

Information Society – what is it exactly? (The meaning, history and conceptual framework of an expression)

Author:

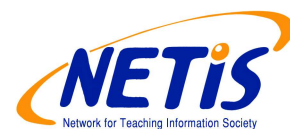
László Z. Karvalics

Budapest, March-May 2007.

Publication of this coursebook is supported by:



Leonardo da Vinci



This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Contents

- A concept and what lies behind it..... 5**
 - 1. Information society – the birth of a concept.....5
 - 2. Tribulations concerning the etymology of the information society.....7
 - 3. Information and knowledge – transcending an artificial separation.....8

- Defining the information society..... 10**
 - 1. Models instead of definitions..... 10
 - 2. The historical background of information society..... 14

- The theory of information society in operation..... 16**
 - 1. Three information society narratives..... 16
 - 2. Social informatics and information society 18
 - 3. Vital issues of information society..... 19

- Summary 21**

- Revision questions 22**

- Key terms 23**

- Bibliography..... 24**
 - 1. Key bibliography 25
 - 2. Optional bibliography 25

A concept and what lies behind it

By the turn of the millennium the use of the concept **information society** had already become widespread and was not only an everyday term in the social science vocabulary but was a term preferred by those involved in political planning, political marketing and in the world of business. In addition, it had triumphantly penetrated the language of the written and electronic media. However, it is exactly because of this sudden popularity that the content(s) of the expression has become “diluted”, and its use is now laden with contradictions and vagueness. What is more, some overambitious counter concepts have been proposed. If there were a generally accepted interpretation or definition based on the best arguments in the professional and scientific literature of information society, it might be easier to clarify the contentious questions and to restructure the sphere of problems that has become increasingly chaotic. However, there are numerous information society theories stemming from different areas of science built on diverging traditions. Thus, instead of a systematization based on “shared or common codes” there is a constant battle going on between individual and original information society concepts.

The situation is exacerbated further by the concept of the information society having developed separately from the very outset from that empirical Reality which is information society, and when it was finally connected through numerous alternative expressions it was already public ally accepted. This is why **information society studies** became established at a very late stage, just before the turn of the millennium, with one of its first tasks being to carry out a satisfactory “logical systematisation” in regard to the subject explored. All this could be the basis for serious professional discussions and debates and for the result to inform current higher education curricula.

Although this chapter aims to objectively present the most important starting points of this systematization, it is inevitable that because of the lack of accepted criteria (“standards”), in many cases it reflects only the author’s own standpoint.

I. Information society – the birth of a concept

The collocation “information society” as it is now used first emerged in Japanese social science(s) in the early 1960’s. The Japanese version of the expression (*joho shakai, joboka shakai*) was born during a conversation in 1961 between Kisho Kurokawa, the famous architect, and Tadao Umesao, the renowned historian and anthropologist. It debuted in written texts as the title of a study published in January 1964. The author was the aforementioned Jiro Kamishima but the title was given to the study by the editor Michiko Igarashi (Sociology in Information Societies). Three authors are in competition to win the imaginary award for being the first to use the collocation “information society” in their book’s title and due to the reconstruction difficulties in regard to the dates of preparation and publication of the manuscripts, it is almost impossible to decide which publication was the first: Yujiro Hayashi’s bestseller of 1969 (*Joboka Shakai: Hado No Shakai Kara Sofuto no Shakai e*, The Information Society: From Hard to Soft Society) or the introductory and popularising books by Yoneji Masuda and Konichi Kohyama published in 1968 (*Joho Shakai Nyumon* - Introduction to an Information Society). However, there is no doubt at all that the birth and fast consolidation of the concept is linked inexorably to the island country: as early as 1971 a systematising “dictionary” on information society was published in Japan (*Joboka Shakai Jiten*, Dictionary of Information Societies). The first English language reference dates from 1970 and can also be linked to Yoneji Masuda, who used the expression in his lecture at a conference (it

appeared in print in the same year). Of course all of this does not imply that the literature (in English) of the information society does not have even earlier antecedents. It was just that different expressions were used for the newly emerged social-economic entity, namely **post-industrial society** and **white collar revolution**. A common characteristic of these proto-concepts is that they isolated one of the components, i.e. one part, of the rapidly changing economic-social complex and suggested that it was sufficient to describe – in both a descriptive and metaphorical sense – the whole. As a result of this, several dozen terms, each with a different approach, proliferated between 1950 and 1980 and then – in our opinion around 1980 – they merged into a comprehensive, joint umbrella term combining the concept of information and society: this new concept included and encapsulated all the previous partial concepts and even preserved the expressive power, approach and attitude they represented.

The expression “post-industrial society” was coined in 1914 in Great Britain by Ananda K. Coomaraswamy and Arthur J. Penty, and later revived from 1958 in America (primarily by Daniel Bell) and from the end of the 1960s in French social sciences (likewise by Alan Touraine). At the beginning observers used it in a strongly normative (what should it be like?) or strongly predictive (what will it be like?) sense, but a shared presupposition of the authors was the accelerating “decomposition” and transformation of those industrial structures that had developed over a period of some two hundred years. Another aspect of the same structural changes was analysed by the Australian economist Colin Clark, who introduced the concept “the third (tertiary) sector” in 1940, drawing attention to the growing importance of services as opposed to material production (service economy=tertiary sector). In regard to technology, which forms the basis of production, the term “automation” (later “cybernation”), introduced by the automotive engineer of the Ford company D. S. Harder in 1946, facilitated the discussions for decades, and dozens of evocative terms were originated to designate the sweeping changes generated by the hurtling development of information technology, Of these the most well-known were the various manifestations of the computer and the scientific-technological revolution. The term “brain work” replaced “manual work” and opened the way towards the concept of information society. This was identified by the economist Alfred Marshall and the social philosopher and revolutionary Peter Kropotkin at about the same time, around 1890. For a while the word “intelligentsia” (“intelligence”), which spread in German-speaking areas after 1848 and in Russian-speaking areas after 1860, seemed to be a lucky choice to express the growing importance of those social groups in the labour market that emerged who were using their intellectual performance and knowledge to make a living. However, because of the increasing ideological “interference” connected to the word, the term “white-collar work” spread more widely in the 1950s and it also became an “official” term used to denote a basic category in statistics and employment. At first the term, created by Upton Sinclair in 1919, was used exclusively for office workers and those officials who moved from manufacturing industry towards intellectual work; however, later it was extended to workers who carried out activities requiring certain (mainly high) qualifications. Interestingly, it took a long time for teachers and scientists to “make it” into this category; this happened only at the beginning of the 1960s. Not long after this, the term *knowledge worker* was coined in 1967 by Peter Drucker.

