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MASTER THESIS

Vadovų strateginio mąstymo ir įgūdžių įtaka verslo procesų valdymo plėtrai	**The impact of managers' strategic thinking and skills on business process management development**

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INTRODUCTION

Relevance of the topic. Today's business environment is characterised by rapid change, uncertainty and increased competition. In this environment, it becomes critical for organisations to possess effective management and strategic thinking skills to successfully adapt to change and build competitive advantage. This is especially true for business process management (hereinafter referred to as BPM), which is the crucial framework of an organisation's operations. Managers make strategic decisions to improve business processes, optimise resources and achieve the organisation's goals. Castro *et al. (*2020) showed that strategic thinking is an essential skill in identifying the company's critical success factors. Moreover, Hameed *et al*. (2022) claimed that strategic thinking is an essential part of the BPM success. Meanwhile, Trkman *et al. (*2015) underlined the necessity of various soft skills to the business processes efficiency. However, each manager has unique skills, experiences, values and ways of thinking, which can have a different impact on business process development. Nevertheless, Lyridis *et al. (*2022) noted that the lack of concern for human factors could lead to worse BPM performance. The study of this influence becomes essential to understand which qualities of managers contribute to effective business process management. A modern manager must be able to apply new technologies, make quick decisions and respond flexibly to changes in customer needs. These factors make the topic of the influence of strategic thinking and skills of managers on the development of business process management highly relevant and important for research.

The novelty of the Master thesis. There is not much research that provides a holistic view of the impact of managerial characteristics on the development of BPM. Although BPM is a growing area of research and debate, there are few studies that comprehensively analyse the impact of managers' soft and hard skills, as well as strategic thinking, on the development of BPM. This impact would be more evident in the case of IT companies, since they are operating in the ever-changing environment. The highlighted importance for strategic thinking for navigating new challenges and skills for aligning BPM development with company's goals is creating a need in the development of new framework for complex skill usage. This knowledge would be crucial since the IT market in Lithuania is anticipated to grow by 54% between 2024 and 2029 as reported by Statista Research Department.

Research problem. The central research problem is how in an era of rapid technology and AI, is it important to have the strategic thinking and skills for managers. The key research question is how strategic thinking and management skills influence the development of business process management; are hard or soft skills important in today's companies in an age of technology?

The level of research into the problem. The topic of strategic thinking and BPM has been covered by authors such as Hameed *et al*. (2022), Castro *et al*. (2020) and Suriadi *et al*. (2014). Authors like Dharmapala and Devadas (2021), Lyridis *et al.* (2022), Bandara *et al*. (2007) covered the topic of relationship between skills and BPM. The theme of the links between skills and strategic thinking has been presented by authors like Shaik and Dhir (2020), Goldman (2012), Jelenc *et al.* (2015), Csiszárik-Kocsir and Varga (2023).

Research gap. There is little research on whether strategic thinking is a mediator of the impact of managerial skills on the development of BPM. The mediation analysis will lead to useful conclusions and suggestions as to whether strategic thinking enhances the impact of managerial skills on the development of BPM. There are also not many studies measuring and comparing both strategic thinking and managers' skills in BPM development.

The aim of the master's thesis is to explore how managers' strategic thinking and skills influence BPM development in an organisation, giving an example of an analysis of the IT sector.

Master thesis objectives:

- to examine the theoretical aspects of managers' strategic thinking and skills (soft and hard);
- to analyse role of managers' strategic thinking, skills in BPM;
- to develop a conceptual model of the impact of factors on managers' strategic thinking and skills;
- to determine opportunities how to use managers' strategic thinking and skills to develop business processes;
- to construct conclusions and proposals aimed at practical tips for business.

Research methods of the master thesis are collection and grouping of scientific articles, analysis of literature, comparison and grouping of authors' opinions, and presentation of summaries, quantitative research using a survey questionnaire, statistical data analysis. The survey was administered using a standardised questionnaire and statistical models, graphs, tables and the statistical software package SPSS were used to process and analyse the data.

The practical value of this research. Despite the extensive research in the field of BPM, strategic thinking and managers skills, there is a need for further research on the influence of strategic thinking and managers' skills on the effectiveness and development of BPM given the current requirements and challenges (AI implementation, automation, etc.). Focus on integration of soft and hard skills with strategic thinking will create a possibility for boosted adaptability, innovation, and the alignment of BPM. Therefore, companies in the IT field that will have that focus on mind will ensure sustained competitive advantage.

The theoretical value of this research. This study aims to fill this gap in the literature by offering a new perspective on the relationship between strategic thinking, managerial skills and BPM. Its findings can contribute to the development of management theory and practical approaches to managing organisations.

Structure. This paper is structured as follows. Chapter 1 reviews definitions of strategic thinking, soft and hard skills of managers and BPM. Section 1.1 analyses the concept of managers' strategic thinking and skills. Section 1.2 analyses the role of strategic thinking in BPM. Section 1.3 analyses the relationship of managerial skills to BPM. Section 1.4 presents the conceptual research model. Chapter 2 introduces the research method along with the sample selection and data collection procedure, questionnaire development and data analysis. Chapter 3 presents the results of the performed research along with its analysis. The main outcomes are presented in Conclusions.

Limitations and future research. The notion of soft and hard skills has a wide range and includes many different skills. This paper will only discuss the general concept of soft and hard skills, without specifically subdividing them into individual skills. These skills are not a complete description of all the necessary skills that can affect BPM. Additionally, this study is limited to a specific industry.

1. THE IMPACT OF MANAGERS' STRATEGIC THINKING AND SKILLS ON BUSINESS PROCESS MANAGEMENT DEVELOPMENT: THEORETICAL BACKGROUND

1.1 The concept of strategic thinking and skills for managers

Modern companies are implementing rapid and significant changes due to experiencing pressures from rising customer expectations, new technologies, and growing competition. To ensure that adaptation is running and executing smoothly in such settings, professionals must constantly update their business procedures (Adesola and Baines, 2005).

BPM can be defined as a collection of activities, techniques, technologies, and coordinated tools designed for the systematic and analytical implementation of processes with the purpose of continuous improvement (Skrinjar and Trkman, 2013). BPM is described as an integrated approach to management and practices that encompasses crucial changes in business processes, emphasizing continuous improvement, customer satisfaction, and employee involvement (Hung, 2006).

In recent years BPM transformed from being system oriented to a process discipline to a customer-focused one with goals of integrating management, people, process, and technology for both operational and strategic activities (Hill *et al.*, 2006; Melenovsky, 2005). That is supported by statement that BPM can be described by its focus on processes, customers, values, services, employees, etc. (Neubauer, 2009). Business processes can be implemented at many levels and from many different perspectives within an organization. Business processes can describe a general overview of the organization’s activities, as well as detailed examination of how specific tasks are performed within a process (Antonucci, 2011). Because of that and constant development of BPM, companies are struggling to determine what qualities and skills BPM professionals should possess (Antonucci, 2011).

Business process development aims to improve company's performance and establish base for continued improvements. That includes optimization and innovation within the company's core operations and functions. However, implementing business process development raises some challenges as not taking a collaborative approach, not supportive management, lack of the problem-solving skills.

The key to a successful operation is management, that goes together with such elements as planning, organizing, staffing, directing, and controlling. Certainly, not all managers have skills to be a successful in their field, however the skills could be obtained through learning (Isaacs, 2005).

In general, it's difficult to tell which management skills are more important than the others. That is happening since the skills that a particular need of a manager will differ based on the type of management they are involved in and their position within the organization's overall hierarchy, as well as other factors (Gutterman, 2023). A general literature review done by Gutterman (2023) outlines the list of desired managerial attributes, activities, and skills. That includes a wide range of things such as leadership, HR management, interpersonal skills, information processing, making decisions, resource management, entrepreneurial skills. Most of the items in the list can be referred to as part of the soft and hard skills.

Manager's qualities can be divided into two components — soft and hard skills and from a professional point of view a successful manager should possess both (Gillen, 2012; Denisov and Tsybova, 2018).

Soft and hard skills are critical to an organization's ability to innovate and function profitably. Employees are significant innovators because they possess the abilities necessary to do their jobs well on an individual basis (Hendarman and Cantner, 2018). Additionally, organizations can enhance the level of innovation, by creating a possibility for their employees to invest more time in training to acquire new abilities (Acemoglu, 1997).

Table 1

Soft-skill definitions grouping

Group	**References**
Definitions highlighting interpersonal and behavioural features	Marin-Zapata et al. (2022); Weber et al. (2011); de Campos et al. (2020); Caeiro-Rodríguez et al. (2021); Moss and Tilly (1996); Sancho-Cantus et al. (2023); Dolce et al. (2020); Mitsea et al. (2021); Kechagias (2011); Laker and Powell (2011); Lyu and Liu (2021); Fernández-Arias et al. (2021)
Definitions focusing on personal traits and capacities	Marin-Zapata et al. (2022); Qizi (2020); Zheng, Zhang, and Li (2015); Dolce et al. (2020); Lamri and Lubart (2023); Krawczyk-Sokolowska et al. (2019); Lyu and Liu (2021); Boyatzis et al. (2017); Heckman and Kautz (2012)
Definitions focusing on learned behavior	Caeiro-Rodríguez et al. (2021); Balcar (2016); Laker and Powell (2011)

Source: authors own work.

The soft skills importance has majorly increased in the last few years, as seen in rising number of individuals engaged in job tasks that demand soft skills (Borghans, Weel, and Weinberg, 2006). “Soft skills” is a term that is well-known and understood, but not defined. In general, soft skills can be defined as a wide range of personal and interpersonal skills, traits, and abilities. Table 1 reviews the definitions of soft skills from scientific publications.

Soft skills provide possibility for managers to navigate the challenges of modern business circumstances and contribute to organizational success. That underlines the importance of soft skills as a strategic investment in the managers professional development (Choudary and Ponnuru, 2015).

Hard skills generally refer to usage of different tools and techniques. Table 2 reviews definitions of hard skills from scientific publications.

Table 2

Hard-skill definitions grouping

Group	**References**
Definitions related to technical aspects and knowledge	Lamri and Lubart (2023); Rainsbury et al. (2002); Lyu and Liu (2021); Azim et al. (2010); Hadiyanto (2020); Marando (2012); Lamberti (2023); Moura (2021); Laker and Powell (2011); Ashurova and Ashurov (2023); Anthonius (2021)
Definitions highlighting cognitive qualities and intelligence	Poisson-de Haro and Turgut (2012); Lyu and Liu (2021); Muhammad et al. (2019); Kenayathulla, Ahmad & Idris (2019); Asbari (2024); Tsotsotso et al. (2017); Fan, Wei & Zhang (2017)
Definitions highlighting ease of documentation and formulation	Rainsbury et al. (2002); Azim et al. (2010)

Source: authors own work.

Strategic thinking encompasses both the creation and implementation of strategies by managers, as well as the overall strategic performance of the enterprise (Nasi, 1991). It involves strategic analysis, planning, organization, control, and leadership, covering all aspects that can be considered "strategic". As well strategic thinking can be viewed as a synthesizing process that relies on intuition and creativity (Mintzberg, 1994). Additionally, strategic thinking described as a distinct mode of thought, characterized by specific types of thinking or cognitive abilities (Liedtka, 1998). Table 3 summarizes various definitions of strategic thinking from scientific literature.

