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CULTURE – KNOWLEDGE – INNOVATION

Jiří Loudín*

Abstract

The article presents an overview of the research problems that frame the conceptual context of the project “Transition from imitations to innovations as social and cultural process”. The title of the project indicates a main perspective of the analysis. The current rise of knowledge society is a complex process in which so far unconnected elements are being connected. Culture, innovation, and knowledge and their interactions are identified as the key agents of the followed process. The role of culture in knowledge and innovation has been so far underestimated, although intuitively it has always been perceived as crucial. In this respect, the issue of transfer – let it be technological, institutional, or cultural transfer – deserves a foremost research attention. The same applies to the spatial dimension of culture – innovation – knowledge interactions, as these gain a new relevance and meaning in the context of globalization and regionalization.

Keywords: *culture; innovation; knowledge; technological transfer; knowledge region*

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The ability to create something “new” is one of the basic attributes of developed societies, whether it manifests itself in the production of abstract symbols or technical means. Innovation is not only a matter of economy and technology, something that brings economical profit and new material conditions for life, it is also an elementary manifestation of human creativity, contributes to refining of cultural values and challenges people with new kinds of moral preferences.

Culture and innovation

In the most general definition, culture is the sphere of human action and human artifacts. Originally, the term designates all phenomena related to culturing, cultivation, and education. Everything natural – raw, intact, independent on humans is on the opposite side. By culture, humans cultivate the sphere of the natural: by transforming it, forming it, and realizing possibilities that nature hides in itself, yet leaves uncompleted. Humans bring the potential, inherent in nature, into new actual reality. Similarly, we can define technology as a “recasting [of] nature to something that is conceived of being possible but does not exist as yet” [Bóhme, van den Daele, Krohn 1978: 223]. In this sense, innovation activity, which creates new realities from available natural resources in natural space and time, is an organic part of culture.

In some influential traditions of thought the multifaceted and ambiguous concept of culture is gradually being shifted into a contraposition to material progress and the developments of technology. This antagonism often appears in the form of culture – civilization opposition. Especially some exponents of the romantic style of thought or Neo-Kantians emphasize the supertemporal validity of cultural values, as opposed to the conditional and external character of the accomplishments of civilization [Drozenová 2004]. “Culture” here means above all spiritual culture and the inner rules of human action, whereas “civilization” is characterized

by the advancement of the external conditions of life – both material and institutional ones.

At present, definition of culture as the sphere of values (meanings, symbols) and practices (incl. traditions) prevails. At the same time (especially within the context of globalization), a specific understanding of culture takes shape – one that speaks not about general traits but considers rather partial entities: national, ethnic, religious, professional, social, or age communities and traditions (Christian-, American-, business culture, etc.). Individual cultures are specific in themselves as well as in relation to the level of economical and innovation activities.

The relationship between culture and innovation seems to be rather antinomial in everyday experience. On the one hand, innovations are obviously an integral part of culture as an artificial world created by human ingenuity. At the same time, however, the antagonism of culture and civilization endures. Within it, the innovation activity is being incorporated into the sphere of civilization and exclusively related to the technical, material, or economic progress. The opposition of culture and innovation in relation to tradition and persistence is also often being emphasized. In the framework of the construction of this polarity, culture is being pictured as something persistent and traditional, which pursues the work of past generations and pays respect to it. Innovation, on the other hand, challenges both tradition and persistent values; its goal seems to be to destroy and deteriorate everything past.

Sometimes these two positions merge into one critical stream – innovation serves the cult of the new, which is at the same time the cult of materiality and consumerism, and which destroys the deeper spiritual culture of the past.

Our present is supposed to be a continuous stream of changes and new entities. For some critics, it presents a self-contained autarchic process that has its source and meaning in itself; its goal is simply to bring new changes, new states. For others, the dynamic, character, and consequences

of innovations are unjustifiable – their social, ecological, and ethical burdens are unacceptable.

Joseph Schumpeter characterized innovation as “creative destruction” and for many critics today innovations really do evoke too much of destructivity. Why should there be new and new products, the usefulness of which is often problematic, being produced and introduced to markets when the existing ones prove themselves standing? The social and ecological burdens of these innovations are usually big – the original products transform into waste, which is a problem both ethical and ecological. Why should we constantly adapt to various changes – aren’t we good enough as humans? Is it our fate to constantly react to the changes of the environment and live in a continuous adaptation stress? Is it our fate today to live under the dictate of technological change?

A new situation often does not bring about a more developed reality, which would solve some problem or open new perspective, but rather only a specific economic effect or the sole experience of something new. This culture of new and change disseminates first of all shallowness and superficiality. Seemingly, the time is intensified and there is no moment without an experience when in fact time is becoming episodic and empty, deprived of meaning. The bustling stream of changes makes us deaf and blind and obstructs any real intellectual or emotional inspiration.