From the end of the 1960s until the beginning of the 1980s it seemed that the term “post-industrial society” would become an umbrella term used to describe the major social transformation that had taken place, but the term became more and more contradictory and vague. On the one hand, the “traditional manufacturing industry based on manual work” was never the same as “industry”: it was Fritz Machlup, one of the pioneers of the information society discourse, who, using the language of economics, showed at the beginning of the 1960s that the production of knowledge is an economic activity and could be described with the terms used in the analysis of the industrial sector. He defined a unified *knowledge industry* by organising a structure using more than 30 industries. He reviewed the conceptual field, and then described one of its sectors, the knowledge producing sector, in detail. Finally, he pointed out that the biggest and most important sector of this industry was education. However, due to the increasingly complicated patterns of information, knowledge processes and institutes, other terms became successively unsuitable since they tried to balance the growing

complexity of production by including the quaternary and quinary sectors. Neither term, “white-collar” nor “brain work” was able to reflect the process by which knowledge itself was upgraded in the case of each worker and by which traditional industries became increasingly information and knowledge intensive. Furthermore, “post-industrial” had the secondary meaning of “post-capitalist”, which presented a problem since the capitalist foundation had not changed in spite of the many fundamental internal realignments concerning mainly the proprietary, power, and welfare dimensions.

In the end the term “information society”, which was the umbrella term used to describe the elemental social changes that took place in the second half of the 20th century, remained alone in the ring. But not for long: the term quickly filtered through to the political sphere and the language of the media, and as a result of this it has had to face multiple challenges ever since.

2. Tribulations concerning the etymology of the information society

Because of the latest “wonders” of the ever accelerating technological revolution, and to the media reporting of these wonders, by the mid-nineties, the “acoustics” of the concept of information society were defined by increasingly stronger links with technology, and not by sociological or sociotheoretical models. For a while, the European Union’s political practice interpreted and used the concept in a way that was completely alien to its meaning almost declaring that the liberalization of telecommunications was equal to information society itself. They then, by transposing the hardware-software-internet complex, expanded it to include all the tools of informatics. With this simplifying, restrictive interpretation of the concept of “information society” which is miles from the original meaning, it would be fair to say that in fact it is the essence we have lost. For we should not seek the true dimensions of information society within telecommunications or informatics, but rather in *education, science, innovation, the (new) economy, content and culture*. The “actualisation”, or “refreshing” of the concept’s usage did not take place on the system level of interpretation, in the course of clarifying discussions, but through verbal partisan warfare. In parallel with “knowledge” appearing more and more often as a relevant context, it seemed appropriate and *justified to connect the surplus meaning to a new expression related to knowledge* (information society *contra* knowledge society, knowledge-based society).

Such is the nature of language, this lively, self-creating system: if it senses in an expression an obstacle between expression and mutual understanding, it immediately creates a “rival” that flows into the communal field or area of language use, and creates a course of its own in everyday communication. Conceptual multiplication can in fact be *considered as an attempt to return to the originally complex, paradigmatic, holistic interpretation of the concept of “information society”*. The trouble is that this change was not based on reflection related to awareness, deliberation, choice and arguments, but rather the slowly interweaving, independent behaviour of “verbal innovative centres” that pointed in the same direction. For this reason, the basic question could not be solved: *the interpretations remained arbitrary, people continued to give unique meanings to each expression*.

What is more, the situation became even worse, for behind the banal change of function of meanings, supposedly scientifically based explanations of an ideological nature started to appear, “deducing” why and to what extent *knowledge-based society* or *knowledge-society* was worth more than *information society*. The question is thus degraded to the level of trench warfare: someone says the definition of information society is such and such (using the expressions “information processes” and “information technologies” as often as possible), then goes on to show us how much deeper and more subtle the picture is if we talk about knowledge processes and knowledge technologies, consequently, the expression *knowledge society* designates a more “progressive” state than *information society*. Moreover, this polemic literature is not even consistent. Some say that *information society is one of the components of knowledge society*, which is not at all surprising, since *information* is one of the constituent parts of *knowledge*. Others are of the opinion that *knowledge society will take the place of or “overwrite”*

information society as an outdated term. And the debate drags on; *each statement can be traced back to how the concept of information society is watered down/weakened*. Despite the antecedents of specialized literature and the previous contexts, the terminus technicus *information society* is continuously becoming weaker, and the scientific community, whose members study the science of information society are yet to come terms with this fact.

3. Information and knowledge – transcending an artificial separation

This unproductive, contradictory and incoherent state was able to develop because the concepts of information and knowledge were quite ambiguous from the start. In other words: no criteria from the social sciences of information and knowledge were developed whereby contemporary socio-theoretical studies could be made with the help of clear conceptual tools. There is a mathematical-statistical theory of information which is insensitive to the dimensions of quality, and cannot transmit operational work-concepts to the social sciences. With reference to the concept of information in the case of library and documentation science, it is only valid for a restricted problem-area. The sociology of knowledge or the methods of the cognitive sciences are only sensitive to certain questions regarding the phenomenon of information or that of knowledge, and do not strive to create a general theory of information or knowledge.