Table 3

Strategic thinking definitions grouping

Group	References
Definitions related to the process of strategy formulation and analysis	Geier (2024); Nasi (1991); Herrmann's (1996); Macmillan and Tampoe (2000); Saloner et al. (2001); Liedtka (1998); Stumpf (1989); Larson and Hansen (2005); Alsaaty (2006); Graetz (2002); Jacques and Clement (1991); Sternberg (1994); Bonn (2001)
Definitions focusing on innovation and creativity	Mintzberg (1994); AlQershi (2021); Graetz (2000); Drejer et al. (2005); Bonn (2005); Robinson and Stern (1997)
Definitions related to the management process and impact on the organization	Kaufmann (1991); Ledi (2024); Kazmi and Naaranoja (2015); Kiaei et al. (2016); Hassan et al. (2016); Ibrahim Olaniyi and Elumah Lucas (2016); Juma, Minja and Mageto (2016); Bouhali et al. (2015)
Definitions that do not clearly fit into other categories	Tavakoli and Lawton (2005); Pisapia et al. (2011); Tan (2000); Garratt (1995b)

Source: authors own work.

Strategic thinking encompasses aspects such as analysing the external environment, defining strategic goals, choosing how to achieve them, and assessing risks. Accordingly, the more strategic thinking and strategic thinkers a company has, the better it can adapt to changes in the business environment (Tavakoli and Lawton, 2005). Strategic thinking has an impact on company's outputs and profitability (Bowman and Helfat, 2001), moreover it impacts on performance confirmed in the case study of McAdam and Bailie (2002). Consequently, it is a manager's duty to develop strategic thinking in individuals at all levels (Mellon and Kroth, 2013). Some even argue that managers need to have some plans regarding strategic thinking skills implementation. That is needed to be well-prepared for innovation execution, that could range from minor BPR innovations to major business model innovations (Hameed, 2022).

On the bases of strategic thinking organizational development strategies can be created and priorities set. Strategic thinking allows the organization to perform on the higher level, be more flexible and creates a possibility for companies to take advantages of the changes in its context to make improvements (Rodrigues, 2021). Thus, strategic thinking allows managers to see a comprehensive picture of business, anticipate changes in the external environment and make

decisions that contribute to the development of the organization. The table 4 summarizes the dimensions of strategic thinking identified by Geier (2024).

Table 4

Overview of the strategic thinking dimensions, definitions and references

Dimension	Definition	References
Synthetic Thinking	Synthetic thinking involves recognizing and synthesizing complex connections between two or more seemingly unrelated and opposing concepts/ideas, identifying unusual associations or patterns, and generating a new perspective on the concept/idea	Mintzberg (1994); Thomson and Strickland (1996); Heracleous (1998); Graetz(2002); Nuntamanop et al. (2013)
Creative Thinking	Creative thinking is the process of generating new and innovative ideas by exploring alternative perspectives, challenging conventional approaches, and visualizing the value of an idea early on. This involves imagining new possibilities, seeking alternatives, and breaking free from limiting assumptions and beliefs	Rowe et al. (1982), Mintzberg (1994), Heracleous (1998), Graetz (2002), Bonn (2001, 2005), Nuntamanop et al. (2013)
Visionary Thinking	Visionary thinking enables individuals to have a strong sense of purpose and direction. They can visualize a clear future, even amidst uncertainty and incomplete information. These thinkers can define a guiding objective for their actions	Rowe et al. (1982), Thomson and Strickland (1996), Bonn (2001, 2005), Nuntamanop et al. (2013)

Source: Geier (2024)

Understanding the impact of strategic thinking and managers' skills on the business processes development could lead to development of various strategies and management methods. Those methods would be aimed at enhancing the efficiency of business processes and achieving the company's strategic goals.

Being able to use strategic thinking is essential for future changes and making informed strategic decisions (Salavati *et al.*, 2017). Various factors influence organizational thinking processes, and small changes in these factors can have a high impact on the overall thinking

dynamics of the system (Rahnama and Rahpeyama, 2015; Moon, 2013; Benito-Ostolaza and Sanchis-Llopis, 2014; Bonn, 2005).

The extensive analysis done by Shaik and Dhir (2020), reveals several significant factors that contribute to strategic thinking. That factors include organizational culture, leadership style, environmental inconstancy, ever-growing industry, and technological progress. Several of these factors are part of the soft and hard skillset. Furthermore, the importance of implementing a conducive organizational culture that promotes innovation, creativity, and forward-thinking cannot be noted enough. Consequentially, effective leadership plays a crucial role in driving strategic thinking initiatives and aligning organizational goals with strategic vision.

Additionally, the influence of the organizational culture on strategic thinking is described as significant (Arayesh *et el.*,2017). Cultures that prioritize innovation and flexibility tend to implement strategic thinking more effectively. Organizational culture is developed through manager's soft skills.

One of the most notable soft skills – leadership – have a significant impact on shaping organizational culture and practices, that in turn have valuable role to implementing and using strategic thinking (Goldman, 2012). That could be achieved by managers incorporating these practices, that can encourage strategic thinking among employees and driving innovation.

Therefore, organizational factors such as culture, structure, resources, and external environment also influence managers' strategic thinking. Among other factors influencing the strategic thinking could be noted such factors as cognitive ability, creativity, vision, and experience (Adzeh, 2017; Jelenc *et al.*, 2015). All these factors are part of the soft and hard skillset. According to the conclusions reached by Babić and Slavković (2011) employers equally appreciate both hard and soft skills.

The key factors, that seem to influence managers' soft and hard skills is education and professional experience. Research shows education and work experience contribute to the development of both hard and soft skills (Balcar, 2016). Previous experience enhances risk-taking, innovativeness, and foresightness in managers. Moreover, while work experience, from both current and previous employers, primarily suggests the enhancing of hard skills, education have an impact in the development of soft skills. That implies that on-the-job training aimed at amplifying both hard and soft skills create positive outcomes for employee productivity. In this case, the strategic thinking is correlated with operational experience (Csiszárik-Kocsir and Varga, 2023).

Nevertheless, there are different points of view on whether strategic thinking is a part of the soft and hard skillset or a standalone skill. On one hand, some researchers view that strategic

thinking is an important piece of the soft skills (Mohammed and Ozdamli, 2024). On the other hand, different point of view suggests that strategic thinking is crossing through both soft and hard skills (Lamri and Lubart, 2023). Moreover, strategic thinking is viewed as a standalone skill, that could be possessed with the help of the soft and hard skills (Parente, Stephan and Brown, 2012). In terms of this research the strategic thinking is viewed as a standalone skill.

Thus, in modern companies strategic thinking and managerial skills are key elements that lead to success. The important aspect of helping companies to form effective strategies and achieve competitive advantages in the market is hidden in the understanding the factors influencing the development of strategic thinking and skills.

1.2 The role of managers' strategic thinking in business process management

Business process management plays a key role in ensuring the efficiency and competitiveness of the company. At the same time, managers strategic thinking has a major part in determining the direction and priorities within business processes.

The BPM Capability Framework (see figure 1) developed by Rosemann *et al.* (2006) presents a maturity model with 30 capabilities needed in BPM.

Figure 1

The BPM Capability Framework

Strategic Alignment	Governance	Methods	Information Technology	People	Culture
Process Improvement Plan	Process Management Decision Making	Process Design and Modeling	Process Design and Modeling	Process Skills and Expertise	Responsiveness to Process Change
Strategy and Process Capability Linkage	Process Roles and Responsibilities	Process Implementation and Execution	Process Implementation and Execution	Process Management Knowledge	Process Values and Beliefs
Process Architecture	Process Metrics and Performance Linkage	Process Control and Measurement	Process Control and Measurement	Process Education and Learning	Process Attitudes and Behavior
Process Output Measurement	Process Management Standards	Process Improvement and Innovation	Process Improvement and Innovation	Process Collaboration and Communication	Leadership Attention to Process
Process Customers and Stakeholders	Process Management Controls	Process Project and Program Management	Process Project and Program Management	Process Management Leaders	Process Management Social Networks

Source: Rosemann et al., 2006.

In BPM the processes are classified into 3 groups: core processes, supporting processes and management processes. Supporting and management processes are built to help core value processes to satisfy the needs of the client. In table 5 the overview of different skills required to carry out different types of processes are presented.

Table 5

Overview of the required skills in business processes and references

Business Process Type	Key Skills Required	References
Core Processes	Innovation; Communication; Problem-Solving; Empathy; Conflict Resolution; Negotiation Skills; Data Analysis	Cooper (2008); Hennig-Thurau et al. (2013); Bitner et al. (2000); Christopher and Holweg (2011)
Operational Processes	Process Improvement; Project Management; Negotiation Skills; Communication; Problem-Solving; Relationship Building	Peng and Lai (2012); Tassabehji and Moorhouse (2008); Ngai et al. (2009)
Management Processes	Strategic Thinking; Analytical Skills; Leadership; Decision-Making; Employee Relations; Knowledge of Regulations; Risk Assessment; Attention to Detail; Ethical Judgement; Communication	Hameed et al. (2022); Wright and McMahan (1992); Power (2009); Argenti (2006); Suriadi et al. (2014)

Source: authors own work.

Companies can predict forthcoming trends, identify strategic priorities, and make justifiable decisions in terms of the BPM initiatives execution through strategic thinking implementation (Hameed *et al*., 2022). Moreover, managers and employees can take a dynamic approach regarding change management, motivate innovation, and move ongoing improvement actions across the organization. Hence strategic thinking is playing a crucial role in establishing BPM success in organizational performance (Hameed *et al*., 2022). Therefore, strategic thinking among both managers and employees remains being the essential part for organizations to encourage navigate uncertainties swiftly, lead transformations, and gain competitive advantages.

One of the main strategic thinking aspects for managers in BPM is the ability to identify the long-term vision and goals of the organization. Goals are objectives that should be achieved by the BPM system and its environment. At the same time strategic thinking, as defined by Slack *et*

al. (1998), move the organization closer to its long-term goals. Managers with strategic thinking skills can analyse the situation with long-term goals in mind, which enables them to make decisions that contribute to the business processes development. Therefore, managers with strategic thinking can assess how each choice aligns with the overall goals and objectives of the organization, when making decisions about business processes. This approach prioritizes initiatives that have the biggest potential to contribute to the company's success over time, rather than focusing entirely on short-term gains.

It is important for BPM to identify and analyse process-related risks. In that case, it will be able to provide support for taking necessary risk mitigation actions (Suriadi *et al*., 2014). Strategic thinking helps with risks identification and assessment, predicting their outcomes and mitigating actions (Bratianu and Murakawa, 2004). This approach to risk management increases the successful outcomes probability and reduces the chances of costly issues.

Moreover, managers strategic thinking helps to identify key success factors in BPM. Significant percentage (60-80%) of BPM implementation projects fail due to various factors, one of which is a lack of control over critical success factors (CSFs) (Castro *et al*., 2020). These CSFs could vary from one organization to another based on the business differences. The CSFs identification and control, as well as risk mitigation, is an essential part to ensure successful BPM implementation. Managers with strategic thinking can analyse the company's context effectively, which allows them to identify the CSFs and manage business processes accordingly (Bratianu and Murakawa, 2004).

Furthermore, strategic thinking can boost the innovative approaches development to BPM, since strategic thinking is a vital force of the organizational innovation (Olaleye *et al.,* 2020). Additionally, strategic thinking plays a key role in supporting managers on creating more efficient strategies and inspiring employees to collaborate in innovative ways (Olaleye *et al.,* 2020). Since the strategic thinkers are open to investigate new ideas and technologies, that can lead to process development. Through leadership, managers with strategic thinking can become the driving force of change and motivate the start of new approaches and technologies usage in BPM.

