

## Innovative Europe – constraints and challenges

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The following text is written in the context of discussion, which has been initiated in the course of preparation of Warsaw conference “Towards a new Creative and Innovative Europe”. Preparing this text I have in my hands some papers which has been already distributed and Thirteen Notes of prof. Kuklinski.<sup>1</sup> As indicated in the title of my comment I would like to focus my arguments on the issue of innovations in Europe. Doing so I refer to my study of the issue of innovation, which I try to understand with reference to debated concepts of innovation, available databases of innovation and innovation regulatory policies and practices within European Union. A fruitful contribution to my understanding this issue has been gained by a follow up studies of accession of Central European countries to EU, which were focused on their situation in the fields of science, technology and innovation.<sup>2</sup> The accession process can be labelled, indeed, as a real trans-formation<sup>3</sup>, a situation when full scope (formation) of social actors is exposed to a pull of changing environments. The study of such situation requires a creative sociological insight (sociological imagination as was stressed by C.W. Mill when he realised limited cognitive power of quantitative approaches in sociology) since the respective social actors have to get dis-embedded from current formations and re-embedded into a new formative framework. Such cognitive experience has stimulated me to understand wider scope of social factors influencing the innovative processes and search for corresponding interpretative framework. Following this experience I have come to an assumption that

- the study of innovation may become a good source for understanding essential formative factors of current (modern) societies, and that
- a productive conceptual framework of social formation can be a productive cognitive instrument for understanding the nature of innovation.

I intend to apply the above-indicated assumption and discuss the issue of innovation from both viewpoints. The framework of European situation is offering a good case for such discussion: there are general efforts not only to promote innovation within wider strategical aims (Lisboan agenda) but also to form a consistent social space for that (European innovation area). Closer look at these efforts is well documenting that they are outcome of close interaction of conceptual, methodological, empirical and pragmatic factors – all of them

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<sup>1</sup> Kuklinski, A., The Warsaw Conference – Towards a new Creative and Innovative Europe, a contribution to the pre-conference discussion, Thirteen Notes. WSA-NLU, Warsaw-Nowy Sacz, October 2006, 26 p.

<sup>2</sup> I would like to refer to the following published texts: *Central Europe in Transition: towards EU membership* (eds. Gorzelak, Ehrlich, Faltan, Illner), Regional Studies association, Warsaw 2001; *Innovation policy issues in six candidate countries: the challenges*. EC Directorate-General Enterprise, EUR 17036, EC, Luxembourg, 2001

<sup>3</sup> The term „*formation*“ is here used in order to defend macro-social approach to study of societies, and to accept their ability to find *just forms* of their existence, in opposition to the (post-modern) views, that such ability has got disappeared. E.g. the concepts of modernity are representing an effort to understand such formative social framework (see closer Hall, S. Gieben, B. (eds), 1992, *Formations of Modernity*, Polity Press and Open University, Cambridge). The similar aspect is generally expressed by the term “system”, like business system, innovation system, education system etc., which in many cases takes into account the internal structuration of the differentiated social fields but does not count with interfaces to its environment, to the other systems.

promising to arrive to a formative arrangement for promotion of innovative practices. The above-indicated assumption can be, therefore, well used in a study of European situation in innovation and indicate its weaknesses and competitive advantages.

That said, I am going to argue about the issues of innovativeness, and its relation to knowledge, imagination and freedom, and discuss them both with respect to the available empirical data about innovation, their methodological background, the available innovation concepts and their implementation in regulatory and political practices. I will formulate my arguments in single points, which are going to refer to and present my conceptual approach as well as its empirical background.

1. Following the challenges of methodological turn in sciences it is advisable to start with the **conceptual approaches to innovation** and their theoretical justification. It should be mentioned that theorising about innovation has a productive foundation in the Schumpeterian tradition of economic studies. Schumpeter identified two important factors of modern (capitalist) formation: (a) innovation as a key competitive factor, the resources of which rest on advances of scientific knowledge, and (b) permanent as well as destructive pressure of innovation-based enterprising activities – carried out in a competitive environment - on institutional setting of capitalist societies.<sup>4</sup> The following (neo-schumpeterian) studies have further developed this cognitive tradition, supported it by extensive empirical staff, generalised the available findings into a concept of national innovation system (NIS)<sup>5</sup> and enjoyed the advantage that such concept has been accepted as a cognitive framework for regulatory practices in the field of innovation policies. Consequently, certain circularity of knowledge about innovation has been achieved: academic knowledge has been applied by regulatory actors and produced practical knowledge which has become a new resource for orientation and academic research the outcome of which finds its way to decision-making of regulatory actors.

