096)	T60	226,31 (45,262)
Services Kiosque Micro	36 01 29 29	9,29 (1,858)	T72	402,36 (80,472)

14
12
10
8
6
4
2
0

2.2.1 The uses

The most popular use of the Minitel is consulting electronic telephone directory, especially since the 3 first minutes are free, and taxed at 0.37 Francs (7.4 cents US) per minute. However, it reached a stable level of consulting in the last three years.

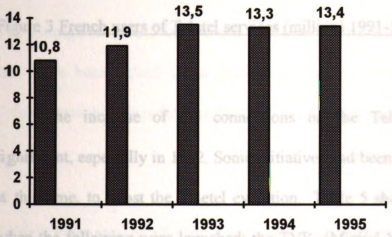

Figure 2 French users of the telephone directory on the Minitel (million) 1991-1995

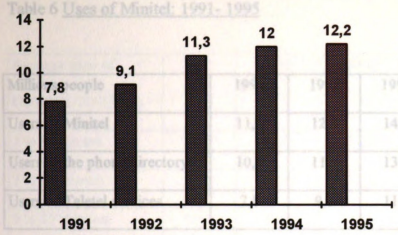

Figure 3 French users of Teletel services (million) 1991-1995

The increase of the connections on the Teletel services was more significant, especially in 1992. Some initiatives had been taken by France Telecom at this time, to boost the Teletel evolution.. Table 5 shows the increase in 1993, when the following were launched: the TVR (Minitel high speed), Telefact (the ability to pay bills via Minitel), Facitel (payment with credit card), Djinn (a combination of a modem-fax-Minitel-answering machine for computers), M3 (Minitel which accepts cards) and Sillage (a phone with an integrated screen to display Teletel services), Teletel offered on the ISDN access , and finally the evolution of the phone directory with Siriel (the International Phone Directory of 6 countries- Germany, Belgium, Spain, United States, Portugal, Switzerland).

Table 6 Uses of Minitel: 1991- 1995

Millions people	1991	1992	1993	1994	1995
Users of Minitel	11,5	12,8	14,2	14,2	14,1
Users of the phone directory	10,8	11,9	13,5	13,3	13,4
Users of Teletel services	7,8	9,1	11,3	12,0	12,2

The average frequency of use and consulting time decreased in this period. This may have been linked to the perception the users have, about the cost of the Teletel services versus the benefit they have when using.

Table 7 Frequency of Minitel consultation: 1991- 1995

TELETELConsulting (%)	1991	1992	1993	1994	1995
At least, 1 time per week	52,0	52,7	51,6	44,9	44,6
Less than 1 time a week	48,0	47,1	48,4	55,1	55,4

Table 8 Duration of Minitel consultation: 1991- 1995

Average time of CONSULTING (%)	1991	1992	1993	1994	1995
1 to 2 minutes	16,2	18,9	21,5	24,2	26,9
3 to 5 minutes	55,6	51,1	52,2	50,9	54,4
5 to 10 minutes	19,2	20,9	18,3	18,6	13,8
10 minutes or more	9,1	9,0	8,0	6,2	5,0

Some providers of Teletel services hoped to make more money or wanted to compensate the lost they had, because they noticed some decrease of their servers consultations. Those providers moved their servers to an other code access, whose price for users but also the revenue for the firm were higher. Thus, they managed to maintain their revenue with the increase of prices for the services they offer on Minitel. The impact of such an attitude is visible on the evolution of the average times of connection and on the perception people have about the cost of Teletel, during the last few years. Data in table 8 and 9 were collected by a French company, Reperes, during a survey, in 1995, on a sample of 2600 users of Minitel. Those tables report the answers of the sample' s perception of cost and satisfaction

Table 9 Perception of the cost of Minitel : 1994- 1995

%	1994 Sample= 2026 TOTAL	1995 Sample=191 4 TOTAL	Minitel access at HOME Sample= 1281	Minitel access on the WORK place Sample= 1038
Perception				
Expensive	17,6	27,0	25,3	28,8
Rather expensive	48,5	36,3	33,8	42,6
Rather rnot expensive	19,7	26,6	31,5	25,3
Not expensive at all	4,5	4,5	5,2	4,3
Don't know	9,7	5,6	4,9	6,8

Despite the disadvantageous impacts of some parameters (decrease of the average call, number stable of Minitel , increase of the costs of services...) the users' perception of the Minitel is quite similar as reported in the following table (Data reported in the survey made by Reperes, 1995).

Table 10 Rate of satisfaction : 1991- 1995

(%) Sample= 1914	1991	1992	1993	1994	1995
Really satisfied	18,4	16,2	17,5	18,9	18,5
Rather satisfied	76,6	77,1	76,7	73,7	75,4
Rather not satisfied	4,6	6,2	5,5	6,5	5,2
Not satisfied at all	0,4	0,5	0,2	0,9	0,8

This table reports a total of satisfied people as following:

1991= 95% 1992=93,3% 1993=94,6% 1994=92,6% 1995=93,9%

The same survey made in 1995 of results with Minitel (Baromètre Minitel), conducted by the survey organism REPERES reported the following conclusions:

In 1995, approximately 16.8 million French people (more than 15 years old) had access to Minitel (16,3 in 1994). Since 1993, the rate of people accessing Minitel only at work is increasing compared to those accessing Minitel both at work and at home. Despite the increase in the number of people accessing Minitel, the number of users (14.2 millions) is stable because the number accessing Minitel, but non-users, is slightly increasing. The most important reasons given by the non-users of Minitel, are mainly due to the costs of services. Since 1995, there has been an

increase in access to Minitel, via a computer (9,6% of the users), mainly made from the work place. The number of cards for the emulation of the Minitel on a computer was estimated at around 300 000 at home and 700 000 at work, in 1995. Those users are mainly living in towns, are from a upper socio-professional level and their consulting frequency of the Minitel services is high.

Total consulting frequency, on the Teletel services, fell from 52% in 1993 to 45% of users making at least one consulting connection per week in 1994 and 1995. Users are generally satisfied with Minitel (96% very or rather satisfied).

Users have quite a good opinion about the services they can find on Minitel, but two-thirds of the users find that the cost of Teletel services are rather expensive or expensive. What is required is a reduction in the costs of services (78% of users find that 2,23 Francs -45 cents US- per minute, is a very expensive price when 54% give the same answer for 1,29 Francs- 26 cents US-per minute), and a warranty made on the quality of the services. Finally, at the end of 1995, 90% of the users equipped with computers, expressed the will to keep their Minitel at home. At home, 57% of the Internet users and 63% of users having the emulation card on their computers, continued to use their Minitel, at least one time a week.

As a conclusion reported in a survey (RAFOUR Interactive S.A) in 1995, the « interactivity » is a concept that enters the French households. The following table gives the answers of 800 people to the question: When you have a research to make on a precise subject, which means do you prefer ?

Table 11 Place of Minitel among the different means to find information

	During theweek 1994	During the week 1995	During the week end 1994	During the week end 1995
To consult an automatic information point	1%	1%	2%	3%
To call a phone local server	6%	7%	13%	16%
To call an operator to get the information	9%	10%	22%	22%
USE the MINITEL	23%	25%	54%	53%
To write	1%	1%	3%	2%
To send a telecopy/fax	7%	7%	6%	4%
To phone during the opening hours	40%	38%		
To move to the information place	13%	11%		
Sample= 800	100%	100%	100%	100%

Among other results, this survey reported that, in 1995, 20% of the users were able to find the codes of useful services only with intuition . 29% said that they were ready to register their personal references because 23% thought that the messagerie on Minitel is the best way to receive an answer for information, and 29% were ready to make the transaction immediately if they found the quotation interesting for them. Mainly, 36 % find easily the information on the practical services, and 25% found that it was quick and efficient but 11% admitted they had some " difficulties ".

2.2.2 The users

The demography of the users of Minitel is really close to the one of the French population. In a study (AFTEL 1994), the representation (%) within the whole French population of each category was matched with its rate of services consulting,. It appears that no influence of criteria such as gender or living location, exists. However criteria, as standing and age make a sensible differences among the different categories of people. The bigger consumption of services is made by the 35-49 years old. The impact of the social level is more obvious between the working class and the social upper level, whose cultural background and information needs are traditionally larger. In 1996, 36.1% of the French population (more than 15 years old), have access to Minitel.

The following figures give the previous evolution of the number of Minitel in the households (% of the whole French Population) (Source: INSEE):

1988	1989	1990	1991	1992	1993
12,2	14,6	16,9	18,0	18,7	20,0

The number of terminals and the number of users are different since many people can use the same device at home, on the workplace, in the post offices and other public places.

Since the three last years, the number of users is stable.

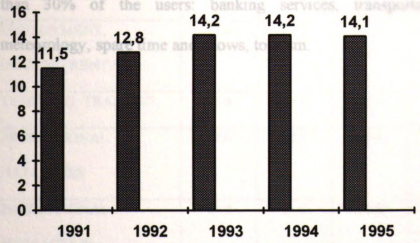

Figure 4 French users of Minitel (million): 1991-1995

2.3 THE EVOLUTION and the PERSPECTIVES of the TELEMATICS MARKET

Table 12 shows uses of the Minitel overtime. No big changes for the services that provide useful information between 1991 and 1995 are evident. However, a decrease of connections on the services of games, advertising is visible. After a short period where people are attracted by the novelty of entertaining servers, people tend to search for services that bring added value and gain in their lifetime. The hierarchy of the services, according their consulting rate is similar over time. The phone directory is used by a large majority of people having a Minitel and then come after, the 6 main kinds of services, used by more than 30% of the users: banking services, transportation, mail ordering, meteorology, spare time and shows, tourism.

Table 1.

Percentag
TELEPH
BANKIN
TRANSP
MAIL O
METEO
SHOWS
ENTER
TOURIS
ADMIN
INFORM
EMPLO
HOUSIN
TEACH
PROFE
DATAB
PROFE
MESSA
FINANC
EXCHA
PROFE

Table 12 Uses of different services (%)

Percentage (%)	1991	1992	1993	1994	1995
TELEPHONE DIRECTORY	92.0	95.6	94.4	93.1	94.9
BANKING SERVICES	44.4	46.7	46.6	52.9	44.8
TRANSPORTATION	48.3	53.3	48.3	43.0	40.8
MAIL ORDERING	39.6	39.6	38.0	36.5	36.4
METEOROLOGY	30.8	32.6	33.8	33.9	32.6
SHOWS, ENTERTAINMENT	/	33.6	36.3	31.1	33.8
TOURISM, TRAVELS	21,0	27.7	30.0	30.8	29.3
ADMINISTRATIVE INFORMATION	18.9	19.6	23.7	25.2	23.7
EMPLOYMENT, HOUSING RENTAL	17.4	22.2	23.4	20.8	18.1
TEACHING, TRAINING	16.4	23.3	22.7	17.4	19.2
PROFESSIONAL DATABASES	18.6	22.5	22.3	16.5	21.0
PROFESSIONAL MESSAGERIE	11.0	11.7	10.8	13.7	9.7
FINANCE, STOCK EXCHANGES	13.8	12.4	13.6	13.2	10.4
PROFESSIONAL	6.4	9.3	10.8	13.0	8.5

INTERNAL USE					
SPORT	14.5	15.2	13.6	12.7	9.7
MAIN GENERAL DATABASES	11.6	16.0	20.0	12.2	14.5
RADIO, TV	17.4	17.9	16.0	9.2	12.3
GAMES, ASTROLOGY	18.5	17.5	13.6	8.8	8.1
INSURANCE	/	6.6	8.4	8.5	8.2
SOCIAL	/	6.8	7.1	7.9	6.2
NEWSPAPERS	7.6	8.7	7.4	7.5	7.0
INFORMATION FOR PRODUCTS, BRANDS	6.5	6.6	7.0	5.9	4.9
ANONYMOUS MESSAGERIES	6.3	4.9	4.3	4.0	2.8

The following table shows there is still a dynamism in the creation of services since the number increase noticeably every year.

Table 13 Evolution of the number of Teletel services on Minitel: 1992- 1995

	1992	1993	1994	1995
Number of services	20 112	23227	24 600	25 000

Table 14 shows the reduction of the time, spent on a server, that affects more codes that have a high cost. The 3614 and 3615 are used more by the general public for useful information but a reduction is visible on the connections on the 3616, where most of the games was proposed. However, one can notice the increase of the 3617, for professional information, and it appears that companies integrated the professional codes as a useful and valuable tool for their activities.

Table 14 The Teletel traffic, classified by access code numbers

CODE TELETEL	TOTAL (1) January to March 1996	TOTAL (2) January to March 1995	Variation (1) / (2)
TRAFFIC (Thousands of hours)			
3613+3621	980	1021	- 4,0%
3605+3609	729	741	- 1,6%
3614	8618	8357	+ 3,1%
3615	9578	8127	+ 17,9%
3616	675	1844	- 63,4%
3617	950	819	+ 16,0%
3628+3629	367	379	- 3,2%
3619	14	/	
3623 (TVR high speed)	43	/	
KIOSQUE Micro	17	/	

The following table summarizes the main figures of the Teletel activity to give a global view of the Minitel situation and its variations during the last three years.

Table 15 Main figures for the Teletel activity 1995- 1994- 1993

TELETEL	TOTAL 1995	TOTAL 1994	Changes between: 1995/1994	1993/1994
CALLS:		CALLS:		
Teletel	1091	1129	- 3,4%	+ 3,2%
Telephone Directory	761	784	- 2,9%	+ 1 %
Total (millions)	1852	1913	- 3,2%	+ 2,3%
TRAFFIC:		TRAFFIC:		
Teletel	84	87	- 3,4%	- 3%
Telephone Directory	23	23	stable	stable
Total million hours	107	110	-2,7%	- 2,3%
CODESof SERVICES	24940	24600	+ 1,4%	+ 5,4%
Total TURNOVER of TELETEL	6,6 milliards of Francs 1,32 billion $	6,6 milliards of Francs 1,32 billion $	stable	- 1%
SHARES GIVEN to the Services Providers	3,1 milliards of Francs 0.62 billion $	6,6 milliards of Francs 1.32 billion $	stable	+ 3%
Number of MINITEL	6,5 millions	6,5 millions	stable	stable

The last France Telecom report on the 4 first months of 1996, shows an inversion of the tendency: Teletel received 373 millions of calls on the 25 000 available services, that is an increase of 5% compared to the same period in 1995. It represented 29 millions of connection hours, that shows an increase of 3,6% and a volume of 16 millions of additional calls. The increase of traffic was mainly registered on the " 3615 " and less on the " 3614 and 3617 ". The main services consulted are always the banking services, transportation, mail order, tourism and, of course, the electronic phone directory. The increase of the traffic is also due to the success of the new Minitel devices, (300 000 distributed since the beginning), and the increase of the number of Minitel emulation cards, used on computers (300 000 for the home equipment users and 700 000 in the companies).

2.3.1 Conclusion

From an economic and marketing point of view, the Minitel is a system whose development followed the classical " life cycle" of any product. After a high development, following the innovation launch, the traffic entered a period of maturity (beginning of 1990- end of 1993), confirmed by the stabilization of the number of devices, distributed nationally. Even some initiatives of the provider, France Telecom, helped to maintain more or less stable rates. In 1994, Minitel entered the period of an annual small, but regular, decrease of its traffic. Because the faithful use of the useful services, whose French population is familiar with,

Minitel is not going to disappear in the few days, but its ability to grow seems to be now over.

2.4 INTERNET

This section is divided into the following sub-sections: the size of the Internet market in France, the access providers, the users, the uses. Data on users and uses is mainly drawn from surveys, La Realite de l'Internet en France,1996 (The Reality of Internet in France), conducted by Mediangles, and two studies conducted in 1995 and 1996 by International Data Corporation France.

2.4.1 Size of the Internet market in France

Only in the last years has the Internet swept through France as a revolutionary wave. Even if France was far behind other countries two years ago, Internet is now the inevitable and incontestable new tool when one speaks about communications. French firms now cannot consider omitting the Internet and its impacts, in their strategy planning. Internet is considered as a promising market. The proof is new Internet access providers are created each month. The French telecommunication provider, France Telecom, has also decided to take its place in the new market.

Seventy five millions of Francs (15 millions $) was the estimated global Internet turnover in 1995, and it could be estimated around 1 billion in 1997 and 3 billions in 1999 (IDC 1996, Bilans et Perspectives 1995-1999, Results and Perspectives 1995-1999) . In July 1995, France ranked 7th in the world in host connectivity outside the US, with 113,974 hosts (635 Web sites), after the UK, Germany, Canada, Australia, the Netherlands and Japan. This represents an increase of 615% in three years.

Some predictions have been made about the potential development of Internet in France. According to the method used by different agencies, results vary a great deal, and it is difficult to know which one is the best predictor of what is going to happen The figures reported by Eutelis in a survey made on the French population show the high and low prediction, based on the results in its report From Telematics to electronic commerce 1996. The number of people that would have subscribe to Internet could be from 1.3 to 2.7 millions in 2001 in France.

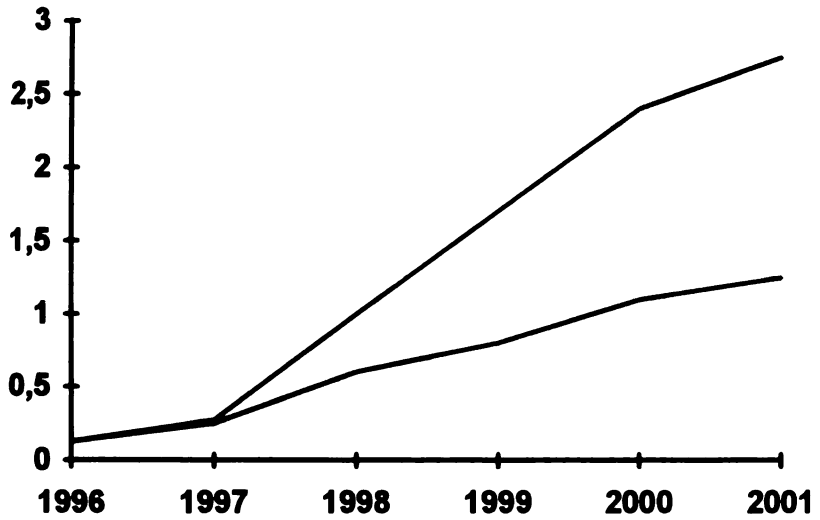

Figure 5 Number of French individual people who will subscribe to Internet and on-line services (millions) Source: EUTELIS

2.4.2 The access providers

Since the arrival of Internet, a new kind of activity has appeared on the marketplace: access providers to the Net. From 10 access providers at the end of 1994, today they are more than 30 firms offering a heterogeneous set of services and prices. Individuals can have access via the public network for 70 to 400 Francs (14 to 80$) per month but the subscription to open an account, annual fees and the number of connection hours included in the monthly fees, vary greatly.

The following table gives some examples of access providers' tariffs.

Table 16 Internet access providers' tariffs.

	Monthly subscription	Additional hour
Wanadoo (France Telecom)	55 Francs (11$) - 3 hours 110 Francs (22$) - 15 hours	19 Francs (3.8$)
AOL	49 Francs (9.8$) - 3 hours	19 Francs (3.8$)
Compuserve	125 Francs (25$) - 10 hours	10 Francs (2$)
Infonie	199 Francs (40$) per month	
Easynet	99 Francs (20$) per month	
Grolier Interactive	77 Francs (15.4$) per month	
Imaginet	150 Francs (30$) per month	
Calvacom	60 or 200 Francs (12 or 40$)per month	

The demand for Internet access has grown exponential over the last 1 year, and this activity is an opportunity for more and more new companies, of variable size, entering this new market. Even if this new opportunity appears flourishing, some companies already wonder about the profitability of such an activity. First, the firm has to rent leased lines to link their sites to other providers (EUNet, Oléane, Transpac Renater), that are themselves linked to the main backbone of the European and American networks. The prices of lines leased from France

Telecom, are expensive. Then, the provider has to buy a series of modems that determine the number of accesses available and the quality of high speed transmission. Since these are big investments to begin such an activity, firms manage to limit their investments and attract people with very competitive prices.

That has led to a situation where users try to find less expensive subscriptions to try out Internet. The result is the low rate providers are overwhelmed with too high a number of subscribers. Their networks are now overloaded and the quality of services decreases. Some French users have already been disappointed during their initial trial of Internet because for connection time and response time were too long, especially when they wanted to display pictures on their computer screens. This is a unique advantage of the Internet over the Minitel. It is conceivable only large firms in telecommunications, computing or cable industry, will be able to invest in developing national access points networks and provide good quality service at a price that will be match the demand.

Based on a national survey (Mediangles The reality of Internet in France 1996), the proportion of PC equipment of new users, young people is higher than the average. A printer is quite all the time connected to the computer. 80%, but mainly the individuals and companies, have a CD ROM.

Table 17 Number of computers in France

(Millions)	1995	1996
Personal computers	1 932	2 410
Professional computers	5 215	5 636

The development of Internet could be linked to the number of computers, able to communicate via a modem, in the firms. This number could reach 8 millions in 2001, in France. The following figure describes this possible evolution.

