

**Jevgenijs Locovs**

**DEVELOPMENT OF CORPORATE AGILITY  
OF THE CONSTRUCTION COMPANY**

Summary of the Doctoral Thesis



**RIGA TECHNICAL UNIVERSITY**

Faculty of Engineering Economics and Management

Institute of Economics and Business

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# **DOCTORAL THESIS PROPOSED TO RIGA TECHNICAL UNIVERSITY FOR THE PROMOTION TO THE SCIENTIFIC DEGREE OF DOCTOR OF SCIENCE**

To be granted Ph. D. in Social Sciences, the present Doctoral Thesis has been submitted for defence at the open meeting of RTU Promotion Council on June 20, 2023 at the Faculty of Engineering Economics and Management of Riga Technical University, 6 Kalnciema Street, Room 209.

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## **DECLARATION OF ACADEMIC INTEGRITY**

I, Jevgenijs Locovs, hereby declare that the Doctoral Thesis submitted for review to Riga Technical University for promotion to the Ph. D. in Social Sciences is my own. I confirm that this Doctoral Thesis has not been submitted to any other university for promotion to a scientific degree.

The Doctoral Thesis has been written in English. It consists of an Introduction, 4 chapters, Conclusions, 47 figures, 28 tables, and 18 appendices; the total number of pages is 229, not including appendices. The Bibliography contains 354 titles.

## **Annotation**

The Doctoral Thesis is devoted to the field of construction, studying the influence of corporate agility on the performance of the construction company.

Several studies within this Doctoral thesis were conducted. It was proved that there is a demand for the corporate agility within the construction industry. Factors affecting operational activities and the corporate agility of the construction company were determined. The methodological approach for the determination of corporate agility of the construction company was developed and validated within this work.

The theoretical frameworks were studied, and in-depth interviews were performed in order to analyse the primary and support activities of the construction company, including its functions and structure. The findings of the research were confirmed by construction industry experts with international experience.

The Thesis covers the influence of corporate agility and its importance for the modern construction company.

Keywords: construction, construction company, corporate agility, organizational behaviour, corporate governance, operations of the construction company, functions of the construction company, structure of the construction company, primary and support activities of the construction company, level of the corporate agility, determination of the corporate agility, factors affecting corporate agility.

## Table of Contents

Annotation.....	4
Table of Contents.....	5
Introduction.....	6
1. The concept of corporate agility .....	13
2. Construction industry and a construction company .....	21
3. Analysis of the Construction Company within the Concept of Corporate Agility .....	23
4. Development of Methodological Approach for the Determination and Improvement of the Corporate Agility Level within a Construction Company .....	39
Conclusions and Recommendations .....	42
List of References .....	45

## Introduction

Modern business environment forces companies to face new challenges on a daily basis. Tough competition, dynamic business environment, demand for a quick decision-making, and technological innovation do not allow companies to take any break, to free up some time to look around and think. In this dynamic environment, keeping a competitive advantage requires a company's management to develop organizational practices that can sense a changing environment and quickly adjust to unpredicted developments. In the fast-growing business environment, the terms "flexible management" or "corporate agility" are becoming increasingly popular.

Having become a modern concept, "corporate agility" has been launched by a growing number of international companies in different industries. IT and high-tech sectors lead the process, while some "heavy" and "old fashioned" industries, including construction or manufacturing, lag behind.

Traditionally, industries with disproportionate reliance on heavy machinery, work-force and materials are not prepared for quick changes. Today's challenges, namely rapid growth of population, urbanization, overloaded infrastructure, growing competition, overwhelming data flow, higher quality and safety demands, clients' wishes to have cheaply operated and multifunctional buildings, etc. force construction companies to change and to adapt themselves to new conditions and new environment.

The construction industry is struggling with segmentation, low productivity, high level of all kinds of regulatory issues (De Witt et al., 2005), and slow pace of modernization. These factors do not allow construction companies properly and timely react and face the challenges of modern business environment.

According to the Global Construction Market Report (Business Wire, a Berkshire Hathaway Company, 2021), the construction market is expected to reach USD 16.6 trillion by 2025. The industry has a significant influence on employment and wealth data due to the number of people it employs, which is almost 8 % of workers around the globe.

Such dynamic business environment requires the company to show great flexibility in order to maintain its competitive advantages. New organizational practices, a new corporate structure, new patterns of organizational behaviour and investments in human capital become a daily challenge for any entity. As a result, organizational agility has become a modern tool, which allows to strengthen and develop a company within this changing environment.

These daily challenges do not leave room for thinking and discussions, the intuition steps to the front, and rapidly changing external and internal factors, on the one hand, force managers to make quick decisions and, on the other hand, they require revisions and adjustments in a non-stop mode. The key requirement is a quick reorganization and adaptation to new conditions, whilst minimum time and resources are used. All the above mentioned forces the "numb" construction sector to face a difficult choice of either reorganizing towards agility or stepping out of the operational scene.

It should be noted that the construction industry is struggling with implementation of modern theories and approaches, where corporate agility is a rare topic for the construction companies that base their operations on the century-old management models. Today we face entirely new working conditions and challenges than a hundred years ago. These, in turn, require an open mindset, broad thinking, and an agile approach from each employee individually and the organization as a whole. Most of the processes prevailing in modern construction companies include a multitude of complex internal and external interactions within rapidly changing environments. Thus, no rigid frameworks of corporate operations can be applied anymore.

The agile approach, broad thinking, quick reorganization abilities, effectiveness and employee motivation, while keeping an eye on quality and terms, are a set of tools and challenges a construction company uses and faces daily. It is a fact that corporate agility is a modern trend that plays a key role in the survival of a construction company.

The research hypothesis: There is a demand for corporate agility in the construction industry.

Sub-hypotheses:

SH1: A well-balanced corporate agility in a construction company may significantly improve its performance.

SH2: Detecting the level of corporate agility is an essential step for the overall improvement, successful development, and operation of a construction company.

The aim of the research is to confirm that corporate agility affects the performance of the construction company, and it is possible to develop a methodological approach for determination and improvement of corporate agility level in the construction company.

The research *object* is a construction company. The research object will be studied and investigated in order to understand how corporate agility affects and assists in the development, management, and operation of the companies in the construction industry.

The research *subject* is corporate agility of a construction company. The study will focus on the impact of corporate agility on the research object and on its evaluation.

In order to reach the proposed aim, the following research objectives are set:

1. To define the term "corporate agility".
2. To establish whether there is a demand for corporate agility in the construction industry.
3. To determine the factors that affect the operational activities of construction companies.
4. To review corporate agility within the support and primary activities of the construction company.
5. To determine the factors affecting the corporate agility of the construction company.
6. To develop a methodological approach for determination and improvement of the level of corporate agility of the construction company.
7. To validate the tools of the methodological approach for determination and improvement of the level of corporate agility of the construction company.



Taking the above-mentioned into account, the following research questions were formulated:

1. Is there a demand for corporate agility in the construction industry?
2. What are the factors that affect the operational activities and corporate agility of a construction company?
3. How to determine the level of corporate agility of the construction company?

The following theses are brought forward for the defence:

1. There is a demand for corporate agility within the construction industry.
2. There is a vast number of complicated factors affecting operational activities of the construction company.
3. There is a possibility to determine and evaluate the importance of factors affecting the corporate agility of the construction company.
4. There is possibility to develop a methodological approach for the determination and improvement of corporate agility level in the construction company.

The main scientific contribution and novelty of the Doctoral Thesis

- The main factors affecting operational activities of a construction company were determined. The author performed a profound content analysis to determine the main factors that affect operational activity of the construction company.
- Definitions of the terms “corporate agility”, “organizational behaviour”, “corporate governance”, and “construction company” were overviewed. For the course of dissertation, the author offers the definition of “corporate agility”, while other definitions were developed to show the author’s standpoint and do not have a significant impact on the scientific branch.
- The factors affecting the corporate agility of a construction company were determined. In-depth interviews with the top managers of companies of the construction industries from several countries were conducted to explore the main factors affecting operational activities of a construction company. The diversity of the respondents allowed to achieve comprehensive results.
- The methodological approach for determining and improving the level of corporate agility in a construction company was developed. It was concluded that the construction industry lacks extensive managerial and organizational studies. The developed methodological approach was validated within one of the largest construction companies in the Baltic Region.
- For the first time in the Baltic States implementation and deployment of corporate agility in the construction company was studied within doctoral research.

Practical contribution and key benefits of the Doctoral Thesis

- The comprehensive analysis of the operational, organizational, and strategic aspects of the construction company was performed.

- The recommendations for the improvement of the performance of the construction company were elaborated.
- A methodological approach for determination and improvement of corporate agility level in the construction company was developed.
- The AGILITY model was developed and validated.

#### Structure and volume of the Doctoral Thesis

The Doctoral Thesis consists of an introduction, four chapters, conclusions, and recommendations. The volume of the Thesis is 265 pages, excluding appendices. The content of the Doctoral Thesis has been illustrated by 47 figures and 28 tables. The Doctoral Thesis has 18 appendices. The bibliography contains 357 reference sources. The content of the Thesis covers both theoretical and empirical study. The author has published six articles about the topic of the study and its results, all of which have been published in scientific journals or peer-reviewed scientific proceedings, the articles are cited in the scientific data basis. Results of the Doctoral Thesis were presented at seven international scientific conferences and approbated during the research and study process.

