

PROCESS OF IMPLEMENTING INNOVATIONS AT METALLURGICAL PRODUCTS SERVICING AND TRADING COMPANY

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Abstract

Companies operating under conditions of global economy which can be characterized by increasing international competition, search for sources and methods to reach profitability and competitive advantage. At the moment, the most important is to create and implement various kinds of innovations. Attribute of innovations is the changes and innovativeness that is why they allow creating new value for clients. Ability to innovativeness depends to high extent on knowledge management, which is the basis to build the innovation process. Subject of the paper is innovations management at a company, in particular process of creating and absorbing innovations that allows providing a client with new value. The paper analyses the principles and evolution of innovation processes creating concept, it assesses also their usefulness for the practical management at a company. It points out the meaning of cooperation with clients and partners in order to create value within the innovation process. Purposes of the paper is to present practical process of creating innovation at a metallurgical company able to use own and outsourced innovative solutions. It presents the concept and structure of the process as well as its relationships with the surrounding as well as the external processes at the investigated company. The paper shows the role of process and marketing innovations for the dynamics and changes of the company business models. The analyzed case study concerns the process of implementing innovation at average size metallurgical products servicing and trading company.

Keywords: process, innovation, new value, competitive advantage, metallurgical company

1. INTRODUCTION

Globalization of economy, dynamics of changes in the surrounding as well as crisis phenomena cause that innovativeness is the determinant force of company competitiveness that allows effective operation on the market. It is perceived as the ability of a company to create, absorb and diffuse innovation. For the purposes of the research, results of which are presented herein, it is assumed based on the Oslo Manual, that „An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organization” [1]. In this context, innovativeness is the attribute of a company that allows it competing under circumstances, when its competitive advantage is based on innovations [2], [3] however, as A. Szmaj [4] mentions, creating this advantage depends on the selection of innovation type and ability to its transfer and diffusion. [] Measure of innovation is the implemented innovations and benefits provided by them (e.g.: income, competitive edge, consumer satisfaction, environment protection). Innovativeness perceived this way differs from innovation, because it is a feature of a specified company, it expresses its ability to undertake innovative operations and reflects results of such operations. Meaning of innovation in the contemporary world, development of theory of innovation (developed in economic, technical and social science) and first and foremost rich experience related to application of innovation, caused differentiation of innovations management as an important component of strategic management of modern companies. Object of the research (which this paper is based on) is process-related capture of innovations management, dealt as an important element of the company management system and significant factor of its development. Purpose of the paper is to present the process of innovation perceived as a set of operations that allow creating and / or absorbing different types of innovations and their practical economic application.

In particular, process structure and its relations with the remaining processes of the examined metallurgical company were characterized; relations with the surrounding, including clients and partners.

Two research questions were asked:

1. Can the process management be used to implement open innovations?
2. What are the most important elements and features of the innovation process based on the “open innovations” model?

Metallurgical products servicing and trading company was the subject of the research. This is a medium-sized enterprise owned by private persons. Receivers from Poland, Germany and Czech Republic are the clients of the company. It is assumed that the developed process model of innovations implementation will be possible to apply in other companies.

2. PROCESS MODEL OF INNOVATIONS IMPLEMENTATION

Needs and experience from practical management as well as complexity of the innovation problem cause that innovation starts to be perceived as a process. Process approach allows analyzing individual phases (operations) leading to innovation, what gives the opportunity to optimize them according to various criteria, including especially in the aspect of creating and delivering new value to a client. Observed development of knowledge-based economy as well as intensification of application of innovativeness support instruments is expressed in the changes of the process models.

At the moment, there are six generations of innovation process models, which fact is synthetically presented in **Table 1**.