The above described **circularity of knowledge** is representing a productive foundation for advancement of academic science as well as regulatory practices and practical knowledge. It can absorb all important aspects of understanding current situation – its theoretical, empirical, methodological, pragmatic and evaluative aspects. Reflecting such dynamic cognitive framework one can better identify the role of single cognitive aspects in knowledge formation, and assess which cognitive resources are insufficient and what improvements should be done.

Taking into account current discussion about the nature of scientific knowledge one has to count with its differentiation in nomothetic and idiographic discursive cultures, limits in applying nomothetic approach in a study of human action and its evaluative background and the obstacles in bridging both epistemological approaches.<sup>6</sup> It is this perspective which makes me to claim that positive effects of circularity of knowledge in shaping our understanding the nature of innovation are *constrained by insufficient input of social sciences with idiographic cognitive resources* and inadequate use of nomothetic cognitive approaches in the study of pragmatic and evaluative side of innovative activities.

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<sup>4</sup> It should be remarked, that Schumpeter's insight into nature and driving forces of innovation was influenced by his close contact not only to leading economic concepts and theories but also to general debate and theorising about modern society and way how to understand; in his concept the influence of M. Weber is evident.

<sup>5</sup> Nelson, R. R. (ed.), 1993, *National Innovation Systems: A Comparative Study*. Oxford, Oxford University Press

<sup>6</sup> See closer Wallerstein I. at al., 1996, *Open the Social sciences*, Stanford University, Stanford, California or

The implications of the above-mentioned critical standpoint can be well observed in the study of NIS and its institutional setting. Even if the so called Maastricht memorandum has outlined important features of institutional framework for support of innovations (interfaces among the actors, long term orientation, openness to environment, diversity of forms, complementarity of co-operative and competitive means of co-ordination, pull of systemic features in the technology-economy relationship).<sup>7</sup> The following process of reflection of NIS has been mostly shaped by set of input and output indicators and explicit nomothetic methodological instructions: describing NIS by input/output relationship, constructing stages of growth by help of statistical coefficients and assessing the level of NIS development by these stage of progress and even reducing the explicit diversity of national and regional institutional frames into a single composite innovation indicator.<sup>8</sup>

2. That said, one can claim that better understanding of innovation should recall the original Schumpeterian heritage and pay closer attention to the issues of creative individuals, social environment for “creative destruction” and “Geist des Kapitalismus” (symbolic framework for competitive action). One has, however, to admit that the institutional framework for support of innovation has undergone extensive and intensive transformations, and it is much more influenced by activities of corporate actors<sup>9</sup> but its *basic driving forces* – creative activity of individuals oriented to “Zeitgeist”, and pull effects of structured environments in favour of support of innovation. Of course, right away a question can be formulated, what does it mean “Zeitgeist”, a basic orientation for human action following valued and valuable aims (and expressed in symbolic way). In the similar way the question can be asked what does it mean a structured environment for support of innovations. Let me make some short remarks to both issues.

**Innovative action** – in the form of discoverer, inventor, innovating firm, and generally **creative actor** – is oriented by the relevant institutional framework and its functional missions. Such framework is not, however, able to finalize (to grant a “causa finalis”) the orientation pattern. It is given by fact, that consequences of action based on present scientific knowledge are not limited to the regulatory framework of this or that social sub-system. They are transcending to the realm of culture, where social norms and valuation patterns are shaped. It has been assumed, that cultural framework of modern (European) societies can “absorb” the implications of effective growth of the functional sub-systems. It is now clear, that modern societies have approached the limits of such line of development. What is happening in the realm of culture should be better understood, Such trends should be studied and mobilised which raise the capacities of culture to influence and balance growth of functional capacities of social sub-systems. Here, the role of political system is challenged.<sup>10</sup> Important role is also played by social science and humanities in their capacities to understand valuations, which are followed by human innovative actions being based on powerful functional resources.

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<sup>7</sup> Soete, L., Arundel, A.(eds.), 1993, *An Integrated Approach to European Innovation and Technology Diffusion Policy*. A Maastricht memorandum, Brussels, Luxembourg.

<sup>8</sup> *Methodology Report on European Innovation* Scoreboard 2005, EC, DG Enterprise, European Trend Chart on Innovation, May 20, 2005.

<sup>9</sup> Frageberg, J.: *Schumpeter and the Revival of Evolutionary Economics*: an Appraisal of the Literature. *Journal of Evolutionary Economics*, 2003, No.13, s. 135-159.