Contemporary societies highly value, even enforce movement, change, flexibility. Richard Sennett reminds us that the requirements of the “new globalized economy” on human flexibility – he defines it as an openness towards fast, short-lived changes and the necessity to continuously risk and be independent – are in conflict with the patterns of behavior necessary for “good life” of both individuals and human communities. This touches especially on the discrepancy between the emphasis upon quick changes and short-time perspectives that took over the movement of human capital in the productive and work sphere (the episodic culture of chameleon-like values) and the necessity to cultivate a culture of obliga-

tion, trust, and devotion, without which no enduring social relations can prosper [Sennett 1998].

The reason for many fundamental problems with innovations, information, and technology is not “too much information, technology..” (“Too many notes” as Joseph II said to Mozart), but “too little of man.” The fact that we often cannot cope with technology and everything new is often only a manifestation of another fact: that we cannot cope with ourselves.

A prerequisite for organic management of innovations is the development of non-instrumental final activities and values, humanities, arts, ethics, and aesthetics. Finland (Scandinavian countries in general) is a good example of a contemporary technical and innovational superpower; the quality of its educational system is generally recognized and praised. In its educational process humanities play a crucial role; it is already at the elementary levels of education where aesthetic and ethic upbringing take place (such was also Plato’s recommendation in the *Republic*). Among the main principles we can find an orientation towards the personality of pupil/student and a universal support of underachieving student. Social and cultural sensitivity as well as the skill of helping and dealing with social (health, cultural) problems of individuals and groups is thus cultivated. There is an intense effort to orient the technical innovative development towards exactly such issues.

As far as the relationship between innovation and the past is concerned, many critics point out that their bustling stream devalues the past. However, the innovation activities can also protect and conserve, act as a conserving and conservative force. Thanks to the new research and intellectual technologies a lot of the past is actually being discovered (“the new past”) and with the help of modern technologies it is possible to make the treasured values of the past preserved and available. We are coming closer to a possibility of reconstruction, of “reviving” physical and cultural entities, which became extinguished in the past.

It is not only the preservation of material relics; in recent era some technological innovations made possible the transfer of texts into electronic form and so made them universally available. An unprecedented possibility of extensive and unlimited access to even historically precious documents is now open. It is not only biological species and technical artifacts that can be preserved; it is also immaterial artworks and cultural works that do not have to fade into oblivion.

Innovation is a self-preserving hope even for humankind as such, for humankind as a biological species. Living nature on Earth has passed through several stages of extinction already; it is being damaged by the consequences of human action; life on our planet will not last forever. The only possibility for maintaining humankind – if such a goal is at all desirable – is its ability to innovate.

At present, the relationship between culture and innovation is not being studied primarily in terms of opposition but rather as two factors that are mutually supporting and stimulating one another. There has probably been no moment in human history when some state, ethnic, or cultural body would not be simultaneously at the front end of technological development (or innovation activities in general) and belonged to the culturally most developed. (No matter how we measure cultural development, possibly even with the production of important artistic or intellectual works, or the production of stimulating ideas in general.) Heidegger's insight that the essence of technology is not technology, just like the essence of a tree is not a tree, can be shifted into the sphere of innovation activities and their economic outcomes – even they are inspired by certain quality of the social and political organization and the economic system, they depend on the type and development of culture.

Any rigid separation of culture and civilization is questioned and surpassed by the modern social sciences. The sphere of human values and meanings on the one hand and the sphere of technology on the other are not conceived as two autonomous worlds anymore.

In the recent decades, social sciences attempt at presenting an image of the relationship between culture and technology, which would more adequately represent the reality of human action and social practice, in which culture and technology penetrate one another. The reason for separating these spheres in everyday consciousness usually stems from a reductionist concept of technology as exclusively material artifact. However, besides that, there is technique as skill and technology as knowledge, know-how (-logy). Each human action and social practice is based on some sort of skill and knowledge.

In the early 1920s, Wiliam Ogburn came with the concept of “cultural lag.” That occurs when “one of two parts of culture which are correlated changes before or in greater degree than the other part does, thereby causing less adjustment between two parts than existed previously” [Ogburn 1964: 86].

