Chapter 8

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INTELLECTUAL CAPITAL AND INNOVATION OF POLISH ENTERPRISES: A STATE AND PROSPECTS

Abstract: This chapter presents the problem of low innovativeness of Polish enterprises. The analysis of the causes of this phenomenon and assess its consequences. Justified by the need to take action to create and use intellectual capital. The concept of such actions under the Regional Innovation Systems and company level.

Key words: human capital, innovation and enterprise.

8.1. Intellectual capital as a factor of innovation and competitiveness of an enterprise

Analysis of scientific publications shows a growing interest of both researchers and practitioners in the problem of an increase in innovation of modern economic systems. The reasons for this interest are the factors whose influence in the last decades is becoming increasingly obvious. These factors include, in particular, the following ones.

1. Increasing possibilities of supporting R&D by the dynamically developing information systems and their technical facilities. This allows enterprises to accelerate the processes of creating innovative products and to introduce them to the market. For example, if in the 70-80's of the 20th century starting production of a new car model needed from 6 to 8 years, today this period is 2-3 years.
2. Accelerating the transfer of technological systems and their components. Innovations are quickly becoming the object of imitation for competition.

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3. The internationalization of enterprises and related with it opportunities for specialization and co-operation on an international scale.
4. Depletion and deterioration of the conditions of extracting non-renewable natural resources and the need to find alternatives.

The source of each innovation is the human thought. The complexity of challenges in the sphere of innovation activities faced by enterprises today needs a team work of personnel, proper employees' motivation, perceiving them as the most important capital of an enterprise. The highest significance of staff as a factor of building competitive advantage was shown by A. Sloan in the first half of the 20th century (A.P. SLOAN). In the 60-s the term human capital becomes an economic category thanks to the publications of T. Schultz and G. Becker (SCHULTZ T. W.), (BECKER G. S.).

However, human capital is the source, but not the whole of intellectual capital. Structural and market (the customer) capitals are derived from human capital, and unlike it, they are the property of an enterprise. On the other hand, created by years optimal solutions in the scope of structural and market capital have an impact on the development of human capital, because new generations of employees have at their disposal the result of their predecessors' efforts in the scope of innovation, the result of which are also the elements of structural and market capital. Together with an increase in the scale of operation, enhancement of specialization and cooperation, relations between the components of intellectual capital will become stronger, and its value in the market value of an enterprise - higher. The competitiveness of a company will be reflected not only by the share in the market and its book value, but the share of intellectual capital in the market value, because it reflects the flexibility of a company in the scope of innovation activity. This flexibility can be defined as creation and implementation by an enterprise new solutions in response to external changes in the conditions of operating.

8.2. Innovativeness Polish enterprises to the EU countries

Overview of statistical data shows that the innovativeness of Polish companies is much lower than the average in the EU (Eurostat). Although in recent years, much is being done to increase state economic innovation, which draws attention to the EU report (Research and Innovation Performance). However, regardless of the positive trends in innovation Poland is among outsiders. So the share of expenditure on R & D in Poland, compared with the EU countries is significantly lower. Only in recent years it has exceeded level 1% of GDP, while the average level in the EU - 2.0%, and leaders (Finland, Sweden, Denmark) spent on R & D financing above 3.0% of GDP. In this case, it is worth paying attention to the nature of innovation. A significant part of the innovation arises from the transfer of proven technologies from the West. This implies that expenditure on innovation leads to an increase in material resources and equipment companies, but not for the development of intellectual capital. According to data from the Central Statistical Office, material assets of firms in the period 2005-2011 increased by 73.4%, including in private companies of 75.3%. At the same time expenditure on innovation activities in industry increased by 35.2%

The low rate of growth of intellectual capital on the background of high growth stocks and equipment may lead to the occurrence of the effect of "middle income trap", which can be avoided by significantly increasing innovation. "To improve the innovativeness of the Polish economy, the key is to educate liberating individual creativity at all levels of education." (J.HAUSNER).

Investments in human capital are not a priority for the majority of Polish companies. Evidenced by the results of the OECD - the rate of adult participation in lifelong learning for Polish is 3-6 times lower than the Scandinavian countries, the UK and Switzerland (TRAL). For most companies, the management believes that the qualifications of the personnel are enough high and need no training (BAGIEŃSKA A.).
Compared to most EU countries, Poland has the next features.

