Multimedia

Innovating Telecommunications '99

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Contents

		Page
Introduction		3
I.	The Information Age: Remarks on Basics and Implications	
	1. Background	6
	2. Basic Model	7
	3. Development Pattern	10
	4. Economic, Cultural and Social Aspects	12
	5. Technology and Applications	14
	6. Conclusions	16
II.	Telecommunications and Multimedia: Markets of the Future	
	1. The Driving Forces	18
	2. Market: Size, Segments, Companies	20
	3. Technology and Infrastructure	24
	4. Needs and Demand	32
III.	The German Telecommunications Market	
	1. Market Size and Shares	34
	2. Infrastructure and Private Households' Equipment	36
	3. Consumer Prices and Spending	38
	4. Service Providers - An Overview	40
IV.	Multimedia Communication	
	1. Convergence	54
	2. Video Communication: Key to Multimedia Communication	55
	3. Applied Multimedia Communication	60
	4. Videophone and Internetphone	64
	5. Third Generation Mobile Telephony and Fixed Mobile Integration	66
V.	Internet and Electronic Commerce	
	1. The Internet	69
	2. Electronic Commerce	71
	3. Electronic Payment	72
	4. Electronic Commerce: Potential and Perspectives	74
	5. Intranet	80
	6. Internet Telephony	81
Bibliography		83
Table of Exhibits		86

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Introduction

The transition from the industrial age into the information age is shifting the societies on our globe towards a global society. Converging electronic technologies, changing regulative frameworks, and market dynamics constitute the transformation process, which is going to affect the economic, social, and cultural style of our life in Europe and the world. The more we understand the basics and the implications of this process, the better will we be able to influence it. This study is intended to contribute to the understanding of the significance this transition has with regard to telecommunication and multimedia.

In the first part, it starts off by summarising the most popular visions of the information age and provides some background. In the following, a basic model is described which structures the process of building knowledge and competence. That process, which turns data and information into knowledge and competence, is conducted by human factors, tools, and utilisation procedures as its main elements. The basic model allows for the formulation of a development pattern of the information age called Cooperative Networked Multimedia, which is illustrated subsequently.

The way into the new era is paved with chances and risks, but beyond that, people are challenged by the opportunities it is offering. Trade, education, and health-care will come into reach for more people on the globe by the introduction of universal services, Telelearning, and Telemedicine. These economic, cultural and social aspects are highlighted, followed by an overview of the technology and applications forming the fundament of the information age from today's perspective. Part I concludes with remarks on the role of the public and the private commercial sector, which both have to contribute to the development of this new era.

At the rise of the information age the telecommunication business in Europe and the world is changing. Technological advancements render possible a whole set of new applications. New companies enter the marketplace willing to challenge the incumbents. Alliances and ventures are being established for the purpose of either stepping into deregulated markets or participating in emerging businesses like multimedia. Client desire for mobility in communications, flexibility in information sharing and interactivity in entertainment, as well as commercial need of enhanced information networking turn into demand. During recent years, many "hypes and hopes" arose as to the introduction of new products and services, some of which did come true, like mobile telephony, some of which did not, like Video on Demand.

In the second part of this study attempt is made to contribute to the clarification of the current state of this business, focusing geographically on Europe. Starting point is the perception of technology, market and needs as three driving forces, outlined in the introductory chapter. Subsequently, a look is taken at each of these areas. First the telecommunications market, its size and the different segments; then the most important telecommunication technologies and the parameters of the fundamental infrastructure; at last, attempt is made to evaluate future demand for telecommunication services.

The third part deals with the German telecommunications market, one of the major ones in Europe. While it was opened for competition in the sector of Corporate Networks in the eighties already, in the sector of Mobile Telephony in the mid-nineties, only since the full liberalisation of the Fixed Telephony sector in 1998 it can be considered a fully competitive market. The results are remarkable.

First, we take a look at the market shares, which have been changing not at least due to strong price competition during the year 1998. Besides the former monopolist Deutsche Telekom, which is still the clear market leader, a number of new service providers were successful in establishing their market position, in particular the Mannesmann Telecommunications group. These two and 15 other providers of telecommunication services are being presented at the end of this part in short profiles.

