

Project aim

Knowledge is a special kind of resource. It cannot easily be obtained, developed or distilled from a flood of information and even when it is successfully acquired, it quickly becomes outdated and useless. Knowledge lacks permanence. At the same time knowledge is the most valuable resource for present-day companies. For this reason companies must continuously and effectively acquire new knowledge. Knowledge is also the most complex factor of production. Each of its elements is unique and usually cannot be replaced by another one. Only a certain combination of elements enables a company to gain competitive advantage. Unfortunately, in most theoretical analyses knowledge is treated as a monolithic concept, which in practice makes it difficult to study the influence of this resource on innovation-oriented activities and competitive advantage of companies. Besides, given the heterogeneous nature of business activity, a thorough analysis of the problem cannot be conducted without focusing on a specific group of enterprises. Each group of companies has different knowledge-related needs. Since high and medium-high technology companies rely on knowledge as the most important element of their business activity, they are the most promising subject for this kind of research.

What distinguishes the approach proposed in the project is the fact that knowledge is divided into two basic categories – technical knowledge and market knowledge – which are analyzed separately, with special attention focused on ways in which they can be integrated to facilitate the process of innovation. This approach is motivated by the fact that even the highest quality of technical knowledge (e.g. in the area of machine construction or software development) does not really affect the company's competitive advantage until its effective market application has been found. A similar situation is likely to occur when a company has some market knowledge (e.g. about market needs) without technical knowledge that would enable it to apply the former. Another important element of the proposed project is the phenomenon of interorganizational cooperation and business networks, which need to be taken into consideration given the current processes and characteristics of business activities of high and medium-high technology companies – nowadays it is common practice for such companies to cooperate in different kinds of projects. As a result, innovation-oriented activities and competitive advantage of high and medium-high technology companies depends not only on their knowledge but also on the knowledge of their business partners.

In view of the above considerations, **the main aim of the project** is to investigate conditions required for effective integration of market and technical knowledge in high and medium-high technology companies in the process of creating innovation and competitive advantage, both independently and in cooperation with partners, and learn how firms should select appropriate business partners for such activities and find valuable sources of market and technical knowledge in the Polish economic conditions.

What kind of research is to be conducted in the project

Initially, a detailed and comprehensive literature review will be conducted. This stage will be followed by an exploratory study consisting of about 15 in-depth interviews (qualitative research). For this purpose, an effort was made when developing the project concept to establish cooperation with a group of companies and institutions operating in the field of high technology. Remarks and suggestions put forward during this preparatory stage have been taken into consideration in the present research concept. The third stage of the project will involve a CATI-based quantitative study aimed at verifying the results obtained at the earlier stage using data from a larger sample of high and medium-high technology companies, consisting of 180-200 responding units. The sample size is associated with the number of high and medium-high technology companies operating in Poland and on the project principal investigator's earlier experience of conducting research in this group of enterprises. The sample must be big enough to allow the application of statistical and econometric tests. The fourth stage of the project will involve another qualitative study. Its objective is to facilitate the interpretation of quantitative study results and to clarify any doubts encountered in the process of data analysis. About 10 individual in-depth interviews will be carried out.

Rationale for research

The study proposed in the project addresses a research gap identified by the project's principal investigator during the implementation of two other research projects. Individual in-depth interviews with presidents and board members of many companies revealed considerable variation in characteristics of knowledge held by high and medium-high technology companies. In particular, the interviews highlighted the often neglected importance of market knowledge and the high level of skills required to integrate its elements with technical knowledge held by successful companies operating in the sector of high and medium-high technology. The initial project concept was discussed with a number of Polish and foreign academic experts as well as numerous entrepreneurs, who expressed interest in the topic and results of the comprehensive, multi-stage research proposed in this project.