

GOING BEYOND THE DEROGATIVE ATTITUDE TOWARDS KNOWLEDGE WITHIN PARTICULAR SCIENTIFIC COMMUNITIES

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1. Instead of an Introduction

The characteristics of knowledge give it a special role in the economics, as they turn the traditional theoretical views on the economy upside-down. The law of diminishing returns does not apply to knowledge; on the contrary, its value is increasing with its use. Due to such specific properties of knowledge and in order to demonstrate how inadequate understanding of knowledge is a consequence of an over-institutionalization of science we need a new definition of knowledge. Hence, the main intent of this paper is to define knowledge from the aspect of its content (substance-content view) and from a holistic-cognitive approach (holistic-cognitive view).

2. General Definitions of Knowledge

A profound understanding of knowledge requires a considerable scope, or breadth, of analysis and selected literature. Knowledge appears as the subject of various studies, and one can hardly find an area where knowledge or terms and concepts closely related to it are not mentioned. The history of science witnesses that individual authors defined knowledge in very different ways. Definitions of knowledge proposed by individual authors indicate the breadth of the notion of knowledge. However, the existing definitions may be classified into two major groups.

The first one comprises definitions through particular pairs that express the opposite poles of the methods of acquiring, creating, and transferring knowledge. The divisions into individual/social (e.g. Spender, 1996; Kogut, Zander, 1992; Nonaka, Takeuchi, 1995), concentrated/dispersed (e.g. Hayek, 1945; Tsoukas, 1996), and explicit/tacit (e.g. Onge, 1996; Grant, 1997; Nonaka, 1994; Polanyi, 1997) are the most common in

literature written on the subject. From an ontological aspect, we are dealing with the difference between individual knowledge possessed by an individual, and social knowledge divided among the members of the society and comprised in their mutual relations. On the other hand, tacit knowledge is present in informal operations of reason, and the unconscious understanding of logical operations; therefore, it cannot be stored on particular units or carriers, as opposed to explicit (Onge, 1996; Ule, 1996). Explicit knowledge is created through logical deduction, whilst tacit knowledge is acquired primarily through experience (Lam, 2000). The combination of the said pairs is common, being present in the form of division into conscious (individual-explicit), automatic (individual-tacit), objective (social-explicit), and collective knowledge (social-tacit).

The second group of authors defines knowledge from the aspect of scientific communities to which they belong:

- Psychology deals predominantly with the cognitive process of knowledge. The authors hold that the capacity of the human mind is relatively small compared to the scale of problems that individuals face (e.g. Simon, 1979, 1955; Pecjak, 1975).
- Sociology studies the effect of relations on the transfer and understanding of knowledge, which is thus becoming increasingly sociologically contingent (e.g. Fukuyama, 1995; Granovetter, 1985; Etzioni, 1990).
- Business theories point out the problem of knowledge management and evaluation of knowledge within the framework of intellectual capital theory (e.g. Roos, Roos, 1997; Nahapiet, Ghoshal, 2000; Edvinsson, Malone, 1997; Jones, Jordan, 1997).
- Economic theory equates knowledge with information (e.g. Stigler, 1961; Hirschleifer,

1973; Schwalbe, 1999), human capital (e.g. Walsch, 1935; Schultz, 1960, 1961, 1962; Becker, 1962; Mincer, 1958), factors of production and technological progress (e.g. Solow, 1956, 1957; Romer, 1990, 1994; Lucas, 1988).

Such understanding of knowledge within the economic scientific community is also supported by the Machlup trilogy (1980, 1982, 1984), which is considered one of the most extensive and complete classifications of knowledge. From the aspect of an overview, the third book is of key importance, as it contains the author's new classification of knowledge with a total of 17 different fields (Machlup, 1984). The classification indicates that in economics understanding of knowledge is related to human capital and information at the level of microeconomics (e.g. uncertainty, imperfect information, market as an information system), while at the level of macroeconomics it is related mostly to factors that appear in the background of the growth theories (e.g. technology, innovation).

The above approaches, based on particular scientific communities and definition pairs, are mutually interwoven. Understanding of knowledge through opposing pairs is consistent with the transition from a traditional-modern to postmodern understanding. On the one hand, knowledge is a result of objectified cognitive processes which stresses traditional understanding of knowledge; on the other hand, it is a result of an internal self-regulatory process of cognition and learning as emphasized by the postmodern theory of science. Alternatively, understanding knowledge through particular scientific communities can be viewed as a manifestation of the impact of modernism in the theory of science, characterized by institutionalization of science, partial analyses, and an aspiration for universal domination of one scientific community over the others.

3. New Definition of Knowledge

Today, knowledge is becoming an increasingly important factor of production. This is not to say that traditional factors of production (e.g. capital, technology) are vanishing; their importance is merely becoming secondary. From the aspect of content, or substance, we shall understand

knowledge as information, cognitive process, and capital. Holistic-cognitive view holds that correct understanding of knowledge requires a high level of scientific interdisciplinarity. These two aspects are related and they represent an attempt at establishing an own theoretical model.

