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INDIVIDUAL ENTREPRENEURIAL ORIENTATION AND BUSINESS EDUCATION DEVELOPMENT

Summary of the Doctoral Thesis



RIGA TECHNICAL UNIVERSITY

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**INDIVIDUAL ENTREPRENEURIAL
ORIENTATION AND BUSINESS EDUCATION
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Scientific supervisor

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DECLARATION OF ACADEMIC INTEGRITY

I hereby declare that the Doctoral Thesis submitted for the review to Riga Technical University for the promotion to the scientific degree of Doctor of Science (Ph. D.) is my own. I confirm that this Doctoral Thesis had not been submitted to any other university for the promotion to a scientific degree.

Name Surname (signature)

Date:

The Doctoral Thesis has been written in English. It consists of an introduction, three chapters, conclusions, recommendations, 57 tables, and 52 figures; the total number of pages is 152, not including appendices. The Bibliography contains 284 titles.

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INTRODUCTION

The concepts of competences and capabilities have become more significant within the last decade, as the labor market demands graduates who would respond to agile changes and should be trained not only in educational subjects but also to have the knowledge, relevant skills and competences for proactive entrepreneurial actions within and outside the organization. Routine tasks are being constantly replaced by technology. Therefore, it is expected that HEIs (Higher Education Institutions) can train competences which contribute to students' prompt and sustainable employability and assist them in long-life learning. Business schools as a case of HEIs are considered a subject for significant change, as the perception of managers' competences has changed a lot due to rethinking a managerial role in modern society. Although there is no common opinion among researchers on a specific set of competences which should be developed to manage modern organizations, according to the Future of Jobs Report developed by the Organization for Economic Cooperation and Development (hereafter referred to as OECD) for the World Economic Forum in 2016, due to the extensive development of artificial intelligence, machine learning, and advanced robotics, some professions will disappear or will be transformed in the era of the fourth industrial revolution. Hence, the future workforce needs to adjust their skill set to maintain employability and gain benefits from the changes in the industry. Managerial professional competences are directly related to the external environment and are traditionally considered as a set of knowledge and abilities of an individual applied in practice. Oxford English Dictionary describes a manager as a "person responsible for controlling or administering an organization or group of staff". At the same time, researchers recently uncovered that the professional competences of managers are overlapping with competences and skills that are attributed to entrepreneurs; policymakers report on the demand for entrepreneurial behavior of employees assuming such actions as a key driver for sustainable employability during constant changes (OECD, 2018).

There is still no unanimous opinion about the duplication of managerial and entrepreneurial competencies in the scientific literature. During the recent decades, a discussion about the roles performed by the ones who lead small and medium enterprises (SMEs) has been actively evolving – the debate is a result of a significant increase in the number of small firms over the globe. Many smaller organizations characterized by flatter organizational structures require their leader to act simultaneously as managers, owners, and entrepreneurs. SMEs, in general, have a shorter lifecycle than corporate organizations, but moving forward from the earliest life cycle stage to their later stages, small business organizations require their leader to have different sets of skills and competencies. At the same time, the dynamic external environment powers businesses with technological, economic, political, and social challenges. Corporate social responsibility, social media, the evolution of transparency, and ethical and sustainable thinking form the list of the calls for action for the new leaders, which is still incomplete.

However, the policymakers and academia are convinced that the modern form of business leadership is based on entrepreneurship, which is a key to economic growth, innovation, and employability. Hence, educational activities focused on developing entrepreneurial competence, spotting, and exploiting business opportunities, or legal literacy for young

entrepreneurs are incorporated into educational programs worldwide. Entrepreneurship is understood as a transversal competence which is expected to be integrated into multiple disciplines and trained by a cross-disciplinary approach which is a combination of digital and financial literacy, business plan development, and marketing campaign in new media, business simulations, and statistics tools for data processing.

The abovementioned preconditions have determined the topicality of the theme. The author of the Doctoral Thesis investigates whether the competences developed in business education match the needs and interests of the market stakeholders, entrepreneurs, and students. Therefore, the research is devoted to discovering whether the output of the HEIs educational services is aligned with the market needs or competence development and training require more agility to meet the stakeholders' expectations to make customers of the service more satisfied with its output. Having conducted the analysis of secondary sources, it was discovered that individual entrepreneurial orientation (IEO) and its components as well as attitude, learning, and behavior are considered as a challenge and provide opportunities to advance business education. From this perspective individual entrepreneurial orientation is a construct uniting attitude of the individuals (students) with the labor market needs through the individual motivation, personal traits, and competences which are developed and enforced by HEIs.

Considering agility as one of the key characteristics of the modern organizational management, the author investigated whether it is possible to transfer agile software development practices and use them as a benchmark to track the status of educational endeavors and provide HEIs with a tool for decision-making to plan the next actions. Individual entrepreneurial orientation index is required to evaluate business education development status, assess impact of changes in stakeholders' requirements, and quality of the educational service. Following this, a solution should be proposed for HEIs which contributes to the business education development, thus, evaluating the status of an educational system. Currently, there is considered to be a lack of method aiming to develop a coherent view of the multiple elements of the system which forms an integrated model for decision-making and might be measured with performance indicators. Hereafter, the study aims to bridge the research gap in management theory by applying an agile approach for assessing the output of a business education institution considering the changing stakeholders' requirements. Subsequently, this leads us to assumption that the study would bring the following scientific contribution to the management theory:

- 1) elements of individual entrepreneurial orientation concept are incorporated into the adopted agile approach;

- 2) the adopted agile approach is integrated with the stakeholder theory elements.

The present Doctoral Thesis provides a solution on how to evaluate promptly and implement a strategy to develop competence in asset management required for sustainable organizational growth. In addition, the paper provides the analysis on the comparison of competences required for managers and entrepreneurs in a modern rapidly changing environment as well as reflects future labor force attitude towards a setup and governance of a business enterprise.

Research questions

1. What competence needs to be developed by business education to meet the requirements of their stakeholders?
2. What are the elements of individual entrepreneurial orientation and its importance for contemporary competence development for managers by business education?
3. What elements are essential to develop a systemic view and provide HEI with a decision-making tool to improve business education?

The goal of the research

To evaluate business education development trends, identify contemporary competences for managers and research importance of individual entrepreneurial orientation, and elucidate the interrelation between the elements involved in business education improvement in HEIs in order to elaborate on a methodology for the assessment of business education implementation.

In order to reach the goal, the following **enabling objectives** have been formulated:

1. To explore the background of business education, its environment, and stakeholders in order to define its constituents and factors influencing business education.
2. To investigate changes in business education implementation caused by the external and internal factors influencing business education.
3. To analyze the theoretical literature, compare managerial and entrepreneurial competences, and determine their components to be developed in the future leaders who are in charge of a modern organizational management.
4. To survey the stakeholders' opinions to explore the requirements of the external and internal stakeholders towards the output of business education in terms of competence.
5. To explore entrepreneurship and entrepreneurial orientation theories in order to identify the most important elements to measure the business education students' individual entrepreneurial orientation (IEO).
6. To compare the IEO Index values in order to explore the level of the IEO index of students' groups in different European HEIs.
7. To study the theoretical and practical aspects of different agile tools for system evaluation and decision making in order to develop a methodology for continuous improvement of HEI's performance.
8. To conduct interviews with HEIs experts in order to approbate and validate the proposed methodology and draw the relevant conclusions.

The **research object**: Business education, its main stakeholders, and the actual competences.

The **research subject**: Business education implementation in HEIs and modern approaches to assess the interrelations between the results of business education and the requirements of the stakeholders involved.

Limitations of the research

1. In this study, the author explored the interrelations of HEI and IEO. Apart from HEIs, there is a range of other factors such as social context, family context, personal traits, and experience that could impact the evolvement of IEO and its components. Each factor might be considered as a field for extensive independent research.
2. The impact of the content of business education programs carried out by HEIs has not been studied in depth, since the doctoral study focuses on the systemic development of HEIs' activities, which also includes the development of programs.
3. The author did not analyze the impact of the Covid-19 pandemic, lockdowns, and remote education on entrepreneurial competence development and its interplay with IEO components.

Theoretical and methodological framework of the research

The study is based on the theories and approaches elaborated by the leading scholars in the fields of university and business cooperation and stakeholders' management: J. H. Block, V. Galan-Muros, R. E. Freeman, C. Plewa, B. Rivža, A. Straujuma, T. Pavlova, and S. G. Walter. Moreover, the studies on competence development in the changing environment and the increasing role of entrepreneurship as a transversal competence, conducted by such remarkable researchers as B. B. Dunford, M. Frese, I. Lapiņa, L. Manning, K. Oganisjana, S. A. Snell, and P. M. Wright were used.

IEO theories and research conducted by notable scientists, D. L. Bolton, C. Boulton, J. G. Covin, M. C. Howard, W. L. Koe, T. Kollmann, N. M. Levenburg, D. Miller, J. Parnell, and G. Santos were used as a foundation for IEO index construction. The findings of D. H. Peters, M. Pidd, R. Smith, and M. L. Tushman in decision-making in the operations management field were used for holistic model development. Essence framework for holistic system assessment developed by I. Jacobson was applied as a benchmark for elaboration of the Agile methodology for the assessment of business education implementation.

Source of information

Various sources of information were used to obtain a large amount of data:

- the web-based database of the European statistics *Eurostat*;
- European commercial social networking site for academic researchers *ResearchGate*;
- academic research databases *Scopus*, *Web of Science*, *ScienceDirect*, *EBSCO*;
- SEAS Project, Survey on Entrepreneurship Attitude of Students conducted by the Faculty of Management and Economics of Gdansk University of Technology and Faculty of Engineering Economics and Management of Riga Technical University (No. 22000-3.2/5);
- ERASMUS+ program of the European Union within Strategic partnerships for higher education “European Entrepreneurship Training Community: Augmenting academic entrepreneurial training methodology, international

students' entrepreneurship community, and fundamental entrepreneurial university network" (No. 2018-1-LV01-KA203-046974).

The research design

The research design was developed to answer the research questions by applying qualitative and quantitative research methods. The research questions, the goal of the research, and the research objectives prescribe the logics of the research design and is presented on Fig.1.