Even the “classic” texts of information society can be blamed for treating the question superficially, without offering a solution. Those who are interested in the nature of “information” have done a lot more than those who elegantly avoid thinking about the basic category, or deal with it by plagiarizing a useless Shannon-Weaver formula. Fritz Machlup and Daniel Bell are aware that, within the framework of system analysis and cybernetics created mainly by Norbert Wiener, the meaning of information and knowledge should be clarified, and they do indeed take a few steps in that direction. In 1962 the economist Machlup pointed out that it is redundant to talk about knowledge *and* information; in fact, we are talking about the same quality. At a later stage he became one of the initiators of that inter-disciplinary movement which, from the second half of the sixties, endeavoured to create a “general information theory”. Daniel Bell, however, caused quite a lot of harm by interpreting the relationship between information and knowledge, on the basis of some philosophical, logical, or epistemological and knowledge-based sociological readings in a superficial and limited way thereby categorically refusing to use the concept of information society.

The group of phenomena comprising higher psychic functions, the nervous system, consciousness and the functioning of the mind can be described by a complexity-continuum. We are talking about an unbelievably large and complex universe of closely related, intertwining operations and objects, patterns and models. Squeezing all this into one of the extremely simplifying pseudo-models actually leads us further away from getting to know the real structures and natures. How can one possibly believe that with the duality of “information” and “knowledge”, and perhaps “wisdom” as the third, one has understood and written down anything concerning this incredibly complex system? Although the “general social science of information” has not yet come into being, some of its preliminary axioms can already be articulated efficiently.

- The processes of information production take place in the minds of individuals, not in natural or artificially maintained “exterior” locations (this immediately places the investigation of the flow of information into a “human” and “social” frame, while technology becomes a secondary consideration).
- The systems of information technology operate with information converted into symbols, computers and machines process symbols, minds and intellects process information.
- Knowledge can be defined as further transformed or contextualised information.

When we talk about information and knowledge, we are talking about two indivisible components of a single, unified, cognitive universe. When we talk about the information society, we are condensing into the territory or range of the concept's interpretation all the meanings and connections that appear undivided in the clusters of expressions related to the processes of information and knowledge.

We can get closer to the essence of the information society by examining its components instead of using extremely concise definitions.

Defining the information society

In the case of a highly abstract concept such as the information society short definitions may emphasize completely different aspects while one of the dimensions of the group of phenomena of information and knowledge is the central element of organisation. We have chosen the following definitions from among fifty others:

- A society that organises itself around knowledge in the interest of social control, and the management of innovation and change... (*Daniel Bell*)
- A new type of society, where the possession of information (and not material wealth) is the driving force behind its transformation and development [...] (and where) human intellectual creativity flourishes. (*Yoneji Masuda*)
- The information society is an economic reality and not simply a mental abstraction ...The slow spread/dissemination of information ends [...] new activities, operations and products gradually come to light. (*John Naisbitt*)
- A society where [...] information is used as an economic resource, the community harnesses/exploits it, and behind it all an industry develops which produces the necessary information ... (*Nick Moore*)
- A social structure based on the free creation, distribution, access and use of information and knowledge [...] the globalisation of various fields of life. (*Hungarian National Strategy of Informatics, 1995*)
- A new type of society in which humanity has the opportunity to lead a new way of life, to have a higher standard of living, accomplish better work, and to play a better role in society thanks to the global use of information and telecommunication technologies.” (*Béla Murányi*)

It is evident that the definitions are based on hidden preconceptions regarding which areas of life change significantly: some are centred around resources, others around products, or industries, or activities, or society and people. Some consider the representation of global dimensions extremely important, while others do not. Some are of the opinion that political dimensions (control) are basic, others do not even mention it. All this points in the direction that in order to reveal the content of the concept, one must explore all the possible points for examination of conduct and employ multi-dimensional analyses.

I. Models instead of definitions

We shall now introduce three “classical” divisions, then propose a more complete, synthetic model.

In his “high-definition” analysis, which, to this day, is the most often quoted analysis of information society, Daniel Bell surveys the characteristic differences reflected by the social-historical phases - simplified into three main periods – along nine distinctive aspects. These are as follows: *Economic sector, resources bringing about change, strategic resources, technology, knowledge-base, methodology, time perspective, planning, guiding principle.*

1. Table: Dimensions of the information society according to Daniel Bell

	Pre-industrial	Industrial	Post-industrial
Mode of Production	Extractive	Fabrication	Processing; Recycling
Economic sec-	Primary	Secondary	<u>Services</u>

Information Society – what is it exactly? (The meaning, history and conceptual framework of an expression)

tor	Agriculture Mining Fishing Timber Oil and gas	Goods producing Manufacturing Durable products Non-durable products Construction industry	Tertiary Transportation Utilities Quinary Health, education, research, government, recreation	Quaternary Trade Finance Insurance Real estate
Transforming resource	Natural power wind, water, draft animals, human muscle	Created energy Electricity - oil, gas, coal, nuclear power	Information Computer and data-transmission systems	
Strategic resource	Raw materials	Financial capital	Knowledge	
Technology	Craft	Machine technology	Intellectual technology	
Skill base	Artisan, manual worker, farmer	Engineer, semi-skilled worker	Scientist, technical and professional occupations	
Methodology	Common sense, trial and error; experience	Empiricism, experimentation	Abstract theories, models, simulations, decision theory, system analysis	
Time perspective	Orientation to the past	Ad hoc adaptiveness, experimentation	Future orientation: forecasting and planning	
Design	Game against nature	Game against fabricated future	Game between futures	
Axial principle	Traditionalism	Economic growth	Codification of theoretical knowledge	

Source: Bell, 1979

The three great periods correspond to those defined in the *The Third Wave* (1980) by Alvin Toffler (the most widely read book about information society, translated into more languages than any other work) and – applied to a time axis – they are perfectly identical with the typology used by Tadao Umesao, who divided the economy into *endodermal* (agriculture, fishing), *mesodermal* (transportation, heavy industry) and *ectodermal* (information, communication, training) sectors.