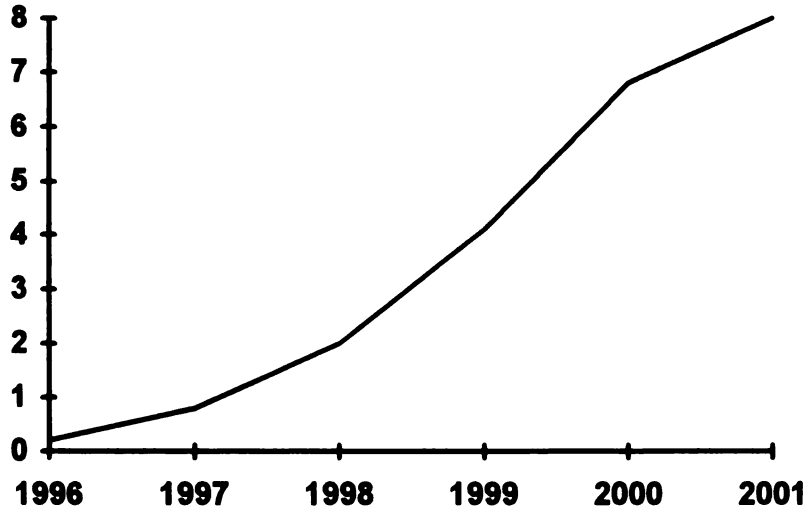

Figure 6 Number of computers that will be connected to French firms(in Millions)

(Research sector not included) Source: EUTELIS

According a survey (IT Survey 1996) made on a sample of 1600 companies, at the beginning, Internet concerned at first the bigger companies (over 1000 employees) but now it's going to develop within the companies from 100 to 1000 employees.

Table 18 IT Survey 1996 report (sample: 1600 companies)

Size of the Company (number of people)	Companies using Internet	Average number of users in 1995	Average number of users in 1996	Rate of growth from 1995 to 1996
Less than 100	12.6%	10.8	14.9	38%
From 100 to 199	24.7%	12.6	21.7	72%
From 200 to 499	28%	25.9	46.9	81%
From 500 to 1000	27.7%	41.2	54.9	33%
More than 1000	42.3%	91.4	114.6	25%

2.4.3 The users

The number of the new users quadrupled between the first three months of 1995 and 1996, and 3% of the users said that they used Internet less and less with time, but 35% stated the opposite. The increase in the number of users is growing faster among the individuals than in schools or firms. Over 480, 000 French people have a subscription for an Internet access and that represents 1% of the French population , more than 15 years old. The details of the individual market are composed as following: 150 000 users at home from 95 000 households. This is: 0.4% of French households, 2.6% of the households owning a computer and 17% of households owning a computer and a modem.

The number of individuals, having access to Internet is small as it represents only 9% of the whole population. Only a minority is equipped with computers, and less with both computers and modems. Computing equipment is more expensive in France than in the US and the use of Minitel has largely diverted the French people from the on line services and computers. Also opposite of the US, people are charged for their local calls and today, the access to the Net is not yet affordable for everybody.

In January 1996, the price of a local call costs from 0,08 Francs (0,016$) to 0,25 Francs (0,05 $) per minute (Tax 20,6% included), according the different schedules. The Appendix 4 reports the tariffs of local call prices in France, to

provide an estimation of the cost of Internet consultation according the time the users spend on the Net.

Users seem to be more sensitive to the price, rather than to the performance (transmission rate and ease of connection) or service (quality of assistance) when they choose their access provider. That could explain why the users change access providers many times and are not faithful. However, only a major problem concerning the cost of the services is evident as 35% would be ready to pay more monthly for additional information. The users do not want to spend more than 100 Francs per month for their Internet budget.

The users are mainly men (75%), 25-34 years old (39%), living mostly in the areas around Paris. Those early adopters were well-educated (2 out of 3 have at least an undergraduate or graduate level degree). The later users are not so well educated. The average annual income of users is around 280 000 Francs (56 000$) and the 35% of the users have a computing job in their company. Most of the users are managers (44%).

Even for the French population, the foreign web sites are the most visited. Is this the interest for the foreign countries web sites, or the lack of French web sites? However, the request for French web sites is the first spontaneous answer of users, when they are asked about what they would like to find on the Internet (Mediangles On-line 1996).

The users are also sensitive to the commercial aspect of Internet. Of the 10 000 people surveyed, 61% had visited a site of products and services information during the last 30 days. 50% left their names on a commercial web site to receive additional information; 17% had made purchases in response to the information they found on Internet during the last 6 months costing on an average of 1630 Francs ($326). Users are open to using the electronic money for purchases of less than 50 Francs (10$); 60% would prefer this system instead of sending a check or giving their credit card number on the Net.

Users are not disturbed by the advertising included in the web pages: only one of four found it annoying. Finally, French users think it would be useful for most of the brands to have an information web page in the future, and that shows French population already integrated what is commercially on stake on Internet.

2.4.4 The uses

The average time of Internet connection is 6 hours per week but the number of connections is significant only since the beginning of 1995. The users of Internet share their time between the Web (half time of the connection), electronic mail, files transfers, and forums and the discussion groups. Users move from visiting useful sites to cultural ones. The users share their time of connection on Internet between personal reasons (31%), discovery of Internet (29%), university research (9%), and professional reasons (31%) (Mediangles 1996). The users

report they would be ready to book transportation or hotel tickets on Internet plus hey would be ready to make banking operations, order goods, play games or be trained via Internet.

Within the distribution of connection time, a large part is given to the World Wide Web. Even if the mail, file transfer, and forum are considered by users as interesting components of Internet, they seem more attracted by the discovery and surfing among the different servers of the World Wide Web. No specific study gives reasons to this, but one can assume only it could be due to the ease and the entertaining aspects of World Wide Web, where one can find many attractive and useful firms' home pages and national or foreign servers.

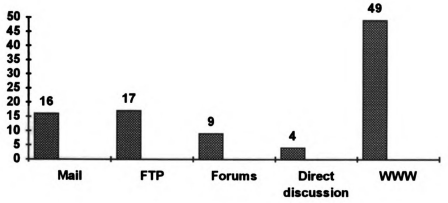

Figure 7 Place of the World Wide Web in the time of connection (Mediangles 1996)

During the time spend on the WWW, people spend 34% on French sites and 66% to visit foreign sites. The following table displays the classification of the different uses people make of the Internet servers. There is roughly no differences according which kind of population consult the servers on the Web.

Table 19 The hierarchy of the visited sites

	Individuals %	Companies %	Schools %
Research of site addresses	91	91	92
News	65	59	66
Culture	66	54	60
Information on products and services	60	71	60
Useful information (meteo, booking...)	49	49	47
Eroticism	39	25	32
Games	20	16	29
Training	15	16	23
Administrative information	16	18	13
Financial information	15	14	13

Some users have already participated in the "electronic commerce" on the Net and have experimented it with buying. The goods that some users buy via Internet are ranked as following : the software is at the first place(65%) and then, music, entertainment (25%), books (11%), tourism(8%), newspapers, media (7%), financial services (1%), CD ROM (1%) and other (8%).

What are the expectations of the users, in the future. A sample of 2105 people answered as following (Mediangles 1996).

Table 20 Forecasting future uses (N= 2015) Source Mediangles, 1996

Management of the bank account/ banking operations	62%
Booking of transportation seats, planes or hotels	76%
Following the accounting and turnover of the companies	34%
Ordering equipment	54%
Ordering goods	31%
Training	60%
Building up reports of specific newspapers	64%
Consulting classified ads	63%
Reading newspapers	41%
Transferring games	30%

2.5 THE POSITION OF THE FRENCH OPERATOR, FRANCE TELECOM

The state-owned provider France Telecom waited quite a long time before taking a position within the Internet market, trying to find a consistent strategy to protect its existing Minitel system while being an actor in the Internet market at the same time. It has been the technical operator for RENATER, the research and university network, and responsible for the main interconnection of Renater French and European nodes. Its subsidiary, TRANSPAC (TRANsmission with PACkets) is one of the first operators of the Internet in France. France Telecom is a participant in the organizations for the standardization and development of new uses on Internet (Internet Society, WWW Consortium, CommerceNet...).

Since the beginning of this year 1996, France Telecom has been on the first ranks to help with the development of Internet in France (some others said that Minitel was the bigger obstacle to this development until now, due to the French habits on their national telematics network).

It was at the beginning of 1996 that France Telecom announced three major decisions:

a) a universal access to the Internet

b) France Telecom provides Internet access

c) The reduction of tariffs on Minitel

a) Universal access to Internet is available, as of March 15, 1996. The operator wanted to promote and help the national development of the Internet that means that all the computers with modems can have access to Internet, at the same price, whatever their location in France through tree different modes. (See Appendix 2)

b) The second decision placed France Telecom as an Internet access provider since March 2,1996. France Telecom INTERACTIVE part of France Telecom MULTIMEDIA is the new subsidiary that provides a complete service on Internet, titled Wanadoo, as of March 1996. This service includes access to Internet, and a large number of services and means to communicate on the Net (messagerie, information services, surfing guides, help-line for users, bridge to reach the Minitel services (http://\www.minitel.com/), and the public and professional phone directory, converted in the Web format). It also includes on-line services such as an " electronic mall ", where people can find famous brands and firms, and useful information daily. France Telecom offers a secure system of payment both for firms and consumers, on purchases made in this mall.

To promote the launching of the Internet offer, France Telecom distributed a free package of software floppy disks, which allowed every phone subscriber to test Internet free for 10 hours. Such software included among others, a Minitel emulation that allows the user to display, for example, a Web page of a French

company, and then, clicking on the Minitel icon present on the computer screen, to tip out on the booking service of this same company, available this time on Minitel. France Telecom has planned for 10 million communicating computers in 2000, and has made provision for 3 million subscribers to on-line services (900, 000 for Wanadoo). From the start of Wanadoo, France Telecom had agreements with computers modems manufactures, and navigator software developers. For example, Apple and Compaq propose to their customers, the access to Internet via Wanadoo. People who buy a Macintosh or Compaq computer can have an additional monthly free subscription to Wanadoo....France Telecom contracted also with Netscape for the distribution of a customized navigator software, and concluded an agreement with Microsoft for the distribution to its subscriber of customized version for the Microsoft Internet Explorer. The aim of this partnership politic is to enlarge the offer for the general public. As the head manager of France Telecom Interactive, Yves Parfait, told : " With the new offer Wanadoo, France Telecom links the general public and the professional to services providers. To the general public, it represents a great ease due to the guides and directories included in Wanadoo, to the private firms it is the means to do electronic commerce." (Tariffs for Wanadoo are in Appendix 1).

One month after the beginning of this announcement, Wanadoo grouped 14 000 users, and after the 10 hours test period, more than 1200 subscribed to a permanent contract with France Telecom. The access to Internet at a price of a

local phone call seems to be an attractive decision, since 61% of the subscribers live in the country. 53% of the users are new surfers since they never visited the Internet before. Wanadoo seems to be an offer that concerns the general public more than the specialized Internet surfers. Already 34% of the users visited Minitel, via Wanadoo which was the first solution to for consulting telematics services, on the Internet. The first success of Wanadoo could be attributed to its ease of installation and use of software, and the ease of the research of its navigator, named Youpi, designed in France.

c)The last decision concerns Minitel France Telecom's commitment to continue to promote and upgrade, since it is today the most accessible terminal to the main part of the French population. The provider decided to reduce its tariffs and increase its speed, and as of March 1996, 2 low tariff levels will be available to users: 0,45 Francs (0,09$) irrespective of the period of the day (see Appendix 4). That represents 47 and 81% less than the previously cheaper tariff (0,85 Francs). Moreover, the cost of TVR (High speed Minitel 9,6 Kbit/s), of the Kiosque Micro (14,4 Kbit/s), and Teletel (1,2 Kbit/s) will be the same during the first quarter of 1996. Thus, the user pays the same price for a similar service, whatever the speed of the consultation.

The goal of France Telecom is to see high speed Minitel as a standard, by the end of 1996. The new generation of high speed Minitel, Magis and Sillage will

integrate an internal modem (9,6 Kbit/s) and some " Boxes 3623 " will be available to increase the speed performances of the older generation of Minitel.

Users of Minitel are also allowed to send messages through a newly open access to Internet (Minicom is the name of this Minitel messagerie). The French provider decided to connect Minicom with the Internet, the messageries X400, and the network of fax transmission. Thus, each user can have free Internet address to send a message or a fax through the Net. Associated to the Minitel TVR (9600 bits/second), the Minitel could be an E-mail terminal for around 200 000 users of Minitel (March 1996).

2.5.1 Conclusion

The strategy France Telecom adopted is consistent with both its positions of operator and services provider. It doesn't want to give up on its Minitel investment. Additionally, the experience and the success of the Minitel are the basis for the analysis of the Internet approach and strategy. The lesson of 15 years of Minitel, provided unique knowledge concerning the uses and users of telematics services. France Telecom can consider this knowledge as great advantage as it takes a main place among the actors that will soon, drive the Internet world. Even if everybody today, can only imagine what is really going to happen on the Net, no one can neglect this new technological opportunity and market.

Chapter 3

REVIEW OF LITERATURE

This chapter is organized into the following sections: first it presents a review of literature about the diffusion of innovation and the description of its process. Then, it shows how the topic of this case study can be studied in light of this theory. A following part remains the different approaches of authors about the impact of the context. This chapter ends with the description of a marketing concept (Product Life Cycle) that will be used to situate Minitel and Internet, as products, on the life cycle curve.

Why the French services providers are going to adopt or not the Internet, after the Minitel, can be studied in relation to the « Diffusion of innovations » (Everett M.Rogers, Free Press Editions 1995), and more specifically around the process of diffusion Rogers described (P.136, 165, 206).

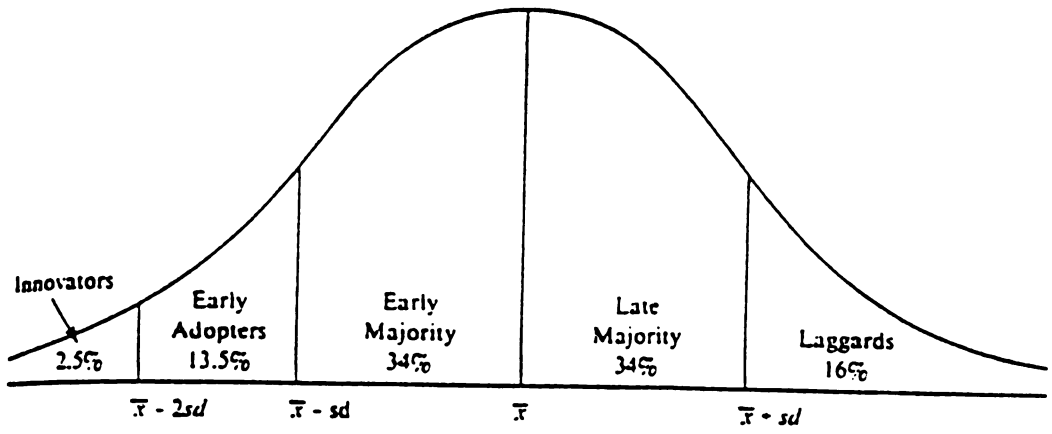

Figure 8 Adopter categorization on the basis of innovativeness

Rogers' diagram shows the process and the percentage of people that adopt an innovation with time : the innovators 2.5%, early adopters 13.5%, early majority 34%, late majority 34%, laggards 16% (Rogers E.M, 1983 p 247). This curve is drawn according the number of people who adopt the innovation over time, and shows the adoption of the innovation follows a normal curve if its diffusion follows the process Rogers described. At the very beginning of the diffusion process is the population of early adopters that is represented by no more than 3% on one side of the curve. They are the innovators, said to be younger, better educated, more interested in the new trends and products, and have more decisional power than the rest of the population. Then, follows the population of early adopters that represent the leadership opinion of social systems in which they provide their opinion and information about the innovation. They are the models

for the following part of people who adopt the innovation, the early majority , who is the adopter of new ideas, just before the rest of the majority of population, Rogers named the late majority. Finally, at the opposite side of the curve are the laggards or skepticals who adopt the innovation only under the pressure of the others, or because the utility of the innovation has been definitely proved by the system where it is largely implemented.

The different stages and features Rogers described will be applied to the specific case of managers both as representatives of their firms and as individuals. Of course, in any decision, the subjective approach of individual feelings emerge always, but those managers have also other parameters to consider (R&D budgets, competition, efficiency, benefits, politic of investments, risks for the firms, networks design, new training...) that differ noticeably from individual considerations.

In his recent edition (1995), Rogers illustrated the process of the diffusion of Internet (p 315) and Minitel (p327), highlighting the concept of " Critical Mass in the adoption of Interactive Innovations ". He described the uniqueness of Interactive communication technologies, as innovations in terms of " reciprocal interdependence " developed by Markus (1990). Unlike noninteractive innovations, when more people use interactive innovations future adopters benefit, but so do earlier adopters.

3.1 How is the case study linked to Rogers' theory ?

This case study focuses on the adoption of a new technology of communications, namely the Internet. The answer to the rationale of this study will depend on its diffusion process The easier the adoption of Internet, the more chance, Minitel has to be superseded. Conversely, Internet could lack some main characteristics to be easily diffused and thus, the answer to the research question will be different, or at least moderate. The relevant theory to define what is going to be the attitude of people, with the arrival of Internet, will be the theory of the diffusion of Innovation (Rogers 1995).

If Internet has to be considered as a full innovation , its definition would be distinctively qualified in France and in few of the other countries that already approached the notion of Telematics and on line services. Internet is seen as a new revolution from both its technological and sociological aspects. However, this study will examine Internet in France, as an incremental and distinctive innovation, that is " an innovation that provides small improvement in performance and profitability and allows goods or services to be produced faster, cheaper, better, more reliability , and an innovation that significantly improves performances and /or profitability and typically serves as a foundation for a number of incremental innovations " (Schuman 1993 p 127). Internet is a world phenomenon, that has a huge potential of diffusion since its is an open and universal system. However, from a French point of view, the concept could be

seen as "worldwide Teletel" , with the technical and performance improvements. The French population already has a telematics and on-line services culture, and this may be considered an advantage in the transition to the Internet. Whether the service providers will move to the Internet standard, will depend on their perception of Minitel versus their perception of the Internet. The Internet may be perceived simply a new technology whose new devices (PC) are going to replace old ones (Minitel) to provide quite similar and more continuous services than before. Or it could be seen as an opportunity to re-think the internal organization, to be ready to act actively in the new business world, that the media promise us everyday.

Pressures coming from the environment, especially media, can play a significant role in the adoption of an innovation. Rogers lists some strategies to get a critical mass in favor of an innovation in a system (Rogers 1995 p 327). " Shaping individuals' perceptions of the innovation " through the media is one of them. Some media audiences could think that this innovation is inevitable and adopt it, because they will think they are surrounded by « innovators », and feel they can't lag behind the others. The craze of media puts pressure on the Internet success, everyday. From some newspapers, readers could think that the Net has connected every firm and every household. During a visit, one manager reported (did he ever read Rogers ?) that " ...Internet is not in itself a more impressive

standard than another, but it is going to be " the" successful system in the future, only because the trend makes us believe that it is going to be successful ".

The following part looks at the perceptions of the firms, their evaluation of pros and cons of the Internet and Minitel, and the contextual contingencies to understand the motivations that lead firms to change or not their servers one system to the other. I made the difference between the perception and pros and cons of the innovation and separated them into to different research questions. The perception here has to be considered more about what the managers think and feel as individuals. Their approach of the innovation is personal and linked to their own behavior and knowledge. From the other hand, the pros and cons is a more an objective balance between the two systems, that put the responsibility of the manager in stake as a decision-maker in his firm. This difference had to be made since the evaluation of the advantages and disadvantages of Minitel and Internet lead to a decision that is not automatically consistent with the managers' behaviors. The managers have to deal with the economic and financial constraints in a short term, and sometimes that does not allow them to follow their real perception.

3.2 Perception

Rogers described the adoption of an innovation according a model of 5 following stages. This process is a series of stages over time, and during each of them, the potential adopter seeks for information to build his own opinion and evaluate the innovation according the different perceptions he will have all along the process. The approach of an innovation, as Rogers said, goes through a first step of "Knowledge". Then follows the "Persuasion" stage. This stage includes the different characteristics of the innovation the possible adopter has to consider to build an individual opinion, that will generate a favorable or unfavorable attitude toward the innovation during the decision stage. The involvement of the individual becomes higher at this stage, and that leads him to seek for more information about the innovation. Then, the potential adopter begins to have his own perception of the innovation since he gets information on the "relative advantage, compatibility, complexity, triability, and observability" of the innovation (Rogers p 165, 1995). At this point, the individual is able to make a projection of a possible adoption of the innovation in his present or future personal situation. Then, individual makes a final evaluation of the innovation, but it is not automatically objective, since it is partly influenced by his behavior and evaluated through his feelings and subjectivity. The point is individuals are also able to expose themselves to selective information, that reinforces their initial behavior and perception of the innovation.

3.3 Pros and Cons for Decision

This is described also in the second stage of Rogers innovation-decision process (Rogers 1983 p 165). The characteristics of innovation are considered by potential adopters as a " pros and cons evaluation " that lead them to decide if they benefit or not from the adoption of the innovation. This evaluation will influences the " rate of adoption " (Rogers 1983 p 217), alongside other parameters such as social prestige, convenience, satisfaction (Rogers 1983 p 15). According Rogers, different parameters (relative advantage, compatibility, complexity, triability, and observability) are the Perceived characteristics of the innovation that have to be considered, to reduce the level of " uncertainty about the relative advantage of an innovation " (Rogers 1983 p 217). For instance, the relative advantage for adopting a new communication system, can be based on its technically advanced features, that will allow to increase a quality or the efficiency of an activity. It could be also an economic benefit, if more customers are more attracted to it than to the previous system. The advantages are not always " objective ". For instance, the public image of a firm or an individual can be reinforced if it is known as an " early adopter " of the innovation.

