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## **LEVERAGING INNOVATIONS IN SOCIAL NETWORKS AND THE PROCESS OF REGIONAL DEVELOPMENT – SILESIA CASE STUDY**

### **Introduction**

Over the last 20 years, several new theoretical approaches have been developed to understand the determinants of successful regional development. Some of researchers argued (Mouleart and Sekia 2003) that this search for a 'new' model of regional development was partially a result of the ambiguous results of regional policies implemented in the period after the Second World War. Although these actions had stimulated job creation and external investments were attracted, several scholars noticed a lack of structural embeddedness within regions. Since about the 1980s some researchers observed a transition from Fordism to post-Fordism leading to a so-called learning economy (Lundvall and Borrás 1999). That qualitative and structural change in the development has also a diametrical influence on regions. The transition of modern societies from the industrial to cognitive phase makes knowledge and innovation the main sources of future growth. Innovation is nowadays a key instrument to stimulate regional development. It also affects the form and structure of international business cooperation. Successful implementation of innovations has become regarded as one of the most important factors of long-term competitiveness of enterprises, regions or entire countries. No less important is the rate and scope of knowledge sharing what is a powerful source of innovation and economic growth at the regional level. Applying a network perspective, different type of regional actors can be seen as the nodes of the social network supporting regional development.

The aim of the paper is to investigate how innovations are being leveraged in social networks in the context of regional development. The study deals with such issues as: innovation activities, the role of networks of cooperation between different types of knowledge actors at the regional level and effects of regional cooperation. The first part of this paper will be devoted to theoretical considera-

tions concerning innovations and their different determinants, regional development – especially understanding the concept of the learning region, and also social networks. Over the course of the paper theoretical considerations will be supported with the examples from the sociological research based on qualitative analysis of the more thorough interviews conducted in 2011 among 100 representatives of the local authorities, self-governments, experts and entrepreneurs. The summary shall indicate the most relevant results of these studies and the chances of stable growth prospects for leveraging innovations in social networks. It may also be an attempt of laying the groundwork for a new network-based theory of regional development.

### **Regional Development, Social Networks and Innovations – Selected Theoretical Approaches**

Global development is based on regional economy and human resources. More recently, there has been a surge of interest in endogenous development based on regional factors. Regular interconnections between human capital, innovation ability and cooperation between all main actors are particularly noteworthy because of the dynamic processes associated with them. Transformations taking place in regions are increasingly supported by industries based on the knowledge of professionals. This regional aspects influence the emergence of a new phenomenon and process in social life. It sets new rules for the functioning of enterprises and the market. Multinational corporations are looking for suitable regions to locate their factories. They take into account potential advantages in cooperation with the most important social partners, especially R&D institutions. This concentration of adequate facilities, well-educated people and specific networks between various regional actors attract business and finally influence rapid economic growth.

Gradually, it was noticed by different scientists: mostly sociologists, economists, geographers. Most of them stressed the increasing importance of knowledge in the era of modern development. The practical dimension of knowledge can lead to the use of innovations. First deeper studies concerning the effect of the innovation were undertaken in the context of the functioning of enterprises. Joseph Schumpeter was one of the first researchers who related the concept of innovation to enterprises. He emphasised that innovation means “putting production factors together in the new way” (Schumpeter 1989, 62). Probably the most famous phrase of Schumpeter refers to the understanding of innovation as a “creative destroying” (Schumpeter 1960, 107, 112). It could be said that it is an effect of “a brainstorm” which suggests new solutions. Another guru of

managers – Peter Drucker – noticed that innovation could include the wide organisational, social, institutional, cultural, technological changes or it could be the result of the case, of sudden inspiration. “Innovations based on a brilliant idea probably exceed all the remaining categories taken together in the terms of the number” (Drucker 2004, 151). Drucker’s considerations draw the attention of other scientists to softer factors. Groups of scientist (not only sociologists but also economists) have already in the 1990s focused their attention on values, being the elements of the corporation culture. These not very perceptible factors have the fundamental impact on development of the entire organisation. Hence, a systematic approach is necessary for applying innovations. Such enterprises which applied innovation in a systematic way, were called learning organisations. One of peculiar proposals in that topic was given by Peter Senge, who regarded organisational values as disciplines. Only respecting them can cause the expected effects. “The learning organization is a place where people constantly discover the way of creating the reality surrounding them and how it can be changed” (Senge 2004, 28). He distinguished five pillars of such organisations: personal championship, mental models, building the common vision, team learning, systematic thinking. However the proposal of Peter Senge did not extend beyond the area of the enterprise.