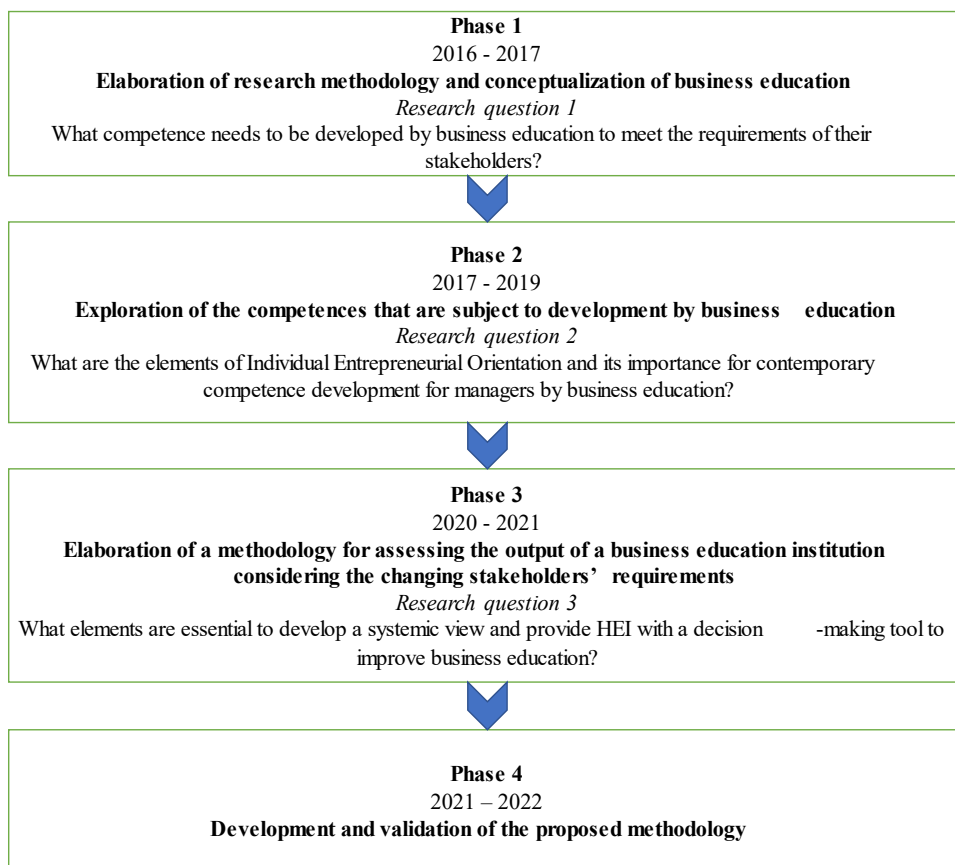


Fig. 1. Research phases.

Phase 1. Elaboration of research methodology and conceptualization of business education

The research phase includes the following steps:

- the analysis of secondary sources in order to form a sound theoretical scientific framework, identify the research problem, and define the research questions;

- te elaboration of research methodology, identification of the goal and objectives of the research, its object, and subject, development of the research design and research methods.

Research Question 1 “What competence needs to be developed by business education to meet the requirements of their stakeholders?” was answered in accordance with the analysis of the scientific literature, which led to the conceptualization of understanding for the following principles:

- defining business education and its institutions;
- stakeholders’ perspective in business education;
- modern trends in business education;
- competences that are required for managers to lead modern organizations.

Conceptual model of Phase 1 of the research and its contextual overlapping with Phase 2 is presented in Fig. 2.

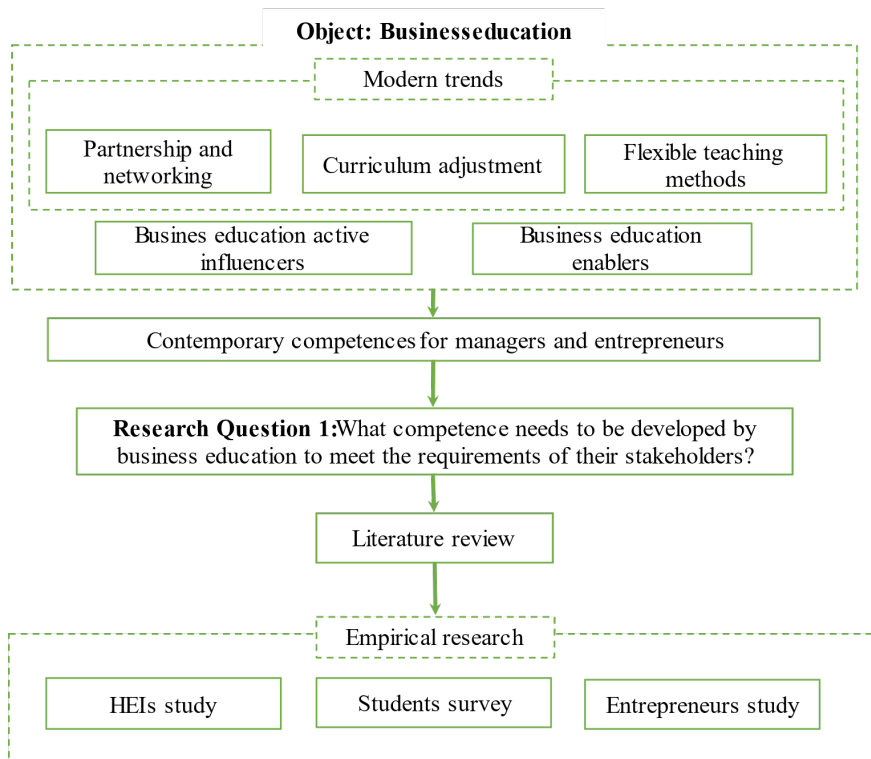


Fig. 2. Conceptual model of Phase 1 of the research.

Phase 2. Exploration of competences that are subject to development by business education

The main focus of the phase was to define the competences to be developed by business education institutions. The exploration of Research Question 2 “What are the elements of

individual entrepreneurial orientation and its importance for contemporary competence development for managers by business education?” put forward the following principles:

- entrepreneurial competence is a desirable outcome developed by HEI;
- individual entrepreneurial orientation could be assumed as a complex indicator to measure entrepreneurial competence.

The conceptual model of this part of the research is presented in Fig. 3.

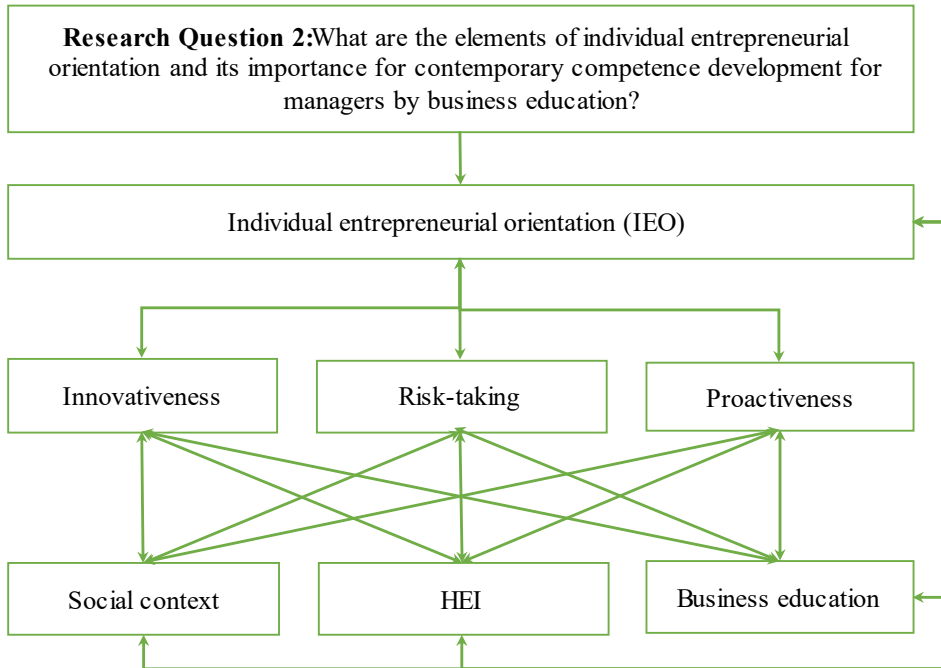


Fig. 3. Conceptual model of Phase 2 of the study.

Phase 3. Elaboration of a methodology for assessing the output of a business education institution considering the changing stakeholders’ requirements

The purpose of Phase 3 is to explore decision-making practices and cross-industry benchmarks for agile and holistic system evaluation and lean management. The phase is a cornerstone to address Research Question 3 “What elements are essential to develop a systemic view and provide HEI with a decision-making tool to improve business education?” Hereafter, a methodology for assessing the output of a business education institution considering the changing stakeholders’ requirements was created.

The conceptual model of this part of the research is presented in Fig. 4).

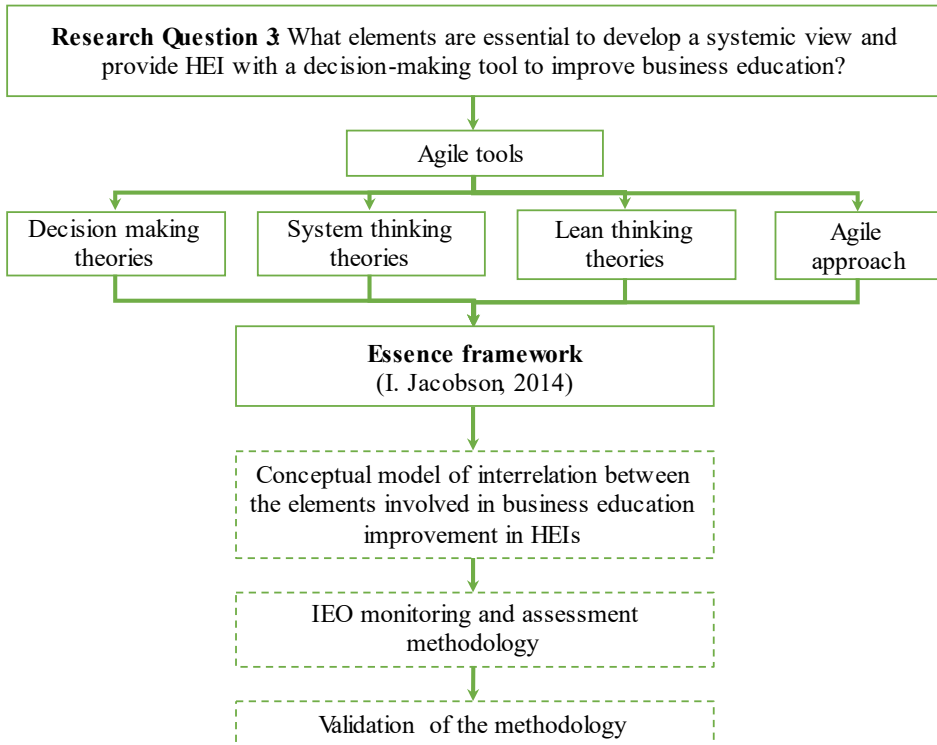


Fig. 4. Conceptual model of Phase 3 of the research (developed by author).