Thus, managers' strategic thinking can play an important role in BPM. Mainly it could be seen from the decision on organization’s development direction, identification of key success factors and risks, and innovation – all these choices must be done based on the strategic thinking. Understanding this role helps organizations to effectively manage their business processes and achieve strategic goals.

Companies that motivate strategic thinking among their managers are better suited to navigate challenges, take advantages of opportunities, and achieve sustainable success in business.

1.3 The links between managers' soft and hard skills on business process development

Soft skills have more effect on innovation than hard skills (Albandea and Giret, 2018; Escrig-Tena *et al.,* 2018; Ibrahim, Boerhannoeddin and Bakare, 2017; Viviers, Fouche and Reitsma, 2016). Communication skills, emotional intelligence, teamwork, and agility were the mostly regarded soft skills in BPM professionals (Dharmapala and Devadas, 2021).

BPM implementation and organizational performance can suffer tremendously from poor consideration of human factors (Lyridis *et al.,* 2022; Nogueira *et al.,* 2022; Arshad *et al.,* 2022). Moreover, organizations can achieve high efficiency in business processes by actively engaging internal stakeholders and aligning with their interests (Trkman *et al.,* 2015).

Leadership is crucial in driving business process development efforts forward and it is one of the key skills that fall under broad term of "soft skills" (Crosbie, 2005). Finding of Ariratana et al. (2015) revealed that all the leadership soft skills are at high level, especially the development of interpersonal relationship. However, managers must be focused on both results and relationships (Crosbie, 2005).

Successful business process development is based on the efficient communication. Managers with strong communication skills can present the objectives and requirements of process improvement initiatives clearly to their teams. In managers communications and leadership skills viewed as more important than the technical skills (Brousseau, 1987). Through strong leadership, managers can motivate for innovation, collaboration, and continuous improvement. Bergener *et al.* (2012) underlined the importance of implementing agile communication skills to gain the better understanding of BPM.

Business process development often involves through identifying and addressing complex challenges and bottlenecks within existing processes. Problem-solving skills are considered one of the most desirable employment skills by employers (Knight and Yorke, 2001). Problem-solving skills could be described as the ability to resolve business problems by using proper methods (He, 2015). Problem-solving is a managerial day-to-day work, and those skills are essential part of the competency set. The greater results in BPM are achieved as soon as the problem is analysed, requirements are identified, and inconsistences are removed (Prim and Trabasso, 2005). Managers with strong problem-solving skills can analyse data, identify issues, and propose solutions to enhance process output.

Managers with technical knowledge in tools and methods can effectively use these resources to improve and develop business processes. Managers who possess knowledge of such frameworks as Lean Six Sigma, Business Process Reengineering (BPR), or Agile methodologies, can lead the process optimization. BPM development is depended on the use of prevailing tools and techniques (Zairi, 1997).

It is important for managers to possess skills in using process visualization tools effectively and closing the gap between process design and execution (Bandara *et al*., 2007). Managers with proficiency in relevant technologies (such as process automation tools, workflow management systems, or resource planning software) can implement these tools to automate manual tasks, workflows, and enhance overall process efficiency. Technology, architecture, data, and processes are essential for successful BPM (Vestey, 2006). However, it is important to involve people and their expertise. Kokkonen and Bandara (2014) stressed that to create a positive impact managers need to know about aspects of BPM such as specific processes, governance, or associated technology, which all can be described as hard skills.

1.4 Conceptual research model

The first part of the master's thesis described the elements (BPM development, Strategic Thinking, Soft and Hard skills) and their relationships, based on previous studies. To conclude the first part of the master's thesis (the theoretical justification of the topic), this sub-section presents the conceptual research model developed, its elements and the hypotheses put forward.

Strategic Thinking and BPM development. The results of the study (Hameed *et al*., 2022) underlined the significance of strategic thinking in establishing BPM success. Additionally, the results of the study (Olaleye *et al.,* 2020) highlighted the importance of strategic thinking to the innovation within different areas of organization and its activity. Therefore, it could be suggested that higher levels of strategic thinking among managers lead to greater BPM development within the organization.

H1: Strategic Thinking have a positive and significant impact on Business Process Management Development.

Skills (soft and hard) and BPM development. This is supported by the study (Bergener *et al.*, 2012) showing that soft skills lead to strong knowledge of BPM. It could be suggested that managers possessing a diverse soft skill set contribute to enhanced BPM development within the organization.

Moreover, the results of a study showed that Hard Skills have strong influence on BPM development as well. The results of the study (Bandara *et al.*, 2007) highlighted the importance of the possession of hard skills to the BPM success and development. This is supported by the studies (Vestey, 2006; Zairi, 1997) showing that leading force of the change in BPM is the implementation and usage of the tools. Hence it could be suggested that managers possessing diverse hard skills contribute to enhanced BPM development within the organization.

H2: Soft Skills have a positive and significant impact on Business Process Management Development.

H3: Hard Skills have a positive and significant impact on Business Process Management Development.

Soft and Hard skills and Strategic Thinking. The results of the various studies (Babić and Slavković, 2011; Balcar, 2016; Shaik and Dhir, 2020) emphasised the influence of the different soft and hard skills on the strategic thinking development. This is supported by the study (Parente, Stephan and Brown, 2012) showing that strategic thinking could be boosted with the help of soft and hard skills. Thus, it could be suggested that higher levels of soft and hard skills among managers lead to greater strategic thinking.

H4: Soft and Hard Skills have a positive and significant impact on Strategic Thinking.

*Mediating effect of strategic thinking***.** Upon analysing the strategic thinking and its relationship with soft and hard skillset, as well as BPM development it is evident, that there are studies that expose the mediating effect of the strategic thinking within different relationships.

The results of the study (Bakhtiari and Zardoshtian, 2016) conclude that leadership style is impacting the organizational culture, while strategic thinking acts as a mediator. Furthermore, another study explored that the relationship between organizational culture and organizational excellence is mediated by strategic thinking (Alnajem *et al*., 2023).

The findings of another study (Al Mamun, 2022) uncovered that strategic orientation impacts company's performance with process innovation significantly mediating the relationship. Additionally, it was found that rising levels of strategic thinking (as a partial mediator) and application of strategic learning methods are increasing strategic agility levels (Hussein, Amanah and Kazem, 2023).

As we can see, these studies explored the impact between different skills and performance related factors with strategic thinking as a mediator. Accordingly, this study will explore the

mediating effect of strategic thinking. Consequently, it could be suggested that Strategic Thinking mediates the impact of Soft and Hard Skills on Business Process Management Development.

H5: Strategic Thinking mediates the impact of Soft and Hard Skills on Business Process Management Development.

2. THE RESEARCH METHODOLOGY OF THE IMPACT OF MANAGERS' STRATEGIC THINKING AND SKILLS ON BUSINESS PROCESS MANAGEMENT DEVELOPMENT

2.1 Philosophy, purpose and model of empirical research

The research object is to investigate the impact of managers' strategic thinking and their soft and hard skills on the development of business process management within organizations. This involves understanding how managers' thinking abilities, interpersonal skills, and technical competencies influence the effectiveness of BPM initiatives.

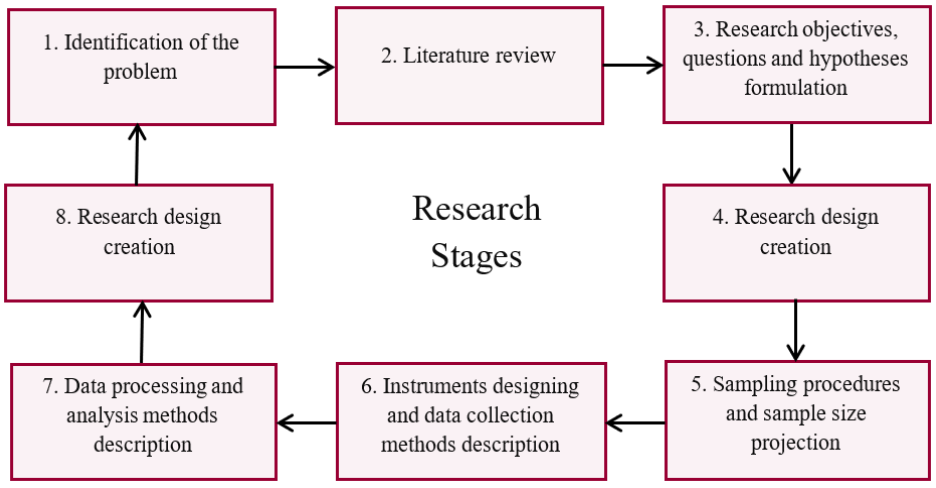
The research subject is focusing on the role of managers in driving BPM development through their strategic thinking and skillsets. This includes an analysis of managers' strategic thinking (significance of strategic thinking in the context of BPM), managers' soft and hard skills (importance of soft skills and hard skills in the context of BPM). Overall, the research aims to widen knowledge in the field of BPM by determining the role of managers' strategic thinking and skills in developing BPM.

Research question that is raised in this research is “How do strategic thinking and soft and hard skills in managers impact the Business Process Management (BPM) development in organizations?”

This research will follow research stages as presented in the figure 2 (Nshimiyimana, 2023).

Figure 2

Research stages



Source: Nshimiyimana (2023).

While existing literature highlights the influence of strategic thinking, soft and hard skills on work of managers, as presented in the Chapter 1, there is a gap in understanding how these factors specifically affect BPM. This research aims to address this gap by examining the relationship between strategic thinking, soft and hard skillset, and BPM development. The significance of our research lies in its potential to inform HR policies, training programs within organizations.

Quantitative research will be used as a primary methodology, with survey design in a form of questionnaire. In this research, the quantitative methods are suitable for assessing and strategic thinking and skillsets in a structured and understandable manner. Additionally, the use of surveys allows for the straightforward collection of data, that will be used in performing statistical analysis to draw conclusions.

Proposed research model aims to explore the relationship between independent variables, strategic thinking and soft and hard skills of managers, and their impact on the dependent variable, BPM development.

Strategic thinking refers to the ability of managers to create strategic decisions that comply with goals of the company. This variable combines the managers ability to predict future trends, identify opportunities, and produce strategies to lead BPM initiatives. It is expected that higher levels of strategic thinking among managers will positively influence BPM development by opening door for making better decisions and motivating innovation, while having company goals as a priority.

Soft skills as independent variable refer to abilities that allow managers to interact with stakeholders efficiently and guide organizational changes.

