

Introduction

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‘Information Society?’ ‘Knowledge Society?’ ‘Networked Society?’ Whatever expression we may prefer, aren’t we at risk of playing with buzzwords instead of deepening the meanings that are slipping into our mind? Are these expressions equivalent? And if they are taken as such by many authors, or if we use the general denomination popularized by Manuel Castells’ trilogy *Information Age*, is it true, and what does it imply?¹

In any case, a multidimensional approach is surely necessary to understand the multifaceted characteristics of this society. It is surely a technological phenomenon: the developments in the last fifty years appear as overcoming the imagination, from the ENIAC (Electronic Numerical Integrator and Computer) of 1946 to the PDA (Personal Digital Assistant) of today. It is also clearly an economic challenge: the globalization of economy has created a real impulse of huge telecommunication investments, of the merging of gigantic businesses, which imperatively require a return.² It has also helped to develop a service society, when the western societies were facing a ceiling, if not saturation, of their industrial activity.³ In other words, from the technological and economic point of view, there is such a radical change than many people call it easily a ‘revolution.’ Businesses and financial institutions are surely accrediting such a thesis where they find it fitting with their interest. Public authorities are not far from advancing at the same pace, and emphasizing the rhetoric of the inevitable and inescapable destiny.⁴ But, as stressed by Frank Webster about the ‘Information Society’, if something “cannot be accurately distinguished, then it is accordingly rather difficult to assert that it is novel.” (...) “If there is more information around, but this information remains under the control of long-established forces, then there are surely good reasons to doubt claims that we are

entering a new era. Accordingly, such sceptical reasoning may lead people to resist endorsing the argument that we live now in an 'Information Age', and - more serious still - to doubt its corollary, that adaptation to this novel situation is a necessity."⁵ Even when not adopting such a radical statement, we are led to think that the concept of *Information Age*, or whatever we may call it, is anything but clear and therefore needs a deeper reflection. We must go further than the technological and economic vision.

What about the cultural vision of the *Information Age*? There are domains, such as music, where the diversity is dominated by USA and UK way of life! But there are also claims for favouring multiculturalism at large, and multilingualism. This is the quasi-permanent discourse of UNESCO. There are also challenges in terms of thinking of life and society. The virtual world is raising concerns, and people make claims for "grounding the 'virtual' life in the physical realm": "Many people are concerned that the increasing importance of 'virtual life' will have serious psychological and social implications. Proposals have been made to encourage the use of computing to support rather than supplant real life. For example, 'community nets' are geographically based networks that help enhance real participation within a specific locality (e.g. neighbourhood, village)."⁶

Common sense requires a balance between the different dimensions of the Information Age. The development of ICT must be thought of in terms of *appropriate use by all*. But then, immediately, the question is raised: appropriate to what? To economic growth, to particular interests, to political and democratic concerns, to social values, to cultural identity, to social organization, to justice? It is up to us to decide, to us all, and not only to the happy few who are today fixing the goals and purposes of what they decide to be sustainable development or common good.

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The origin of this book is a discussion that took place at a gathering of information and communication technology (ICT) professionals and academics for a business meeting of the Technical Committee 9 (TC9) of the International Federation for Information Processing (IFIP) in Stockholm in 1999. TC9 is concerned with the relationship between computers and society, and more largely between ICT and society. Its membership consists of representatives of national computer societies and chairpersons of working groups specializing in the study of particular issues of social concern regarding ICT, which include: computers and work; social accountability; ethics of computing; home oriented informatics; ICT in

developing countries; ICT misuse and the law; history of computing; and ICT, women and work.

The trigger for the discussion was an expression of apprehension about the technocratic nature of various 'Information Society' policies by Jacques Berleur, the chair of the committee. His concerns were reinforced in the course of the discussion, as participants drew from the preoccupations of the working groups they represented or the specific experiences of their countries.

This book reflects the spirit of the concerns that were articulated in that event and the synthesis of the forum that created it. First, it contains mainly – though not exclusively – critical voices on the nature of and the social consequences of the emerging global 'Information Society'. Second, it is structured in two parts, one reporting on Information Society policy initiatives pursued in various countries and regions, and another focusing on a number of relevant issues, and thematic policies by drawing upon the specialist knowledge of the working groups of TC9.