One chapter illustrates the starting point with regard to network infrastructure and private households' telecommunications equipment in year one after deregulation took effect. Another one provides information about the evolution of consumer prices and spending for telecommunication services over the past years. Thus basic data becomes available for the evaluation of the dynamics of market innovation that was imposed by liberalisation.

Technological advancements and market dynamics have already changed the business environment for the telecommunications operators and service providers. Beyond growing competition, triggered by deregulation, new challenges stem from convergence, the trend in the hitherto separated sectors of telecommunications, information technology and media industries to extend their activities and expand into the traditional domains of the others. The key word in this context is multimedia: enhanced applications integrating voice, text, data, still and moving pictures, offering new features like interactivity and networking are expected to create new businesses and stimulate the commercial as well as the residential market segments.

That type of applications has to be created yet. What becomes essential for all companies of the above mentioned sectors, and at the foremost for the telecommunications operators and service providers, is innovation. The route from plain old telephony to multimedia has to be determined not only by technological upgrade of network infrastructure, but also by the introduction of new types of services and products. Video communication is considered such a new service element. Adding video images to interpersonal telecommunication can help building the bridge between audio-only telephony and Multimedia Communication of the future.

The objective of part IV is to evaluate if and how video communication will foster the further advancement of telecommunication. The first chapter provides some general remarks on the subject of convergence. Subsequently, the question is discussed how video communication, either as a stand alone service or as part of application concepts like Telecooperation, Joint editing and engineering, Telecounselling, Telelearning and -training, can smooth the way for service providers on their course to the offering of full multimedia services to the markets. The paper continues with a consideration regarding new multimedia communication devices, the video phone and the Internet telephone, which are bound to open consumers the door to the world of multimedia communication. The fourth part closes with an illustration of the forthcoming enhancements of mobile phone services, the Universal Mobile Telecommunication System and the integration of wired and wireless telecommunication networks.

The fifth part is intended to outline the importance of the Internet for innovative development of Multimedia Communication. Internet and online services have been showing striking growth rates in recent years. They stand for the successful application of converging technologies. Since the net of the nets has commenced to attract commercial interest, its role is

changing. Much interest is attached to the concept of Electronic Commerce nowadays. The Internet is considered platform as well as pacemaker for this new way of doing business.

Where Electronic Commerce starts from, and which business potential and perspectives it is offering, is subject to a comprehensive discussion in this final part. One of its central elements, Electronic Payment Systems, is dealt with in a special chapter. In fact, the Internet is also taken as a model for intracompany information and communication networks. The respective chapter about Intranets describes that development as far as it is related to Electronic Commerce. Finally, a trend of convergence is illustrated which is bound to influence the development of applied global Multimedia Communication in the future: the introduction of telephony services over the Internet, which adds a new dimension to this network and thus will foster the commercial exploitation of the world wide web.

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Table of Exhibits

Exhibit		Page
1.	The Information Age - Basic Model: The Process	8
2.	The Information Age - Basic Model: The Elements	8
3.	Marketing and Dvelopment - Telecommunications and Multimedia	16
4.	Global Market Infocommunications Products and Services 1998 Regional Break Down	20
5.	Global Market for Telecommunication Services 1998 Regional Break Down	21
6.	Telephone Main Lines per 100 Inhabitants 1997	28
7.	Number of Telephone Main Lines 1998 vs. 2002	28
8.	Personal Computers per 100 Inhabitants 1995	29
9.	Cable-TV Connections per 100 Households 1997	30
10.	Number of Cable-TV Connections 1998 vs. 2002	31
11.	Mobilphone Subscribers per 100 Inhabitants 1997	31
12.	Number of Subscribers Digital Mobile Telephony 1998 vs. 2002	32
13.	Markt Shares 1998: Leading Providers of Telecommunication Services in Germany as % of Total Revenues	35
14.	Percent Market Shares of "Other" Providers Germany 1998	35
15.	Percent Revenue Market Shares Mobile Telephony Germany 1998	36
16.	Equipment of Private Households in Germany January 1998	37
17.	Average Spending for Telecommunication Serv. DM per Household/Month	39
18.	Monthly Consumer Spending and Index Consumer Prices for Telecommunication Services	39
19.	Multimedia resulting from convergence of media, telecommunication and information processing	55
20.	Converging applications	56
21.	Number of Internet/Online-Users World-Wide 1998 vs. 2002 Regional Break Down	69

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