Natalia Przybylska

Abstract of the doctoral thesis

**Open innovation in Polish small and medium-sized enterprises**

The importance of the dynamically developing sector of small and medium−sized enterprises is crucial for the Polish economy, as they generate every second zloty of Polish GDP (50.1%). The SMEs sector is referred to as the catalyst for economic development, and its entities area manifestation of the entrepreneurship of the society. In the literature, the concept of open innovation is widely described. Its assumptions regarding the need to acquire innovations from outside, to conduct extensive cooperation as part of research and development (R & D) activities, or the need to develop absorption capacity have been the subject of numerous studies. In many publications they are referred to as the new paradigm of innovation management, on the other hand they have also received considerable criticism from the scientific community. The concept that aroused so much interest deserved, according to the author, about this dissertation. This dissertation is devoted to the analysis of the relationship between innovative activity of small and medium−sized enterprises and open innovation practice. This is a particularly important topic, due to the ever-growing importance of this sector of the economy and the concept of OI.

The main purpose of the paper was to explore the relationships between the form of using open innovation and the size of the enterprise and its innovative activity. In this context, it was important to identify cause-and-effect relationships, that would allow to build and organize knowledge on the use of OI in Polish small and medium-sized enterprises. The main objective was therefore disaggregated for specific purposes:

1. identification and evaluation of the concept of open innovations in the light of contemporary theories of innovation and empirical research,

2. identification of innovation sources in Polish small and medium-sized enterprises,

3. assessment of the innovative activity of small and medium enterprises,

4. analysis of forms of using open innovations in small and medium-sized enterprises,

5. definition of key external and internal conditions affecting the use of the concept of open innovation by small and medium−sized enterprises, formulation of a proposal for a model for the use of open innovation in small and medium-sized enterprises.

The object of the research was open innovation, which was defined as a targeted, two-way flow of knowledge and / or technology, directed at the optimal use of the internal and external potential of the organization, conducive to building innovation. In addition, three dimensions of open innovations have been distinguished, which can be implemented both jointly and separately: inbound OI, outbound OI and coupled process. Then, eight forms of using open innovations were distinguished, and on this basis, an OI typology was created, covering four types of enterprises - passive in the use of OI, using OI - single-track, two-way and fully. By adopting this definition, in order to verify the dependence between the innovative activity and the use of open innovations, the main research hypothesis and detailed hypotheses were formulated.

Main hypothesis: the use of open innovations affects the innovative activity of Polish small and medium-sized enterprises.

Detailed hypotheses:

H1: the use of open innovation depends on the size of the enterprise,

H2: the use of open innovation affects the number of innovations implemented,

H3: the use of open innovation affects the scale of implemented product innovations.

These research goals and hypotheses were the basis of the dissertation, which consists of five chapters, introduction, summary and four attachments. The first three chapters form the theoretical part, while the other two form the empirical part.

In order to verify the research hypotheses, a significance test for two p1 and p2 structure indices as well as a statistical test for two averages were used and described. As part of the test procedure, the first hypothesis was rejected and there are no grounds for rejecting the second and third detailed hypotheses.

As indicated by the conducted analysis, significant differences between the form of OI utilization and the number of implemented innovations occur among companies using two−way flow of OIs. Enterprises that combine at least two forms of OI are definitely more effective in implementing new solutions. It should be emphasized at this point that the form of OI usage should correspond to the needs and capabilities of a given enterprise. Enterprises that use OI more often co-create new products and generate more of them than passive entities in the field of OI. Innovations of the largest scale - world-wide, were introduced by companies using OI fully or two−way flow, while passive enterprises in the use of OI most often introduced innovations at the enterprise level. A detailed analysis also showed an increase in satisfaction of cooperation, which increases with its frequency. The membership in the cluster also has a stimulating effect on OI.

This doctoral dissertation is part of a wide range of empirical research on open innovations and is a complement to the cognitive gap regarding the study of the relationship between the use of OI and innovative activity of Polish small and medium-sized enterprises. The author of the work tried to explore and present this research area in an original and comprehensive manner, which was possible thanks to the participation in the research project entitled "*Innovation of small and medium-sized enterprises in the era of economic crisis - determinants of trends and models"*[[1]](#footnote-2)*.* Empirical studies, a fragment of which was presented, were carried out in 2015 on a representative sample of small and medium-sized enterprises in Poland.

1. The project was financed from the funds of the National Science Center granted on the basis of Decision no DEC-2013/09/B/HS4/01971 [↑](#footnote-ref-2)