The chapters vary in style: some have a clear academic orientation, and make use of theory to propose and support their arguments; while others have a professional tone, highlighting and discussing issues, policies and initiatives in a direct way without making explicit theoretical connections. The editors felt it is inappropriate to use a common template in the production of this book. Indeed, they believe that one of its most significant and valuable characteristics, as is true for most of the work of the IFIP teams, is that it brings together analysts from diverse backgrounds who have diverse points of view and ways of expressing them.

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Part 1, on Information Society Policies, contains chapters on initiatives and experiences in Africa, China, the European Union, India, Australia, Central and Eastern Europe, the United States and Hungary.

Jonathan Miller outlines the main policy initiatives intended to promote the exploitation of the developmental potential of ICT in Africa and discusses some of the outcomes of these efforts. Specifically, Miller highlights the inadequate supply of telecommunications that hinder not only the development of a modern business environment, such as e-commerce, but also improvements in such crucial areas for the development of the continent as health and education. This chapter concludes with the identification of four areas that need attention in any inquiry of the African Information Society: physical resources, digital resources, human resources and social resources.

Xinxiang Chen, Jiaqing Gao, and Wenda Tan outline China's ICT strategy as part of a broader industrialization and informatization effort for economic and social development. This effort includes the following: the search for a new industrialization mode with high technology content, sound profits, lower resource consumption, reduced environmental pollution and adequate use of human resources; the boosting of sciences, education and sustainable development; the use of IT to enhance industrialization levels and to reconstruct traditional industries through informatization; the use of the advantages of a late starter to develop IT; the development of an IT industry and the application of IT in all aspects of social and economic fields.

Jacques Berleur and Jean-Marc Galand trace the history of ICT policies of the European Union (EU) and unravel their logic, objectives, changing emphasis, and achievements. The authors structure their study in two periods of policy making: 1994-1999 that was initiated with the adoption of the Bangemann report, and 1999 and beyond that was initiated by the formation of the DG 'Information Society' and the launching of its eEurope action plans. In their discussion of the policy initiatives during these two periods, the authors note two tensions manifested in the succession of policy declarations and actions of the EU: the tension between technologically deterministic visions and socio-political realities and the tension between pursuing social objectives and strengthening the market. Overall, the authors voice concern about the technocratic nature of the policy process and content and a bias towards market issues despite a rhetoric suggesting an orientation towards 'people'. Yet, in their conclusions the authors point out that the EU Information Society and eEurope policies should be appreciated as a valuable forum of vision and continuous discourse on the challenges of contemporary ICT mediated society.

Sowmyanarayanan Sadagopan and John Weckert consider two countries in the Asia-Pacific region, India and Australia. Policies are outlined that show how the governments in these countries are attempting to encourage the IT industry, e-business and e-government, to address problems of Internet access, and to regulate Internet content. The authors conclude with the optimistic observation that the continuing policy efforts of both these countries 'appear to be bearing fruit'.

Niko Schlamberger and Franci Pivec describe a new regional initiative born in collaboration with some national computer societies in Central and Eastern Europe and IFIP. A new rather informal regional body has been set up – Information Technology Standing Regional Committee for Regional Collaboration (IT STAR). Its purpose is to facilitate common performance of IT professionals regardless of their momentary employment or any other kind of affiliation. The prerequisite is a professional capacity and wish to

take part in certain kinds of projects. The authors point out that this initiative has triggered wide attention and may hopefully be adopted as a paradigm to be used elsewhere where regional collaboration is appreciated.

John A.N. Lee examines some issues associated with the Internet that emerged in the cultural context of the United States and describes measures taken to address them. Specifically, Lee describes the attention given to the regulation of the Internet, privacy, and the digital divide. He outlines Presidential initiatives towards a policy for the use of ICT to improve society and discusses the significance of federally funded research. Finally, Lee notes that the culture of the USA promotes policies that favour non-governmental control mechanisms. He points out some of the most salient characteristics of American culture within which the country's Information Society policy is shaped.

