

# Open Innovation

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The definitions of open innovation (OI) focus on knowledge (resources), including its flow between the enterprise and entities in the environment (as part of cooperation between them). The purpose of this exchange is to create a market novelty, and the definitions most often relate to enterprises. These common features become the basis for creating our own definition of open innovation. It defines OI as "**a two-way or one-way flow of knowledge (or other resources) made between an enterprise and the environment as part of established cooperation**", based (on the one hand) on the exploration of the environment and (on the other hand) on the exploitation of own resources, i.e. those that are owned by an entity [9] (p. 83). The final effect of this cooperation must be innovative solutions to improve the market competitiveness of the enterprise.

open innovation (OI)

cooperation SME in environment

small medium-sized enterprises (SMEs)

determinants of using open innovation

## 1. Introduction

Open innovation (OI) is increasingly often investigated in the world literature in a variety of contexts and areas. Since the time when OI was first defined by Chesbrough in 2003 [1] (p. 43), it has been the subject of many studies and investigations of both theoretical and empirical nature. Its positive impact on the functioning of enterprises has been proven many times, especially in relation to large enterprises [2] (pp. 414–431). As research has shown, the application of this concept among micro, small, and medium-sized enterprises (SMEs) is quite common; however, it encounters some resistance due to various conditions and usually internal barriers. The lack of its use by these enterprises causes irreparable losses, which usually result in restrictions on access to new markets and loss of competitive advantages not only in domestic but also all international markets [3] (pp. 42–43). This is due to the fact that the use of OI enables innovation to be obtained from the environment, which is extremely important for SMEs in Poland. It is influenced by the relatively low level of SME's own research and development activity (R&D) in Poland, hence the diffusion of knowledge is becoming the basic source of implementation of new solutions for these enterprises. Cooperation with the environment (not only exploitation of limited own resources in this case) provides a huge reservoir of resources for the innovative development of these small and medium-sized enterprises. It is innovation that provides these enterprises with an advantage in the abovementioned markets. In the literature on the subject, the importance and impact of innovation and also OI on competitiveness have been repeatedly discussed and proven [4] (pp. 15–21); [5]. Therefore, it should be stated that innovation is a source of improvement in the market situation of the enterprises in question and OI plays the role of a "tool" for acquiring new solutions through the exploration of the environment. Hence, it is reasonable to put forward the thesis that a too low

level of OI use by SMEs in Poland (assuming limited own resources) negatively affects innovation, and thus the competitive position of these enterprises. However, it should be emphasized that the use of OI (and innovative development) is not a prerequisite for the functioning of SMEs, especially in industries (branches) referred to as "traditional" based on the classic division of the branches of industry operating for a long time used in the adopted classification in force in a given country. Often this division is associated with such factors as location, availability of raw materials, or unchanging procedures (formulas) of doing business (manufacturing of final products) used for many years. Hence, the opposite of this type of industry is high-tech industry based on new technologies and continuous development [6] (pp. 187–200). Although it is difficult to state that deficiencies in innovative solutions (and the use of OI) in these industries negatively affect their market position and contribute to economic problems, it can be said that the industries in question lack new directions of development [7]. Therefore, even in such industries, new ideas and solutions are also welcome, contributing to greater efficiency and customer satisfaction. Hence, there is the need to conduct research on factors determining the use of the OI concept among SMEs.

## 2. Open Innovation Concept of the Open Innovation and Its Determinants

The subject of this article implies the need to clarify two basic issues, i.e., open innovation, which is referred to in the literature as a concept, paradigm, or model, and determinants affecting its use by business organisations. This concept is considered as one of the main elements ensuring the company's success in the long term [8] (pp. 176–207).