Table 1 Models of innovation process (own study and [5], [6])

Innovative processes models	Description
First generation models	Linear supply model - based on availability of innovative solutions (technology push), i.e. technological progress. This approach assumes that innovation supply is a derivative of knowledge status and developed propensity to search for something new.
Second generation models	Demand linear model - based on demand reported by the market (market pull). Demand approach clearly emphasizes innovations issue in the context of their outcome to appearing demand.
Third generation models	Feedback model (interactive model) - utilizing owns organizational resources, considering numerous feedback and interactions between different phases of the process. Characteristic feature is the compression of interval of individual works.
Fourth generation models	Integrated model - characterized by increased integration of operations within the functional area. Replacing the linear approach by operations performed in parallel to reduce the time the innovation is implemented to the market.
Fifth generation models	Integrated model - oriented at cooperation and mutual learning, using ICT solutions. Innovations are created within the innovation networks.
Sixth generation models	Social networks system - focusing on intense exchange of knowledge in group interactions, “open innovation” and global knowledge resources, cooperation between participants and sharing the created knowledge. Compression of time by digitalization of component processes that allow accessing distributed resources in real time.

Contemporary (sixth) model of innovative processes is based first and foremost on cooperation between its actors and sharing the knowledge created by them. Contemporary innovation stopped being internal

competence that is why innovative processes strive so that these structures have open character in order to use various potential sources of knowledge, global resources. Such concept is called an open innovation and means open innovation process, where interaction with external sources and markets has the same meaning as commercialization and using own resources, which is the feature of closed innovation. In the open innovation, border between a company and its surrounding is more presumable and allows easy contacts between company and its surrounding, easy penetration to both these environments. Open innovation let us choose, because a company has commercialized in this model both own ideas and innovations from other companies, and searches for the methods of implementing its internal ideas to the market by creating (distributing) paths outside the existing business [7], [8]. If this is beneficial and profitable for a company - it will make use of the available external technology or external sources of knowledge, which will increase the value added of products and services. Significant benefit of open innovation is the creation of external effects of created knowledge (knowledge spillovers), i.e. commercialization of other ideas, created together with the completion of the main innovative process. Moreover, open innovation is also the organization openness to contacts with other players (scientific institutions, suppliers, clients or even competitors) to freely share knowledge. This may lead to developing new solutions that would not be created in the existing isolation. In open social interactions (both internal and external to a company), approach to innovation should be reflected in the created practical processes of innovation implementation, example of which may the process model of innovation implementation in the examined company (see **Fig. 1**).

3. UTILIZATION OF THE INNOVATION IMPLEMENTATION PROCESS - CASE STUDY

The issues presented in the paper represent continuation of the works within the field of research over dynamics of business models in innovative companies representing also the metallurgical sector [9]. The subject of **research** was metallurgical products servicing and trading company located in Poland, that own three warehouses of metallurgical products. Servicing centers of steel products are already operating in two of them. Object of the Company's operations, according to the founding act, is among other things:

- wholesale sale of metal products,
- wholesale sale of metals,
- production of metal constructions and their parts,
- mechanical working of metal elements,
- sale of construction materials,
- design services and technical advisory.

The Company was established in 1999 and gains gross income at the level app. 60 million PLN (app. 15 million EURO); at the end of 2013, it employed 123 employees. The company is owned by 5 physical persons and the equity is 12.2 million PLN (2013). Within the Company, that applies the balanced scorecard, research of the business model change in the aspect of creating value in 2007-2013 was performed. Within this period, the company changed the business model from trading company to servicing and trading company by starting the servicing centers of steel products. Starting the servicing center, commissioning the sale of fuels and performing design and advisory services within the scope of steel products application necessitated the increase of capital expenditures and gaining new competences also. Within 2010-2013, equity of the company was almost 2.5 million PLN, which was related to the purchase of new machines and devices. The company uses funding from the Regional Program - National Cohesion Strategy. Own and external financial resources allowed commissioning modern service center related to processing implemented numerous innovations, two of which should be perceived as the most important. The first one