László Z. Karvalics starts by reviewing the roots and the current situation of an unevenly information-intensive global society in the early high cultures to the middle of the 20th century. As a 'prehistory', the author outlines the emergence of the Information Society and its uneven development to a competition problem: principally the movement of the American-Japanese tandem (1961-1978) and 'the pursuing bunch' (1978-1991). He then focuses on the decade 1992-2002, which is characterised by comprehensive national information strategies, and demonstrates that in the measurable domain of Information Society there are winners and losers, thus arguing that systematic Information Society development programmes have tangible outcomes. Karvalics is concerned that the information gap is widening as the developed countries, engaging in a mutually competitive race, are winners every time.

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Part 2 focuses on specific issues of the Information Society, or better said, on issues of major concern.

Peter Mambrey outlines the work of the working group WG 9.1 on computers and work and explains its focus on issues of the design of technology that determine the relationship between ICT users and their work place. Furthermore, he positions the interests of the working group against a review of the main themes of research in the vast area of the impact of ICT on work. The author identifies two broad questions of great concern in this area, namely whether technologies destroy more jobs than they create, and the effects of ICT on democracy and quality of life in the work place. He traces the main debates in the literature of the field and points out the issues

associated with the relatively new challenges of telework and networked work.

Jan Holvast, Penny Duquenoy, and Diane Whitehouse, remind us of the debate that gave rise to and accompanied the emergence of the 'Information Society'. They start with the seminal publication of Joseph Weizenbaum's *Computer Power and Human Reason* in 1976, which raised concerns about the social and ethical challenges posed by developments in the field of artificial intelligence. The authors review a stream of important publications on IT and society and conclude that the development of the technologies of the Information Society results from an evolutionary rather than a revolutionary process, the social consequences of which it is possible to control. The authors identify three forms of control mechanisms: reactive control oriented towards protection from the potentially damaging effects of a technical innovation; participatory control dealing with active involvement of citizens to safeguard their interests and form appropriate regulatory regimes; and anticipatory control, which consists of procedures for predicting social economic and political consequences of new scientific and technological advances.

Geoff Busby looks briefly at the historical development, the contemporary status, and the future possibilities of ICT to assist people with impairments live fulfilled lives. Busby is cautiously optimistic about the way ICT developments in corporations address disabilities. Nevertheless, he is concerned that the private sector on its own is not going to exploit the full potential of ICT for disabled persons and he points to the need for relevant legislation and government action.

Penny Duquenoy's paper, on the ethics of computing, begins with a review of the early discussions concerning ethical aspects of computer technology and the identification of three dimensions of ethical issues that continue to be relevant today: those stemming from the technical characteristics of the technology, those referring to the application of computers and those concerning the environment of use of the technology application. Duquenoy points out the emergence of a broad range of ethical concerns, including issues of professional responsibility, privacy, security, and quality of working life, since the 1980s. She then focuses on the current debates on moral responsibility of the technological experts and moral choices in their use of technologies, and argues that the most challenging ethical issues in the foreseeable future are associated with the capabilities of the Internet and its governance.

Jacques Berleur discusses a number of ethical questions implicated in governance of the Internet. This chapter starts with a brief history of IFIP initiatives on ethics of computing and outlines the lessons learnt from an analysis carried out in 1996 by an IFIP task force of the codes of ethics for

professional conduct of member societies and their mechanisms of enforcement. Subsequently, J. Berleur focuses on questions of ethics regarding the governance of the Internet, drawing from research conducted by the IFIP Special Interest Group SIG9.2.2. He points out the emphasis given to self-regulation across a spectrum of international institutions concerned with the governance of the Internet and he notes the prevalence of corporate actors over public authorities, highlighting the risk of neglecting issues of common good and of serving too solely commercial interests. The chapter concludes with a list of recommendations to address questions of ethics in the governance of the Internet.

Andy Sloane looks at the position occupied by the home as the central focus of the Information Society. A working definition of the home is used and various interactions and activities that take place in the home are discussed in relation to its changing role in the move towards an Information Society. The chapter also discusses various information activities that impinge upon the function of everyday life in the home including the use of information and information systems. Finally Sloane outlines some of the consequences of the move to an information-based model of the home.