Phase 4. Development and testing of the proposed methodology

The aim of Phase 4 is to investigate answers to Research Question 3 in the context of its practical implication. The research concludes with the evolution and testing of the proposed methodology for assessing the output of a business education institution considering the changing stakeholders' requirements. The methodology considers the interests of major stakeholders and presents a set of tools developed to assess a business education institution's status and the quality of its educational service's output. The methodology was tested in RTU Faculty of Engineering Economics and Management and Riga Business School (Latvia), EKA University of Applied Science (Latvia), Banku Augstskola (Latvia), Gdansk University of Technology (Poland), and Poznan Technological University (Poland).

Research methods

The research methods include both qualitative and quantitative research practices.

Data collection tools comprised:

- surveys (including online surveys);
- focus groups;
- semi-structured interviews.

Qualitative data analysis methods:

- systematic literature review;
- qualitative content analysis of the texts of scientific articles;
- data triangulation.

Quantitative data analysis methods:

- cluster analysis was applied to the coded qualitative data to clarify the relationship among competences groups;
- importance performance analysis was conducted to identify the competences that are less developed and more developed by HEIs and business supporting institutions (further in the text – BSIs);
- descriptive statistics analysis;
- inferential statistics methods include correlation analysis, non-parametric inductive analysis, and logistic regression analysis.

Scientific novelty

1. Competences developed by business education required and expected by the labour market have been identified. It was disclosed that the core competences, including creativity and innovativeness, risk-taking, and proactiveness, are relevant for managers and entrepreneurs.
2. According to the needs of HEIs' stakeholders in three European countries, a level of entrepreneurial competences' importance has been explored, and HEIs' performance in terms of the entrepreneurial competence training has been evaluated. The different stakeholders' groups stressed the significance of competence for employability.
3. Individual entrepreneurial orientation (IEO) index has been developed as a composite indicator based on the pillars of innovativeness and creativity, risk-taking, and proactiveness. The IEO index can measure the students' entrepreneurial competence development level.
4. The IEO research was conducted in five HEIs in different countries to measure the entrepreneurial competence level of the students. The different IEO level is a subject of HEI impact on the formation and development of entrepreneurial competence.
5. A conceptual model that characterizes the interrelationships of the elements involved in the improvement of business education and forms a holistic and systemic view of the business education offered by HEIs has been created in order to assess and monitor the state of the elements developing the system. The model encompasses the HEIs' stakeholders, their requirements, external environment, as well as internal environment and processes.
6. The methodology for assessment of business education implementation following HEI stakeholders' requirements has been constructed. It helps the administration to take decisions on a systemic basis which could increase the competitiveness of the

higher education institution and ensure business education that meets the requirements of the labor market.

Practical application of the research

The created checklists and questionnaires supported materials for the developed methodology for assessing the business education versus their stakeholders' requirements providing the HEI academic staff with a handy tool for the organization's assessment and decision-making.

Hypothesis

The methodology for assessing the output of business education versus their stakeholders' requirements and monitoring of individual entrepreneurial orientation of the HEI's students is essential in establishing and implementing a continuous improvement approach in the organization and introducing a decision-making tool to increase the organization's agility.

Theses for defense

By summarizing theoretical conclusions and the results of the empirical study obtained in the course of developing the Doctoral Thesis, the following theses are put forward for the defense:

1. Business education is a subject of significant transformation within the last decades due to the increasing role of HEIs' stakeholders and their requirements for competences developed by business education.
2. Although the managerial and entrepreneurial competences are partially overlapping, the core competences for managers and entrepreneurs are not different and are related to creativity and innovativeness, risk-taking, and proactivity.
3. Entrepreneurial competence of the business education students can be measured through individual entrepreneurial orientation, which is based on creativity and innovativeness, risk-taking, and proactiveness.
4. The methodology for assessing the output of business education in accordance with their stakeholders' requirements can be applied in HEI to introduce an approach for continuous improvement, develop a systemic view, and provide the academic staff with a decision-making tool to increase the organization's agility.

Approbation and practical application of research results

The research results were presented and discussed at international scientific conferences in Italy, Latvia, Lithuania, and Poland and were further reflected in the corresponding scientific publications.

The research results and methodology developed to assess whether the output of business education meets the stakeholders' requirements were validated from April to June 2022 by six HEIs: RTU Riga Business School (Latvia), EKA University of Applied Science (Latvia), Gdansk University of Technology (Poland), BA School of Business and Finance (Latvia),

Poznan Technological University (Poland), and Faculty of Engineering Economics and Management of Riga Technical University (Latvia).

The research results are applied in the international research SEAS project (Survey on Entrepreneurship Attitude of Students), which has been an ongoing project at the Faculty of Management and Economics, Gdansk University of Technology (Poland) and Faculty of Engineering Economics and Management, Riga Technical University (Latvia).

Scientific publications

The results of the research were reflected in 8 published articles, 6 are indexed in SCOPUS and Web of Science.

1. Nikitina, T., Licznarska, M., Ozoliņa-Ozola, I. and Lapiņa, I. Individual entrepreneurial orientation: comparison of business and STEM students. *Education + Training*, 2022, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/ET-07-2021-0256>

2. Nikitina, T., Lapiņa, I., Ozoliņš, M., Irbe, M., Priem, M., Smits, M., Nemilentsev, M. Competences for Strengthening Entrepreneurial Capabilities in Europe. *Journal of Open Innovation: Technology, Market, and Complexity*, 2020, Vol. 6, No. 3, Article number 62. ISSN 2199-8531. Available from: [doi:10.3390/JOITMC6030062](https://doi.org/10.3390/JOITMC6030062)

3. Nikitina, T., Lapiņa, I. Creating and Managing Knowledge towards Managerial Competence Development in Contemporary Business Environment. *Knowledge Management Research and Practice*, 2019, No.1, pp. 96–107. ISSN 1477-8238. Available from: [doi:10.1080/14778238.2019.1569487](https://doi.org/10.1080/14778238.2019.1569487)

4. Nikitina, T., Lapiņa, I. Today's Business and Entrepreneurship Development: Knowledge Dynamics and Competences of Managers and Entrepreneurs. No: Knowledge Ecosystems and Growth: 14th International Forum on Knowledge Asset Dynamics (IFKAD 2019): Proceedings, Italy, Matera, 5–7 June 2019. Matera: University of Basilicata, Institute of Knowledge Asset Management (IKAM), 2019, 2336.-2348.lpp. ISBN 978-88-96687-12-3. ISSN 2280-787X

5. Nikitina, T., Lapiņa, I. The Concept of Manager: Critical Analysis and Competencies Required. In: 10th International Scientific Conference “Business and Management 2018”: Selected Papers, Lithuania, Vilnius, 3–4 May 2018. Vilnius: VGTU Press, Technika, 2018, pp.236-244. ISBN 978-609-476-119-5. e-ISBN 978-609-476-118-8. ISSN 2029-4441. e-ISSN 2029-929X. Available from: [doi:10.3846/bm.2018.27](https://doi.org/10.3846/bm.2018.27)

6. Nikitina, T. & Lapiņa, I. Influence of Innovative and Knowledge Intensive Environment on Development of Managerial Competences. Proceedings of SOITmC & DEMI of the UNINA 2018 Conference, 26–29 June 2018 at University of Naples Federico II, Naples, Italy.

7. Nikitina, T., Lapiņa, I. Overview of Trends and Developments in Business Education. No: Proceedings of the 21st World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2017). Vol. 2, USA, Orlando, 8–11 July 2017.

Winter Garden, Florida: International Institute of Informatics and Systemics, 2017, pp. 56–61. ISBN 978-1-941763-60-5

8. Lapiņa, I., Ščeuļovs, D., Gaile-Sarkane, E., Dubickis, M., Ņikitina, T. Contemporary Study Process for Enhancement of Employability in the Dynamic Environment. In: Proceedings of the 21st World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2017). Vol. 2, United States of America, Orlando, 8–11 July 2017. Winter Garden, Florida: International Institute of Informatics and Systemics, 2017, pp. 49–55. ISBN 978-1-941763-60-5

The Thesis and 1 article were elaborated under European Social Fund project SAM 8.2.2.0/18/A/017 “Strengthening the academic staff of Riga Technical University in the fields of strategic specialization” (01.04.2021 – 31.03.2022).

The results of the research were presented at the following 16 **international scientific conferences**:

1. Nikitina, T. and Lapiņa, I. Agile Approach and Systemic Decision Making for Higher Educational Institution Assessment. RTU SCEE 2022, Riga, Latvia, 13/10/2022.
2. Nikitina, T., Ozoliņa-Ozola, I. and Lapiņa, I. Higher Education and Individual Entrepreneurial Orientation: Empirical Evidence from Students in Latvia. ENTIME 2022, Gdansk, Poland, 21/04/2022 – 22/04/2022.
3. Nikitina, T., Ozoliņa-Ozola, I., and Lapiņa, I. Higher Education and Individual Entrepreneurial Orientation: Empirical Evidence from Business Students in Latvia. RTU SCEE 2021, Riga, Latvia, 15/10/2021.
4. Nikitina, T., Licznerska, M., Ozoliņa-Ozola, I., and Lapiņa, I. Understanding Differences in Individual Entrepreneurial Orientation Between Business and STEM Students. Society of Open Innovation: Technology, Market and Complexity (SOI) 2021, 12/07/2021 (Riga, online).
5. Ņikitina, T., Lapiņa, I., Ozoliņš, M., and Irbe, M. M. Competences for Strengthening Entrepreneurial Capabilities in Latvia. SCEE`2020, Riga, Latvia, 16/10/2020.
6. Ņikitina, T., Lapiņa, I., Ozoliņš, M., and Irbe, M. M. Competences for Strengthening Entrepreneurial Capabilities: The European Entrepreneurship Training Community Project. Society of Open Innovation: Technology, Market and Complexity (SOI) 2020, 10/07/2020 – 13/07/2020 (Korea, online).
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8. Ņikitina, T. & Lapiņa, I. Today’s Business and Entrepreneurship Development: Knowledge Dynamics and Competences of Managers and Entrepreneurs. IFKAD 2019 Conference, Arts for Business Institute University of Basilicata, Matera, Italy, 05/06/2019 – 07/06/2019.

