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METHODS OF MANAGING INNOVATION IN THE ENTERPRISE

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Purpose: The aim of the work was to present the concept of innovation in an enterprise. The multitude of definitions and breakdowns of innovation are emphasized. In addition, a review of scientific papers in the field of innovation management strategies in the enterprise was made.
Design/methodology/approach: Due to the cognitive nature of the article, the aim of the work will be achieved using the method of analyzing the literature on the subject. Literature studies include Polish and foreign publications.
Findings: Economists point out that innovations are essential for a company's survival in the marketplace. They play a key role in building a competitive advantage and their absence may pose serious threats to the further functioning of the enterprise. Given the importance of innovation, it is essential to manage them effectively. The need to adjust the innovation strategy to the internal and external conditions in which the company operates is emphasized, because there is no strategy that can be successfully used in every enterprise.
Originality/value: The article is a literature review on the innovation strategies. This work can contribute to emphasizing the role of innovation in the functioning of the company, making managers aware of the need to manage them and choosing the right strategy tailored to the company's capabilities and goals.

Keywords: innovation, innovation strategies, innovation management.

Category of the paper: Research paper.

1. Introduction

Innovation is seen as one of the key sources of competitive advantage and a prerequisite for the company's survival. The sooner a company responds to changing market needs, the better it has a chance of success. The role played by innovations in the enterprise indicates the need for their effective management. In the literature, there are many strategies of innovation management. Each company should adapt its strategy to the business opportunities, environmental conditions and goals that the company intends to achieve.

The aim of the article is to present innovation, its concept, classification and possible measurement methods. In addition, a literature review was carried out on innovation management strategies. Selected strategies which are considered the most popular are described. The article is based on an analysis of the literature. It can help managers in the choice of an appropriate innovation management method in enterprises.

2. Innovation – definitions and typology

The concept of innovation has been taken up in the literature for many decades. However, innovation has not been unequivocally defined. It applies to many categories, including social life, economic life, technology, ecology, etc. The most popular theory of innovation was created by J.A. Schumpeter (1939). He presents innovation as the main phenomenon in economic development, which is a combination of capital and means of production, covering the following five combinations: creating a new product or introducing goods with original properties to the market; application of an innovative production method; finding a new market; obtaining unknown sources of raw materials; introducing new market structures in the industrial organization. P.F. Drucker (1992) presents innovation as an act that gives resources a new ability to create wealth. A.H. Van de Ven (1986) describes innovation as the development and implementation of new ideas by people who, over time, engage in transactions with others within the institutional order. The definition presented in the Oslo Manual describes innovation as the introduction of a new or significantly improved product or process, a new organizational and marketing method, workplace organization or relations with the environment. The above activities may be developed by the company or adopted from other entities, however, they must be new to the company (OECD, 2018). Innovations in a narrow and broad perspective are described by Z. Orbik (2017). According to him, innovation in a narrow sense covers the first application of new ideas and inventions resulting from scientific research. Whereas, in a broader sense, innovation is the dissemination of inventions or ideas.

The most common breakdown of innovation in the literature includes (OECD, 2015):

- **Product innovations** which mean the introduction of a new good or service to the market by an enterprise, or a significant modernization of the previously offered goods/services with regard to their characteristics or intended use. Modernization may refer to technical characteristics, materials, components, software as well as various functional features.
- **Process innovations** that is the implementation of new or significantly improved methods of distribution and production into practice in the enterprise.

- **Marketing innovations** mean the use of a new marketing method involving significant changes in the appearance of the product, promotion, positioning, pricing policy or business model, which are the result of the company's new marketing strategy.
- **Organizational innovations** are the implementation of a new organization method into the company's business activities. This also applies to the organization of workplaces or the new organization of external relations. An innovative solution may be the result of personal research and development activities of the enterprise, enriching the company with intangible knowledge (purchasing licenses, patents, software, know-how, training, etc.) or concluding contracts with cooperative companies and institutions.