1. a lack national strategy for innovation and as a result - the lack of adequate infrastructure for innovation,
2. a lack of awareness of the need for innovation activities,

3. a lack effective support innovative companies from the state,
4. Insufficient funding for science and R & D work on the part of the state.

8.3. SWOT analysis of the company innovativeness

A searching of ways for growth of enterprise innovativeness based on creation and effective using of the intellectual capital needs to take account of the external and internal factors. One method that is used for this purpose, is a method SWOT. However, traditional approaches to the practical use of SWOT analysis are limited to identification of external opportunities and threats and internal strengths and weaknesses. However, the most important and most complicated part of this analysis is identification of the possible ways of using external opportunities and avoiding threats on the basis of internal strengths and elimination of weaknesses.

In the frames of SWOT analysis of intellectual capital, a proposed approach is based on the use of qualitative methods of analysis - the Delphi method, 'brainstorming', expert panels etc, used in the process of developing the program Foresight 'Leading technologies for the sustainable development of the świętokrzyskie province'. The specificity of the author's approach lies in matching into pairs individual elements of a traditional SWOT analysis. The essence of such an approach is shown in the figure (Fig. 8.1).

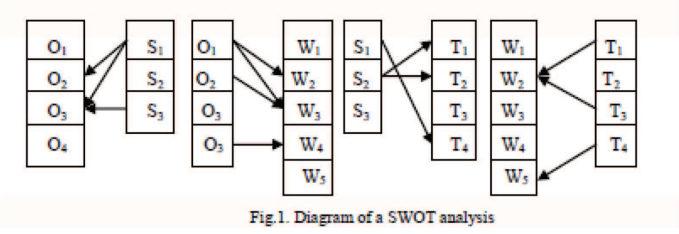

Fig. 8.1. Diagram of a SWOT analysis.

Let us assume that in the process of carrying out the first stage of SWOT analysis, there were established five most important opportunities (O_1-O_5), six types of threats (T_1-T_6), four strengths (S_1-S_4) and 7 weaknesses (W_1-W_7) of intellectual capital of an enterprise. In the process of matching into pairs individual, separated groups (opportunities - strengths, opportunities - weaknesses, threats - strengths, threats - weaknesses) the experts' task will be to find answers to the questions:

1. In the frames of matching 'opportunities - strengths': which of the opportunities and in what way can be used basing on which of strengths? In other words, which of the strengths of intellectual capital of an enterprise to the largest degree can contribute to the use of which opportunity.
2. In the frames of matching 'opportunities - weaknesses': which of the opportunities and in what way can be used to eliminate which of the weaknesses? In other words, which weaknesses of intellectual capital and in what way can be eliminated with the use of which of external opportunity.
3. In the frames of matching 'threats - strengths': which of the strengths of intellectual capital of an enterprise and in what way can be used to avoid which of external threats?
4. In the frames of matching 'threats - weaknesses': which of the external threats can cause the most serious for an enterprise consequences by the 'hit' at which of the weaknesses of intellectual capital. This question can be interpreted in another way: which of the relations T_x - W_x can cause the largest losses to an enterprise?

The shown in the graph (Fig. 8.1) diagram reflects the situation where not all the elements have relationships with others, which, as a matter of fact, is most common in practice.

The most important task of the expert teams is to justify the relationships marked with arrows in the figure, and on the basis of their analysis to generate possible activity scenarios.

8.4. Regional innovation systems and creation of intellectual capital

Experiences in the field of innovation management at the regional level shows the important role of regional innovation systems in the creation of appropriate attitudes of entrepreneurs. Review of performance of the Regional Innovation Forum, forming part of the regional innovation system, points to the need to support the beneficiaries of innovative products for every stage of the innovation process. We can identify five such stages.