Ogburn refuses identification of his concept with a Marxian materialistic and economic determinism or with a technological interpretation of history (as his critics claim). He argues that the independent (initiating) variable could very well be an ideology or a non-technological variable [Ogburn 1964: 86]. As an example, he mentions changes in the law of primogeniture. However, Ogburn admits that the illustrations of the independent variable of cultural gap from the modern times are mainly of technological kind: it took a decade or more to build the broader highways adjusted to stronger and faster cars; similarly, there was a delay between the transfer of „home“ production (spinning, weaving, etc.) from the home to the factory and the corresponding emancipation of women from their dominating role as housewives.

In this, according to Ogburn, is reflected the character of modern time: “[...] in our times in the Western world, technology and science are the great prime movers of social change” [Ogburn 1964: 91]. The cultural lags accumulate because of the great rapidity and volume of technological change.

Ogburn could therefore be considered (although he himself would probably not approve such a characterization) one of the intellectual fathers of technological determinism – the conviction that social change is in essence an adaptation to a dynamic technological change.

However, later the mainstream of social sciences rejects such a conviction – on the contrary, technology is conceived as a social and cultural practice; social models of technology in which technology is shaped by social (and cultural) factors are being created.

Actor-network theory describes interactions and networks where people, their ideas, and technologies build a single heterogeneous whole in which their mutual relations are both material (between things) and semiotic (between concepts).

A semiotic terminology is also used here “to avoid terms that assume a distinction between the technical and social” [Akrich 1992: 206]. Inventors, designers, producers “inscribe” into artifacts specific code or scenario of putting such an artifact into effect. Technical artifact (or technical system, in which human and non-human components are not being distinguished) proscribes certain things (something is possible and something isn’t) and its users act according to this program, subscribe to it, or – even if they disagree – adapt to it or try to change it (de-inscription).

The concept of social construction of technology describes development of technology as a series of historically specific choices, as a result of negotiations of conflicting interests and visions of relevant social groups. Technical choices are determined by configurations of social agents and their culturally specific needs [Bijker, Hughes, Pinch 1987]. It is a process of variation and selection in which relevant social groups – producers, engineers, users – negotiate meaning of technical artifacts until they reach some consensus (stabilization). During the creation of technical artifacts states of openness and flexibility alternate and coincide with states of enclosure and stabilization [Bijker 1995]. Even technological artifacts in use

are not “closed” – they may be used differently by different users and a new meaning of technology may appear (interpretative flexibility).

“Social dimension” also grows further in a new, fundamental way; there arises something like a “new innovation.” With increasing frequency such notions as social innovation, non-technological and non-economic innovation appear.

Their context is emerging knowledge economy in which information technologies play an important role, but which is based first of all on valorization of knowledge. Knowledge economy is strongly linked to ICT, but, at the same time to the new forms of economic and social rationality. Wikinomics – with reputation and inclusion into networks as a main motivation and selection principle – should be an example for that.

Social innovation as such – an object of which is to participate in solving social problems – addresses a plenty of social problems that are related to social and technological change. If we should stay in Ogburn’s paradigm, there is a number of the cultural lags to be compensated – as always in the period of rapid change.

Geoff Mulgan claims that the goal of social innovations is to meet a social need and that they are predominantly diffused through organizations whose primary purposes are social [Mulgan 2006]. Besides many examples of successful social innovations,¹ he sees the key deficits to be cleared are such issues as ageing population, growing cultural diversity, rising incidence of chronic diseases, behavioral problems connected to affluence (obesity, addictions), crime, climate change, stagnating happiness [Mulgan 2006: 147].

¹ “Thousands of recent examples of successful social innovations have moved from the margins to the mainstream. They include neighborhood nurseries and neighborhood wardens; Wikipedia and the Open University; holistic health care, and hospices; microcredit and consumer cooperatives; the fair trade movement; zero-carbon housing developments and community wind farms restorative justice and community courts; online self-help health groups.” [Mulgan 2006: 146]

However, such a definition of social innovation faces a criticism of being too large and general – basically any social change or measure may be included in it. It is natural then, that a search for an appropriate conceptualization for a new differentiation and new kinds of innovations has only begun.

Social innovation is often used as the label for residual categories of non-economic dimensions of economic innovation, as a synonym for non-technological innovations. Steffen Roth points at the existence of non-economic markets and categorizes economic innovation as a special case of social innovation. There exist non-economic products and non-economic spheres of competition in society (non-economic markets) where non-economic advantage may be at stake – e.g. European market of universities and scientific disciplines, political markets, religious markets, educational markets, etc. [Roth 2009: 11, 21]. We can also witness a tendency of economic innovations to overgrow themselves towards non-economic dimensions.²

Lukas Schreiber – with a strong link to the social system theory developed by Niklas Luhmann – considers the question, which mechanisms and media of selection and success can in the developing non-economic and non-technological innovations substitute for money and technology that fulfill a role of selection and motivation in the current dominating innovations of economic and technological types. Money as symbolic and generalized medium is able to handle with time – to reduce future uncertainties. Applying technology with its causal simplification is, in turn, possible to build and handle a high rate of complexity [Schreiber 2009: 38].

