

WROCLAW UNIVERSITY OF ECONOMICS
FACULTY OF MANAGEMENT, COMPUTER SCIENCE AND FINANCE

Ph.D. Thesis summary

**The impact of innovative projects on creating enterprise
value**

by

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Table of contents

1. INTRODUCTION3
2. PROBLEM STATEMENT, RESEARCH OBJECTIVES5
3. STRUCTURE OF THE DISSERTATION9
4. RESULTS AND CONCLUSION11

1. Introduction

Dynamic as well as extremely complex and permanent changes taking place in the social, economic or technological environment of organizations operating in the modern world have led to changes in the field of enterprise value management. Innovations have become the main factor enabling the functioning and shaping the success of an organization.

The enterprise value consists of both material factors and intangible. In the conditions of a knowledge-based economy and technological progress, intangible aspects that are difficult to quantify are becoming increasingly important. Intangible value generators are directly related to research and development activities. Innovative projects implemented in enterprises are an important factor in their development and functioning. Creating and using innovation by enterprises is treated as a source of permanent competitive advantage. In a dynamically changing environment, innovations allow companies to stay on the market and grow constantly. The growing importance of innovative projects is caused by changes taking place in the knowledge-based economy. Therefore, intangible assets, including research and development projects, are key factors that create the value of an enterprise.

This subject is of interest to theoreticians and practitioners in the field of accounting, finance and strategic management. "New generation" enterprises that use intangible assets and highly developed technologies in their operations obtain higher valuations compared to traditional enterprises which do not invest in innovative projects. Higher valuation of innovative entities results primarily from their potential to gain competitive advantage and flexible adjustment to current market conditions, which often change in turbulent surroundings. Therefore, it can be considered reasonable to state that intangible factors significantly determine the value of an enterprise, in other words the role of intangible aspects in relation to material is much greater compared to the past.

Knowledge resources, technologies and innovations have gained fundamental significance in the process of creating organizational value or achieving other goals. They allow

you to adapt to the environment, respond to its needs, create changes so that you can create a competitive advantage.

2. The problem statement, research objectives

In previous research in the field of valuation methods, financial analysis and value management, it is difficult to identify those that refer to enterprises implementing innovative projects, including entities operating at early stages of development. Due to growing expenditure on research and development, it is important to identify value determinants resulting from research conducted by enterprises. An interesting issue is also the issue of estimating the impact of implementing innovative projects on the value of an enterprise. Against this background, many key research questions arise related to the process of valuation of technology enterprises, such as:

- does starting a research and development project affect the value of an enterprise?
- is the research and development project itself valuable in isolation from the company that implements it?

Answering both questions requires the selection of an appropriate valuation method for innovative projects. The literature describes many variations of classic valuation models that are tailored to the valuation of individual intangible assets, including intellectual capital. However, the author of the dissertation did not find a comprehensive study that explains the impact of research and development activities on the value of the company. The analysis of available publication databases presented in the work showed a limited number of studies in the field of assessing the impact of innovative projects on the value of an enterprise.

The issues related to innovative projects presented above create a research gap and space for scientific research. Therefore, the main goal of the dissertation is to develop a methodology to study the impact of implementing innovative projects on creating business value.

The subject of the research is the quantification of the impact of innovative projects implemented by business entities on their value, with particular emphasis on the impact of intangible factors related to the functioning of the entity on the creation of enterprise value. The

research subjects presented in the dissertation were enterprises implementing innovative projects.

The verification of the proposed methodology was based on data obtained from three companies. Enterprise A is a start-up carrying out research and development work to develop a recruitment game. A second company is operating in the Fintech industry and implements a research and development project involving the creation of liquidity management software in the markets for instruments based on blockchain technology. The last company specializes in laser measuring systems. In order to improve its products, it started an investment related to the creation of an internal research and development center.

The main thesis of the dissertation boils down to the statement: the implementation of innovative projects is a key factor determining the process of creating enterprise value, while commonly used methods of enterprise valuation do not fully show the possibility of creating their value through innovative projects.

The work structure was subordinated to the implementation of research goals. The work consists of five chapters. In connection with the scope of work discussed, five specific objectives were also set:

- 1) explaining the specifics and mechanisms of financing innovative projects;
- 2) identification and quantification of factors affecting the value of innovative projects;
- 3) review and critical assessment of existing concepts for assessing the impact of innovative projects on the value of the enterprise;
- 4) setting a design framework for assessing the impact of implementing innovative projects on creating business value;
- 5) verification of the proposed methodology in business practice.

The subjects of individual chapters are adapted to the formulated goals so as to enable the deliberations to be carried out in an orderly and logical manner.