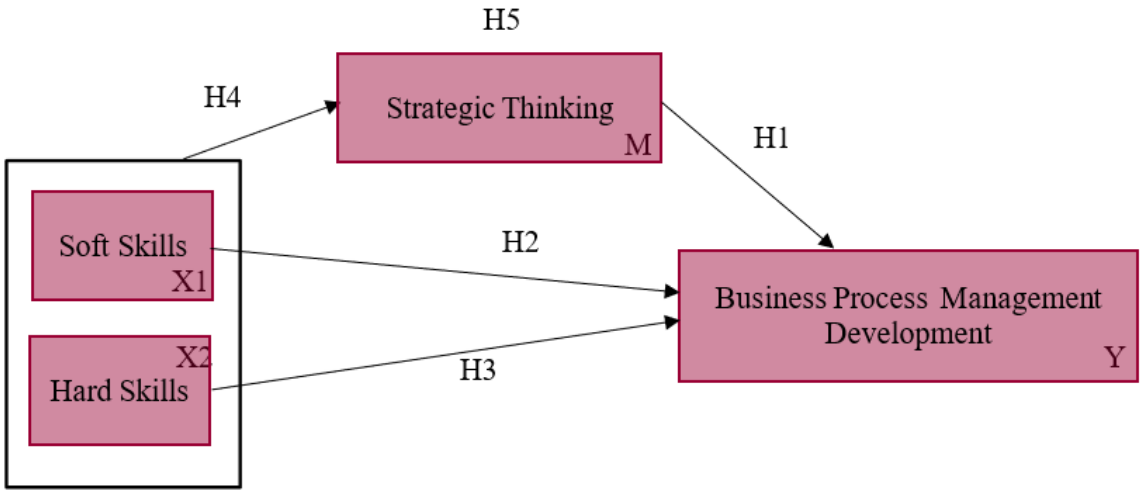
Hard skills as independent variable refer to technical competencies and knowledge relevant to specific areas within BPM. Managers with a diverse skill set that includes both soft and hard skills are better equipped to lead BPM initiatives and overcome challenges in implementation and execution.

BPM development as dependent variable refers to the business process management practices progress and improvement within an organization. This variable covers the implementation and continuous improvement of BPM methodologies and technologies that aim to achieve strategic goals.

The research model is presented in the figure 3.

Figure 3

Research model



Source: author's own work.

Hypothesis 1 (H1): Strategic Thinking has a positive and significant impact on Business Process Management Development.

Hypothesis 2 (H2): Soft Skills have a positive and significant impact on Business Process Management Development.

Hypothesis 3 (H3): Hard Skills have a positive and significant impact on Business Process Management Development.

Hypothesis 4 (H4): Soft and Hard Skills have a positive and significant impact on Strategic Thinking.

Hypothesis 5 (H5): Strategic Thinking mediates the impact of Soft and Hard Skills on Business Process Management Development.

Research philosophy. Overall, this model suggests that managers' strategic thinking and their combination of soft and hard skills play significant roles in shaping BPM development outcomes.

2.2 Target population and sample characteristics

The research will primarily focus on Lithuania. This will provide a perspective on BPM development within the region and allow for comparisons across different organizational contexts.

In selecting participants for the study, certain criteria are put in place to ensure relevance and suitability to the research objectives. The study targets individuals occupying managerial positions (managers of the teams, departments, etc.) within organizations that have Business

Process Management systems. This criterion ensures that participants have personal experience with practical implications of BPM within their organizational contexts.

The study will target managers working within the IT industry. Specifically, organizations operating in the fields of IT, software development, and financial technology (fintech) are targeted. These industries are selected due to their fundamental dependence on technological solutions and the possibility of BPM adoption within their organizations.

A range of professional experience in management position, starting from a minimum of 1 year, is considered. This criterion considers the possible range in technology adoption and knowledge of BPM systems among managers.

By adhering to these selection criteria, the research aims to engage participants who possess the needed knowledge, experience, and organizational context to provide valuable insights into the relationship between skills and BPM development within the specified industry.

Regarding the sample size, conducted analysis of the publications on themes of soft and hard skills, strategic thinking and BPM development showed great variety on sample sizes, with most research falling under the range from 200 to 300 (see table 6). Moreover, the minimum number of the respondents could be calculated through several suggestions. First, in most cases 100 responses is enough for simple regression analysis (Hair et al., 2018). Second, if the minimum responses number is based on the number of the items in the study, then following the 5-to-1 ratio this research will have 175 responses (total number of the items is 35 multiplied by 5) (Hatcher, 1994; Suhr, 2006). Third, based on the number of the independent variables in the model and on the existing recommendation of 15 to 20 responses per independent variable this research should have at least 60 responses (3 independent variables multiplied by 20 responses) (Hair et al., 2018). Therefore, the research aims to recruit approximately from 175 to 300 participants using non-probability convenience sampling methods.

This sample size will provide adequate statistical power for analysis while also allowing for diverse perspectives from a range of organizations within the IT sector. Non-probability convenience sampling will be utilized due to its practicality and accessibility in reaching out to potential participants within the target population.

Table 6

Overview of the sample size in different publications

Sample size	Number of publications	References
Less than 100	4	Cimatti (2016); Castelli and Shuayto (2012); Goldman et al. (2017); Dutta (2015)
100-200	6	Monnavarian et al. (2011); Geier (2024); Srivastava and D'Souza (2021); Babic and Slavkovic (2011); Al-Hawary and Hadad (2016); Jelenc and Pisapia (2015)
200-300	7	Nahla et al. (2016); Purwanto (2021); Dolce et al. (2020); Putra et al. (2020); Moon (2013); Dixit et al. (2021); Muriithi et al. (2018)
300-400	2	Salamzadeh et al. (2018); Hendarman and Cantner (2018)
400-600	3	Truong (2018); Asbari et al. (2020); Daghir and Zaydi (2005)
More than 600	1	Dragoni (2011)

Source: authors own work.

Research methods will include survey questionnaires and quantitative analysis. The questionnaires will include scales to measure strategic thinking, soft and hard skills, and BPM development perceptions. Questionnaires will be distributed through online survey platform Google Forms. This platform is offering features for survey design, responses collection, and data analysis. The collected data will be analysed with the help of statistical analysis software IBM SPSS with Andrew F. Hayes PROCESS version 4.2 macro command plugin. This tool provides a wide range of statistical functions and techniques for analysing quantitative data. Additionally, statistical techniques such as correlation analysis and regression analysis will be applied to test the hypotheses and examine the relationships between variables.

2.3 Survey instrument and organisation

Measurement scale for Business Process Management development. The 17-items scale is developed by Nadarajah and Syed in 2016. BPM is viewed within the perspective of process orientation and process improvements since BPM is only complete when management of processes is followed through with continuous improvement. Close-ended survey instrument with constructs measured using a five-point Likert scale with anchorage from strongly disagree (1) to strongly agree (5). Hight score from the scale means high level of BPM development. The survey instrument for business process orientation (BPO) was adapted by Nadarajah and Syed (2016)

from Skrinjar *et al.* (2008) and McCormack (2001) while the instrument for process improvement initiatives (PII) was adapted by Nadarajah and Syed (2016) from Lok *et al.* (2005). The level of Cronbach's α for BPO was 0.901 while PII was 0.912.

Measurement scale for Strategic Thinking. The Strategic Thinking Assessment (STA) is developed by Geier in 2024. The strategic thinking dimensions assessed in with this scale includes visionary, synthetic and creative thinking dimensions (Table 4). The 8-items close-ended survey instrument with constructs measured using a seven-point Likert scale with anchorage from very untrue of myself (1) to very true of myself (7). Hight score from the scale means high level of strategic thinking. The Cronbach's α coefficient for the measure is 0.88.

Measurement scale for Hard Skills. The 6-items scale is developed by Hendarman and Cantner in 2018. Hard skills consist of dimensions such as ICT skills, tools and equipment skills, and learning and conceptual skills. Hard skills are measured at the individual respondent level using a five-point Likert scale, which ranged from strongly disagree (1) to strongly agree (5). Hight score from the scale means high level of hard skills. The Cronbach's α is 0.7.

Measurement scale for Soft Skills. The 4-items scale is developed by Hendarman and Cantner in 2018. Soft skills consist of factors such as innovation leadership, relationship building, tolerance for uncertainty, and passion and optimism. Soft skills are measured at the individual respondent level using a five-point Likert scale, which ranged from strongly disagree (1) to strongly agree (5). Hight score from the scale means high level of soft skills. The Cronbach's α is 0.7.

Demographic questions as control variables will be included in the questionnaire as well. The questions will touch on such subjects as age, managerial experience in years, gender, level of education, and size of the company.

The survey-based research approach was chosen due to the demonstrated success of them in the existing literature on the topics of strategic thinking, soft skills, hard skills, and BPM. Surveys offer a structured and efficient means of collecting data from a large sample of participants. The use of the questionnaires creates an opportunity to systematically measure key variables across diverse organizational contexts. This approach allows to compare the responses and the recognize patterns or trends within the data. Different statistical tests such as regression analysis, correlation analysis, and factor analysis can be applied to examine the associations between strategic thinking, managerial skills and BPM development outcomes.

Overall, the survey-based research approach is chosen based on its compatibility with the research objectives, the ease of data collection from the target population, and the suitability for conducting statistical analysis to test the research hypotheses.

After designing the questionnaire, the exploratory research was conducted. A group of 7 managers working in different EU countries were sent the developed questionnaire to determine its comprehension and adequacy. All respondents noted that the questions were clear and could not be read in two ways. However, one respondent noted that questions 'I made an extra effort to find supporting data or information to do my job' and 'I used to give extra effort to develop business and professional relationship with partner both inside and outside my firm' were not quite compatible with the proposed scale, where 1 is strongly disagree and 5 is strongly agree. After discussing this issue, it became apparent that the wording of these questions prompted more negative perceptions of the need for additional effort, while this questionnaire viewed these efforts from a positive perspective. To reduce the risk of misunderstanding, it was decided to reword these questions.

The new statements are 'I consistently search for supporting data and information to enhance my job performance' and 'I proactively built strong business and professional relationships with partners both inside and outside my firm' respectively. As a result of the changes, the questions meaning stayed the same, but possible negative perception of the questions was eliminated. No additional changes were made to the developed questionnaire (see table 7).

Table 7

Questionnaire structure

Construct	Based on	Items (example)
Business Process Management development	Nadarajah and Syed (2016)	17 (Processes within the organisation are defined and documented using inputs and outputs to and from our customers)
Strategic Thinking	Geier (2024)	8 (I can find relationship between things that appear to be unrelated)
Hard Skills	Hendarman and Cantner (2018)	6 (I consistently search for supporting data and information to enhance my job performance)
Soft Skills	Hendarman and Cantner (2018)	4 (I proactively built strong business and professional relationships with partners both inside and outside my firm)

Source: authors own work.

Table 7 presents questionnaire structure. The total number of questions is 35 with additional 6 demographic questions.

3. ANALYSIS OF THE EMPIRICAL DATA AND OVERVIEW OF THE RESULTS OF THE STUDY

This chapter will cover the results of the survey conducted.

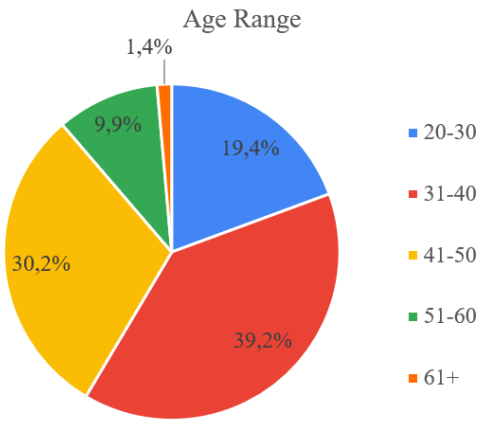
In total 239 responses were collected. Out of those 224 were from Lithuania (5 from Estonia, 4 from Latvia, 3 from Poland, 1 from Russia, 1 from UK, 1 from Jamaica). Out of all of respondents from Lithuania two had a six-month managerial work experience. After ensuring that all the responses are eligible under the research criteria presented in chapter 2, the final number of responses is 222. The full list of responses to demographic questions is presented in Annex 2.