Let us start by referring to the first of the two issues examined in the article. The concept of OI is relatively new because it was first used by Chesbrough in 2003. The idea itself has much older genealogy. It was noted in the 1970s that large enterprises did not base their R&D activity only on a typical (at that time) model of Freeman's vertical integration. On the one hand, entities acquire the necessary technologies from the environment, while on the other hand, they sell licenses to the environment [9] (pp. 804–811). Particularly significant were the achievements of von Hippel, who in this period (in the 1970s) described the impact of users, suppliers, and other external entities on the development of the organization [10] (pp. 86–92). In the second half of the 1980s and the beginning of the 1990s, business models in which network connections focused on cooperation and complementary exchange of needed resources started playing a key role in the context of strategic approach [11] (pp. 39–74). This trend intensified particularly in the first half of the new century, providing a contribution to the contemporary understanding of the concept of OI. Currently, open innovation has become the subject of inquiry by many researchers, both from the theoretical and practical point of view of specific organizations [12]; [13] (pp. 39–74).

Open innovation as the subject of scientific inquiry poses a significant problem [14] (pp. 2–9). There is a discussion about the semantic scope of this concept and some concerns about considering open innovation as the subject of scientific research. Some scientists ponder this concept in a research context, others only prove its applicative relevance. Similar to the conceptualization of the term of 'innovation' [15] (pp. 53–54), also in the case of open innovations, one can speak of broad and narrow approach to their understanding. The broad approach concerns

various organizations in the environment implementing solutions from the outside, the definitions of which are usually of utilitarian character and may relate to a specific situation and/or relate to various enterprises and resources. In turn, the narrow approach is related to a specific economic organization (usually an enterprise). In this sense, OI most often has a cognitive character, i.e., determining its impact on the organization, and relate to intangible resources (knowledge) for technical and technological implementations, which are obtained through the elimination of existing borders with the environment. Of course, the abovementioned division is not entirely "sharp", which is the result of mutual penetration and overlapping of OI definitions. Nevertheless, it may be an attempt at certain systematization of this concept and its classification.

### 3. Discussion and Conclusions

The above OI determinants analysis has its serious limitations. It does not take into account all the major factors affecting the use of OI among the discussed small and medium enterprises in Poland. The main attention is focused only on selected ones, which were the subject of research conducted in 2016. In addition, another limitation is the lack of causality regarding some of the determinants discussed. This applies to, among others, the impact of territorial coverage, the size of the surveyed enterprises, and the propensity for using the OI concept. In practice, this means that these two factors (market reach and size of enterprises) should be treated (despite the statistical relationship demonstrating the existence of mutual influence) with some caution. However, it should be emphasized that an undoubted advantage of this article is the division of these factors into subjective and objective ones, which allowed for a multidimensional analysis of this phenomenon. Another important limitation of the discussed research (in this article) is, without fail, the inability to isolate those factors that have a negative impact on the use of the concept of OI. However, it is not possible to include all the elements that concern the analyzed issues in a short study (article). It is necessary to concentrate only on those elements that constitute the main point of reflection (in this case, the positive impact of determinants on the use of open innovation among SMEs). OI is an element that has an impact on creating a value chain for these enterprises.

The considerations contained in this article are the basis for drawing several basic conclusions. Firstly, the definitions of open innovation are very similar in terms of meaning, although their scope is quite diverse. They focus on such concepts as resources, cooperation with the environment, innovative development (innovation), two-sided (or unilateral flow of resources (outbound and inbound), or elimination of boundaries between the enterprise and the environment [16] (pp. 1–18). The diversity has objective and subjective character, i.e., it concerns various entities, and from this point of view, it can be considered in a narrow and broad sense. Secondly, based on the literature on the subject, it can be concluded that there is a lack of systematic and full classification of determinants of the use of the OI concept, i.e., positively affecting the increase in the propensity to use open innovation by the SMEs in question. The only classification concerns the division into internal and external determinants, which include very different factors. Among the former type of determinants, the absorption capacity of the enterprise will play the key role, and among the latter, the market and the environment of the enterprise (entities operating in it) [8] (pp. 176–207). The division of these factors generally depends on the scope of research and the point of view of individual authors. Thirdly, in the article, three essential characteristics of SMEs are listed, which are also internal