Around the same time, when Peter Senge was writing about the learning organisations – Richard Florida was presenting his conception of learning region. It was a parallel idea which defined the region as the area of the competent linking competence, of active personal and institutional connections and wide involvement in the public and private partnership (Florida 1995, 527–536). In these processes universities and research institutions are playing a major role what was pointed out much earlier – already in the 1970s – Daniel Bell (1994, 233). However, Florida emphasised that these institutions acted like a magnet attracting talented people who form the creative class. It is characterised by a high level of the human capital which involves the abilities, qualifications and original features of the personality. In fact, they are the ones who decide about the economic success – scientists, engineers, architects and designers, writers, artists, musicians, other employees of free professions, where creativity is a desired factor. These are the people who create the climate supporting creativity and innovation (Florida 2010). The chain of representatives’ connections of the creative class often has an institutional and formal character (first and foremost unofficial) because representatives of the creative class unwillingly enter formal structures and relations. The confidence level is high enough so formalising these connections is not necessary. Innovative individuals generally would not tolerate pressure. An appropriate climate expresses in the participation in social networks and economic life of people with diversified lifestyles, economic and political opinions, sexual and religious preferences, high competence, specialist abilities and openness. These are certainly soft and tough conditions for the development of the innovative

climate which, being a certain notion, has its roots in the organisational culture and climate. Some authors identify the climate with the corporate culture, other think that the climate is only an element of the organisational culture. However, many researchers also pointed out to the lack of abilities of the accurate distinction of factors of regional surroundings, of factors of surroundings even broader – perhaps of domestic range - and of the factors associated with the innovative policy, which can be classified both to regional, as well as general factors (Sternberg and Arndt 2000, 3–7). Arnoud Langendijk discusses regional factors amongst other factors determining development of the organisation. He considered them as main components of “regional laboratory of the knowledge” (2001, 136–155). The learning region is characterised – according to others researchers – with the special kind of management of the name rooted into the institutional density (Asheim 2000). Authorities of different ranks, representatives of the economic, cultural and social world cooperate with themselves in the framework of complicated networks, where, however, the shared awareness is functioning. It concerns the appropriateness of jointly prepared and accepted principles of storing, using and transmitting knowledge. Anyway, the role of managers, being the elites of the community, is deciding in the process of creating the culture of the learning regions and learning organisations. Innovative actions of enterprises and appropriate activities of decision makers, being under the influence of regional factors undoubtedly became the separate object of interests of others researchers. A Polish researcher – Robert Geisler – conducted his analysis by putting civic virtues at the heart of cognitive structures (Geisler 2008). It turned out to be particularly interesting in the context of modeling the local communities in the direction of cooperation of local area networks of stakeholders and gaining perspective manners of the learning. It is worth considering to settle factors making up a special kind of regional (Silesian) anchor syndrome, which is fixed in five shoulders: historical conditions, multicultural region, economic monoculture, current political conditions, the occupants’ mentality and the quality of life. It may lead researchers to the conclusion that conditions of “regional anchor” has negative influence on the observed slowing down in regional development (Suchacka 2009).

The above analysis takes into account well-known and discussed conceptions of innovations, learning organisations and learning regions. In an analysis of the role of regional factors in developing innovations it should be stressed that all scientific comments are very valuable because they are all expressed from a different point of view. However, all these specific points of view take into account the issue of networking. Considering the regional context it would be crucially interesting how knowledge – based networks are active, as well as how that community networks directly support the innovativeness of groups and individuals. In literature, the concept of network has been quite well described. The concept is extensive in its nature as it is an interdisciplinary category, which is the sub-

