

## Monitoring the Information Society

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### Abstract

*A great deal of data is currently being gathered on the subject of the information society. Appropriate theoretical bases are often lacking. This article looks into the question of how the information society can be theoretically and statistically recorded, which model is suitable for the analysis of the information society and how indicators for the empirical examination of the information society can be deduced from the theoretical approaches. We present the approach of Schement and Curtis, which sees the information society as a field of tension of social development with beneficial and curbing forces. After that, for recording the development of the information society, an equilibrium model is proposed that consists of beneficial and curbing factors at macro, meso and micro levels, whereby social development is understood as a result of both these effect forces set against one another. A simple equilibrium model based on the example of education is explained. Finally, the problems of putting a theoretical indicator concept into practice are discussed.*

### Introduction

Practically every day news articles about the “information society” appear in the printed and electronic press. Once it’s a school that gets internet access, another time it’s a company that gives its employees more leeway in the way they organise their time and allows them to do the work at home on the computer. Finally, new style headlines like “Beware of the I Love You-Virus” or “Hacker attacks the Pentagon” indicate a totally new type of threat. The everyday use of language is also changing: Twenty years ago, “surfing” was still a water sport, the “mailbox” was at the front door and not on the monitor screen and “chatting” was something little old ladies did at afternoon tea-parties.

Behind these technical innovations and linguistic shifts in meaning lie major technological, social and cultural changes. They all end up in the much-used catch phrase “information society”. It is, however, quite amazing how unclear this term actually is. Does one mean a contrast between an “informed” and an “uninformed” society? Or the sharp increase in terms of actual knowledge following the technical revolutions – including the printing press or the introduction of the radio and the television? Or the information resources themselves – as opposed to entertainment, for instance? Or information as industrially manufactured goods, as core elements of professional ability?

Before a concept can be developed and indicators derived from it, it first has to be explained what is exactly meant by “information society”, for only then can the following questions be answered. How can one theoretically and statistically record the information society in the first place? Where do gaps appear, which areas are not covered? Which model is suitable for an analysis of the information society? And how are indicators deduced from the theoretical approaches for an empirical examination of the information society?

### **First, a word about the very term “information society”**

The linguistic origin probably lies in Japan: Yoichi Ito wrote in 1991 that the term first came from the Japanese essayist Tadao Umesao and his various models on the stages of social development and civilisation in the essay “Joho Sangyo Ron” - “About information industries”. This was in 1963. The “Joho-Shakai”, the “information society”, formed the last stage of development. Not surprisingly, another Japanese disputes this legend. Accordingly the term “Jojoka shakai”, “the informed society”, is supposed to have been used for the first time by Hayashi Yujiro, an employee in the government economic planning authority in the 1965 government programme. However, perhaps that is also incorrect – and for their part, both have fallen back on the earlier western concept of the “global society” or – which is even closer – the “knowledge society”. Because the book “The Production and Distribution of Knowledge in the United States” by Fritz Machlup had already been published in 1962. The term “information society” may have actually been coined “just” as a result from that bit of ambiguity that crops up in the to-and-fro of (re)translation.

It is also ambiguous what the term has remained ever since. For our purposes, one distinction is especially important: the one between “information” and “knowledge”. In many technical fields, “information” is equated with “data”. In the social sciences, on the other hand, the word itself is meaningless – information only becomes information once someone is informed. Yet that, too, is not always the case. It is precisely the technologies of the mass media that show that the connection between news and being informed is loose – as part of ‘being informed’ there is always a deficiency, an ‘ignorance’ that is only remedied by a specific piece of information. Consequently, information is a relative quantity and thus a function of ‘ignorance’.

Sobering results with regard to the effectiveness of providing information alone have led to a clearer separation of knowledge and information in the sector of commerce and industry. One stresses that in complex organisations only socially shared information constitutes (useable) knowledge. Therefore it is not enough just to continuously make new information available to ever more people. People also have to be in a position to deal with information and to generate knowledge. An information society can thereby be defined as a community of people with the same technological and socio-cultural prerequisites for the acquisition and the implementation of knowledge.

### **Theoretical concepts and statistical recording**

A whole variety of theoretical works have been published on the information society in the past 40 years. We take a recent concept. The 1997 model by Jorge Reina Schement and Terry Curtis understands the information society as a field of tension for social development with beneficial and curbing forces. Where it appears appropriate, the authors fall back on theoretical preliminary work and combine this with problems like “digital divide” or “new inequalities through the information society”, aspects which were ignored by earlier writers.

