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Setting up proinnovative networks in Silesia

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Abstract. Silesia is the most industrialized region of Poland recently under huge reindustrialization in an effort to change its heavy industrial pattern into more diversified and innovative one. The reindustrialization processes is additionally complicated by the transformation of Polish economy from central planned to market oriented. Proinnovative networks, in which under more or less formal conditions cooperate industrial/service companies, research/educational institutions, regional/central governments, professional bodies and even private persons, are put forward as a possible way to solve the reindustrialization problems. Their importance is emphasized in the Regional Development Strategy for Silesia, 2000-2015.

The aim of present paper is to study factors and phenomena, which facilitate cooperation of partners within proinnovative networks, as well as describe problems, which are, faced both when setting up such a network and in its day by day business. Special attention is paid to so-called soft factors, the social capital of partners cooperating in the network. We introduce certain measures of social capital and demonstrate their usefulness.

In second part of the paper we present a number of case studies of proinnovative networks. For each network we describe its objective, short history with results achieved so far, and future plans. We pay special attention to these networks, which are considered, at least in part, as the results of projects under the Framework Programmes of European Union.

1. Introduction.

Silesia is a region with the biggest concentration of reindustrialization problems in Polish economy. Two main products of Silesia – coal and steel – are produced in quantities too big for internal market and they are too expensive to be exported abroad. Both mining and steel industry are heavily subsidized and Poland is still facing the problem of changing the pattern of Silesian industry into a more diversified and innovative one, although some progress on this way has been achieved in last years.

The paper is devoted to one of possible solutions of the reindustrialization problems, namely we suggest clusters as a possible measure for making the Silesian industry more diversified and innovative and thus, in this way, ready to contribute to sustainable development of the region. In next section, we introduce a new definition of a cluster as some kind of proinnovative network. Such a definition allows us to study social capital of a firm from a different perspective. In section 4, we describe some proinnovative networks and clusters. In conclusion we suggest some recommendations and topics for further research.

2. Clusters

Among the many definitions of cluster, the most frequently quoted is, it seems, that of M. E. Porter in his book 'On competitive advantage of nations', which says: [clusters are] 'geographical concentrations of cross-related firms, specialized suppliers, service businesses, companies in related sectors, and a variety of auxiliary institutions (e.g. universities, research or standardization units and professional associations) in their fields of activity, competing with one another but also cooperating.'

To meet our purpose, we would somewhat modify this definition to say that **the cluster is a network of more or less formalized cooperation** of production/servicing companies, educational/research institutions, central/local government agencies, professional/political establishments and even private individuals **who collectively have the following characteristics:**

a) The cluster makes goods or provides services. It is not a social club for the ranks of a particular line of business where its members get together to exchange experience, share memories, or organize a training. The cluster is a business organization where production/servicing companies come together to reduce the cost of trading, increase specialization and thereby efficiency, or improve information flow to allow for increased exchange of experience and fresh, relevant ideas. Under so defined cooperation, the companies reach out for partners in the respective domains of scientific research and politics, to develop more competitive products/services or do effective lobbying with regional/central authorities (e.g. to influence vocational training programmes, modify policies of research institutes, encourage changes in labour code and tax regulations, promote the construction of roads, etc.). The cluster is a rational economic creation geared towards a measurable success of stable/increased market share, extra profits, new opportunities in production, service, etc. Presently, clusters are a subject of extensive research in two fields: management, as a new form of business organization at a mostly regional level (Porter, 1998) and economics, as a new source of competitive advantage of a region (Voyer, 1998).

b) The cementing elements of the cluster are innovations, viewed as broadly as possible, and the synergy effect. Such innovations are innovations 'here and now'. By way of example, for a company that has not yet used the Internet, this new option as well as the potential for using e-banking and doing business over the Internet is an innovation, as is a new bank form, to take another example, more 'immune' to errors out of routine or fatigue, and easier to revise. A huge potential for innovation is in management, especially for Polish companies. To this end, the latest trends need to be put into practice, such as project management, total quality management (TQM), teamwork, leadership, etc. It is crucial that these innovations in production/services and management, however small or however unoriginal elsewhere, be introduced consequently, one by one. It is with such innovations that the cluster retains its quality of a living business structure. Another cementing force for the cluster is synergy, roughly defined as recognition of the worth of being part of it. Clusters are purely voluntary formations, so the sense of purpose and confidence shared by every member, the feeling that it makes a difference to be there is critical for stability and successful development of them. In most cases, this difference can hardly be

measured at first, or instantly translated into extra profit or better market position. With the cementing element of innovations and synergy consciousness running low, clusters tend to fall apart and die.