3.1 Knowledge from the Aspect of Substance and Content

3.1.1 Knowledge as Information

Synonymous understanding of knowledge and information is quite common, as knowledge can be understood as information based on rational combination and relation of data acquired by observation. Information is produced by combination, placing into context, comparison, and classification of data. Immaterial properties of knowledge as information give knowledge a special role in economic theory, since the availability and reliability of information is important in decision-making (Schwalbe, 1999). Stigler (1961) and Machlup (1984) maintain that neglecting information-related problems does not enable an appropriate understating of the decision-making process. Economics of information underscores that an individual shall invest into acquiring information the amount of time at which marginal utility equals marginal costs of additional knowledge thus acquired (Simon, 1959; Stigler, 1961). However, information is not only related to decisions of individuals; it is also important in establishing their equilibria (Machlup, 1984). Partial equilibria are a special cases of a general equilibrium, and a static equilibrium can be understood as a special case of the dynamic one where dynamic aspects are not present (Schumpeter, 1997). Regardless of the type of equilibrium, market is in the center of this type of analysis, as the occurrence of equilibria is ensured by its allocative efficiency which hence becomes a synonym of information efficiency. Rationality and utility maximization lead, through price mechanism, to equilibrium.

Understating of information is of key importance for definition of knowledge, because information is important in decision-making and establishing equilibria. However, knowledge should not be equated with information, because it also involves cognitive processes, capacity to interpret informa-

tion, and capacity to solve problems (Dosi, 1998). Knowledge is then a set of experiences where information is classified into patterns of thought through cognitive processes. The following section is dedicated to the cognitive processes that are mostly studied by psychology.

3.1.2 Knowledge as a Cognitive Process

Cognitive processes are important for understanding of all processes related to knowledge, as knowledge cannot exist without its subject, to which the capacity of cognition is ascribed. Cognitive psychology studies three aspects of the cognitive process: aspect of perception, aspect of learning, and aspect of thinking (Pecjak, 1975). Simon (1955, 1959) links the aspect of learning and thinking with the question of ‚what is rational‘. The set of assumptions combined in the concept of ‚homo oeconomicus‘ is the starting point of the contemporary economics. The desire for rationality is understandable, as it employs deduction to lead to elegant models. The notion of rationality is defined rather uniformly in economic theory:

- Becker (1976) defines rationality as an approach where individual economic agents maximize their target function; in the background of such maximization is the capacity to rank alternatives and choose the one that brings maximum utility, or pleasure.
- Blaug (1992) defines rationality as an approach where individual agents maximize their utility, subject to given constraints, by choosing among alternatives in accordance with their preferences; furthermore, complete and free information is available to all economic agents.

Economic agent is looking to maximize what defines his or her position in the society by choosing among the given alternatives. Due to perfect information and unlimited cognitive capacity, individuals have no problems comparing and choosing among the alternatives (unbounded rationality). Socio-cultural considerations do not influence the choice and final decisions (universal rationality), and subjective knowledge is - due to perfect information - not relevant in decision-making (objective rationality).

Trstenjak (1982) accentuates that in such cases profound study of cognitive processes is

impossible, since a completely rational and quantitatively utilitarian ‚homo oeconomicus‘ does not have any psychological cognitive characteristics. Economic theory has performed a reduction of the entire cognitive process to rationality and mechanics of processes where one's conduct is subject to objectively calculated, or calculable, laws. Simon (1959) pointed out the rigid neoclassical assumptions of perfect rationality as early in the fifties by presenting the concept of bounded rationality. Rationality requires mutual comparison and selection of the best possibility; however, the complexity of this task precludes human mind from accomplishing this in a rational manner, because its cognitive capacity is bounded (Simon, 1979). Instead of maximization, Simon (1955) proposes seeking the first possibility that exceeds the desired level of utility although the domain of alternatives has not been exhausted yet.

Due to methodological individualism, neoclassical tradition only understands the cognitive processes from the aspect of individuals. However, sociologization of economics proves that an individual is not merely ‚homo oeconomicus‘, but most of all a social being; hence, we may only speak of socially contingent rationality. Cyert, March (1963), Sen (1977), and Fukuyama (1995) call attention to the fact that inclusion of an individual into the society creates relations which have an impact on the cognitive processes. Mill (1991) holds that due to the integration into society, cognitive processes can never be entirely individual. Rational behavior is increasingly interwoven with social behavior, and individual decisions are becoming a part of a wider social judgment.

Positivist tradition of the neoclassical school emphasizes rationality in relation to an external observer who evaluates (non-)rationally the conduct of the subjects studied. Rationality of agents is linked to objectification of knowledge, and we therefore speak of objective rationality. According to the assumption of the neoclassical theory, future changes are known to economic agents with certainty; hence, it is also called the ‚single outcome theory‘, as it only offers one a priori solution that provides objectivity. However, subjects under study act based on their own knowledge and not according to the knowledge of an external observer who passes value judgments. Penrose (1972) believes that rationality is subjective because it depends on individual's perception of

the environment. Machlup (1984), Moe (1984), and Turvani (2002) maintain that only subjective knowledge can provide a background and support for decision-making.

The contributions cited above point to the boundedness of human cognitive capacity resulting from imperfect information and the limits of the human mind. Knowledge as a cognitive process is basically related principally with the individual, since only subjective knowledge can provide the basis of decision-making. Due to individual's inclusion into the broader society, cognitive processes are becoming increasingly socially contingent and progressively less individual. The subject to whom the capacity of cognition is ascribed may use and exchange knowledge for other rights in the market; thus, knowledge enters market through the system of property rights, while market becomes a process of value through which knowledge is becoming capital.