ject of research of many scientific disciplines such as social science, humanities or science studies. Cited in the literature cases usually concern statistical summaries, mathematical models of behaviors, relations based on manipulation, network types, and spatial analysis of diffusion of innovation in networks. Laurence Devaux describes with Cartesian precision networks theory in the context of diffusion of innovation (2008). He analyses a game theoretic approach, Ising models (1925), small worlds and random graphs. He also emphasises the optimal network structure for diffusion of innovation. Especially interesting seem to be his reflections on the concepts of distance and innovation, as well as spatial diffusion of innovation in social networks. He concludes that “regions in which innovation is concentrated will develop better and faster than [...] [those where it is] hardly present” (Devaux 2008, 106). It is obvious that innovation is often an accidental result of the cooperation and the disputes between companies and different actors from surrounding companies. However, it should not be ignored

that humans are fundamentally a social species with interaction patterns that shape their behaviors. People’s opinions, which products they buy, whether they invest in education, become criminals, and so forth, are all influenced by friends and acquaintances. Ultimately, the full network of relationships – how dense it is, whether some groups are segregated, who sits in central positions – affects how information spreads. (Jackson 2014, 3)

Individuals usually rely on social connections to build their beliefs or opinions on various economic, political or social issues. Every day individuals make decisions that may influence others. It is necessary to take into consideration a lot of factors. For example scientists analyse how to increase someone’s influence on others and to manipulate the way others form their beliefs. A group of researchers from Belgium and France showed that “manipulation can modify the trust structure and lead to a connected society, and thus, make the society reaching a consensus” (Förstera, Mauleona, and Vannetelboscha 2013, 3). They stressed the significant role of special people called “agents,” who repeatedly communicate with their neighbours in the social network. Agents can manipulate the trust of others, and can definitely influence community. In this context it can be associated with the role of creative class and also the status of decision makers and experts. Having knowledge or even an access to information has a significant importance today. It allows to develop new ideas, but also to gain or lose a new brainchild. Another researcher – H. Peyton Young – characterized the waiting time until one of the actions (the “innovation”) diffuses in society as a whole. He introduces a structural criterion, called “close-knittedness.” His idea was to use it to analyse the waiting time problem in much more general situations. In

his opinion, “a group is ‘close-knit’ if its members have a relatively large fraction of their interactions with each other as opposed to outsiders” (Young 2000, 2). Although his analyses are a little bit too mathematical for sociologists, it only proves that diffusion of innovations in networks definitely is leveraging.

## **Methodology of Research**

Conducted theoretical consideration will be supported through research, which has an illustrative character. The empirical studies were done under the ministerial project “Industrial region as a region of the learner – the sociological determinants of changes on the example of Silesia.” Research has included 100 deepened interviews among decision-makers, free experts and entrepreneurs from three sectors of the economy. The qualitative method used in that research gave respondents freedom of unlimited opportunity to comment on specific problems. Studies have been conducted in 2011 in the Silesian voivodeship. On the whole 25 interviews were conducted in all of the four sub-regions. When selecting respondents to research five groups of respondents were taken into account. It eventually gave 20 interviews in each category. The most interesting issues concerned the opinions of respondents. Researchers have asked about their attitude to human capital, and knowledge transfer, applying innovations and cooperation between all actors. The results were qualitatively analysed. The most important trends in opinions and specific perception of significant phenomena were identified (Suchacka 2014).

To suit the requirements of this article, only a part of the achieved results concerning innovation activities in companies, the role of networks of cooperation between different types of knowledge actors at regional level and effects of regional cooperation will be presented. All presented quotations will be divided into these main topics.

## **Selected Results – About Innovations, Networks and Effects of Regional Cooperation**

Interconnections between innovations, networks and effects of regional cooperation seem to be obvious. They are fundamental factors in regional development. It is observed on different levels. This new approach is visible in local and regional government policy, investments behaviors, and the employers’ attitude to

human capital, knowledge transfer and cooperation with R&D. It is difficult to state authoritatively which of these issues are the first and most important. New economic conditions force entrepreneurs to reconsider their forms of managing in company.

We have “Leadership institute” – it is a kind of internal school in our company. For today it acts centrally, those internal trainers offer different training routines – from soft HR to technological advanced. (industrial company)

Better skilled and qualified employees require more attention. Especially creative individuals are more demanding. They want more autonomy and proper conditions including permanent training and possibility to self-development. It implicates flattening hierarchy structure in the company and the diminishing of distances between the decisive center and employees on different level.