9. Nīkitina, T. & Lapiņa, I. Managerial Competences in Knowledge-based Organizations. 59th International Riga Technical University “Scientific Conference on Economics and Entrepreneurship, SCEE’2018, Rīga, Latvia, 18/10/2018.
10. Nīkitina, T. & Lapiņa, I. Influence of Innovative and Knowledge Intensive Environment on Development of Managerial Competences. SOItmC 2018 Conference, University of Naples Federico II, Naples, Italy, 26/06/2018 – 29/06/2018.
11. Nīkitina, T. & Lapiņa, I. The Concept of Manager: Critical Analysis and Competencies Required. 10th International Scientific Conference, Business and Management 2018, Vilnius Gediminas Technical University, Vilnius, Lithuania 03/05/2018 – 04/05/2018.
12. Nīkitina, T. & Lapiņa, I. Managerial Competences Development in the Context of the Fourth Industrial Revolution. 58th International Riga Technical University “Scientific Conference on Economics and Entrepreneurship, SCEE’2017, Riga, Latvia 13/10/2017 – 14/10/2017.
13. Nīkitina, T. & Lapiņa, I. Contemporary Study Process for Enhancement of Employability in the Dynamic Environment. 21st World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2017), USA, Orlando, 8–11 July 2017.
14. Nīkitina, T. & Lapiņa, I. Overview of Trends and Developments in Business Education. 21st World Multi-Conference on Systemics, Cybernetics and Informatics (WMSCI 2017), USA, Orlando, 8–11 July 2017.
15. Nīkitina, T. “Manager’s Competence to Lead Cross-Cultural Teams”, Proceedings of International Scientific Conference Economics and Management, ICEM 2017, Riga, 10/05/2017 – 12/05/2017.
16. Nīkitina, T. “Modern Business Education Trends”, Proceedings of RTU 57th International Scientific Conference, “Scientific Conference on Economics and Entrepreneurship” (SCEE’ 2016), Riga, 29/09/2016 – 30/09/2016.

Contents and volume of the Doctoral Thesis

Chapter 1 “**Business Education and Trends in Higher Education Development**” provides a comprehensive review of the business education’s background, its institutions, stakeholders, and the environment where the actors operate. It describes accreditation standards and institutional ranking systems for HEIs in Europe and worldwide, presents statistics on the number of students in business education in Europe and over the globe, and outlines the interest groups and their interplay with business education bodies. The chapter explores the trends in business education implementation that are caused by transformations in the external environment. Contemporary competences for managers and entrepreneurs and entrepreneurship as a transversal competence are described at the end of the part. The qualitative content analysis and cluster analysis results processed by Nvivo to identify relations within the competence groups are presented at the end of the chapter.

Chapter 2 “**Entrepreneurial Orientation and Competence Development**” explores the professional competences required in the labor market, assessing in detail the importance. The

first part of the chapter presents the output of focus groups and interviews conducted with representatives of HEIs, BSIs, and entrepreneurs, as well as results of importance and performance analysis of the findings. The chapter presents the triangulation of the results of the literature analysis and interviews. The second part of the chapter discusses the results of the survey on the level of entrepreneurial orientation of the students. The obtained data set is processed by SPSS, and descriptive statistics methods were applied to identify the correlation between the elements of the composite entrepreneurial index, impact of HEI, and other essential factors.

Chapter 3 “**Enhancement of Business Education Implementation Based on Stakeholder Requirements**” in the first part examines different agile tools for system evaluation and decision making, including the methods, and their application in business education as well as the Essence approach for a system assessment and its adoption *per se*. The chapter describes the developed methodology for assessment of business education implementation and HEI continuous improvement, which is based on a decision-making approach borrowed as a cross-industry benchmark in the software development industry. The supporting tools and materials on how to make the system work are included in the chapter too. Finally, the chapter reports on the results of the application of the methodology to assess the output of business educational institutions in RTU Riga Business School (Latvia), EKA University of Applied Science (Latvia), Gdansk University of Technology (Poland), BA School of Business and Finance (Latvia), Poznan Technological University (Poland), and Faculty of Engineering Economics and Management, Riga Technical University (Latvia).

1. BUSINESS EDUCATION AND TRENDS IN HIGHER EDUCATION DEVELOPMENT

1.1. Business Education Development

To understand the role of business education and its underlying processes, an introduction to its historical background is required. The first institutions were founded at the beginning of the 17th century in Plymouth (Rosett, 2004) where students were trained primarily in book-keeping and business correspondence administration. Then the first elements of business education appeared in Germany in 1727, in Sweden in 1750, later in Russia (Moscow) in 1804, in France (Paris) in 1819, afterward in Austria (Vienna) and Hungary (Budapest) in 1856, and in 1868 in Italy (Venice) (Spender, 2016). Massively in Europe, the business education appeared during the last two decades of the 19th century due to the changes in the European society that were brought by the Industrial Revolution when the full-time schools were found to increase qualifications of low and middle management “in trade, industry, and banking” (Reinisch & Frommberger, 2004).

Furthermore, the modern views on business education and the science of management were shaped later in the United States when in the 19th century the pioneers in the field were established: Wharton Business School at the University of Pennsylvania and the Haas School of Business at the University of California, Berkeley as well as the famous Harvard Business School (HBS) was founded in 1919, resulting in the establishment of 40 schools in the country by 1925 (Rosett, 2004). Regarding curricula of the new educational institutions, students were trained in foreign languages, English literature, philosophy, Latin, mathematics, and physics, and were trained in leadership, “economic and mercantile science” (Rossett, 2004), actual business practices, and techniques.

Nowadays, business education involves teaching students business management fundamentals, theories, and training in business practices. Curricula became more sophisticated and offered core courses in marketing, human resources, business ethics, and economics as well as provide a wide range of elective courses in other disciplines, for instance, management of non-profit organizations or entrepreneurship (Walter & Block, 2016). Some institutions provide advanced courses on strategic management of different organizations, such as family businesses, social enterprises, new technologies ventures, or start-ups. For example, London Business School (London Business School Programmes, n.d.) is ready to provide dedicated courses to teach future business administrators how to manage a growing business, handle mergers and acquisitions, or specialize in healthcare, sports, or entertainment. Hence the modern view of business education is represented in Merriam Webster dictionary (Definition of Business Education, n.d.) which states that business education comprises training in subjects (such as business administration, finance, and accounting) that help develop general business knowledge or commercially valuable skills.

Actual statistics data emphasizes the topicality of the research in the context of European countries – across the EU-27, one-fifth of all students in tertiary education were studying

business, administration, or law, and the population is considered the largest – this explains the topicality of the research. The proportion of the students enrolled in tertiary education in business, administration and law demonstrate a similar pattern. In the EU-27, there were 3.9 million tertiary students in 2019 and 3.7 in 2013 (Eurostat, 2020).

Referring to the historical and actual background of business education in Latvia, the first university in the territory of Latvia was opened on 14 October 1862 in Riga – Riga Polytechnic (now Riga Technical University). The HEI had six departments including the Trade Department, which is a precursor of business education. Since the restoration of independence in 1991, Latvian higher education has adapted to European and global higher education requirements, and the first business schools were founded: in 1991 RTU Riga Business School was founded – a management-education institution within Riga Technical University. In accordance with Latvian Higher Education Quality Agency, today there are 65 educational institutions in Latvia providing 156 accredited programs in the field of real estate management, administration, and general management.

The review of secondary sources for the exploration of the main stakeholders of HEIs and their perspective on business education is given in the next sub-chapter.

1.2. Business Education Environment and Stakeholders

Business education today is a complex system reflecting changes in the external environment and responding to the challenges rising around the globe. The business education operates to meet their stakeholders' requirements and provide the service in accordance with quality assurance standards as well as standards for HEIs and striving for a higher position in the institutions' ranking. A schematic representation of the interrelations of the active influencers and enablers impacting business education institutions is displayed in Fig. 1.1. The diagram also portrays examples of the agencies, associations, policymakers, and ranking bodies operating within the system. It has to be noted that the list is explanatory, and it is not intended to provide an ultimate list of the bodies.

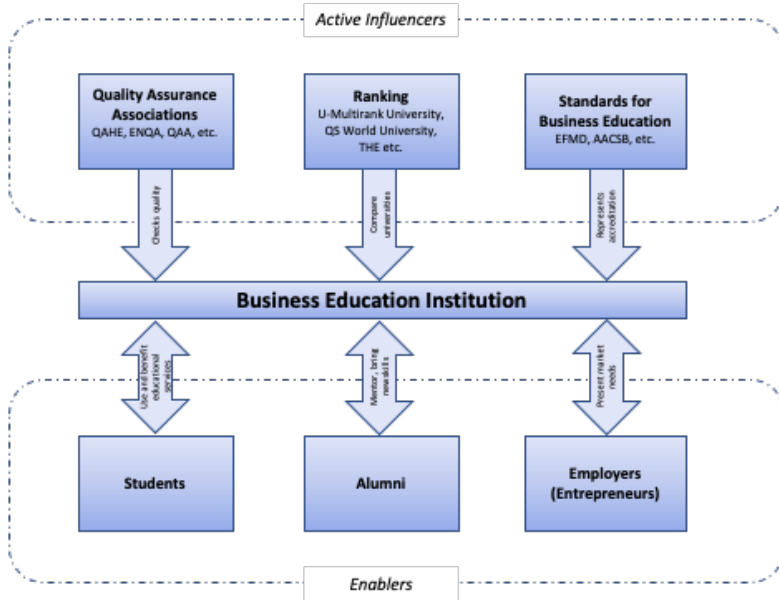


Fig. 1.1. Interrelations between active influencers and enablers impacting business education institution (created by the author).

