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Epistemic Cultures: Towards a New Sociology of Knowledge

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"Knowledge is like light. Weightless and tangible, it can easily travel the world, enlightening the lives of people everywhere."
(World Bank 1998:1).

We need "a new way of thinking", "clusters of expertise and talent to succeed in the New Economy."
(Tony Tan, Deputy Prime Minister of Singapore, 27-03-00)

1. Introduction[1]

1.1. Forms of Knowledge

In his influential work "Die Wissensformen und die Gesellschaft" (Types of Knowledge and Society) Max Scheler (1924/1960) sees knowledge as an existential phenomenon, a "*Seinsverhältnis*", which serves different purposes: the development of personality, salvation in a religious sense, political domination and economic achievement. Positive scientific knowledge is only one of several forms of knowledge, which is in itself dependent on the absolute reality of metaphysics (Maasen 1999:15). There are two "*Seinsbereiche*", namely ideal factors ("*Geist*" or spirit, i.e. ideas, values, predispositions, knowledge) and

[1] Work on this paper started with the preparation of a research programme for the Institute of World Society, University of Bielefeld. I am grateful for discussions and helpful comments from my colleagues, among others Karin Knorr Cetina, Peter Weingart, Helmut Willke and Rudolf Stichweh. The paper was written while I was a member of the Research Group on Knowledge Society, Department of Sociology, University of Singapore. I am grateful to the members of the Research Group Sayid Farid Alatas, Zaher Baber and Thomas Menkhoff as well as other staff members of the Sociology Department for useful comments. All errors are, of course, my own.

real factors (social or material conditions), that determine the selection of which knowledge is created, formulated and believed to be relevant. Platonian idealism and cultural relativism are combined into the core field of a sociology of knowledge.

The basic distinction between the imagined and the real, between spirit and social structure, between ideology and social class has, indeed, been a central issue in the sociology of knowledge since Marx' nd Weber', Scheler' and Mannheim' classical studies. It is still an underlying assumption in Habermas'brilliant essay on "nowledge and Interest"and it has stimulated many empirical studies ever since. Authors have varied in their evaluation of the relative importance of *Ueberbau* (superstructure) on one hand or economy and society on the other, until the issue vanished under the onslaught of radical constructionism. Radicalising the Berger/Luckmann thesis on the social construction of reality, all knowledge is seen as constructed. Even the distinction between the humanities and the exact natural sciences, forcefully argued by Dilthey is demolished and the primacy of positivist thinking is challenged.

Construction and deconstruction has been a forceful intellectual enterprise, and storming the citadel of the orthodox consensus has not been an easy task. But while constructionism is still producing interesting results, especially in the sociology of science, new social constructions of reality are putting pressure on the social scientists to search new theoretical horizons beyond modernity, globalisation and the knowledge economy.

1.2. The Neo-Sciences

Contours of the new world system, of globalisation, a new information economy and a knowledge society became visible during the last few decades of the 20th century, very much like the industrial revolution and the emergence of a capitalist society attracted the attention of theoreticians during the 18th and 19th centuries. Then as now social scientists

grappled with the problem of how to find concepts to describe and explain in acceptable terms what they were observing.

Notwithstanding the indecision of the academic community on what to do, globalisation charges ahead, advances in the application of new communications, technologies are tremendous and political systems come under pressure. The contours of a completely revamped world system, to use Wallerstein's much abused term, emerges. Social theorists find it increasingly difficult to keep abreast with development. Old and cherished concepts do no longer fit the new world of global development and the return to the classics becomes increasingly useless, because the industrial capitalist and socialist worlds, whose emergence they had successfully explained, is about to vanish.

Even among economists there appears to have crept up some doubt, whether neo-classical economic theory can provide the right questions let alone the answers to explain a knowledge-driven economy. The social structure, the institutional arrangements and the cultures of globalised knowledge societies appear to be even less well researched, if one assumes that radically new forms of a social organisation of knowledge are emerging.

Seen in this light it is quite understandable that recent attempts at theory construction are graced with the label "new", "neo" or "post". To mention just a few: the new economic sociology (Swedberg 1995), new institutional economics (Furubotn and Richter 1991), post-structuralism, neo-functionalism, post-modern theory, the new political economy, and lately a new sociology of knowledge (Gibbons et al. 1994, Doyle McCarthy 1996, Stehr 1994).