1. Awareness of the innovation existence. An entrepreneur becomes aware of innovation existence as such, he receives the initial information, often unverified, incomplete and biased. The source of information is important, because its credibility and entrepreneurs' attitudes towards innovation depend on it.
2. Interest. An entrepreneur looks for information on innovation, tries to learn as much as possible, needs professional help, seeks and establishes cooperation with units of the business environment.
   He needs:
   - creation of experts in exploration and analysis of information,
   - development of systems for collecting, processing and analysing information on innovation.
3. Evaluation. An entrepreneur needs a detailed assessment of the economic, financial, technological and marketing effects of a possible implementation of innovation. It is important to consider various scenarios, predicting the establishment of these or other conditions of innovation implementation (for example, a variety of financing options.)
4. Trying: An entrepreneur tries innovation out on a small scale to be able to assess it accurately. Such 'fitting' is possible in the case of product, organizational and marketing innovation. However, it is difficult to implement it in a situation of implementing innovative technologies.

In the case of technological innovation the risk is greater, which requires especially precise evaluation of the effects of its implementation.

5. Acceptance. An entrepreneur decides to implement a full-scale innovation and to depart from past practices.

8.5. Directions of developing intellectual capital of Polish enterprises

The need for innovation:

- must be the result of predicting the future transferred to the development strategy of an enterprise, but not a 'fire-fighting' means when the company frantically is trying to improve its competitive position, which is getting worse due to negligence of innovation activity;
- must continually exist, as a result of deliberate activity of an internal innovation system of an enterprise.

Creating intellectual capital must be not only an inspired by the 'top-down' trend in the development of an enterprise, but a precisely prepared, based on an appropriate development strategy, conscious process. This awareness must result from the need to increase innovation activities as necessary to maintain at the increasingly competitive market.

Therefore, the most important thing is to convince the management that:

- an increase in innovation is the only chance to ensure a competitive advantage or, at least, to stay in the market;
- an increase in innovation requires the development and implementation of an appropriate strategy of creation and effective use of, first of all, human capital of an enterprise.

The inspiration for this awareness and belief must be providing information on:

- development trends of both the global economy in general, and the individual sections (what lies ahead);
- the role of innovation in building a competitive advantage;

- factors of innovation, including intellectual capital, including human capital.

After fixation of the thought about the necessity of pro-innovative development based on the creation and effective use of intellectual capital and its components, business management needs information of a different nature. Namely:

- how to assess innovativeness of their own enterprise in comparison with competition;
- what is the state of intellectual capital of the enterprise and how effectively it is used;
- in what way and in what areas of the enterprise operation it is necessary to improve the situation

Looking for the answers to these questions is not possible without the development of appropriate infrastructure of innovation. The primary objective of such infrastructure operation must be meeting the current and future needs of a real sector of the economy in the sphere of analysis, collecting and working out information in the areas of consulting, engineering, R&D, information technology and other areas of business and advice.

Opinions of researchers and practitioners indicate that a big disadvantage of Polish enterprises, primarily small and medium-sized, is the low ability of grassroots initiatives to develop common units of the market and innovation infrastructure (E.G., WOODWARD R.),(GÓRZYŃSKI M.).

Creation of such units as well as the whole networks of cooperation to support activities in the field of innovation-oriented development, based on the creation of intellectual capital has to become one of the most important functions of the created regional innovation systems.

This problem has two sides:

- the demand side: management of companies must realise the need for an increase in innovation based not only on the transfer of proven technology systems from the west, but on generating their own ideas

based on cooperation with R&D units, creating their own R&D centres, including on the principles of cooperation and specialization in creating innovative products;
- the supply side: the state, regional governments must significantly improve the innovation climate in the economy, focusing on overcoming financial, institutional and legal barriers (see, e.g., Bukowski).

Human capital only then becomes the driving force for an increase in competitiveness of an enterprise when four basic conditions are fulfilled:
- there is a strategy for development of an enterprise, which predicts development based on knowledge, creating, and transfers of innovation;
- there are resources of knowledge and a system of its complementation, exchange and collection;
- there are resources and techniques for transformation of knowledge resources into the intellectual product;
- there is an adequate system of employee motivation.