3.1.3 Knowledge as Capital

Characterizing knowledge as capital brings economic effects to its owners, as it is ascribed certain economic market value. I believe that cohabitation of human, social, and intellectual capital enables understanding knowledge as capital in its full meaning. Neoclassical theory of human capital at the end of 1950s gave new importance to the investment aspect of knowledge, and the value of knowledge was defined for the first time (Mincer, 1958; Becker, 1964; Schultz, 1960, 1961, 1962). Acquiring knowledge represents an investment into an individual who is giving up a part of his or her income during education, trading it for higher income in the future. However, the theory of human capital cannot explain completely all investment decisions related to knowledge:

- Walsh (1935) and Machlup (1984) believe that an individual may substitute, or supplement, low income with non-monetary benefit (e.g. social reputation, recognition) which are strongly socially contingent; human capital theory fails to take these into account properly;
- Blaug (1976) holds that human capital theory neglects trust, or confidence, relations, and mutuality, which are all very important in the mere process of knowledge transfer.

Failure to comprehend relations prevents the human capital theory from accounting for all

investment decisions and problems related to the transfer of knowledge. Without a proper grasp of relations, the human capital theory cannot explain the growing returns of knowledge either. Knowledge is, namely, not a conventional commodity, as it is never lost upon sale of purchase; each transaction only increases it, leading to increasing returns. Returns on human capital are increasing, but at a falling rate (Ramirez, 2001). Sawyer (1978) finds that falling returns of human capital are a result of the separation of an individual from the environment as the individual is bounded in the capacity to employ his or her knowledge efficiently. To properly understand the increasing returns of knowledge and investment decisions related to knowledge and the transfer of knowledge, the broader social inclusion of an individual should be grasped; it is only through relations that one can fully employ the knowledge acquired primarily for oneself.

However, human capital theory does not account for sociological factors, mostly because they are difficult to measure and strongly subjective. Moreover, the theory does not wish to threaten the position of the individual as the fundamental unit of analysis; hence, society is understood as a group, or set of atomized individuals (Sawyer, 1978). Considering these shortcomings, the only sensible appraisal of the theory is one made from the viewpoint of an alternative theory, i.e. a theory that competes with it. However, human capital theory simply has no competition of a comparable scope and driving force in the field of economics, while the new theories (e.g. segmented markets theory, signal theory) mostly supplement it. Since there is no alternative to the human capital theory, it should be sensible to look for solutions in more profound cooperation with sociology, and in upgrading the concept of human capital with that of social capital.

Such upgrading requires an interdisciplinary approach which is reflected in the tradition of economic sociology (Zukin, DiMaggio, 1990; Swedberg et al., 1990; Swedberg, 1994). Economics and sociology are connected through the treatment of knowledge as capital which appears in the form of human capital in economics, and in form of relations and their impact on knowledge in sociology. The concept of social capital is hardly a novelty, as it has appeared consistently in sociology that calls attention to relations. The

new approach is the emphasis on the word 'capital', which indicates that the value component of relations is also expressed.

Human capital theory underlines that knowledge is basically a personalized process related mostly to the individual. On the other hand, through learning, values, and communication, knowledge is becoming progressively more sociologically contingent; hence, the failure to grasp properly the notion of social capital will prevent any adequate understanding of knowledge. From a business aspect, appreciation of relations in an organization is of major importance because they are strongly related to knowledge, which is becoming a key source of competitive advantage of entrepreneurial organizations in the market. However, relations are not confined to organization only (organizational aspect); knowledge and knowledge-related processes take place among organizations as well (inter-organizational aspect). To determine the social (in)appropriateness of knowledge, one should also understand relations between the organization and its broader environment (institutional aspect).

The key inadequacies of the socio-economic approach are manifested from the aspect of measuring effects of knowledge; without measurement, there can be no economics, or efficient management of knowledge. Even if all problems of measuring human capital (Machlup, 1984; Adler, Kwon, 2002) were eliminated, such approach would still be deficient, because there is no consent on the method of measuring social capital. Klitgard and Fedderke (1995) list in their study over 25 indicators of social capital, while Grootaert (1997) defines over 40. Some equate social capital with only one indicator, such as trust (Fukuyama, 1995). Such simplification enables more direct measurement, but only captures a specific aspect of the social capital. Grootaert (1997) thus believes that various indicators should above all be seen as complementing each other. Consequently, authors arrive at opposing conclusions. Putnam (1995) for example argues that the level of social capital in the last two decades in the USA has consistently decreased, while Paxton (1999) claims exactly the opposite. McKinley, Mone (1999), and Fligstein, Dauber (1989), draw attention to the fact that sociology, unlike economics, has a much more varied tradition; therefore, it is impossible to expect a more

unified view on the measurement of social capital, if it is not preceded by theoretical consolidation.