² “The constant efforts of business entities to deal with intangibles, or to develop new sense organs for what they call stakeholders in the context of corporate social responsibility or open innovation, can be interpreted as further examples of a more or less conscious orientation towards non-economic markets.” [Roth 2009: 23]

That's why the societal preference for economic and technological innovations in the modern societies.

In the new economy (next society), the new media increase the range of communicative accessibility.

Usually society builds up new cultural forms of itself, which catch the exploding excess of communication. Internet itself and corresponding new social forms of networks, e.g. in civil society, ecology movement, or open source, show first blueprints of the so-called next society. [Schreiber 2009: 38, 39]

For Schreiber, social networks are example of non-economic/non-technological innovations, while such phenomena as Open Software or Wikipedia belong to innovations of non-economic/technological kind.

As a substitute for money and technology in the next world of non-economic and non-technological innovations, Schreiber considers first of all reputation. Reputation is not as easy usable, shareable and exchangeable because it is strongly connected to trust, reputation is time-intensive to build up but still “reputation seems to have the ability to connect selection and motivation on a social and temporal dimension” [Schreiber 2009: 40].

Should the expectations of „next society“ (Drucker, Baecker) come true in the future, we shall undoubtedly experience a new work-, business-, and innovation cultures based on new values and practices.

A cultural thesis

Generations of economists, sociologists, and historians have made an effort to find a decisive agent that would eventually determine the level and dynamics of economy (and innovation that is necessarily linked to it). Of course, at the national level there exist the institutions of economic system, political system that profile the nature and results of economic activities; economy is a multi-factoral phenomenon.

Still, many thinkers believe that there exists something that makes a difference, something that moves the economy as such, from behind the economic scene, the more or less latent driver of economy.

David Landes devoted his monumental volume, *The wealth and Poverty of Nations*, to inquiry into the question, why do some nations fare well economically, while others do not. At the conclusion of his analysis, he gives an unambiguous answer: “If we learn anything from the history of economic development, it is that culture makes all the difference” [Landes 1998: 516]. For Landes, Europe is the success story, or better put, the West.

Landes develops a concept of cultural determination of economic dynamics (“cultural thesis”), the foundation of which was laid by Max Weber in his classical work *The Protestant Ethic and the Spirit of Capitalism*. Weber studied interactions between religious ideas and economy and pointed out the Calvinistic form of Christianity where rational pursuit of economic gain and worldly economic accomplishment has been given positive spiritual and moral meaning.

Landes links the protestant reformation with the repudiation of authorities, dissent, scepticism, all of which creates favourable conditions for discursive, rational analysis of the world. Growing autonomy of the intellectual endeavours becomes the kernel of scientific activities, as they had been developing in some European countries throughout the modern period. Generally valid methods and procedures of research and experimentation had been born that have gradually found their application also in the spheres of production and economy, strongly uplifting dynamics and effectiveness of the economy.

It is not only Protestantism that should support advancement of economy and technology. Some authors draw attention to positive influence of the so-called Western Latin Christianity on the development of technology. In contrast to the rather contemplative Eastern Greek Christianity, it inculcated active engagement with the world [Drozenova 1995, White 2003]. Others extend this fecund influence to Christianity as

such – Christianity believes that history moves forward progressively and people should look to the future. It recognizes the dignity of free labour and essential equality of human beings [Brooks 2005, Stark 2005]. In the Middle Ages, such technological inventions as compass, clock, mill-wheel, gunpowder, etc. were brought about largely by monastic orders.

Francis Fukuyama points at the “functional equivalent” of Calvinism like Confucianism or religious sources of Japanese work ethic. Fukuyama adds that non-economic motivation can be provided also by non-religious values, e. g. a feeling of certain collective pride about the quality of production, as it manifests itself in successful Asian or European economies with a guild tradition (Germany, Sweden). A modern form of such stimulating value systems is economic nationalism, which could be found, again, mainly in Asian countries, however, Gerd Schienstock mentions a specific form of “Finnish techno-economic nationalism” [Fukuyama 1992, Schienstock 2009].

The cultural thesis as presented by David Landes was criticised by a Peruvian economist Hernando de Soto in his no less discussed work, *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*: It is not culture, but the quality of law order, namely the legal protection of property rights which makes difference [de Soto 2000].