In innovation statistics, it is important to see different types of innovation in borderline cases. Many innovations may have features of several types. Classifying such cases as only one type of innovation can be a difficult challenge, and may also lead to questionable recording of the types of innovation activity used by companies (Strahl, 2010). For this reason, the authors of the Oslo Manual in 2018 changed the classification of innovations and distinguished:

- **Product innovation** is a new or improved product or service that is significantly different from the products and services offered by the company.
- **Business innovation** is a new or improved business process for one or more business functions that is significantly different from the company's previous activity. These innovations concern six different functions of the company's activity. Two of them relate to the basic activity, i.e. production and sales, and the rest relate to supporting activities.

Another division, based on the scale of the changes made, distinguishes radical and incremental innovations. Radical innovations, otherwise known as breakthroughs, are new products and services that change the current conditions for the functioning of the market. They are completely new, or similar to those already existing on the market, but created using a new technology. On the other hand, incremental innovations arise as a result of continuous improvement and modification of already existing products or services so that they meet the needs of customers to an ever better extent. They tend to be small in scope and almost risk free. Breakthrough innovations that come to the market are usually perfected in the form of incremental innovations in the next stage. They appear less frequently, because they require greater financial outlays and are characterized by a longer implementation time, however, they sometimes allow companies to gain a long-term competitive advantage (Christensen and Raynor, 2003).

It is indicated that introducing innovations is a chance for enterprises to survive and stand out from the competition (Porter, 1980). Despite the fact that the literature frequently attempts to assess the innovativeness of an organization, no synthetic indicator has been developed so far. Innovation can be assessed on the basis of the number and type of innovations implemented in a given period of time, the value of sales of new or significantly improved products, as well as measures referring to intellectual property rights (Pichalk, 2012). Currently, the standard measure of the organization's innovation assessment is the number of patents and their citations (Chemmanur et al., 2014; Chemmanur et al., 2020; Elings, 2020). The popularity of measures based on patent statistics results from easy access to the necessary data by patent offices.

There is a widespread belief about the benefits of innovation. However, often these effects can be deferred over time. Many authors point to the greater importance of using innovations in business than the mere fact of their implementation (Desyllas and Sako, 2013). However, the lack of innovation can pose a huge threat to the continued functioning of the organization.

3. Review of the innovation strategies

Each organization should create its own innovation strategy, tailored to its needs and the conditions in which it operates. The innovation strategy is a long-term innovation management plan of various subjective scope (Ettlie, 2000). N. Strecker (2009) defines the concept as the sum of strategic choices made by an enterprise regarding innovation. The author takes into account only the means, disregarding the goals of innovative activity. On the other hand, others indicate that an innovation strategy is a developmental and functional plan that defines the allocation of resources to innovations to achieve the strategic goals of the enterprise. It is also an indication for the company when and how to abandon past plans and/or change them to develop the business in the future (Katz et al., 2010). The innovation strategy allows firms to define financial goals and the innovation gap, it also helps in the effective introduction of a new product or process. A very important issue is the consistent application of the selected strategy model due to the relative irreversibility of the investment.

The innovation strategy is part of a more complex long-term corporate strategy that enables the company to maintain and strengthen its competitive advantage. A feasible and efficient innovative strategy should be adapted to the changing environmental conditions. It can be based on different concepts and criteria. The main elements of an innovation strategy include: allocation of available resources, strategic management capabilities, understanding of the company's technological environment, structure and cultural context, understanding of competitors' innovation strategies (Burgelman et al., 1996). Identifying and using the full innovative capacity of the enterprise by managers is a key success factor of a given organization. There is no clearly defined division of the innovation strategy in the literature. Some of the developed divisions are presented in the table below (Table 1), while some of them are characterized. It is worth noting that some divisions overlap, they are changed to a small extent.