The compatibility is to know if the new product or concept is going to fit with the existing needs or values of the background where it is supposed to be implemented. According what Rogers said, the more compatible is the innovation, the less uncertainty there will be in the potential adopter's attitude. The

compatibility is also the degree it answers to the need of the potential adopter. Sometimes individuals or firms are not themselves aware of the needs they have unless they discover potential benefits of an innovation. The complexity of an innovation is the degree or difficulty to use it. The more complex to understand and use the innovation is, the more difficult and long it will be to diffuse it within social systems. Triability is the ability to test an innovation on a limited field, and generalize it if the experiment is successful. An innovation that is easy to try is less uncertain and risky for the adopter. This point is more important for the innovators since they have no precedent examples to follow when adopting the innovation. Later adopters benefit from the past experiences of their peers and have only to follow their examples.

The observability is the ability for individuals to see the results of the adoption of an innovation through the early adoption of other people. Some innovation are easier to communicate, observe or describe to others and that ease their diffusion.

The first research question of this case study, focuses on the manner services providers perceive the arrival of Internet, and what are the reasons that can explain these perceptions. What do the companies managers know and feel about the Net, would depend on their individual perception and understanding of the innovation. All the managers I met, are responsible for telematics or

multimedia departments in their companies. The group was composed of an homogeneous population, aware and understanding of the new technologies. They are supposed to be the earlier adopters of the Internet innovation, since they have the specific knowledge and experience to figure out the pros and cons of this system. They are also the first to feel the needs for innovation and they are the more exposed to the different communication media, that can increase their awareness. In the findings report, I shall look at the impact of the media on the managers' perception. The behavior they have about the Information Society could influence the decisions they took (will take). Finally, if managers have a need to improve the existing services, they would be more likely to try Internet and see if it is more efficient for their activity than the previous system.

The second question deals with the advantages or disadvantages of the Internet, that are going to influence the decisions of managers to adopt it or not. The managers have to weigh the impact of their decision, because the success of the future communication and business depend on it. In this case study, the perception of the innovation characteristics depend on what the managers already know about the existing system, Minitel. After a long experience based on the use of Teletel, they can know exactly what they could lose with the abandonment of Minitel (however, they can only make assumptions about the Internet adoption). The managers need to reinforce their knowledge with the research of "objective "

information about the information as they want to project the use of the innovation, to know how it will fit and impact on what is expected. What the companies reported, during open discussions, about their decisions to be involved in the experiment stage of Internet in France, can be relevant with the main characteristics of the innovation perception, Rogers pointed out: Relative advantage, Compatibility, Complexity, Triability, Observability . However, the managers who have a good perception of the previous system and find it efficient enough for their needs, are more likely to wait and see what occurs for the innovators, before adopting Internet (later adopters).

The compatibility is a particularly important point to consider in a technical innovation, since the managers have to know if the concepts of the old and new systems are likely to fit together, at least for a while. This could be a big worry from an economic point of view, since that determines the investments that have to be made. In a difficult economic period, firms would adopt more easily an innovation if it is compatible with their present needs, and with the concept and values developed with the technology already in place. The number of firms which have both systems and the explanations managers gave for that, will show if this statement is true for the case study.

The managers of firms have to consider the complexity of Internet. If they suppose their customers will be able to use it too, they will be more likely to adopt Internet. Thus, their perception is linked with what they know about the socio-

cultural characteristics of their specific customer population. They want to be sure that they are not going to lose a part of their customers, because they adopted a new communication system. The complexity of Internet can also be a factor that is going to disturb the actual tasks, on which staff of the firm is well trained. Employees of the companies could have a lack of knowledge to use a new medium, and that would represent too much investment to start from scratch again. Or from the opposite point of view, managers' decisions can be influenced by the presence of experts, within the company, who assure them that they will deal with the implementation of Internet without any problems. On the other hand, if companies have to reorganize completely their telematics department and hire and train new staff, they could hesitate before adopting Internet.

An innovation that have a high rate of triability is more attractive since it can be tested on a limited basis. Then, this limits the risks the innovator takes, and allow him feed-back to develop a customized innovation later, that will fit more precisely with the specific uses of the corporate. Most of the managers know that they can test Internet at the same time as they continue to feed the servers they have on Minitel. Findings will show if the managers were sensitive to these characteristics, when making a decision. If they can continue to run on their Minitel applications, it will be easier to experiment with Internet in a limited way, and the consequences of the experiment, if unsuccessful, won't put the corporate business in jeopardy.

The observability helps to build a concrete idea about an innovation Companies are approached by access providers and offered a demonstration of Internet. Also the managers of companies can go to specific exhibitions for computing or media promotion and see the Internet and its uses. However, the only way to know the impact of such promotion on the rate of adoption by companies, would be to find a means to list the new Net sites and addresses that are created after those kinds of contacts. But no official organism is in charge of doing this, since the philosophy of the Internet is to be open, free of any control and available for everybody.

From users' side, most people have had a first hand approach of Internet, with the equipment they have at work. Thus, the adoption by individuals would depend greatly on the innovation adoption by their companies, since there is not much of opportunity to discover new communication innovations that is for personal use, except in schools, cybercafes, friends' places,. Indeed, nothing is certain about the relationships between observability and adoption, since after initial knowledge, the individual has to consider other features, for instance the price he has to invest for equipment and subscription (and Internet access could be free at work !).

The third research question deals with the approach of the contextual parameters, which influence the decisions of innovation-adoption. Much of the

external pressures can influence the personal decision to adopt or not an innovation. Managers can be influenced by what their competitors are doing, and feel more or less obligated to follow. Others that are undecided, can imitate some leaders, (Rogers 1983 p 281,331) because they have strong opinion about them and their corporate reputation. The ability of the access providers to support the innovative project, with weakness or strength, can impact manager decision. The external influence about innovation, is largely driven via communication media (newspapers, marketing approach of providers, knowledge from trips abroad especially in the US) and interest for new economical systems carried by new technologies

Much emphasis will be given to the market structure changes, since such case study takes place in a very moving environment as technology development is increasing faster and faster, and changes in the telecommunications regulations, increase of competition lead to critical and uncertain economical situations. Managers have much to consider before making any decision. The most difficult is that they have no certainty about the future and they have to gamble rather than reason. Even their personal behavior would lead them to innovate, the power of the external parameters can influence them to review their choices and urge them to wait. The most unstable and uncertain is the context surrounding the arrival of an innovation, the more it could influence managers' decisions. When describing the findings of the case study, one will observe if the managers tackled a series of

common points to describe the external factors they have in mind as influencing (moderating or changing), their personal behavior. Among others, behavior can be described (A. Bandura 1977 p 50 , 305) as " resulting from the joint influence of both personal and environmental determinants ". p 54 " Primary determinants of adoptive behavior are the influence closely tied to it, such as the stimulus inducements, anticipated satisfaction, the observed benefits, the experienced functional value, the perceived risks, the self-evaluative derivatives and the various social barriers and economic constraints ".

The following section deals with the impact of the external factors that could influence the decisions of service providers, regarding Minitel and Internet systems.

3.4 Influence of the context

Making assumptions or generalization about the success of Internet in France, based only on successful experiences in other countries/contexts does not take into consideration the specific forces that impact French service providers. e.g Users are already satisfied with a national videotex system in France. To have a better chance to understand and anticipate the nature of adoption of Internet in France, a contextually based analysis is required. This must identify the different forces that might have an impact and influence the decisions national firms.

This section deals with the importance of the context (or external factors), in studying the development of technologies. Mody (1985) defined the context "...to include the groups, the institutions, laws, and sets of social relations that constitute the specific environment or surroundings within which a communication technology is introduced, modified, or allowed to die over time". This part is relevant to our topic since foreign and domestic factors external to Minitel and Internet at a macro-economic, political and cultural level will influence the decisions of service providers. The adoption of Internet in France cannot be studied only as an implementation of a new technological system, cut from its specific environment, as it was often the case in previous studies of telecommunication systems (Mody 1987).

Different theories have been developed to analyze the trends of the telecommunications development, according the lens which was used to look at telecommunications and features of the telecommunications market; e.g "a mature, fully articulated competitive market" vs "a reality-based analysis"(Idealist model versus Strategic models R.Mansell 1993 p 6). In her book, "The New Telecommunications", Mansell quotes Freeman (1988) who observed that "the socio-institutional framework always influences and may sometimes facilitate and sometimes retard processes of technical and structural change" in the context of the Strategic model. In Mansell's Strategic model, "rivalry among suppliers and telecommunication users creates the impetus for changes in public and private

institutions" According the assumptions of the Idealist model (Mansell 1993) "a single trajectory of development will prove to be inherently superior...and the combined forces of technical innovation and competition will erode monopolistic control of the telecommunication infrastructure and the services it supports"). The Idealist model emphasizes the effectiveness of competition to decrease the influence of the monopolistic control on the development of technologies. It argues also that the public intervention in the market and the restraints due to regulation are the factors that avoid the telecommunication market to fit with the features of the perfect competitive market described in this model. The Strategic model determines the different modalities where the power of the market is realized, and it allows to determine the strengths and weaknesses of the competition forces in the development of telecommunications networks.

Bauer (1995 p263) recommends applying institutional and evolutionary economics Theory, rather than idealizing the performances of telecommunication innovation.

To conclude, potential success of a new technology(e.g Internet) must not be studied cut out from its contextual framework and the different institutional forces that surround it. Each time, it remains a particular case in a specific environment, so that generalizations about the success of this technology and how it will impact the development of the country where it is implemented, have to be

qualified. It appears also that diverse results in the development of telecommunications can be achieved with similar efficiency in different institutional organizations, giving various places and roles for private and public sectors. Choosing the most appropriate organizational model to achieve this goal will depend on the contextual frame of the country in which it will be implemented.

3.5 The Product Life Cycle

The case study was conducted in a period where two competitive systems meet together at two different stages of their lives. One is at the peak of its evolution (Minitel) and the other just begins to arrive on the market (Internet). This meeting will be studied in a following part according the concept of the Product Life Cycle which is described below.

The product life cycle (PLC) is an important concept in marketing. This concept focus on what is happening to the product rather than the trends of the market itself. According this concept, a product is defined as a solution to meet the specific need of people. This need is not static and generates a "demand life-cycle curve" whose different stages are " the emergence, the accelerating growth, the decelerating growth, the maturity and the decline" (Kotler, 1994 p 354). This curve is a "product-oriented picture" (Kotler 1994, p 374) and helps firms to

anticipate the evolution of the market as influenced by new needs of people, competitors' products, and new technology.

A need is satisfied by products coming from a technology, and a new technology is supposed to satisfy needs at a superior level. The amount of time a product stays in each stage of its cycle depends on the customer rate of adoption and the competition of new products. The life of a typical product is characterized by some major features in each stage. To each stage corresponds a typical strategy of the firm to keep its product profitable, as long as possible. The four stages of the product life cycle are briefly described below.

- Introduction: the new product arrives on the market. People adopt it at a very slow rate and the company is not yet profitable since it has to cover the expenses of research, development and launch of this product at the same time the sales growth is slow.
- Growth: The rate of adoption increases and the product becomes largely diffused on the market. The firm begins to improve its profit on larger sales.
- Maturity: The product reaches a peak in its penetration since the whole potential buyers already adopted it. The sales normally begin to slow down, profit are stabilized or begin to decrease. At this point, the firm has to decide which kind of strategy it has to adopt according the future potentialities of the products. At this stage, firms have often to invest in new marketing campaigns to defend its product against the competition. The major danger of the maturity stage is when the firm is

much confident in its success and don't anticipate or take care about customers' needs and competition.

- Decline: Sales decrease a lot and the product doesn't bring benefits to the firm.

According to the specificity of the product or the market, firms can decide for strategies that launch the product again for a while, before it reaches the stage of decline. The firm can act on each point of the marketing-mix (product itself, the communication, the distribution and the price). This can provide a major improvement to the product, an extension of the varieties of the product to provide new reposition in the market and a new perception by customers, new ways of distribution of the product, promotion of new uses of the product, or promotion with real attractive prices. Since the firm can't impact the consumers' needs or the competition, the only means to slow down the decline of its product is the choice of these alternatives to reduce the decrease of its sales.

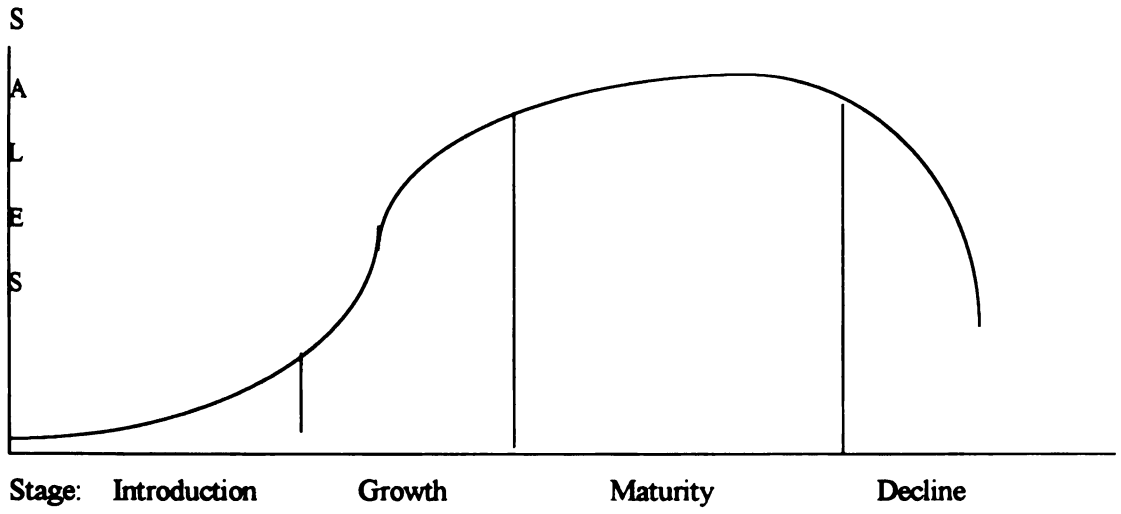

Figure 9 The Product Life Cycle

This chapter has provided the theoretical framework to help interpret the findings. The diffusion of Innovations (Rogers 1995) will be the guideline to study the perceptions and answers given by the interviewees. The Product Life Cycle will be used to place the two competitive products on their life curves, and help to make consistent (or different) assumptions according a different marketing approach. The review of literature on the importance of the context will allow to have a broader approach of the topic, rather than restricting it to technical considerations, but consider the environment and external forces that impact the managers' decisions.

Chapter 4

FINDINGS

PART 1

4.1.1 Introduction

Discussions were held in Paris with 27 heads of the Multimedia or Telematics departments of their firms, who have the decision-making power to chose new orientations in terms of communications systems and networks. Each of them is very knowledgeable about new technologies and innovations; most of them have been in the field since the beginning of the Minitel experience. Thus, since they have lived through the first major innovation in videotext in the world, these interviewees are high-quality informants.

At the time I visited them, some companies chose to be early adopters of Internet, but others chose to wait. Therefore, the following study attempts to stress the different parameters that influenced the companies in their decisions and see if the managers' approach to the Internet is consistent with what Rogers described in his theory. However, it will not be possible to link the first stages of the diffusion of innovation process with the last stage of Decision making. Since currently it is

the beginning of Internet in France, only the early adopters can provide some information about their recent experiences. Only half of the firms adopted Internet for a brief period and it is still too early to be able to measure the relative weight of each of the parameters on the final decisions. Thus, this case study will be only descriptive of the process to see or discover if it is coherent with the one Rogers described, but no conclusions will be drawn about the possible impact on the decisions to adopt Internet or not.

During the meetings, managers described their existing system, Minitel, and their satisfaction or dissatisfaction with it. Later, they reported their assessment of the revolution of information and Internet. They evaluated their perceptions of the changes with the innovation in terms of concrete advantages and disadvantages. Finally, they explained both the firm's and their own motivations and reasons for the decisions, and how they viewed the consequences of their choices in the future. The debate often extended to broader thoughts about changes in our civilizations, and the place of information from these new technologies promised.

Open-ended discussions are classified according to the three research questions on page 2. Each time, results are compared with the theory as I needed to know if the managers' approach to the Internet, as an innovation, is consistent or not with what Rogers stated. The following findings are classified according the perception of the respondents, the pros and cons they found regarding the Internet system and the impact of contextual factors on their decisions. Also, a comparison

between findings of different groups of firms (public versus private sectors, general public customers versus specific segments of customers), is made each time, to stress the possible influence of ownership and the market on the decisions firms made.

All through the different discussions, the managers reported more or less similar reflections, when they explained their opinions or decisions, regarding the arrival of Internet. However, some differences existed, due to differences in point of view or due to the particular importance they placed on some points. The ownership, activity, market or the specific objectives of the firms often created these differences in their approach to the Internet. Report of the discussions with managers is in Appendix 5.

4.1.2 Summary of the perceptions of the early adopters of Internet

This summary draws the global behavior and perception of the firms which adopted already the Internet. Of course, this description does not pretend to be the representative of the early French adopters of Internet, but remains only what could be concluded about the discussions for this case study.

Statements are ordered according the rate of agreement.

The early adopters of Internet:

All - continue to believe in Minitel.

(or almost all) - disagree about the impending death of Minitel (in 5-6 years

or maybe never) - report a good evaluation of the Minitel system.

- think it will take a very long time to transfer the content of Minitel on Internet.

- have a great interest in the Internet phenomenon.

- adopt a careful attitude about their involvement and about the evolution of Internet.

- consider the lack of computers and computing knowledge of users is a great problem.

- think about a way to get income from their Internet servers.

- consider it a great advantage to be able to keep both Minitel and Internet.

2/3 of them - imagine there will be a transfer from one system to the other.

- think Minitel and Internet have different uses.

- are confident in the success of Internet.

- consider Internet does not generate incomes yet is a main handicap.

Half of them	- adopted Internet because of a real conviction.
	- think the lack of computing knowledge of the users is a handicap.
	- think the adoption of Internet by users will depend on the effect of generation.
	- have a bad feeling about the media pressure.
	- think some major problems of Internet are the quality of access and the poor content.
	- trust the bridges between both systems.
	- think they can improve their services when going on the Internet.
Few of them (one quarter or less)	- think they will extend their activity in foreign countries.
	- don't think much about the problem of security, except for specific activities.
	- don't think or evaluate high costs when going on the Net.
	- don't worry much about the problem of English language.

4.1.3 The link with Roger' theory

This summary is the opportunity to draw possible conclusions regarding these findings, and link them to Rogers theory, to see if the attitude of the French

companies based on the fact it confirms, or at least, follows the process Rogers described.

- The process of Rogers theory in itself:

The way each manager chose to reveal his vision and the choice of his firm, are consistent with the approach Rogers described in his theory. During discussions, after a short presentation of the corporate activity, managers began to expose the existing system and the satisfaction, or problems they have with it. Then, they told when and how they were confronted with Internet, and what forced them to consider its arrival as an important event. During this part, I learned how and where they found sufficient knowledge to build a personal opinion and behavior about Internet. Then, they opposed the present system, Minitel, with the Internet technology, and emphasized the specific points that were advantages or disadvantages for their particular cases. The description of their long-term view (how they imagined the future, and the place of the information in our societies) often took up a greater part of the meeting, since it largely impacts the decisions they had to make for the short-term too. Finally, the managers made an assessment of all the factors that lead them globally to adopt or reject the Internet. This is the logical development of the way Rogers described in his five stages of the innovation -decision process, where he stated that people make an evaluation in terms of pros and cons, after a period of information and knowledge, to see where the final advantage is to adopt the innovation, before making a final decision.

During the study of findings, answers showed that the managers' considerations are similar to the ones described in this process. Rogers said the balance between pros and cons reduces the uncertainty of the relative advantage to adopt a new system.

However, it is more complex to say, in terms of decisions, if the Rogers' theory is confirmed in that specific case. One can make only some assumptions on specific points with almost no chance of being wrong.

- The results:

The evaluation of the existing system versus the relative advantage of adopting the new one, shows that no firm decided to give up the Minitel because they took advantage of the compatibility of systems to run on both, and gained enough time to make observations. Rogers is correct when he emphasizes the importance of the compatibility and triability. That led several managers who hesitated to adopt Internet, because these two factors allowed them to reduce risks, and their decision did not put the corporate into trouble, in case of negative experience. Thus, the managers' attitudes are consistent with the description Rogers make about the relative advantage and the preliminary research to reduce the risks of adoption.

Rogers describes the adoption of an innovation as a means to fulfill a need that has been identified, or because the innovation is likely to improve the benefit for the adopter. Until now, Minitel didn't face any competition and the majority of

users and providers were satisfied with it. However, the arrival of Internet could promise some improvement in the on-line services market as the adoption of Internet by firms is motivated by the suspicion of additional benefits. Again, it remains that Internet is not without risk since they keep the well performing Minitel in the background.