The author of the Thesis assumes that the stakeholders are represented by the following groups of interests: students, entrepreneurs, and authorities that regulate the quality assurance of HEIs. For the purpose of the research, the author divides the stakeholders into two groups. The regulatory bodies, quality assurance institutions, and higher education ranking organizations are defined as active influencers, prescribing their recommendations to HEI. Students, alumni, and employers – the groups of stakeholders having their requirements and being affected by the output of business education, are defined as enablers.

The following subchapter investigates the changes in business education implementation within the last decade.

1.3. Trends in Business Education Implementation

The needs, expectations, and regulations that are communicated by groups of interests are subject to change due to transformations in the external environment. Recent changes in the external surroundings, such as internationalization of education, technological innovations, and labor market demands for new skills, inevitably lead to a shift in perception about business education and society's expectations about the institutions. The trends in business education implementation are grouped in Fig. 1.2.

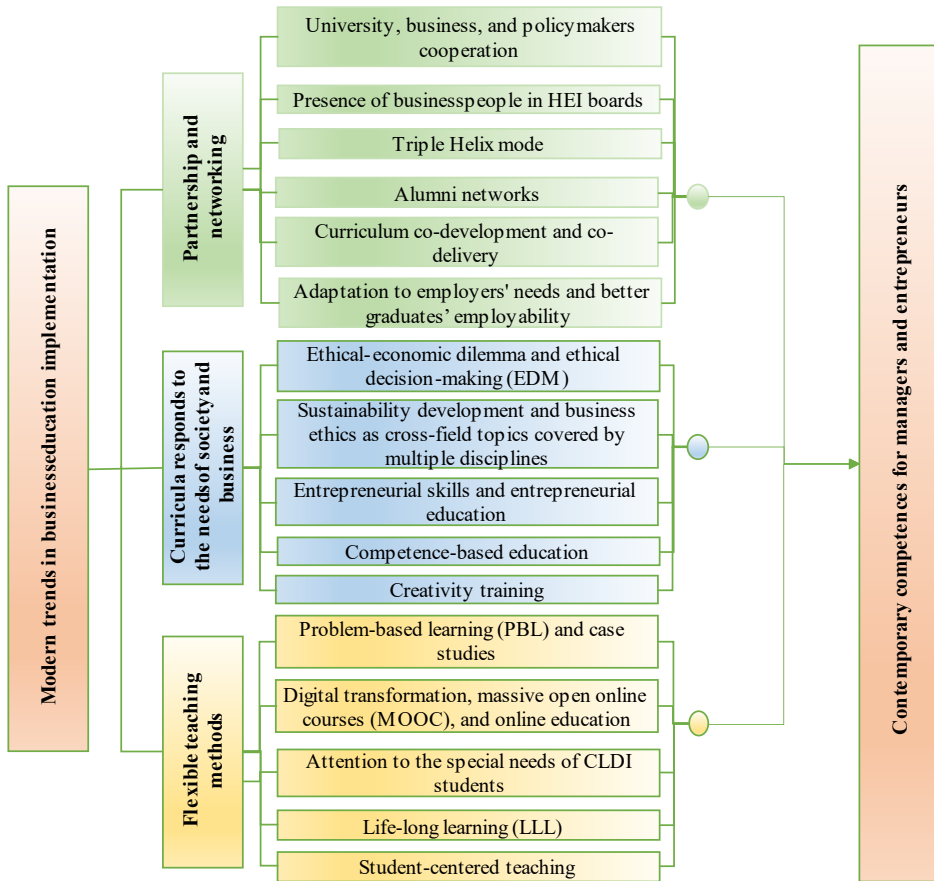


Fig. 1.2. Modern trends in business education implementation.

The following factors have affected the changes in the field in recent years: 1) HEIs collaboration with businesses, policymakers, and students in curriculum design has a positive effect on the outcome of educational programs in business schools; 2) competency-oriented approach in curricula design mitigates the discrepancy between culturally and linguistically diverse students and domestic students as well as increases the employability of graduates and prepares them for lifelong learning; 3) use of IT enables the application of new teaching methods and fosters the development of online education as well as enhances the availability of training in business disciplines worldwide, promoting education and lifelong learning; 4) ethics, social responsibility, and principles of responsible management education stimulate a critical leadership approach in teaching future business leaders that raise many challenges for educators in terms of the course design and student-oriented teaching methods.

Hence the major modern trends in business education implementation are as follows: 1) increasing importance of university and business cooperation; 2) significance of curriculum

adjustment; 3) flexible teaching methods; 4) growing role of competence-based education; 5) increasing importance of the stakeholders' management.

The trends are aimed at development of contemporary competences for managers and entrepreneurs. Entrepreneurship is considered a transversal competence subject to integration into the educational process to shape the students' entrepreneurial behavior and orientation.

The next sub-chapter outlines the research of the competences expected from the ones who lead and manage modern organizations. The part includes a qualitative content analysis of the interpretations of the demanded competences and a cluster analysis of their relationships.

1.4. Contemporary Competences for Managers and Entrepreneurs

Managerial professional competences are directly related to the changes in the external environment. It was identified that managers operating in the contemporary environment have to act efficiently in different roles – entrepreneur, leader, and manager. The author conducted a literature review, and the following research hypothesis was developed by the author: “Changes in the external environment caused by the impact of the knowledge-intensive industries influence the development of new competences for a manager”. The main research question was as follows: “Do the skills and abilities identified by other researchers exploring managerial competencies in modern knowledge-intensive organizations resonate with the Manager's competence groups developed by Lapiņa *et al.* (2015)?”

The author applied scientific literature content analysis to answer the main question of the research. To perform the analysis, Nvivo for Mac version 11.4.3 (2084) was applied for coding, while Nvivo 11 for Windows version 11.4.1064 (64 bit) was used for cluster analysis. The author has analyzed 34 articles by different researchers to identify that in the context of modern organizations the following abilities and key competencies having the most robust relations shape a set of managerial competencies: 1) ability to analyze and evaluate; 2) ability to react, delegate, and divide risks; 3) ability to form relationships inside and outside of the organization; 4) collaboration; 5) ability to create (creativity); 6) willingness to learn; 7) self-organization and self-development; 8) erudition; 9) teamwork; 10) leadership.

As these items belong to the different competencies groups, the findings support the hypothesis that modern organizations influence the development of managerial competence requiring a harmoniously developed personality whose abilities and competencies are progressed in multiple dimensions: 1) innovative and learning competencies; 2) personal, communication competencies, and leadership; and 3) professional competencies. Taking this into account, the author draws a conclusion about a request to develop in the future leaders such elements of managerial competence as innovativeness, proactiveness, and risk-taking.

2. ENTREPRENEURIAL ORIENTATION AND COMPETENCE DEVELOPMENT

2.1. Entrepreneurial Competences and Managerial Competences

Exploring the entrepreneurial competences, the author (Nikitina & Lapiņa, 2019) analyzed the relationship between managerial and entrepreneurial competences and identified that managers and entrepreneurs partially share the same set of competencies, and the importance of the competencies varies for each of the groups. Hence it was required to fill the gap in the knowledge about entrepreneurial competence taught (performed) by HEIs and graduates' competence demanded (considered as necessary) by the market for prompt participation in new value creation.

The aim of the study was to analyze the correlation between the actual market demand for competences to launch and develop new businesses until the point of hypothetical equilibrium, between control and changeability in the entity, and competence training in higher education institutions and business support institutions. The main research question was: Are the entrepreneurial competences demanded by the domestic markets in Finland, Latvia, and the Netherlands aligned with the entrepreneurship education and business support policies?

The studies were performed as part of the ERASMUS+ KA2 Strategic partnership project “European Entrepreneurship Training Community”, where the Entrepreneurship Competence Framework “EntreComp” was chosen as a benchmark for assessing emerging and demanded skills in the labor market. The framework comprises three competence areas: “Ideas and opportunities”, “Resources” and “Into action”. Each area includes five competences, which together are the building blocks of entrepreneurship as a competence.

To answer the research question, the interview sessions were conducted in three European countries – Finland, Latvia, and the Netherlands.

The evaluation of the importance of entrepreneurship competences was derived from the focus group activity and resulted in the first half of the importance-performance analysis (IPA). IPA is a methodological approach that was defined by the author to evaluate the effectiveness of the entrepreneurship training methodologies in higher education institutions in three countries – Finland, Latvia, and the Netherlands. During the next phase of the research, the semi-structured interviewing of representatives of HEIs and BSIs was applied for the collection and processing of information. The aim of interviewing higher education institution representatives, including the study program management and academic staff and business supporting institutions, was to measure the performance levels of training the previously identified entrepreneurship competences.

All the activities described above were summarized in a comprehensive Importance-Performance Analysis (IPA) to investigate the relationship between the importance of the competences required by the market and the quality, or performance, of the competences that are developed by higher education and business support institutions. The author applied the IPA

method to analyze and visually represent inputs from both respondent groups: entrepreneurs and institutions that train students for entrepreneurship – HEIs and BSIs.

It was discovered that motivation and perseverance, spotting opportunities, planning and management, working with others, vision, taking initiative, self-awareness and self-efficacy, valuing ideas, coping with uncertainty and risk, creativity and activating the market are evaluated as the most demanded competences by the industry representatives. It was found that there are many variances as well as similarities in entrepreneurial competence distribution among the IPA quadrants that lead to understanding that entrepreneurial education needs to be more harmonized with the expectations of the labor market. Additionally, the data and theory triangulation revealed the core elements for entrepreneurial competence development in the context of HEI, these elements are defined as proactiveness, risk-taking, and innovativeness. These allow to make the following conclusions about the scientific novelties of the research:

- According to the needs of HEIs' stakeholders in three European countries, the level of importance of the competence as well as the level of the competence development by the university were defined within the scope of the research. The different stakeholders' groups stressed the significance of the competence for employability.
- Competencies developed by business education and required and expected by the labor market are identified. It was discovered that the core competences, including creativity, risk-taking, and proactiveness, are relevant for managers and entrepreneurs.

The following sub-chapter presents the analysis of scientific literature on individual entrepreneurial orientation (IEO) theories, IEO survey methodology, questionnaire design, and results of the research of the students' stakeholder group.