Table 1.
Classification of selected innovation strategies

Author(s)	Classification
Ansoff, Stewart (1967)	First to market, follow the market leader, applied engineering, develop me-too products
Miles, Snow (1978)	Prospector, defender, analyser, reactor
Porter (1980)	Cost leadership (innovation follower) product differentiation based on innovations (innovation leadership)
Lambkin (1988); Hultink, Robben (1995)	Technological innovator, rapid copier, cost reducer
Venkatraman (1989); Morgan, Strong (1998); Akman, Yilmaz (2008)	Aggressiveness, analysis, defensiveness, futurity, proactiveness, riskiness
Wright et al., (1990); Parnel et al. (2000)	Prospector, defender, analyser, reactor, balancer
Manu (1992); Manu, Sriram (1996)	Product innovator, process innovator, late enterer, non-innovator, original initiators
Gilbert (1994)	Proactive innovation strategy, reactive innovation strategy
Hultink, Robben (1995)	Technological innovator, rapid copier, cost reducer
Lynn and Mazzuca (1998)	Customer oriented, process oriented, initiator oriented, learning oriented
Roger (2001)	First to market, rapid follower, niche player, response to changing market needs and wants
Burgelman, Maidique, Wheelwright (2001)	Technological leadership or followership, market position, timing of market entry
Massini, Lewin, Greve (2005)	Innovators, imitators
Guan, Yam, Tang, Lau (2009)	Leading innovator, follower, imitator, defender, technology importer
Kylaheiko, Jantunen, Puumalainen, Saarenketo, Tuppura (2011)	Domestic and international innovator, domestic and international replicator

Adapted from: "Effects of innovation strategy on firm performance: a study conducted on manufacturing firms in Turkey." By A.T Karabulut. Copyright 2015 by *Procedia-Social and Behavioral Sciences*, *195*, 1338-1347, pp. 1339.

When formulating an innovation strategy, attention should be paid to the following elements: current and future purchase opportunities, innovative activity of competitors, human and material resources, own research and development infrastructure, the current level of development of the organization and financial potential. B. C. Twiss (1986) identified the following eight strategies to promote innovation:

1. **Offensive** characterized by high risk but also potentially high profits. Usually used by large enterprises that can take advantage of the economies of scale.
2. **Defensive,** as opposed to offensive, has low risk and lower profits. Firms usually introduce substitutes for goods offered by firms employing an offensive strategy.
3. **Purchase of a license,** buying innovations from other companies.
4. **Avoidance,** usually used by small companies that are afraid of direct confrontation with their competitors. It is relying on looking for market gaps.
5. **Market creation**, that consists in offering completely new goods, which results in a small number of competitors and thus the possibility of making a profit.
6. **Independent,** relates to the product, resulting in an increase in the market share of innovative products. Combined with an offensive strategy, it allows firm to maintain a long-term competitive advantage.

7. **Acquiring highly qualified staff,** based on buying up competitors' employees. Considered to be unethical.
8. **Sourcing other companies,** which is an alternative to sourcing employees. Small businesses that are strategically offensive Often have limited financial opportunities and therefore represent an easy and attractive investment for large companies.

Differently, innovation strategies are classified by C. Freeman (1982), who distinguished six types of innovation strategies on the basis of the amount of expenditure on research and development:

1. **Offensive** in which the company allocates significant funds to research and development but also to design, testing, patent protection and employee training. Few companies are able to apply this strategy in the long term.
2. **Defensive** characterized by an active attitude to innovation, but less risk than an offensive strategy. It is characterized by following the leader but with a certain delay, so as not to duplicate his mistakes. Very important in this type of strategy is quick response to changes, patenting innovations in order to weaken the leadership position, as well as educating employees.
3. **Imitating** in which the company does not intend to catch up with the leader and follows him with a much greater delay. The activity is based on relatively quick implementation of the leader solutions. Expenditure on training and technical services is significantly lower than in previous strategies. The imitator bases its competitive advantage on lower production costs, so it should focus on innovation in manufacturing methods.
4. **Dependent,** the enterprise is to some extent subordinated to the stronger firm. Own research plays a negligible role. Major functions and services come from and are often provided by the lead organization.
5. **Traditional** in which the offered goods practically do not change. Production is based primarily on highly qualified staff. The threat to companies using this strategy is technological development. On the other hand, its application may result in backwardness in relation to global companies.
6. **Occasional,** based on finding a gap resulting from constant changes in the environment. The company's success is based primarily on good scientific and technical information, entrepreneurship and long-term planning.