De Soto does not see the cause of the developing countries’ weaker economy in culture, but rather in the insufficient state protection of property rights. In the developing countries, there is a great extent of extralegal property, of grey economy. The extralegal property cannot be transformed into capital and the entire economy suffers greatly because of this. Without capital (or with its extent limited), the economy rests stationary.

De Soto refuses the “cultural thesis” with a reasoning that “hard working people are all around the world”. Yet protestant ethic does not encompass merely “hard work”, its philosophical, social, and political context is much wider. In fact, it concerns a new general plan of the world, a new concept of the relationship between individual and society, with

emphasis on the autonomy of man and reason, initiative and responsibility of individual, examination of the world and application of the new knowledge in practical life.

According to de Soto, much research of the difference between economic dynamics in various political and cultural systems are tainted with many unexamined and more or less unverifiable prejudices called the “culture”. Their unspoken mission is to produce and reproduce the notion of supremacy in the minds of people who live in the privileged parts of the world. A considerable portion of behaviour that is usually attributed to cultural heritage is rather a consequence of rationally examining relative advantages and disadvantages of their integration into the proprietary relations’ system. The task of further research is to find which models of behaviour, attributable with cultural background, can be considered to be a part of natural, invariable identity of people, and which are a product of economic and legal limitations.

Obviously, there appear difficulties in dealing with the term culture – difficulties that stem namely from the ambiguity of the term. De Soto and Fukuyama interpret “cultural” phenomena quite divergently: according to de Soto, the economic success achieved by many immigrants from the developing countries in the developed countries with an advanced system of property rights is a testimony of non-existence of any cultural gap. The immigrants were able to adapt themselves well to a working legal system. According to Fukuyama, the successful immigrants had to leave their country of origin and extricate themselves from its demotivating and binding cultural patterns in order to be able to deploy their talents; the successful immigrants were actually a kind of “cultural dissidents” in their country of origin [de Soto 2000, Fukuyama 1992].

However, the very juxtaposition culture versus law order is clearly contestable. If a system of institutions is a constituent part of many conceptions of culture, then the juxtaposition is not very logical, for the law order is undoubtedly a significant social institution – and thus an integral

part of culture. What authors like de Soto apparently have in mind is the contraposition of culture as something unique, bound to a specific sphere of nationalities and ethnicities – and law, which is universal.

De Soto touches here – consciously and unconsciously – on a truly suggestive problem: How do some elements of particular cultures prove themselves good enough to become universal, adopted by other cultures as well. We could possibly speak of cultural or social innovation and its subsequent imitation, transfer, and adoption by other cultures. De Soto himself notes the examples of the Northern regions of Europe that copied legal institutions of ancient Rome and adopted Greek alphabet and Arabic numerical symbols. For de Soto, however, this is an argument in favour of the “history-making” role of proprietary relations, not of the culture.

The system of property rights creates a firm body of economic development, it fixes the level reached. It is a necessary condition, but not a sufficient one. Property rights protect the results of certain activity, but what drives the activity itself?

Culture can also be understood as a system of beliefs, values, and practices – contrary to the institutionalised, legally fixed norms. Beliefs and values can confer transcendent meanings on economic activities and thus become their powerful and sustainable drivers. Of course, various systems of beliefs and values can relate differently to economic activities: indifferently, stimulatingly, or demotivatingly. Simply put, it could be argued that beliefs and values have a motivation effect if people work and invent even when it brings them no more economic benefit; they are not getting any richer.

Other scholars, who follow the role of culture in an economic development, Ronald Inglehart and Christian Welzel – who analyze culture conceived as system and of values in the process of economic and social changes – take a “balanced” standpoint towards the cultural thesis: “We reject both economic and cultural determinism [...] although socio-economic development tends to transform societies in a predictable direction,

the process is not deterministic. Changes are negotiated between elites.”³ [Inglehart, Welzel 2005: 42]

However, Inglehart and Welzel ascribe the initiating role to “socioeconomic development” which “brings major changes in society, culture, and politics” [Inglehart, Welzel 2005: 5]. “These changes are probabilistic. They are not deterministic laws, like the Scientific Socialism that Karl Marx propounded. Moreover, cultural change is not linear, continuously moving in one direction as economic development takes” [Inglehart, Welzel 2005: 20]. While industrialization have brought a shift from traditional to secular-rational values, the rise of post-industrial society means the shift from survival to self-expression values, through which people place increasing emphasis on human choice, autonomy, and creativity.

The role of cultural elements in the innovation activities has been recently reflected in the concept of innovation cultures that comprises – unlike the concept of National Innovation System – a more complex range of innovation-related phenomena including cultural values and „soft institutions“ [Reith 2006, Wieland 2006].

