

INNOVATIVENESS AS A SYSTEM OF MUTUALLY RELATED RESOURCES AND ACTIVITIES OF THE ENTERPRISE

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Abstract: The notion of innovativeness is commonly known and broadly used in theory and practice. However, it is not fully precise and clear. Many definitions exist that are adopted in a context of different conditions of organization and its various spheres of activity. The objective of the paper is to present innovativeness as a system of mutually related resources and activities of the enterprise. The paper assumes that the primary enterprise's resources include the following activities: organizational and technical, legal, social and managerial activities. Innovativeness manifests itself in their effective use, directed towards the completion of effective undertakings. The paper is of conceptual character. The basic research method is literature review.

Keywords: innovativeness, innovative process, activities concentration, resources concentration.

1. Introduction

The notion of innovativeness is a subject of numerous scientific discussions, ongoing for many years. It is also commonly used in economic practice. However, it is not fully precise and clear. There are many definitions used in a context of different conditions of organization and its various spheres of activity. In order to define innovativeness, one should refer to the theory of innovation created by J. Schumpeter in the middle of 20th century. He defined innovation as a creative destruction, leading to the improvement of the current state of things (Schumpeter, 1942). A more up-to-date definition of innovation, which is recalled in many literature sources, was developed by the Organisation for Economic Co-operation and Development (OECD). According to that, the following types may be distinguished (OECD, 2005, pp. 48-52):

- product innovation – a good or service that is new or significantly improved, compared to the previous version,
- process innovation – a new or significantly improved production or delivery method,

- marketing innovation – a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing,
- organizational innovation – a new organizational method in business practices, workplace organization or external relations.

The creation of innovation is a complicated undertaking, what results from a complex character of this issue (Hughes, et al., 2018, p. 549-569). Numerous ideas, perceived by employees or entrepreneurs as innovative, in reality may not comply with the criteria qualifying them as innovation. According to P. Kotler, innovation is a good, service or idea perceived as novelty (Janasz, and Kozioł-Nadolna, 2011, p. 14, Kotler, 1994). P. Drucker (1992, p. 30) sees innovation as 'the act that endows resources with a new capacity to create wealth'. Other sources also present the views that (Fagerberg, 2006, p. 1) innovation is a new and better solution, compared to the previous one, which has an influence on social and economic conditions of life. Innovation is seen as the pathway to a higher standard of living (Morisson, Doussineau, 2019, p. 101). These may also be new ideas, implemented in new products or processes (Younis, and Nor'Aini, 2010, p. 309). An important element, mentioned in some definitions, is innovation effectiveness too. For example, K. Urabe (1988, p. 3) defines innovation as a development of new ideas and their implementation into products or services, what leads to a dynamic economic growth and income generation for the enterprise.

Innovativeness means innovation introduction into an economic activity. However, in the present, turbulent environment, innovativeness often goes beyond the frames indicated above. As J. Gowin notices, in the past innovativeness meant a new machine or better work organization, today it consists in continuous borders crossing (Gowin, 2012). According to such point of view, innovativeness translates into ideas, new products or new system, which, in result, are the undertakings bringing measurable benefits for the enterprise (Akgün, et al., 2011, p. 44).

In this paper the assumption is made that innovativeness is a process. Innovative process is understood as a creative activity, consisting in creation, development and execution of innovation. On every stage of this process, the mutually related resources and activities of the enterprise are concentrated. It is described as a subjective and process concentration. The basic processes concentrated in an innovative process include the following resources: natural, material, human, intangible and financial resources. In turn, the main activities undertaken in the innovative process encompass the following activities: organizational and technical, legal, social and managerial activities. The objective of the paper is to present innovativeness as a system of mutually related resources and activities of an enterprise. Innovativeness manifests itself in their effective use, directed towards the execution of effective undertakings.