The adopters who found more motivation to adopt the Internet, went beyond the handicaps they identified in it, and continued their reflection while they attempted the experience. Their vision and projection in the future seems clearer and these firms appear more ready to adapt to the change or to the cohabitation of technologies, that is consistent with the features of the early-adopters Rogers describes. The adoption of Internet is largely impacted by the assurance firms are not going to lose the benefit of the existing system. However managers remain careful about the limitations when adopting this new technology and they moderate their enthusiasm, even if they adopt it. This is roughly different from what Rogers reports when describing the behavior of early adopters. In this specific case, the behavior in the potentialities and the success of Internet is shared. The pressure of environment appears to impact largely the decision of managers who feel they don't really a choice.

The impact of media on managers seems to deny Rogers description about the strength of information coming from the environment as a means to shape people's behavior. Half of the adopters said they received negative information via

newspapers or journals. They certainly trusted more their own research or knowledge through involvement in study groups, associations, travels and personal experiences, since they finally adopted Internet. However, these ones are perhaps the half part of the firms which adopted Internet because of the pressure of competition, without a true behavior in the Internet.

Managers also based their assumptions and decisions on the socio-cultural characteristics of their users, and here again, Rogers was correct when he insisted on the factor of complexity . Indeed, several managers preferred to wait because they knew that their users were not yet able to use sophisticated devices. Then, their choice not to move (or completely move) on to the Internet, was obvious because they could not afford to lose their customers. However, this is the perception of half of the adopters who transform the adoption of Internet into a test of their customers. Risks are limited since they kept their Minitel activity.

In terms of decision, the impact of what the identified leaders decided, doesn't appear to have influenced the choice of other companies. It is more the observation of these leaders, saw as competitors, they would force other managers to " follow " (as they said).

Rogers wrote also about the irrationality of decision. It appears that the irrationality of decision has been reduced to the strict minimum in this specific case. Managers know they have to reduce as much as possible the irrationality of their decision, since it could have disastrous consequences for the future of their

companies. Their thinking mustn't be fanciful, but objective and rigorous. Pressures of economical efficiency and the imperative requirements of a business logic are likely to reduce the irrationality of companies choices.

Overall, Rogers theory would have been more easy to confirm if Internet could have arrived in a context where no previous system was available. In the precise case of France, currently there is "much to lose or to risk " when adopting rapid decisions about Internet. As it was described by most of managers, the people (users and providers) are receptive to the change and its implications, but the change will take time because of the specific French context and because of the original system, developed 15 years ago, has satisfied the users since that time. Rogers' diffusion of innovation process, would appear more meaningful when a well identified need, a " hole ", is evident, which is likely to be filled up quickly with a innovative concept or system.

4.1.4 The link with the Product Life Cycle

According what was described in the first part (2.2 Minitel today), it is easy to see the Minitel has reached the stage of maturity of its life cycle. The number of devices distributed in the households has been similar for few years and it appears all the potential users are equipped now, since no increase in the demand for equipment is evident. Minitel has been positioned on several segments of users (individuals, professional, firms) and it does not exist for any category of

French population whose needs are not covered by the Teletel system. The market of Teletel activity is stable, with a small decrease on the consumption of on-line services noticed by some service providers. The attitude of service providers fit with the actual position of Minitel. Since, they can't impact the number of users, most of them chose to extend to include a greater variety and the quality of the lines of services they provide, to increase the interest of customers.

The attitude of the French operator confirms the position of Minitel too. France Telecom acted on different features of the Marketing-mix. At first, the operator redesigned the product itself, extended the convenience for users and extended the products line with new advanced Minitel (Magis, Sillage..). Second, the French provider suggested new uses of the product (use of credit cards for example) to reposition the perception of the Minitel in the users' mind at the same time it decided to emphasize the concept of quality on the services with a rigorous policy about the correctness of servers (many judgments of providers before the French Court have confirmed this willingness).Then, the operator decided finally to reduce prices of Minitel services to allow a new dynamism in the on-line services consumption.. This strategy was made to create a break within the maturity stage, before Minitel reaches the beginning of its decline.

At the opposite of many other products, the French provider can't count on the extension of the Teletel system in other markets or other countries, as it could be a strategy to revive a product since one of the major handicaps of Minitel is to

be and kept a national system never adopted by other countries except France. The advantage to developing an innovative telematic technology in the French research centers was not followed by an efficient marketing strategy enabling it to be exported it in foreign countries. However, Internet whose concept is not a complete innovation, has the great advantage to be international, so that's why it could supersede all other networks.

In the case of Minitel versus the regular product life cycle, is that no competition has existed since the birth of the system until now. That certainly has allowed it to last the length it has, but also to avoid imagining any sooner alternative strategies to support the life of Minitel.

Today, the impact of the advance of technology is confirmed with the arrival of Internet. And its position is at the real beginning of the curve of the life cycle product, and it supposed to speed up the decline of Minitel. From a marketing point of view, this case study represents the meeting of two competitive products whose evolution are exactly opposite. One would begin its decline when the other one begins its carrier. The future of Minitel could greatly depend on the emphasis put on the marketing-mix of this new system to acquaint possible customers with the product and the gain they could achieve if they tried it. The position of Minitel in its maturity stage depends on the time Internet will spend in its introduction stage, linked to the rate of adoption of customers (or eventually on the arrival of other competitive products).

4.1. 5 Summary of the case study

What are the main conclusions that can be drawn from this case study ? It is now established that Minitel is a system which is well integrated both in the French business and consumer habits. This system works well, and provides a large range of services (useful to professional). Its popularity and its high penetration in the French households are two major assets, companies consider as a priority. This motivates managers to witness a high " trust " in Minitel, despite their awareness of the technical limitations of the system.

Half of the companies of the group are already on the Web, and most of their managers adopt a careful attitude to face the sudden arrival of Internet. They felt they couldn't ignore the different pressures, that lead them to follow the trend. Today, most of the companies who created a Web site, propose a simple shop window to communicate and promote their activity on a new medium. However, some companies offer complete and sophisticated information on the Net, since they are completely convinced of the success of Internet.

Many firms take the opportunity of the compatibility between the two systems to launch a kind of test and follow the customers' reactions. However, some firms preferred looking around to the early adopters, since they found the experience too costly, not having assurance enough on the returns on investments. The complexity of Internet compared to Minitel, the people's lack of computing skills, the small penetration of computers in households, doubt about the

truthfulness of media information, and the reality of Internet today in France, more or less lead the companies to wait and see. A major problem for French companies slows down the adoption of Internet as for many years, companies have been used to integrating Minitel as a source of income, since the investments are now depreciated. If they replace Minitel in their businesses, they also have to find a new means to charge the customers, as a compensation for lost income. Even if they are not on Internet, the firms include this point as a priority in their reflections, as well as the concept of the value of the information .

However, companies do not have a negative approach about Internet, even if they are not convinced of global success for the whole national population, at least in the short term. They imagine the transfer from the former system to the new one would be one where there would be a rather long period where both technologies would be complements rather than competitors.

Managers also emphasize the differences in uses between Minitel and Internet; one manager reported: "Minitel is for useful use, Internet is more for pleasure". That could be a chance for Minitel to survive for a long time, along side of Internet, but also could be integrated in it, through development of bridges. Managers imagine a progressive transfer, since their attitude is going to be progressive too, in terms of involvement, when facing to the adoption of Internet. They will all keep Minitel, since it is well established and performs well enough for a majority of services, and firms will transfer their services at the same time

that they see a move by their consumers. This could happen under external changes or pressures such as notable reduction of computer prices, decrease of communication prices due to a coming competition, the launch of a successful Netcomputer that would democratize an access for a majority of people, a higher decrease of their Minitel turnover, or simply the effect of young generations' arrival whose computing culture is higher. However, some organisms, mainly from the public sector, are more suspicious about the complete transfer of services. They provide the basic public information, and the general public needs a simple, free and cheap device to fulfill their basic needs.

Among what companies reported, whatever their different sectors, activity or population of customers, findings are roughly homogeneous, except for the points dealing with financial concerns of Internet that are more emphasized in the private sector (investments, costs, risk of losses, possible incomes, pressure of competition, decrease of Minitel incomes), and the points dealing with the degree of involvement and behavior about Internet (mostly of the vision of future).

Several managers deplored the attitude of the operator, and found its answers arrived too late. The need for new types of terminal, and an increase in the Minitel speed have been requested for many years by services providers. Now the answers of the provider are far behind the evolution of the Internet. From the managers' point of view, the operator didn't provide in time to Minitel, the great

competitive advantage it could have been few years ago, to reinforce its position and face the arrival of a competitor with greater strength.

PART 2

4.2.1 Comparison between Internet and Minitel

In a short summary, this shows the more obvious differences of both systems, that come to mind when people (providers and users), make the comparison between what they have (Minitel), and to what they could adopt or change.

-Pros and cons, from the service provider point of view are :

INTERNET Advantages:

Nobody is in charge of the management of the Net. Free access.

Competitive offers for the server design and host.

Freedom about the content

Use of the electronic mailbox

Advanced norms (HTML)

Disadvantages:

Security not yet available

No identification of the surfer

Supremacy of US

Blurredness or uncertainty of Internet evolution

Lack of standards

Anarchy of the Net (and Web sites)

MINITEL Advantages:

Popularity

Return on investments already done for a while/ no costs

Number of terminals in households

Acknowledge receipt of transmission

Services directory (MGS)

Driving service: Phone directory

Insurance that customers' bills are be paid (Warranty of France Telecom)

Satisfactory of users

Disadvantages:

France Telecom keeps a high part of the incomes

National market

" Old fashioned " device (slow, black and white, bad quality for graphs....)

-Pros and cons, from the user point of view :

INTERNET Advantages:

Cost

Number of servers (diversity)

International network

Quality of Web pages (color, hyperlinks, 3D...)

Electronic commerce

Downloading of software

Richness of contents

Disadvantages:

Cost

Cost of local calls

No incomes

Difficult to access- Network saturation

Need basic computing knowledge/ Help line

English

Payment not secured

Equipment investment

Needs tool for research. Anarchy of the system organization

Bad quality of most services provided on Web sites

MINITEL Advantages:

No monthly subscription

Guide for services

Phone directory (free or really cheap)

Many services to make transactions (bank, trip...)

French language

Easiness to use

No « risk » to get it at home

Quality of services

Disadvantages:

Poor visual presentation

Slow rate of transmission

No external competition for services providing; French system

Tariffs (not easy to customize)

4.2.2 Why do companies go on to the Net ?

For nearly one year, in France, one could see a dramatic change in the Internet evolution. What was initially a tool for universities and scientific research centers to exchange data, is becoming now a commercial tool for companies' world to extend their business. Of course, many other issues besides services or commercial commerce on the Internet must be considered. But today, the bigger challenge is focusing on the means to attract the broadest general population, and extend to them the offer that was reserved for a while to a smaller segment (Big companies, institutions, governmental bureaus). The democratization of Internet pushed the service providers to develop their services on the Net, as a new means

to extend their consumers' field and their turnover, through the « electronic commerce ». The Net became a powerful tool for direct marketing. The change with the previous system, Minitel, is that the providers are going to establish direct links with their customers, without intermediate stages (France Telecom before, on Minitel). For instance, the services providers will deal with their own choice for billing,. Different options (subscription, payment for each document consulting, free service...) will allow a customized billing according the service or the targeted population.

The number of companies that decide to open a Web server is getting larger, even if it is just to offer a simple home-page, a shop window on the Net. The companies have many motivations to do it: increase a customized communication and file of customers, extend to international customers, follow the competitors, pressed by the American trend, or at least, not to miss the opportunity of commerce evolution. But even if the companies believe in the future of Internet, they do hesitate because some points are not favorable for adopting this innovation. Currently no official norm exists and only a few French people use it today. Many French people are not yet used to buying on-line, payments are not secured, and some competition with other private on-line services networks is evident. On the opposite of Minitel, Internet connections don't generate incomes for the providers. That is also the reason why many companies (mainly service providers) wait until they find new means to

compensate or replace the incomes they had with Minitel. This is a great question for them, to define what is the value of their information and services. What it costs to the company might be consistent with what the consumer is ready to pay.

The Net has one disadvantage because companies can't identify or trace the people that come on their Web. It's difficult to link the number of requests (each action on the server count for a hit) on a server, and the real number of visitors. How is it possible to measure the frequency of customers visits on a Web site ? It would be, however, an objective means to know if one server is performant and well known. That is possible on Minitel that works on a connected mode, which is a dedicated access to each call between the user and the provider, so that the efficiency of advertising on the Web still remains more or less unknown about its impact on the Internet users.

Some other companies appreciate with smaller importance, the potentialities of this new kind of commerce. Some other are even reluctant to this evolution. They are convinced that a direct relation with the customer is the best argument for selling efficiently, and they argue for traditional stores. Those companies are also scared about new competitors from other countries, that wouldn't be part of their distributors network and would harm the traditional stores.

A survey (Cap Gemini Sogeti 1996) shows the inequality of connection to Internet, according the different sectors in Europe:

-Wholesaler	69,1%	-Mail Ordering	83,6%
- Food distribution	49%	- Fashion	0%
- Big stores	25,5%	- Lasting goods	43,6%

Most of the connected companies said it was to make a first stage experiment (technical, best knowledge of the market) rather than to investigate new markets or customers directly. For the goods, given its technical limitations, Minitel was more a complementary tool to ease the ordering from a catalog, a TV show, a written advertisement. It appears to be less attractive than a colored on-line store. However, the big deal today is the security of payment, even if some projects are tested today and are nearly as efficient. It remains one of the bigger worry of the providers before going on the Net. For the services, four main sectors represent the biggest part of the electronic commerce on Minitel: the mail ordering, the bank at home, transportation and shows tickets. In the other sectors (insurance, food and goods delivery...), a small part is made via the electronic commerce.

According a survey on French population (EUTELIS EMC study 1995), the French people's needs of material goods via electronic commerce are limited and they won't be ready to use it as long as they won't be sure about the security of payment. But those kinds of psychological barriers wouldn't last since solutions will be available soon. Today, in France, the concept of electronic commerce is

well perceived and this market seems to be promising, but almost everything has to be done to develop this new kind of consuming because some reluctance remains from both sides of the market, the offer and the demand.

4.2.3 Evolution of the market of on-line services

The evolution of this market may be studied from different approaches. First, according to the different segments of users who do not have not the same needs (general public versus professional) and secondly, according to the type of services (Transactions services versus information services or professional services). Those differentiations qualify the notions of offer and demand. The pressure of demand seems more obvious for the professional users, whose search means to ease and increase their global productivity. However, one can't see today the emergence of a real demand from the general public, since most people have integrated Minitel into their lifestyle mostly for basic needs (phone directory, book transportation seats, bank transactions..). Indeed, private users report their main need is for services that would ease their life, everyday.

However this feeling is linked with other parameters such as computing equipment costs, different competitive offers that could have impacts on the general public attitude regarding the use of on-line services. The report is different for the professional users. First, the computer is now a device installed in almost every company. Second, the change in the operation and management of

companies gave a larger place to the use of networks and computing systems, and information is now considered as real resources to increase the efficiency of business. One can suppose that this trend will increase, since today 65% of the Minitel shares, are paid back by the operator to professional and eight years after the opening of professional services on Teletel, professional information overwhelmed the general public services.

Globally, a spontaneous demand doesn't appear obvious. Perhaps due to a lack of imagination from the users, one can observe that a second stage must follow the technical innovations. Providers must provide innovations in terms of uses, because new possibilities offered by techniques are much abstract in people's mind generally. The demand still exists for existing services, but the offer will generate the evolution of the services market in the future, at least for the general public segment. This thought is, from my point of view, available today, during a transition stage concerning the knowledge, use and integration of computers in people's lives. However, it is surely going to change with new generations whose « first birthday gift will be a Nintendo or a color laptop! ».

One major difference today, with the United States, is that the users pay their local calls, and it could be a handicap for the development of the market of services. Because local calls are rather expensive, the French users could reduce the use of Internet, restricted to the research of useful services, as they do today with Minitel, and wouldn't afford themselves the surf on different web sites, that

takes a long time to visit. The paradox is the more users there are, the more likely the prices could decrease. Reaching a threshold of users would allow to reduce the costs. Since the users are reduced to a minority, this doesn't urge the providers to invest in web sites and develop services, and the impact of their communication on the Web is reduced. The problem of demand that generates the offer, could be reversed. But users face many points that slow down their potential involvement: the price of computers (This is today the race for the performances of computing devices, so that prices stay the same), and moreover, the bill of the local phone calls are based on the duration. A set price , independent of the time users are on the Net, would be a way to boost the consumption of services, and then, speed up the evolution of services market. H.de Maublanc (Manager of the AFTEL, French Association for the Telematics) reports that " France Telecom based its Net tariffs on its logic of traditional operator". But H.de Maublanc thinks that " this situation could change in a more exacerbated competitive context ".

In 1993, the global market of on-line services in France was estimated around 33 billions of Francs (Documentation Française n° 217 p35). In 2005, Thierry Breton (1994) estimated this market would be between 86 and 195 billions. The development of the services market is linked to the development of networks capacity. Those services will have several shapes such as material like CD ROM, or immaterial as on-line services. This evolution could lead to an increasing shift from material to immaterial goods of the human environment.

Among other the new technologies and the development of services, many could find an important place within public services organizations, education, medicine libraries and research domains. Indeed, the introduction of new services in people's lives, will be certainly progressive, and impacted by the generation effects. However, other examples in the past show that the perspectives one waited for the impact of new technologies, are not always consistent with what was planned. In the case of the development of a global market of services, it will greatly depend on the reaction of users, the rate of their demand, the budget and the time they are ready to allow to get information, and the satisfaction they will find in return of these personal investment, in terms of improvement of their quality of life.

4.2.4 Is Minitel able to take a new turn?

The Minitel didn't change for a long time. It stayed similar in its technique and design, when there was a huge advance in the computing industry that made the computer available for everybody. At the same time other technologies and competitive systems and networks arrived on the market (private on line networks, Internet). Since the end of 1994, Minitel has evolved. New devices with higher performances (Magis, Sillage, TVR), integration of the Teletel system via computing (Kiosk Micro) were a sudden reaction of the operator to the change of the telematics market and its environment. Therefore, one sees, in the results

drawn from the interviews, that the French system is always well considered by both the providers and the users. Perhaps when people or media speak about Minitel, they often make confusion between the device itself (old fashioned) and its content (services always changing and increasing their value). But, at the same time, companies look at the Internet experience. From the results of this one, this look will depend on the attitude of the services providers in the future, and then the future of Minitel.

The impact on Minitel, of the arrival of Internet will not be visible for a while. The firms take the advantage of Internet arrival as a test period, while their Minitel servers are running well. Risks are limited and they keep a position of observer to see what really happens on their new web site, before becoming more involved. Today, for most companies, Internet is a more a shop-window for the public than a replacement of Minitel. Some of them are even ready to follow the evolution of the Teletel system, because their behavior lead them to stay careful regarding the innovation of Internet. Most of the firms are waiting for clarification of some aspects on the Net such as computer penetration, remuneration, secured payment. At the same time, they don't let Minitel on the side. Today, both systems are more complement each other than competitors, and the future would be more seen as more an integration of Minitel, for certain uses such as booking, research in directory., than as a cannibalization of one system by the other. The actions of the operator take this way, with the arrival of the Kiosque Micro. Some others

argued for example (Susbielle 1996 Solutions Telematiques) that the " Minitel is the future of the Web". He said that " transposing Minitel to the Web would be in vain because the two media are entirely different. But however, the efficiency of Minitel transactions must be the reference for the Internet". From his point of view, Minitel would have been well studied by the new actors of on-line services, because its basic concept would be the one to duplicate, to assure the Internet success. The only thing to regret, in that case, is that the French operator never managed to export its national system .

In fact companies can't really afford to change completely from Minitel to Internet systems. First, it is to risky. Despite the incredible craze for Internet, nothing is sure for its future and we have seen that the adoption of an innovation is linked to the balance between advantages and disadvantages, compared to the previous system. Second, companies haven't yet found a means to replace the incomes they have come through the Minitel connections, when offering the same services on the Net. However, it is also obvious for them that Minitel can't continue to survive for an eternity like it is today.

The arrival of Internet has called into question the telematics market and its features. Two main points are raised, for the telematics to get a new life: the ergonomics and the costs. The pressure of Internet is a means to provoke a change. Two different positions exist for service provider : the one where firms lives on the incomes of Teletel consulting, and the other one where firms have to promote

activity or sell goods as much as possible and even abroad. For one of the both, the choice to create a web site is more obvious than for the other.

Also two different main kinds of services are available. One of them is simply transactions between the user and the provider, and the sophisticated Internet is not needed for that. The quality and the efficiency of the other kind of services (color, image, 3D, sound, hyperlinks...) do need the Internet technology. However, that's why the evolution of the terminal itself is a solution which has been proposed to make the telematics market evolve. The future seems to be for the phone with a screen and the integration of the Minitel function. However, this new definition will not be sufficient enough, for many services (with colors, graphs...). Some said that a new Minitel would have to be designed with the PC architecture, including a CD ROM. and a high speed modem. and it would have to include intelligent agents to help the user in his research for information as the user is not supposed to be a specialist and is more interested in the service he is going to find than in the technology itself (Dalloz 1994 Le Monde Informatique). The main problem of the Minitel today is that it wasn't designed to evolve and adapt to other norms, and the only way to increase its power now is to change the device itself. Since no cards can be added and it was developed around a single national norm, that closed its use within the French boundaries.