2.2. Individual Entrepreneurial Orientation (IEO)

The entrepreneurial orientation (EO) framework was initially developed by Miller (1983) who introduced innovation, proactiveness, and risk-taking as measurable extents for entrepreneurship.

In 2007, Kollmann *et al.* proposed a framework explaining individual entrepreneurial orientation and transferring EO construct to the individual level (Kollmann *et al.*, 2007). Later the idea was evolved by Bolton and Lane (2012), who introduced an individual-level entrepreneurial orientation (IEO) measurement instrument for entrepreneurial education or venture capitalists' decisions; the core elements of the method are creativity and innovativeness, risk-taking, and proactiveness, where

- risk-taking is understood as the ability of an individual to bold actions, taking risks for obtaining high returns;
- creativity and innovativeness as a high degree of interest in trying new ways of doing things or solving problems;
- proactiveness is considered individual preferences to plan and take the initiative for the future or act in anticipation of future demand.

The conceptual model was developed by taking into account the works of the other researchers; it was assumed that the students' perception of their entrepreneurship abilities

could be measured through the prism of IEO formation and development during the studies in HEI. According to theories, creativity and innovativeness (Bolton and Lane, 2012; Kollman *et al.*, 2007; Levenburg and Schwarz, 2008), risk-taking (Bolton and Lane, 2012; Kollmann *et al.*, 2007), and proactiveness (Bolton and Lane, 2012; Kollmann *et al.*, 2007; Gelderen *et al.*, 2008) make an impact on the formation of the IEO (Santos *et al.*, 2020; Covin *et al.*, 2020; Howard, 2020), while the external factors such as education in the field of business and management (Parnell *et al.*, 2003; Sowmya *et al.*, 2010; Farashah, 2013), HEI (Koe, 2016), and social context (Baughn *et al.*, 2006; Kollmann, 2007) might serve as substantial supporting factors for shaping IEO and its elements. Hence it is possible to state that the research addresses students' attitudes toward a potential entrepreneurial career across IEO and its measures. As expected results might be defined the strong IEO score demonstrating the individual desires to run their own business activities as an entrepreneur, or the opposite – if the student is not interested in an entrepreneurial career, then his/her IEO will have a lower rank.

Hence the central question of the study (Q1) was defined as “Whether Creativity and innovativeness, proactiveness, and risk-taking of the students relate to their IEO?”

The goals set at the beginning of the research determined the research methodology, namely, the use of a quantitative approach, as this study seeks empirical support for created hypotheses that have been developed based on the consistent review of the secondary sources. Constructing the questionnaire for the research, the author included the measures used by other researchers to validate the findings in the sample of students doing their major in business and STEM undergraduates.

The studies were performed as a part of the SEAS Project (Survey on Entrepreneurship Attitude of Students), which has been an ongoing project in the Faculty of Management and Economics at Gdansk University of Technology (Poland) since 2008, while Lviv Polytechnic National University (Ukraine), Riga Technical University (Latvia), Sofia University St. Kliment Ohridski and Technical University of Sofia (Bulgaria), as well as Vilnius Gediminas Technical University (Lithuania) joined the project as research partners in 2019 – the year 2019 edition, for the first time, became international. The survey was conducted among the 1st-year students in the period 2019 to 2020. Of the research participants, students doing their major in business and students studying STEM disciplines represented twenty different fields of studies. The total number of respondents was 3631, of which 1029 (28 %) students were from Poland, 746 (21 %) from Ukraine, 372 (10 %) from Latvia, 205 (6 %) from Bulgaria, and 1279 (35 %) from Lithuania. Within the researched sample, the proportion of students doing their major in business-related disciplines and STEM students was 541 (15 %) and 3070 (85 %), respectively.

A set of statistical tests was performed using SPSS version 23. The measurement scale was analyzed through a reliability test. The value of Cronbach's alpha for the IEO scale was 0.86, indicating high internal reliability of the measurement scale (Nunnally, 1978).

Results of IEO and its components are represented by mean score 3.64 ($SD = 0.73$). Visual representation of the country-level findings stated above is shown in Figs. 2.5–2.8.

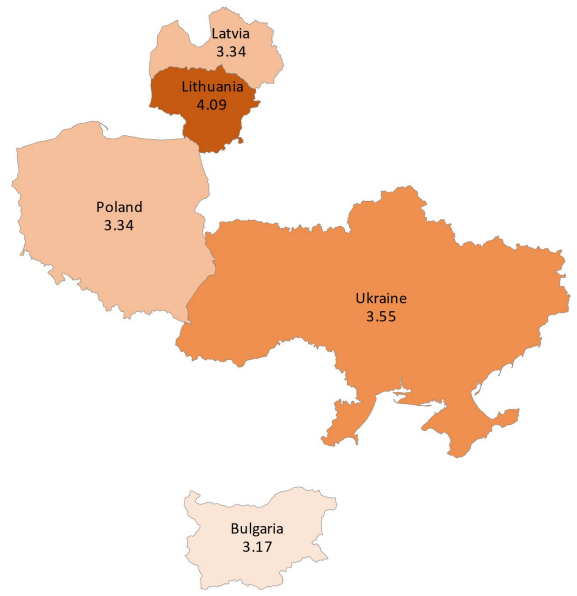


Fig. 2.1. Results of IEO and its components are represented by the mean score per country.

The entrepreneurial competence of the student stakeholders' group was measured through the prism of their readiness and attitude towards the potential entrepreneurial career. Individual entrepreneurial orientation index, based on creativity and innovativeness, risk-taking, and proactiveness components, was developed to evaluate the level of entrepreneurial competence among the students. It was discovered that HEI impacts the formation and development of creativity and innovativeness, risk-taking, proactiveness, and IEO. However, it was also detected that business educational institutions do not significantly impact entrepreneurial orientation development compared to other HEIs, which corresponds to the results of the first phase and supports the statement that entrepreneurial education is insufficiently harmonized with the market needs. Finally, the research results demonstrated the importance of the social context in developing entrepreneurial competence.

3. ENHANCEMENT OF BUSINESS EDUCATION IMPLEMENTATION BASED ON STAKEHOLDER REQUIREMENTS

3.1. Agile Tools for System Evaluation and Lean Management

The concept of agility was coined in information technology – the industry was revolutionized with agile innovation methods more than two decades ago, improving the time to market, the quality of the developed products, and the productivity and motivation of IT teams. Agile methodologies are spreading across different industries, including automotive manufacturers (Saab and John Deere), logistics providers (C. H. Robinson) and even wineries (Mission Bell Winery). Porto Business School continued the idea of agile methodologies application by presenting a case study on a new MBA designed and marketed in 5 months at a recent Baltic Management Development Association Conference in September 2020 (Porto Business School, n.d.).

Considering HEI as a system, the author explores whether it is possible to increase the agility of the organization by applying the modern agile methodologies as a cross-industry benchmark used initially in software development business where agile methods have been applied for the last two decades and where nimble decision-making is considered as a collaborative, iterative and transparent process (Agile Software Development Manifesto, n.d.).

Using the benchmark for tracking the status of the academic endeavor, the agile framework can provide HEIs with a tool for process management and decision-making to plan the future actions. Considering agility as one of the critical characteristics of HEI nowadays, the author of the Doctoral Thesis assumes that it is possible to apply agile software development practices – Essence framework – to the educational institutions industry.

In software development, Essence alpha state approach is a governance approach to evaluate the status of a system; the methodology aims to develop a holistic view of the multiple elements of a system that forms an integrated model for decision-making. Alphas states are changed due to activities performed by the team to implement a solution, meeting stakeholders' needs. Alphas states are checked with control questions shaped as checklists. The framework is based on the Essence kernel, which has become a new industry standard due to its simplicity and versatility. Alphas help track the status of a system or a project, plan the following steps, and represent key performance indicators. OMG Standard defines Essence alpha state cards as an entire method, life-cycle, process, practice, and philosophy that can be applied anywhere (OMG Standards, 2018).

There are several successful cases of the framework implementation in other industries, as Essence contains no strict regulations for implementation, but instead, it is a basis on which existing or new methods can be described, compared, and improved; for example, Fujitsu UK has been using Essence, the particular Alpha state checklists to improve the iteration planning with customers (Cunningham, 2013). Munich Re, a large insurance company, reported about a

rapid and sustainable agile transformation caused by adopting Essence to the needs of the organization (Perkens-Golomb, 2013).

Essence was manifested as a kernel of essential universal elements in these cases, providing a roadmap guiding improvement efforts towards progress and health in a holistic manner of basic dimensions united by seven Alphas: stakeholders, opportunity, requirements, system, work, way of working, and team. Each of the Alphas has a small set of pre-defined states to evaluate progress and health. A collection of predefined checklists is associated with each state. Alphas represent the most important aspects to monitor and progress.

To recapitulate, there is evidence that the Essence framework might be implemented in other industries besides the software development industry; hereafter, the author of the Thesis considered the above mentioned examples as proof of the approach adoption to HEI and business school needs. The following sub-chapter explores the possible approach application in business education environment.

3.2. Essence Approach Adoption in HEI

As the Essence approach had not been academically researched in Latvia in the field of HEIs management, the author of the Thesis developed a methodology based on Essence implementation. The methodology is aimed at the organization assessment and its continuous development by perceiving the educational institution as a system, considering its stakeholders, and their requirements. The developed methodology is described in the following paragraphs.

HEI Customers' Area of Concerns and Its Elements

To describe the system, initially, its elements – the seven Alphas – must be defined, namely, stakeholders, opportunity, requirements, design, work, the way of working, and the team. The Essence notation prescribes understanding the Alphas as constituents of an ecosystem which must be considered to succeed when developing a solution. Assuming that Alphas states are changed due to the activities performed by the team to implement the solution, meeting stakeholders needs, the author of the Thesis determines the following elements conditions of which must be monitored and controlled for tracking the status of the whole HEI system:

Stakeholders are a group of people who affect or are affected by the target system and communicate the requirements for the design, give feedback to the team and ensure that the system is developed correctly. Hence the key enablers and active influencers on business education implementation are students, the employers (represented by entrepreneurs), and quality assurance authorities are also defined as stakeholders' elements.

Opportunity is a set of circumstances which makes it appropriate to challenge the *status quo*. In the context of business education, it is changes in the external environment.