2. Table: Comparison of the characteristics of the industrial and information society by Yoneji Masuda

		industrial society	information society
Innovational Technology	Core	Steam engine (power)	Computer (memory, computation, control)
	Basic function	Replacement, amplification of physical labour	Replacement, amplification of mental labour
	Productive Power	Material productive power (increase in per capita production)	Information productive power (increase optimal action-selection of capabilities)
Socio-economic structure	Products	Useful goods and services	Information, technology
	Production centre	Modern factory (machinery, equipment)	Information utility (information networks, data banks)
	Market	New world, colonies, consumer purchasing power	Increase in knowledge frontiers, information space
	Leading industries	Manufacturing industries (machinery industry, chemical industry)	Intellectual industries, (information industry, knowledge industry)
	Industrial structure	Primary, secondary, tertiary industries	Matrix industrial structure (primary, secondary, tertiary, quaternary/systems industries)

Economic Structure	Commodity economy (division of labour, separation of production and consumption)	Synergetic economy (joint production and shared utilization)
Socio-economic principle	Law of price (equilibrium of supply and demand)	Law of goals (principle of synergetic feed forward)
Socio-economic subject	Enterprise (private enterprise, public enterprise, third sector)	Voluntary communities (local and informational communities)
Socio-economic system	Private ownership of capital, free competition, profit maximization	Infrastructure principle of synergy, precedence of social benefit
Form of society	Class society (centralized power, classes, control)	Functional society (multicentre, function, autonomy)
National goal	GNW (gross national welfare)	GNS (gross national satisfaction)
Form of government	Parliamentary democracy	Participatory democracy
Force of social change	Labour movements, strikes	Citizens' movements, litigation
Social problems	Unemployment, war, fascism	Future shock, terror, invasion of privacy
Most advanced stage	High mass consumption	High mass knowledge creation
Values	Value standards	Material values (satisfaction of physiological needs)
	Ethical standards	Fundamental human rights, humanity
	Spirit of the times	Renaissance (human liberation)
		Globalise (symbiosis of man and nature)

Source: Masuda, 1980

In contrast to Masuda, Schement and Curtis reduce the “essential components” to six categories. The categories related to goods, industry and work incorporate a number of the already known possible elements but entirely new ones, such as interconnectedness, media environment and community, also appear in their work and are even represented as being equal to goods, industry and work.

3. Table: The six characteristic and determining components of information society by Schement and Curtis

Category	“Content” behind the category
Information commodities	market- and commercial processes related to their production
Information industry	industries built on the large-scale manufacturing, production, distribution and consumption of information in an increasingly global competitive arena, where information export is the measure of economic “fitness”
Information work	traditional employment indicators are gradually shifting towards more employers (and professions) dealing with information due to the nature of the work involved
Interconnectedness	increasing social complexity and labour distribution are realised through increasingly indispensable technological support systems, while technology facilitates the emergence of secondary networks in addition to the traditional (primary) ones
Parallel use of several media	the cohesive power of communities of increasing size, independent of the debates surrounding the disfunctions of the (new) media
Interaction of technological and social progress)	Strengthening of new community formulae versus traditional (economic, scientific (!) and political) elites.

Source: Schement, J. R. - Curtis, T., 1997

At the end of the overview of examination criteria comes a synthetic table which partly improves the previous models and partly specifies them. This table includes formulations to make individual elements measurable

and thus answers the question of from which point and to what extent of deviation from absolute or relative indicators can a society be regarded as an information society. That is, where is the tipping point from one state to another in a sub-system or in regard to a characteristic, and through this, of all society. The same table will demonstrate that in many cases it is typical of metaphors found in book titles to focus only on particular limited areas. Returning to the idea proposed in the introduction, we should restate that the term information society is not a “rival” of these terms (see Metaphor column below) but an umbrella term incorporating them all.

4. Table: Synthetic basic categories of information society, their measurability and metaphors

Basic category	Measure and “tipping point ”	Metaphor
Production (Manufacturing)	The proportion of businesses forming part of the information sector and producing information and knowledge products in relation to other sectors (relative dominance: when it is the largest sector; absolute dominance: when the sector alone produces over 50%, i.e. it is larger than all the others put together).	<i>information industry, knowledge industry, information and knowledge industry, information economy, knowledge economy, knowledge-based economy</i>
Employment	The number and proportion of those employed in the information and knowledge sectors in relation to other sectors (relative dominance: when it is the largest sector; absolute dominance: when the sector alone produces over 50%, i.e. it is larger than all the others put together).	<i>white-collar workers, information and knowledge workers, immaterial workers, knowledge class intelligentsia</i>
Work	How many people and to what degree are engaged in information activity “as a profession” according to the type of work done. (threshold level: 50%)	<i>symbol manipulators (Reich, 1991), intelligence, brain-worker/ mind worker</i>
Resource and technology	Information and knowledge appear as resources and forms of capital in addition to traditional forms - the theory of growth and accounting strive to mathematise this but so far there are no accepted algorithms. (However, the contribution of information and knowledge technology to growth is already measured).	<i>intellectual capital, human capital, information capital, corporate information and knowledge assets</i>
Income and wealth	GNP on a national level, monthly income on an individual level. There are no accepted measures in regard to the amounts; what is more, these amounts vary depending on the time of joining the information society. \$5,000/person/month was the threshold level at the turn of the 1960s in the USA..	<i>affluence, welfare state</i>
Consumption	The proportion of purchased information and cultural goods, means and services in the consumer basket, especially in regard to media contents (threshold level: 33%).	<i>consumer society, prosumers, mediatised society</i>
Education (level of education)	Proportion of those with a qualification earned in higher education (degree holders) in society. Threshold level: 50%.	<i>learning society, meritocracy</i>
Cognition	Results and scales in the measurable dimensions of cognition; microscopic dimensions, astronomical distances and scales, discovered genocombinations, sign processing, etc.. The scale to measure this is still to be worked out.	<i>life-long learning, scientific revolution, nano-scale, petascale</i>
Conflict management method and power technique	Replacement of traditional forms of warfare, placing economic conflicts into an information context (business intelligence, innovation competition). The “state of democracy” of society, types and mediators of control. There are some methods used to measure the “degree” of democracy.	<i>information warfare, cyber wars, business intelligence, bureaucracy, control crisis-and revolution, risk society</i>
Inter-connectedness	The degree of mutual connectedness (objective in the case of telephone networks: provision over 50%).	<i>telematic society, “wired society”</i>
Worldview and logical framework	Has the static and energy-centred worldview been replaced by an information-centred one? Have the global system level and the “space age” become a framework for analysis and interpretation? Is orientation to the future a characteristic feature?	<i>global village, technoculture, information civilisation</i>