In the chapter on 'Information Society and the Digital Divide Problem in Developing Countries', Chrisanthi Avgerou and Shirin Madon critically discuss the current view of Information Society as a strategy for socio-economic development. They question the way the discourse on the 'digital divide' problem has identified the needs of developing countries in universalistic techno-economic terms, with little attention to the historically formed circumstances within which ICT and information resources acquire meaning. They argue for an approach that associates the developmental potential of ICT with local social circumstances. To that end, they suggest the following areas of research that will contribute to policy makers' ability to draw contextually relevant and effective Information Society initiatives: attention to issues of social exclusion and cultural hybridization, and attention to 'knowledge' as distinct from the a-contextual notion of 'information' and as a concept associated with the local dynamics of culture and power.

Albin Zuccato and Simone Fischer-Hübner examine the effects of the Internet on privacy. Drawing upon concepts from sociology, they describe the effects that technology has on society as structuring or symbolic. They analyze these effects of technology on privacy and thereby demonstrate the potential of Internet technology and its effect on our life in society.

John Impagliazzo, John A.N. Lee, and David C. Cassidy suggest a method to integrate computing history in the computing curriculum and to elevate the awareness of the social context of the subject. They propose

ways in which instructors can enrich the curriculum by including history in the subjects they teach, even though they may not have had formal education in computing history or the history of science. The authors argue that using history in computing stimulates discussion and dialogue among students and makes them aware of the social consequences of the computer systems they will use, design, or create. They point out that instructors can enrich the courses they now teach by integrating social and historical interludes within them.

Ronald E. Anderson provides a critical appraisal of the role and impact of the Information Society model in the United States educational system. Anderson begins with a discussion of three dominant paradigms: 'automation', 'Information Society,' and 'mind tools'. He then traces the history of ICT in education in the United States, describing how ideas intertwined with the concepts of the Information Society led to distractions that have impeded vigorous development of ICT to improve education. These distractions included the claim that schools should take up the responsibility of training all students in ICT for the so-called information workforce. Promoters of the Information Society model together with the marketing arms of the IT industry have perpetuated the adoption of ICT as an end in itself rather than as a means of improving the main business of education, learning. The author argues that these pressures over the past three decades have left ICT in education in a state of confusion, lacking adequate support and, in many instances, the infrastructure to adapt to the demands of the twenty-first century.

Dick Sizer examines the notion of 'professionalism' and discusses the development of IS professional responsibilities in information systems. In particular, Sizer describes the efforts of the British Computer Society to promote professional responsibility through the elaboration of a 'code of conduct'.

Finally, Pertti Järvinen starts with the observation that most problems associated with IT in organizations and society at large require knowledge drawn from multiple sciences and therefore research in this field requires careful choice of method. Järvinen outlines eight examples of such research to demonstrate the variety of theoretical and methodical requirements and suggests a taxonomy of methods to clarify the possibilities and help in the making of sound decisions of appropriate research method.

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During the recent WITFOR (World IT Forum) held in Vilnius (Lithuania), Commission 8, devoted to the social and ethical issues of the ICT, and

which was animated by Working Groups members of IFIP-TC9, stressed the following emergent issues as an agenda to be tackled without delay: “Among the social and ethical concerns we strongly suggest a focus on professional ethics; access to content and technology for all; education, literacy and public awareness; multilingualism, cultural concerns; influence of globalization; regulation, self-regulation, governance and democratic participation; intellectual property rights; specific digital policies such as eHealth, eWork, eGovernment; privacy; protection of human and civil rights; protection of the individual against surveillance; develop quality of life and well-being; combating social exclusion; computer crime, cyber-attacks and security; employment and participative design at work; risk and vulnerabilities.”⁷

Others, like Kari A. Hintikka, advised us that the debates related to the Information Age cover four major domains: the debate on the grounds (‘Grundlagen’) of human thinking and social life – distinction between information/knowledge, role of networks, information which can be treated and processed by machines, and knowledge which is proper to humankind; the debate about the network economy, and the changes in working life; democracy, daily life and continuous learning; finally the debate about the knowledge and communication ‘markets’.⁸ Accents should be put also on the relationship to culture through, among others, a debate on real/virtual, the social dualization, and the ethical question of the technological innovation.

We are ourselves convinced that we cannot escape a debate about the roots of our conception of space and time, and the way we try to master them.

This book is a first attempt to make the point on several of those questions, without pretending to be the best views! It is an attempt to propose a reflection on the future of our so-called Information Age, through the continuous work of the TC9 Working Groups.