Now the young generation has its own demands. It’s more difficult to get an employee. It used to be like that: A boss came to an employee and said what to do and in fact how it should be done. Now there must be dialogue between both of them. (industrial company)

The majority of companies represent taking part in research confirmed that one of the most important values in their companies is human capital. Innovations start in human minds. However, a few respondents indicated also the fact, that there is such a kind of enterprises where human capital is not appreciated. In this case low flexibility and ability to apply innovations the marginalisation of company and its gradual decline. Undoubtedly the right attitude to human capital and knowledge transfer fosters potential. One also implicates growing interest in innovation. Most of respondents have distinguished two kinds of innovations: issued by a superior – based on evaluation of work stands made by management, and improvements suggested by employees, which is a kind of philosophy (keizen). However, first of all, everything connected with innovations concerns mainly financial aspects.

If we think only about money we won’t have innovation. (local service company)

Some of the local enterprises are concentrated usually on technical improvements and minor marketing innovations. Some of them try to apply spontaneous innovations (like farmers fighting with snails using their own ideas). It often brings them a lot of unexpected advantages. What is very characteristic is that they usually did not want to talk about actual innovations, but rather preferred

to complain about complicated patenting procedures and the lack of a stable cooperation with regional R&D institutions. Furthermore, some of the researched companies are afraid of stealing ideas.

Yes, we have our laboratories where our specialists work on new products but I cannot show it to you because – you understand [...] it is a hard market. A lot of our foreign partners wanted to see it, but it is easier to show and very difficult to compete. (local industry company)

In fact, international companies have their R&D sections in the head office. It is usually abroad or in Warsaw. That is why they are more realistic in applying innovations. They can talk about general condition of innovations but in fact they are more passive.

Most of respondents noticed that one of the most important factors in the process of applying innovations is cooperation between all actors. Only dignified relations between all partners can guarantee proper circulation of information and knowledge. Research proves that entrepreneurs and other respondents do not believe in effectiveness and sense of cooperation. They even state that it is waste of time. Respondents from companies underline that they base only on their company's internal resources. It was noted as a problem because of migration to other countries.

There are less and less creative people, the well-qualified and the highly-skilled leave Poland. There is a big potential but at the same time we suffer from lack of force to use it, and the Silesian potential is not advertised enough. (service company)

Entrepreneurs are a key link in regional networking. Unfortunately, they are disappointed with cooperation between science and business in the Silesia region. It has not a formal character and is rather multidimensional and superficial. There are also a lot of reasons for such a situation like hierarchical structure in universities or in public sector, lack of trust and openness, no financial support to students' practices and innovative projects.

In my opinion, everything in Poland is treated too seriously, too officially, and it's also the reason why nearly everything goes wrong – people are too stiff to communicate well. The most important thing is a contact with other people [...] To me the communication is very difficult. For example, I call the kindergarten and I can't make an appointment with its director. Is she a queen that I can't talk to her? The same situation is at the University. Everywhere there are titles, etc. and signs as dr, director, etc. (service company)

Entrepreneurs also emphasise that scientists are detached from reality and the needs of a market. Other problems are connected with administrative procedures, bureaucracy and also a lack of unified and proven legislative solutions in commercialising the results of research. Some of them complain that there is nothing they can learn from scientists because their technology is less advanced than the technology used by business.

The work which is done by the university stays there and it has nothing to do with what happens in companies, entrepreneurs and labour market. Companies are able to function without university's help and it isn't an added value. There is a question if the initiative should be done by company. [...] I won't try. This is just a thing that can be done after one telephone call. I have a lot of experience so I know that universities aren't interested at all. Analyses are so expensive that we use only our internal knowledge. (industry company)

Among reasons for low level of cooperation, entrepreneurs gave also difficulties with low motivation of scientists for cooperation.

Some of the regional professors are completely not prepared for new market rules. They do not know languages, are not flexible [...] and all these formal procedures – it is completely not for these times. (global industry company)

Respondents from firms also complained about the lack of connections between salary and scientific efficiency. Most of them were also complaining about the low level of cooperation with research institutions. Some of them have never taken advantage of their offer or service. Entrepreneurs often mentioned a lack of convenient information or even chaos.