Based on the above described criteria, the subsequent parts of this chapter will explore the emergence of information society as to its rhythm, means, time, environment and specific characteristics.

2. The historical background of information society

Misunderstandings and distortions related to information society sap the power of the term by constantly placing its dawn or arrival somewhere in the distant future and thus we create and maintain a feeling of “transition”. Alternatively, some do the exact opposite and try to prove that an information society existed as early as the late 19th century (more recently some even suggest the late 18th century), while some others go as far as to question the viability of the term by saying that “information” and “knowledge” have always played an important role in history. However, information society is to be understood as a strongly historical notion, in a chronological order: it refers to a social condition (quality) which a given society can claim to have “attained” by taking various criteria into consideration as opposed to the prior stage of development it had achieved.

There is no consensus in literature in regard to when individual countries “entered” information society and what variables should be examined. Interestingly, few scholars take a clear stand on this question and even if they do, they do so very rarely. Alvin Toffler and John Naisbitt insist that for the United States the “tipping point” into information society was in the late 1950s. Others date this from the late 1960s. However, if the easily measurable criteria of Table 4 (production, employment, work, level of education, interconnectedness) are used, a “rhythm” is taking shape, of the “third wave” taking its course across the Globe. This is despite the inconsistencies of retrospective data queues enabling a rough estimation – lacking rigorous and accurate calculation.

Naturally, after the dominance requirements were satisfied *the developed countries of the world gradually became “information societies”* and their development continued after this but with new indicators ;e.g. the number of telephones was then the best measure of interconnectedness, while today the basic indicators for this are mobile-phone and internet usage.

According to a tentative assessment, the United States became an information society in the early 1960s, with Japan joining ten to fifteen years later and the pioneering countries at the end of the 1970s, with other fast developing countries (primarily Asia’s four little tigers) attaining the same at the beginning of the 1990s. In the case of countries that joined the EU at a later stage, among them Hungary, this entry dates from around the millennium. A great part of Africa, Asia and Latin America cannot be regarded as information societies. One of the characteristics of the Information Age is that pre-industrial, industrial and information societies live side by side. A “global information society”, despite the stark inequalities, will become a reality when the high indicators of the most developed countries will balance the rising yet still low indicators of the other countries. This process is similar to the process whereby in some countries the changes that first appeared in the most developed urban environment, i.e. the most urbanised regions, slowly spread to the less developed, typically rural, regions.

In the United States, for example, based on its indicators, the capital and its environs (*Greater Washington Area*) were regarded as an information society as early as the 1950s. Within a few years, the New York-Boston axis attained the same status, and by 1955 the entire east coast, the “Megapolis” and California, as well as the Great Lakes mega region joined. Based on national indicators it could be claimed that at around 1960 the United States, which is the size of a continent, had become an information society. City states (for example

Singapore and Hong Kong), smaller island countries (such as Taiwan and Ireland) and the “small states” (such as Finland, Slovenia and Estonia), where the internal penetration time is “minimal”, became information societies incredibly fast, and of course some “super-urbanised” cities showed signs of the information society long before the entire country did (such as Stockholm in the early 1960s).

If a single “emblematic” year denoting the “beginning” of the information society is to be specified for future history textbooks, it should be 1961. This was the year when the main economic indicators in the United States “tipped over”, and when the prototype of the computer network which forms the technological “tissue” of information society was built. This was the time when humanity entered the space age and embarked upon signal transmission via satellite, and finally, as mentioned beforehand, the term “information society” was coined.

There are – rather tentative – estimations about the birth of global information society: the tipping point in this case is expected around 2018-2020. It is also certain that countries that have undergone or are undergoing significant changes after having attained the state of information society were and are able to considerably improve their indicators and this more advanced stage could be termed **“developed/advanced information society”** (with a dominance rate expected around 66-75%, as opposed to 50% plus).

Let us look beyond numbers and see how theories have taken shape.

The theory of information society in operation

Information society literature distinguishes three interrelated, yet in their essence, distinct problem areas depending on the level of abstraction in the approach taken by an author when studying a subject, as well as in the complexity with which they present this subject and the depths they choose to explore.

I. Three information society narratives

The “great narrative” – the civilisation theory as context – analysis at the macro level

Numerous well-known theories have emerged out of the intertwining of *historical sociology*, *social philosophy and culture theory*, operating with more and more daring categories as information society is advancing. The most comprehensive domain for exploration is designated the “civilisation theory” level.

The early literature written about information society by the Japanese Tadao Umesao, the Canadian Marshall McLuhan and the American Alvin Toffler took this approach when they studied information society in order to formulate a coherent system. It is undoubtedly the information-based civilisation theory of the Japanese Shumpei Kumon that represents the most daring intellectual quest in the subject.