2. Innovation as a process

Innovation is seen as the process of generation, acceptance and implementation of new ideas, processes, products or services (Dubickis, Gaile-Sarkane, 2015, p. 966). The development of innovation should be perceived as a process, as it consists of many elements and is subject to numerous dependencies. Additionally, it refers to business strategy and practice that influence the way of innovation management in the enterprise (Maguire, et al., 1994). Innovative process was a subject of consideration for many scientists (Gopalakrishnan, and Damanpour, 1997, pp. 15-28, Slappendel, 1996, pp. 107-129; Tang, 1998, pp. 297-309). According to J. Schumpeter (following: Janasz, and Koziół-Nadolna, 2011, p. 20), the process of innovation consists of three stages: invention, innovation (commercialization) and imitation. Another depiction of this process is a division into two stages: conception and application. In the **stage of conception** ideas are generated and the possibilities of their use are considered. The **stage of application**, also called **execution**, consists in bringing a chosen idea into life. It occurs in the way of creation, sometimes building, or another type of idea realization. This stage also includes further usage within the frames of usual operating activity. Therefore, the idea can be used in reality and it gains value, what is important from the business point of view. Mutual interactions take place amongst the stages (Janasz, and Koziół-Nadolna, 2011, p. 21). Consequently, the process of innovation is a system of feedback and constant information exchange amongst the individual organizational units engaged. Dividing the process into two stages may not fully reflect the complex character of the undertaking, which is innovation development by the enterprise. A more detailed division, compared to the previous ones, is used by R.W. Griffin (1996, p. 659), who points out the following order: idea, manufacturing, market introduction, growth, maturity and decline. It is possible to see an analogy here to product lifecycle, which includes the following stages: introduction, growth, maturity, decline, termination. Innovative process may be connected with investment process as well. This, in turn, is most often described using a definition by United Nations Industrial Development Organization (UNIDO) in Vienna, what comprises of three stages. These are: pre-investment, investment (execution), operation, evaluation.

Innovation process is different for every enterprise due to its unique characteristics. K. Pavitt (2006, pp. 86-114) states that innovation processes are determined by the sector of economy, field of knowledge, business size, corporate strategy and earlier experiences, type of innovation, cultural and historical context of the country. Additionally, innovation process in the enterprise is subject to changes due to competition growth, market dynamics and cooperation of market subjects (Dolińska, 2010, p. 29).

In order to present the process and subject complexity of innovation process, for the purpose of this paper, an assumption is made about its two-phase character. It means that the activities and resources concentrated in the innovation process will be assigned to the conceptual and

application phase. Due to a large variety of innovation projects (organizational, material and technical, environmental and other ones), in order to perform the analysis, an assumption is made that the research subject is an innovation process concerning a material undertaking.

3. Process and subject concentration as a condition of innovativeness

Concentration is a process of collecting and integrating different amounts and categories in each stage of innovative process. One can speak about activities and resources concentration. Activities concentration consists in compiling their large amount in particular time intervals (process stages). This concentration is determined as **process concentration**. The activities undertaken within the frames of innovation process encompass the entirety of tasks necessary to create, design and execute the innovation. Amongst the activities concentrated for the purpose of innovation process, the following ones can be distinguished: activities of organizational and technical, legal, social and managerial character.

Another form of concentration is **material concentration**, which manifests in gathering a large amount of various resources within the frames of innovation process in a particular place and time. This type of concentration is also defined as resources concentration. The resources concentrated in the innovation process are: natural, material, human, intangible and financial resources.

Activities and resources concentration in the innovation process takes place in the particular time intervals. Time character of particular resources and activities concentration is determined in advance due to their interdependence, for example: the works connected with land development must be conducted before the works related to object construction, those in turn should be followed by the works connected with technical equipment; natural resources in a form of undertaking placement should be gained before material resources in a form of machines and appliances, etc. Because of time distribution of particular resources and activities concentration, a necessity arises to distinguish the stages of innovation process and assigning the necessary resources and activities to them.

4. Activities concentration

Amongst the primary activities focused within the frames of innovation process, the following ones are distinguished: organizational and technical, legal, social and managerial activities. The **activities of organizational and technical character** are concentrated with a different intensification, both in the conceptual and application stage of innovation process.