The costs of Minitel must stay competitive with the services proposed on the Net. Services providers and the operator are concerned with this change. The

companies attempted to increase the prices of their servers because they knew that Minitel was in its maturity stage, and that was described in the marketing theory as the last chance for them to make money with a system that was supposed to die soon ("traire la vache" in French marketing). The return to reasonable prices is a means to make the system last in the long term view. From the operator side, it would be possible, via the decrease of the transmission costs. Some argue that it will happen soon with the arrival of complete open competition in the French telecommunications, whose impact would be to get transparency and decrease in the costs. The cost of services on Minitel are also challenged by a large community, because it is based on the duration of the communication. Some said that the final users pay for the incomes of both the operator and the providers. From their side, the providers found that the share going to the operator is too high. But now a new medium is available where this sort of billing is no longer available. At the same time, a problem is raised for most of the providers that don't know how to deal with a potential financial loss they used to integrate in their global incomes for fifteen years. A.Beaussant (Manager of GESTE - Association of Professionals of Telematics) made the comparison between the French user's average expense for Minitel (800 Francs/160$ per year, composed of 500 Francs/ 100$ for the services and 300 Francs/ 60$ for the transmission) and the average for Internet (minimum 1000 Francs/ 200$ subscription per year, plus the cost of the equipment and local calls). That shows the Teletel is always attractive to obtain

useful and repeating information, in a very simple way to find them, when Internet consulting is more entertaining and longer. The differentiation of uses could allow Minitel to have some chances to live near the computer for Internet access, on the same desk, at least for a while.

From its side, France Telecom focuses also on the enlargement of the number of terminals, and the increase of the quality of for services provided. The next part describes the actions of the operator to create a new launch of its national system.

4.2.5 France Telecom actions

The new terminals, and especially the Magis with its card reader, was well received within the population. It attracted many people that weren't equipped with any Minitel before

(30 000 distributed in the first fifth months). The operator thinks then, this is going to urge the service providers to include the secured electronic payment within their Minitel servers. Some companies already are studying the use of private cards, compatible with the reader of Magis. This would allow direct communication and exchanges with their customers. Some banks study the possible change on the traditional Credit Card to provide direct access to their owners, on the Minitel telematics services. However, some people argued (Ronsin L. Manager of AGL Solutions Telematiques n°38°), that " even the Magis gives a revival to the

interest in the Telematics, France Telecom which didn't worry at the time of the renewal of the terminal ".

Create new services and uses of the Telematics, is also a way to provide it a second life . From France Telecom's point of view, even if it is the beginning, " these new means to use the telematics are full of promises and the provider is waiting for a high creativity " (Kretz M. Manager in the Telematics Department of F.T).

France Telecom opened the Kiosque Micro (February 1995), no longer based on the videotext presentation standards, to assure recognition by the videotext access points (PAVI) of who is connected (Minitel or computer). Thus, the compatibility between both the former and new system is assured and integrates Minitel in the computing world. To increase the development of this Kiosque, France Telecom decided to suppress the higher tariffs of the Kiosque Micro (April 1996). The operator wants to focus again on its role of carrier and doesn't want to be involved in an intermediate stage, to pay back the share for the high value added services to the providers. This decision was taken under several pressures: at first, the end of monopoly and deregulation will forbid the operator to mix the phone and telematics services on a single bill, without detailed explanations and people will be able to know exactly the cost of some servers consulting, especially, the high tariffs. Then there remains the problem of billing a high added value server, according to the time of connection. This kind of billing,

similar to telephone use, doesn't invite people to consult these servers. That's why France Telecom now proposes a service to bill the act, and not the duration. That is an answer to the providers of professional services whose activity was penalized by the previous system, and was too expensive for the users.

As stated earlier, the operator put a great emphasize on the quality of services as that is considered as a strategic stake to face a competitive market. The Union of French Consumers (UFC) published a guide with classified references of the best servers. Union for The French Association for Normalization (AFNOR) is working on the preparation of rules to provide quality labels to Minitel servers. The user will be thus, assured that he can trust the provided information and the quality of the site. Also, France Telecom rejected , after Court decisions (74 in 1994), some providers from Minitel either, because they provided false information (employment proposals), or because problems of correctness (Minitel rose). All those kinds of servers greatly harmed perception of Minitel, especially because those servers were reachable on the higher tariffs (3670), normally reserved for professional information.

4.2.6 France Telecom position

All the following information comes from reports of official declarations or interviews, given by France Telecom managers in the last 8 months. It was extremely difficult for me to meet the people responsible of the different

Telematics or Multimedia departments, given that the period I was meeting managers, was also a period of movement in the French operator internal organization.

It seems obvious that the development of Internet in France is a problem for the operator, regarding the future of its Telematics system. This problem was studied with a complementary and competition approach between both systems. France is far behind a number of other countries in the development of Internet. However, it also has had a long and innovative experience about telematics knowledge. From that observation, France Telecom sees the Minitel as a basis for a new start, and not only an acquisition on which the operator could rely. That's why France Telecom wants at the same time, to both continue its involvement in Minitel and enter into the Internet development. This shows that the former telematics, driven by Minitel before, doesn't look like anything much compared to the new on line services market developing today. Even if Minitel and Internet are different, some abilities exist to interconnect them, or move one on the other (Minitel on the Web). Because these networks are both complementary and competitors, the position of France Telecom took, is to be an operator to play on both counts.

As reported during a phone conversation with a manager of the Telematics department, both systems do not have the same orientation. Indeed, France Telecom doesn't see a radical change in the telematics market in a short term. The

answer of the operator could have been considered as a late one, but its managers argue that the public is inflexible with the quality of provided equipment. France Telecom couldn't afford to provide unperfected technology or equipment.(That might be in the French culture to tolerate some imperfections in the private equipment, but to be very tough with what comes from the public operator.). Research takes a long time and big investments in networks, devices, staff.

It is also useful to remember that even the services providers are the first to put pressure on the operator, as they are not ready to follow the trend as quickly as they claimed, when the innovation is available.(The example given was the TVR which has been today adopted by only a few providers). Most of the services providers are on waiting guardedly to what is going to happen. Except those who trust the trend of media, the ones who are frightened, and the ones who denigrate, the other ones are waiting. France Telecom must consider all these attitudes, in its strategic choices.

In an interview (first quarter 1996), P.Raynaud, Manager of the Telematics and on line Services Marketing department within the Multimedia division of France Telecom, described precisely some main orientations of the operator, concerning both Minitel and Internet strategies. The approach of the on line services market is new for the operator, since it includes the arrival of Internet. The on line activities were grouped under a single name TSIEL , where the telematics activity has its place always. First, because telematics are also on line

services and second, because they have still development possibilities the provider doesn't neglect them. However, the strategy of France Telecom " must be mobile and opportunist, in the best sense of the word ". The Minitel experience must be clearly studied to learn lesson from it. That could be " a solid competitive advantage". But P.Raynaud argued too that " this success mustn't send the provider to sleep ". It is quite certain that, some times, " people will perceive some Minitel services as expensive, compared to the Internet offer. That doesn't mean the Minitel will not be able to resist the Internet flow. It still keeps some specific attractive features, and one can notice that those ones are mainly the same in the definition of the new terminals, the NetComputer's (ease to use, speed of connection, cheap cost) ". Actually, the operator conducts a study regarding the NetComputer and its competitive devices to find the most appropriate equipment to fit the user's needs. France Telecom doesn't want to miss the opportunity of a possible good option for the future of on-line services market. However, P.Raynaud specified that the same strategy of distribution of free terminals, as it was made for Minitel, won't be duplicated " since the conditions today are completely different". Regarding the question of the position and strategy of France Telecom as an operator or a services provider for Internet, P.Raynauld said that " Internet is a major orientation of France Telecom, since the business that could follow, is an extraordinary opportunity". Of course, no one can predict exactly what the future and the results of Internet will be, but like many other

communications providers, one can believe it has a place in becoming one of the main actors in the world of high technology.

4.2.7 The new terminals: Fantasy or reality?

Currently, it is not easy to define what could be the best terminal to allow the whole population to access Internet (by extension, the Information Superhighways). In the future, there can be no certainty about the medium or network that will carry the information for everybody. Some people bet on the success of computers, but others prefer to deal with the reality of the general public; since the computer is a much too complex device to use and its penetration in the households is too slow. To be successful, a new concept needs more than its technological production, or the enthusiasm of the media. It must be accepted by people, since it often changes some cultural habits or uses.

Some computing manufacturers designed and tested some simplified terminals , that cost around 2500 francs ($500) and are not far from an "evolved" Minitel . Such would allow people to be connected to the Net, via a simple computer that has a very limited memory and uses the software downloaded from the Net. The Netcomputer would not be able to replace the computer but it would be the answer for specific needs in some companies, at school, at home, for a rather cheap price. The company Oracle defines this device as a future combination of the screen phone and the Minitel. (F.de Valence Solutions

Télématiques n°44). Its manager, Larry Ellison, stresses that the Personal Computer (PC), as it exists today, is not adapted for a mass diffusion that condemns its future. According Bruno Didier, the vice president of Compaq, a market is available for a really simple computer, that would answer the basic needs of people. SunMicrosystems designed a basic computer, specifically made for households having reduced budgets (one microprocessor, a screen, a keyboard and a modem). This device would download the intelligence from the Net, according the momentary needs of the users. Many other manufacturers are developing more or less the same concept, since they view in this, the emergence of a new mass market.

Another concept is the Web Terminal that would integrate the means to access Internet in many different devices (from Minitel to the portable phone). However, everything is still far from the universal terminal that would end the fights between the different networks and manufacturers.

The success of Internet is mostly dependent of the democratization of the terminals to access it. However, all the specialists don't share the same opinion, as some of them don't believe in the NC success (Network Computer). They think that on-line services will be shared out among different channels, according to their contents. They don't imagine where the NC could have a justified place, near the screen-phone, the computer and the TV. They see these three devices as the major equipment for offices and households. Each of them would have its specific

use, according the kind of services the user needs. For those people, the present price of computer is not a break for users to invest in , since users have motivation enough to buy a performant equipment to benefit of the features of a real computer. Then, the low price wouldn't favor the spread of the Network Computer in the general population.

For the NC manufactures, other interests are at stake. The development of such a terminal would allow the end of a near monopoly of Microsoft (for the software) and Intel (for the chips) in the computing area, since the NC doesn't need either the Windows programs, or the Pentium chips. The so-called democratization Internet access could be in fact a new distribution of the roles, since the NC targets, at first, the huge computing market of firms and professional. The following figures provide a basic explanation of how the Network Computer system works. The Network Computer is a terminal specifically designed for Internet access, which uses the Java language and is only useful to exploit the Internet network capacities.

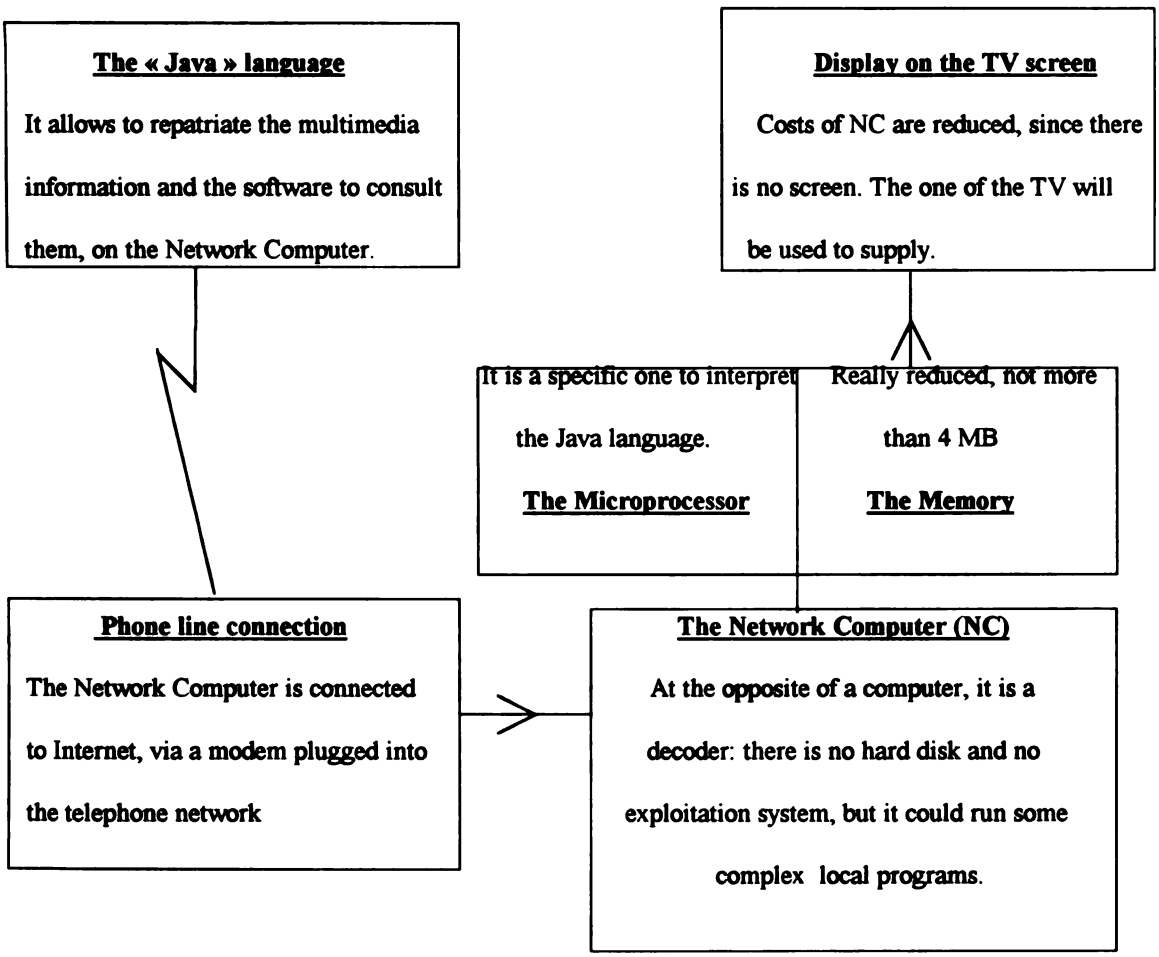

Figure 10 The Network Computer (principle)

Chapter 5

ANALYSIS AND DISCUSSION

The previous chapter allows us to draw some conclusions about the main research questions of this case study, linked to the relevant literature described earlier.

In general, service providers have a good perception of Minitel. Their evaluation of the pros and cons of the Internet versus Minitel make them open to trying the Internet. They are aware of the advantages French providers have over countries, since they benefit from their long experience on Minitel.

However, interviewees mentioned some major handicaps to the development of Internet have been raised through their answers. These include the present lack of income for providers, and the low penetration of PC within French population and the problem of the terminal itself. One of the key factors for the success of Minitel was the distribution of a free terminal to French households and almost all the interviewed managers mentioned this. Also Rogers (1995 p 330) analyzed it as one of the key successes, since this strategy allowed France Telecom to reach quickly the "critical mass" needed to boost the innovation into

the rest of the population. Service providers often hesitate since they know that the personal computer penetration in French households is small, and thus they are likely to reduce their consumers market if they join the early adopters. From the user point of view, adopting Internet is at first, more or less a problem of investment, as buying a computer and a modem are already expensive equipment, and hence not equitably distributed.

Internet can be seen as the first step in building the European Information Superhighways often called either a fantasy, or the single most reality to evolve for societies in the near future. In that case, why can't we apply the "good recipe" that worked so well, fifteen years ago? The distribution of a free basic Minitel and Internet access terminal, would help launch the Internet in households, while preserving Minitel for a while, since we have seen the rather different systems are likely complements rather than competitors. The problem, then, could be solved easily if the French government thinks that the development of Internet is a key factor in the success of the development of a new kind of business, via computer networks, and that could impact positively the French economy. Unfortunately, what was possible 15 years ago is no more available today since the context has changed a great deal.

5.1 What is at stake for France ?

Since the beginning of the 1980s, the incredibly high development of Internet has established this system as an essential communication tool for both research and the industrial domain. The evolution and extension of services now available on the Net have put this phenomenon into the heart of the debate on the Information Superhighways. In a single network, Internet groups, the worlds of computing (terminal),multimedia (services, audio, video), and telecommunications (networks technologies) are evident, and thus, Internet could be the rough draft of the future information superhighways.

In France, in February 1994, the prime Minister, Edouard Balladur, asked Gérard Thery, the former general Director of Telecommunications, to write up his thoughts in a report about the Information Superhighways. G.Thery, who headed the launching of Minitel, approved a massive investment in the infrastructures to build these superhighways, as soon as possible. This was the beginning of a debate in France about the future communication infrastructures that were soon going to be one of the major projects to be realized at the end of this century.

Thery's report called for a double objective: all citizens should be linked to information superhighways by the year 2015, and the existing universal service on basic telephony should be extended to include access to information superhighways. The recommended actions were: a building optical fibers as quickly as possible, and platforms to experiment with services, markets, promotion

and development of ATM (Asynchronous Transfer Mode). At the same time, another report regarding on-line services was requested of Thierry Breton, the Director of the Strategy of BULL , by the Minister of the Development for the Territory, Charles Pasqua. The report was published in December 1994, under the title "The on-line services in France: which markets for the Information Superhighways ?" (Les téléservices en France. Quels marchés pour les Autoroutes de l'Information ?). It described which kinds of applications and contents would be likely to travel on the high data speed transmission networks. The two reports didn't agree on the kind of infrastructures, since the report of G.Thery advocated the massive development of optical fiber.

Currently it is obvious that information is increasing in developed countries. Its place is considered more than ever before, and it has become valuable, since it is now the driver and the major tool of the economic strategies, in the post-industrialized societies. The profusion of information is now one of the major elements that impact the economies of countries. This created the emergence and the development of a new market, that needed more and more performant and sophisticated technologies to hold it. Therefore, more than the evaluation of the welfare of Minitel today, a bigger challenge seems to be at stake, with the arrival of Internet in France. Since many economies are in a depressed stage, taking the opportunity for a revival in the economic development mustn't be missed. It is frequently said the development of the superhighway technologies can promise

many new and diverse opportunities, and hence it is no more a question for France to know if it is the time "to go for it", but to set out to find a way to realize this huge project (Le Grand Projet in French). Indeed, the idea came first from industrial reorganization, but now it seems to promise a bigger project for a new style of society: However, many writings and hopes about the benefits of new technologies had often been exaggerated. Previous experiences (for instance the Cable in France) must lead to a moderate attitude, mainly based on the reality of what has been accomplished, regarding the capability of technology (Mody, Bauer, Straubhaar 1995 p XVII). Technological solutions are not the total solution. Many other aspects have to be considered to avoid too much emphasis on the possible benefits of new technology and the omission of its possible problems and disadvantages. Greater reality and reason have to moderate reports and thoughts about the benefits of developing new telecommunications systems, especially regarding the distribution of benefits within whole populations. Business users will have a better chance of being served first (Mody, Bauer, Straubhaar pXVII). In France, G.Thery reported "... the impact of superhighways on the competition of companies, and the development of the services activities is an incredible opportunity to create jobs. " (Rapport Thery 1994 p 51) and he made the following predictions to support his statement:

Table 21 Employment in France in the sector of services. Predictions

(Source: Report of G.Thery 1994 p55)

EMPLOYMENT	1993	2005
Low hypothesis	65 000	170 000
High hypothesis	65 000	370 000

In the chapter developing the link between the Information Society and the employment, Le Livre Blanc de la Commission Europeenne (the White Book of the European Community) stresses an optimistic view : " ....it (The Information Society) could be an upheaval, but it could be a real potential in terms of job creation " (Documentation Française Regards sur l'actualité January 1996 p46).

The idealistic rhetoric of G.Thery in France, is echoed by Vice President Al Gore (1994):

"The US has a dream for a different kind of superhighway- an information superhighway that can save lives, create jobs and give every American, young and old, the chance for the best education available to anyone, anywhere" .

However, not everybody agrees on such miraculous impacts of new technologies to solve the problems of our societies today (mainly unemployment and inequalities of development among countries). Other less optimistic people put

into question the opportunities of creating employment and increasing the welfare of the population through the implementation of more advanced technologies. New technologies restructure production locations and processes and lead to savings in labor, time and costs. That's the reason why technologies today are approached and adopted first by the business world to increase the productivity and face global competition (Jeremy Rifkin 1995 p 201) rather than being used as a new tool for fair development for the benefit of the whole community. Worse yet is the advance of technology which can create bad effects when it is used only to increase productivity, because of reduction of jobs, huge lay-off and insecurity for employees. Among other factors, new technologies created a great loss of manufacturing jobs which was not balanced by the creation of jobs in the service sector. The decline of employment in the service sector is noticeable in some countries, as it happened in the manufacturing jobs sector few years ago (Jeremy Rifkin 1995 p 201).

Currently, as in some other previous technological revolutions, this " revolution of Information" concerns all sectors of society simultaneously. All sectors and their companies are affected by these potential changes, and at the same time, are supposed to change the social scenery, and thus, a new manner to run business will appear. In fact, all the economic activities will need reorganization around a source of information, and new activities are going to replace the traditional jobs of production of an industrial society. Since the cycle

of life of products and concepts gets shorter and shorter, greater a current need for repeated innovations is necessary to the search for accurate and rapid information. Thus, the advent of information in the center of business, will modify the structures of the economical system themselves. The challenge is to predict this restructuring and how equitably it will be distributed.