The civilisation theory approach takes the entire discipline of social history as its subject matter: presenting the information society in this context as fundamentally the end product of an intellectual process and not its actual subject. When the time came for the idea of “paradigm change” to be introduced into the public discourse, it was world history and analyses embracing periods of hundreds of years that provided the terminological toolkit to precisely and tangibly describe the depth, dimensions, scale, significance and evolutionary pattern of the ongoing processes. Since it has been accepted that this change is really taking place, the horizon and the time axis have become narrower but the questions posed by authors are those most socially comprehensive. For example, how do techniques of community organisation and co-ordination replace each other and change? How does the human psyche change? How are mechanisms of economic and political control transformed and what impact does this have on the environment and the relationship between man and nature?

The “small narrative” – development theory as context – the meso level

There is no doubt that Manuel Castells’ applauded trilogy “The Information Age” is the high point in the use of that small narrative genre up to now. The strivings of leading economic researchers, sociologists and political scientists to chart the most important structural principles and transformational logic since the 1960’s reaches its zenith with this work. Distinctively, Castells manages to surpass traditional reasoning by offering a compact and multilayered foundation linking *economic-and political, as well as cultural theory*. He has provided thus far, the most complete empirical embedding (with volumes of data queues) and at the same time created a unified terminological framework by the consistent application of the principle of the “network” for the study of the new set of social phenomena pertaining to the information society. After Castells, no matter how excellent they may be, “single-viewpoint” approaches seem jaded and lacking.

Thus, there is a fount of exciting issues below the civilisation theory system level, too. Dozens of new and fundamental phenomena can be found in the small narrative, their shared feature being that they all operate on a highly abstracted level when discussing issues of transformation in individual social subsystems; the network economy, new social and community phenomena, the generation of the digital era, characteristics of the new means and media environment, the power and communication pattern of the new world order, the rise of cyber science.. These issues are related to various prominent “problem groups”; there are the issues pertaining to information inequalities, most often discussed in the form of analyses of the digital divide; there are the complex set of questions related to information literacy, which touch upon important disciplines ranging from pedagogy to psychology; there is the multidisciplinary interpretation of the information games between citizens and authority; as well as the legal and legal-philosophical problems generated by production and consumption of intellectual goods.

In addition to the above, the small narrative responds sensitively to the dynamics and structural transformations in already existing information societies. It addresses questions such as what stages, models and types exist within information society development and what rules it is governed by. What new information does the study of information society produce? How could the new and comprehensive individual “paradigms” be best captured? (For example, by introducing expressions such as *ambient intelligence* used to denote the universal environment of means and transactions, by a diverse analysis of the “virtual” dimensions of reality, or by exploring the internet phenomenon using a comprehensive and complex social science approach.)

The “mini narrative” – praxis and reflection – micro level

The predominant majority of mini narrative texts are produced in workshops and by authors who explore certain smaller slices of reality that are significant for practical considerations, while typically looking for answers to challenges in their own discipline or having found a location for their discussions in the digital context.

Since the means and institutions network built around information and communication technologies - from mobile telephony and internet service providers, information desks at railway stations to libraries and archives - inter-penetrates every area as an “application”, every “meeting point” becomes a theme giving rise to a whole range of tasks to be discussed and researched along the lines of fact finding, information proliferation and contextualisation.

The practical aspect of the mini narrative reveals itself in its purest form where direct intervention is a prerequisite for finding new information. In the case of economic players this means product development and innovation. In the public sphere it appears as *information strategy*, that is, information-conscious political planning as a new practice of social and economic control focusing on issues pertaining to information society. Information strategies, that is, programmes aimed at building the information society, added a series of contextual sciences into their own arsenal, and as a result of this *freedom of information* and *information privacy* have gained greater importance than before.

Narratives embedded into one another

The narratives and abstraction levels naturally are not clearly separate from one another. It is especially exciting to unravel how experiences on the micro level help in the formulation of more comprehensive theories, and the way a given “great narrative” starting point fundamentally determines the approach taken when analysing an everyday phenomenon. The interrelatedness between the narratives is always present and offers many challenging issues. Let us look at three concrete examples to demonstrate how this works.

Analysing the *smiley language* (little icons used to add colour to written communication) is a popular topic in the mini narrative posing no real professional challenges which is similar to the linguistic study of network jargon. However, issues related to changes in written communication and in the acquisition of language and writing are topics to be researched on a higher, meso level. Furthermore, issues such as the linguistic diversity of the internet age and the dilemmas of *lingua franca* in a globalising world are topics of research on a civilisation theory level.

Another example could be the examination of money. This fundamental element of the economy can be studied from the “bottom”, too. The technological, criminal, banking industry and psychological issues related to credit card fraud are typically in the realm of the mini narrative. However, the examination of how the appearance of electronic money restructures the money and information flow in the economy takes the researcher to a higher level of complexity, that of the meso level. Moreover, a civilisational aspect opens up when exploring the issue of whether the historically emerged form of money, which is the information medium of measuring transactions between various economic players, will disappear due to the emergence of new, “more advanced” forms of mediation thus eliminating several harmful disfunctions of the former. Another question that can be raised at this level may be: will the shortening of the information value chain between the producer and consumer challenge the laws that have been strictly regulating the operation of the economy for thousands of years?

Finally, let us take the example of urban space. The IT system of a local government, a newly launched electronic bus ticket or their surveillance cameras raise questions on a micro level, as do political programmes aimed at the building of an “intelligent city”. However, the same problems can be approached on a different level: issues such as information models determining processing that govern a city’s operation, the construction and use of network structures, the reorganisation of spaces made available as a result of “deindustrialisation” and issues of post-industrial urban planning have a strongly “small narrative” character. The “great narrative” can also be applied here when we make an attempt to describe the process of information society development in the context of urbanisation, and when we explore the dynamics of the further development of global settlement networks; that is, the planetary size “super city”, the Antropopolis, and the decentralisation process resulting in the “rediscovery” of rural areas.