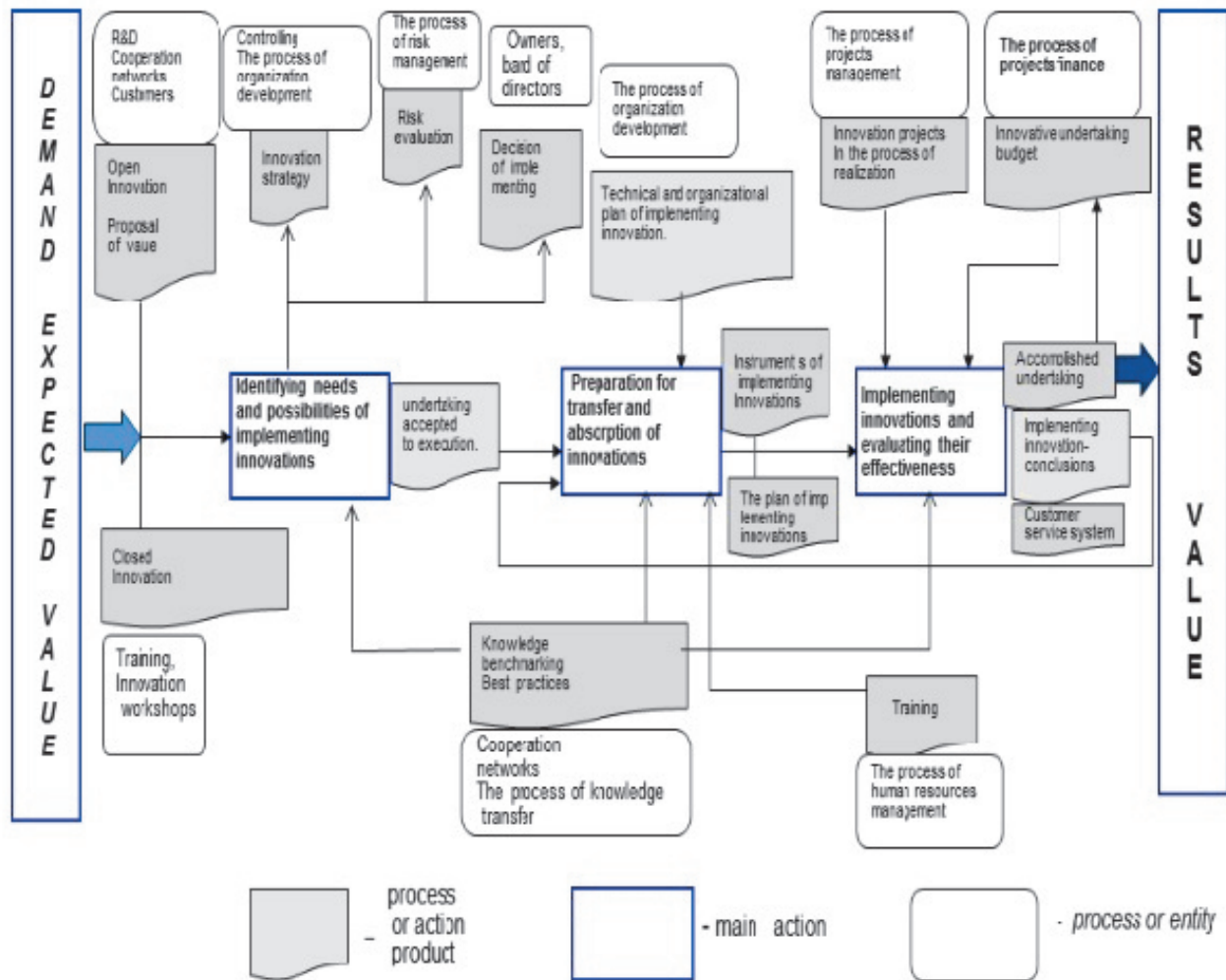


Fig.1 A map of innovation process in an enterprise

is starting new service processes related to processing metallurgical products, that generate new type of services (products), such as: plasma and gas cutting of metals, bending and forming as well as specialist welding and metals machining. This innovation is of product and process character. To implement the innovation, service center was designed, existing hall was adapted (previously this was a warehouse) and new devices for metal processing, including plasma and laser cutting, were purchased. It was necessary to properly train the employees. The most important benefits from these innovations are increase of sale and share in the market, by widening the operations as well as services complementary. The second is the product innovation consisting in creating complex service (product), covering design, advisory, developing design type, preparing design documentation, execution and coordination of the project (execution of the whole or part of investment) as well as possible post-sale service. Employees' competences, their experience and first and foremost relations with clients oriented at mutual shaping of value were of particular meaning for the success of this product. The principle is to solve client's problems by thorough acquaintance of their nature and relations with clients (together with active observation and onsite visits). The most important benefits from this innovation are the increase of margin attained by complex and high quality solutions provided to clients and creating the image of complementary company.