Chapter one is devoted to the discussion of the concept of corporate agility through three prisms: cultural aspects, corporate governance, and organizational behaviour. Hofstede's cultural dimensions theory is used as a basis for cultural discussion. A direct correlation was found between cultural aspects/habits and the economic success of a particular state. The differences in organizational behaviour and corporate governance affected by cultural factors shall be brought forward. Comprehensive analysis of the corporate governance was performed. Several theories were discussed, and the main models were reviewed to understand their impact on the performance and corporate agility of the construction company. The concept of organizational behaviour was thoroughly discussed and studied. The definitions suggested by many researchers were extended to the analysis of the three (micro, meso and macro) levels the organizational behaviour should focus on. Finally, the concept of corporate agility was revealed, discussed, and defined. Several academic theories provide a solid basis for both academic and practical studies of corporate agility. Further studying and developing already existing theories and other research of corporate management, organizational behaviour and lifecycles allowed the author to define the term corporate agility and to review the impact of any transformation in a company. At the end of the chapter the author presents the results of his empirical study confirming the demand for corporate agility from the construction industry participants. 508 respondents from the industry answered the author's developed questionnaire; for the results analysis, an "Alteryx" software of the analytic process automation platform was used.

Chapter two explores both the building industry and the construction company. The author defined the research object – a construction company. Deep historical and statistical overviews are provided. Historical and statistical data supplemented the results of the comprehensive research where the main factors affecting operational activities of the construction company were determined. There are 13 significant factors, generated from 667 codes, which were determined using the systematic literature review and qualitative content analysis. Each factor

includes several attributable codes (frequency) and a respective percentage out of the total number of codes. The author found that there are factors that have versatile effects and have a different origin. The determined 13 significant factors affecting the operational activities of the construction company are grouped into three major domains – internal, external, and reciprocal.

There are several topics reviewed in Chapter three, which focuses on corporate agility of the construction company. The structure of the construction company is studied and discussed. A thorough and in-depth analysis of both primary and support activities of the construction company was conducted. Each activity was discussed in detail, risks and problems were identified, and recommendations for improvement were provided. The author has singled out the role of corporate agility in strategy, general management, corporate governance and organizational behaviour of the construction company. These integral and important components of corporate agility were further analysed. All these terms were closely observed, including the aspects of conflict solving, the hierarchy of goals, Katz skills model, organizational performance and change model, ethics, choices model, Ashby law, deep analysis of organizational behaviour at three levels, and cognitive map of big team. Summarizing the problems and challenges of the agility in strategy, general management, corporate governance and organizational behaviour, the author would like to outline the importance of balance and common sense when implementing any organizational change. Rapidly changing environment, internal challenges, limitations set by peculiarities of industry or market, cultural clashes, etc. – all should be evaluated to avoid chaos. However, both empirical and academic studies prove that substantial changes in the way the organizations are led and managed are essential.

The author conducted the field research and presented its results at the end of the Chapter three. The main objective of the field research was to detect major factors that affect corporate agility of the construction company through interviews with industry professionals.

In order to determine the factors that affect corporate agility, the author conducted interviews (face-to-face or via conference calls) with 15 CEOs, CFOs, CLOs, Construction and HR directors, and senior project managers from 4 countries and 11 construction companies. The participants were asked to list at least 5 factors that affect the corporate agility of their company. 84 factors were identified.

Based on the factors detected in the previous chapters and on other empirical research and academic studies in Chapter four, the author developed a methodological approach for determination and improvement of corporate agility level in the construction company. It should assist the company to identify its weak, from a corporate agility point of view, functions and provide guidelines for improvement of these weaknesses. The approach is based on both theoretical and practical findings. Methodological approach for the determination and improvement of the corporate agility level in a construction company included a seven-step “A. G. I. L. I. T. Y.” concept and a questionnaire, comprised of 68 questions, allowing the detection of the level of corporate agility of the construction company developed. The given questionnaire shall help to pinpoint the real situation of the company and all its functions, relationships among colleagues and different departments, the thoughts of subordinates about superiors, and employees about organizations, to explore the level of corporate agility of the

company and much more. In other words, it will include a lot of sensitive data, which most of the employees will not be willing to share, especially with the top management of the company. There might be a variety of reasons why they would behave that way, either due to fear for their job or peculiarities of their personality, but the crucial point of any valuation, analysis, conclusions, and further improvement program is the true and reliable data received during the initial phase. That is why the author developed a methodological approach for the determination and improvement of corporate agility level in the construction company, its analysis and development of the recommendations. The questionnaire was successfully implemented and validated within one large global construction company. The potential improvements and basis for further research were discussed as well.

The last Chapter is dedicated to conclusions and recommendations.

#### Limitations of the Research.

The analysis of the construction industry of the EU for the years 2010–2020 was carried out. Due to the partial unavailability of statistical data, data for the last available year was used for some indicators. The author decided to focus on the Baltic States as an integral part of the EU (including the UK) market-based, midsize and large construction companies. The building material manufacturers and design companies were not reviewed separately. According to the European Commission Recommendation 2003/361/EK, if a company's turnover exceeds EUR 10 million, it has a total balance sheet of at least EUR 10 million and/or employs more than 50 people, it is considered as midsize entity, while companies with turnover exceeding EUR 50 million, with the total balance sheet of at least EUR 43 million and/or number of employees more than 250 are considered as large entities. There is no sense in analysing small entities since, due to their size, they lack sophisticated bureaucracy and are agile by their essence. The niche players (narrowly specialized companies and companies that develop construction products or technological solutions, materials producers/sellers for the construction industries, or pure maintenance companies) are not part of the research.

#### Theoretical and methodological foundation of the Doctoral Thesis.

The author used a vast number of academic sources as a theoretical and methodological foundation for his Doctoral Thesis.

#### International scientific publications on the research topic.

The results of the Doctoral Thesis have been reflected in eight scientific publications, which are cited in Scopus, WoS, and other databases.

1. Rostoka, Z., Locovs, J., Gaile-Sarkane, E. (2019), "Open innovation of new emerging small economies based on university-construction industry cooperation", *Journal of Open Innovation: Technology, Market, and Complexity*, 5 (1), art. no. 10.
2. Locovs, J., Gaile-Sarkane, E., Suija-Markova, I., Rostoka, Z., Rubina, L. (2018) "Enterprise agility – Modern term or future trend for successful company development?" WMSCI 2018 – 22nd World Multi-Conference on Systemics, Cybernetics and Informatics, Proceedings, 3, pp. 13–18.

3. Locovs, J., Gaile-Sarkane, E. (2020), "Factors that affect corporate agility of a construction company", IMCIC 2020 – 11th International Multi-Conference on Complexity, Informatics and Cybernetics, Proceedings, 2, pp. 111–116.
4. Locovs, J., Gaile-Sarkane, E. (2022) "Factors Affecting Operational Activities of a Construction Company", IMCIC 2022 – 13th International Multi-Conference on Complexity, Informatics and Cybernetics, Proceedings, 2, pp. 183-188.
5. Locovs, J., (2018). "Agile legal department a myth or key to success", RTU 59th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2021)", October 18, 2018.
6. Locovs, J., (2019). "Corporate agility: a fashion trend or way to long-term success" RTU 60<sup>th</sup> International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2021)", October 11, 2019.
7. Locovs J., Gaile-Sarkane E., (2021), "Dimensions of corporate agility within the construction Industry" Proceedings of Selected Papers, Czech Republic, Brno: Brno University of Technology, Faculty of Business and Management, pp. 67–77.
8. Locovs J., Gaile-Sarkane E., (2021), "The corporate agility's barometer of the construction company", RTU 62nd International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2021)", October 14–15, 2021, pp. 21–31.

Presentation and approbation of research results at international scientific conferences:

9. WMSCI 2018 – 22nd World Multi-Conference on Systemics, Cybernetics and Informatics, July 8–11, 2018, USA
10. SOLtmC & DEMI of the UNINA 2018 Conference with IFKAD in Naples, Italy, June 26–29, 2018
11. IMCIC 2020 – 11th International Multi-Conference on Complexity, Informatics and Cybernetics, March 10–13, 2020, USA.
12. IMCIC 2022 – 13th International Multi-Conference on Complexity, Informatics and Cybernetics, March 8–11, 2022, USA.
13. RTU 59th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2018)", October 18, 2018. Latvia.
14. RTU 60th International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2021)", October 11, 2019. Latvia
15. Workshop. Brno University of Technology, Faculty of Business and Management. December 10, 2021. Czech Republic.
16. RTU 62nd International Scientific Conference "Scientific Conference on Economics and Entrepreneurship (SCEE'2021)", October 14–15, 2021.

# 1. The concept of corporate agility

Chapter one comprises 4 subchapters, 3 tables, 10 figures, and 42 pages. In the beginning of the chapter the author analyses several theories that support and form corporate agility. The origins of agility in the organizational management context can be traced to the developers of a contingency theory, which was summarized in the core assertion of the contingency theory that there is no one best way to lead people or to design an organization, including its structure and processes. Through analysis of the contingency theory and other authors' assessment of the contingency theory, the author of the Thesis concludes that the approach suggests suitable alternatives for those managerial actions, which are influenced by external and internal environments such as organizational design, strategy formulation, decision systems, leadership styles and organization improvement.