Hence, solution is sought in a more profound cooperation with the managerial theory that stresses measurement and management of knowledge within the theory of intellectual capital which therefore represents an upgrade of the human and social capital theory, both with regard to the conception of knowledge. In the beginning of the nineties, managerial theory foregrounded the categorization of various types of knowledge, where knowledge that supports sound business performance were particularly spotlighted. Subsequently, attention was drawn to the problem of efficient management of knowledge. Wiig (1997) and Edvinsson (1997) highlight that knowledge management is focused on the processes related to knowledge; hence, they understand intellectual capital as a broader term that can be understood as the difference between the market and book value (Roos et al., 1997; Edvinsson, 1997; Jones, Jordan, 1997; Edvinsson, Malone, 1997); thus knowledge management is becoming a tool for boosting intellectual capital. Knowledge is becoming today the center of the new managerial paradigm and a new way of managing business changes. This involves the use of methods at a new level, establishing a new culture of business change, and the corresponding (re)forming of the organizational structure. Knowledge management must ensure that knowledge is translated into entrepreneurial action, with the maximum possible effect. Roos et al. (1997) and Neef (1998) contend that inefficient management of knowledge derives mostly from imperfect measurement of benefits and costs of its use. Thus, the ability to measure the externalities of knowledge is gaining relevance, since only what is measurable can be efficiently managed. New approaches to measurement are devised at the cross-section between the traditional approach that relies on recognition and management of knowledge and accounting techniques. Eccles (1991) is among the first to underline the importance of non-financial indicators of business performance. Kaplan and Norton (2000) build on his ideas to set up a balanced system of indicators which highlights the non-financial business performance indicators that are strongly related to knowledge.

The soundness of seeking solution in deeper

cooperation with managerial theory and upgrading the understanding of knowledge in terms of human and social capital with intellectual capital is further corroborated by the fact that most definitions of intellectual capital emphasize the importance of human and social capital. The following two- or three-way divisions or analyses of intellectual capital are most common the literature written on the subject:

- Two-way division of intellectual capital of the Skandia company is based on the division into human and structural capital. Human capital is the category that the organization cannot appropriate because it is embodied in the individual. Structural capital is then more important for the organization, as it is owned by it and remains in it even if the employees abandon it (Roos et al., 1997). Structural capital is further divided into partnership and organizational capital, where the former is related to external environment and the second one to internal environment; this implies a certain understanding of social capital.
- Onge (1996), Sveiby (1997), and Roos, Roos (1997) changed and supplemented the scheme of Skandia's intellectual capital somewhat with their three-way divisions. Roos, Roos (1997) divide intellectual capital into human, organizational, and relational-consumer capital. Onge (1996) proposes a classification into human, consumer, and structural capital. Sveiby (1997) divides intellectual capital into the capacity or capabilities of the employees, external relations, and internal relations. The authors foreground human capital either directly or indirectly through the understanding of the capabilities, or skills, of the employees (Sveiby). Highlighting relational capital (Roos), structural capital (Onge), and structural relations (Sveiby) certainly points to an understanding of social capital.

The theory of human capital emphasizes that knowledge is basically a personalized process related to the individual. Through the processes of socialization, knowledge is becoming increasingly socially contingent; hence, adequate grasp of investment decisions, transfer of knowledge, and increasing returns on knowledge requires that more attention to social capital. The major deficiency of the socio-economic approach is the immeasurability

of the externalities of knowledge, which is why understanding of knowledge in the framework of human and social capital theory should be upgraded through the theory of intellectual capital. Without measuring and market evaluation of knowledge there can be no economic decision-making and rational knowledge management. Such definition of intellectual capital represents a conception of knowledge as capital in the full meaning of the word. Cooperation of economic and sociological theory with the management theory will thus enable a better definition of knowledge.

3.2 Holistic - Cognitive View of Knowledge

I firmly believe that divisions in the scientific-research community do not enable adequate insight into the issue of knowledge. The scientific community of economics only devotes attention to particular dimensions of knowledge, and as a result, the comprehension of knowledge is inadequate and deficient. Analysis from the aspect of substance or content has shown the following:

- Economic theory relates understanding of knowledge with information and rationality (unbounded, universal, objective), from where deductive reasoning is employed to attain a state of equilibrium. The distinctive reductionism of economic theory precludes it from full apprehension of the complex nature of cognitive processes; therefore, cooperation of economics primarily with those scientific communities that devote more attention to cognitive processes (e.g. psychology) should be encouraged.
- With the human capital theory, economic theory underlines that individual's capacities and skills are not inherited by birth, and that they have to be acquired through education. Investments into human capital bring diminishing returns if the individual is separated from the environment and consequently unable to employ his or her knowledge. Without a grasp of the social inclusion of the individual it is impossible to understand the increasing returns of knowledge; hence, economics should team up with those sciences that study relations (e.g. sociology).
- Without more profound collaboration with business sciences (e.g. managerial theory), eco-

nomics will remain unable to approach more efficiently the recognition of various forms of knowledge, their management, and market evaluation of the knowledge thus recognized.

Reasons for deficient understanding of knowledge within the framework of economic theory can be found within the very theory of science (epistemology) which studies by which we arrive at scientific findings. Holistic-cognitive aspect underlines that only greater scientific interdisciplinarity will enable surpassing the derogative attitude towards knowledge as assumed by a particular (economic) scientific community. Analysis from the aspect of content and substance has shown that economics, without a more profound cooperation with psychology, sociology, and business sciences, will not be able to adequately define knowledge. Reasons for such deficient understanding of knowledge within the economic community may be located in over-institutionalization of science which is taking place in particular scientific communities, and uncompromising entry of economics to other fields of scientific.