2. Social informatics and information society

In agreement with Alistair Duff, we regard analysis of information society at the civilisation theory level to be the “classical” great narrative for information society, and *social informatics* to be the scientific area where the observation takes place on meso and micro levels.

Several terms have been coined in the last forty years to delineate the area of interdisciplinary research and knowledge into the social issues pertaining to telecommunication and computing. The English (*computers and society*, *social impacts of computing*, *social issues of computing and social analysis of computing*) and French (*l’informatization de société*) expressions used to name this area have become widely known. However, there is still no commonly accepted single term used in scientific taxonomy. Rob Kling, the recently deceased pre-eminent scientist and research organiser, claims that since 1996 the term “*social informatics*” has been accepted by the scientific community as representative of a cross section of the aforementioned expressions, but it is actually not the case. Indiana University, where Kling worked (as well as some other departments on the North American continent that emulated IU’s idea) presents a possible approach. However, the institutions of higher education and research institutes across the world apply the most diverse terms and thematics when they explore the social issues arising from information technology.

Accordingly, this text agrees that “social informatics” is accepted by the professional community as a complementary term for “information society” which falls in the scientific realm of the micro and meso levels. Until this terminological clarification is finalised, it is our contention that the expression “social informatics” can be best used in courses of higher education. The acute problems of informatics can only be addressed and described by applying a comprehensive approach that incorporates issues from the social sciences. Therefore, the expected outcome of social informatics courses is for students to master such an approach and a corresponding way of thinking, and to acquire the skill to find their way in the jungle of challenges and through the vast number of themes. To achieve this, it is essential to provide students with an adequate basis in social science knowledge and terminology, as well as the skill to detect trends. Students should also be able to take a position in strategic political discussions on informatics as well as argue a critical stance on issues and in the various debates related to the Information Age.

3. Vital issues of information society

In light of what we have said above we share the view that the essential issues of information society should be studied in the context of civilisation theory. This means that all civilisation issues that generate discourse are *par excellence* regarded as issues of information society, since they come into being in the context of today’s information societies. This is reflected by the collocations typically used in information society literature.

- The concept and issues of the “*global information society*” address all the significant components of the supranational system of organisation. In fact, there are a great number of problems that were raised independently of one another, but primarily those of identity, international communication, international organisations, the “world wide web”, supranational regulation, migration processes, multiculturalism and global knowledge management are comprehended in this discourse.
- The concept of the “*sustainable information society*” raises long standing problems of the environment and natural resources, with social innovation and action planning determining the future development of the information society by providing normative viewpoints with regard to sustainability. In certain cases the demand for “green information society” arises.
- The umbrella term “*the safety of the information society*” comprehends many problem areas ranging from the issue of society becoming “fragile” as a result of being at the mercy of technology, through questions of the preservation and preservability of the accumulated knowledge of mankind to the anthropogenic threats our civilisation is exposed to. Ulrich Beck’s famous term risk society was coined in response to these problems.
- The expression “*space-oriented information society*” signifies that the dynamics and direction of pan-human activity point more and more markedly beyond the Earth’s confines. What is more, the history of information society has manifold connections with space research, since its beginnings overlap with satellite information transmission, an important technological solution enabling the emergence of the information society, while today’s high-tech achievements in remote manipulation, data transmission and astronomy aptly reflect the inquisitive nature and the dynamics of information society.
- The “*electronic Orwellian world versus digital Athens*” debate questions what direction the new information means will take the relationship between authority and the citizen. Will the world shift towards the “brave new world” of being observed and controlled or towards a new democracy of digital agoras?
- The concept “*intelligent city*” signals the translation of information society onto settlement level reminding us that urbanisation played a significant part in the emergence of information society.

- The “*Corpus Digitale*” discourse raises the issues pertaining to the recording, preservation and access to pan-human knowledge.
- The expression “*creative information society*” is used to refer to mass proliferation in the skill of producing original knowledge. This is presented in the business literature as productivity while others regard it as generating an employment revolution for the individual. The birth of a “creative class”, as Richard Florida (2002) calls it
- The concept “*post-information society*”, which emerged in recent years, has proposed numerous future scenarios to describe possible futures surpassing the current institutions and technologies; biotechnological revolution, new generation of artificial intelligence, visions of the fusion of man and machine into functional systems.

Summary

“Information society” is a term used to describe the most recent stage of social history. In the 20th century the most developed countries gradually entered the state of information society and it is expected that within a matter of a few decades the majority of the world’s population will be living and working in a global information society.

Although the concept came into being around the same time as the new social formation, it gained wide recognition and acceptance only from the early 1980s, by which time there were competing attempts to establish “proto-concepts” to denote the new paradigm that was emerging at the time. Then, suddenly, a struggle started to counter emerging “counter concepts” and oppose the tendency to apply the term information society in a limited way merely in the context of information technology. The opposition intended that the concept would regain its original, holistic meaning, applied in the context of civilisation theory. Efforts to achieve this may also be seen in information society studies that emerged in the second half of the 1990s, aided by social informatics, which deals with the analysis of micro and meso level phenomena as well as social issues pertaining to information and knowledge technology.

It is not definitions that will reveal the genuine meaning of information society but comprehensive analyses extending to all sub-systems. In this way we will be able to measure when a country “switches” from an earlier state into the ‘information society’. Three levels of taxonomy (“great narrative”, “small narrative” and “mini narrative”) provide the framework for the literature of information society with the most fundamental challenges emerging at the level of analysis of civilisation theory issues.

Revision questions

1. List the proto-concepts of information society and explain why an umbrella term needed to be introduced.
2. Where and when did the concept of information society come into being? How did its meaning become more narrowly focussed at a later stage?
3. In which “sub-systems” does the emergence of the information society seem most measurable?
4. Demonstrate how the interrelated micro, meso, and macro-level discourses of information society are built up. Use examples other than those presented in this chapter.
5. Add some more vital issues of information society to the examples listed in this chapter.