In the following paragraphs I shall first repeat a few often heard arguments about the process of globalisation and then turn to a discussion of the characteristics of the emerging knowledge societies.

1.3. Globalisation

Recent writers appear to agree "that economic globalisation - defined as the progressive integration of the economies of nations across the world through the increasingly unrestricted flow of global trade and investment - is accelerating and increasing the level of interdependence and competitive pressures among nations" (Power 1997:75). In short, the expansion of the capitalist world market has swept away most barriers and established itself as the guiding principle of social and economic organisation (Evers 1996). The "great transformation", as analysed by Karl Polanyi is now being completed, as globalisation is a result of competitive market forces. The globalisation of monetary markets has led to a rising concentration of controls over private investment portfolios and direct investments in emerging markets by global financial asset management firms, like those of notorious American financier Soros (Sassen 1991). So-called "free markets" are free in the sense that they give freedom to large multinational companies and financial institutions to produce and sell wherever they dare to venture.

There are, of course, statistical data to point to the rise of world trade, of the international flow of capital and of the exchange of information, but what seems to me more interesting is the vivid discourse that has arisen on the phenomenon of globalisation itself. From this angle globalisation refers to a particular way of constructing reality, namely the necessity to consider all aspects of life, social organisation, economic activities, spatial arrangements etc. etc. under a world-wide perspective. The globalisation of knowledge and the expansion of networks of information have made this new perspective possible. The conception of the world as a unit came about much earlier, namely as soon as seafarers discovered that going West or going East would eventually land them at the same destination. New is, however, the intensity of the debate, which has become global at the same time.

Globalisation has become a popular phrase. There is hardly any edition of a newspaper or weekly that does not contain the term "global" or "globalisation". Unfortunately the frequent

use of these terms has not added to their clarity, but the fuzziness or even lack of definition may be seen as an expression of the wide-ranging and complex field (in the sense of Bourdieu) covered by global processes.

The growing knowledge about distant continents, the spread of mass media and last not least the internet have combined to create a "romance of capitalism" of expanding markets for dot.com enterprises, information technology lovingly called IT, for cyber space and internet communities that has apparently fired the imagination of people of the former semiperiphery of the modern world system even more than the rather sceptical inhabitants of the core industrialised countries (Evers 1995, Evers and Gerke 1997). The euphoria is not completely unfounded, considering the rapid and long-term rise of stock markets and the growth of the GNP of those countries that are on the trail of IT and a knowledge-based economy[2].

2. Towards a "Knowledge Society"

2.1. Knowledge as a Factor of Production

The importance of knowledge in market expansion rests on the assumption that knowledge has replaced industrial organisation and production as the major source of productivity. In what management guru Peter F. Drucker has called the postcapitalist knowledge society, "the central wealth-creating activities will be neither the allocation of capital to productive uses, nor 'labor'...Value is now created by 'productivity' and 'innovation', both applications of knowledge to work" (Drucker 1994:8). In fact the largest share of value added in modern computer technology does not rest on the value of the material used or the input of labour and capital, but on the knowledge embedded in the final product. In the current phase of the economic revolution, knowledge has taken its place as the most important factor of production passing capital and labour. Universities, research institutes, R&D divisons of corporations and last not least "think tanks" (Stone 1996) have become important factories

[2] For a rather critical view see Mander and Goldsmith 1996, Schweickart 1996 among others.

of knowledge, which is then transferred or sold to other productive units. Knowledge and not just IT (information technology) is increasingly recognised as the main promoter of the new economy, even by the advertising industry. As just one of many examples let me cite a page from the Sunday Times, Singapore 26 March 2000.

> "Today's investment opportunity is not just I.T. It's in I.Q.
>
> A New Economy is emerging. An economy driven by knowledge rather than pure information. Dynamic groundbreaking companies in knowledge driven industries like information technology, Internet, telecommunications, media, logistics, healthcare and engineering are poised to drive the New Economy into the 21st century….".

2.2. Characteristics of a Knowledge Society

The economic side of the emerging knowledge society has been explored for some time and a fair number of publications have appeared on the subject (among others Albrow and King 1981, Nonaka 1995, Stehr 1994, Willke 1998a). As has been pointed out by Willke and others, there are, indeed, considerable differences between knowledge and the other factors of production.