In order to achieve the main and specific objectives of the dissertation and to enable confirmation of the thesis, the following research problems were defined:

- how can one create enterprise value through innovative projects implemented by enterprises?
- how should appropriate projects be selected for the development of the enterprise?
- what is the current state of knowledge regarding solutions used to value innovative enterprises?
- what are the factors determining the value of innovative projects?
- is the implementation of innovative projects a key factor determining the process of creating company value?
- do the commonly used methods of company valuation fully show the possibilities of creating their value through innovative projects?

Achieving the assumed goals and verification of the thesis were based on the research procedure, which included:

- method of analysis and criticism of scientific literature,
- method of examining the content of existing internal documents of the analyzed enterprises,
- methods of inductive and deductive inference,
- method of analysis and logical construction.

The assessment of the proposed methodology was conducted through a case study of selected enterprises, representing various stages of development and implementing different types of innovative projects. In addition, the paper used a critical analysis of literature in the field of formulated views and theoretical structures, which allowed for a comprehensive review of literature in the field of determinants affecting the enterprise value and the concept of assessing the impact of implementing innovative projects on the enterprise value. Another

method used was the analysis of internal documents of enterprises, which were presented in the case study.

3. Structure of the dissertation

The structure, layout and logic of the work content result from the aims of the work and advanced research questions. The dissertation consists of five chapters, introduction and conclusion. The first three are theoretical chapters, while the next two are empirical. Each chapter ends with a short summary indicating the most important findings.

The first chapter presents the essence and classification of innovative projects. The starting point for the discussion is to present the characteristics of research and development, which is the basic source of innovative projects. The importance of innovative projects in the process of creating competitive advantage was also shown. The final part of the chapter discusses the sources of financing innovative projects taking into account the project life cycle.

The second chapter analyzes the concept of 'enterprise value' and considers the areas of value creation and value carriers. The conditions for innovative projects that have a significant impact on the value of an enterprise are presented. Measures related to value creation are presented comprehensively.

Chapter three begins with the presentation of the classification of known methods of valuation of enterprises and intangible assets. A literature review was also made in the field of research, namely assessment of the impact of innovative projects on the value of the company. The chapter ends with a critical analysis of the available methods in the area of the possibility of using them for the valuation of enterprises implementing innovative projects.

Chapter four proposes a proprietary methodology for assessing the impact of project implementation on the value of enterprises. The chapter begins with an analysis of situational conditions that are important from the point of view of creating a new methodology. Then the main assumptions of the methodology and its concept are presented.

Chapter five presents the method of using proprietary methodology to assess the impact of implementing innovative projects on the value of an enterprise in relation to three selected enterprises. The methodology was verified on the basis of available methods, which were

presented in the dissertation. In the final part of the chapter the model was assessed based on own research.

Finally, the completed own research was summarized and the conclusions and postulate for further research were presented. In addition, the effect of achieving the particular goals of the dissertation - main and detailed - was presented. The research contribution to the state of knowledge was also highlighted on the method of assessing the impact of innovative projects on the value of an enterprise.

The considerations made in the dissertation are integrative in accounting, finance and business management because they relate to the analysis of the value of enterprises undertaking innovative activities. The selection of research instruments used in the dissertation results from the need to analyze the value of enterprises in various stages of development. Therefore, tools and techniques based on both financial and non-financial data were used. In this way, the importance of analyzing the value of the company in both quantitative and qualitative terms was emphasized.

The work includes many graphic elements in the form of drawings and tables that summarize the presented issues. Substantive discussion in the dissertation is conducted largely on the basis of monographic studies and other compact items as well as domestic and foreign continuous publications. In order to present statistical data, materials from online databases were used.

4. Results and conclusion

In the process of managing an enterprise operating in a dynamic environment, the issues of innovative activity and its impact on the value of the organization occupy a special place. It is thanks to innovations that an enterprise can achieve lasting competitive advantage, which is one of the basic factors determining the maximization of the entity's value from the perspective of its owners.

The evolution of currently available business valuation methods also confirms the trend of seeking increasingly better methods. New business valuation methods are based on traditional solutions, but take into account related aspects with intangible assets, including intellectual capital. Examples include the inclusion of real options in the DCF methodology, the scenario approach to the NPV method and the risk adjusted net present value (rNPV) method.

Achieving the main goal of the dissertation, i.e. developing a methodology for assessing the impact of the implementation of an innovative project on the value of the enterprise, was associated with the need to identify factors that affect the value of the enterprise implementing innovative projects and analysis of available methods, taking into account the conditions specific to this type of project. On this basis, the author developed the assumptions of the new method and explained the staged procedure of its application in practice.