Emancipation and institutionalization of science impedes efficient communication between different scientific communities, thus ruling out the possibility of a more profound understanding of knowledge. The results are interpreted in the framework of individual scientific communities, and therefore divisions in the scientific communities become a synonym for partial analyses and mutual exclusion of ideas (Burell, Morgan, 1979; Hassard, 1993; Kristensen, 2001). Burell and Morgan (1979) have shown that more intense collaboration between economics, sociology, and managerial theory is impossible because of mutual exclusion of their respective paradigms and the lack of consent in the scientific communities on the fundamental starting points for a dialogue with the others.

- Economic theory is characterized by a high level of internal harmony, or unification. Most contributions can be classified into a unified paradigm characterized a pronounced objectification of knowledge (Burell, Morgan 1979; Tsang, Kwan, 1999).
- Sociological theory has never attained such consent on the fundamental issues and can therefore not be seen as a uniform paradigm (Fligstein, Dauber, 1989; Kaghan, Philips,

1998; McKinley, Mone, 1999). In the field of sociological theory, Feyerabend's methodological and theoretical pluralism has prevailed to the largest extent.

- Managerial theory featured a high level of internal coherence at the beginning; however, at the break of the millennium, fast pace of changes is driving managerial theory towards increasing internal heterogeneity and contradiction, and as a result, many authors believe it is becoming an immature scientific discipline (Pascale, 1991; Clarke, Clegg, 1998).

More profound communication between economic, sociological, and managerial theory cannot be expected without consent on the fundamental theoretical-methodological issues within respective scientific communities. But even in the case of developing clear starting points for a dialogue with others, the lack of a 'neutral' theoretical field enabling mutual comparison of differing paradigms to which various scientific communities belong would still be lacking. Kuhn (1998) stresses that paradigms are not mutually comparable because they are derived from different assumptions; hence, they are in a state of a 'paradigmatic war'. Thus implies a competitive battle between particular paradigms, in which there can be no real winner, as it is impossible to determine whether for example neoclassical theory has an edge over the institutionalists. The problem becomes even more acute when one attempts to evaluate why a theoretical achievement of, say, economist, would be superior to that of the sociologist.

The divisions in the scientific-research community and the desire for universal domination cause increasingly more aggressive 'invasions' of economics into the traditionally non-economic fields of study (economic imperialism). Kuhn (1998) finds that if the intent of science is not generation of new knowledge, than in-depth research and reorientation to other fields are the only reasonable and sensible courses of action. Economic imperialism is based on the idea that rationality can be applied to all fields of human life where resources are finite, or limited, and where the problem of choice arises (Becker, 1976). Due to the application to new fields, many have recognized in economics the universal science (Eichner, 1983; Fukuyama, 1995). According to

many authors, economics has attained a leading role among the social sciences and is accordingly called 'the queen' of social sciences. Stigler (1984) points out that the invasion of economics to the said fields was violent, as economics never received an 'invitation'.

Our analysis has shown that a deeper understanding of knowledge requires that we surpass the traditional divisions in the scientific community, since this is the only way of going beyond the derogative attitude towards knowledge within particular communities. In a way, economics with its partial analyses and unyielding invasion to other scientific fields undermines the foundations of a more fruitful cooperation with other scientific communities which would enable a deeper grasp of knowledge. Due to its own unwillingness to team up with other scientific communities and its desire for universal domination, economic theory has lost its capability of 'anthropocentric' view of the world, which in turn denies it the capacity to independently address the contemporary challenges that demand a deeper comprehension of knowledge. If Lenin's thought on economic imperialism as the highest development stage of the development of economic science is applied, then knowledge is becoming an ever stronger factor of de-monopolization of economic theory, and economic imperialism is followed by the next development phase in which knowledge shall become the starting point of scientific interdisciplinarity.

4. Conclusion

By defining our own theoretical model we managed to define knowledge from the aspect of substance, and from holistic-cognitive aspect. These two aspects are mutually related. From the aspect of substance, or content, knowledge should be understood as information, cognitive process, and capital. It is a whole comprising experience and values where information are sorted through cognitive process into patterns of thought and solutions. Characterizing knowledge as capital means that knowledge is ascribed a certain economic value that is defined in accordance with its supply and demand for it. Conception of knowledge as human capital highlights the fact that knowledge is basically a personalized process. However, through processes of learning and values, knowledge is becoming increasingly sociologically contingent; thus, it cannot be gras-

ped without an understanding of social capital. On the other hand, rational decision-making and management of knowledge requires its measurement and evaluation; hence, it only the upgrade of human and social capital with intellectual capital that represents an understanding of knowledge as capital in its full meaning.

Analysis from the aspect of substance or content has shown that partial analysis and institutionalization of knowledge within the framework of individual scientific communities does not enable an adequate understanding of knowledge. Economic theory with its partial analyses and the desire for universal domination (economic imperialism) revealed its self-sufficiency and unwillingness for any profound collaboration with other scientific disciplines. For economic theory to understand knowledge and surpass the derogative attitude towards knowledge within its own scientific community, it will have to devote less attention to its own expansion, and more to cooperation with other scientific disciplines (e.g. psychology, sociology, managerial theory). Hence, comprehension of knowledge at the break of the millennium requires a completely different approach at the epistemological level, as knowledge is indeed becoming the center of scientific interdisciplinarity.