- Knowledge is more difficult to measure than the other factors. In the rather poetic words of the World Development Report "Knowledge is like light. Weightless and tangible, it can easily travel the world, enlightening the lives of people everywhere" (World Bank 1999:1).
- Once knowledge has been produced it can easily be reproduced or copied. This explains, why leading industrial nations have put great emphasis on the enforcement of intellectual property rights and patents, safeguarding the internet and controlling access to databanks and other sources of knowledge.
- Transaction costs in trading knowledge are low.
- Whereas other goods are succumbed to the law of diminishing returns, knowledge actually experiences rising marginal utility (Grenznutzen). The more an expert, a group of

consultants or an organisation know, the more valuable become individual pieces of knowledge; or to put it differently: Knowledge is needed to utilise knowledge effectively (Willke 2000:2)[3].

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A knowledge society is believed to have the following characteristics:

- Its members have attained a higher average standard of education in comparison to other societies and a growing proportion of its labour force are employed as knowledge workers.
- Its industry produces products with integrated artificial intelligence.
- Its organisations - private, government and civil society - are transformed into intelligent organisations.
- There is increased organised knowledge in the form of digitalised expertise, stored in data banks, expert systems, organisational plans and other media.
- There are multiple centres of expertise and a polycentric production of knowledge.
- There is a distinct epistemic culture of knowledge production and knowledge utilisation.

Some of the above mentioned points and concepts warrant further explanation. A distinction has to be made between knowledge-based work and knowledge work proper. An industrial society has to rely on the knowledge-based work of skilled workers and professionals, like doctors, lawyers, engineers or social scientists. Knowledge work, however, characteristic of a knowledge society, goes beyond the work done traditionally by skilled workers and university or college educated professionals. The new type of knowledge is not seen as definite, it is not regarded as the final truth but it has to be constantly revised. It entails reflexitivity as is poses questions to reflect on its own validity. New knowledge is complex, it produces ignorance and therefore entails risk when it is applied. It needs to be systematically organised and institutionalised to be productive and it requires information technology to be developed further. "A knowledge society is not simply a society of more experts, more technological gadgets… It is a society permeated with knowledge cultures…" (Knorr-Cetina 1999:7).

[3] It is therefore somewhat misleading to speak in this context of "knowledge capital" or "human resource capital", as we are talking of quite different properties.

2.3. The Growth of Ignorance

The path towards a knowledge society is, however, beset by some major essential problems. Globalisation brings about a vast increase of what we know, but an even greater amount of ignorance, i.e. of what we know that we don't know. While on one hand we are truly heading into the direction of becoming a "knowledge society", we also become more ignorant at the same time (Evers 2000a, b). Each time a research project is successfully concluded, a number of new questions arise. While knowledge is increasing fast, the knowledge about what we do not know is increasing even faster. Reflexive modernisation is stimulating the growth of ignorance, because new knowledge is put into question as soon as it appears. Thus the growth of ignorance is a reflection of the growth of knowledge. The faster the wheel of knowledge production is turning the greater uncertainty is likely to become.

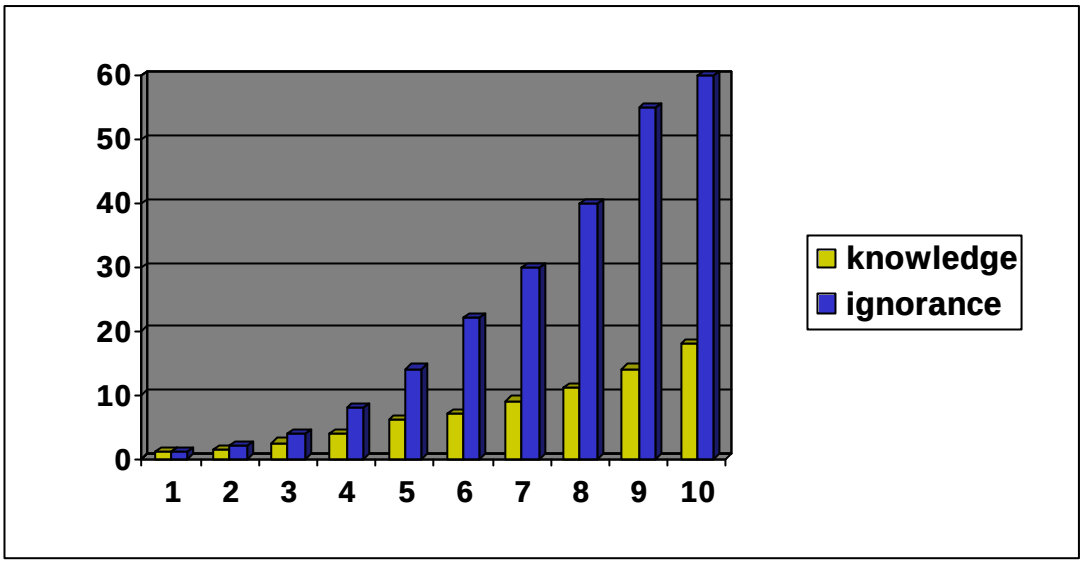
Signboard seen at a fortune tellers office:

"Closed due to unforeseen circumstances"

On a global level we are truly ignorant and knowledge recedes behind the universal lack of data (Lachemann 1994). Modern globalised knowledge society is therefore also a "risk society"[4], in which the known unknown surpasses knowledge and in which development takes place under conditions of great uncertainty.

[4] The term "risk society" was popularized by the German sociologist Ulrich Beck, though in a somewhat different sense.

Diagram 1 **The Growth of Knowledge and of Ignorance (fictional)**



This condition can be exemplified by examples from everyday life as well as from high-tech developments. It has become extremely risky to cross a road by foot, because we really don't know which car or motorcycle will suddenly appear in front of us. We don't know for certain whether or not an atomic energy plant will experience an accident with disastrous consequences and even experts are not able to tell us in advance, in which direction exchange rates will head. It is extremely "risky" to speculate in the future's market of commodities, stocks or currencies. It is only after the fact, after the crash, that economists or social scientists come up with an explanation, which more often than not is based on conjecture rather than on hard facts or knowledge.

3. Epistemic Culture and the Production of New Knowledge

3.1. Knowledge Production

To achieve the status of a knowledge society, it is enough to buy and to consume knowledge, but also to produce it. For any society and any nation state it will be crucial whether or not this will be achieved. Innovation, production and application of new knowledge and use and dissemination of information will be decisive for the success or failure in moving ahead in a globalised economy. The growing number of research institutes

and universities, of consulting firms and local experts, disseminating, applying and, hopefully, also creating new knowledge underline the importance of knowledge production.

As has been shown in recent sociological studies, the manufacture of knowledge cannot be explained and stimulated as a rational process alone as it rests as much on social interaction, life-world experience and culture.

The emergence of a productive epistemic culture (culture of knowledge production) is difficult to achieve. Culturally deterministic explanations, that try to show why certain cultural values hinder the development of science and research are as unsatisfactory as theories that tried to explain business success or failure in cultural terms alone. I submit that cultural theories of another, not deterministic but constructionist persuasion could be mobilised to achieve better results. The preconditions for the development and the growth of epistemic cultures and their shape and contents should be investigated and understood to explain the morphology of knowledge production, the mountains and valleys in the landscape of a global knowledge society.

3.2. Epistemic Culture

The theory and methodology of epistemic cultures was developed in a recent book by Karin Knorr-Cetina (1999:1): "This book is about epistemic cultures: those amalgams of arrangements and mechanisms–bonded through affinity, necessity, and historical coincidence- which, in a given field, make up how we know what we know. Epistemic cultures are cultures that create and warrant knowledge, and the premier knowledge institution throughout the world is, still, science." Her emphasis is not on the creation of knowledge, but on the construction of the machineries of knowledge construction. Technical, social and symbolic dimensions of intricate expert systems are combined into the epistemic machineries of science research. Unlike Anthony Giddens (1990) who is mainly concerned with the output, i.e. with the knowledge produced by the scientific-technological elite, Karin Knorr-Cetina discusses the culture of expert systems themselves.

The boundaries of epistemic cultures are not drawn between natural sciences and the humanities, as is still frequently done by those following in Dilthey's footsteps, but right across the sciences in general. Distinct epistemic cultures form an "epistemic landscape - or market - of independent epistemic monopolies producing vastly different products". [5]

So far we have followed the lead of contemporary sociologists of knowledge by elaborating on epistemic cultures as machineries of knowledge production. Culture has been defined rather narrowly as practise, in this case the various practises used to establish and maintain machineries of knowledge production. The strict constructionist posture taken by sociologist of science needs some modification (Baber 1992). We propose to widen the scope of epistemic culture research and add some further dimensions, that have so far been neglected.