According to Schement and Curtis there are six characteristics that mark the information society:

- Information as a commodity: information becomes a tradable commodity and new markets for information are springing up – Here we are thinking of the new online media.
- Information industry: production, distribution and consumption of information are industrialised and are considered as key elements in global competition – whoever controls them can really make use of their economic clout through the “export” of the information.
- Information work: the early theories had already pointed to the decisive meaning of work in the information society. In the meantime, many people work in areas in which they deal with the production and distribution of information in one form or another, and the part they play provides information about the current situation of the information society.
- Interconnectedness: with the greater social complexity and division, (technical) connections are increasingly more important. Admittedly, the primary social network of people still consists of a core of intimate friends with personal and direct contacts. However, around this network a secondary network of people with differently structured relations has emerged in connection with the new communication technologies – online discussion forums or chat rooms, for example.
- Media environment: looked at historically, innovations have never led to an ousting of the old by the new media – although critics of contemporary civilisation regularly utter such fears with every wave of new innovations. Instead, new media are used as an extension for special purposes or for the parallel use of several media (for example, listening to radio while surfing on the Internet or reading a newspaper). The entire printed and electronic media is connected with complex media environments. However, with the individualisation and division of the public, a new paradoxical challenge also comes up: which remain the integrating powers within a society, which institutions create the minimum of cohesion necessary for the political and social functioning of a community? And so Schement and Curtis describe the three major US-Networks as the last integrating forces of the American society.

- Interaction of technological and social progress: social reality is never separable from technological developments – even if especially the older approaches demonstrate a close lead with their emphasis on technological development. In the sciences, too, the products are increasingly commercialized; scientific knowledge also gets a price and becomes a commodity. Then new technological developments also undermine the power status and the information control power of the elite – with paradoxical consequences: patients can become better informed, environmental protection groups interlink over the internet, exchange information and develop counter-publicity.

New fields of conflict are also formed by the divided society, defined by the contradictions we have just mentioned. Schement and Curtis are among the few writers who mention them: for example, the boundaries of privacy, the consequences for political election and voting campaigns, the “information poverty”, the ability to read and write (“internet literacy”) or the significance and scope of the universal knowledge necessary to all members of society for the guidance and maintenance of social existence.

What is further remarkable about this approach is the strict separation of causes and effect, and the rejection of the widespread tendency to confuse the impulse of social changes with its consequences. In that sense the information society appears as a logical continuation and further evolutionary development of the industrial society. It stands out by a few special characteristics that are produced in the interplay between technological development and social changes.

### **Gaps and areas not covered**

The approach of Schement and Curtis closes many gaps which predecessors left open, and it is clearly superior to the old theories. However, there are two serious disadvantages to be mentioned: on the one hand, the missing connection of various social levels and the weak empirical foundation on the other.

On the one hand, phenomena appear in the information society at different social levels. We can, for example, cite economic macro phenomena like a recession and - at the meso level – the force of cost-saving in firms. At the micro level, this will be felt by the employees, who are either sacked or – here more relevant – have to deal with new information and communication technologies, in order to – again at the meso level – help the company through the crisis. As the example shows, at least three levels have to be taken into account for an analysis of the information society: the already mentioned macro, meso and micro levels.

The second point of criticism of the Schement and Curtis concept is the weak empirical basis. There are - as already imposed due to the high complexity of social phenomena and transformations – numerous factors with the empirical survey and implementation that have to be taken into account. In addition to this, not only does each of these factors display a particular effect, but they also

demonstrate interplay amongst one another. A further factor enters at this point: time and the related changes.

For an empirical grasp of the information society it is therefore not enough to simply gather any indicators you want and then somehow connect them to one another. They first have to be built into a theoretical framework, which on the one hand enables following the condition of a society and on the other hand gives informations about specific interactions in various social areas. Precisely this second point is important – if it is not taken into account, the direction and the effect of influencing by means of economic or educational policy remains illusory. Therefore, we present the following model with which these social levels join together.

### Models for the analysis

As already mentioned above, a great number of important points about the information society are not provided for in the theoretical approaches. Except in the approach of Schement and Curtis, consequences for individuals, the worlds of education and work, but the political world, too, are not systematically put in relation to the theoretical elements. Both these elements – beneficial and curbing forces – can be put together in a simple model of the development of the information society (see table 1).