Another important theory agility emerged from is expectancy theory. It focuses on the components needed for a successful alignment of individual goals with organizational objectives. Expectancy theory was initially presented by Victor H. Vroom (Vroom, 1964). Since expectancy theory says nothing about the motives that shape human behaviour and decision-making process, other theories or models should be considered to cover this aspect, for instance, Maslow's theory of human motivation (Maslow, 1943). The author has chosen the bureaucracy theory developed by Max Weber (Weber, 1948), to discuss the main characteristics of a bureaucratic organization such as division of labour, clear hierarchical authority structure, formal and unbiased procedures, detailed rules, and regulations, division according to functions, clear career tracks for employees, internal focus – minimization of external interruption, operation according to previously set plans and forecasts.

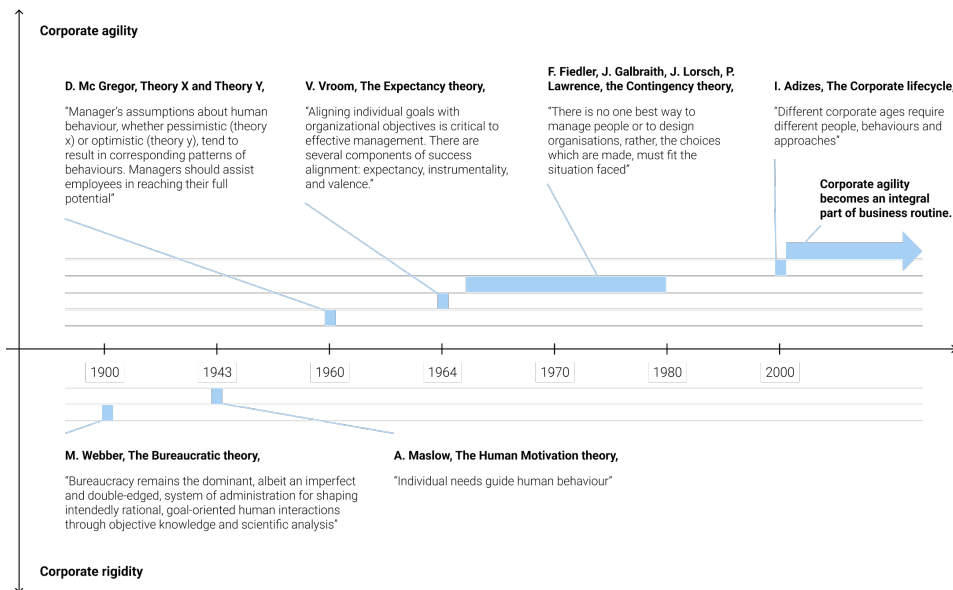


Fig. 1.1. The evolution of theories supporting corporate agility (developed by the author).

Analysing the flexibility of organizations, Adizes (Adizes, 2014) found that younger organizations show more flexibility, while as they mature, controlability increases at the expense of flexibility. As a result, the organization increasingly loses touch with its environment, and the environment changes faster than organization's ability to adapt. He determines "Prime" as the optimal position in the lifecycle, where the organization finally achieves a balance between control and flexibility.

The abovementioned theories demonstrate that together with the evolution of society and human self-development, the business environment has developed as well. They teach us that there are many volatile environments with a variety of external and internal factors that affect organizations. There is no one correct, unified way of acting in a changing environment. The strict bureaucratic approach and "the conveyor production" are being replaced by management practices that consider both the uncertainty and unpredictability of the business environment as well as the individual role and needs of an employee. This corporate evolution leads to the development of corporate agility that should provide an answer to the modern challenges. Therefore, the definition and the concept of corporate agility needs to be analysed.

For the purpose of this research, the author suggested the following definition applicable to the corporate agility of the construction company, which was discussed during the interviews with the construction industry experts:

*Corporate agility is a company's ability to identify and effectively react to internal and external opportunities and/or challenges and/or unpredicted changes within the shortest possible time frame through the maximization of cross-organizational synergy and the minimal resources' (financial, HR, etc.) usage for such transformative activities.*

There is a relatively limited room for the company to run as a maturely structured enterprise, on the one hand, and keep "start up's" flexibility of a "start-up" and flat structure on the other. The main goal of the top management is to set the path and lead the company to that position. It may appear as a long climbing route for the start-up or as a painful reorganization for the over-bureaucratized entity, but corporate agility is the key to the overall success of the company.

After the definition was elaborated, the author dedicated Subchapter 1.3 to the analysis of the main components of corporate agility: cultural impact (human resources, processes, structure), corporate governance (structure, strategy, processes, human resources), and organizational behaviour (structure, processes, human resources, strategy). The professional experience of the management component shall be reviewed in Chapter three. These notions have a direct impact and shape all corporate processes and behaviour of employees, entities and stakeholders.

Cultural aspects also influence corporate agility.

Culture could be understood as "the collective programming of the mind distinguishing the members of one group or category of people from others" (Hofstede, accessed 2022). There are six cultural dimensions: *Power Distance, Uncertainty Avoidance, Individualism versus Collectivism, Masculinity versus Femininity, Long-Term versus Short-Term Orientation*, and

*Indulgence versus Restraint.* The chart (see Fig. 1.2) compares the largest economies with different cultures.

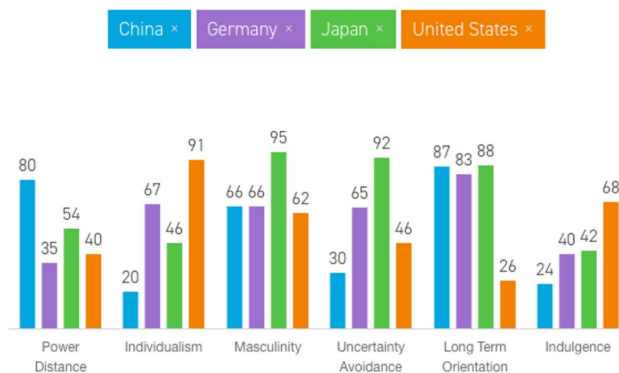


Fig. 1.2. Cultural factors for China, Germany, Japan, and the United States (Compare countries. Hofstede insights homepage, 2022).

The paper focuses on the European Union market. Thus, the author will explore the research question through the prism of the European culture and behaviour patterns.

Following the cultural impacts, the aspects of corporate governance and organizational behaviour that are affected and influence corporate agility should be reviewed.

The distrust between capital owners and those who manage and operate this capital became an issue when the first human hired his fellow to do some work. There are several theories (Institutional theory, Stewardship theory, Agency theory, etc.) that academics use as a basis for their discussion on corporate governance. The author would suggest the following definition for the purpose of the research:

*Corporate governance is the way in which the top management of the company is being controlled, supervised, and limited by major and/or minor shareholders and major influential stakeholders.*

Within the research the author has found Anglo-Saxon or Anglo-American model, European or Continental model and Japanese model as most fitting to discuss within the Thesis. Combining the two important components, cultural and formal, the different approaches to corporate governance are summarized and compared in Table 1.1. It is evident that corporate governance has a huge impact on corporate agility and vice versa. The cultural aspects and the way how the management is being controlled and supervised have a significant impact on the company's structure, its internal processes, and external communication. However, there is one more discipline that affects a company's operating and reorganizing capacities even more than corporate governance – it is organizational behaviour.



Table 1.1

Comparison of Different Approaches to Corporate Governance (adapted from Ungureanu, 2012; Yao, 2009; Maassen, 2002)

Aspects	Model of corporate governance		
	Anglo-Saxon	Continental Europe	Japanese
Control Considers	Separation of ownership from control	The association of ownership with control	The association of ownership with control
	Shareholders property rights	Shareholders property rights and relationship with employees (unions)	Multiple stakeholders' interests (keiretsu)
Management	Board of executive and non-executive directors	Supervisory board Board of directors	Board of executive directors (non-executive director is exception)
Oriented towards	Stock market	Banks	Banks and Government
Hostile takeovers	Happen	Do not happen	Do not happen
Interests of other stakeholders	Are not represented	Are represented	Are represented
Commitment of outside investors	Low	High (rare intervention)	High (rare intervention)
Evaluation	Financial performance	Return on social capital	Return on human capital
Transparency	High	Medium	Medium – low
Reaction time	High	Slow	Slow
Resistance to change	Low	Medium	High

Understanding and addressing the environment of a business has traditionally been the purview of top managers. But the effects of today's changing environment permeate the entire organization. Hence, to truly understand the behaviour of people in organizational settings, it is also necessary to understand the changing environment of business (Griffin and Moorhead, 2014). Therefore, for the purposes of this study, the author proposes the following definition of organizational behaviour:

Organizational behaviour is the actions of individuals and teams within the organization and their influence on organizational effectiveness and performance.

There are three levels of organizational behaviour (see Fig. 1.3).