References:

- [1] ADLER, S. P., KWON, S. W. Social Capital: The Good, the Bad, and the Ugly. Lesser Eric, ed., *Knowledge and Social Capital: Foundations and Applications*. Boston: Butterworth, 2000, pp. 89-115. ISBN 0-7506-7222-6
- [2] BECKER, S. G. *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education*. New York: National Bureau of Economic Research, 1964. ISBN 0-226-04119-0.
- [3] BECKER, S. G. *The Economic Approach to Human Behaviour*. Chicago: Chicago University Press, 1976. ISBN 0-226-04112-3
- [4] BLAUG, M. The Empirical Status of Human Capital Theory: A Slightly Jaundiced Survey. *Journal of Economic Literature*, 1976, Vol. 14, No. 3, pp. 827-855.
- [5] BLAUG, M. *The Methodology of Economics*. Cambridge: Cambridge University Press, 1992. ISBN 0-521-29437-1.
- [6] CLARKE, T., CLEGG, S. *Changing Paradigms: The Transformation of Management Knowledge for the 21st Century*. London: Harper Collins Business, 1998.

- [7] CYERT, M. R., SIMON, A. H., TROW, B. D. Observation of a Business Decision. *Journal of Business*, 1956, Vol. 29, Iss. 4, pp. 237-248. ISSN 0021-9398.
- [8] CYERT, M. R., MARCH, G. J. *A Behavioral Theory of the Firm*. New Jersey: Prentice Hall Inc, 1963.
- [9] DOSI, G. The Contribution of Economic Theory to the Understanding of a Knowledge Based Economy. Neef Dale ed., *The Economic Impact of Knowledge*. Boston: Butterworth Heinemann, 1998, pp. 123-129. ISBN 0750670096.
- [10] ECCLES, R. The Performance Measurement Manifesto. *Harvard Business Review*, 1991, Vol. 69, January-February, pp. 131-137. ISSN 00178012.
- [11] EICHNER, A. *Why Economics is not yet a Science?* New York: M.E. Sharpe, 1983. ISBN 0873322657.
- [12] EDVINSSON LEIF. Developing Intellectual Capital at SKANDIA. *Longe Range Planning*, 1997, 30, 3, p. 366-373. ISSN 0024-6301
- [13] EDVINSSON, L., MALONE, M. *Intellectual capital*. New York: HarperBusiness, 1997. ISBN 0-88730-841-4.
- [14] ETZIONI, A. *The Moral Dimension: Towards a New Economics*. New York: The Free press, 1990. ISBN 0-02-909901-3.
- [15] FLIGSTEIN, N., DAUBER, K. Structural Change in Corporate Organization. *Annual Review of Sociology*, 1989, Vol. 15, pp. 73-96. ISSN 03600572.
- [16] FUKUYAMA, F. *Trust*. New York: Simon & Schuster, 1995. ISBN 0-684-82525-2.
- [17] GRANOVETTER, M. Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 1985, Vol. 91, No. 3, pp. 481-510. ISSN 00029602.
- [18] GRANT, M. R. The Knowledge Based View of the Firm: Implications for Management Practice. *Longe Range Planning*, 1997, Vol. 30, No. 3, pp. 450-454. ISSN 0024-6301.
- [19] GROOTAERT, CH. Social capital: The Missing Link? *Environmentally Sustainable Development Studies and Monographs Series*, 1997, Washington: World Bank, 1997, pp. 1-22.
- [20] HAYEK, F.A. The Use of Knowledge in Society. *The American Economic Review*, 1945, Vol. 35, Iss. 4, pp. 519-530. ISSN 00028282.
- [21] HIRSHLEIFER, J. Where are We in the Theory of Information. *The American Economic Review*, 1973, Vol. 63, Iss. 2, pp. 1-39. ISSN 00028282.
- [22] JONES, P., JORDAN, J. Assessing Your Company's Knowledge Management Style. *Longe Range Planning*, 1997, Vol. 30, Iss. 3, pp. 392-398. ISSN 0024-6301.
- [23] KAGHAN, W., PHILLIPS, N. Building the Tower of Babel: Communities of Practice and Paradigmatic Pluralism in Organization Studies. *Organization*, 1998, Vol. 5, Iss. 2, pp. 191-215. ISSN 1461-7323.
- [24] KAPLAN, R., NORTON, D. *Uravnotežen sistem kazalnikov*. 1st ed. Ljubljana: GV, 2000. ISBN 86-7061-235-6.
- [25] KLITGAARD, R., FEDDERKE, J. Social Integration and Desintegration: An Exploratory Analysis of Cross Country Data. *World Development*, 1995, Vol. 23, Iss. 3, pp. 357-369. ISSN 0305-750X.
- [26] KOGUT, B., ZANDER, U. Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology. *Organization Science*, 1992, Vol. 3, Iss. 3, pp. 383-397. ISSN 10477039.
- [27] KUHN, T. *Struktura znanstvenih revolucij*. 1st ed. Ljubljana: Krtina, 1998. ISBN 961-6174-28-2.
- [28] LAM, A. Tacit Knowledge, Organizational Learning and Societal Institutions: An Integrated Framework. *Organization Studies*, 2000, Vol. 21, Iss. 3, pp. 487-513. ISSN 1741-3044.
- [29] LUCAS, R.E. On the Mechanics of Economic Development. *Journal of Monetary Economics*, 1988, Vol. 22, Iss. 1, pp. 3-42. ISSN 0304-3932.
- [30] MACHLUP, F. *Knowledge: Its Creation, Distribution and Economic significance: Knowledge and Knowledge Production*. 1st ed. Princeton: Princeton University Press, 1980. ISBN 0691042268.
- [31] MACHLUP, F. *Knowledge: Its Creation, Distribution and Economic Significance: The Branches of Learning*. 2nd ed. Princeton: Princeton University Press, 1982. ISBN 0601042306.
- [32] MACHLUP, F. *Knowledge: Its Creation, Distribution and Economic Significance: The Economics of Information and Human Capital*, 3rd ed. Princeton: Princeton University Press, 1984. ISBN 0-691-04233-0.
- [33] MCKINLEY, W., MONE, M., MOON, G. Determinants and Development of Schools in Organization Theory. *Academy of Management Review*, 1999, Vol. 24, Iss. 4, pp. 634-648. ISSN 03637425.