**Table 1: Information society as system of equilibrium**

<b>Beneficial, expediting factors</b>	<b>Analytical level</b>	<b>Social development</b>	<b>Analytical level</b>	<b>Curbing, delaying factors</b>
Factor	Macro	Temporal, spatial and socio-cultural restricted variable balance of beneficial and curbing factors and forces	Macro	Factor
Factor	Meso		Meso	Factor
Factor	Micro		Micro	Factor

With this model the result is at the centre: the society, as is shown in its main indicators. Its development takes place between beneficial and curbing factors of influence at different levels. Incidentally, such equilibrium models are also the most highly developed models of social development in the theoretical debate. They are based on various assumptions of equilibrium – or on the contrary, assert unstable equilibrium.

The practical implementation appears difficult, thus Lea Parjo points out the difficulties even to just grasp the technical aids, the hardware. The technological change often leads to computers becoming rapidly out of date, and the recording of the number does not take into account that the equipment was

replaced at some point. In addition, many posts are consequently not recorded at all – how are the ever more dominating service and educational areas supposed to be correctly portrayed? In addition, the conventional method of dividing the economy into branches, also often used by official statistics, is raising further difficulties: many companies are merged and/or their fields of activities overlap, just as many new areas of consumption are created, differentiate themselves and occasionally merge into yet again new opportunities. Finally, the new organisational and work forms also present challenges for the recording of sectors. How are the many current ad hoc formed working groups to be recorded? How will the networks be classified? Due to this situation, many conventional statistical tools like business registers or product classifications appear problematical as a basis for the empirical definition of the information society.

### Example of a deduction

The easiest way to draw up equilibrium models is as a series of factors, which are the starting point for curbing and beneficial influences for the development and perfection of the information society. Therefore, here too, it would appear useful to again fall back on the macro, meso and micro levels as an aid for the structuring of the phenomena and indicators of the information society. It thereby remains open up to the empirical examination as to whether and in what direction the individual factors have an effect.

In the following we use an example to explain a simple equilibrium model (see table 2). It essentially consists of the sides of the beneficial and curbing factors and the three analytical levels. The social development takes place in the centre as a result of both effect forces.

**Table 2: Basic structure of an equilibrium model: example education**

<b>Beneficial, expediting factors</b>	<b>Analytical level</b>	<b>Social development</b>	<b>Analytical level</b>	<b>Curbing, delaying factors</b>
High	Macro	Status of the education, expenditure for education	Macro	low
Many, great deal of demands	Meso	Educational institutions	Meso	Few, low-level of demands
High-level of formal education	Micro	Individual education	Micro	Low-level of formal education

One can take it for granted in the above example that for the course of development of the information society a higher social status of education is more beneficial than a low one. Likewise, the assumptions formulated for the meso and micro levels should be reasonably correct with regard to the

course. The above mentioned example is also helpful to show the depth of the necessary indicators. So the indicator “status of education” is multi-factorial and consists of at least the measuring of a general attitude, but also of further indicators like educational expenditures, specific educational areas assessed as important, formal degrees and informally obtained knowledge, skills and experience.

## Conclusions

Here we return to the initially asked questions: in general, how can one make a theoretical and statistical record of the information society? Where do gaps show up, which areas are not covered? Which model is suitable for an analysis of the information society? And how can indicators be derived from the theoretical approaches for the empirical examination of the information society?

Most of all, a society needs meaningful indicators. It is then essential to convert it into “knowledge”. We explain how this could happen: on the one hand, with an appropriate theoretical base, on the other hand, however, also with a concept that copes with the complexity, the interactions within social areas as well as interactions between the areas. This step has already been taken in the Swiss Federal Statistical Office – this year, a theory-led indicator concept was developed which bases itself on the approach of Schement and Curtis, but which adds to it significantly in terms of content. With the inclusion of the equilibrium model, the connection to the theoretical discussion on social developments running parallel is completed.

The step of putting the model into practice is unequally more difficult. It is true that much data is available and that it is also gathered. In the last years, national statistical offices made enormous efforts to provide for appropriate up-to-date information society statistics. However, the present empirical examinations are full of gaps and often cannot even meet the demand to fully depict at least a section of the information society. Here we encounter a final paradox – precisely such a situation leads us to being less informed than we would like to with regard to our interest: the information society.

## References

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