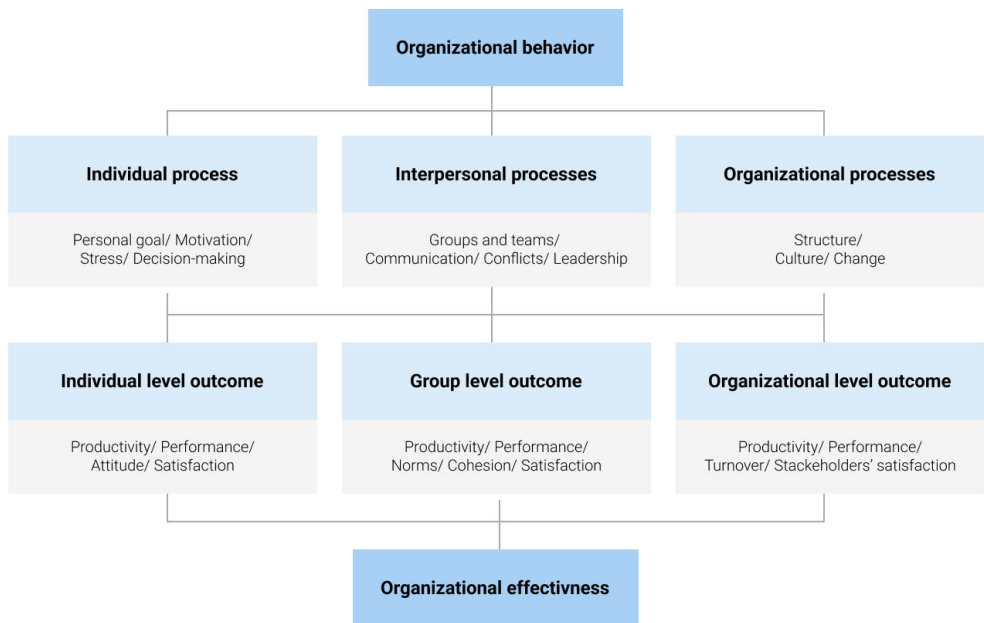


Fig. 1.3. Levels of organizational behaviour (adapted from Griffin & Moorhead, 2014).

Important element of organizational behaviour in the modern world is a cross-cultural factor. It deals with cross-cultural similarities and differences in processes and behaviour at work and the dynamics of cross-cultural interfaces in multi-cultural domestic and international contexts. It encompasses how culture is related to micro-organizational phenomena, meso-organizational phenomena, macro-organizational phenomena, and the interrelationships among these levels (Gelfand et al., 2006).

Considering that the construction industry is the author's field of interest, he dedicated Subchapter 1.4 to investigating whether there is a demand within the construction industry for corporate agility. There are many factors that affect or are affected by corporate agility. To prove the findings, the author decided to distribute the questionnaire among construction industry professionals to verify whether his conclusions were correct. According to Aghina et al. (2020), companies face implementation choices across five operating-model dimensions (Strategy, Structure, Process, People and Technology) when they want to increase the level of enterprise agility. This model was adopted for the field research.

On the basis of systematic literature review, interviews and studies mentioned above, a questionnaire was designed by the author to assist in detecting the level of importance of corporate agility in the construction company. Respondents were asked to fill his/her answers by numerically expressing their agreement or disagreement with the description. The questionnaire had to be filled by as many employees as possible from all levels and departments. Each answer has its score number. The target audience of this research is about 70 000 employees working in the Latvian construction industry. During January – February

2021, the link was distributed among employees of public, state- and privately-owned construction companies. Total number of recipients was 3021 addressees. 508 responses were received. The response rate is about 17 %. The results were analysed using Alteryx, an analytic process automation platform.

The following socio-demographical data was provided by the respondents: age, gender, position, department, number of years in the construction industry, and education. The questionnaire consists of five (Strategy, Structure, Process, People, Technology) blocks and two questions for each block. The questionnaire was sent only to entities and professionals from the construction industry. The respondents came from both the state and private sectors. However, there is room for further research since only 302 males and 350 engineers answered the questionnaire. The questionnaire was filled out by the industry's representatives, among whom about 60 % were male, and more than 70 % had an engineering diploma.

Summarizing the field research results it was found that all groups provided numbers far higher than "5" in their responses (having an average score of 8.27) and supported an aspiration towards corporate agility in the construction sector. See Table 1.2 for the results. The results of the field research confirmed the author's initial assumption, i.e. the need for corporate agility within the construction industry. The following chapter will explore the essence of the construction industry and the research object – a construction company.

Table 1.2

Comparison of Different Groups' Valuations (Developed by the Author based on the Alteryx Program Data)

Questionnaire data		Group				Group's average		Overall results	
		Females/ not engineers/ 31-40 y	Females/ engineers/ 31-40 y	Males/ engineers/ 31-40 y	Males/ not engineers/ 31-40 y				
Number of respondents		20	47	81	28	176		508	
Strategy	1. How important are corporate values, corporate goals and clear strategy for the company and its employees?	8.55	8.89	8.72	8.14	8.58	8.41	8.68	8.55
	2. How important is the alignment of the employees' personal goals with corporate goals of the company?	8.2	8.36	8.54	7.89	8.25		8.42	
Structure	3. Please evaluate which organizational structure suits better the flat and flexible or hierarchical and rigid?	6.9	6.57	6.74	5.50	6.43	7.71	6.70	7.87
	4. How important is a cross-departments' cooperation in the company?	8.6	9.17	9.23	8.93	8.98		9.03	
Process	5. Please provide your opinion on whether a quick and rapid decisions making process in the company is important?	8.45	8.34	8.58	8.36	8.43	7.92	8.35	7.97
	6. Do you think that high level of bureaucracy (instructions, approvals, limits, paper work, etc.) slow down the development of the company and harm its operations?	7.4	7.74	7.72	6.75	7.4		7.59	

Table 1.2 continued

People	7. How important is a support in implementation of employees initiatives and ideas from the company?	7.95	8.74	8.73	8.18	8.4	8.12	8.62	8.26
	8. Do you think that work in non-hierarchical (flat) organization with good cooperation of cross-functional teams, will motivate people to develop passion to work and to become more engaged?	8.1	8.3	7.85	7.07	7.83		7.9	
Technology	9. How important is the usage of modern software (planning, design, quality control, etc.) in the construction industry?	8.85	8.96	8.64	8.61	8.77	8.69	8.78	8.72
	10. Should universities and construction industry develop much deeper cooperation?	8.05	9.09	8.64	8.14	8.61		8.65	
Average		8.16	8.42	8.34	7.76	8.17	8.27		

## 2. Construction industry and a construction company

Chapter two comprises 2 subchapters, 8 tables, 5 figures, and 34. Since the research is focused on the construction company, Sub-chapter 2.1 is devoted to exploring and analysing both the construction industry and the construction company. Historical and statistical overviews and data are provided to understand the scale and the industry's shaping factors and to identify the problems the industry faces.

The following definition (approved by experts) of a construction company is suggested for the purposes of this study: *A company that operates in the construction industry (sector), managing and/or performing construction, demolition, reconstruction, maintenance and/or design works that result in the creation of the operable building and/or structure and/or plot (or part thereof) according to the clients ideas and/or needs while fulfilling the requirements set by laws and regulating normative acts.*

The main aspect or added value of this definition is a connection between the works carried out by the construction company, the client's needs, and legislation.

Subchapter 2.2 deals with economic and geopolitical factors impacting the development of the construction industry. To set the context of main challenges within the industry, the analysis of the industry for the years 2010-2020 in the EU was carried out.

The author aims to evaluate how agility affects the performance of medium and large-sized construction companies. For that purpose, both supporting and primary activities will be analysed and critically discussed. The activities were not studied in detail, analysing the individual effect of each of them on the performance of the construction company; instead, the influence of corporate agility on the activities was studied.

Summarising the data and analysis presented in this chapter, one can conclude that the construction industry on the whole, and in Europe in particular, faces many problems. The heritage of the Cold War, the dependence of the Eastern European countries on the support and dotation from the old members, huge gaps in productivity and standard of living, cultural gaps, segmentation, unpredictable business environment, high bureaucracy, lack of skilled professionals, all these factors force construction companies to search for approaches and tools that would allow to solve or at least to minimize problems mentioned above. According to the author's point of view, corporate agility could provide an appropriate answer to such demand. It could reduce the negative impact of the surrounding uncertainty and would allow the necessary reorganization as quickly as possible. In order to understand what are the most significant factors that affect the operational activity of a construction company, the author performed further research that shall be presented further.

The author decided to determine the key factors that affect operational activities of the construction company. Following the findings of academic studies and interviews with the industry's experts, a demand for improvement of a construction company's operational activities was identified. The methodology used for this research includes the following methods: literature overview, qualitative content analysis and interviews with industry professionals. To identify the main factors that affect the operation of the construction

company, a systematic literature overview of 38 sources was performed, and the main factors were identified, using a detailed content analysis method and validated through interviews with experts. In the analysed works, 667 codes were identified, the qualitative data was labelled and categorized into 13 significant factors, which in turn formed external, internal, and reciprocal major domains. Each factor includes several attributable codes (frequency) and a respective percentage out of the total number of codes (667). See Fig. 2.1 and Table 2.1 for the results.



Fig. 2.1. The weight of the factors affecting the operational activity of the company (frequency 667 in total) (developed by the author).

Another interesting angle to analyse the results of the research is to explore which factors external, internal, or reciprocal affect the operational activities more. Prior to the research completion, the immediate answer would have been that internal factors have the largest influence on the operational activities. All classical notions of proper processes, structure, planning, finance, etc. were expected to take centre stage, leaving small room for others. However, the results slightly differed. Pure internal factors occupied only about 62 %, while pure external factors exceeded the bar of 20 %. The reciprocal factors showed an interesting output that almost reached the external factors with a score of almost 18 %. Among the reciprocal factors, stakeholders' management and availability of resources have a total input of circa 15 %, while those two factors have more external influence portion rather than internal. This means that external factors, especially in the age of globalization, have a significant impact on the operational activity of the construction company.