5.2 The contextual change

Among the external factors which were reported by the service providers during the interviews, much importance was given to the change of telecommunication regulation in Europe and the introduction of competition in the French market. This will impact on the attitude of the French providers. Some managers in service provider firms have optimist expectations for the impact of open competition. Other are more reserved and prefer to wait for the new design of the telecommunication market over time.

Different models have been presented in Chapter 3, to describe the impact of the contextual change on the development of telecommunications . The more optimistic perception would lead us to think that the Information Superhighways concept is from now on the new promising "Eldorado" for a new decentralized government, more jobs, better competition efficiency, and welfare and equality of opportunities among people. Some people even see in them a new opportunity for countries, desperately searching for a way to stimulate their depressed economies.

Among them is G. Thery, confident in the future, wrote (Rapport Thery 1994 p 41) " ...there is always the same skepticism, each time the building of innovative infrastructures are likely to offer new services ". Then, he concluded: "Information Superhighways are not technological fantasy. They answer to concrete needs, by the implementation of new technologies. "

The "Big Project" of developing information superhighways (and implicitly Internet) takes place today in a French context which is in flux. In particular, it occurs at a time of change of the communications regulatory system, since the European Commission approved the Bangemann Report (Europe and the Society of the planetary Information June 1994) that proposed the complete liberalization of the communications regulation in Europe (added with Ten initiatives to build the Information Society) . Opening the national boundaries to foreign competitors and privatization of most telecommunications providers changed suddenly the game among communications players. Some decision makers see with satisfaction, the end of an over-strict regulation frame and think this deregulation wave is going to reduce telecommunications prices, and then will increase the consumption of communications and services. However, these assumptions are based only on the idealist model where the end of monopolistic power is supposed to boost the development of telecommunication market under the forces of a perfect competitive market. France is typically the example "...of a rigid, bureaucratized behemoth while showing how national determination and a monopoly position can

contribute to a successful modernization and expansion of a poor telecommunications infrastructures" (Bauer 1995 p 278). Those assumptions are also based on foreign experiences carried out in other countries, but are omitted to consider the differences of the contexts.

This regulatory change leads also to economic repercussions. The French scene has changed since the boundaries melted between telecommunications, video, and computing. This has created a unique sector of Multimedia, where Telecommunications providers have extended their activities, developed skills in previously unknown fields. At the same time they enlarged their activities, as well as increased and faced new national or international competitors, where the computing companies are also fearsome ones.

Governments' power to decide for or against financial investments or policies to launch a Big Project, have been affected by the changes in the context (end of monopolies, European policies, economical crisis, budgetary restrictions, globalization of markets). Involvement and relationship between private and public sectors have moved towards a different equilibrium. The decision making of the State has decreased with the move of a national activity to a global one. National decisions only are no more appropriate for the country, and a smaller part is given to the state's involvement. When supporting the Minitel innovation, the DGT (General Telecommunications Directorate / later France Telecom) has had the responsibility, and the strength, to provide the technical innovation knowledge (in

its efficient research centers -CNET, CCETT), the budgets, and has gained the political support of the government since Telecommunications were -and are always- a State monopoly. The choices the DGT made, had a great impact on the success of the Minitel innovation. The DGT was able to finance the research and the development of the system, paid for the terminals and cross subsidized with the other outcomes, the use of the phone directory (main service among others). However, in 1989, there was a controversial report made by the French Government Accounting Department (Cour des Comptes) regarding the true costs and benefits of Minitel, saying the profitability of Minitel remained an illusion, where the numerous financial participation of the State were not taken into account in the final results. Today it seems clear that Minitel could not have been a success without the intervention of the State.

The policy chosen to launch Minitel was efficient in a previous context. Now, the new challenge of the development of information superhighway takes place in a new framework andthe way to transform it into a success has to consider the present features as a force acting within the telecommunication market. The State is still directly concerned by the revolution of information, and as in all previous missions, it retains a responsibility in the modernization of the French country. However, as it is studied by Elie.Cohen Le Colbertisme High-tech (1) (Pluriel Enquête 1992), the State would like to reduce its traditional intervention in the development of big projects, exactly at the same time when the benefit of

such a participation is again emphasized in some other countries. Indeed, the goals pursued by both the private and public sectors are different and the results of their participation on the development of the country can be different too. "In imperfect and especially monopolistic markets, public enterprises tend to perform better with respect to allocative efficiency whereas private enterprises tend to realize a higher degree of efficiency" (Bauer 1995 p 272). The public sector might have the willingness and the means to achieve a national development, when the performances of the private sector might be measured only according the efficiency of their business and competitive advantages.

According to Elie Cohen, the end of the State intervention, that has a major impact on the launch of innovative technologies, would end at the same time when other countries are discovering the benefits of such public financing for the success of national projects (TGV High Speed Train, Airbus, PWR Power Water Reactor). The discussion on how to finance national projects, and more particularly innovations is always ideological: the virtues of the minimal State intervention versus the mixed economy. Today, the development of Internet is under the

(1) Colbertisme high-tech - the word comes from Colbert, French ministry in the reign of Louis the 14th - is " a mix of public initiative, for the research, with the financing of the public order for the companies and industries attributes of sovereignty... " (1992 p 14). It describes a specific kind of State intervention in the high technology sectors. This system appeared after WWII, when the State acted as a volunteer actor for the country modernization, and compensated the lack of private initiative with a cycle of public research-production-order (1992 p16).

responsibility of both private and public involvement and investment to build new infrastructures and offer new products, while the Minitel experiment was almost completely under State control. One major question is whether the private sector has sufficient resources to support the development of such an innovation, and compensate the reduction of the involvement of the State. More research, more investments in innovative activities imply also more financial risks for companies, and it is not certain some of them can afford this choice in this very difficult economic period in France currently.

Since the necessity to open up to competition in Europe on the 1st of January 1998, the European telecommunications providers appear to adopt a careful attitude. Due to the changes in regulation, providers' prices and margins would be highly impacted by a competitive market. So, they are wary about investments in big projects. Everybody remembers the unsuccessful experience of The Cable in France: its rhetoric and idealistic promises were estimated to be similar to those heard today about the Internet.

G.Thery estimated that it would take approximately 150 to 200 billions of francs to connect households to the main trunks, via optical fiber. Knowing that France Telecom spends 6 billion each year, to maintain the copper network, the question is: who is going to pay if the fiber is the chosen medium? G.Thery gave the following answer : " France Telecom must engage itself in the building of

information superhighways, that is one of the essential conditions to realize the priority goals that answer to the ambitions of the country" (Rapport Thery 1994).

The debate that followed G.Thery's report, focused on its optimistic views, specifically in light of the future competitive context in 1998. However, the French government issued a request for proposals of experiments in new services, based on its recommendations and proposals for actions. The government invited the initiatives of both public and private sectors, (635 projects were submitted) and currently, 170 projects have received under the label of the CIAI (Interministry Committee for the Information Superhighways) and 194 are being studied.

If the development of the information superhighways is made on the basis of existing infrastructures, and not on the building of a new optical fiber network, these investments may be less important than were planned before, especially with the rather " spontaneous " growth of Internet, that seems to be the starting point for these highways. Other major issues become universal access to the networks, and policies that could favor the development of French content and services, are being adapted to the new international market.

5.3 The real debate

More than the arrival of Internet in France, the real debate is how to go forward with the Information superhighways society. G.Thery stressed the importance of the fiber optic development as this would be a technological break,

in the existing networks, but would need huge investment. Moreover, it could slow down the ability of individuals to use this new network, since most of them still use their Minitel and are not yet ready to invest in computers. Also, that would have a negative impact on the Telematics market which would die slowly, and some time after, it would be necessary to recreate a new on-line services market for Internet. During this period, the services providers wouldn't be financially able to wait, and that would open the services market to foreign competitors later.

Another vision has been developed (AFTEL Internet, les enjeux pour la France p104) that recommends the solution of "continuity" as a solution . Taking advantage of the infrastructures, terminals, users and services providers that already exist would allow a transitional period to the information superhighways. Instead of the concentration of all the resources on a future network, it could be better to increase the performances of the existing technologies (increase the rates of transmission, intelligent agents in the terminals, favor the penetration of modems, support the development of new services). The Minitel could take advantage of this upgrading if one decides to make it following this technical evolution . It could be integrated in the future services networks and keep its specificity of uses and content along side of Internet, without cannibalization between both systems.

The building of the infrastructures of information superhighways is only a part of the problem. The other is the content, and that says the services. As former

Directorate of France Telecom (Marcel Roulet), declared " one mustn't move on bicycles on the information superhighways! ". That means that on performant networks, one must provide valuable and rich content to influence and boost the demands of consumers. Adopting this strategy, France already receives numerous advantages compared to other countries, among them, the existence of a telematics market and culture within the general population.

5.4 What would be the risks in missing this revolution ?

To ignore the Internet is not an option for any country. It could have a disastrous impact on the economy and the culture of a country such as France as it would be isolated from the major economical stakes, such as international trade and partnerships. The strategy of the larger telecommunications providers shows that an international presence is now obligatory (joint ventures, licensing, buying small operators) to be able to offer services to customers globally. This strategy has been amplified also with the trend of privatization in the telecommunications sector. Firms would lose a great competitive advantage and wouldn't be known internationally. Thus, they wouldn't stay competitive enough since the lack of information and communication would impact their final costs greatly. Therefore, it would be tremendously difficult to avoid the profusion of more competitive foreign products and services on the national market.

At the national level, the chance to create jobs and increase the quality of conditions in the work places are opportunities that managers can't afford to miss. Also this would also impact the culture of the people since it would let France have a place in the American culture which already dominates the Internet, today. Furthermore, it could be the opportunity to reinforce the cultural and economic links with the French-speaking countries and extend them to other boundaries outside of France. Also the American origin of Internet could be a disadvantage for the countries that do not have English as the native language. Some people see it as a means for the American society to reinforce their economic supremacy, when others argue the opposite that France must not be so suspicious since other countries are also responsible because they don't make enough effort to promote their cultural specificity through a wealth of information and services. For example, 61% of the nets connected, 66.6% of the domains and 66% of the connected computers are American. Only 3.5% of the networks, 1.4% of the domains, 1% of the Websites and 1.7% of the connected computers are French. Most of the upgrades that make the Internet evolution are made in U.S (normalization of cryptography, of means of payment, creation of Netsurfer software...). The risk of seeing the predominance of the US on the Internet does exist, but it depends also on the attitudes of other countries towards their own involvement.

Finally, one must stress the fact that the country (or the global trust) has to have the better control and the expertise of the transmission infrastructures and the information that are diffused on them. These factors will be a great asset and a powerful position in the economic and cultural domains. Overall, Internet is the best example which shows that the control of information is the fusion between technology and the contents.

CONCLUSION

" Minitel is not dead " claimed the managers and that appears to be the ultimate conclusion of this inquiry. But for how long will Minitel be alive? This remains the most important question and many factors could influence the answer. The real competition between Internet and Minitel hasn't begun yet. Today, they are complements rather than competitors, since the uses are significantly distinct in France. Service providers, even if they adopt Internet, keep a secure attitude and manage both systems at the same time.

This case study indicates Minitel has many assets that could influence its future: it is widely diffused, it is well integrated within French population and it is recognized as useful by every user. In comparison with Internet, Minitel remains the " winner " on many points (popularity, good penetration in the French households, easiness to use and cheap price for useful information).

However, Internet is increasing its value and efficiency day after day. Minitel will have to keep up with its new rival, at first from a technical point of view. Some improvements have been made (p 84) and others are possible, e.g the increase of the speed, the ability to make payments with credit cards. These are the

major points that have to be promoted within the general public. Nowadays, the adoption of TVR (high speed) or Magis and Magis Club is a very small segment of Minitels distributed in the households. These advance features must be available for everybody in a short time, to reinforce the position of Minitel. Providers have to be motivated to go on the 3623 (high speed) to provide high speed servers, since the change of code is made, without additional fees by the operator.

Some improvements can be made also on the content of services. Many service providers reported they continued to increase and improve the content of their offering, since they felt they had not yet made the best of what can be done on Minitel yet. In most cases, the higher quality and efficiency has not been completed. More often, it was unintentional, but sometimes it was the way chosen by providers to make more money, since the users have to spend long time on the server to find information. The cost of services based on the duration of the communication, provoked perverse effects and some service providers transformed the services they provided to their customers in a profits center. Now, it is difficult for them to change the commercial approach they have about on-line services, since the concept of free information is available on the new communication networks. In this, Internet is a good pressure device on such providers to return to a more reasonable attitude.

This puts into question the delicate problem of tariffs on Minitel. It appears that the way to charge customers has to be more flexible than the existing levels

which harm the high added-value service providers, and don't promote the use of such kinds of services within the population. The costs of Minitel services have to be more homogeneous and a range of different choices to charge the user, must be offered to the providers (subscription, pay per consultation and so forth). The competition with Internet will play on this point and the user will not be ready for some time to pay for the duration, but for the service provided. Since the local calls are not so cheap in France, people are not yet able to see the difference with Internet, since they pay also for the time spent on the Net, in addition to the subscription and the services they buy . But, one can assume this situation could change with open competition in 1998.

The new definition of cost could be the opportunity for a new definition of the notions of " basic service" and "service to the public" . The extension of a broader range of services, and their availability on the cheaper level of Minitel could also reinforce its place in the households, since it would answer to well identified needs of users. As one manager reported : "Minitel could have a second life, since it is a piece of the French culture". However, the operator and the providers have to find common guide lines to realize decrease costs. Companies have to agree on a small reduction in their incomes, in exchange for a possible longer duration of their servers.

Our conclusion is Internet would have problems in entering households, if a simple terminal is not available for a cheap price. The move that Minitel has to

achieve could lead it to migrate to this type of terminal which could integrate the Internet access and keep the concept of the Teletel and its services, available on a newly designed and evolved device. The traditional economical model claims that the pressure of user demand is major, but in France Minitel and its future seem to be mainly in the hands of the French operator. If it is its long term will, France Telecom can manage to provide a continuous evolving Teletel offer that will not let any hole or opportunity to be filled up with a competitive product. The operator must count on different capitals that make the advantageous difference with the other countries. First, Minitel can enter many households, and its place in it is not yet put into question. Second, French users developed the "Teletel reflex" and included the expenses for on-line services in their budget. No other telecommunications provider has those major assets today. That could help France Telecom to lead a successful strategy on both Internet and Minitel, since it has to deal with one system and its competitor at the same time.

The main worry of service providers I met, is to know what is the motivation and the existing behavior of the French provider of Minitel. They would be ready to follow the new operator's orientations, but they said during the two last years, the provider's lack of clear politic and homogeneous decisions led them to think the operator wasn't motivated and confident in the national system anymore, since it was overwhelmed by the arrival of Internet. Some providers think that it is too late now to adopt a new strategy for Minitel, since France

Telecom let many crucial decisions slip by and didn't react at the right time. They think mainly the American technology will manage the Net and its economy. But they are not the majority. The others wait since they believe the French operator is the only one able to decide the future of Minitel. If no more trust in the Teletel market is evident or apparent, the service providers will not feed the servers with valuable contents or simply will quit. However, if enough dynamism and confidence in Minitel is evident, providers don't see any contradiction in providing services designed for several information channels or different customer needs.

France is no longer in the former context of Colbertisme high tech with the entire involvement of the State to realize les Grands Projets nationaux (Big national Projects). Now, the State is directly concerned by the Internet technology since it is a challenge, with great economic consequences. Furthermore, the role of the State is to define a framework for the marketplace and its actors, and help create a better national efficiency though regulations and occasional interventions. But the economic intervention of the government has decreased. Currently, greater importance is being given to the private sector to participate in the development of national projects. The French operator is no longer in the previous situation where the State financed the costs of the Minitel launch. Thus, the operator has to define its strategy with consideration of the new context.

Would it be possible to change the old terminal to promote the use of the new advanced functions and increase the services consumption of users? Would it

be possible to provide the Djinn box that transforms the old terminal in an efficient 9600 bits/sec device, to all the French holders of basic Minitel? Does the provider have to increase the development of high speed networks to carry more efficiently the information to the households, does it have to be frightened into preparing a better ground for its future competitors? But perhaps, all these improvements will not be sufficient enough to give a second life to Minitel. Nobody can draw the design of the telecommunications market, in France tomorrow. Despite all the laudable attempts of both the operator and the providers, perhaps the pressure and competitive offers of possible new competitors will be able to destroy in a few months the capital of 15 years of telematics, with irresistible attractive communication packages. All these assumptions can be made, because the instability and unpredictability of the different contexts in France.

However, as one manager questioned, what would be the expense for France Telecom to change the "old" Minitel if it assures it will last for many years, with profitable incomes, for the provider also? France Telecom has today the best position to assure the evolution from its national norm (that condemns the present Minitel in a long-term) to an open offer (as it made with the Minitel micro, for instance). The French provider could consider the opportunity of being in six million households, with a satisfying concept and a positive image, and promote its own Internet access providing the offer for Internet to those same customers, with the development of platforms to access both systems. From a pure business

point of view, the most profitable place in the telecommunications market, is certainly for the one who manages the end of the communication lines and deals with the final consumers, since most of the profit is made with the added value of final services. The operator could manage to keep the advantage of the place it has already within the French population, to upgrade its terminals. Thus, it could have more chances to keep both the customers and communications of the future open networks. Technically speaking, it wouldn't be much more difficult to transform the existing device in a terminal able to communicate on open networks, via modems. This could be an answer to provide a simple Internet access terminal to the French people. The problem remains certainly on the politic and strategy France Telecom chooses and the investments it would require to realize such a move.

Finally, the survival of Minitel greatly depends on what the other systems will be able to provide. The economical success and diffusion of the Internet depends partly from the generalization of high speed data transmission lines that have to be developed and promoted in France. Also it depends on the attitude of the private computing companies if they decide to provide cheap modems, computers or Netcomputers to the general population. The impact of competition, or simply the strategy of the French operator to provide transmission networks at a cheap price, will also influence the service providers who will be able to offer on-line services at cheaper prices to the consumers.

A more reasonable view of the near future is to contemplate and promote the use of bridges between different systems and offer mixed services on both Internet and Minitel media. One day will it (or will it not) happen where everything will be " internetized" ?

When a universal terminal is raised, the Minitel as a device, will more likely disappear, but that doesn't mean the content is going to disappear with it. At this precise time, the contents of French Telematic services will have to be ready to be integrated in a more open network, on Internet if it is the standard. Thus, only the French concept of " the Minitel experience" would survive since the terminal would disappear , but from my point of view, it will take a long time. No experience from the past has shown a media that disappeared when a new one arrived on the market. This rule, taught by the reality, could be the chance for Minitel to stay on for generations in our households, along side of the other communication devices.

It seems appropriate to close this discussion with these two quotations:
First, a short comparison, specific to the French culture: In 1981, when the French Telediffusion stopped sending black and white TV pictures, there were still 40 000 black and white TV sets in the French households....and color TV was already 15 years old !

Second, an extract of FORTUNE (1933), Charles Stuart A vision in Kilowatts from The Myths of the electronic Revolution (American Scholar, vol.39, n°2, 1970, p 234): " Electricity can provide us a universal high standard of living, new entertaining jobs, leisure, and the end of the painful jobs, traffic jams, noise, smoke and garbage".

APPENDICES

APPENDIX 1

APPENDIX 1

THREE MODES TO ACCESS INTERNET IN FRANCE:

- By dialing 36 01 13 13, the user is connected to an access provider, at a cost of a local call (between 0.08 and 0.25 Francs per minute / 1.6 and 5 cents US). The access provider is charged of the cost of the rest of the call (difference of what would have been normally charged in case of a regular phone call).

- By dialing 36 01 14 14, the user pays the complete cost of the call to France Telecom (at a fixed price of 0.37 Francs / 7.5 cents US). The user only pays the subscription to his access provider.

- By dialing 36 01 15 15, is the same than using the telematic Kiosque. The user is connected for 1.29 Francs / 26 cents US per minute. In that case, France Telecom gives back a share to the access provider, but this one doesn't charge any subscription to its customers.

The billing of communication is made according the tariffs of Transpac, which takes into account the length of the call but not the distance.

APPENDIX 2

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PRICES OF THE FRANCE TELECOM INTERNET ACCESS (April 1996):

Subscription choice	Subscription fees	Monthly subscription	Number of hours included in the subscription	Cost of an additional hour
1	190 Francs 38 $	55 Francs 11 $	3	19 Francs 3.8$
2	190 Francs 38 $	110 Francs 22 $	15	19 Francs 3.8 $

APPENDIX 3

APPENDIX 3

PRICES OF THE LOCAL CALL PHONE IN FRANCE:

Tariff RED	1 telephone unit for 3 minutes	Around 0.25 Francs (5cents US) per minute
Tariff WHITE	1 telephone unit for 4,30 minutes	Around 0.16 Francs (3.2 cents US) per minute
Tariff BLUE	1 telephone unit for 6 minutes	Around 0.12 Francs (2.4 cents US) per minute
Tariff BLUE NIGHT	1 telephone unit for 9 minutes	Around 0.08 Francs (1.6 cents US) per minute

France Telecom telephone tariffs (January 1996)

(Tax : 20.6% is included)

APPENDIX 4

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THE COMPANIES:

The following list gives the description and the classification of the firms according their kind of activities, the sector to whom they belong and the kind of customer populations with which they deal.