3.1 Descriptive statistics and characteristics of respondents

Majority of the respondents (69.8%) of this survey are male, with 30.2% of the respondents are female. 39.2% of the respondents are in the age range of 31-40 years, 30.2% represent the 41-50 years range. There are 19.4% of respondents in the age range of 20-30 years. Managers in the ages between 51 and 60 years are compiling 9.9%. Additionally, managers who are 61 years and older are represented by 1.4% (see figure 4).

Figure 4

Age range distribution

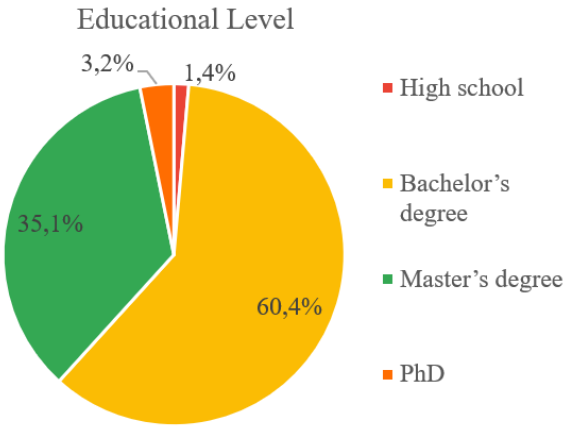


Source: authors own work.

Majority of the respondents hold a bachelor's degree (60.4%), master's degree follows with 35.1% and PhD respondents were 3.2% of the respondents. The least amount of the respondents holds only high school diploma – 1.4% (see figure 5).

Figure 5

Educational level distribution

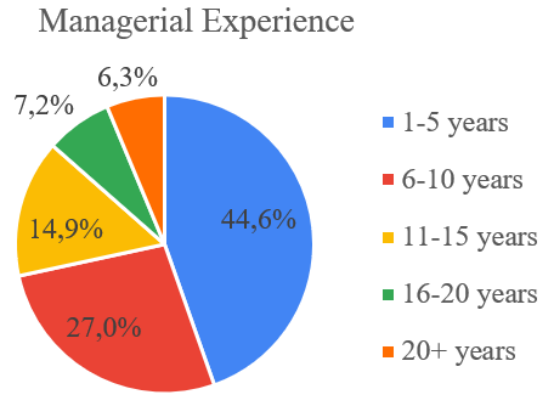


Source: authors own work.

Most of the respondents (44.6 %) are in management position for 1 to 5 years. 27% of the respondents are in management positions for 6-10 years, followed by 14.9% of the managers in position for 11-15 years. 7.2% of the respondents are managers for 16-20 years and respondents with 20+ years managerial experience are compiling the 6.3% (see figure 6).

Figure 6

Managerial experience distribution

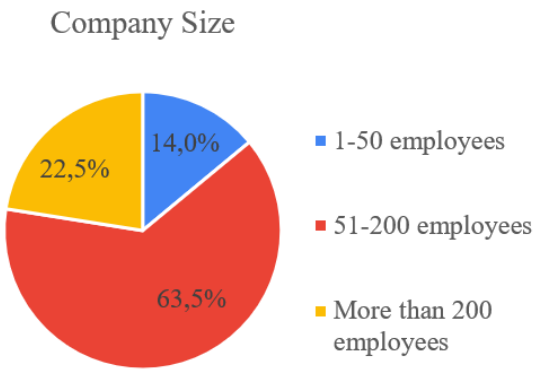


Source: authors own work.

Figure 7 presents the company size distribution.

Figure 7

Company size distribution



Source: authors own work.

Regarding the company size in which the respondents are working, majority of the respondents (63.5 %) are working for the medium size companies (51-200 employees). 22.5% of the respondents are a part of the large size companies with more than 200 employees. Small companies (1-50 employees) are represented by 14% of the respondents.

3.2 Reliability testing of constructs

To check internal consistency reliability, or in other words whether all items in a questionnaire assess the same constructs, the Cronbach's alpha estimation is used. It can be used to determine whether all the items in the constructs are correlated with each other, which can reveal the integrity of the constructs. Research sources indicate that the acceptable value of Cronbach's alpha for research purposes can vary from 0 to 1 but must be equal to or greater than 0,7. Cronbach's alpha reliability estimation results using SPSS are shown in Table 8.

Table 8

Cronbach's alpha estimation

Construct	Cronbach's alpha coefficient
Business Process Management Development (BPD)	0,977
Strategic Thinking (ST)	0,961
Hard Skills (HS)	0,903
Soft Skills (SS)	0,929

Source: authors own work.

Since the Cronbach's alpha estimation of each construct exceeds 0.7, it is considered that all constructs fulfil the reliability threshold. However, it could be noted that these estimations can suggest the overlap among items. To show that the items meaningfully contribute to the construct, the factor analysis was performed (see table 9).

Table 9

Factor analysis

Construct	**Cumulative percentage of the Extraction Sums**
Business Process Management Development (BPD)	73,633
Strategic Thinking (ST)	78,832
Hard Skills (HS)	73,994
Soft Skills (SS)	77,546

Source: authors own work.

The results suggest that more than 70% of the variance is explained by the extracted factors in each case. This estimation is surpassing the adequacy threshold of 60%. Furthermore, the results of the factor loadings for each item are presented in the table 10.

Table 10

Factor loadings

Item	**Component**	**Item**	**Component**	**Item**	**Component**
Business Process Management Development					
BPD1	0,856	BPD7	0,830	BPD13	0,899
BPD2	0,881	BPD8	0,843	BPD14	0,849
BPD3	0,837	BPD9	0,862	BPD15	0,875
BPD4	0,854	BPD10	0,868	BPD16	0,865
BPD5	0,837	BPD11	0,880	BPD17	0,863
BPD6	0,800	BPD12	0,882		
Strategic Thinking					
ST1	0,903	ST4	0,884	ST7	0,892
ST2	0,918	ST5	0,914	ST8	0,885
ST3	0,853	ST6	0,850		
Hard Skills					
HS1	0,868	HS3	0,864	HS5	0,863
HS2	0,869	HS4	0,872	HS6	0,824
Soft Skills					
SS1	0,888	SS3	0,868	SS4	0,888
SS2	0,878				

Source: authors own work.

Evidently, all the factor loadings are above ±0.4, what is generally considered meaningful. Therefore, the conducted further factor analysis confirms that all the items individually contribute to the overall construct.

3.3 Tests of normality

To test whether the data is distributed normally, the Kolmogorov-Smirnov and Shapiro-Wilk test are used. The results of the test using SPSS are shown in Table 11.

Table 11

Normality test results

Variable	Kolmogorov-Smirnov significance (p)	Shapiro-Wilk significance (p)
BPD	<0,001	<0,001
ST	<0,001	<0,001
HS	<0,001	<0,001
SS	<0,001	<0,001

Source: authors own work.

Clearly, the value for Significance is less than 0.05 - the data is not distributed normally.

3.4 Correlation and regression analysis for hypothesis testing

To assess the strength and direction of a relationship between the variables, the Spearman's Rank Correlation Coefficient is used since the data is not distributed normally. The results of the test using SPSS are shown in Table 12.

Table 12

Spearman's Rank Correlation results

Correlation pairs	Correlation Coefficient	Significance (2-tailed)
BPD – ST	0,817	<0,001
BPD – HS	0,682	<0,001
BPD – SS	0,699	<0,001
SS – ST	0,722	<0,001
SS – HS	0,785	<0,001
HS – ST	0,752	<0,001

Source: authors own work.

As demonstrated, all the variable's pair that were assessed on the strength of the relationship resulted with a significant relationship between each other (the value of the Significance (2-tailed) is less than 0,05). The pairs BPD – HS and BPD – SS have a moderate positive correlation, at the same time all the other pair's BPD – ST, SS – ST, SS – HS, and HS – ST, have the strong positive correlation.

Different regression models as described in Table 13 were analysed to get a robust result for testing the hypotheses stated in Chapter 2.

Table 13

Regression models description

Model	Description	Hypothesis
Model 1	This model does not apply any control variable. Only the dependent and independent variables are included. The dependent variable is BPM development.	H1, H2 and H3.
Model 2	This model applies all control variables. Therefore, dependent, independent and all control variables are included. The dependent variable is BPM development.	H1, H2 and H3.
Model 3	This model does not apply any control variable. Only the dependent and independent variables are included. The dependent variable is strategic thinking.	H4.
Model 4	This model applies all control, dependent and independent variables. The dependent variable is strategic thinking.	H4.
Model 5	This model does not apply any control variable. Only the dependent, independent and mediation variables are included. The dependent variable is BPM development.	H5.

Source: authors own work.

Adjusted R Square value for each model is used to determine the proportion of variance explained by the model. Table 14 shows the Adjusted R Square for each of the model and their significance.

Since in all the models for each of the hypotheses the Adjusted R Square exceed the threshold of 0.3, we can state that the variance in the dependent variables is explained by the independent variables included in the models.

Table 14

Adjusted R Square for Regression models 1-4

Regression model	Hypothesis	Adjusted R Square	Significance
Model 1	H1	0.704	<0.001
	H2	0.539	<0.001
	H3	0.548	<0.001
Model 2	H1	0.709	<0.001
	H2	0.551	<0.001
	H3	0.571	<0.001
Model 3	H4	0.648	<0.001
Model 4	H4	0.652	<0.001

Source: authors own work.

Table 15 shows the unstandardized coefficients for each of the models and their standard errors.

Table 15

Unstandardized coefficients of models 1-4

Variable	H1 without control variables	H1 with control variables	H2 without control variables	H3 without control variables	H3 with control variables	H4 without control variables
ST	0.808 (0.035)	0.797 (0.035)				
SS			0.787 (0.049)			0.348 (0.091)
HS				0.8 (0.049)	0.772 (0.05)	0.582 (0.092)
Gender		No impact			No impact	
Age		No impact			No impact	
Experience		No impact			No impact	
Education		No impact			No impact	
Company size		0.113 (0.051)			0.235 (0.063)	
Constant	0.660 (0.140)	0.469 (0.164)	0.563 (0.204)	0.494 (0.205)	0.085 (0.379)	0.049 (0.193)

Source: authors own work.

The results, shown in the Table 15, are reflecting that all the relationships stated in the hypothesizes are proven to exist. As for control variables such as gender, age, education, years of managerial experience, they don't have an impact on the relationship between independent and

dependent variables. The only control variable that showed a significant impact on relationship between independent and dependent variables is Company size. In the relationship between BPD and strategic thinking, as well as between BPD and hard skills the variable company size has a significant impact. Therefore, the unstandardized coefficients for H2 and H4 with control variables are not presented in the tables, since they did not have an impact from any of the control variables.

Based on these results the regression equations expressed.