They encompass a range of activities and tasks connected with research, preparation works and innovation implementation in the enterprise, as well as later utilization of the remaining solutions. At the beginning of **conceptual stage**, organizational activities are focused, that allow investor to assess the idea and gather some information, so that, on their basis, s/he may formulate positive and negative scenarios of phenomena concerning future. An effect of such activities is to determine whether the idea is worth further interest or it should be dropped. Next, s/he moves to pre-feasibility study. In this moment the activities are concentrated that consist in the analysis of organizational and technical possibilities and conditions. If in result of the pre-feasibility study it is concluded that the idea is promising and possible to execute at the same time, one can start performing detailed technical and economic analyses as well as legal actions (Michalak, 2011).

The activities of organizational and technical character are continued in the second stage – application. Firstly, organizational and technical activities are undertaken, including preparation, negotiation, signing agreements and contracts. Next, the step of construction takes place (physical development of solution, materializing the idea). It is the most extended step of the application stage in terms of organizational and technical character. The greatest concentration of engineering and construction works occurs here, including devices purchase and installation. Moreover, in this step installation as well as technical and technological appliance commissioning (check-up) takes place along with acceptance of completed objects. In this step organizational activities are concentrated too, connected with trainings of future personnel and so called pre-manufacturing marketing, aimed at gaining future sales markets. These activities are conducted at the time of physical creation of the solution. The last step of application stage of innovation process is starting utilization of the created solution. The organizational and technical activities are oriented in this step at logistics of supplies, storage, inspection, production, after-manufacturing logistics, marketing and sales, etc. (Rajzer, 2001, p. 32)

The next group of activities concentrated in the innovation process are the **activities of legal character**. These are difficult to describe precisely due to a lack of uniform and clear legal system related to innovation. Investor is forced to perform a detailed study on numerous legal acts in order to determine the formal and legal requirements in force, concerning the scale of necessary reports, conditions and tasks for the conduction of further steps of innovation preparation and execution. Additionally, obtaining the required agreements, opinions and permissions as well as other decisions from the bodies of government and self-government administration is really difficult in terms of formal and legal nature.

Legal activities are focuses with a different intensity in both stages of innovation process. In the **conceptual stage** the scale of legal activities refers to obtaining legal information and necessary documents in a form of decision, license, etc. Legal activities are continued in the **application stage**. Final guidelines for execution as well as schedule are developed here, negotiations occur and contracts are signed. Negotiations and contracts signed determine legal

liabilities related to technology financing and purchase, objects construction, services purchase as well as machines and appliances delivery. Furthermore, the application stage contains many internal documents, created for the purpose of project execution. Such documentation includes, among others: acceptance protocol and reports on individual works, installation, technical appliances, etc. as well as acceptance protocol of completed objects. Legal activities are also conducted during the step of operating activity launch for the undertaking. They mainly consist in agreements concluding with external environment, especially with suppliers of necessary resources for project maintenance, with recipients and other subjects.

The next type of activities concentrated in innovation process are the **activities of social character**. The importance of this activities comes from the fact that some innovations of material character, especially those concerning the construction of new objects, are an interference in social and natural (ecological) environment. Social activities mainly have an adaptive character. Their main premise is cooperation and communication with the environment. Amongst the subjects providing the environment for innovation, the following ones may be listed: enterprises, mass media, financial institutions, public administration, employees, cooperators and consumers, region residents in which the investment is executed and others. The contact of interests of all these subjects raises contradictions and requires balancing activities. The adaptation activities of social character are concentrated in each stage of innovation process, nevertheless, their character and intensification changes. In the **conceptual stage**, the idea for innovation often refers to social needs and is aimed at satisfying these needs. One of the first, most important aspects that social activities should concentrate on in this moment is to gather appropriate information in the environment, in which the idea was generated and where this innovation should be executed. The attitudes of social, ecological organizations and public institutions should be analyzed, and also the attitudes of mass media, that were adopted during similar undertakings. Observation of social environment, understood in a broad sense, is fulfilled with the elements of communication and cooperation. The segment of direct partners requires a deep analysis (recognition of their needs, expectations, etc.). These activities may take a form of direct contracts, letters, symposium, participation in undertakings organized by social and ecological organizations and so on. Communication may take place using mass media (e.g. press releases, articles, statements, reports on investor's activity, interview with experts) and external business printing houses (brochures, leaflets, catalogues on investment and investor), films, posters, exhibitions, conferences, open days for visitors, presentations, meetings with experts, etc. Such activities bear high costs but they are worth doing as costs connected with possible social protests can be much higher.