- [34] MILL, J. S. *On Liberty*. 1st ed. Oxford: Oxford University Press, 1991. ISBN 0-19-282208.
- [35] MINCER, J. Investment in Human Capital and Personal Income Distribution. *The Journal of Political Economy*, 1958, Vol. 66, Iss. 4, pp. 281-302. ISSN 0022-3808.
- [36] MOE, T. The New Economics of Organizations. *American Journal of Political Science*, 1984, Vol. 28, Iss. 4, pp. 739-777. ISSN 00925-853.
- [37] NAHAPIET, J., GHOSHAL, S. *Social Capital, Intellectual Capital and the Organizational Advantage*. Lesser Eric, ed., Knowledge and Social Capital: Foundations and Applications. Boston: Butterworth, 2000, pp. 119-157. ISBN 0750772220.
- [38] NEEF, D. *The Knowledge Economy*. 1st ed. Boston: Butterworth, 1998. ISBN 0750699361.
- [39] NONAKA, I. A Dynamic Theory of Organisational Knowledge Creation. *Organization Science*, 1994, Vol. 5, Iss. 1, pp. 14-37. ISSN 10477039.
- [40] NONAKA, I., TAKEUCHI, H. *The Knowledge Creating Company*. 1st ed. New York: Oxford University Press, 1995. ISBN 0-19-509269-4.
- [41] ONGE, H. S. Tacit Knowledge, the Key to the Strategic Alignment of Intellectual Capital. *Strategy review*, 1996, Vol. 24, Iss. 2, pp. 10-14. ISSN 1087-8572.
- [42] PASCALE, R. *Managing on the Edge*. 1st ed. London: A Penguin, 1991. ISBN 0-14-014569-9.
- [43] PAXTON, P. Is Social Capital Declining in the USA? *American Journal of Sociology*, 1999, Vol. 105, Iss. 1, pp. 88-127. ISSN 00029602.
- [44] PECJAK, V. *Psihologija spoznavanja*. 1st ed. Ljubljana: Državna založba Slovenija, 1975.
- [45] PENROSE, E. *The Growth of the Firm*. 1st ed. Oxford: Basil Blackwell, 1972. ISBN 0-631-5820-6.
- [46] POLANY, M. *The Tacit Dimension*, ed. Prusak Lawrence: Knowledge in Organizations. Boston: Butterworth Heinemann, 1997, pp. 135-146. ISBN 0750697180.
- [47] PUTNAM, R. Economic Growth and Social Capital in Italy. *Eastern Economic Journal*, 1995, Vol. 21, Iss. 3, pp. 295-306. ISSN 0094-5056.
- [48] RAMIREZ, V. J. Age Effect and Schooling Vintage Effect on Wage Profiles in Switzerland. *Conference on Understanding Skills Obsolescence*. Madrid, 2001, pp. 1-14.
- [49] ROMER, P. Endogenous Technological Change. *Journal of Political Economy*, 1990, Vol. 98, Iss. 5, pp. 71-102. ISSN 00223808.
- [50] ROMER, P. The Origins of Endogenous Growth. *Journal of Economic Perspectives*, 1994, Vol. 8, Iss. 1, pp. 3-22. ISSN 08953309.
- [51] ROOS, J., ROSS, G., DRAGONETTI, N. C., ED-VINSSON, L. *Intellectual Capital*. 1st ed. London: Mac-Millan Press, 1997. pp. 143. ISBN 0-88730-841-4.
- [52] SAWYER, D. Social Roles and Economic Firms: The Sociology of Human Capital. *American Journal of Sociology*, 1978, Vol. 83, Iss. 5, pp. 1259-1270. ISSN 00029602.
- [53] SCHULTZ, W. T. Capital Formation by Education. *The Journal of Political Economy*, 1960, Vol. 68, Iss. 6, pp. 571-583. ISSN 00223808.
- [54] SCHULTZ, W. T. Investment in Human Capital. *The American Economic Review*, 1961, Vol. 51, Iss.1, pp. 1-17. ISSN 00028282.
- [55] SCHULTZ, W. T. Reflections on Investment in Man. *The Journal of Political Economy*, 1962, Vol. 70, Iss. 5, pp. 1-8. ISSN 00223808.
- [56] SCHUMPETER, J. *History of Economic Analysis*. 1st ed. London: Routhledge, 1997. ISBN 0-415-10888-8.
- [57] SCHWALBE, U. *The Core of Economies with Asimetric Information*. 1st ed. Berlin: Springer, 1999.. ISBN 3540660283.
- [58] SEN, A. Rational Fools: A Critique of the Behavioral Foundations of Economic Theory. *Philosophy and Public Affairs*, 1977, Vol. 6, Iss. 4, pp. 317-344. ISSN 0048-3915.
- [59] SIMON, A. H. A Behavioral Model of Rational Choice. *Quarterly Journal of Economics*, 1955, Vol. 69, Iss. 1, pp. 99-118. ISSN 00335533.
- [60] SIMON, A. H. Theories of Decision Making in Economics and Behavioral Science. *The American Economic Review*, 1959, Vol. 49, Iss. 3, pp. 253-283. ISSN 00028282.
- [61] SIMON, A. H. Rational Decision Making in Business Organizations. *The American Economic Review*, 1979, Vol. 69, Iss. 4, pp. 493-513. ISSN 00028282.
- [62] SOLOW, M. R. A Contribution to the Theory of the Economic Growth. *Quarterly Journal of Economics*, 1956, Vol. 70, Iss. 1, pp. 65-94. ISSN 00335533.
- [63] SPENDER, J. C. Making Knowledge the Basis of a Dynamic Theory of the Firm. *Strategic Management Journal*, 1996, Vol. 17, Special Issue, pp. 45-62. ISSN 01432095.
- [64] STIGLER, G. The Economics of Information. *Journal of Political Economy*, 1961, Vol. 69, pp. 213-225. ISSN 00223808.
- [65] STIGLER, G. Economics-the Imperial Science? *The Scandinavian Journal of Econo-*