I don't have good memories about such institutions because actions taken by them weren't finalised and were inefficient. (industry company)

Generally, a low level of cooperation was also noticed by other respondents – decision-makers and experts from technological parks and clusters. Nevertheless, considering other opinions about regional networking and cooperation it should be stressed that decision-makers and experts are quite more optimistic than entrepreneurs. They describe their problems but always emphasise different levels of cooperation. Representatives of local governments face difficult tasks. They try to adapt to new conditions and to develop new connections. The Silesian voivodeship is an artificially created product. There is not enough social cohesion, so it is still hardly integrated. Regular events to integrate people of the region around

common values seem to be required. Respondents from the north sub-region complained the most.

The City offers many incentives to encourage entrepreneurs.. After 1989, many companies collapsed, unemployment grew. [...] No one knows how to fill the gap left by the collapse of the industry. There is no idea. Cooperation is multilevel but we are still waiting for results. (decision-makers from north sub-region)

Most of the decision-makers were politically involved. They spoke accordingly to their political preferences but some regularities should be stressed. Most problems are reducible to the basic issues. It is especially evident in the northern part of the Silesian voivodeship. One respondent from Częstochowa describes it in the following way:

The dialogue with the authorities of the region, the Marshal's Office, is not good. The entire northern region is marginalised. It is pointed out as tourist, landscape, religious region, without any indication of the economic potential and human capital. This is wrongly perceived. We are losing a lot because of this policy. The development strategy of the region does not cater for our needs. We do not get from Katowice any information about investors who may locate their interests in Częstochowa. (a decision maker from north sub-region)

The only possibilities for growth is the common perception of the same regional advantages: a strong ethos of work, well-developed infrastructure and excellent human capital.

Regional development in such difficult conditions is a long-term perspective. It should take into consideration the condition of applying innovations and the quality of cooperation. Although most of respondents were complaining about cooperation, they all emphasise the necessity of developing networking. Such behaviour was very important for them, just because of innovations and the future places of work. They also agreed that it was necessary for the regional development. They all have perceived Silesia as a region of many possibilities:

I think Silesia has changed very strongly. Not only the mining and metallurgy industries. I remember from my childhood that most fathers of my colleagues went to work in the mines. It was the best job. Perhaps these past factors still have some influence, but there is a new generation and it is changing for the better. [...] There are completely different industries, most of them involve the automotive industry, it is a transportation company cooperating with companies from abroad – is probably a good sign. (global industry company)

The only worrisome thing involves contrasting opinions concerning the north sub-region, where social problems related to the quality of life and the collapse of the economy are the most pressing. Also the low level of scientific cooperation is a difficult task for all sides.

## Conclusions

Theories of regional development, scientific considerations about innovations and networking go together with described research. Considerations on leveraging innovations in social networks and the process of regional development amount to a quite important conclusion that all the most important regional actors are aware of the importance of these factors. Most of the respondents noticed changes and emphasise the importance of networking in the context of innovations. Unfortunately, their contacts are still based on personal relationships, not on formal procedures of cooperation. Nevertheless, the first effects of the exchange of ideas and technology can be observed.

The most important research conclusions boil down to a few basic comments:

1. The Silesian voivodeship is a region with the greatest potential in Poland. Although it is still insufficiently integrated and the cooperation could be better, all respondents agreed that it has a huge human capital to be used.

2. The most important factor seems to be networking and knowledge. Caring for the preservation of know-how is a major obstacle in developing new contacts.

3. Cooperation is always associated with the prospect of profit. There are lots of objections to cooperation between business and science. There is room for improvement.

4. Respondents represented positive attitude to innovations but kept complaining about the quality of formal cooperation between all actors. They definitely preferred personal networking. It should be allowed to develop legally different levels of cooperation.

5. Political factors in regional development should be kept to a minimum. This is not conducive to improvement.

Research showed that the most important regional actors interact with their near neighbours. It brings them motivations, fosters social relationships and directs their networking behavior towards innovations. It allowed to achieve profits and finally regional development.

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