In the **execution stage** the undertaking starts to be visible for the environment. In case of construction undertakings, construction works commence and visible changes in the area take place. On this stage the greatest risk occurs connected with the protests from local community, creating so called public opinion (Budzyński, 1997, p. 15). Social adaptation works should be

continued and reaction to all disturbing signals coming from the environment should be immediate.

Social aspects appearing after starting the step of conducting operating activity of the developed undertaking are specific for every economic activity conducted in market conditions. The adaptation activities are concentrated here, mainly directed at such environment's segments as: direct partners, employees and, to a lesser degree, public opinion. The segment of direct partners consists of recipients and suppliers, that investor cooperates with. The activities focused on recipients are aimed at sales support of the products manufactured and sold, through a positive impact of business image. Such activities are meant to disseminate information about product and technological process innovativeness, complying with high quality standards, product reliability etc. The activities concentrated on suppliers should inform them about the enterprise's achievements and perspectives of beneficial cooperation, coming from the continuation of the current performance and making new production or trade attempts. The activities focused on employees should magnify their loyalty towards the business, engage them in business mission and goals, create their work satisfaction and contentment. Beside the aforementioned activities, investor should care about his/her image in the society all the time, popularize corporate image and information characterizing the enterprise's activity and improving its image. The reinforcement and stabilization of the enterprise's position serves for securing from possible threats, it facilitates business goals and strategy achievement.

The **activities of managerial character** are the last aspect of innovation process execution. They are conducted in its all stages. Managerial activities encompass the process of planning, organizing and inspecting all the activities and resources in order to achieve the goals set (Stoner, and Wankel, 1994, p. 23). Planning includes both, project execution planning as well as its effects planning. Planning project execution means a schedule of expenses, adjusted to the specificity of a given investment, which describes all technological, organizational and cooperation bonds amongst the activities translating into a particular undertaking. This schedule has its reflection in cash flow projection. Financial planning is mostly directed to estimation of financial sources, necessary for the completion of the particular stages of innovation process, moreover, an assessment of financial possibilities to cover the expenses should be conducted too. The proportions and distribution of mutual relations between investment expenses on the one hand, and inflows on the other hand, are of decisive significance for a smooth process course (Cabała, 1997, p. 121). Organizing translates into the coordination of activities connected with resources gaining and financial supply. Finally, inspection activities ensure the innovation process to lead into the achievement of expected effects. In case of nonconformity with the goals set, the inspection activities detect its causes and improve the situation.

5. Resources concentration

Within the frames of innovation process, a great number of various resources concentrates in a particular place and time. Amongst the primary resources the following ones are distinguished: natural, material, human, intangible and financial ones. **Natural resources** are raw materials provided by nature. They are defined as environment in a broad sense (Brackley, 1998, p. 27). They contain air, water, sunlight, farming fields and construction lands, recreational areas, minerals, wood, rivers, roads along with the possibilities of their development, processing and utilization (Winpenny, 1995, p. 18). The greatest significance amongst natural resources is assigned to the territory or undertaking. Natural resources are also important: excavated minerals, natural gas, wood, water, solar energy and air. They are characterized by low flexibility. Decisions about these resources are of strategic character. Change in the structure of natural resources is very costly and in many cases it is basically impossible. In general, resources indicate the needs in terms of technology and processing methods, change in their structure often triggers the necessity of changing technical equipment, doing additional personal trainings and so on.