Technological transfer and social innovation

At first sight, it might seem that for the countries aiming at accelerating their economic pace or catchnig-up the economic leaders, it is an easy task: it is enough to imitate and adopt “best practices” of leaders. In reality, it is a very difficult process and a very few countries have so far succeeded in such an effort.

³ “It is clear that given elites, leaders, institutions, and situations-specific factors play crucial roles. The immediate cause of institutional change can virtually always be found at the elite level, almost by definition, because the people who negotiate political changes are defined as elites ... but underlying cultural change also play a major role in the emergence of important institutional changes.” [Inglehart, Welzel 2005: 42,43]

John McArthur and Jeffrey Sachs, in their contribution to *The Global Competitiveness 2001–2002* (entitled *The Growth Competitiveness Index: Measuring Technological Advancement and the Stages of Development*), introduce the terms “core economy for a country that is a technological innovator; all the rest are said to be non-core economies” [McArthur and Sachs 2001: 29]. This concept is based on the distinction between innovation and technology transfer – the core economies should be innovative while achieving at least 15 patents per million population. The division between the innovating and non-innovating economies is crucial: fast catch-up growth based on absorbing the advanced technologies and capital of the core economies has its inherent limits. As a follower approaches a leader, its capacity to narrow the gap even further tends to diminish; “in order to close the income gap fully, the non-core economy must become a technological innovator...” [McArthur and Sachs 2001: 30].

There are only 6 countries that have been able to shift from the non-core category to the one of core economies between 1980s and year 2000: Taiwan, Iceland, Ireland, Hong Kong, Singapore, and Korea. Of the 18 countries that belonged to the core economies already in 1980s, Israel and Finland accomplished the highest advancement in this period.

The experience shows that in the efforts to accelerate economy are especially successful those countries that are able to adopt the most progressive technology the cultural acceptance of which is supported by unique social, institutional innovations that are based on national cultural sources and tradition.

Such a concept was formulated by a founder of catching-up theory Alexander Gerschenkron. When he analyzed the industrialization process of European continental countries – aiming at to catch-up Great Britain – he stressed the “the application of institutional instruments for which there was little or no counterpart in an established industrial country” [Gerschenkron 1962, 7]. In Germany, an investment bank was invented – and David Landes notices that Germany was also a pioneer

of the inclusion of scientific research into university education (*Forschung und Lehre*); the teaching laboratory is also a German invention. As a consequence, Germans achieved great advancements in chemistry and in electricity research and left the rest of the world far behind especially in chemistry until the outbreak of the First World War. In turn, in France they needed some sort of creed: Saint-Simonism served as the “spiritual vehicle” of industrialization.⁴

Generally, Gerschenkron pinpoints the indigenous, native elements; industrial history of Europe is “an ordering system of graduated deviations” from the “first” industrialization.

Moses Abramovitz works with the concept of “social capabilities” that describes, in principle, the quality of political, commercial, industrial, and financial institutions in a given country – more specifically, the emphasis is placed on education, but financial system or labour relations belong here as well.

The hopes for a faster growth and successful catching-up thus rest above all with those countries that are technologically backward but socially advanced. This was basically the condition of the dynamical growth in Europe and Japan after the Second World War; the countries were able to absorb and exploit the existing best practice-technology [Abramovitz 1994].

Jan Fagerberg takes up the work of Gerschenkron and Abramovitz in both conceptual and methodological matters. On top of that, he intensively develops the empirical line of research and pursues analyses of more recent development in “catching-up.”

Fagerberg discovers in recent economic history the affirmation of Gerschenkron’s and Abramovitz’s concepts. The countries successful in catching-up were those that were able to create “new institutional instruments” or “social capabilities” – such as Japan with its quality circles and

⁴ What sufficed in England did not suffice in France; “in an advanced country rational arguments in favor of industrialization policies need not be supplemented by a quasi-religious fervor.” [Gerschenkron 1962: 24, 25]

just-in-time production systems. Finland fared similarly well with its focus on targeting the technologically most progressive industries. “Each country has to find its own specific way”; not even the much venerated quality of education is not by itself an all-redeeming cure – as suggests the low effectiveness of substantive investments into higher education in Argentina or Philippines. Nonetheless, “investing in education may be a good place to start” [Fagerberg 2004: 537].

The advantage is always on the side of those subjects that are able to employ something of their own, something specific, such as their own cultural sources that are at disposal “for free” – they are an integral part of inherited tradition.

Linsu Kim [Kim 1997] gives an account of the Korea’s way from imitation to innovation. He characterizes the main transition as a conversion from duplicative imitations (knockoffs or clones of mature foreign technologies) to creative imitations and innovations. Among the positive conditions, he emphasizes favorable public policy and socio-cultural factors (the Confucian heritage and education).