Key terms

Information society: A new form of social existence in which the storage, production, flow, etc. of networked information plays the central role. (There are several other definitions of the concept.)

Information society studies: An area of science that emerged in the 1990s for the systematic study of information society issues and its “translation” into higher education curricula.

Post-industrial society: This term was the most frequently used one before the expression “information society” gained overall acceptance; it defined the newly emerged social-economic phenomenon by emphasizing the fact that the old structures of the industrial era were replaced by new ones rather than by focussing on its “content”.

Social informatics: A strongly interdisciplinary research field exploring the meso- and micro levels of information society and the social issues pertaining to telecommunication and computing.

White collar revolution: Jean Gottmann used this expression for the title of chapter 11 of his book *Megapolis*, published in 1961; it is the first analytical description of information society.

Bibliography

- Beck, Ulrich (1992): *Risk Society: Towards a New Modernity* (Sage, London)
- Bell, Daniel (1976): *The Coming of Post-Industrial Society: a Venture in Social Forecasting* (Basic Books, New York)
- Bell, Daniel (1980): The Social Framework of the Information Society (in: Forester, T. /ed./ *The Microelectronics Revolution: The Complete Guide to the New Technology and Its Impact on Society*, MIT Press, Cambridge, Mass.)
- Beniger, James R. (1986): *The Control Revolution. Technological and Economic Origins of the Information Society* (Harvard University Press)
- Castells, Manuel (1996): *Information Age: Economy, Society and Culture, Volume I: The Rise of the Network Society* (Blackwell, Oxford)
- Castells, Manuel (1997): *Information Age: Economy, Society and Culture, Volume II: The Power of Identity* (Blackwell, Oxford)
- Castells, Manuel (1998): *The Information Age: Economy, Society and Culture, Vol. III.: The End of the Millennium* (Blackwell, Oxford)
- Center for Social Informatics (School of Library and Information Science, Indiana University, Bloomington. www.slis.indiana.edu/kling, accessed 13 May 2005)
- Dordick, Herbert S. – Wang, Georgette (1993): *The Information Society. A retrospective view* (SAGE Publications, Newberry Park, California)
- Doxiadis, C. A. (1975): *Anthropopolis. City for Human Development* (W. W. Norton & Company Inc., New York)
- Duff, Alistair S. (2000): *Information Society Studies* (Routledge Research in Information Technology and Society, Routledge)
- Ito, Youichi (1991): *Birth of Jobo Shakai and Jobo-ka Concepts in Japan and Their Diffusion Outside Japan* (Keio Communication Review 13: 3-12)
- Florida, Richard (2002): *The Rise of the Creative Class: And How It's Transforming Work, Leisure, Community and Everyday Life* (Basic Books, New York)
- Kedzie, Christopher L. (1997): The Third Waves (in: Kahin, Brian – Nesson, Charles: *Borders in Cyberspace: information policy and the global information infrastructure*, Harvard University Press, Cambridge, Mass)
- Kling, Rob (1999): What is Social Informatics and Why Does it Matter? (in: *D-Lib Magazine* 1999/1)
- Kumon, Shumpei (2001 [1994]): *Theory of Information-oriented Civilization* (NTT-shuppan, Tokyo)
- Kurokawa, Kisho (2000): An Unrealized Project – Centre Georges Pompidou (in: *Virtual Architecture. Tokyo University Digital Museum*, http://www.um.u-tokyo.ac.jp/dm2k-umdb/publish_db/books/va/english/illusive/16.html, accessed 25 January 2007)

- Machlup, Fritz (1962): *The Production and Distribution of Knowledge in the United States* (Princeton University Press, Princeton, N. J.)
- Masuda, Yoneji (1980): *The Information Society as Post-Industrial Society* (The World Future Society, Tokyo, IIS, Washington D. C.)
- McLuhan, Marshall, (1962). *The Gutenberg Galaxy: The Making of Typographic Man* (University of Toronto Press, Toronto)
- Schement, J. R. – Curtis, T. (1997): *Tendencies and tensions of the information age* (Transaction Publishers, New Brunswick)
- Touraine, Alain (1969): *La société post-industrielle* (Denoël, Paris)
- Wiener, Norbert (1948): *Cybernetics* (MIT Press, Cambridge, Mass.)
- Wiener, Norbert (1950): *Human Use of Human Beings* (Da Capo Press, New York)

1. Key bibliography

- Masuda, Yoneji (1980): *The Information Society as Post-Industrial Society* (The World Future Society, Tokyo, IIS, Washington D. C.)
- Toffler, Alvin (1980): *The Third Wave* (William Morrow and Company, New York)

2. Optional bibliography

- Bell, Daniel (1976): *The Coming of Post-Industrial Society: a Venture in Social Forecasting* (Basic Books, New York)
- Bell, Daniel (1980): The Social Framework of the Information Society (in: Forester, T. (ed): *The Microelectronics Revolution: The Complete Guide to the New Technology and Its Impact on Society* MIT Press, Cambridge, Mass.)
- Beniger, James R. (1986): *The Control Revolution. Technological and Economic Origins of the Information Society* (Harvard University Press)
- Castells, Manuel (1996): *Information Age: Economy, Society and Culture, Volume I: The Rise of the Network Society* (Blackwell, Oxford)
- Castells, Manuel (1997): *Information Age: Economy, Society and Culture, Volume II: The Power of Identity* (Blackwell, Oxford)
- Castells, Manuel (1998): *The Information Age: Economy, Society and Culture, Volume III: The End of the Millennium*, (Blackwell, Oxford)
- Duff, Alistair S. (2000): *Information Society Studies* (Routledge Research in Information Technology and Society, Routledge)

Mattelart, Armand (2001): *Histoire de la Société de l'Information* (La Découverte, Paris)