Table 2.1

## The Weight of the Factors Affecting the Operational Activity of the Company

#	Factor	Domain	Frequency	%
1	Stakeholders' management	Reciprocal	119	17.8 %
2	PR and communication			
3	Availability of resources			
4	Pestel	External	135	20.3 %
5	Globalization			
6	Risk management	Internal	413	61.9 %
7	Human resources			
8	Financial resources			
9	Targets			
10	Structure and organizational behaviour			
11	Quality of processes' management			
12	Short-term planning			
13	Strategic long-term planning			
Total			667	100 %

Overregulation of the industry, low professional and managerial skills of the personnel, bureaucracy and sophisticated over-controlled internal procedures do not allow the company not only to act proactively but even to provide a quick response to problems or new requirements and/or to perform necessary reorganization if needed. This inertia is causing direct financial losses and harm communication and relations with both internal and external stakeholders. As one may see, there are several significant factors that negatively influence the activities of the construction company. A substantial analysis of the construction company's structure and its primary and support activities is needed to elaborate the cure for this lack of flexibility in a changing business environment, which in turn highlights the importance of corporate agility.

### 3. Analysis of the Construction Company within the Concept of Corporate Agility

Chapter three comprises 6 subchapters, 14 tables, 28 figures, and 94 pages. In order to evaluate corporate agility, a comprehensive study of the essence and structure of the construction company should be performed. A greater understanding of its organizational behaviour and a possible "therapy treatment" for improvement or reorganization towards corporate agility should be analysed. The author performed an identification of the necessary functions of the construction company as a bureaucratic organization, conducted a literature overview and interviews with the industry's professionals. These functions may be covered via different organizational structures. The author presents in the paper the organizational scheme of a "typical" construction company and its functions. The functions may be divided into



separate departments, or there might be several functions united under “one umbrella”. Certainly, the latter assumes a reasonable synergy amid the functions.

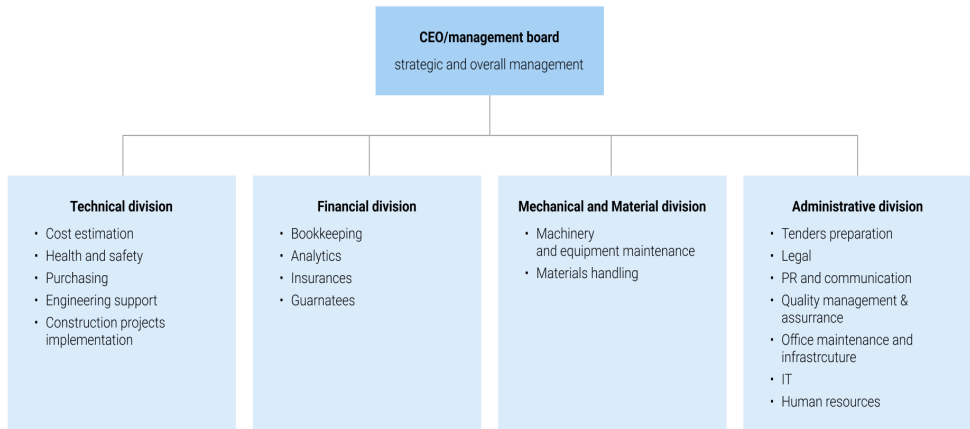


Fig. 3.1. Distribution of functions in a “typical” construction company (developed by the author, validated by experts).

Another subject discussed with the experts, and validated through corporate laws and practices of the EU was the transnational structure of international companies. Generally, there are two ways of managing the expansion from a corporate risks point of view:

- full liability of the mother company (branch, representative office);
- establishing a subsidiary company under local commercial law.

The author has chosen Michael Porter’s Value Chain Model to identify a construction company’s activities, analyse the linkages and strategic fit among these activities, and examine the cost-reducing and/or value-enhancing potential of each strategic activity.

According to M. Porter’s (Porter, 1985) Value chain model, each enterprise has primary and support activities. Porter & Millar (1985) found that primary activities are those involved in the physical creation of the product, while support activities provide the inputs and infrastructure that allow the primary activities to take place.

The concept of corporate agility of the construction company presumes deep cross-departmental cooperation, the ability of rapid transformation/reorganization, and free knowledge and personal exchange. Therefore, the author suggests reviewing activities in a balance, when no activity has an explicit preference since all of them are highly interconnected and have direct mutual influence. However, many components of corporate agility are related to support activities that serve as a basis for cross-departmental ties. Therefore, those will be discussed first. Corporate agility and performance are affected by many other factors. The author has compared factors affecting corporate agility and the impact of functions on support and primary activities of the construction company. It may be concluded there is a substantial difference in how support and primary activities are influenced by the functions of the construction company and the factors affecting its corporate agility. It is clear that factors

affecting the corporate agility of the construction company influence each activity of the organization; they create cross-departmental ties and links, forcing different departments to cooperate and proceed toward common goal. While functions can be easily attributed to a specific activity, sometimes the impact is reciprocal, where a stronger and a weaker activity is affected.

The support activities have a significant impact on the performance of an enterprise and its primary activities. There are following categories: company infrastructure, human resource management, technology development, and procurement.

Quality of support activities depends on personal involvement, broad thinking, and dedication of the personnel; these factors have a direct correlation with motivation, feeling of importance for the work contribution and appreciation from the management and colleagues. Unsatisfied or demotivated employees will never support the organization and will never try to implement an agile or creative approach to problem-solving. Lawyers, bookkeepers, accountants, financial analysts, technical and IT staff, HR managers, and procurement specialists of organizations, where their activities are not the core of the business, often feel like robots needed for some background routine operations. Thus, ambitious specialists often do not apply for such company's jobs positions. It is one of the most important tasks of the respective top managers to replace this employees' perception with the feeling of belonging and necessity in their roles. The notions of both: self-development and overall company goals should be explained and incorporated. If personnel identify themselves with the goals and needs of the company, if they understand that by working towards the corporate goals, their personal aims could be achieved as well, the success is unavoidable.

A construction company's "infrastructure" consists of a number of activities such as general management, strategic planning, and finance, including accounting, legal, quality management and other administrative activities that support the entire chain. The general management and strategic planning shall be discussed in later chapters, while governmental affairs are an integral part of all support activities due to the involvement (regulations, taxes, tenders, orders, etc) of the state in the industry.

Having explicitly supportive roles, legal and accounting/financial departments are generally considered the least flexible among all corporate operations, even by non-managerial staff. An important step in involving legal department employees in other processes is to introduce the project to them, define the goals, describe the general path and outline the risks while skipping the technical details. If a lawyer bears in mind that the common intention is to sign the contract, he/she should raise all risks for internal discussion, reducing the redundant and excess prudence, and outline the real and important disputable issues.

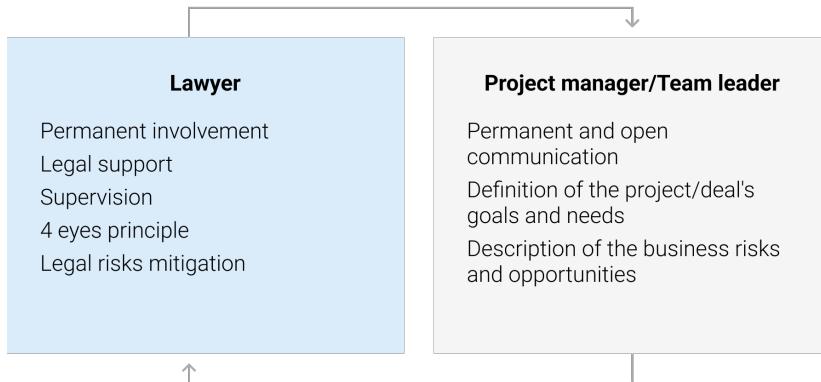


Fig. 3.2. The communication chart between the lawyer and project manager/team leader (developed by the author).

Unfortunately, the majority of the contractors do not attribute almost any importance to their financial department and bookkeeping. Whilst one of the main aims of a well-functioning financial department is to get acquainted with and evaluate the true financial and economic position of companies, their operational efficiency, to evaluate and control the construction and production processes by identifying, controlling and improving their quality (Fedotova, 2019). Accounting is the blood system of any company, which ensures oxygen's supply (financial resources) to the organs (projects/teams/departments) assisting them to operate and develop. The guideline for the financial and technical teams' cooperation should be that "the financial management of a construction company is equally as important to company success as is its technical management" (Nunnally, 2007).



Fig. 3.3. The communication scheme between the financial dept. representative and project manager/team leader (developed by the author).

Administrative activities include many small but important functions that shape the daily operation of the construction company. Secretary, IT, archive, office drivers/couriers, office maintenance, top management assistants, etc. have a significant impact on the effectiveness and

productivity of the construction organization. All these should be deeply integrated and broadly cooperate with all other departments.

Quality management and business processes play an important role in the daily routine of any construction company. Quality assurance and quality control create basics for the further development of cross-departmental cooperation, resulting in corporate agility, when 4 eyes principles of internal supervision assist in reaching common corporate and private goals. On the one hand, the business processes create a nervous system and blood vascular system at once. It provides the guidelines for cooperation, operation and decision-making processes and creates channels and rules for communication and information exchange.

Agility in the procurement of a construction company consists of two sub-functions:

- purchasing, when the company procures something by itself;
- participation in tenders, where a company goes under the procurement procedure of a client.

The latter, participation in tenders, will be reviewed in the chapter on primary activities, under the activity marketing and sales.

Agility in human resource management of a construction company is a function concerned with people. It considers individuals, teams, groups, and sites throughout the whole organization. It also concerns the inter-relationships of the individual and the organization and their contributions to personal development. The author performed a literature overview and found that HR is integrated into and affects all main corporate elements.