In this paper I intend to take a somewhat wider perspective. Epistemic cultures are not only found in the laboratories of natural science research, but are institutionalised in various ways in the New Economy of globalised knowledge societies. I doubt whether science can still be called the premier knowledge institution, but that science is increasingly intermingled if not determined by the organisations that govern the knowledge-based world market.

3.2.1. The Concept of Epistemic Cultures

Building institutions that transmit or consume knowledge is difficult enough, but filling them with a culture of knowledge, a culture of academic debate, a culture of a pursuit of knowledge is a vastly more difficult matter.

The institutional contours of epistemic cultures appear to be the following:

- There have to be a sizable number of persons

- who are relatively independent of outside control,
- who work closely together
- but are pitted against each other in competition for resources, recognition and excellence.

In many aspects epistemic cultures resemble the culture of markets.

- There are stringent rules of conduct but
- no undue regulation of values or prices;
- there is competition but no open conflict and
- there is a high degree of autonomy of decision making[6].

Special knowledge producing units in organisations, like R&D divisions, research laboratories, research groups or research networks transform objects or observations into signs or metaphors. There is a withdrawal from reality (Evers 1998), distancing from every day life by manipulating signs in mathematical formula, transforming survey data into statistical tables, or transforming metaphors into concepts and theories. I doing so, the researcher himself is transformed into an instrument of observation, but he also turns practises of every-day life into epistemic devices for the production of knowledge (Knorr-Cetina 1999:29). Thus conversation becomes discourse, drinking tea in a staff canteen a method for the creation of an epistemic community. Collective practises, networks of social interaction and communication constitute epistemic communities beyond the boundaries of large-scale organisations.

Let us briefly return to our earlier short discussion on the growth of a knowledge society under global conditions. The metaphor of "globalisation" can be found in the social science literature as early as the 1970s or even before that, but is was only in 1991 that the term

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[5] Knorr-Cetina's study is focused on two such monopolies: experimental high energy physics and molecular biology.

[6] Southeast Asian leaders have been quick to embrace the policies of deregulating their markets, but much less enthusiatic about deregulation of their institutions of higher learning and research. This is difficult to understand given the emphasis on developing centres of academic excellence and foster research and development (R&D).

became prominent in the authoritative discourse of the social sciences (see diagram 1). Whether or not the metaphor "globalisation" will be operationalised, turned into a concept and integrated into a theory remains to be seen. The analysis of metaphors is a relatively new branch of the new sociology of knowledge, which tries to integrate systems theory, discourse analysis and metaphor analysis to study epistemic processes (Maasen and Weingart 1995).

3.2.2. Milieus of Epistemic Communities

Scheler as well as contemporary German sociologists working in the phenomenological tradition of Husserl use the concept of "milieu" as a methodological tool to analyse the formulation of new knowledge within the social environment and within networks of interaction (Grathoff 1995). Milieus are able to attach meaning ("Sinn") to a person's social, cognitive and emotional experiences and over time form distinct styles of experiences and Weltanschauung. This means, that milieus appear to be central to epistemic cultures.

3.2.3. Epistemic Cultures and the Sociology of Emotions

If we observe scientists and researchers in action, we might miss out on a hidden transcript underlying the search for knowledge. Personal ambitions and desires, hating a colleague and loving another, feeling frustration and agony over missed chances, pride and prejudice, the pure joy of doing research, ethnic closeness, tenderness or cruelty in social interaction– in short the whole canon of human feelings may be an important feature of an epistemic culture. In fact recent studies in the sociology of emotions (Giddens 1992, Luhmann 1983) have emphasised, that emotions themselves are socially constructed. Following Scheler's ideas on *ordo amoris*, the "logic of the heart", the control of emotions as well their stimulation should be recognised as an important part of epistemic cultures with no small impact on the production of new knowledge.

3.2.4. Epistemic Organisations

In the classical sociology of knowledge the 'free-floating intelligentsia' (Mannheim) and the independent scholar occupy the centre stage of knowledge production. In the New Economy and in knowledge society this is no longer true. We are forced to admit that organisations have become the main producers, depositories and users of knowledge. The isolated scholar, surrounded by books and papers in an ivory tower, is no longer the idealised figure of epistemic culture. Organisations are transformed into intelligent organisations, which can, if properly organised, endure mediocre members. There are, of course, exceptions, like universities, that seem to be slow learners, inadequately equipped to accumulate knowledge. They therefore have to rely on intelligent staff, which finds it increasingly difficult to compete with the intelligent, learning organisations of the corporate world.