Hypothesis 1

Without control variables	$BPD = 0{,}66 + 0{,}808\ ST + \varepsilon$	(1)
With control variables	$BPD = 0{,}469 + 0{,}797\ ST + 0{,}113\ Company\ Size + \varepsilon$	(2)

Hypothesis 2

Without control variables	$BPD = 0{,}563 + 0{,}787\ SS + \varepsilon$	(3)

Hypothesis 3

Without control variables	$BPD = 0{,}494 + 0{,}8\ HS + \varepsilon$	(4)
With control variables	$BPD = 0{,}085 + 0{,}772\ HS + 0{,}235\ Company\ Size + \varepsilon$	(5)

Hypothesis 4

Without control variables	$ST = 0{,}049 + 0{,}348\ SS + 0{,}582\ HS + \varepsilon$	(6)

Therefore, it could be stated that Hypothesis 1 “Strategic Thinking have a positive and significant impact on Business Process Management Development” is confirmed. Hypothesis 2 “Soft Skills have a positive and significant impact on Business Process Management Development” is confirmed. Hypothesis 3 “Hard Skills have a positive and significant impact on Business Process Management Development” is confirmed. Hypothesis 4 “Soft and Hard Skills have a positive and significant impact on Strategic Thinking” is confirmed.

To test hypothesis 5 the PROCESS Model 4 was used. This hypothesis is exploring whether Strategic Thinking mediates the relationship between Soft and Hard Skills (combined) and BPM development. Table 16 presents the statistics for paths X (Soft and Hard Skills) → M (Strategic thinking) and M (Strategic thinking) → Y (BPM development).

Table 16

Statistics for model 5

Path	R^2	p	Coefficients		
			Constant	Variables	p
X (Soft and Hard Skills) → M (Strategic thinking)	0.6507	< 0.001	0.0480	Soft and Hard Skills Coefficient = 0.93403	<0.001
M (Strategic thinking) → Y (BPM development)	0.7265	< 0.001	0.2799	Strategic thinking Coefficient = 0.6191	<0.001
				Soft and Hard Skills Coefficient = 0.2705	<0.001

Source: authors own work.

Path X (Soft and Hard Skills) → M (Strategic Thinking) explains whether Soft and Hard Skills significantly predicts the mediator Strategic Thinking. Approximately 65% ($R^2 = 0.6507$) of the variance in Strategic Thinking is explained by Soft and Hard Skills. Since $p < 0.001$ it can be stated the overall model predicting Strategic Thinking is highly significant. Moreover, the coefficient significance for Soft and Hard Skills variable is less than 0.001. Thus, it can be stated that Soft and Hard Skills significantly predicts Strategic Thinking, or in other words more skilled respondents tend to have higher level of strategic thinking.

Path M (Strategic Thinking) → Y (BPM Development) examines whether Strategic Thinking significantly predicts BPM Development, controlling for Soft and Hard Skills. Approximately 73% ($R^2 = 0.7265$) of the variance in BPM Development is explained by Soft and Hard Skills and Strategic Thinking. Since $p < 0.001$ it can be stated the overall model predicting BPM Development is highly significant. Moreover, the coefficient significances for Strategic Thinking and Soft and Hard Skills variable are less than 0.001. The effect of Strategic Thinking on BPM Development is significant. The effect of Soft and Hard Skills on BPM Development, when controlling for Strategic Thinking, is also significant. In conclusion, Strategic Thinking significantly predicts BPM Development, higher level strategic thinkers tend to lead to greater BPM development.

Table 17 content presents the direct relationship between Soft and Hard Skills and BPM Development, without considering Strategic Thinking.

Table 17

Statistics for direct effect

Path	Coefficient	Std. Error	t	p	LLCI	ULCI
Direct effect of X (Soft and Hard Skills) → Y (BPM Development)	0.2705	0.0664	4.0770	<0.001	0.1398	0.4013

Source: authors own work.

As seen from the p-value and the values of the LLCI and ULCI the direct relationship between Soft and Hard Skills and BPM development is significant, so it can be stated that Soft and Hard Skills does directly influence BPM development.

Table 18 presents the statistics for Indirect Effect X (Soft and Hard Skills) → M (Strategic Thinking) → Y (BPM Development).

Table 18

Statistics for indirect effect

Path	Coefficient	Std. Error	LLCI	ULCI
Indirect Effect X (Soft and Hard Skills) → M (Strategic Thinking) → Y (BPM Development)	0.5760	0.0803	0.3944	0.7145

Source: authors own work.

This path explains whether Strategic Thinking mediates the relationship between Soft and Hard Skills and BPM Development. The calculated the indirect effect and bootstrap confidence intervals suggests that Strategic Thinking mediates the relationship between Soft and Hard Skills and BPM Development. Therefore, it could be stated that Hypothesis 5 “Strategic Thinking mediates the impact of Soft and Hard Skills on Business Process Management Development” is confirmed.

In conclusion, performed mediation analysis revealed that the independent variable (Soft and Hard Skills) significantly impacts the dependent variable (BPM Development). It can be seen in both paths: direct and indirect through the mediator (Strategic Thinking). Particularly interesting is that the indirect effect is stronger than the direct effect, suggesting that the mediator is the leading force driving this relationship.

CONCLUSIONS AND PROPOSALS

Conclusions

The BPM development follows the lead of the constant changes in the modern business environment, that arise due to the technological breakthroughs and endless competition. However, the successful BPM development could only be achieved with relentless work and dedication of managers and their skills.

The essential role of the soft and hard skills cannot be overlooked today. They are covering needed expertise in many areas and create important positive power dynamic within a team. As well as the culture of strategic thinking that helps managers to navigate the challenges of improving BPM and create innovative solutions.

This study was conducted to investigate the impact of managers' strategic thinking and their soft and hard skills on the development of BPM within organizations (IT sector).

The theoretical part of the research showed the existence of the different levels of relationships between strategic thinking, soft and hard skills and BPM development. Various scientific articles highlighted the importance of strategic thinking to the innovation within different areas of organization and its activity, as well as to the company’s success. Therefore, it was suggested that higher levels of strategic thinking among managers lead to greater BPM development within the organization. In terms of soft and hard skills it was demonstrated that possession of different skills in managers plays an essential role in company’s success and improvement of the BPM. Thus, it was suggested that managers possessing a diverse soft and hard skill set contribute to enhanced BPM development within the organization. Additionally, various studies emphasised the influence of the different soft and hard skills on the strategic thinking development. Hence, it was suggested that higher levels of soft and hard skills among managers lead to greater strategic thinking. With all of that, the question of the strategic thinking in mediating the impact of the soft and hard skills on the BPM development was raised. Range of studies exposed the mediation role of strategic thinking in the relationship of various soft and hard skills on the performance related factors. Accordingly, this study explored the mediating effect of strategic thinking.

This study filled the gap in the literature by offering a new perspective on the relationship between strategic thinking, managerial skills and business process management. This research provides an insight on role and influence of strategic thinking and managers' skills on the development of business process management given the current requirements and challenges. Its findings can contribute to the development of management theory and practical approaches to managing organisations.

All five hypotheses put forward in the paper were confirmed:

- It was obtained that managers' strategic thinking influences the development of BPM. The results of the research showed that strategic thinking has an impact on the BPM development, or in other words higher levels of strategic thinking among managers lead to greater BPM development within the organization. That result is in line with the study done by Hameed et al. (2022). Managers who have developed this capability can achieve faster and more effective BPM development.
- The results of this study showed that managers' soft and hard skills influences the development of BPM. Managers with strong ability to use soft and hard skill set largely contribute to BPM development within the organization. The similar results were obtained by Bergener *et al.* (2012), Bandara *et al.* (2007) and Vestey (2006). Managers with high levels of soft and hard skills are able to lead to the improvement of BPM.
- The results of this study confirmed the influence of soft and hard skills on strategic thinking. Managers who use soft and hard skills have a greater level of strategic thinking. This result supports the study done by Parente, Stephan and Brown (2012). Hence, managers can enhance their strategic thinking with the help of soft and hard skills.
- Additionally, this study put a light on the mediating effect of the strategic thinking in the impact of skills on BPM development. This mediation impact found in this research is supported by similar studies by Hussein, Amanah and Kazem (2023) and Bakhtiari and Zardoshtian (2016). Strategic thinking is important because it strengthens the impact of hard and soft skills on the development of BPM. This demonstrates the need for continuous and continuous improvement of strategic thinking.

Proposals for IT sector

Managers should continuously develop and update their knowledge of strategic management and learn new methodologies to strengthen their strategic and critical thinking. The IT sector, which is a growing and important sector in many economies, makes managers' decisions and strategic forward thinking in improving processes particularly important.

Based on the findings of this research it could be recommended for companies in IT sector to periodically perform skill mapping to identify gaps in competencies. In accordance with the

results the merged training programs should be developed, that would include courses on technical and interpersonal skill development (with emphasis on creative and critical thinking) and futures modelling seminars to improve insight and risk management. The knowledge management could help in developing the learning platforms, that would encourage the learning and knowledge-sharing and at the same time improve the interpersonal skills. To promote the strategic thinking, the specific process related KPIs could be implemented.

Future research directions

Since the aim of this research was to explore whether and how managers' strategic thinking and skills influence business process development in an organisation, this paper only discussed the general concept of soft and hard skills, without specifically subdividing them into individual skills. Nevertheless, the notion of soft and hard skills has a wide range and includes many different skills. These skills are not a complete description of all the necessary skills that can affect BPM. Therefore, possible future research could focus on specific skills and their role on the BPM development. Additionally, this study is limited to a specific industry.

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VADOVŲ STRATEGINIO MĄSTYMO IR ĮGŪDŽIŲ POVEIKIS VERSLO PROCESŲ VALDYMO PLĖTRAI

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Darbo vadovas as. dr. L. Pilukienė, Vilnius, 2025

SANTRAUKA

69 puslapiai, 18 lentelių, 7 paveikslai, 168 literatūros šaltiniai.

Magistro baigiamojo darbo tikslas – ištirti, kaip vadovų strateginis mąstymas ir įgūdžiai įtakoja verslo procesų plėtrą organizacijoje, pateikiant IT sektoriaus analizės pavyzdį.

Magistro darbą sudaro trys pagrindinės dalys: literatūros analizė, tyrimo planas ir rezultatai su išvadomis ir rekomendacijomis.

Literatūros analizė pristato pagrindines strateginio mąstymo, minkštųjų ir kietųjų įgūdžių, BPM ugdymo sąvokas. Be to, apžvelgiamos esamos sąvokų sąsajos.

Atlikus literatūros analizę, pateikiamas tyrimo planas. Tyrimas atliktas internetinės apklausos būdu tarp Lietuvos IT sektoriaus įmonių. Iš viso buvo išanalizuoti 222 tinkami atsakymai vadovų strateginio mąstymo ir įgūdžių bei jų įtakos BPM raidai organizacijose tema.

Tyrimo rezultatai statistiškai apdoroti SPSS programa. Vidinio nuoseklumo patikimumui patikrinti buvo naudojamas Cronbacho alfa įvertinimas. Visų konstrukcijų įvertinimas buvo didesnis nei 0.7, o tai rodo, kad naudojamos skalės buvo nuoseklios. Norint patikrinti, ar duomenys paskirstomi normaliai, buvo naudojami Kolmogorovo-Smirnovo ir Shapiro-Wilko testai. Norint įvertinti ryšio tarp kintamųjų stiprumą ir kryptį, naudojamas Spearmano rango koreliacijos koeficientas.

Atliktas tyrimas patvirtino, kad vadovų strateginis mąstymas ir minkštieji bei kieti įgūdžiai turi įtakos BPM vystymuisi. Be to, vadovai gali patobulinti savo strateginį mąstymą naudodami minkštuosius ir kietuosius įgūdžius. Be to, strateginis mąstymas sustiprina kietųjų ir minkštųjų įgūdžių įtaką BPM vystymuisi. Tai rodo poreikį nuolat ir nuolat tobulinti strateginį mąstymą.