The results of the research carried out by the author indicate that important factors that affect the value of an enterprise implementing innovative projects include: type of project, scale of innovation, method of commercializing project results and the degree of meeting market needs. These are conditions resulting from the specificity of innovative projects. On the one hand, the more innovative the enterprise is and the more it meets the identified market need, the greater the potential for generating future cash flows. On the other hand, such projects are

associated with a very high risk of not achieving the assumed results, which should also be included in the procedure for assessing the impact of the implementation of an innovative project on the value of the company. The indicated factors influence the determination of future free cash flows as well as the discount rate.

The dissertation analyzed the adequacy of the application of available valuation methods to enterprises implementing innovative projects. According to the author, many methods can be used to evaluate companies implementing innovative projects, but each of them has shortcomings. A very important role in the process of assessing the creation of value through innovative projects is played by risk, which should be considered from the point of view of four perspectives: failure to achieve project goals, proper identification of all causes that may affect the failure of the project together with the definition of preventive measures, determining the degree of sensitivity of a given risk factor to economic effect of the project and determination of measures of probability of occurrence of a given risk. Considering the disadvantages of individual valuation methods presented in chapter three, it should be stated that the most adequate valuation methods for enterprises implementing innovative projects will be income methods consisting of discounting cash flows.

Based on theoretical considerations, a proprietary method of influencing innovative projects on the value of the company was developed. An important problem was determining whether an innovative project can be considered in isolation from the entity implementing the innovative project. The author stated that this is not possible because the identified determinants also relate to the way the innovative project result is used, which has an impact on the estimation of future cash flows.

As a result of criticism of the available methods of enterprise valuation, it was found that income methods are best adapted to the valuation of innovative enterprises among the available methods. Therefore, it was assumed that the proprietary method will use the income approach, which will be subject to modifications resulting from the specificity of innovative projects.

Proposing four main modifications of the method is an original contribution to the development of a new methodology for assessing the impact of the implementation of innovative projects on the value of the company. They consist in changing the discount rate, developing real forecasts in at least two variants, correcting the calculated potential value of the project and determining the method of determining the residual value.

The author of the method postulates adjusting the discount rate to the phase of the life cycle of an innovative project. At individual stages of project implementation, the discount rate should be adjusted taking into account the risk of project implementation failure. A point method was proposed to determine the coefficient correcting the value of the discount rate on the basis of aspects of key importance for the risk of an innovation venture. The applied criteria result from the conditions of innovative projects and the analysis of the conditions for assessing innovative projects used by institutions distributing public funds in the form of EU subsidies as well as venture capital and private equity funds.

Another tested solution was to prepare forecasts of future financial values in two variants - pessimistic and optimistic, and then calculating the average value. This approach allowed for making the projected financial results more realistic and reducing the possible error in estimating the revenues and costs of an innovative project.

The third suggestion to modify the available valuation methods is to specify how to correct the calculated potential value of the project. For this purpose, the point method was used, which allows to assess a given innovative project in terms of the scope of innovation, the nature of the project and meeting market needs. These aspects have a very significant impact on the ability of the project to generate future revenues, and hence positive cash flows.

The last modification concerns the approach to determining the residual value of an innovative project. The author assumed that this value should be determined on the basis of average net cash flows from the growth period until reaching maturity. This approach does not

take into account flows related to the incurring of financial resources at the project implementation stage, which would distort the residual value.

The developed methodology for the impact of innovative projects on the value of an enterprise has been verified in practice in the activities of three enterprises that are at various stages of development and implement other types of innovative projects. This approach allowed the assessment of the applicability of the method to a wide spectrum of innovative projects. Two entities selected to carry out research and development projects at various stages of development - a start-up entity and a mature enterprise. The third entity studied was an enterprise with an established position, implementing the undertaking of creating an internal research and development center that would allow improving the products offered.

The dissertation presents the process of valuation of three enterprises by the proposed method, which allowed determining the impact of the implementation of the innovative project on the value of the company. In each of the analyzed cases, innovative projects are important in creating enterprise value.

The model for assessing the impact of the implementation of innovative projects on the enterprise value was also verified by comparing it with the enterprise value calculated in accordance with the rNPV method. Analysis of the results obtained using two methods shows that the results were convergent and the differences were within the error limits (maximum deviation of 5%). The advantage of the proposed method is to take into account the conditions resulting from the specifics of innovative projects in the valuation process and the ability to simulate the impact of changes in these conditions on the value of the project.

The conducted research and developed methodology for assessing the impact of innovative projects on the value of an enterprise allow to state that the assumed goals of the dissertation have been achieved. The presented methodology is a proposal that will require adaptation to the dynamically changing conditions of entities implementing innovative projects. Therefore, there is a need to conduct research in the field of identifying specific value carriers

of enterprises carrying out innovative projects in order to improve the valuation process of enterprises implementing innovative projects.

A handwritten signature in blue ink, appearing to read "John West", is located in the upper right quadrant of the page.