c) The cluster is a learning organization. It is not so much a reference to running courses, training sessions and the like organized in connection with day-to-day business as so-called learning in action, a novel approach to education and professional skills acquisition, a creative work atmosphere capable of facing problems that might seem small and trivial or are long since resolved elsewhere, yet, in the context of a particular cluster, once rightly defined and met, create progress given the rule that grand march begins with a little step. In other words, the cluster as innovative and learning business organization tends to expand the social capital of its members and, consequently, the social capital of the region it operates in. The fact that one can learn something new is another integrating factor for the cluster.

d) In most cases, the cluster operates locally, though it is also at this level that globalization brings about noticeable changes. Clusters are frequently set up to strengthen companies in the region, or solve a local problem, e.g. promote construction of a new road or railway, or exert a larger impact on regional government following the rule 'together do more', etc. Each cluster as living business structure undergoes several phases of development and organizational status. First, there is usually a loose, non-formalized relationship of a handful of companies, research community, local authorities and professional organizations, to evolve towards some way of formalization with e.g. letters of intent signed, then full-blown business relationship with deals and agreements made. Likewise, a cluster born in a particular region may expand into other regions in the county or beyond the country borders. The well-organized furniture-producing cluster of Friuli Venezia Giulia in Italy, having its partners in the Romanian region of Timisoara, might serve a good example.

e) The cluster is limited but still big enough considering the size of a critical mass. The cluster is a pro-innovative business organization which gives its members the sense of synergy, that this organization 'here and now' is a rational economic entity. Thus, according to our definition, the Silicon Valley of the USA is not a cluster, lacking in such a business organization capable of assembling companies - in fact,

there is no need for such an entity. Polish Śląsk (Silesia) is not a cluster either, though all its companies are being put through more or less intense restructuring process and opt for innovation. Meanwhile, partners who constitute a cluster should have a manufacturing/servicing capacity suitable for the selected (regional) market and enough authority to talk with e.g. regional government. The number of cluster members normally fluctuates at the beginning, which is caused by coming and going of desultory actors. Examples provided in Section 4 may be helpful to assess member numbers in Polish clusters.

f) The cluster strengthens mutual trust and promotes fair competition between the partners. It is massively important in countries like Poland where market economy is built from scratch, where distrust is pervasive and entrenched in the society, business community in the first place. There is no denying the fact that a cluster to which its members accede voluntarily must respect mutual trust and fair competition principle, or even more so, build on such trust and competition. Given that, we believe that a small modification should be made to Porter's definition cited to the start of this section. If we agree on 'first things first' principle, then Poland's reality is that cooperation in the cluster is more important than competition. Thence, we would rather his definition ended reversely, that is '... cooperating with one another but also competing.'

g) The cluster favours democracy in the management of business and public life as well. Present-day management techniques are hinged on the premise that all staff should be on an equal footing, their democratic freedoms fully respected. The cluster as a voluntary organization can only survive when all the members have equal rights. For the cluster's formation however, the leader's role is invaluable, but then it must be a figure of distinction who will enthuse the others, bring in the atmosphere for creative work and organize it, be unprejudiced and friendly to everyone. The inclusion of such social partners as central/regional government, professional/political bodies, or educational/research institutions sets the ground for the engagement of all cluster members in their region's affairs like combating unemployment, remodelling social security system, modifying educational/research policies, etc. Besides, clusters are often assembled to solve a local problem (see:

point d) in cluster definition). The history of clusters shows that they have largely contributed to the progress of economy and stabilization of democracy in regions.