Requirements portray what the HEI must deliver to address the changes in the external environment and satisfy the stakeholders.

System is a higher educational institution as such, which provides its primary value by fulfilling the stakeholders' requirements.

Work is the study process organized and performed by the HEI's team.

Way-of-working is a tailored set of practices and tools used by the team to guide and support their work; hence, the academic staff's methods, techniques, and approaches to deliver the educational content.

The team is a group of people actively engaged in the system's development, maintenance, delivery, or support. In the scope of the Thesis, it is the academic staff of an HEI.

In outlining each area of concern for HEIs, the author assumes to define Alphas as elements to avoid confusion and misunderstanding in original terminology.

The visual model of the elements of HEI improvement and their relationships in the predefined areas of concern of business schools are represented in Fig. 3.1.

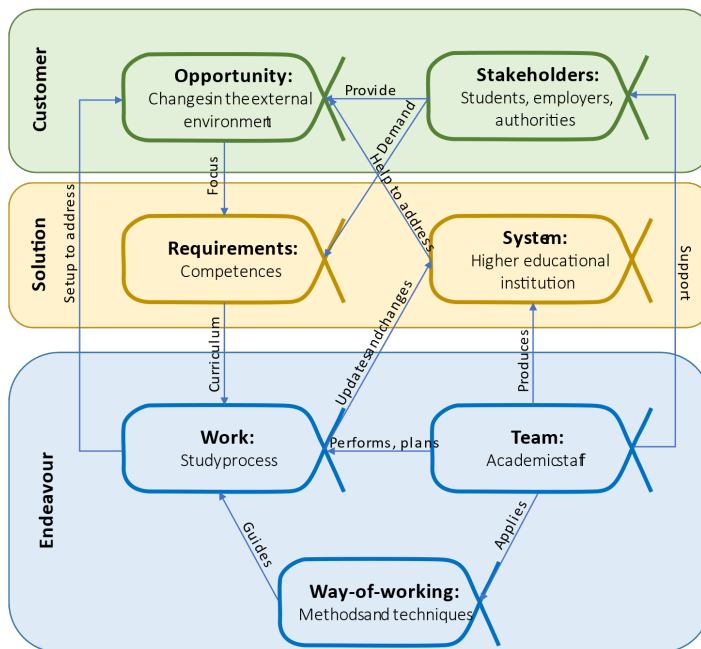


Fig. 3.1. Interrelation between the elements involved in business education improvement in HEIs (developed by the author).

Therefore, the methodology for assessing the output of a HEI provides insight into the assessment process, which is the following:

1. Estimating the state of each element (each element of the System) at the initial stage of the assessment process is a mandatory step in establishing a holistic view of the system.
2. The holistic view develops over time as the states of elements change; hence the progress is a subject for the review and control of changes of states.
3. Elements help to track the system status and plan the following steps at the individual, team, and organizational levels.

The following sub-chapter presents the methods and materials that are integral parts of the methodology for assessing whether the business education meets stakeholders' requirements.

3.3. Elaboration of Methodology for Assessment of Business Education Implementation

The elaborated methodology is a set of questionnaires and other materials developed within the framework of methodology for assessing whether the output of business education HEI meets its stakeholders' requirements. The methodology covers the whole cycle of its implementation. The assessment of whether the production of business education HEI meets stakeholders' needs consists of nine steps. The process flow is described below.

Step 1. Apply essence checklists for HEI to assess the status quo

The assessment process begins with applying Essence checklists for a business educational institution to determine its *status quo*. The appointed academic staff members evaluate the task on a regular basis, i.e. annually. The stakeholders' group to be addressed is the HEI's academic staff. There is no strict recommendation for the process start time.

Determining of the overall state of the business education implementation is the sum of the definitions of the states of elements. The assessment is done by applying the checkpoints associated with each form of the respective state graphs, and the state is determined to be the most advanced if the state graph is consistent with the currently met checkpoints. Element states are aimed to track the element's status and might be checked with control questions shaped as checklists. The element's state is considered granted if all statements in the checklist state are positive. As soon as there is at least one negative statement, it is a trigger to stop and assign the form to the element. The elements for assessment are:

Element 1. Stakeholders: Students, businesses, and other interested bodies

1) Element 2. Opportunity: Changes in external environment

2) Element 3. System: Business School

3) Element 4. Requirements: Competences

4) Element 5. The team: Academic Staff

5) Element 6. Work: Study process

6) Element 7. Way-of-working: Methodology

The academic staff members are asked to analyze the status of elements and choose the one most closely describing the element's status proposed in the questionnaire and checklist that is relevant to the discussed element. The example of a supporting tool, a checklist, for Element 1 is presented in Table 3.1.

Table 3.1

Checklist for Stakeholders' Element

Element 1	State	Checklist	Y/N
Stakeholders: students, business, and other interested bodies	Recognized	Stakeholders' groups identified	
		Key stakeholders' groups identified (e.g., students, industry representatives, accreditation authorities).	
		Responsibilities of stakeholder representatives are defined.	
	Represented	Representatives from students (e.g., Students Committee).	
		Entrepreneurs (e.g., Advisory Board).	
		Authorities have been appointed.	
		Their responsibilities are agreed.	
		Collaboration approach is agreed.	
	Involved	Representatives from students, entrepreneurs, and authorities assist the academic staff in their responsibilities.	
		They provide the team with the feedback and participate in decision making.	
		They communicate on changes in their stakeholders' group.	
	In agreement	Stakeholders' representatives agree on their minimal expectations for the changes in system.	
		Students, entrepreneurs, and authorities' representatives are positive about their involvement in the work.	
		Students, entrepreneurs, and authorities' representatives agree on how their priorities are balanced.	
	Satisfied with implementation	The stakeholder representatives confirm that they agree that changes in business school are ready for use.	
	Satisfied with use	Stakeholders are using the new system and providing feedback on their experience (students apply for courses, industry reps launch new initiatives with BS, authorities approve accreditation papers).	
		The stakeholders confirm that the new system meets their expectations (formal and informal feedback).	

The determination of element states can happen at any point, since evaluation of checkpoints is a manual activity. When checkpoints are considered, the result can be that the element state regresses and its current state is set back to an earlier form of its lifecycle. Once the overall condition of the business education implementation is determined, the output can be used to generate advice on how to proceed. This can be understood as guidance which takes a set of pairs of the element's state and target state and returns a set of newly discovered activities – a “to-do” list to be performed by the team. The essential idea is to assemble the to-do list by exploring each element's state and identifying those activities in the element target state which are among its completion criteria.

Step 2. Conduct a 7-question online survey to measure individual entrepreneurial orientation in the target group of students

The next step in the assessment is conducting a 7-questions online survey measuring IEO index components in order to assess individual entrepreneurial orientation in the target group of students. A member of the academic staff who is appointed for the task conducts the evaluation annually. The stakeholders' group to be addressed is the HEI students.

Policymakers consider entrepreneurship development as one of critical success factors for future employability. Individual entrepreneurial orientation (IEO) index was developed by the author to evaluate the entrepreneurial competence of students doing their major in business to meet market needs. IEO index is focused on the measurement of students' self-assessment of their creativity and innovativeness, proactiveness, and risk-taking. The indicator is recommended for monitoring and control on an annual basis as a measure for quality evaluation of the educational services provided to the students (who act as clients in this case). It is suggested to include in the sample students from different groups.

Step 3. Conduct an online survey to identify competences that are prioritized by the academic staff

The next step in the assessment is conducting an online survey to identify competences prioritized by the academic staff. The appointed members of the academic staff conduct the evaluation for the task annually. The stakeholders' group to be addressed is the HEI's academic staff members.

The recommended list for the questionnaire is derived from the Entrepreneurial and Managerial Competences List, created by Nikitina and Lapiņa (2019). Experts from the academic staff evaluate the importance of the competence listed in the questionnaire below. The output values are calculated as weighted values, and the most demanded competencies are the top 3 with the highest weighted rank from the list. The lowest demanded competences, the top 3 with the lowest weighted grade from the list, are identified, and the input for Step 6 is ready.

Step 4. Conduct an online survey to identify prioritized competences for business

The next step in the assessment is conducting an online survey to identify competences prioritized by the Alumni Committee, Alumni Association, or Employers Association. The

evaluation is conducted by the appointed members from the academic staff annually. The stakeholders' group to be addressed is the HEI's alumni and business representatives.

Alumni Committee members and business representatives are asked to identify business stakeholders' priorities and demand for the competences required by the market. As soon as weighted values are calculated, the input for Step 6 is ready. The recommended list for the questionnaire is the same as in Step 3.

Step 5. Conduct an online survey to identify prioritized competences for students

The next step in the assessment is the administering an online survey to identify competences that the students prioritize. The evaluation is conducted by the appointed members from the academic staff for the task annually. The stakeholders' group to be addressed is the HEI's Student Union or Student Committee as representatives of the students' stakeholder group.

Members of the Student Union as representatives and opinion leaders from the student stakeholders' group are asked to identify their priorities and expectations for the competences required for future employability. As soon as weighted values are calculated, the input for Step 6 is ready. The recommended list for the questionnaire is the same as in Step 3.

Step 6. Aggregate weighted prioritized competences

Weighted values collected from all stakeholders' groups are accumulated for the comparison and are considered a subject for review, discussions, and brainstorming by the academic staff and its key stakeholders. The output of the sessions is regarded as input for Step 7.

Step 7. Make adjustments in syllabus, educational and operational programs if necessary

Considering previous findings, academic staff applies changes in the educational program or objectives of the courses integrated into the program and extra-curricular activities.

Step 8. Go to Step 1

The seven-step procedure is recommended for application annually.

3.4. Validation of the Methodology for Assessment of Business Education Implementation

The methodology for assessing whether the output of a business educational institution meets its stakeholders' requirements was validated from April to June 2022 in six HEIs in Latvia and Poland. The methodology was proposed for the review and evaluation by the executives and decision-makers in the HEIs. The HEIs' executives were asked to evaluate the proposed procedure, identify its strengths and areas for further development and improvement, and determine whether the proposal is relevant for application in their HEI. Their judgments

were collected during a session of unstructured interviews conducted in the form of remote ($n = 5$) and on-site ($n = 1$) meetings of up to 60 minutes each. The methodology described in Sub-chapters 3.2 and 3.3 was introduced to the experts prior to the interview in the form of a codified description including an introductory text, tables, and a visual diagram.