P.F. Drucker (1992) distinguished four strategies of innovation:

1. **To be "the first and the strongest".** The organization focuses on permanently assuming a leadership position. It is associated with a huge and continuous effort of the staff.
2. **"Hit them where they are not".** There are two types of this strategy:
   a. **Creative imitation** – it's about better understanding innovation created by others. It is market-oriented and inspired by it.

   b. **"Entrepreneurial judo"** is the adaptation of goods and services to a given market segment. Its use is aimed at gaining a leading and then dominant position by the company. It has the lowest risk and has the best chance of success.
3. **Find and occupy a specialized ecological niche,** that is, strive to master a small fragment of the market. P. Drucker distinguishes three ecological niches:
   a. **The turnpike strategy** – the company has little influence on expanding or controlling its activity. The strategy can be used if the good is of key importance and the risk of not applying it is much greater than the price.
   b. **Strategy of specialized skill** – requires an absolute novelty.
   c. **Strategy of specialized market** - applies to a specific market, well-known by the company, which makes it unattractive to competitors.
4. **Make changes to the properties of the product, market or industry** in order to meet the customer's needs. It is carried out by creating utility for consumers, setting the price, adapting to social and economic realities, providing the customers with what constitutes real value for them.

It is worth emphasizing that the above strategies are not mutually exclusive, sometimes a combination of several elements of individual strategies can be found.

A tool supporting managers in choosing an innovation strategy may be the matrix of innovative ambitions (Figure 1). The X axis represents an increasing degree of innovation, pointing to further dimensions. The axis moves from the left side, denoting the modification of existing products and services to the right side, i.e. the development of combinations of new products, services and business models. These connections are extremely important because breakthrough products and services are part of a wider business model (Wagner et al., 2014). The Y axis represents markets - from existing to new markets and consumers. The matrix shows that routine innovation is important but does not create new markets. For this purpose, it is necessary to implement ground-breaking and radical innovations that allow for the expansion and development of the enterprise. The top-right corner of the matrix showing the zone of radical innovation requires the creation of new products and services that benefit new consumers but also requires the use of new business models. Creating and operating in new markets requires introducing innovations but also efforts to adapt the organization to the new structure. Innovation is so modern that the company cannot manage it within the current processes and structure. Thus, radical innovations are rarely encountered, as they often require transformation of the entire organization (Goffin and Mitchell, 2016). The middle area of the matrix between the two extremes is the center of innovation management. This is where a coherent approach to management should emerge, reflected in the innovation strategy. The higher moving along the diagonal of the matrix, the more difficult it becomes to manage innovation and it requires the use of many different tools. Breakthrough and radical innovations are of greater importance to the enterprise in the long term. This matrix can be used to diagnose whether a potential innovation is appropriate for the current business model. If the company bases its functioning on the existing technological possibilities and continues to use the same business model, the company's strategy will be based on incremental innovations. On the other hand, in the case of greater ambitions of enterprises, managers must take into account the need to implement ground-breaking innovations and apply a new business model.