3. Social capital

The concept of social capital is studied intensely not only by sociology researchers but also by specialist of management, political sciences, economics and psychology. For our purpose, we will use the definition of social capital as “resources embedded in a social structure that are accessed and/or mobilized in purpose-oriented actions” (Lin, 2001:29). In other words, social capital is a resource that is derived from the relationship among individuals, organizations, communities, or societies. It can be considered as one of many forms of capital. For instance, physical capital is reflected by tools, machines, buildings etc., human capital is reflected by education, training or experience, and, finally, social capital is reflected by the existence of close interpersonal relationships among individuals.

Recent research demonstrates that social capital makes collective work easier and, ultimately, facilitates economic and social development of a given region. From managerial point of view, social capital is necessary for the development and dissemination of knowledge within organizations. It is an important resource because individuals work together more effectively and efficiently when they know one another, understand one another, and trust and identify with one another, that is when the organizations have social capital in a developed form.

Nahapiet and Ghoshal (1998) suggest that there are three specific dimensions of social capital: (1) structural dimension, (2) relational dimension, and (3) cognitive dimension. The structural dimension of social capital describes for the most part the existence of connections between employees, while the relational dimension describes the quality or nature of those connections (i.e., they are characterized by trust, intimacy, liking and so forth). Finally, the cognitive dimension is about the extent to which employees within a social network share a common perspective of understanding. In common belief, social capital is valuable because it solves problems of coordination, reduces transaction costs and facilitates the flow of information between and among the individuals (Lin, 2001).

We use the above three dimensions of social capital in our study of projects on restructuring of Silesian industry. In particular, we study social capital in selected projects consortia (Stachowicz, Machnik-Slomka and Kazmierczak, 2002). Our main conclusion is that social capital plays a very important role in success full realization of the restructuring projects.

4. Examples of clusters

In this section, we present a few clusters, their short histories, goals, results and, eventually, future plans. There are many clusters in Silesia, for instance the aviation cluster in Bielsko-Biala and the footwear cluster in Myszkow. They are studied by us and the report of this study will be published soon.

4.1. Industrial Cluster “Plastic Valley” in Tarnów

The cluster was established in June 1999 and was formed from existing firms. The designers followed the experience of similar clusters in the EU countries, particularly in France. The main goal was to combat local unemployment by promoting Tarnów region as a centre of plastic industry. The managerial objective was to combine experiences of all partners and to demonstrate that such a new business organization in the region could make good use of regional funds to fight unemployment. Today the following partners cooperate in the cluster:

- two big companies – Chemical Plant of Tarnów–Mościce and “Tarnów” Mechanical Works,
- 14 SMEs from Tarnów region,
- three universities – Technical University of Cracow, Technical University of Rzeszów, State Higher Professional School in Tarnów,
- Central Laboratory for Plastic affiliated with the Chemical Plant.

Cooperation between the above companies and research/educational institution is very strong. The cluster is able to commercialize research results and it has strong impact on educational curriculum, particularly at the State Higher Professional School. The “Plastic Valley” Cluster is run by the Management Unit which provides technical, financial, legal and marketing assistance for all partners involved. It encourages investors to come and start business, offering 5-year tax breaks, relatively inexpensive land and industrial infrastructure in Tarnów region, Tarnów Industrial Park in particular. The Management Unit organizes and financially supports

training courses, business trips, participation in professional fairs and exhibitions. It promotes the cluster both via the Internet and in a traditional way (booklets, newsletters).

Although it is not long since the cluster was established, it has gained substantial achievements - cooperation between the partners have decreased communications and logistic costs while having increased their efficiency. Substantial success has been made in an effort to combat regional unemployment. Moreover, the cluster has built pro-innovative climate in the region, and established a very strong and productive cooperation with regional universities and research centers. In common belief, the pro-innovative climate was a key factor that the Goodyear company of U.S. decided to start its operation there. It seems that other big American investors will follow Goodyear's footsteps.