- mics*, 1984, Vol. 86, Iss. 3, pp. 301-313. ISSN 03470520.
- [66] SWEDBERG, R., HIMMELSTRAND, U., BRULIN, G. *The Paradigm of Economic Sociology*. Zukin Sharon, Paul DiMaggio, ed., *Structures of Capital*. Cambridge: Cambridge University Press, 1990, pp. 57-87. ISBN 0521376785.
- [67] SWEDBERG, R. *Markets as Social Structures*. Swedberg Richard, ed., *Economic sociology*. Cheltenham: Elgar Reference Collection, 1994, pp. 255-282. ISBN 1858983274.
- [68] TRSTENJAK, A. *Temelji ekonomske psihologije*. 1st ed. Ljubljana: Gospodarski vestnik, 1982.
- [69] TSANG, W. K. ERIC, KWAN, M. K. Replication and Theory Development in Organizational Science: A Critical Realist Perspective. *Academy of Management Review*, 1999, Vol. 24, Iss. 4, pp. 759-780. ISSN 03637425.
- [70] TSOUKAS, H. The Firm as a Distributed Knowledge System: A Constructionist Approach. *Strategic Management Journal*, 1996, Vol. 17, Special Issue, pp. 11-25. ISSN 01432095.
- [71] TURVANI, M. *Mismatching by Design: Explaining the Dynamics of Innovative Capabilities of the Firm with a Penrosean Mark*. Pitelis Christos, ed., *The Growth of the Firm: The Legacy of Edith Penrose*. Oxford: Oxford University Press, 2002, pp. 195-214. ISBN 0199248524.
- [72] ULE, A. *Znanje, znanost in stvarnost*. 1st ed. Ljubljana: Znanstveno in publicistično središče, 1996. ISBN 961-6014-50-1.
- [73] ZUKIN, S., DIMAGGIO, P. *Structures of Capital-The Social Organization of the Economy*. Cambridge: Cambridge University Press, 1990. ISBN 0521376785.
- [74] WALSH, J. R. Capital Concept Applied to Man. *The Quarterly Journal of Economics*, 1935, Vol. 49, Iss. 2, pp. 255-285. ISSN 00335533.
- [75] WIIG, M. K. Integrating Intellectual Capital and Knowledge Management. *Long Range Planning*, 1997, Vol. 30, Iss. 3, pp. 399-405. ISSN 0024-6301.

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ABSTRACT**GOING BEYOND THE DEROGATIVE ATTITUDE TOWARDS KNOWLEDGE WITHIN PARTICULAR SCIENTIFIC COMMUNITIES****Aleksandar Keseljevic**

By establishing his own theoretical model, the author is seeking to approach to knowledge in an entirely new way. From the aspect of substance the author understands knowledge, as the key source of competitive advantage in the markets at the brake of the millennium, as information, cognitive process, and capital. Knowledge is understood in the article as a set of experiences where information is classified into patterns of thought cognitive processes. Cognitive processes are important for understanding of all processes related to knowledge, as knowledge cannot exist without its subject, to which the capacity of cognition is ascribed. Characterizing knowledge as capital brings economic effects to its owners, as it is ascribed certain economic market value to knowledge. Author believes that cohabitation of human, social, and intellectual capital enables understanding knowledge as capital in its full meaning. From a holistic-cognitive aspect the author argues that inadequate understanding of knowledge is a consequence of an over-institutionalization of science within particular scientific communities. The author wishes to stress that adequate and correct understanding of knowledge requires a high level of scientific interdisciplinarity. Deeper understanding of knowledge requires that we overcome the traditional divisions in the scientific community, since this is the only way of going beyond the derogative attitude towards knowledge within particular scientific communities. For economic theory to fully understand knowledge within its own scientific community, it will have to devote less attention to its own expansion, and more to cooperation with other scientific disciplines.

Key Words: *knowledge, knowledge management, social capital, intellectual capital, scientific interdisciplinarity.*

JEL Classification: A12, A14, D83.