The human resources managers operate in a field where rigid rules and instructions usually have a negative impact. The relationship between employer and employee has been always complicated. Where is this border between exploiting and demanding results for the money paid? What is motivation, and how should it be applied? Should the entity approach an individual, or should it talk to the head of labour unions only? These and many other questions that HR departments face on a daily basis cannot be cut, shaped and inserted in any frame or cannot be summarized in any manual. According to Huzooree & Ramdoo (2015), companies are craving for the HR that may respond on the one hand quickly, proactively and flexibly while following the corporate strategy on the other. To summarise, agile HR is the proactive response to the potential needs of corporate internal clients for ambitious, honest and nimble professionals. Human and individual-oriented HR policies and programs should never contradict corporate values and strategy. HR (as not a primary activity) should always support the organization in its development, but never become the essence of the corporate daily routine.

There are two kinds of technology in construction. The technology of the construction processes and performance of the actual works on site. This is a very important part of the daily operation, which will be reviewed as part of the primary activities. The second type of technology is the technology of inventing or developing building materials or equipment. The latter usually is not a part of the business of the construction companies, as defined for the purposes of this research.

Primary activities create a product or a service, deliver and market it, and provide after-sale support. The categories of primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service.

Construction is an industry of high risk and responsibility. Each mistake may lead to dramatic consequences, while on the other hand, a job well done may serve tens to millions of people every day for decades. The operational component is one of the most important activities, and it requires the lion's share of the financial, human and technological resources of the company. It also has the heaviest impact on the performance of the organization since it is the source that generates cash flow and revenues for the corporate existence, while other departments, no matter how important they are, only "spend" money. Operation in construction means the realization of the project. It can be pure construction when design is provided by customer; it can be a "design & build" project, or BOT (Build-Operate-Transfer), where the contractor is responsible for the design, construction, operation and maintenance of the project. Operations shall be split into two following subchapters: "technology and knowledge development" and "implementation".

Technology and knowledge development are some of the most important parts of the construction process. According to Porter & Millar ( 1985), every value activity of the firm embodies technology, be it knowledge, procedures, or technology built into the process equipment. The development of the correct and efficient technology for the implementation of the project through the usage of previously obtained knowledge plays a key role in the success or failure of each particular project. It was found that all phases brought above require a quick and precise exchange of information and sharing of knowledge. Thus, all these elements support, complement and interact one with another, forming a continuous process of agile operation.

All stages of implementation of the construction project shall be reviewed later, but it is important to notice that the transfer and sharing of knowledge is crucial for the success of any construction project. The habit of sharing information and reasonable involvement of the team in the implementation of the project allows not only to face external challenges but also to minimize damage in case team members leave. Knowledge and technology are integral parts of the implementation of any project.

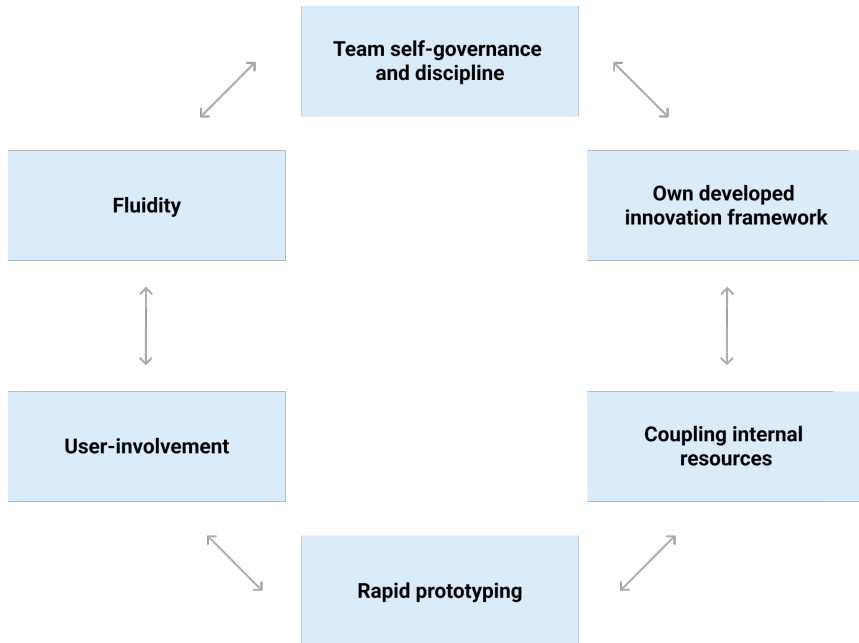


Fig. 3.4. Continuous mutual interaction of agile technology forming elements according to Meyer & Marion, 2016.

The second important part of operating a construction process is implementation. It was found that evolving construction industry roles and the adoption of alternative project delivery methods are creating changes in the conventional construction management practices that public agencies use to ensure appropriate project delivery, contract compliance, and quality assurance.

The construction process is intrinsically dual. On the one hand, it is very strict or “static” from the phasing point of view, a roof cannot be built before a foundation is laid. The “critical path” of a construction project is essentially dictated by laws of physics, structural mechanics and engineering calculations. On the other hand, many people involved, numerous tasks, performed simultaneously, and continuous data input that flows up until the final completion day, turn the construction into one of the most dynamic processes in world. Consequently, all process members balance between rigid technical and legal requirements, adjusting routine and plans on a daily basis due to the ever-changing environment, to achieve constructability.

In order to understand how technology development could be turned into an agile process, the lifecycle of the project should be illustrated. According to Jardine (2007), a matrix of the building process has the following phases – concept, design, construction, close-out, and operations and maintenance (warranty period).

Table 3.1

Importance of Agility Forming Elements During the Phases of a Building Project  
(Created by the Author)

#	Agility forming element	Phasing				
		Concept	Design	Construction	Close-out	Warranty
1	Coupling internal resources with external subcontractors	☑☑	☑☑☑	☑☑☑	☑	☑
2	Team self-governance and strong discipline	☑☑	☑☑☑	☑☑☑	☑☑☑	☑
3	Fluidity	☑☑☑	☑☑☑	☑☑	☑	☑
4	Own developed innovation framework	☑☑☑	☑☑☑	☑☑☑	☑	☑
5	User-involvement	☑☑	☑☑☑	☑☑	☑☑☑	☑☑☑
6	Rapid prototyping	☑☑☑	☑☑☑	☑☑	☑	☑

The author has described the phasing of a building project from the corporate agility point of view. Each phase was split into six agility forming elements, a description of necessary activities that form a particular agility element. The findings are summarized in Table 3.1. Summarizing this chapter, the author would like to draw attention to the high importance of cross-departmental cooperation in implementing the construction project. The transfer of knowledge between the departments or within the project team and thoughtful planning are the keys to the success or failure of the project.

Most of the financial losses are related to using a wrong approach, not following technological requirements, poor preparation, lack of planning, and ineffective team. The list is endless. The main lesson to be learned is that the weight of each mistake in construction is huge and may result in both financial losses and/or threat to or, sometimes, even loss of human lives.

The agility in inbound and outbound logistics in the construction industry plays an important role, however it focuses on the logistics of the materials, labour force and mechanisms from and to the construction site. In order to improve the supply chain of the construction company, all its elements and affecting factors should be analysed and maximally integrated. The author proved that the elements to be improved undergoing the integration process of the supply chain have a direct effect on the factors that affect the corporate agility. Nevertheless, it is split as a separate activity, and, as it was demonstrated, it has a great impact on both daily and long-term operation of the construction company. The supply chain management integration in the concept of corporate agility should be reviewed as part of the operation activity since it is integral to and inseparable from the latter.

The term “service” has two meanings in the construction industry. The first is a “postconstruction period service” also called “warranty period”, as above. Another meaning of this term is “How it should serve its customers, stakeholders, and subcontractors?” Here the term “service” will be discussed in terms of the way of thinking, self-positioning and effective, regular, planned and ad hoc communication between the company and its internal and external stakeholders.

There are three behavioural models, or roles, a contractor implements depending on the financial relationship it has with a particular stakeholder. A contractor adjusts its behaviour and communication depending on the role it plays: a waiter’s role; a customer’s role; a neighbour’s role. Based on these types of relationships, a construction company may adopt different communication and service providing behavioural approaches. A model of a relationship of the general contractor with all stakeholders of the project, called a “Captain’s model”, was developed by the author (see Fig. 3.5). Similar to a captain of an aircraft, who has to serve its customers (passengers) during the flight, he/she has a general goal of arriving to a destination point safely and on time. The captain of the aircraft enjoys the same safety level as any crew member or passenger, and all of them have their own reasons why they want to arrive to the same destination point.