factors that may affect the use of OI. Based on the results of research conducted in 2016, it turns out that only two of them can act as determinants of OI (the size of enterprises and their territorial market scope). It was possible to determine the relationships according to which larger enterprises are more likely to use OI [17] (pp. 423–437) and by analogy: The more the enterprises conduct its business activity on a wider market, the tendency to use the OI concept (and its assumptions) increases. The above-presented factors, due to their independent (from research responses) character, have been described as objective. Fourthly, among the subjective factors of an internal nature, enterprises indicated several, but only two of them obtained a large number of indications, both in the group of internal and external factors. Their nature is fully market-related, which means that the market is the main determinant influencing the application of the OI concept [18] (pp. 135–156). Moreover, these enterprises are increasingly aware of the role that the environment plays in shaping their competitiveness and the importance of the concept of OI in this process. Fifth, both internal and external factors affecting the use of OI have been assessed by over 75% respondents as very important or important (high level of significance), which suggests that they should be treated as important determinants of the use of this concept. Sixth, there is no visible diversification of these determinants in relation to enterprise groups. The general tendency is their greater importance for larger enterprises (small and medium) than smaller ones (small and micro). The only exception is the assessment of external factors, where micro organizations have the largest share in the “very important” category. Therefore, it can be concluded that external determinants for micro enterprises are relatively more important than internal ones. However, this thesis is not fully justified, because in the “high importance” category, this was not confirmed. Therefore, it should be emphasized that both internal and external market-related factors are the main determinants influencing the use of the OI concept by SMEs in Poland [19] (pp. 236–242). The above-presented conclusions (from the third to the sixth) are the answers obtained to the research questions posed in this article.

The above-presented considerations on the range of determinants of the use of the OI concept among SMEs in Poland do not exhaust the discussed issues. Further studies seem to be necessary on issues related to the use of the OI concept by small and medium-sized enterprises. Research should focus on several key issues. Firstly, studies should concentrate on monitoring the level of the use of open innovation, and thus the level of willingness to cooperate with other organizations in the environment. Secondly, they should provide answers to questions about existing stereotypes among entrepreneurs in Poland, who in most cases, feel a clear reluctance to cooperate with others. It is necessary to study existing mentality and beliefs that hinder establishing relationships between enterprises. Thirdly, these studies should deepen knowledge of the importance of the market in making decisions regarding the use of the OI concept discussed in this article. Obtaining answers to the abovementioned issues will undoubtedly constitute a decisive “step forward” in terms of issues related to innovation, innovativeness of Polish SMEs, and their use of open innovation. Innovation (and, in principle, innovative development) is a key element in improving the competitiveness of enterprises on foreign markets. A lack of such development will result in market exit of those enterprises that focus their strategy only on factors related to the price of the product (and not its innovation). In the era of ‘prosperity’, price will become a secondary factor in the fight for customer attention—ideas and innovative solutions will matter [20].

The above-presented indications regarding the need to conduct further research related to the use of the OI concept among SMEs allow for the formulation of several recommendations. First of all, entrepreneurs should be

encouraged to use this concept by indicating benefits that they can achieve from its application. This is especially true for micro and small enterprises among which the propensity for using OI is relatively low. It is important in this regard to make these groups of entrepreneurs aware of the need to open themselves to the environment in order to search for the necessary resources. The lack of awareness of the importance of OI (in these groups of enterprises) is particularly evident in relation to its impact on improving competitiveness by increasing the level of enterprise innovation. Hence, the need to implement measures to promote open attitudes (discussions to which entrepreneurs will be invited or greater focus on this issue in the professional press). Secondly, it seems that from a practical point of view, "raising awareness" is not enough. There is a need for specific external support, which is extremely important for the smallest entities. An example of "good practices" in this area can be the creation of partnerships, for example, in the form of clusters bringing together companies of all sizes whose goal will be to protect their interests and to respond flexibly to market needs in the field of innovative solutions.

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