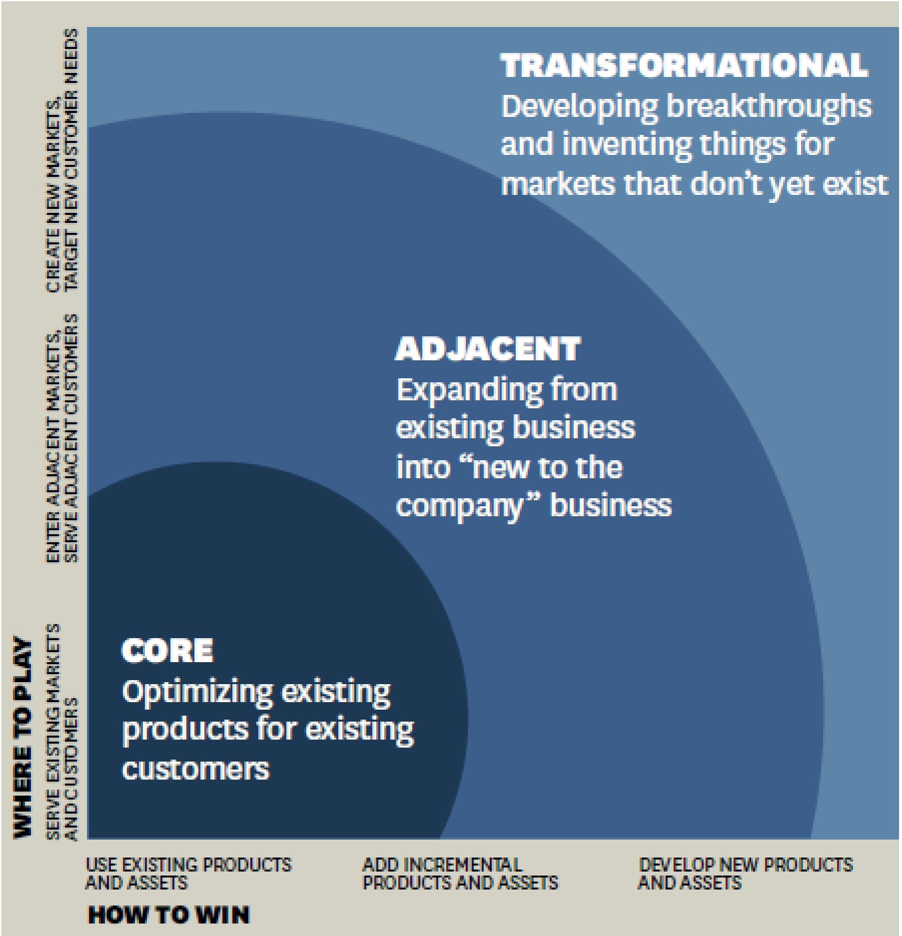

Figure 1. The innovation ambition matrix. Adapted from: "Managing your innovation portfolio" by Nagji, B., & Tuff, G. Copyright 2015 by Harvard Business Review, 90(5), pp. 69.

There is no one strategy that would fit all organizations or operate in all conditions. An appropriate innovation strategy allows firm to adjust the activity to specific market needs and protects the company against the pursuit of conflicting goals by its individual departments (Pisano, 2015). At the same time, economists emphasize that it is permissible to actively undertake innovative activities without a clearly formulated strategy. However, this is possible for small business operations in the short term. Undoubtedly, the use of a specific method of operation adapted to the internal and external conditions of the organization can contribute to its market success and will definitely improve the work of people who decide about innovations in the enterprise.

4. Summary

Enterprises operating in the modern, highly competitive market must stand out from the competition through the use of new solutions. The literature review shows that innovation is a popular topic. However, there is no universal definition. Another problem is the measurement of innovation and its classification. There is no doubt, that innovations play a very important role in building the company's competitive position. Therefore, it is necessary to manage innovation in the enterprise. Economists have developed many methods of managing innovation but there is no strategy that can be successfully used in every enterprise. Each company that wants to manage innovations in the long-term perspective should adjust its strategy to the internal and external conditions in which it operates. This will allow the company to achieve market success and build a competitive advantage.

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