<sup>10</sup> The term of re-politisation is well reflecting this situation with the claim of renewal of politics to shape and re-shape valuation patterns. See closer Beck, U., 1993, *Die Erfindung des Politischen*, Edition Suhrkamp, Frankfurt am M.

How a *structured environment for a support of innovation* can be understood? This question can be well discussed with focus on the issue of innovation. The concept of NIS is based on identification of functional interfaces among the innovation building institutions and actors. The closer interfaces among these institutions than to other institutions justify that we can understand them as a system. Such approach, however, runs a risk that the possible impact from environment of NIS need not be identified. As I have argued above, a constitutive influence from cultural resources and institutions can be expected. A systemic arrangement which stressing internal consistence of an institutional cluster, like NIS, can turn out to be a limiting factor since it cannot include into a process of reflection and cognition the influences coming from its environment. For this reason I suggest to use (instead of system) the term *infrastructure*, which is noted not only by interfaces among the innovation building institutions but also open enough to respond to wider socio-cultural context of innovative activities.<sup>11</sup>

3. The notion of infrastructure is closely related to the issue of *institutional change*, and in general to the concept of institution. Institutions are generally understood as an opposite phenomenon to a freedom action, and in this perspective their nature rests in a limiting, constraining function to a free action. Such approach is not fruitful, since it identifies the issue of institutional change in measures which can ease their constraining role and increase a space for free action. The knowledge gained by revival of institutional studies in social sciences suggests to take seriously the issue of institutions in formation of societies. Their role and chances for an institutional change are understood in a more profound existential framework. In this perspective the contribution of A. Gehlen seems to form good ground for a more productive institutional analysis. In his view institutions are representing (i) an alternative to insufficient instinctive capacities of human being, and (ii) make easier human inter-action while fixing accumulated knowledge as a shared standard or framework of action (*Entlastung*). Contrary to mainstream approach it is stressing *challenging and facilitating role of institutions*. Another important message of a wider approach is the assumption, that institution building is based on formation of habitus and generally accepted routines<sup>12</sup>, and a reliable institutional change is dependent on a process dis-embedding (from relevant habitus and normative framework) and re-embedding (appropriation of adequate habitual and normative pattern). That said one could formulate the following thesis: innovation performance is conditioned not only by functioning of NIS but also by capacities of societies to change its institutional framework, including the formative institutions of NIS

In the following discussion I shall point to conceptual efforts, which try to understand the above-formulated thesis. Some of them are exploring the issue within the framework of NIS concept and available databases. Some of them attempt to make use of a historical knowledge about innovation. Important contribution is also played by those concepts of modernity which are assessing the role of science, technology and innovation within in formative pattern of human societies. Brief comment to each of them will be presented.

4. The concept of NIS has become a powerful instrument of orientation for innovation policies and their regulative impact. It shaped also a theoretical platform, which could gain support and verification by empirical research and relevant databases. Due to its openness to both the practical regulatory efforts and the scientific assessment it could assess (and foresee)

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<sup>11</sup> Such proposal is supported also by cognitive efforts in various social sciences which start to pay more focused attention to the study of institutions.

<sup>12</sup> See closer Berger, P. I., Luckmann, T., 1966, *Social construction of reality. A treatise in the sociology of knowledge*, Doubleday, N.Y.

emerging qualitative changes in the structures of NIS. A transition from a *linear* model of NIS to the *interactive* one is an example of paradigmatic change in theorising about innovation systems.

The current study of NIS is well supported by wide availability of indicators and databases, yet constrained by nomothetic methodological approach to the study of innovation. Even so, some positive contributions of this line can be identified, e.g. EXIS methodology, which helps to identify infrastructure for support of innovating firms with help of data of CIS and the other surveys.<sup>13</sup> Their results describe different types of the infrastructure with respect to attained development but are less responsive to the question, what factors have dynamic impact and can influence a change. On contrary, a very limited space for a change is predicted by this approach.

A more promising way of further elaboration of NIS concept is followed by Lundvall. He suggests to take seriously the process of diffusion of knowledge and study its impact on the changes in **learning capacities** of relevant actors. He makes an important contribution to the understanding the issues which have been raised in this discussion, since it brings new knowledge not only about the relationship between technical and organisational innovations in innovating firms but also explores wider relation between learning capacities and various forms of organisation and co-ordination of industrial processes. Here, important structural factor is identified: learning processes are promoted not only by capacities of educational systems but also by forms of social coordination, and the balance of centralised and decentralised provisions.<sup>14</sup>

**5.** Crucial step in favour of better understanding the relationship between innovative power of modern societies and their institutional framework has been done by R. Hollingsworth and R. Boyer. They have employed in their arguments not only the study of institutional implications of innovative process but also ask the question, how the current capitalist societies are shaped. Here, the above-suggested approach has been applied: a study of innovation helps to understand current institutional framework as well as a potential of its change, and a more advanced concept of current societies is needed in order to understand how innovative capacities are shaped and promoted in social terms. The authors support their approach not only by available data about current situation but also widely apply a historical perspective.