List of the French firms:

BNP - Banque Nationale de Paris (Bank)
Nouvelles Frontieres (Travel agency)
Caisse d'Epargne (Savings, Bank)
RATP- Regie Transports Autonome Parisien (Metro, Public Transportation)
PMU - Pari Mutuel Urbain (State wager game, horse races)
Le Monde (Newspaper)
Assurance Maladie (State Organization, Health insurance)
Le Nouvel Observateur (Newspapers)
Radio France (Radio channels)
La Poste (Administration, French post office)
Meteo France (State meteorology agency)
Investir (Financial information journal)
Desert (Travel agency)
Le Figaro (Newspapers)
Le Journal des Finances (Financial information journal)
Home Shopping (TV shopping)
Le Particulier (Laws information journal)
SNCF -Societe Nationale Chemins de Fer (State trains company)
Victoire Telematique (Stock exchanges, finance, investments information)
Cadre Emploi (Employment for managers)
Air France (Air planes company)
Education Nationale (Ministry of Education)
Ministere de la Culture (Ministry of Culture)
Les Echos (Specific information newspapers, reports)
Vendome Immobilier (Database of renting announcements)
France Loisirs (Books mail ordering)
CCI- Chambre de Commerce et d'Industrie (Industries and Commerce bureau)

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Firms activities:

- Banks	BNP
	Caisse d'Epargne
	La Poste
- Travels	Nouvelles Frontieres
	Desert
- Transportation	RATP
	SNCF
	Air France
- Newspapers	Le Monde
	Le Nouvel Observateur
	Le Figaro
	Le Particulier
- Journals	Le Journal des Finances
	Les Echos
	Investir
- Mail ordering	France Loisirs
	Home Shopping
- Radio	Radio France
- Meteorology	Meteo France
- Health	Assurance Maladie
- Services	Victoire Telematique (finance, stock exchange information)
	Cadre Emploi (Employment)
	Vendome Immobilier (renting announcements)
	Ministere de la Culture (cultural information)
	Education Nationale (information on scholar education)
	CCI (information for professionals)
- Games	PMU

Firms sector:

Private sector

(16)	Nouvelles Frontieres
	Le Monde
	Caisse d'Epargne
	Le Nouvel Observateur
	Investir
	Banque Nationale de Paris
	Desert

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Le Figaro
Le Journal des Finances
Home Shopping
Le Particulier
Victoire Telematique
Cadre Emploi
Les Echos
Vendome Immobilier
France Loisirs

Public sector

(11) RATP
PMU
Assurance Maladie
Radio France
La Poste
Meteo France
Education Nationale
Ministere de la Culture
CCI

Corporate customers:

General Public

(20) BNP
Nouvelles Frontieres
Caisse d'Epargne
RATP
PMU
Le Monde
Assurance Maladie (+ professionals)
Le Nouvel Observateur
Radio France
La Poste
Meteo France (+ professionals)
Desert
Le Figaro
Home Shopping
SNCF
Air France
Education Nationale (+ professionals)

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	Desert
	Le Figaro
	Home Shopping
	SNCF
	Air France
	Education Nationale (+ internal customers)
	Ministere de la Culture
	Vendome Immobilier (+ professionals)
	France Loisirs
Segments	
(7)	Investir
	Le Journal des Finances
	Le Particulier
	Victoire Telematique
	Cadre Emploi
	Les Echos
	CCI

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REPORT OF THE VISITS IN THE FRENCH COMPANIES:

Perception

The managers reported the importance of interest and beliefs, when managing or implementing systems. The frequency of answers is slightly higher in the private sector, especially regarding the motivations to go on the Net. Also, managers reported points that characterized their global attitude regarding the arrival of Internet, and the ideas they had regarding possible future evolution for both systems. The behavior people express about an innovation, can influence the decisions they make to adopt it or not. Since they can have a preconceived opinion about the topic or object and the following process of knowledge, pros and cons evaluations can be biased by this opinion a priori . As we have seen before, managers in this case study, have great expertise in technical and network knowledge, and as a result, their objective opinion, in terms of evaluation of the Internet system and performances, can be assumed.

However, it is difficult to measure the impact of their personal beliefs on the decisions they made. For instance, the way they imagine the future success of Internet -or not-, or the future of Minitel, is influenced by their past experiences, the knowledge of their specific customers, and the restrictions due to economic

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pressures. Their opinion is impacted also by their experiences in their private lives and the attitudes of relatives. One manager reported :

> " ....I can imagine some obvious uses and advantages of Internet in our life. However, I can't imagine my wife going on the Web, dealing with our computer with great difficulty, ordering the Winter clothes for the family, on the Web site of her preferred store. She likes to leaf through the big traditional catalogue, look at the pictures, compare, and show some models to the children. No, she will continue to order by mail ! ".

This manager is influenced similarly in his decision, since he can imagine his own customers within general public as having the same attitude that his wife does. Since the success of Internet depends first, on the adoption by companies, and second, also on the rate of adoption by users, more doubt about a rapid and generalized success within the general public is evident. One manager reported:

> " We have to be careful about socio-cultural factors which don't allow to duplicate a model from one country to another. "

Companies which deal with specific segments can better identify their customers, and are more likely to make assumptions about their possible or present reactions, according to their socio-cultural characteristics. Those people who are often already equipped with computers, belong to the upper social level and are consumers of services with high added-values (finance, management of shares account...). As Rogers described, they are more likely to be the earlier adopters of

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the Internet, and sometimes they represent the first pressure for the company to move on the Web.

- **Continue to believe in Minitel**

Managers reported their perception of the existing system, Minitel. All but two, said they continued to believe and manage their present Minitel services, even if they were on the Internet also. They believe the Minitel is able to survive if the service providers prove dynamic enough to continue to provide good quality services on it. Managers think they are partly responsible for the health of Minitel with the content they offer. This is why most of them continue to invest in servers development and increase their quality. The others, if they don't invest anymore in the system, manage theirs servers with the regular maintenance needed by any system. Some firms don't hesitate to begin new strategies for Minitel by offering innovative concepts of servers and services, with more involvement of the telematics and finance departments. None of them reported abandoning Minitel or believed that Minitel would be condemned in the short term.

Managers reported two main opinions about the future of Minitel. The ones mainly in the private sector, think Minitel will survive several years and then, if it is still valuable, it will continue to provide services up to the point the system

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when it will be replaced by Internet. The second part, mainly in the public sector or dealing with customers of general public, are less convinced Minitel is going to disappear. They think it can stay a tool for basic needs of the population and think Internet is too sophisticated or non-adapted for this kind of services (for instance, the request for transportation schedules, or phone numbers is more efficient in time and less expensive on the Minitel than on the Internet). Those managers often discussed the complementary of both systems rather than a cannibalization of one by the other.

- Result: A great majority of managers shared this perception. Among the subset of adopters of Internet , all except two, confirmed this perception too.

- **Minitel will not be dead for a while**

The concept is different than the previous one. All managers noticed and considered the death of Minitel as a distant event but their attitude in terms of investments is different. The ones who continue to believe in Minitel are more convinced that the Minitel is not going to die for some time yet. However, others notice it is not dead yet, but can imagine a replacement or the transfer of Minitel in the coming years. Thus, their attitude is different right now, as they think about the

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way to manage a transfer (or have already begun to do it partially) . This perception is stronger in the public than in the private sector and agrees with the answers of most public sector managers who think Minitel is the tool to reach the majority of the population. But actually, they don't see how they can retain the notion of general information and service to the public, via Internet, with a system whose diffusion would be restricted to people equipped with computers. Currently, Minitel is a tool for the general French population to communicate with main public organizations. The idea of public service is also included in the services public sector provides, and that could explain why this specific point is less often evoked by private sector managers.

Whatever the nuances they reported about the death of Minitel, all the managers had have the same reaction : Minitel can't disappear because it is too much strongly integrated in the people's lives and providers' activities. Therefore, concerning this common reaction, the only difference between managers' answers is about the time Minitel will remain viable.

The result: 80 % of the interviewees agreed on this perception. Additionally, all the managers who already adopted Internet, confirmed this perception.

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The way firms imagine the future can have an impact on the decision they make today. All of them are worried about the future of Minitel and Internet, and mainly the private sector is worried about the way to go from one to another , and how much time it will take. All feel that the arrival of Internet is more than the arrival of a new technology. One manager reported :

> "France must move since now. Internet is more than on-line services. In the US, a huge part of the economy took a new reorientation with this new media in the bank, travel, telecommuting, transportation..."

Even with a careful attitude, already half of them have adopted Internet, and managers report they won't really have a choice whether to or not to follow the trend in the future. Most of them are convinced they will have to move their servers one day since Internet represents huge economic stakes they can't afford to ignore. The difference is in the attitude they adopted. When some firms hurried to create a Web page in order to be " the first ", others preferred to wait, look at the evolution of Internet, and learn from the experience of others before going on the Web. One manager said :

> " If I go on the Net now, I shall do like competitors who provide only a home page and nothing more. For me, there is no interest to do that. No, I prefer to be prepared, to learn from the other what are the mistakes not to do and look at the reactions of consumers. When I go on the Net, it will be a complete offer with a broad range of value-added and high quality services."

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Managers have different thoughts about the possible scenarios that could happen. A few of them feel things are going to change in the telematics sector, but don't know how. Again, the private sector has a higher frequency of answers. My assumption on this point would be the impact of a competitive environment, and the pressure thereof which could be the reason why private managers include more predictions in their reflections, since they have to be reactive enough to the change of environment and make quick decisions. The following points describe the thoughts they have about the future situation.

- **The change will be a transfer from Minitel to Internet**

As we have seen previously, none of the managers think about a sudden death for Minitel. They imagine a period where the decrease of one system, Minitel, will benefit to the development of the other, Internet, and the contents will be transferred from one to the other. Managers who deal with specific consumers, know they can move from Minitel to Internet since their users are already equipped and are more likely to subscribe (or already have) to the Internet. However, they provide the same offer duplicated on both systems, since they report no handicaps, costs or disadvantages are present while on several media at

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the same time. Managers of service public or those who provide basic needs to the general French population think they have to adapt their choices to their consumers' attitude. Thus, they make fewer assumptions on a rapid adoption of computers and Internet by users and then, they are more careful about their choices to make the transition between both systems. Overall, they are more careful when speaking about this transfer since they don't know what the reaction of the public will be.

The result: only 2/3 of the Internet adopters confirmed this assumption. The others reported they deal with an activity that doesn't fit with Internet characteristics (mainly the problems of payment) and then, they don't know if they will be able to move. Others said they have a Web page to follow the trend, but they are not really convinced of a global move from Minitel to Internet. Finally some adopters of Internet didn't tackle this point.

• The transfer from Minitel to Internet will take a very long time

The majority of managers assumed the transfer will be slow. The answer to this assumption does not depend on the public firms deal with, nor on the sectors to which the firm belongs. Both public and private sectors are convinced that the

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move from Minitel to Internet will take time, but that is more often discussed by the managers of the private sector. This reaction is common to the majority of interviewees who estimate around 6 years (mean of answers) the time it will take to transfer the whole content of services from Minitel to Internet (except for those who think that the complete move will not happen as described earlier).

The result: except two managers (one who doesn't believe Minitel will die and the other deals with an activity which can't be transferred on the Net), all the adopters of Internet reported this assumption and confirmed it.

- **Minitel and Internet do not have the same uses**

Finally, some firms thought about a possible coexistence between the systems, since they reported Minitel and Internet do not have the same uses. Then, their behavior leads them to think that both systems could coexist with separate uses for each, depending on their efficiency and costs for specific uses. Their decision is probably impacted by this perception since they are more likely to chose one system according the services they provide, or share their resources and investments between the systems, or differentiate their offer according the specificity of each medium.

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The result: among the early adopters of Internet, almost 2/3 confirmed this perception.

- **Great interest in the Internet is evident**

All the interviewees, except one, reported a major interest in the Internet phenomenon. The degree varies from the involvement (adopters), to a watch of the evolution of the Internet and for one, the ignorance (this manager considers the only pressure for change will come from his customers and currently, they aren't requesting for any move since they are satisfied with Minitel.)

The result: it appears obvious then that all the firms having a Web site, reported a great interest in Internet and also, the whole group, except one, reported the same interest.

- **Confidence in the long term success of Internet and it will become the standard.**

Managers reported their attitudes about the future of Internet and believe it will become the official standard of the information society (Internet is today a standard de facto). Some managers who provided positive answers to this

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assumption, already have a clear view about the design of their offers on it. As one reported:

> " Internet: globalization or re-emergence of individualities ? It will be successful through specific offers and designed services. "

Those who discussed this point shared two opinions : half think Internet will be the only system to provide on-line services in the future and the others confirm it will complement Minitel for a long time. The belief in the success of Internet is stronger in the private sector and the total of the firms who deal with specialized segments of customers reported this conviction.

The result: only 2/3 of the adopters of Internet who answered with this assumption confirmed a strong belief in Internet's success, but all of them thought it will become the future standard. However, all the firms already on the Web, answered either " Internet" or "Internet+Minitel " when they were asked which system they imagine in the future .

None of the non-adopters said Internet will be successful, but 1/3 reported it will be the standard since no other information system appears to be developed sufficiently as a potential competitor of the Internet.

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- **Report of the motivation to be on Internet**

Managers reported why they are (or will be for the forecast sites), on the Internet. Some reported they will be in the ranks of the early adopters to develop a competitive advantage to be on the Net before the others are. Other state they can't afford not to be on the Net; this is partly the case for the firms who deal with the consumers who are early adopters. In that case, the adoption of Internet is an answer to the pressure of demand. Others said they want experience the Net as soon as possible since they strongly believe in its success. Others declare exactly the opposite, since they think it is too early to move as they are more suspicious about the success of Internet.

This behavior appears moderate as one manager reported :

"Going on Internet! for what ? We have first to create the need of Internet. "

However, the managers that gave positive answers, didn't automatically go on the Internet as positive behavior about an innovation does not seem sufficient enough or decisive enough to adopt a new system. Thus, one can assume their behavior might have been balanced with other negative factors

The motivation is stronger within the public sector when it adopted Internet, but the private sector seems to be more motivated by other pressures such as the fear missing a competitive advantage in the context of a more open and strong

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competition. Also it indicated external pressures (competition, trend, fashion) impacted their decisions a great deal.

I noticed that the behavior of people was probably influenced greatly by personal experiences or opportunities provided by the external environment. Some managers accounted how, and under which conditions, their behavior changed this is worth telling. The French Association of Telematics (AFTEL) groups together comprise almost 170 main companies and annual trips are organized for them to visit and learn from other countries about the evolution of communication systems and networks. The last event was in San Jose (Internet World Show April 29th to May 3rd 1996), and the previous one was in United States also. Five of the managers I met, had the opportunity to participate in these travels, and four of them told me about the change it created for them. One of them told:

> " ...after seeing the reality of Internet, nothing is similar with what you thought before. As long as you don't " see ", you can't have enough imagination. My behavior changed since the realities I saw there, provided me the assurance that it won't be different for our country in a few years. "

and another said:

> " ...before, I was suspicious and reserved. Since I came back from the US, my vision has changed completely".

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The result: half of the firms having a Web site, said it was a voluntary approach when the others felt more or less obliged to "follow" because of the trend, or because of the competition.

At the same time it is the description of what can change behavior, and also what Rogers described as the observability of an innovation, that influences the rate of adoption.

- **A careful attitude and a look at the Internet evolution over time**

Apart from a few exceptions, managers said they moderated their enthusiasm and involvement in the Internet using a careful attitude and an in depth study of what was going on in the new sites or the services they provided on the Net. Both private and public sectors stated it was important to adopt a careful attitude, on whatever their choices were whether to create a web site or not, but public sector seems less concerned. Most thought no information was available or trustworthy enough, to make any predictions about the future of Internet. To capitalize on their own opinions, they preferred to pay a greater attention to the evolution going on around them, and what is happening on the new web site they created on the Net, as a first trial.

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The result: All the managers as early adopters of Internet, except four, said they maintained a careful attitude about the evolution and the effects of the adoption of Internet. The few, in both public and private sectors, who denied any careful attitude, are the firms who today offer a complete and rich Web site, because their beliefs were strong enough to think they had made the right choice when getting involved in the Internet experience. All of them had always provided services on Minitel.

- **The adoption of the Internet depends on the effect of the generations**

When managers described the vision they have of the future, they often noticed the evolution of the cultural features of the population. Thus the choice they made or will make to go on the Internet takes into account the changes in the population that will modify the usage of computers and popularize on-line services uses. One manager told me:

> " There is a media for each generation. Mine has the T.V. My grand-parents had the radio. My children will have the computer. But all these media still exist today. None of them has eaten the previous ones and there were never so much writings, books, newspapers than today!"

Since the Internet is going to be introduced progressively in scholarly education, people will include the use of computers and new media in their basic knowledge.

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Then, the adoption of Internet will be easier and for future generations. The public sector or the firms dealing with the general public reported the same feeling as the private sector or specialized markets. Their suspicion about the Internet today because of their customers' characteristics disappear when they speak about the future. They believe that time will be the means to erase differences between different socio-cultural categories of people regarding the use of computers. However, they noticed it will take time before everybody will reach the same level of computing education.

The result: half of the adopters of Internet noticed and agreed on this point in their reflections, and half of the non-adopters did the same.

- **Media provide too much distorted information**

As it is developed in the Chapter 3 -Theory- the perception of Internet would depend partly on the exposure to specialized media and the knowledge people have regarding it.

One must remember these managers are responsible for Telematics and Multimedia departments. Thus their knowledge is greater than the average population and they are the first to be exposed to specialized media information. The proof is the interest they have in new technologies and their evolution

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However, more than half of the managers said they were sensitive to media in the way they found it put too much pressure and often provided distorted information. In that case, the impact of information doesn't appear to be an advantage any longer for launching an innovation._The media did not appear to systematically have a positive effect on the behavior of firms. However, it remains a means to acquire knowledge about innovation and its context, but as one manager reported

> " ...media make too much. How could I trust them, especially when I look at the content of articles. The reporters who write more, are those who know less. Everyday, you can read anything! ".
>
> or : "Media is a small segment that would pretend to be representative of the national level. "
>
> and: " The media does not report the reality. In fact, people don't evolve in their minds. "

The result: half of the managers who adopted Internet reported a negative opinion about the media pressure; half of the non-adopters reported the same.

Pros and cons

Globally, firms of the private sector put more emphasis on the features of Minitel than the public sector did. Since Minitel is above all a source of income for these firms, perhaps the managers put more importance on the performance of the system and the satisfaction of their users. The results indicated that both

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sectors are homogeneous as between them, nothing seems to be different in the evaluation of Minitel and Internet systems between them.

Otherwise, no difference appears between the answers of the two groups of companies dealing with different markets. The influence of the sector or market doesn't seem to impact the kinds of answers managers give on the compatibility, complexity and triability of systems. This seem understandable since those considerations are rather based on the technology and the reality of both systems.

Decisions can occur after a balance between advantages and disadvantages and the managers reported many different points that partially impacted or could impact the decisions they made. These are describe in the following part.

- **Evaluation of Minitel : Minitel is really popular - Satisfaction of the users of Minitel - The Minitel system works well - Minitel has competitive costs (provider- user) - No risk to provide a server on Minitel for providers or for users is evident.**

The main point is a good appreciation of Minitel, and its popularity within the population. The French people have acquired a telematics culture because the operator provided them with a device which has several key- factors to be successful within the general population. It is free, it is simple, the communication

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network is performant and Teletel works well; people can easily find the information for which they are looking. Basic useful information is rather cheap as people don't need any subscription to use Minitel, and it only costs when you use it. At the same time, servers on Minitel don't cost providers much, since the equipment has been place for a long time. The telematics activity is well known in all firms and needs only a good maintenance and the servers are being brought up to date. These features are great advantages that managers considered a priority. One of them reported:

> " Minitel saves money, especially since it replaces staff to provide information by phone. I invested for equipment that are now depreciated. Minitel is quite a free distribution channel that doesn't cost me anything "

Currently, managers have a good global perception of Minitel. The following quote reveals their perception:

> " Minitel is a very rich tool. It is a mix of everything. One can find everything, one can make everything. It is not beautiful and rapid, but it is functional. "

All those points are reported similarly whatever the sector of the firms or the kind of customers they have, except on the cost of Minitel services on which fewer firms dealing with specific segments agree.

The result: the rate of positive answer is high and similar among the adopters and non-adopters of Internet. Only a small difference appears between the adopters

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and non-adopters, regarding the costs of Minitel services, and then some adopters didn't agree with this specific point.

This perception is explained by the assumption that Minitel has high costs.

However, managers wonder about the lack of evolution of the system and the costs for some uses (see also : Minitel can't evolve anymore)

- **Minitel has high costs (for some user)**

Most managers reported Minitel has cheap prices for the majority of services. However firms dealing with specialized segments of customers find Minitel is not competitive. These firms offer high value-services on the higher tariffs per minute of Minitel. Since the cost of the service is linked to the duration, it is costly for the consumer. Such firms consider that is a handicap for their business (even if it provides big incomes), and they would like a range of flexible choices, when deciding which designed tariffs to offer their customers. Currently, it is possible to apply a set price on Minitel services, but it is not common.