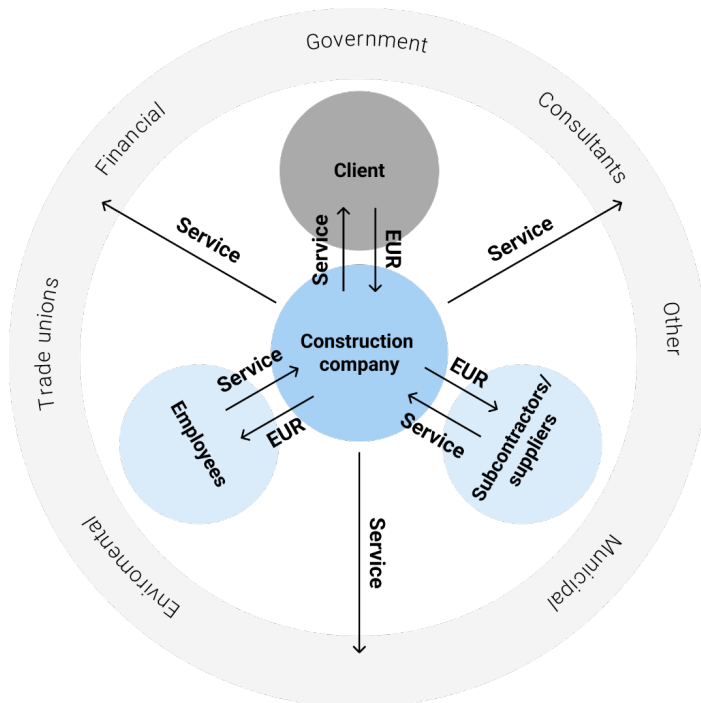


Fig. 3.5. Captain’s model – an interaction between the contractor and stakeholders, including money and services flow (developed by the author).



Table 3.2

Comparison of the Contractor's Roles According to Captain's Model

Description	A waiter	A customer	A neighbour
Money flow	To the contractor	From the contractor	Non-financial relationship
Service flow	From the contractor	From and to the contractor	From the contractor
Risks	According to the contract	According to the contract. Risk that employees' mistake or bad performance of a subcontractor will do unscalable loss in terms of the main contract with the client	Change their mind, new legislation, long decision-making process, inability to affect the process
Communication	Precise, legally accurate, polite	Precise, legally accurate, polite	Precise, legally accurate, polite

There are three basic assumptions in this model:

- A construction company should not suffer losses/bankrupt.
- A construction company should lead and coordinate all processes (including those formally attributable to other parties) by servicing all the stakeholders.
- A construction company should maintain precise, legally accurate and polite communication.

Summarizing the author would like to highlight that a construction company undertakes the underdog position almost in each construction project. Regulations, strict contracts, large costs, and small profit do not allow a contractor to be an observer or a "yes man" to the client. The contractor should take care of his interests and protect himself thoroughly with fulfilment of the contractual obligations and keep reputable relationship with the client and other stakeholders. Such sensitive and complicated routine requires a highly agile structure and approach that allows "walking on the edge", taking calculated risks, still bearing the responsibility for the project, and prepared for any challenge. Therefore, an implementation of a Captain's model means being a partner as well. A reliable partner. Partner that should position himself to resolving any problems that may arise. Assist, cooperate and perform proactively. The principles of fairness, transparency, honest treatment, interest protection, assistance, understanding, professional approach, and compromise approach to issue resolution should become a DNA of any construction company, without distinguishing which hat it wears now. The core principle of corporate agility of always having plan "B", being prepared for the unexpected challenges, should never overwhelm fairness in business.

Agility in the marketing of the construction company is as important as for any other company. However, the marketing of the construction company, no matter how large and international it is, will differ from large and international companies of other industries. -Brand awareness and marketing activities despite the international status of the construction company will remain expressively local. Each product is unique, tailor made and belongs to the customer. The significance of the state sector among the customers reduces the need of very aggressive

marketing campaigns. Since all procurement is done through depersonalized procedure and often through electronic platform when brand awareness has zero effect.

Agility in sales is one of the key functions in any organization. Turner (1997) considers the construction company's clients across five categories: property and development companies, investors, occupiers, local and central government authorities, and quangos. In general, sales consist of two major phases: searching for clients and participation in tender procedure. Searching for the clients is one of the most important tasks the sales (sometimes called tenders) department should do. Most of the construction companies work with both state/municipal and private projects. The main difference between these two kinds of clients is the way the tender is conducted and the way the decisions are made.

The private client is not limited by the way he/she is going to proceed with the tender. He/she may invite anybody they want and refuse anybody they want. The qualification criteria may be balanced and well-developed or be bound to one person's subjective opinion. On the other hand, the state or municipal tender is subject to many rules and normative acts, such as procurement law that guides all state procurements. The state/municipal tender procedure has to be transparent, and each person or entity can take part in it. The client cannot prevent participation of anybody if it fits the qualification criteria and is able to submit a financial and technical offer.

Corporate agility in four key elements – strategy, general management, corporate governance, and organizational behaviour of the construction company, turns them into highly interconnected, depending on and supplementing each other. Strategy is rooted in general management and corporate governance, while organizational behaviour shapes the decisions and actions being taken by sole individuals or by the organization as a whole. Therefore, all four are reviewed together to outline the interconnections mentioned above.

Corporate agility is not a lack of strategy or a lack of planning but an integrated set of tools that quickly transform the entity to be ready to reflect the new factors (internal or external) or situations. According to Accardi-Petersen (2011) "It's not changing your strategy every time someone new comes into your office, and it's not allowing you not to plan. Planning for change is the paramount rule of agile... you need to start planning by looking at what your long-term company strategies are and what the constant of change will demand." The author outlined the main six steps to implementation of strategy using the corporate agility's tools to improve operational performance and create a competitive advantage. After the strategy is set, it is imperative to follow it up, monitor, control, push and sometimes adjust and adapt according to the changing environments and challenges the construction company faces. In other words, the set strategy should be agile, with several potential interim by-passes for sub-goals' achievement, but the most important is to continue the re-evaluation of the long-term corporate goals. It has to be done in order to maintain the connection with reality, with the ongoing progress and changes the construction company goes through.

Agile corporate governance has a huge impact on the executive management of the entity. The author focuses on the Baltic States as an integral part of the EU market, so this model may be taken as a basis. However, in today's age of globalization one will not find a classical model

that will suit a particular region anymore. Talking about the EU, we should bear in mind that it is comprised of more than two dozen countries, which vary in their cultural perspective and historical background. Furthermore, as was mentioned before, the construction sector is highly segregated. This means there are very few truly large companies, while most are midsize and small ones. The author reviewed two options for the corporate governance of the Latvian construction company: the subsidiary of an existing big international company and the company established by a local individual/group of individuals.

The corporate governance approach chosen at this point is crucial. The limits set for the top management and the level of involvement of the owner should be carefully thought through. Construction is a tough business that requires big resources for successful implementation. On the other hand, having enough financial resources for the working capital and guarantees, it is possible for a professional to create a mid or even large-size company within a few years. The issue of control and supervision from the owner's side and the level of management freedom from another are highly important. As shown above, the issue of agility in corporate governance in both cases of a locally developed company or by way of international expansion should be considered. However, in this particular case, the main point to be made for agile corporate governance is its alignment between "what the owners are used to" and "what the internal and external stakeholders of the company are expecting". The top management, in this case, should be a flexible, protecting two-way filter that does not allow to paralyze the operations on one hand and to provide maximum transparency to the owners, on the other. Both stratum - shareholders above and internal and external stakeholders under the top management filter should feel comfort, trust and authority while cooperating the management of the company. Doubt in the authority or legitimacy of the management from any side may significantly harm the corporate performance especially in such large-scale projects industry as construction. Yusoff and Alhaji (2012) summarized that the corporate governance is concerned with the social, political, and legal environment in which the corporation operates systems practices and procedures – the formal and informal rules that govern the corporation.

Agility in organizational behaviour of the construction company.

As it follows from the previously provided definition, organizational behaviour is about people and processes. One of the keys to agility is not so much coming up with a particular innovative response as the capacity to innovate. This capacity involves various aspects of organizational behaviour, which research has shown to have a marked impact on innovation (such as high workforce commitment, flexible processes, cross-functional links, etc. (Bessant et al., 2002).

General management's prime tasks, on the one hand, are to deploy flexible procedures and shape flexible structures within the organization. At the same time, the organization should invest in its staff, develop it and embed the agile achievement orientation and broad thinking at all levels. According to a vast number of research and the personal experience of the author, one of the most vivid problems of agility, especially in large companies, was conflict/contradiction between internal formal procedures and informal real-life processes. Some companies may solve the issue by implementing a system of adjusting their internal

procedures (in cooperation with the relevant departments and stakeholders) to the real-life day-to-day processes, keeping the balance between the necessary minimal core requirements which should be adjusted accordingly for smooth operation. In other companies, instructions are developed at the group's level and cannot be adjusted. Thus, a system of informal relationships should be developed to bypass the rules.

Atkinson & Moffat (2005) claim that "...management had to have lateral and vertical agility and interactivity, across and through the different levels...". Each unit/team/person is not limited and is capable of solving the problem using alternatives and nonstandard options whilst keeping the total hierarchy in place. The structure described above supports and maintains the agility, reaction time and adaptation ability of both the whole system and its subunits for the changes to come. In order to proceed with the suggestions of improving the agility of organizational behaviour of the construction company, the author observed in detail the staff, individuals and groups existing in the construction company while identifying the potential problems. It is important to recall that one person may act as an individual and as a representative/member of *different* groups depending on the situation. Summarizing previous studies, and the author's personal experience, the author concludes that corporate agility within a construction company mainly is a matter of organizational processes on a management level (low, middle, and top), while technological and individual cooperation amid "blue-collar" workers on the construction site has almost no impact on corporate agility. Therefore, they are excluded from the scope of this research. The author performed an extensive analysis of challenges, problems, samples, goals, and cooperation at the level of teams, structural units and even partners of the joint ventures in all three micro, meso and macro levels of organizational behaviour of the construction company.