The past decades have illustrated remarkable inventiveness in the sphere of institutional and social innovations. In the advanced countries, in a space delimited by interactions of research, industry, and government, a multifarious network of commercial and public institutions has emerged. It is a sort of an institutional base for national innovation system. It pertains to various forms of technology parks, science parks, business innovation centers, clusters, governmental technology agencies, regional innovation agencies, etc. Individual organizations and the overall interface of the science-industry reconfigure themselves continuously following the changing conditions and demands. The system acts openly and flexibly. The basic skeleton of these social innovation and political instruments is universal – it is, in principle, set by the original innovators – but individual subjects often adjust it to lesser or larger extent in order to meet their unique needs.

Japan did not come up only with the “quality circles” and the “just-in-time” production; it also gave the world an elaborated concept of the “knowledge-creating company” [Nonaka and Takeuchi 1995]. Nonaka and Takeuchi analyze the causes of the Japanese firms’ success, paying attention to how the Japanese companies create new knowledge organizationally. The uniqueness rests in the ability to work with tacit knowledge, which can be communicated only indirectly through metaphor and analogy. The management of Japanese companies is capable of converting tacit knowledge into explicit knowledge, or unwinding a spiral interaction between tacit and explicit knowledge.

The Israeli genuine institutional concept was the establishment of “technology greenhouses.” These were basically incubators that were set up in every medium-sized town in the country. Technology greenhouses have been a major success – they experienced an outstanding boom especially in 1990s when their services were reflected precisely by the educated Russian immigrants. Finland is well-known for the remarkable quality of its education, which is student-centered, i.e. based on the respect to student’s personality and the development of his or her individuality. Quality of education has been Finland’s absolute priority for several decades already; the process was essentially launched in 1970s.

Should any country achieve and sustain the position among the economic and technological leaders, it has to be able to produce a continuous stream of social and institutional innovations.

Knowledge spaces

A rising knowledge society put knowledge production and knowledge diffusion in its very centre. If we take spatial dimension, knowledge is produced – besides a virtual cyberspace – at all three geographical levels: global, national, and regional.

At national level, knowledge and innovation processes are the fields of activity of not only the various private and public agents, they are also an object of governmental policy. Besides state educational and research policy, in the recent decades the concept of national innovation system (NIS) has been elaborated and applied basically in all advanced countries. Such a system includes a set of institutions and policies promoting a national innovation performance.

However, the recent development has accentuated the global and regional dimension of knowledge processes as globalization and regionalization are two leading intertwined processes of contemporary world.

Knowledge generation has no frontiers, at global scale namely the international networks produce a cutting-edge knowledge. However, global interactions include both co-operation and competition and so do networks – these are the platforms of both inclusion and exclusion.

For being successful in highly volatile and uncertain knowledge/innovation environment, the market actors build strategy alliances. These should decrease risks and create the entry barriers for the potential newcomers. The companies often co-operate in research and technology development and compete at the level of the end individual reconfiguration of knowledge and technologies.

Knowledge-based networked oligopolies (KBNO) also function as the strategic defense (setting barriers for competitors – they control the evolution of technology, set the industrial standards, determine the timing of commercial activities and the price level of the products [Mytelka 2001]).

What may be the main implication of an advancing knowledge society for the process of catching-up, for societies willing the transition from imitation to innovation? Are the key economic and social dimensions of knowledge rather conducive or aggravating the task?

The answers are not unambiguous – the knowledge agency is quite complex and ambivalent, it comprises the potential for both closing and widening gap, inclusion and exclusion, building symmetry and asymmetry.

On the one hand, we may talk about the facilitators of catching-up in knowledge society: knowledge has a strong social and communicative character; it is generated, diffused, applied in some social/communicative way. It is very difficult to maintain the specific property rights on knowledge and it may be easily communicated and diffused.

A multiple consumption of knowledge is possible – knowledge may be used repeatedly. A relatively easy access to codified knowledge exists in knowledge society and direct costs of codified knowledge are low.

However, the barriers to “leveling” in knowledge society may also be identified: “Winner takes all” principle may be indicated – due to low cost/fast diffusion of knowledge the leading innovator is able to cover the whole market at once.

Asymmetry of knowledge transactions described by Soete [Soete 2001] is applied here. The knowledge transaction may be non-transparent for a buyer. The catching-up actors usually are in the position of buyer.

The followers have limited access to leading edge networks, clusters, markets. The followers are usually not enough competitive for admission into the networks.

The indirect costs of relevant knowledge – the costs of tacit knowledge maybe – are very high. They comprise investments into education, infrastructure, access to markets, governance, etc.