Material resources encompass the resources creating a physical dimension of innovation. Amongst them the following ones can be distinguished: buildings, machines, transportation means, materials, spare parts, etc. In the **conceptual stage** one cannot speak about the material resources concentration yet, their greatest increment occurs in the **application stage**, when the object construction starts. At that time they take a form of fixed assets, e.g. buildings, machines, appliances. After transferring to project execution, the utilization of gathered material resources takes place. Additionally, the concentration of material resources may be observed in a form of working assets, such as: materials, products, semi-finished products, finished products. This type of material resources is used for conducting an operating activity. A significant problem connected with the material resources concentration is the selection of supply sources. The terms of delivery for material resources are generally varied, and the organization of purchase for these resources is most often connected with tender preparation, offers collection, their assessment and delivery organization.

The next type of resources focused within the frames of innovation process are **human resources** (Rybak, 2003, p. 40). They encompass the trait of being active, abilities and knowledge of people employed. They are defined as labor resources or workforce. Additionally, these resources are supplemented with a human ability to organize work. The execution and utilization of innovative undertaking concentrates various categories of human resources: management, executive and blue collar personnel – of appropriate qualifications, experience and organizational abilities. Beside ‘post’ categories of human resources, they also should be perceived as knowledge resources. They are described as resources of technical, trade, economic knowledge, etc. People gather experience and knowledge gained. Such knowledge is

most often localized in the mind of employees, but it may also be transferred to databases, documents and so on. In this approach people are treated not as a resource but as knowledge resource providers (Bratnicki, and Strużyna, 2001, p. 96).

In the first **stage of innovation process** the concentration of human resources takes place in a form of people's activity and knowledge, who generate the idea. Next, in this stage human knowledge is concentrated, necessary for the performance of research and development of pre-investment documentation. In this moment usually the management personnel is focused, of high qualifications and experience, who possess broad technical and economic knowledge.

After transferring to the **execution stage**, in its early stages, one still deals with the concentration of human resources of high technical and economic qualifications. However, after moving to construction, the greatest concentration of workforce takes place, engaged in construction works. Human resources in a form of management personnel are still engaged, but their concentration is much lower than in pre-investment stage. After commencing a normal **operating** activity, the concentration is adjusted to the character of undertaking.

Intangible resources are also important for innovation process. They include organizational resources, licenses, patents, business name, logo, brand, reputation and so on (Obłój, 1993, p. 88). Intangible resources, opposite to other ones, can be used in many places at once, in the same time, by different employees and for various purpose. For this reason they are called universal resources (Kay, 1996, p. 43). A significant feature of intangible resources is the fact that they do not depreciate during their utilization, on the contrary – most often they are enriched. For example, brand, reputation – increases its value in time. However, this does not refer to computer software or licenses, permissions – this type of intangible resources goes out of date, but does not get damaged or used up during their utilization. In this moment it is worth mentioning another important feature characterizing intangible assets – most of them need to be worked out in the enterprise for a long time. Such resources as corporate brand, reputation, organizational culture require a long period and great outlays, before they gain significance. Managers estimate that building the brand and very positive reputation takes between 8 and 10 years. The concentration of intangible resources occurs with a different intensification in the particular stages of innovation process and concerns the various types of intangible resources.

In the **conceptual stage** the concept of investment arises, which is a specific intangible resource. Next, detailed research and analyses are conducted, and their result is also an intangible resource. Some form of intangible resources, focused on every step of conceptual stage, is documentation created, in particular the very project. Moreover, in the pre-investment stage such intangible resources are concentrated as licenses, permissions and other legal matters connected with investment undertaking.

In the **execution stage**, intangible resources obtained in the previous stage are used to great extent. However, in a critical moment of execution stage, that is after moving to utilization, with a special impact, one leads to achieving a high concentration of such intangible resources

as reputation and brand. Innovation starts to function on the market and investor counts on obtaining the highest possible market share.