4.2. The network of pro-innovative firms

The fundamentals of the network were raised in the Phare SCI-TECH II project "Support for PAN-Universities-Industry Collaboration", which was implemented from May 1998 till December 1999 - a detailed description of the project was given by Walukiewicz (2000). The Centre for Industrial Management PAS acted as a coordinator of the project.

The main objective for the network was defined very narrowly right at the beginning as: dissemination of information on the 5th Framework Programme with a view to increasing participation of Polish firms and research institutions. After several seminars and training courses, a few partners of the network submitted their proposals under the 5th Framework Programme. The network begun with 9 proinnovative firms. Today, we have 15 partners in the network, with HQ at the Centre for Industrial Management PAS. The network commenced training courses on project management, technology transfer and innovations. It facilitates exchange of experiences between its partners, particularly when the 5th Framework projects are concerned. The network also assists in the formation of start-up firms affiliated with selected research units of the Polish Academy of Sciences. Starting up new pro-innovative firms and fostering their growth will be the main objective of the network for the coming years.

5. Conclusions and recommendations

Experiences of the last decade have clearly shown that Polish economy is too weak and over-regulated to, without any external help, become in a short time an innovative economy, making success on global markets, in particular on the Single Market of the European Union. We observe that main players on global markets have more or less developed systems for the support of innovativeness in their economies. Innovativeness, for its part, is a very high priority in the Framework Programmes, including the 6th to commence in 2003. Today, innovativeness in production, services on management is a unique way to achieve extra profit and a relatively stable position on the market. Recent estimations show that a high-tech product gives the average of at least three times higher a profit than a classical industrial product.

In our opinion, to increase innovativeness and competitiveness of Polish economy the following three steps should be taken:

1. **Support creation of clusters, innovative clusters in particular.** Poland often serves as an example of an extraordinary entrepreneurship as it has 3 million SMEs with 38 millions population. Unfortunately, the vast majority of them are very small firms with 1 to 5 employees, weak in economic sense, unable to play an active role in innovation. Moreover, the process of merging small firms into bigger units has slowed down substantially in recent years. Clusters, and innovative clusters in particular, can be considered as a possible solution to this problem. A mature cluster is fairly likely to become a real company which can compete on global markets. We observe that the cluster formation process is relatively inexpensive and free from time-consuming formalities. Additionally, it supports local democracy and its structures, as is argued in Section 2.
2. **Balance economy.** Experiences of the last decades have proven firmly that only balanced economies, in which both big, small- and medium-sized firms are growing, are successful on global markets. In other words, a successful economy today is a balanced composition of big, small- and medium-sized companies. At present, there are only a few big Polish firms which can successfully compete on global markets. This means that the process of firm-merging should be strongly supported in the coming years. It is clusters that can be considered a way to facilitate that process, in which a medium-sized innovative companies can be created with a good chance to play an active

role on global markets. Italian company Benetton is a good example of a firm which, in a few years, changed from a small family knitting firm into a big multinational company, one of the world's leaders in clothing industry. As long as the cluster formation processes is combined with deregulation of Polish economy, one should expect similar companies growing in Poland.

- 3. Deregulate economy.** It is commonly believed that there are too many regulations in Polish economy; sometimes they contradict each other. All of them were introduced in recent years by governments who claimed to be liberal and supportive towards market economy. It is a paradox of Polish contemporary history that Polish society which was the first to so quickly remove all political restriction of communism, so slowly and with such a big difficulty is striving to remove bureaucratic constraints imposed by the administration elected in a democratic way. It feels that to-date Polish transformation process with all its ups and downs, is definitely not a straight line from central planned economy to market economy. For the moment, there is only one sector of Polish economy where transformation process is considered a big success - this is higher education (universities). In the last decade, almost 300 private universities were established in Poland, without spending a penny from the Treasury coffers, and the total number of students increased 4 times on 1989 figure. This is an excellent example that a liberal law and favourable taxation can make for a big economic success.

The process of networking in Polish economy started in mid 1990'. It is success depends heavily on the economic status. The dynamic of Polish economy slowed down substantially in recent years, from 7% GDP in 1997 to 1% in 2002. In our opinion, networks should be prioritized when it comes to possible ways to overcome the downturn of Polish economy.

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