Išvadose ir rekomendacijose apibendrinamos pagrindinės literatūros analizės sąvokos bei atlikto tyrimo rezultatai. Buvo pateikti keli pasiūlymai IT sektoriaus įmonėms, siekiant sustiprinti BPM plėtrą. Be to, siūlomos ateities tyrimų kryptys.

THE IMPACT OF MANAGERS' STRATEGIC THINKING AND SKILLS ON BUSINESS PROCESS MANAGEMENT DEVELOPMENT

Valeryia LUKASH

Master Thesis
Business Process Management Master Programme
Faculty of Economics and Business Administration, Vilnius University
Supervisor as. dr. L. Pilukienė, Vilnius, 2025

SUMMARY

69 pages, 18 tables, 7 figures, 168 references.

The aim of the master's thesis is to investigate how managers' strategic thinking and skills influence the development of business processes in an organization, providing an example of an analysis of the IT sector.

The master's thesis consists of three main parts: literature analysis, research plan and results with conclusions and recommendations.

The literature analysis presents the main concepts of strategic thinking, soft and hard skills, and BPM development. In addition, the existing connections between concepts are reviewed.

After conducting a literature analysis, a research plan is presented. The study was conducted by means of an online survey among Lithuanian IT sector companies. A total of 222 valid responses on the topic of managers' strategic thinking and skills and their influence on the development of BPM in organizations were analysed.

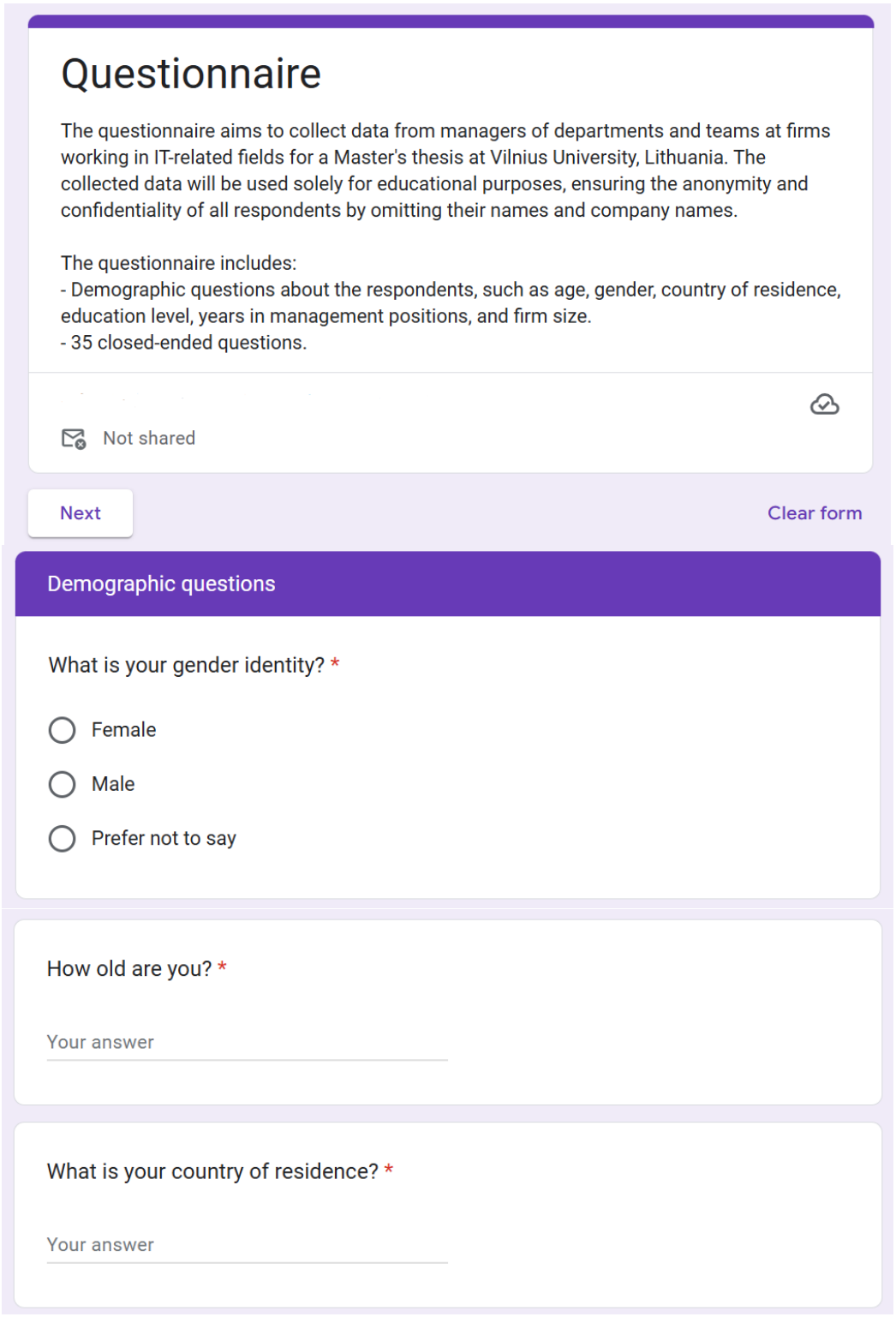
The results of the study were statistically processed using the SPSS program. Cronbach's alpha assessment was used to verify the reliability of internal consistency. The evaluation of all constructs was higher than 0.7, which indicates that the scales used were consistent. To check whether the data were normally distributed, Kolmogorov-Smirnov and Shapiro-Wilk tests were used. To assess the strength and direction of the relationship between variables, Spearman's rank correlation coefficient was used.

The study confirmed that managers' strategic thinking and soft and hard skills have an impact on the development of BPM. In addition, managers can improve their strategic thinking using soft and hard skills. Moreover, strategic thinking enhances the influence of hard and soft skills on the development of BPM. This indicates the need for continuous and continuous improvement of strategic thinking.

The conclusions and recommendations summarize the main concepts of the literature analysis and the results of the study. Several suggestions were made for IT sector companies to strengthen the development of BPM. In addition, future research directions are suggested.

ANNEXES.

Annex 1. Questionnaire for factors surveyed



Questionnaire

The questionnaire aims to collect data from managers of departments and teams at firms working in IT-related fields for a Master's thesis at Vilnius University, Lithuania. The collected data will be used solely for educational purposes, ensuring the anonymity and confidentiality of all respondents by omitting their names and company names.

The questionnaire includes:
- Demographic questions about the respondents, such as age, gender, country of residence, education level, years in management positions, and firm size.
- 35 closed-ended questions.

Not shared

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Clear form

Demographic questions

What is your gender identity? *

- Female
- Male
- Prefer not to say

How old are you? *

Your answer

What is your country of residence? *

Your answer

What is your level of education? *

- ◯ High school
- ◯ Bachelor's degree
- ◯ Master's degree
- ◯ PhD

How many years have you held a management position? *

Your answer

What is the size of your firm? *

- ◯ 1-50 employees
- ◯ 51-200 employees
- ◯ More than 200 employees

Back Next Clear form

Questions related to Business processes

The average employee views the business as a series of linked processes *

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

Process terms such as input, output, process, and process owners are used commonly in conversations in the organization *

	1	2	3	4	5	
Strongly disagree	◯	◯	◯	◯	◯	Strongly agree

Processes within the organisation are defined and documented using inputs and outputs to and from our customers *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Implementation of information technology is based on the processes, not on functions *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Jobs are usually multidimensional and not just simple tasks *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Jobs include frequent problem solving *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

People are constantly learning new things on the job *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Process measurements are clearly defined *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Process performance is measured in the organization *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Resources are allocated based on process *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Specific process performance goals are in place *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

There is an increase in the number of employees involved in process improvement initiatives in the last three years *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The number of process improvement initiatives has increased annually in the last three years *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The organization has a formal methodology in place to guide process improvement initiatives *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The organization will definitely continue with process improvement initiatives *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The overall experience with process improvement initiatives has generally been positive *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

The process improvement initiatives contribute to bottom line improvement *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Back Next Clear form

Questions related to Strategic thinking

I can visualize ideas *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I have a clear vision of my future *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I can find relationship between things that appear to be unrelated *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I have great imagination *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I have a clear understanding of my purpose *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I can find associations between unrelated concepts *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I have vivid ideas *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

I can envision the future *

	1	2	3	4	5	
Very untrue of myself	○	○	○	○	○	Very true of myself

Back Next Clear form

Questions related to Soft and Hard skills

I am able to use some software for my job. For example: Microsoft Office (Word / Excel/ Powerpoint/ other), design software, statistical software, specific mechanical software) *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I am able to use Internet (E-Mail/Browsing/other) for my job *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I am able to use perfectly operate tools and equipment related to my job *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I consistently search for supporting data and information to enhance my job performance *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I think conceptually when doing my job *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I enjoyed getting up to speed on topics that are outside my comfort zone *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I gave an influence or a direction regarding innovation in my work place *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I proactively built strong business and professional relationships with partners both inside and outside my firm *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I felt comfortable making decisions under uncertainty *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

I was able to create forward progress even when I worked on a team that did not work well together *

	1	2	3	4	5	
Strongly disagree	○	○	○	○	○	Strongly agree

Back Next Clear form

Thank you for participating in this survey! Your input is greatly appreciated and will contribute significantly to my master's research.

Back Submit Clear form

Annex 2. Demographical responses

ID	Gender	Age	Educational Level	Managerial Experience	Company Size
1	Male	61	Master's degree	25	1-50 employees
2	Male	27	High school	2	51-200 employees
3	Female	28	Bachelor's degree	1	51-200 employees
4	Male	35	Master's degree	6	1-50 employees
5	Male	32	Master's degree	3	51-200 employees
6	Female	42	Master's degree	16	51-200 employees
7	Female	29	Master's degree	3	51-200 employees
8	Male	32	Bachelor's degree	7	More than 200 employees
9	Male	27	High school	1	More than 200 employees
10	Female	28	Master's degree	1	More than 200 employees
11	Male	39	Bachelor's degree	7	51-200 employees
12	Female	42	PhD	12	More than 200 employees
13	Female	56	Bachelor's degree	13	More than 200 employees
14	Female	54	Master's degree	6	51-200 employees
15	Female	46	Bachelor's degree	4	51-200 employees
16	Male	34	Bachelor's degree	5	51-200 employees
17	Male	40	Bachelor's degree	16	1-50 employees
18	Female	25	Bachelor's degree	2	More than 200 employees
19	Female	29	Master's degree	6	More than 200 employees
20	Male	31	Master's degree	3	1-50 employees
21	Female	26	Master's degree	2	1-50 employees
22	Female	26	Bachelor's degree	2	51-200 employees
23	Male	32	Bachelor's degree	6	51-200 employees
24	Female	34	Bachelor's degree	5	51-200 employees
25	Male	28	Bachelor's degree	2	More than 200 employees
26	Male	34	Bachelor's degree	5	More than 200 employees
27	Female	52	Master's degree	13	More than 200 employees
28	Male	48	Bachelor's degree	17	1-50 employees
29	Male	44	Master's degree	12	1-50 employees
30	Female	27	Bachelor's degree	3	51-200 employees
31	Female	37	Master's degree	4	More than 200 employees
32	Male	55	Bachelor's degree	17	More than 200 employees
33	Male	44	Master's degree	16	More than 200 employees
34	Male	27	Bachelor's degree	3	1-50 employees
35	Male	58	Bachelor's degree	26	More than 200 employees
36	Male	46	Master's degree	4	1-50 employees
37	Male	27	Bachelor's degree	3	1-50 employees
38	Male	26	High school	2	1-50 employees
39	Male	29	Master's degree	4	More than 200 employees
40	Male	31	Master's degree	3	51-200 employees
41	Female	44	Bachelor's degree	2	1-50 employees
42	Female	42	Master's degree	9	1-50 employees
43	Female	47	Master's degree	13	More than 200 employees
44	Male	28	Bachelor's degree	1	51-200 employees
45	Female	38	Bachelor's degree	5	51-200 employees
46	Male	44	Bachelor's degree	10	More than 200 employees