Let us conclude with an address of the Director-General of UNESCO, Mr Koichiro Matsuura, at the Special Session on Global Divide Initiative at the Annual Meeting of the World Economic Forum (Davos, Switzerland, 29 January 2001): “If the knowledge societies are ever to take proper root and gain global acceptance, we must look beyond the technical and gadget appeal of ICTs and home in on the human dimensions of the digital divide: cultural and linguistic diversity of contents, empowerment of civil society, privacy and ethical issues, and access, especially by safeguarding the public domain. There will be *no information for all* without *education for all*. This is top priority for the public and the private sectors alike. The business community is increasingly concerned about the future of education systems. The Education for All agenda, adopted last year in Dakar, aims at combating

poverty and ensuring development and growth through an expansion of educational attainment and quality. UNESCO is the UN system's lead agency here. We are determined to harness ICTs to the full in translating the lofty political goals into practical and tangible progress on the ground."⁹

Paraphrasing Mr Koichiro Matsuura, who was speaking in the domain of competence of UNESCO, we could broaden the scope to the different dimensions of society, asking: Information Society, Knowledge Society, Network Society, Information Age for all? This means *for the whole person, for the integral person, and for all human beings (pour tout l'homme et pour tous les hommes)*"), - as emphasised by the economist François Perroux in all his work.¹⁰

May we also suggest that the sphere of information technology and society pervades many areas: it is involved in working life, in the accountability of social and ethical issues, in daily and home life, caring for both developing countries and deprived people, grounding the virtual in the physical realm, being aware of the misuse and the capacity of the law, putting these issues with an historical perspective, and being sensitive to gender balance ... just to mention specifically the direct concerns of IFIP-TC9 and its working groups!

¹ Manuel Castells, 1996-1998: *The Rise of The Network Society. The Information Age: Economy, Society and Culture*, 3 vol., Oxford: Blackwell.

² For instance, in February 2004, Cingular, the number 2 in the USA mobile telephony, acquires AT&T wireless for US\$ 40,5 billions!

³ *Eurofutures. The Challenges of Innovation*, The FAST Report, Commission of the European Communities in association with the journal *Futures*, Butterworths, 1984, Table 2.1, p. 96.

⁴ Jari Aro, Narratives and Rhetoric of the Information Society in Administrative Programs and in Popular Discourse, in: *Informational Societies. Understanding the Third Industrial Revolution*, Erkki Karvonen, Ed., Tampere University Press, 2001, pp. 69-84.

⁵ Frank Webster, Global Challenges and National Answers, in: *Informational Societies. Understanding the Third Industrial Revolution*, Erkki Karvonen, Ed., op.cit. p. 260.

⁶ *Ethics and the Governance of the Internet*, Jacques Berleur, Penny Duquenoy and Diane Whitehouse, Eds., IFIP-SIG9.2.2, September 1999, IFIP Press, Laxenburg - Austria, ISBN 3-901882-03-0, 56 p. This monograph may also be found on the SIG9.2.2 website:

http://www.info.fundp.ac.be/~jbl/IFIP/Ethics_and_Internet_Governance.pdf

⁷ WITFOR, Commission 8, Social and Ethical Aspects of ICT, Jacques Berleur, H.E. Vigdis Finnbogadottir, Prof. Klaus Brunnstein, Ed., in: *WITFOR 2003*

White Book, Dipak Khakhar, Ed., IFIP Press 2003, pp. 259-339, ISBN 3-901882-18-9

⁸ Quoted by Jari Aro, *Narratives and Rhetoric of the Information Society in Administrative Programs and in Popular Discourse*, art. cit.

⁹ UNESCO Director-General: Education and Cultural Diversity are Key to Bridging Digital Gap,

http://www.unesco.org/webworld/news/2001/010131_davos.shtml

¹⁰ See, for instance, François Perroux, *La coexistence pacifique*, 3 vol., Paris, Presses Universitaires, 1958, 666 p., *Le pain et la parole*, Paris, Ed. du Cerf, 1969, 334 p., or, *L'Économie du XXème siècle*, 2de édition, Paris, Presses Universitaires, 1964, 690 p.

**PART 1 – POLICIES ON INFORMATION
AND COMMUNICATION
TECHNOLOGY IN SOCIETY**