Global knowledge scene is open and full of opportunities and risks – a world of chances for those with a well articulate strategy.

Regions have recently attracted attention as an object of both economic analysis and policy. Regions can utilize a regional advantage – cultural and spatial proximity increases mutual confidence and trust, facilitates interactions and decreases transaction costs. It speeds up information exchange and enables valorization of distinctive capabilities and institutions. The regional actors understand well the character and opportunities of their local economy and are able to optimize its indigenous potential [Porter 1990; Asheim, Gertler 2004].

Undoubtedly, regions arise in the context of globalization, as globalization and regionalization are two complementary, mutually interconnected processes. Each region has a unique combination of conditions and resources, and the global market values anything that is individual and unique – the products and processes that reflect some specific cultural and historical context. As Ulrich Beck notes, the global market is based on vital local cultures, it searches for what is “different,” unique, original – it needs diversity. Cultural leveling would mean the end of the global market. What revitalizes it is only that which is local and attracts attention on the global scene – it is a selective elevation of the local and genuine [Beck, 1997].

Recently, a concept called “constructed regional advantage” has been introduced. It claims that regional advantage may be consciously and proactively shaped [Asheim, Boschma, Cooke 2007; Tödling, Trippel 2005]. It works with three main concepts: related variety, differentiated knowledge bases, and policy platform. The theory of constructed advantage stresses the horizontal, lateral, pervasive character of current innovation rather than the vertical, sectoral or cluster-based concept on which a regional innovation approach had been predominantly built in the recent past. Related variety is defined as sectors that are related in terms of shared or complementary knowledge bases and competences. If effective communication and interactive learning is to take place, it has to exist within some degree of cognitive proximity, but not too much cognitive proximity – hence “related variety.” It is healthy when differentiated knowledge bases – analytical, synthetic, and symbolic – are engaged in the regional economy. A platform approach to regional innovation policy emphasizes capitalizing on region-specific assets, making connections between related sectors and fostering knowledge spillovers. Networking and spillovers function on a single policy field that radiates in a platform-like manner. That requires a revitalized public-private interaction.

The relevance of regions is increasing with the arising of a knowledge society. Knowledge production flourishes in the conditions of intense, complex real communication among the actors, in which tacit knowledge is shaped and its meaning negotiated. Gisela Welz points to the fact that even in such a “trans-cultural” branch as IT it is largely applied regional advantage – “Silicon Valleys” localities – and tacit knowledge – “localised capabilities” [Welz 2007]. Regions – spatial or cultural – create the optimal conditions for such an interaction, with a minimum of semantic differences and interaction deficits. The effort of the regions to become innovative economic units is reflected in the concept of a Knowledge Region. Such regions should have a strong knowledge base, effective R&D – business linkages, effective business networks and educated and innovative workforce [Reichert 2006].

In this context, the concept of Knowledge City or Creative City has appeared [Florida 2002, 2005]. The stress is put on culture of diversity, openness, and tolerance – social and intellectual diversity fosters creativity and innovation, creativity is linked to openness and tolerance of the environment. Florida basically supports “cultural thesis” – in his new way: “Our work finds a strong connection between successful technology – and talent-harnessing places and places that are open to immigrants, artists, gays, and racial integration.” [Florida 2005: 7]

All three spatial levels – that pervade mutually – are of a crucial relevance. However, the nation state still sets the regulatory framework, builds and realizes all sorts of related policies – financial, fiscal, educational, research, and innovation policy. Hence, it seems that nation state still represent a key knowledge space.

Conclusions

The whole world is in a transition – let’s say to post-industrial – or knowledge society. The transition is not only economic and social change, it is

also cultural change. Being a part of this global change, the catching-up efforts of so far economically not so prosperous societies is quite difficult: they aim at moving (progressing) target.

On the other hand, the followers can learn from the leaders. Besides that, as economic and production process is enlarging its framework of reference and increasingly includes social and cultural sources, the followers can valorize their own genuine cultural sources.

To analyze the social and cultural factors of innovative economy is inspiring, however, it is a complex issue, which is difficult to grasp. Even though there are the respectable initiatives to grasp culture empirically, to operationalize it into the value system, there still persists a danger of applying a reductionist methodology here. It rather seems that it will be necessary to combine both theoretical and empirical approaches and also to utilize a historical method that is able to capture the individual cases in their uniqueness.

In the public, there appear the simplified ideas about the possibilities of cultural transfer: to transfer the key elements of innovation and educational system – let's say to transfer its best practices – represents a deep cultural change that impinges on cultural resistance. Such a change – should it be successful – has to be prepared in a very complex and sophisticated way as it has a bundle of linkages to all spheres of society.

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