ID	Gender	Age	Educational Level	Managerial Experience	Company Size
47	Female	31	Master's degree	5	More than 200 employees
48	Male	26	Bachelor's degree	2	1-50 employees
49	Male	31	Bachelor's degree	4	51-200 employees
50	Male	34	Bachelor's degree	5	More than 200 employees
51	Male	44	Bachelor's degree	7	More than 200 employees
52	Female	27	Bachelor's degree	2	51-200 employees
53	Female	54	Bachelor's degree	23	More than 200 employees
54	Male	58	Master's degree	18	51-200 employees
55	Male	29	Bachelor's degree	4	1-50 employees
56	Male	32	Bachelor's degree	4	More than 200 employees
57	Female	27	Master's degree	1	1-50 employees
58	Female	40	Bachelor's degree	7	51-200 employees
59	Male	38	PhD	12	1-50 employees
60	Male	43	Bachelor's degree	16	51-200 employees
61	Male	37	Master's degree	9	1-50 employees
62	Female	27	Bachelor's degree	2	51-200 employees
63	Male	30	Master's degree	4	More than 200 employees
64	Male	31	Bachelor's degree	3	51-200 employees
65	Male	45	Master's degree	17	More than 200 employees
66	Male	38	Bachelor's degree	7	More than 200 employees
67	Female	42	Master's degree	14	51-200 employees
68	Male	37	Bachelor's degree	10	More than 200 employees
69	Male	28	Master's degree	2	1-50 employees
70	Female	42	Master's degree	6	More than 200 employees
71	Male	48	Master's degree	10	51-200 employees
72	Male	56	Master's degree	21	51-200 employees
73	Male	35	Bachelor's degree	5	More than 200 employees
74	Female	32	Bachelor's degree	3	51-200 employees
75	Male	27	Bachelor's degree	1	More than 200 employees
76	Male	46	Master's degree	11	More than 200 employees
77	Male	55	Master's degree	26	51-200 employees
78	Female	47	Bachelor's degree	13	More than 200 employees
79	Male	32	Bachelor's degree	4	1-50 employees
80	Male	43	Bachelor's degree	5	51-200 employees
81	Male	33	Bachelor's degree	3	51-200 employees
82	Male	31	Bachelor's degree	4	51-200 employees
83	Female	45	Master's degree	11	More than 200 employees
84	Male	26	Bachelor's degree	2	51-200 employees
85	Male	36	Bachelor's degree	4	More than 200 employees
86	Male	34	Bachelor's degree	7	More than 200 employees
87	Male	40	Bachelor's degree	8	51-200 employees
88	Male	38	Master's degree	5	More than 200 employees
89	Male	29	Master's degree	3	51-200 employees
90	Female	26	Bachelor's degree	4	More than 200 employees
91	Female	31	Bachelor's degree	7	More than 200 employees
92	Male	28	Bachelor's degree	3	More than 200 employees
93	Female	32	Master's degree	7	51-200 employees
94	Female	25	Master's degree	2	1-50 employees
95	Male	47	Bachelor's degree	8	51-200 employees
96	Male	42	Bachelor's degree	5	51-200 employees
97	Male	37	Bachelor's degree	5	51-200 employees
98	Male	39	Master's degree	8	51-200 employees

ID	Gender	Age	Educational Level	Managerial Experience	Company Size
99	Male	57	Bachelor's degree	15	51-200 employees
100	Male	44	Master's degree	12	51-200 employees
101	Male	31	Master's degree	4	51-200 employees
102	Male	27	Bachelor's degree	1	51-200 employees
103	Male	48	Bachelor's degree	14	51-200 employees
104	Male	35	Bachelor's degree	7	51-200 employees
105	Male	29	Master's degree	1	51-200 employees
106	Male	41	Master's degree	10	1-50 employees
107	Female	27	Master's degree	4	51-200 employees
108	Male	35	Master's degree	8	More than 200 employees
109	Male	47	Master's degree	20	1-50 employees
110	Male	47	Master's degree	5	51-200 employees
111	Female	35	Master's degree	7	51-200 employees
112	Male	47	Master's degree	14	51-200 employees
113	Female	35	Bachelor's degree	7	1-50 employees
114	Male	45	Master's degree	12	51-200 employees
115	Female	26	Bachelor's degree	5	More than 200 employees
116	Male	34	Master's degree	6	51-200 employees
117	Female	37	Master's degree	4	51-200 employees
118	Male	47	Bachelor's degree	11	51-200 employees
119	Male	37	Bachelor's degree	7	51-200 employees
120	Male	51	Bachelor's degree	21	1-50 employees
121	Female	39	Master's degree	12	More than 200 employees
122	Male	46	Master's degree	13	51-200 employees
123	Male	44	Bachelor's degree	13	51-200 employees
124	Male	29	Bachelor's degree	3	51-200 employees
125	Female	31	Bachelor's degree	4	51-200 employees
126	Male	43	Master's degree	7	51-200 employees
127	Male	41	Bachelor's degree	4	51-200 employees
128	Male	54	Master's degree	26	51-200 employees
129	Female	28	Bachelor's degree	2	51-200 employees
130	Male	39	Bachelor's degree	7	51-200 employees
131	Female	35	Bachelor's degree	7	51-200 employees
132	Female	45	Bachelor's degree	12	51-200 employees
133	Male	29	Master's degree	1	1-50 employees
134	Male	32	Master's degree	6	51-200 employees
135	Male	40	PhD	15	More than 200 employees
136	Male	58	Master's degree	19	51-200 employees
137	Female	48	Bachelor's degree	16	More than 200 employees
138	Male	48	Master's degree	17	51-200 employees
139	Male	34	Bachelor's degree	6	51-200 employees
140	Female	37	Bachelor's degree	8	More than 200 employees
141	Male	37	Bachelor's degree	7	51-200 employees
142	Male	56	Bachelor's degree	16	More than 200 employees
143	Female	45	Bachelor's degree	7	51-200 employees
144	Male	39	Master's degree	10	1-50 employees
145	Male	28	Bachelor's degree	1	51-200 employees
146	Male	35	Bachelor's degree	8	51-200 employees
147	Female	36	Bachelor's degree	4	More than 200 employees
148	Male	41	Bachelor's degree	4	51-200 employees
149	Male	41	Bachelor's degree	7	51-200 employees
150	Male	48	Master's degree	16	51-200 employees

ID	Gender	Age	Educational Level	Managerial Experience	Company Size
151	Male	39	Bachelor's degree	3	51-200 employees
152	Male	29	Master's degree	1	51-200 employees
153	Male	32	Bachelor's degree	6	51-200 employees
154	Male	34	Bachelor's degree	4	51-200 employees
155	Female	48	Master's degree	7	51-200 employees
156	Male	36	Master's degree	5	51-200 employees
157	Male	36	Bachelor's degree	7	51-200 employees
158	Male	28	Bachelor's degree	2	51-200 employees
159	Female	34	Master's degree	3	51-200 employees
160	Male	57	Bachelor's degree	21	51-200 employees
161	Male	48	Bachelor's degree	13	51-200 employees
162	Male	49	Bachelor's degree	15	51-200 employees
163	Female	35	Bachelor's degree	5	51-200 employees
164	Male	32	Bachelor's degree	4	51-200 employees
165	Male	59	Master's degree	24	More than 200 employees
166	Female	41	Master's degree	12	51-200 employees
167	Male	46	Bachelor's degree	12	51-200 employees
168	Male	34	Bachelor's degree	7	51-200 employees
169	Male	38	Master's degree	8	51-200 employees
170	Male	57	Bachelor's degree	23	51-200 employees
171	Male	27	Bachelor's degree	2	51-200 employees
172	Male	31	Bachelor's degree	4	51-200 employees
173	Male	38	Bachelor's degree	6	51-200 employees
174	Male	49	Bachelor's degree	14	51-200 employees
175	Male	36	Bachelor's degree	9	More than 200 employees
176	Female	32	Bachelor's degree	4	51-200 employees
177	Male	29	Bachelor's degree	2	51-200 employees
178	Male	35	Bachelor's degree	3	51-200 employees
179	Male	32	Bachelor's degree	2	51-200 employees
180	Male	54	Bachelor's degree	12	51-200 employees
181	Male	46	Bachelor's degree	10	1-50 employees
182	Male	47	Bachelor's degree	4	51-200 employees
183	Male	32	Bachelor's degree	4	51-200 employees
184	Male	44	Bachelor's degree	5	51-200 employees
185	Female	41	PhD	15	51-200 employees
186	Female	47	PhD	23	51-200 employees
187	Male	44	Master's degree	15	1-50 employees
188	Male	46	Master's degree	9	51-200 employees
189	Male	36	Bachelor's degree	9	51-200 employees
190	Male	45	Bachelor's degree	4	51-200 employees
191	Female	31	Bachelor's degree	3	51-200 employees
192	Male	48	Bachelor's degree	12	51-200 employees
193	Male	29	Bachelor's degree	2	51-200 employees
194	Male	43	Bachelor's degree	9	51-200 employees
195	Male	45	Bachelor's degree	7	51-200 employees
196	Female	33	Bachelor's degree	5	51-200 employees
197	Male	59	Bachelor's degree	27	1-50 employees
198	Female	37	Master's degree	8	51-200 employees
199	Male	43	Bachelor's degree	12	51-200 employees
200	Female	37	Bachelor's degree	4	51-200 employees
201	Male	44	Bachelor's degree	7	51-200 employees
202	Female	36	Bachelor's degree	9	51-200 employees

ID	Gender	Age	Educational Level	Managerial Experience	Company Size
203	Male	45	Bachelor’s degree	5	51-200 employees
204	Female	34	Master’s degree	4	51-200 employees
205	Male	34	Bachelor’s degree	5	51-200 employees
206	Male	43	Bachelor’s degree	7	51-200 employees
207	Female	37	Master’s degree	5	51-200 employees
208	Male	63	Bachelor’s degree	26	51-200 employees
209	Male	43	Master’s degree	10	51-200 employees
210	Male	37	Bachelor’s degree	6	51-200 employees
211	Male	57	Bachelor’s degree	18	51-200 employees
212	Female	45	Bachelor’s degree	9	More than 200 employees
213	Male	39	PhD	7	51-200 employees
214	Male	29	Bachelor’s degree	2	More than 200 employees
215	Female	32	Master’s degree	4	51-200 employees
216	Male	44	PhD	5	51-200 employees
217	Male	51	Bachelor’s degree	17	1-50 employees
218	Female	32	Master’s degree	4	51-200 employees
219	Male	38	Bachelor’s degree	7	51-200 employees
220	Male	63	Master’s degree	27	51-200 employees
221	Male	52	Master’s degree	15	51-200 employees
222	Female	47	Bachelor’s degree	13	51-200 employees