The study of institutional implications of innovative processes has been summed up in the concept of an *institutional framework for innovative situations* (and societies). In Hollingsworth's view, institutions should be studied at several levels – **(i)** the level of basic norms, rules, conventions and habits; **(ii)** the level of forms and capacities to co-ordinate, like markets, hierarchies, obligation networks, associations, the state, communities and clans; **(iii)** the level of the institutional sectors of society, like, for example, suppliers, funding sources, regulators etc.; **(iv)** the level of organisations and their structures; **(v)** the level of outputs and the performance of institutional components - their flexibility and variety. An institutional analysis should proceed at each level and should identify the specific social context, rules, incentives, procedures for enforcing compliance, and measures for reducing the costs of compliance.<sup>15</sup> Further study of the institutional implications of innovation has stimulated him

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<sup>13</sup> Arundel, A., Hollanders, H., 2005, *Innovation Strengths and Weaknesses*, European Trendchart on Innovation. Brussels, Maastricht, European Commission, DG Enterprise, MERIT 2005.

<sup>14</sup> See e.g. Lundvall, B.-A., 2005, *Interactive Learning, Social Capital and Economic Performance*. Paper presented at conference „ Advancing knowledge and knowledge economy, washington, 10-11.1.2005.

<sup>15</sup> see closer Hollingsworth, R., 1998, *Doing Institutional Analysis: Implications for the Study of Innovation*. Mimeo, University of Wisconsin, Wisconsin.

and his colleagues to suggest a theoretical approach, which would enable them to suggest different types of relations among the identified levels. The concept of social system of production has been formulated in order to understand institutional framework of current societies.<sup>16</sup>

6. The above-mentioned contributions are extensively transcending a borderline of economic studies and stress a standpoint that study of institutional consequences of present innovation performance cannot be successful without a concept of a holistic framework of studied social events. So far, such framework is studied within the concept of capitalism. Here, a space for positive contribution of the other social sciences is open. In particular the assessment of the extensive institutional shifts in the last two decades has contributed to a better understanding the nature of institutional pattern of current societies. Also schemes have been suggested, how productive institutional change could be attained. In this line I would like to draw attention to concept of *institutional cluster of modernity*, as advanced by A. Giddens. He argues, that the current situation of modern societies cannot be understood only within the capitalist institutional dimension. Referring to the discussion about the consequences of modernity he highlights three additional institutional factors influencing modern societies: the political system with the surveillance function of state, the industrial system and the systemic control of means of violence. The interfaces among all these factors are shaping an institutional framework within which the institutional changes become feasible. He identifies also implications of their mutual interactions: emergence of post-scarcity system organised by socialised economic order, emergence of multilayered democratic participation supported by coordinated global order transcending the surveillance of national states, emergence of demilitarisation with decline of war as mean of solution of international conflicts, and emergence of humanisation of technology supported by system of planetary care. It should be added, that his concept counts with *diarchic nature* of modern institutions – the significance of the countervailing role of *formal* (systemic, organised) and *informal* (self-actualised, self-organised) *actions and assets*, which are important preconditions for institutional changes.<sup>17</sup>

7. The above outlined arguments claim that the current conceptual, methodological, empirical and pragmatic efforts in understanding the role of innovation in current societies have to count with institutional analysis. It should study the context of institutional change and explore new challenges for growth and orientation of creative and innovative activities. It has been argued that basic institutional framework for growth of innovation was already proposed by J. Schumpeter. For some time his vision about social preconditions and implications of innovative capitalism has been forgotten. The advances of interdisciplinary efforts in current social sciences seem to reflect this concept with respect to changed and complex situations. They are challenged by search for a balance between space for innovative creativity and social infrastructure, which would be able to support and orient creative actors.

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<sup>16</sup> See closer Hollingsworth, J., R., Boyer, R., 1997, *Contemporary Capitalism*, The Embeddedness of Institutions, Cambridge University Press, Cambridge (UK).

<sup>17</sup> Giddens, A., 1990. *Consequences of modernity*, Polity Press, Cambridge (UK)