Considering the nature of implemented innovations, company standing and dynamics of the surrounding, a process of their implementation was developed, as presented in the **Fig. 1**. Its composition is based on the model of "open innovation".

Completed research and application allowed identifying the most important features and elements (operations, products) of this process, that decide about efficient innovation implementation. These are:

- identification of the needs and opportunities to implement innovations using the network of cooperation and relations with clients,
- preparing the transfer and absorption of innovation considering the knowledge transfer from the surrounding as well as processes related to risk management,
- application of proper instruments to implement innovations, especially financial instruments (including external funds based on cooperation with Economy Chamber and cluster entities),
- implementation of innovation based on efficient project management,
- activation of employee innovativeness by training and innovativeness workshops (based on „Kaizen” and „Lean” methods),
- learning by organization using conclusions and experience from implementing innovations, creating new complementary client service system.

The presented elements of the process show the meaning of attributes specific for open innovations model such as cooperation with the surrounding and common creation of value with clients.

CONCLUSION

Innovations to more and more extent decide about competitiveness and effective operation of a company on the market. Processes related to innovation implementation represent thus permanent and important element of the management system and business model of a company. In the examined company, implementation of process innovations, especially product innovations, necessitated the change in the approach to the market and clients. The developed clients' service system is oriented at possibly full recognition of clients' needs and almost continuous interactive relations with clients both during and after completion of an order, to evaluate the expected and delivered value. The system is assisted by CRM class software, which enables more comprehensive knowledge about clients and better relations with them. In the company management model, the innovation process is perceived as a component of an architecture (map) of processes, treating it as one of the management processes (next to controlling, HR management and projects management). Effective implementation and utilization of innovations for creating value for clients confirmed the rightness of using the process approach to create and absorb innovations, which is the answer to the first research question. However, development and implementation of innovation process model allowed identifying its elements and features characteristic for open innovations, which is related to the second research question. Benefits from innovations implementation reassured the owners and management of the company about the meaning of innovation process and knowledge management for the development and growth of company value.

REFERENCES

- [1] Oslo Manual, GUIDELINES FOR COLLECTING AND INTERPRETING INNOVATION DATA, Third edition. A joint publication of OECD and Eurostat 2005, p.46.
- [2] HULT G.T.M., HURLEY R.F., KNIGHT G.A. Innovativeness: Its Antecedents and Impact on Business Performance, *Industrial Marketing Management*, 2004, 33 (5), pp. 429-438.
- [3] Defining and Dimensionalizing. Organizational Innovativeness, *International CHRIE Conference-Refereed Track*, USA, 2010, pp. 6-9.

- [4] SZMAL A. Condition and Prospects of Innovative Activity in the Steel Industry in Poland. Conference Proceedings of the 22nd International Conference on Metallurgy and Materials, Brno, 2013, p. 2039.
- [5] BARUK J. Zarządzanie działalnością innowacyjną. Zarządzanie innowacjami technicznymi i organizacyjnymi, (eds.) M. Brzeziński, Wydawnictwo Difin, Warszawa, 2006, pp.121-134.
- [6] CHAMINADE C., ROBERTS H. Social Capital as a Mechanism: Connecting knowledge within and across firms, 3rd European Conference on Organizational Knowledge, Learning and Capabilities (OKLC), Athens, Greece, 2002, pp. 2-4.
- [7] CHESBROUGH H.W., The era of open innovation, MIT Sloan Management Review, 44 (3), 2003, pp. 34-41.
- [8] DAVENPORT T.H., LEIBOLD M., VOEPEL S. Strategic Management in the Innovation Economy. Strategy Approaches and Tools for Dynamic Innovation Capabilities, Corporate Publishing and Wiley-VCH Verlag GmbH & Co KGaA, Erlangen, 2006, pp.136 -138.
- [9] BRZÓSKA J. Innovations as a Factor of Business Models Dynamics in Metallurgical Companies. Conference Proceedings of the 22nd International Conference on Metallurgy and Materials, Brno, 2013, pp.1842-1849.