The Figure 8.2 shows a diagram of the system of management of creating and utilizing intellectual capital of an enterprise. It is worth noting that a key element of the system is to develop a general strategy for the company development, on the basis of which functional strategies are developed, including the strategy of creation and effective use of intellectual capital. In this case, it is necessary to ensure the principle of complementarity of functional strategies. A key element of the strategy of creation and effective use of intellectual capital are appropriate actions in relation to human capital. Besides, in most Polish companies dominates 'a conservative perspective on issues of human capital, and particularly, the lack of a deeper conviction that the high-quality human capital can help a company to deal with crises and emergency situations better' (ORŁOWSKI W.).

With respect to all the components of intellectual capital within the strategy of its creation and effective use, it is necessary to focus on three key processes:

- development of the system of accumulating knowledge and its transmission;

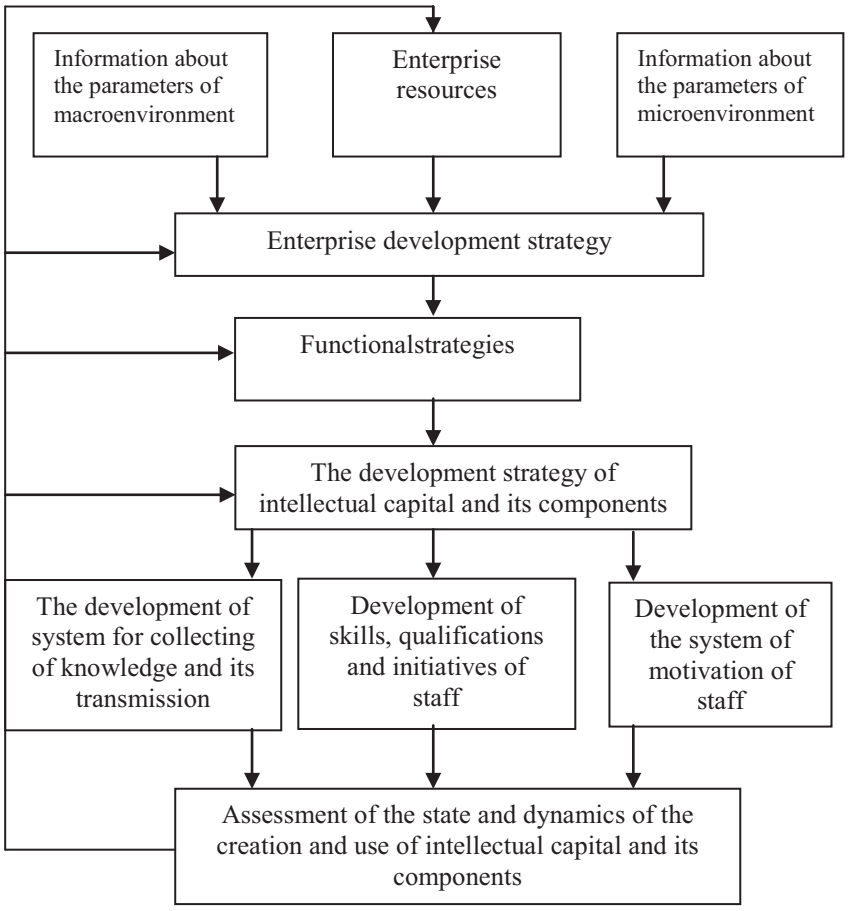

Fig. 8.2. Schema of management system of creating and using intellectual capital of the company.

- development of skills, an increase in qualifications and initiative of employees;
- development of the system of personnel's motivation.

It is important to establish the relationship between these areas of activity and the results of economic activity of an enterprise, considering the implementation gap, which in the case of the components of intellectual capital can embrace a period of several years. These results have an impact both on the adjustment of the development strategy and appropriate functional strategies, and on the change in the state of resources.

The growing role of intellectual capital as a factor in the growth of innovation and competitiveness of Polish enterprises requires intensify their actions for the creation of appropriate conditions for the development and effective using of human capital. Technology transfer from west poses a threat, called "middle income trap". To avoid this, we should:

- From the state: increase spending on R & D , the development of innovation infrastructure, to the promotion of innovation, stimulate innovation through the implementation of appropriate fiscal and budgetary policies;
- from managers and business owners: change of attitudes towards human capital, comprehension that the transfer of innovation will not provide increased competitiveness in the long term, and investments in human capital are effective; intensification the activities of grassroots initiatives to build networks of cooperation in the field of innovation.

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