Universities seem to have lost their near monopoly of basic knowledge production. The so-called triple helix of science-industry-university indicates that knowledge production has become polycentric and knowledge networks connect the respective organisations (Baber 1999). The imbalance of enumeration of knowledge workers in the three components of the "triple helix" can be partly explained by the shift of relevant research from the university to the corporate sector.[7]

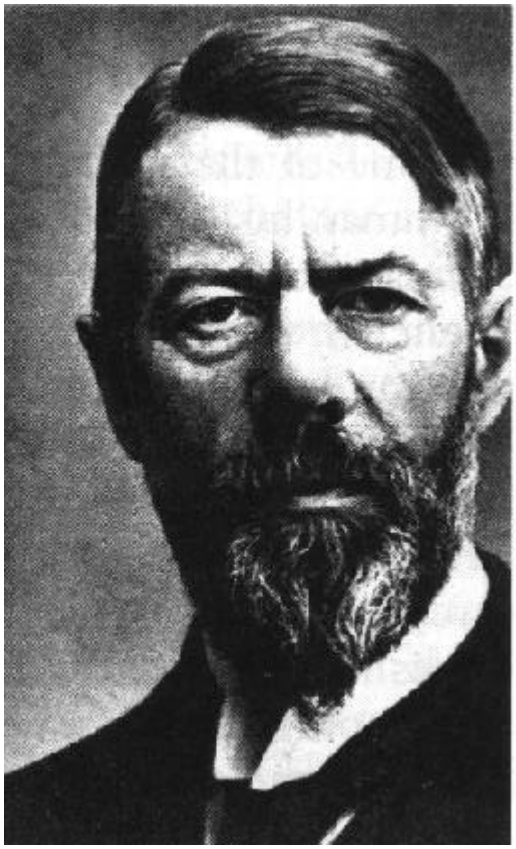
The "culture of organisations" is turned into an epistemic culture, a culture of knowledge production and utilisation. Individuals are no longer viable as epistemic subjects, but have become integrated into the gigantic "laboratory" of the "learning organisation" creating and absorbing knowledge. If the stored knowledge is put to use and utilized as a regime of governance the learning organisation is turned into an intelligent organisation (Willke 1998a:41).

[7] Some authors go as far as calling universities "stupid organisations", because they have not managed to develop new forms of "intelligent organisation" (Willke 1997).

Looking only at the corporative world of huge epistemic organisation like the German-American-Japanese Daimler-Chrysler-Mitsubishi corporation would mean missing out on other big and complex epistemic fields, like high tech areas of the Silicon Valley type or financial markets. Wall Street, the Frankfurt financial district, the City of London or Shenton Way in Singapore do not function without their janitors, cleaning brigades, brokers, traders, internet lines, data banks, organisation charts, government control, stock market analysts, currency regulations, fast-food restaurants and night club dancers. Most of the trade in these financial centres is trade in symbols, information and knowledge. Shenton way or Wall Street are, indeed, gigantic epistemic machineries that reconfigure all of their actors and integrate knowledge and actions, data and desires, symbols and power. Knowledge production is no longer a space bounded by the wall of a monastery or laboratory, the ivory tower of a university or the organisational plan of an industrial company. The boundaries between knowledge and society are blurred and epistemic cultures are complex blobs of knowledge, actions and emotions.

4. Conclusions

To sum up my argument: The rapid integration of nations, regions and localities into the



world economy, the increasing density of communication networks and the diminishing importance of national boundaries for the flow of commodities, capital, workers, information and knowledge have established conditions for the rise of a knowledge-driven world economy and society. Epistemic cultures of vast knowledge producing and processing organisations increasingly structure society. The old question of classical sociology, initiated by Karl Marx and Max Weber, whether the relations of production or rather knowledge and the spirit of capitalism determine economy and society seems to have been settled once and for all in favour of the Weberian position. Knowledge governs economy and society. But now this process appears to reach a new stage, not thought of by Scheler, where *Sein* und *Bewusstsein* merge and knowledge becomes a reality. This is the new reality with which a new sociology of knowledge has to contend.

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