In addition to the interviews, the IEO index based on the students' feedback was calculated for the HEIs. The lowest IEO index was equal to 3.09 ($n = 14$), and the highest value for the IEO index was equal to 3.75. The highest value was calculated based on the samples of two different institutions ($n = 26$; $n = 46$). It is worth mentioning that the IEO index results are indicative, as the sample sizes were smaller than 50 respondents in all institutions.

The results of the assessment meetings demonstrate that the experts were satisfied with the proposed methodology and are interested in the value of IEO index. The experts have a signed an agreement that the proposed process might be considered as one of the possible practices to develop and support continuous improvement in HEI organization and conduct a self-assessment quality assurance audit of the educational services provided by a business educational institution. They also agreed that the output of the self-assessment gives a holistic view of the system. Many experts emphasized the involvement of different stakeholders in the evaluation process as an essential strength of the proposed model. The experts noted that the proposed design might be a cornerstone to starting an HEI transformation process to challenge the *status quo* and evolve the organization. Additionally, they mentioned that the technique is a ready-to-use tool for experimentation, feasible for the implementation, and might be recommended for commercial applications. The experts said that the ideas underlying the methodology go in line with the requirements and recommendations of the Republic of Latvia and European Union and might be valuable in the context of the HEI accreditation process.

Evaluation of the outcomes of experts' interviews

In addition, the experts provided recommendations and instructions for consideration for the improvement of the proposed approach and methodology. The author classifies these items as the ones that positively impact the methodology and the ones that have neutral effect. The overview of the recommendations which are considered to impact the model positively and are valuable for incorporation in the proposed methodology is included in the Doctoral Thesis.

Process flow diagram describing the proposed methodology

Analyzing the outcomes of the expert's interviews, the author adjusted the proposed methodology by assessing the impact explained above. The visual representation of the updated procedure for evaluation of the output of business education versus stakeholders' requirements is presented in Fig. 3.2 Three assumptions have to be taken into account for the methodology application:

- The assessment cycle repetition, start, and end time are variables that HEIs define according to their needs.
- Conduct monitoring of the IEO index (Step 2) on a semi-annual basis at the end and the beginning of the academic year, supposing the more frequent activity that provides output for the academic staff's decision-makers. For this case, it is

suggested to apply the monitoring tool to the same sample of students. HEI defines the selection.

- Conduct the competences evaluation (Steps 3, 4, 5, and 6) within the representative groups that are similar in size but not less than five.

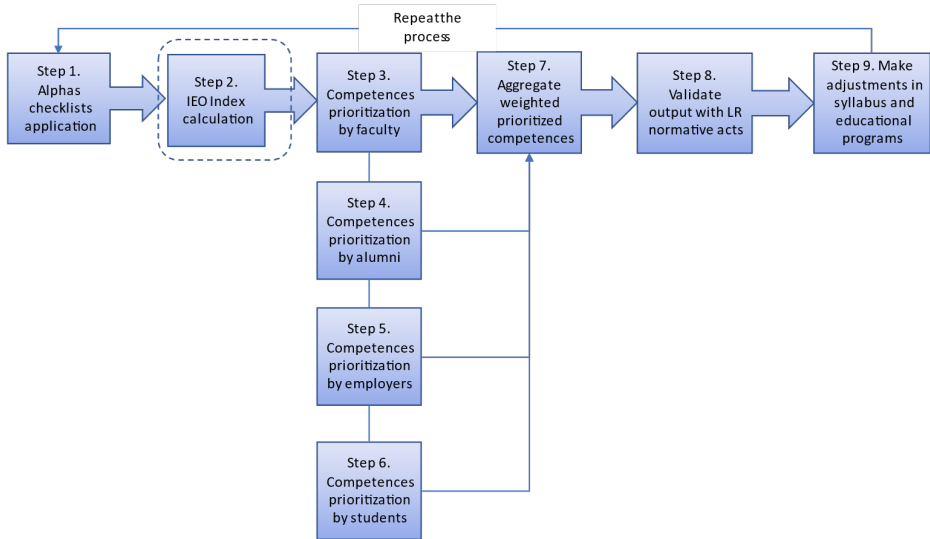


Fig. 3.2. Process flow of evaluation procedure.

Thus, the analysis of the interviews with HEI industry experts revealed the strengths and areas for critical review and further revisiting of the proposed methodology for the assessment of the output of the HEI versus stakeholders' requirements. The yield of the analysis led to the improvement of the approach.

Conclusions

Chapter 3 presents the methodology for assessing whether the output of a HEI meets its stakeholders' requirements. The developed methodology gives both theoretical comprehension of the possibility of assessing the output of business education in the context of stakeholders' expectations and proposes a practical tool that allows HEI to plan the following steps at the individual, team, and organizational level.

The methodology for assessing whether the output of a HEI meets its stakeholders' requirements is assumed as a methodology for continuous improvement that addresses the gap in traditional HEI assessments which are based on the evaluation of specific courses, not students' competence. The approach presents a set of techniques and materials developed for assessing whether the output of a HEI meets its stakeholders' requirements in short-term and long-term perspective and tracks key performance indicators which can be affected in the continuous improvement of the HEI.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions were drawn resulting from the review of scientific literature and the empirical research, confirming the hypothesis put forward in the Thesis:

1. Exploring the background of **business education** and its latest trends within the last decades, it is possible to conclude that there has been a significant **transformation** in the teaching methods, the role of partnership and networking for HEIs, and the approach toward curricula updates due to the needs of external stakeholders. The transformations led to **competence-based education** where the required competence is a dominant precondition for the business education industry.
2. Taking into account the EU statistics, it is possible to conclude that in the European Union, education in business, entrepreneurship, and administration across the EU-27, is considered the largest field of study, and the number of students enrolled in tertiary education remained relatively stable within the last decade, which explains the topicality of the research.
3. Given the results of the research, it is possible to conclude that the **competences can be acquired** in three ways: as innate competence or acquired by experience and education.
4. Based on the research, the **core competences** for employability demanded by the labor market are an intersection of managerial and entrepreneurial competences, such as **creativity, risk-taking, and proactiveness**. Hence, the author considers creativity and innovativeness, risk-taking, and proactiveness as pillars composing the **individual entrepreneurial orientation (IEO)** and IEO index which can be applied as a measuring instrument in business education to evaluate students' entrepreneurial competence level.
5. Given the results of the importance and performance analysis based on external and internal stakeholders' data collected in Finland, Latvia, and the Netherlands, it is concluded that entrepreneurial competence is **essential for employability**. However, the perception of its importance is varied among different stakeholders' groups.
6. Given the results of the **IEO research** conducted in Bulgaria, Latvia, Lithuania, Poland, and Ukraine, it is possible to conclude that the IEO index and its components are varied across the researched countries and are impacted by HEIs.
7. Considering the results of the cross-country IEO research, it was concluded that **business education students did not demonstrate** expected higher values in individual entrepreneurial orientation compared to STEM undergraduates, which is evidence that **business education demands an approach** to advance its output and meet the needs of external stakeholders.
8. Given the exploration of agile methods for systems evaluation and cross-industry benchmarks, **the HEI Essence improvement conceptual model**, worked out by the author, is recognized as an integrated model for decision making that provides a

framework to describe the HEI system with the interplay of its elements including stakeholders, changes in external environment, the HEI, competences, academic staff, study process, and methodology.

9. The **methodology for assessing the output of business education** in accordance with stakeholders' requirements can be applied to measure the level of entrepreneurial orientation of students in HEI and assess its actual status from the continuous improvement perspective and define requirements of the different stakeholders' groups that have to be taken into account.
10. Given the results of the methodology approbation, the **assessment cycle's repetition, start, and end time are variables** which HEIs define according to their needs.
11. Considering the entire cycle of assessment as labor-intensive, it is possible to use the minimally **viable version of the methodology's** application in the form of the **single IEO index monitoring** on a semi-annual basis at the end and the beginning of the academic year, supposing that a more frequent activity provides prompt output for the academic staff decision-makers.
12. Given the results of the methodology validation, it is possible to conclude that the questionnaires for HEI's assessment and requirements definition, which are **supporting part of the methodology** for assessing the output of business education, **can be updated and extended by the stakeholders' groups** involved in the HEI's assessment in accordance with their specific needs.

Considering the results of the research, the author has developed the following **recommendations** which have been divided into 3 parts: 1) for higher educational institutions; 2) for entrepreneurs; and 3) for students.

For HEIs

To apply the methodology for assessing whether the output of the higher educational institution meets their stakeholders' requirements.

To support the academic staff in the organization and implementation of the methodology for assessing whether the output of the higher educational institution meets their stakeholders' requirements.

To educate academic staff members in the method, process, practices, and philosophy in order to help to develop a holistic view of the multiple elements of the system.

To facilitate the involvement of the different stakeholder groups in the continuous development of the HEI system, which is regulated by the methodology.

To disseminate the best practices of the methodology implementation and recommend the systemic approach based on continuous improvement principles within the industry.

For Entrepreneurs

To participate in HEI's curricula development by provisioning HEIs with required input about the labor market needs and communication of their fundamental importance.

To support entrepreneurial eco-system development by commercializing the innovative ideas introduced by cooperation with HEIs.

To facilitate students' interest in entrepreneurship and product development by initiating HEIs-based workshops for students to build and develop works-like product prototypes and conduct its soft launch.

For Students

1. To look for any opportunity to apply the knowledge and skills acquired in HEI to transform the learned competence into the gained experience and enhance competence and employability.
2. To participate in hackathons and in business incubators' activities and screen external environment for business opportunities.
3. To seek for mentors and advisors proactively in order to set up a start-up or a business initiative during the years of studies in HEI.

The conclusions and recommendations are relevant in maintaining a HEI's continuous development and supporting the country's entrepreneurial ecosystem. The validation results of the methodology for assessing the output of business education in accordance with their stakeholder's requirements provide evidence that the approach is feasible for usage as an applicable framework both for theoretical and practical application in the Baltic region and the neighbouring countries. The methodology provides HEI with a well-described structure for the organization's transformation that also includes a certain degree of flexibility and customization for the needs of the HEI.

Summarizing the results of the Doctoral Thesis, the author concluded that the research goal was achieved, the research hypothesis was proved and the theses supported.

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