Financial resources are all forms and types of money (Jędralska, and Woźniak-Sobczak, 1998, p. 16). Their objective is to finance purchase, settle debts, but most of all, maintaining liquidity reserves. The concentration of financial resources in the innovation process is an effect of the concentration of other resources. In the conceptual stage the concentration is not high yet, as beside financing of project works it is not necessary to finance other resources in a large scale. In connection with an increment of other resources in the **execution stage**, also the concentration scale of financial resources rises. However, it is stabilized only after commencing the utilization of the objects created. Financial resources mainly serve for maintaining liquidity reserves.

Financial resources are sometimes called liquid capital, although they should not be identified with the notion of capital. Capital is understood as all funds entrusted to the enterprise by its owners and creditors (Duliniec, 1998, p. 11). Consequently, these are all the elements that are placed on the side of liabilities in corporate balance sheet and constitute a financing source of assets gathered in the enterprise (Czekaj, and Dresler, 1997, p. 92). Capital may take a various form and has its reflection in all resources required for the completion of investment undertaking, also in financial resources and indicates the financing sources for these resources, that is property rights (Schaal, 1996, p. 227). Capital is a genetic notion compared to resources, allows gaining material, human, natural, intangible and financial resources. Thus, resources are a materialization of capital, they are its expression (Borowiecki, 1993, pp. 25-28). The resources engaged in the undertaking may have various financing sources, they may reflect various capital. Nevertheless, it requires separate considerations (more in Michalak, 2011).

6. Conclusions

It was indicated in the paper that innovation creation is a process of complicated character, affected by many factors. Innovativeness consists of a system of mutually related resources and activities of the enterprise. The primary resources encompass: natural, material, human, intangible and financial resources. Furthermore, the main activities determining innovativeness include: organizational and technical, legal, social and managerial activities. Innovativeness is reflected in their effective use, aimed at the completion of effective undertakings. However, attention should be paid to the fact that resources and activities concentration brings many threats, both for investor and environment. Concentration risk is meant here, which, depending on the character of activity or type of resource, may occur in many forms. One of its elements is activities concentration for the purpose of innovation process. The risk of activities concentration consists of risk of cost exceeding, risk of project incompleteness in a planned

deadline or risk of undertaking incompleteness in a planned way as well as risk of not achieving the projected revenues. Additionally, within the frames of the risk of activities concentration, risk of a lack of coordination appears, along with risk of failure to perform the agreement by contractors as well as risk of a lack of activities synchronization. The concentration risk also comprises of unique (non-repetitive) character of activities conducted for the innovation project completion. Non-repetitiveness of resources causes that difficulties may occur concerning data estimation, prediction, which should be related to the future. The risk of activities concentration may also have effects on the environment, especially for external contractors, subcontractors, material and machine suppliers, etc. A broad, mutual relations and dependences often prompt the fact that the subjects connected with investor by contracts are greatly dependent from him/her.

Resources concentration also bring some risk. In case of the concentration of a large amount of natural resources, the undertaking is not neutral for the natural environment. It often influences on changing a land development plan and local infrastructure. Natural resources also have a great significance for the risk level. Material resources concentration may translate into technical risk, connected with material resources selection, technology used, organization of production systems and changes coming from a technical progress, change of utilization rules and so on.

Human resources are also a source of concentration risk. Amongst the most serious types of risk, management risk can be indicated. It comes from a lack of experience of management personnel, lack of competence or improper perception of the role by managers, members of project management team. This risk of concentration of human resources also includes risk of designing. It is connected with a possibility of difficulties occurrence in the course of engineering works, what results from a lack of skills and experience of employees. Risk of not reaching appropriate human resources can also be vital. This type of risk is connected with difficulties of engaging qualified workforce, especially when the project requires a great number of employees and is executed in a region of particularly low population density, e.g. farming region.

Concentration risk is generated by intangible resources too. It comprises of, among others: risk of depreciation, loss of timeliness, anticipated by investor, what may occur in case of such intangible resources as computer software, permissions, licenses and risk of losing intangible assets due to the unpredicted circumstances (loss of reputation, brand).

The area of financial resources is also connected with risk of losing liquidity, that is a threat to settling debts, resulting from bad management of financial resources, and mainly from wrong planning of future inflows and expenses.

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