The result: this is the same conclusion as the previous one.

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The pressure to transform Internet in a new marketing tool which leads managersof the private sector to evoke more frequently the points dealing with business, than the public sector does. For instance, Internet is a means to increase the value of services, present problems on Internet - poor content, access, security, lack of computing skills and equipment for users and so forth). These are listed in the following part.

- **Not enough PC penetration within the French population**

The rate of agreement about the problem of PC penetration is similar in both public and private sectors and largely discussed by a majority of managers. This appears also to be the main point that restricts managers in their decision to adopt Internet. If they do, they are sure they will lose many consumers since only a small part of the French population is equipped with computers, and fewer with modems.

The specificities of segments of customers the firms deal with impact the answer. Since most of these customers are equipped with computers, managers of these firms have less problems making decisions. They developed a combined offer, and trust the use of different bridges to go from one system to another. The

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firms first considered the needs of their consumers, and feel obliged to provide them the most extended offer on different communication channels.

The result: The answers given by adopters and non-adopters of Internet are roughly the same, but a majority of the adopters of Internet reported the lack of PC in the households is a great problem.

- **Lack of users' computing knowledge, and the Internet is too complex**

The adoption of Internet goes via the use of a more complicated device and currently, it presents several big handicaps for both users and providers, to be spread rapidly.

Among people who discussed this point, both in the public and private sector, the stronger conviction is that Internet is too complex for the users and this opinion is shared by both. A manger reported:

> " A computer in the households ? You know, some of our customers barely know how to type on the Minitel keyboard ! "

Most of the managers have already experienced of the Minitel innovation, and they are aware of the time and difficulty it took to be implemented in the French households. They can easily imagine the problems the users will face when first

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using a computer, and second when discovering Internet. Managers considered the home computing system is not yet accessible for the whole population, and that is confirmed by the manufacturers who try to design a device to access the Net more easily. Managers also based their assumptions on their personal experience and some of them admitted they could deal with computers and Internet " as soon as there is no problem". Otherwise, as one manager said:

> "...you have better to prepare a good dinner and invite the best expert in computing you can find among your friends!"

A majority of managers discussed this point. No difference between the answers of the private and the public sector is evident. However, since the specialized segments have specific socio-cultural characteristics, they are more knowledgeable about computing, and the companies who deal with these individuals are less worried about the ability to use Internet.

The result: no difference between the answers of adopters or non-adopters of Internet is evident but half of each group worried about the ability of users to deal with computers and Internet.

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• Internet does not generate incomes for the service provider

This is one of the main important points the managers discussed and appears to be more important and more often discussed by the managers within the private sector. More than a means to provide information, Minitel has become a means to generate incomes. As developed in the part which presents the system, Minitel can bring great benefits according the access codes and the value firms put on the services they provide. This source of income via the telematic network id fully integrated in the turnover of every French firm, and most of companies can't afford to lose such income, especially today during a difficult economic period.

The result: Almost 2/3 of the adopters of Internet confirmed this problem. 2/3 of the non-adopters of Internet reported the same opinion.

• A system to charge the consumers on Internet is studied/planned

Consequently, the firms try to find a way to replace the income they have with Minitel, as to when they are going or if they are going on the Internet. At the time of the interviews, the firms entered a period of reflection about two main points: the value of the information they provided and the best adapted way to charge to he customers according to the kinds of services. Firms have to define the limits between free information and the ones for which the users have to pay. It is a mix

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between what they assume it will cost the firm, and the price customers would be likely to pay for the services. The means to pay on the Net they imagine is linked to the kind of activity. The small charges to buy some specific news or consult useful basic information, will be paid easily with electronic money and a monthly subscription will be more consistent with payment for the consultation of services that take a long time in connection.

None of the managers have already faced the problem of losing income because of the adoption of Internet, since at this time, they mainly provide home pages or information and communication about their firms and activities. Except for a few who, as partners of Globe on Line, tested already the new concept of the "electronic money " before its official launch, the others have had to study about the future means of payment on the Net. Managers of private sector were more sensible to this point, since the major goal of public information is not its profitability. However, this statement remains true only for basic information but public sector faces the same problem as soon as it provides specific, sophisticated and designed information to its customers.

The result: All the adopters of Internet reported they wanted to make profitable servers or commerce on the Internet. Except for five, all have already thought about the future means they will choose to receive income from the Net. The five

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other managers either didn't know yet how to replace the Minitel income or either assume they will have a problem in replacing them, or will benefit from state loans, that will reduce the problem of profitability.

- **Problem on the access to the Internet (saturated networks, bad quality of connection, time of answers too long)**

As discussed earlier, the problem of access and quality is due to the novelty of networks and access providers' offer. Firms are afraid such situations will disappoint many new subscribers at the beginning of their discovery of Internet. Thus, they would be likely not renew the subscription later if they faced too many problems today. Indeed, this point tends to decrease some disadvantages of Minitel as the slow speed of transmission that is not so slow when compared to the time it takes to display Web pictures, for instance, on the screen of the computer.

No difference in answers between the firms exists according their different markets or ownership.

The result: Half of the adopters complain about the quality of the Internet access and one third of the non-adopters confirm the same perception.

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•The problem on the content of Internet today is the lack of real services and difficulty in finding information)

Managers regret the lack of organization of the Internet, and notice people have less chance to recognize or even find the valuable servers which provide a good value for information. This reaction is linked to the Minitel culture, since this system has good internal organization and includes many tools that ease the research of information. The opinion is similar for all the managers that discussed this point, whatever their sector or their market. French managers are not used to and some of them don't agree to the philosophy of an open network where everyone can provide what he wants, without controls or policies. They state that it is the reason that finally lead to a profusion of sites, but rather poor content. Most of the managers think this situation is not going to last. One of them said:

> " Internet needs somebody to do the housework on it. If not, people will be tired of it early on. "

Managers share the idea of the need of a regulatory body and the feeling that only the good servers will survive and "...the cleaning will be made by itself".

The result: Half of each group, adopters and non-adopters of Internet, reported the same opinion about the lack of organization and the rather poor content of the Internet sites, at this time.

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- **The problem of security and payment on Internet**

This other feature seems to be peculiar to the French culture. This is a problem of security which French users are suspicious about, as to the security of payment or information on the Net, and they are scared they will have problems if they do business on the Web. This doesn't exist on the Minitel, since the transactions are checked and secured through the commitment of the operator, and also some companies are afraid not to know how to control the information they deal with, especially the ones in the bank sector. As a manager reported:

> " People are scared about the security of Internet, only because media emphasized too much on this. Before people were not conscious of the problem. "

However, this is one of the main reasons that incites the firms to wait before going on the Net until a validated solution of payment on the Net is available. Half of the interviewees reported this fear that is not influenced differently by the sector or the market of the firms.

The result: Only six of the adopters stated this point during the interviews and five of them confirmed that the lack of security on the Internet is a problem.

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• The problem of the costs of Internet for providers and the problem of the costs of Internet for users

Since no references and basis exist today on the possible future costs of Internet, some companies assume the costs will be high, or at least higher for the users that what they are today. Even today, some managers reported they had high investments to make or to plan for the Internet. When some others said it doesn't cost anything to create a web most of them admitted they were not yet able to estimate the costs.

The result: only four firms reported they face high costs to provide services on the Internet; Two of them were on the Net. The rate of discussion is small and nothing can be said about the specific answer of the adopters of Internet.

• The English language is a problem

As it was assumed previously, firms dealing with the general public worry much about this problem, because they know bilingualism is not a feature of the French population. Therefore, it is less important for the companies who have segments of customers, who are high educated people, and have learned the English language. Therefore, the language barrier is a disadvantage if the company wants to approach a large and general public. According to some responses from the public sector

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"... most of information will stay for local consultation ", as " who cares about the train schedules in France, or the type or number of forms, people have to fill out to be reimbursed for their health expenses!". However, this mustn't be seen as a generalized idea, since the Web of the French Ministry of Culture is one of the French web sites, most consulted by foreign people.

The result: The number of managers who discussed this point is small (1/3). Then, it is difficult to report any valuable rate of answers among the adopters of Internet, since only three early adopters managers discussed this point and assume the English language will pose a problem. It appears that at least one of the adopters of Internet believes the whole population will speak English soon, thus it will not remain a problem anymore.

However managers also reported positive points about the adoption (or potential) of Internet. and these ones are listed below.

- **The possibility to keep a combined offer (both systems)**

From the provider point of view, Internet and Minitel are compatible, since they provide the same content of services and the concept from Minitel is similar to the one of Internet. Both systems can be developed at the same time within the firm,

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especially with the technical development of bridges between the two networks. This compatibility allows providers to propose a combined offer, aided by the possibility of trying Internet for a trial period, with no disturbance on the existing system. One manager noticed:

> " I don't see cannibalism between both systems, but more an additional way to distribute the information. "
> and : " Right now, I provide free services on the Internet to test reactions and interests of customers. "

Managers confirmed a great advantage in testing the Internet innovation, with "limited risks" since it did not disturb or put into question the existing system. Many of them confirmed they adopted Internet and offered a simple home page on the Web, just to experiment with the customers' reaction because this didn't interact with the Minitel services development and its turnover. Also most companies imagined it would take such a long time for their customers to adopt Internet, they had better keep both systems, so not to lose business. This perception is not impacted by the differences of ownership or market of the firms.

The result: nearly all the adopters of Internet stated this point and confirmed it was a great advantage. Only a few of the non-adopters discussed this point and confirmed it.

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• Trust in the Minitel-Internet bridges systems for many years

This assumption is part of the global reflection managers have about the complement of Minitel and Internet. As indicated earlier, the French provider developed some bridges to allow the consultation of Minitel services through different accesses. The opinions of managers are shared; some of them think it is the solution to allow the progressive transfer from one system to another, others say it is the best way to favor competition between two systems which are complementary rather than similar. Some think it is a mistake to allow the consultation of Minitel via a computer, and that will provoke the rapid death of Minitel. The others think the duplication of accesses for the same on-line services will not have any impact on the future of both systems. However, all agree to say these bridges are a temporary solution only for a few years. The trust in such bridges access is stronger in the private sector, since it allows the firms to touch the whole users, whatever the equipment they have at home. This perception is also stronger in the firms who deal with the general public, since this population appears to be the one who will adopt computers later and prefer the use of Minitel at the moment.

The result: The positive answers to this assumption are shared by half of the adopters and half of the non-adopters of Internet.

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- **Which kind of users' terminal should be in place to access Internet in the future?**

This point is linked with the two previous ones. When managers imagine the future of Minitel and Internet offers, they think about the kind of terminal which will be in the households to access them.

The problem remains in the user's place, with the need of a specific terminal for each system (Minitel versus Computer), or a terminal that could allow the access to many different systems. The managers who say the computer will be the final terminal to be used by consumers, are more likely to think Minitel will disappear eventually. The ones who think that the Minitel can survive near the computer on the same desk, are more likely to think the both systems are complementary. Among these managers, most of them think the Minitel will evolve into a more advanced terminal (as a phone with screen, display information on the TV screen), or the Netcomputer is the solution to access both Minitel services and Internet with the same device.

The result: The adopters of Internet favor the success of the computer or the simple Internet access terminals that are developed at the moment. However, they

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are careful about their possible success , mostly because the price is high ($500) for lower performances compared to a PC.

• The Minitel can't evolve any further and • Internet will bring something more in the quality and performance of services

With the increase of the quality of services needed to answer the customers' demands and be competitive, managers reported Minitel is sometimes can not perform enough, technically speaking. Especially since the arrival of Internet the comparison that can be made between both systems, Minitel looks like the dinosaur of the telematic. Due to its conception, the only means to evolve it further is to replace it by a technically more advanced device. Managers reported this was typically a product in its maturity stage, that it had reached the limits of its performances. One of them said:

> " Minitel will not do better. It did its best in terms of large diffusion and offers to the general public. "

Most of the managers are not really convinced about the performant replacement by the new models of Minitel. They think these should have arrive earlier to boost the development of Teletel, but they were launched just at the same moment they had to face a big competitor, Internet.

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Some companies have faced the limitations of Minitel and they feel the adoption of Internet could help increase the quality of their services. Managers share the ability to increase their on-line services, by going on Internet. Perhaps this is due to the period of training needed to learn how to use the system in the most efficient ways, since the development of services is rather different on Minitel than on Internet.

The technically advanced features of Internet and the possible improvement in services with this new system can be some of the reasons why companies chose to adopt it. Internet has many assets that can improve the quality and the appeal of on line-services (speed, color, displaying attractive pictures, three dimensional and moving pictures, hyperlinks). As a manager said :

> " We will take advantage of our know-how in TV production to provide Internet services in three dimensions. For those of us who sell goods on the Net, it will be a great thing if the users can see the objects from all sides. "

Among the managers who discussed this point, most of them are from the private sector. However, only half of them think they will increase the quality of their services when moving their servers on the Internet. The public sector appears less concerned about this point and the answers of public companies managers are also shared, like the answers of the private sector.

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The result: Less than half of the adopters of Internet think they will increase the quality of their servers and one-fifth of the non-adopters confirm this assumption.

- **Extension of customer file abroad**

With Internet, some firms see a new means to do business (electronic commerce) in foreign countries and increase their turn-over. Some firms bet on the international coverage of Internet, to extend their business, since Minitel has stayed a national system. The rate of positive answers is higher in the private sector. However, only a few managers gave a positive answer to this point. The others think about this possible extension abroad, and hope it will happen, but they are not at all convinced. They have no previous experience since their servers had only a national coverage, and they don't yet imagine the reaction of people from foreign countries having access to French information and services.

The perception of a possible extension of services abroad by managers is more available for the firms that make commerce and provide added-value services than do local services and public information. Especially in the public sector, managers are not convinced they are going to go international, if they adopt Internet, but also different answers from private firms were noted since all activities don't deal with international exchanges.

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The result: One-quarter of the adopters of Internet think they will extend their activity abroad. The others don't think about that possibility, or don't know, or think their activity will stay national. Only one of the non-adopters thinks he could go international if he would adopt the Internet.

The final part of this study reports the external factors that could influence companies in their decisions as they have to deal with different pressures and actors that surround their activity. The strength of some factors can modify, or reverse a favorable decision to adopt an innovative system but in this case, as explained before, contextual factors will be studied, but not linked to the final decision to go or not on the Internet.

The context

- **Waiting for the attitude of the provider (strategy, offers, devices for the on-line activity)**

When the managers are asked, they answer that the French operator has to provide answers (technical and strategy) upon whose firms' choices are dependent. Mainly all the private sector reported this feeling, but only a few of the public companies answered in the same way (however the different customers firms deal with do not

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impact the answers). Several managers stated they were dependent on the attitude of France Telecom and the different choices it was going to make, then the future of Minitel was mainly in the hands of the operator and less dependent of the companies' attitude. One manager said:

> "When could we (service providers) see that France Telecom continued to invest in Minitel? No, I didn't see any action of the operator to ask us to participate in the planification of Minitel evolution"
>
> and: " France Telecom might have shown strongly its belief in its offer of Minitel, available on computers (Kiosque micro). It was a great idea, but it came too late. "
>
> and : " The attitude of France Telecom is unclear and sometimes incoherent. "
> or : " France Telecom has the entire responsibility of what will happen, since its choices influence the service providers, and not the reverse. "
>
> and " France Telecom didn't put itself into question and didn't ask itself why the service providers didn't follow it with the launch of the new generation of Minitel devices. "

The result: Half of the adopters of Internet reported they were waiting for the attitude of the French operator, in terms of on-line activity. Eighty percent of the non-adopters reported the opposite.

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- **Waiting for the impact of competition**

Unstable and uncertain context surrounding the arrival of an innovation seems to emphasize the "wait and see" attitude. Since a change in the French telecommunications regulation (opening of competition in 1998) is anticipated, some managers think many parameters and rules will change about the position of Minitel and the development of Internet. The prices of calls, of data transmission have a chance to be impacted and reduced with the arrival of new competitors and some firms feel the rules of the game will change, for the benefits of both companies and users. This projection in the future was the opportunity for many managers the discuss possible scenario which could happen after the opening of competition in France. Since many opinions emerged from those interviews, it is difficult to describe a major trend reported by the adopters of Internet. The major one though is that competition can bring true costs for the users, that could have a chance to boost the consumption of on-line services. However, some managers remain careful and say the impact of competition will not be visible for a long time. They often report that open competition will oblige the present operator to react more quickly in its decisions, and listen more attentively to the needs of its customers.

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• Keep up with competitors - Create a Web page because it is a shop window, and already competitors have it

It is easy to understand that the problem of competition was more often stated by private companies than public ones, as private companies can't lose any opportunity to increase their competitive advantages. They have to follow what competitors make, and that explains the difference in answers they made. They are aware that nobody knows exactly what Internet could bring, in terms of turn over, but companies of competitive sectors feel they have to create at least, a web page to communicate and prove their existence, but also because their competitive neighbor has done it. No impact on answers is evident due to the different publics firms deal with (general public vs specialized segments of customers).

The result: Half of the early adopters reported they chose to adopt Internet because of the pressure of competition and the choices of their competitors. Three firms that were preparing a Web page for the end of the year, reported the same.

• Notice decrease of Minitel connections

Only a few companies reported a noticeable decrease in their Minitel turn-over, and this is more visible in the services of the private sector. The public sector provides basic useful information, available for a cheaper price. Then, if

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households have to reduce their services consumption, it will not be on those. The managers of the private sector couldn't identify yet if this small decrease (only available for some activities, the rest is stable) could be the beginning of a transfer of uses on the Net.

The result: Only four firms reported a small decrease of their Teletel activity. Two of them are on the Net and the others plan to go soon.

Miscellaneous

This section reports and develops some of the managers' reflections that have not been discussed in the previous study.

The arrival of Internet is more than a simple technological change as it obliges many companies to review their usual way and organization in providing on-line services. They have to define new limits, available on Internet, between basic and added-value services. Also, it puts into question the value and the quality of the information they provide. They have to work specifically on these points, since these will be the landmarks for people to evaluate their ability or their willingness to pay for services on Internet. Sometimes some companies have to develop a new know-how, and that takes time and money. More or less, they have to erase the rules of Minitel services development, which could be a handicap to

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develop efficient Internet services. One can already say that the French Web sites have the same failings as the Minitel servers, because they are only "duplicates", rather that new creations, that don't take advantage of the Internet specifications and " philosophy ". Thus, the companies have to think differently since the two media are different, although close to each other. Since the companies consider Internet as a possible source of profits, the main problem for them is to know and learn how to emphasize the value of their services, in order to justify the prices it will cost consumers.

> " Increasing the added-value of our services will be the only way for people to accept paying for them. "

However, it is extremely difficult to make any predictions on the possible user consumption. Almost nothing has been done in 15 years of Minitel, in terms of studies or reports concerning the market of services (production, needs, users and companies investments for the information, services consumption). What is going to happen on Internet is unpredictable since no historic information exists on the demand market (households or companies needs).

Today, service providers have a difficult time knowing how they have to design the offer. The on-line information and services created a new market, but the pressures of offer and demand are not clearly defined. Some companies are

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convinced they will answer to the customers' pressure, when others say that Internet will succeed, only because of media and fashion pressures. One manager stated:

> " The pressure for us, only comes from what our customers ask. Today, we have an interest in this new phenomenon (Internet) and we follow its evolution. But we will move only if our customers ask us to do it. "

The deal for companies who think about replacing Minitel or developing a multi-channels offer is to enhance their on-line services and sell them in the best lucrative conditions to as many people as possible. Internet could bring an opportunity to extend the limits to international coverage, but would bring many new competitors, that didn't exist before nationally. Some managers are scared about the new commerce that is developing on Internet. They think that cultural features of the French population would avoid creating a mass market of buyers on the Net. Some companies can't imagine how the people would spend money for services consumption on Internet, when they are not even ready to pay 20 additional francs ($4) today, for a newer version of Minitel. The lack of household budgets dedicated to services, and the big investments for equipment, cooled the more optimistic predictions. Thus managers have problems when imagining the arrival of a new system, next to a already fixed system that was satisfactory for

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many years. What has to change and move in the people and the environment to integrate this new system remains the topical subject.

I would like to include here, the approach of one manager I met:

> " The technology makes progress. People don't change or not much. There is no fundamental change in the human being and his needs. The technology remains a tool that serves people and surrounds them. One would like us to think the opposite for some economic and political reasons ".

The first innovative companies that adopted Internet are afraid of the lack of involvement and mobilization from their peers, and think that the only ones who will survive will be those who anticipated the need right now.

Many managers returned the question to me: "Going on Internet, why ?" Only a small target of users is concerned via Internet, and there are many disadvantages due to its youth. Today, according to a majority of managers, Internet is more oriented on form rather than the content and services providers are not satisfied with this, since it is the opposite of what they have learned over 15 years on Minitel.

All companies feel they must go on the Net, but don't know exactly why. They realize it is a powerful new medium, but can't draw out what's going to happen in the future (short and long terms). Also, no firm is ready to give up

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Minitel. According to some providers, Internet in France lacks the prerequisites to be successful within the general public, and the adoption of this innovation in a very risky experience. Regarding the craze about the future of the Information Society, all managers keep a reasonable attitude when facing the " revolution " of the information sector and its mediatization. Their reflections lead them to contemplate a more realistic strategy, consistent with both the trend and their specific business. As one of the managers concluded:

" I don't know any service provider whose mission is philanthropy. "

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