It is important to recall that one individual may take part in different groups, where he/she should adjust him/herself, to adapt to new roles and behave accordingly as an individual and as a team member. However, such a variety of environmental conditions shapes the personality and allows to understand that there is no "black or white" approach. Often, some issues that seem obvious from an individual or particular job position perspective appear to be the opposite if the consequences are analysed from a department or whole entity point of view. Such a "roles game", if correctly communicated by management, significantly reduces dissatisfaction among the employees if they see that a particular decision has its logic and is made not to harm them specifically but to gain positive capital for the company. Adaptation of self-behaviour, analysing things from different points of view, correct communication, broad and creative thinking, flexible persistence, goals and sub-goals definition and adjustment are the factors a company should promote to achieve agile organizational behaviour.

After all, three main topics of corporate agility in strategy, corporate governance and organizational behaviour were discussed separately, the author analysed of the corporate agility of the general management. The general management of the company, depends on its structure (one- or two-tier structure). The high-level managers are being paid not to be involved in routine, they are being paid for having a bird's eye view, dealing with strategy and future development, and setting guidelines and implementing ongoing control on operational daily

issues. Janowski (2022) found that a successful agile transformation is a complex, long-term process that is supported by all people in the organization. The agile work approach requires methodological know-how as well as agile principles and values that are respected and lived by everyone involved. Ideally, this starts at the top: only when the changed attitude becomes noticeable and visible in the leadership type can the organizational culture develop holistically.

The model of organizational performance and change (Burke–Litwin, 1992) should be the map in the hands of top managers who are going through the maze of managing a construction company. The guiding idea of permanent change and transformation that will affect almost everything should be tattooed in the minds. This model encompasses all major topics discussed in the previous subchapters (strategy, organizational behaviour and culture, structure and systems cover corporate governance) while other topics were reviewed within the research and analysis performed. However, one subject matter is particularly important to discuss within the frame of general management – the leadership. Burns (1978) suggested the following definition of leadership – it is the reciprocal process of mobilising by persons with certain motives and values, various economic, political and other resources, in the context of competition and conflict, in order to realize goals independently or mutually held by both leaders and followers.

The operational (technical) problems should be solved up to mid-level management, where all daily issues are being finalized. Otherwise, the company would degrade or stagnate since nobody would have the time and energy to deal with strategy and development. Only critical issues are to be brought to the top management level for discussion – approval of bid price for a large-scale project, big claims, significant safety accidents and so on. Human capital development and communication (human skills) are important at all levels and play a significant role, as will be discussed below. The conceptual skill of the ability to see the big picture, set general guidelines and goals, develop strategies and make necessary cross-organizational restructurings are left to the top-level management. All parts of the primary and support activities discussed above are directly related to the general management. None of the issues or procedures in the companies should be skipped by it. It does not mean that the CEO should lay concrete by him/herself, but it means that the top managers should guide, control, set strategy, objectively solve problems, deploy policies and procedures, introduce new development options, inspire by self-example, lead the change and continuous transformation. People need superiors to guide them, to make decisions, and in many cases, to solve conflicts, or in other words, to judge. There are always informal and formal ways of leading. Leading a construction company is not easy. The construction sector is tough, fragmented, and full of conflicts, as any sector where big money is involved. The top management must root and maintain the crucial idea of a fair approach to every stakeholder. The construction sector is known for its peculiar and not-always-fair practices. The name of the game usually is money. Subcontractors and suppliers are often at the mercy of their main contractors who sometimes refuse to release their payments accordingly. The lack of money in the industry is aggravated by the lack of trust amongst supply chain players. This lack of trust means that all parties involved in the construction process behave in a very cautious way.

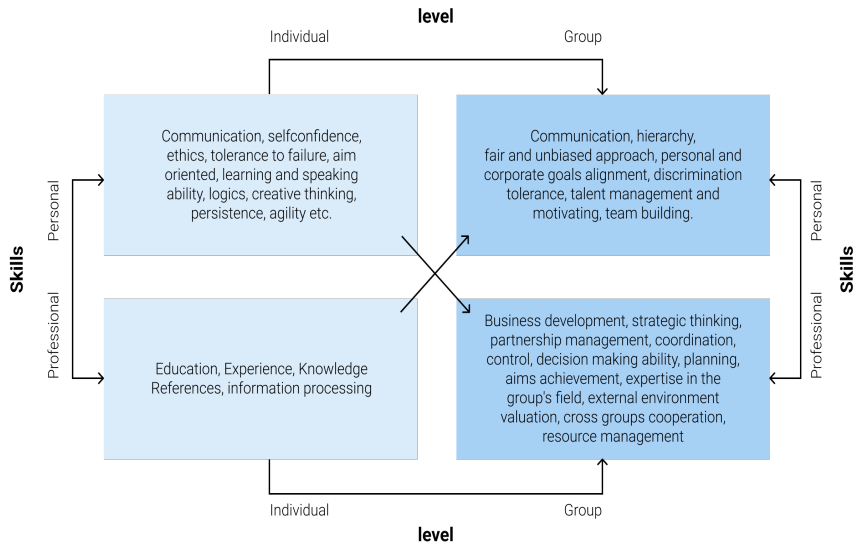


Fig. 3.6. Leader's abilities and skills interaction model (developed by the author).

The guideline of how top managers should adopt for themselves and deploy within the organization is described by the pattern of “*corporate self-questioning*”. The cascading choices model by Lafey & Martin (2013) illustrates how the infinite circulation of “corporate self-questioning” during decision-making should be done. The author suggests using this model on a broader scale and not limited to the top level. Each employee should and can guide him/herself by this model while he/she is making any important decision. Bearing these components in mind, the company’s top management should build the respective structure, develop flexible policies and apply agile practices.

Summarizing this chapter the author would like to outline that corporate agility lies in the field of broad and creative thinking, cooperation and analysis, open communication, and flat structure. The term manager should be synonymous with the term “leader”. The innovation and non-standard ideas should be voiced with no fear, but more importantly, they should be heard as well. There is no particular department or activity that plays a bigger or more important role in turning a construction company into a more agile one. Each department, team or group should do its best, yet it is important to remember agility should never be a reason for bypassing legal requirements, allowing technological violations, or abusing humans. Nevertheless, the organizational practices discussed under support and primary activities all, together with organizational behaviour, strategy, corporate governance, leadership, and general management, will play a main role in shaping the corporate agility of the company, compared to technological processes and approaches that cannot be changed. When implementing corporate agility, first, the idea and approach should be communicated and discussed; the processes and procedures are less important and will follow. People should release themselves from old-fashioned thinking and get into the wave of questioning and idea-generating.

Factors that affect corporate agility in the construction industry.

Following the findings discussed in the current and previous chapters, the author conducted interviews with the construction industry's experts. The aim of the research is to identify major factors that affect the corporate agility of a construction company through interviews with the industry professionals.

In order to achieve the aim set above, the author conducted interviews (face-to-face or via conference calls) with 15 CEOs, CFOs, CLOs, construction and HR directors, senior project managers from several countries and 11 construction companies. The participants were asked to list at least five factors that affect the corporate agility of their company. 84 factors were identified and discussed with experts. The content analysis approach was used to determine major factors that affect the corporate agility of a construction company. The collected data was organized into broader groups and resulted in 8 key factors that affect corporate agility. Each factor has its weight of importance in influencing corporate agility. It is important to highlight that almost half (48 %) of the influence on the agility of the company is attributable to only two factors – human resources and structure; further 36 % percent contributed to management, planning and communication. See Fig. 3.7 for the results.

The author converted these factors into the conceptions discussed above and found that these would become human capital, corporate governance, and organizational behaviour, meaning the three components make up 84 % share of the influence on the corporate agility. The top and mid-level management of the entity should coordinate and motivate the personnel in such a manner that each and every person, team, department or division would be always ready to change and/or challenge, would chase improvements and exercise broad thinking, while the whole organization has a deep understanding and is being guided by the corporate goals and values. The corporate agility should become *consciousness of the organization*.

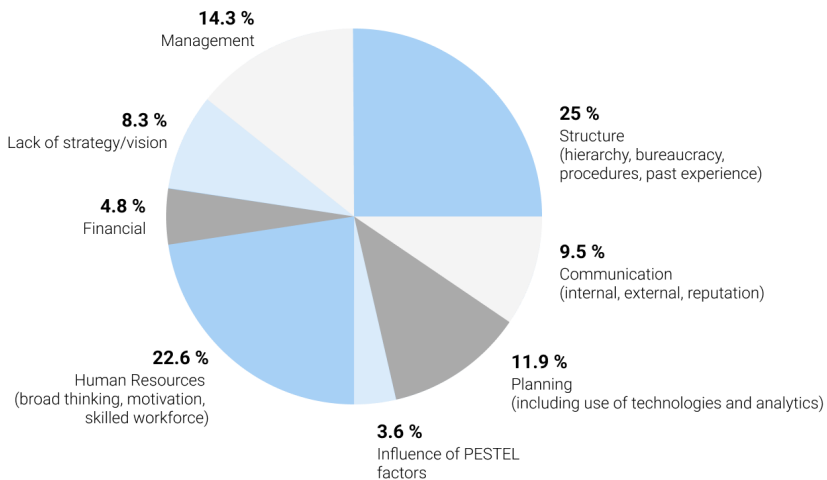


Fig. 3.7. Visualization of the shares of the major factors affecting corporate agility (source: interviews performed by the author).

Summarizing the problems and challenges of agility in support and primary activities, strategy, general management, corporate governance and organizational behaviour, in light of determined factors that affect the corporate agility of the construction company, the author would like to signify the importance of balance and common sense implementing any organizational change. Rapidly changing environment, internal challenges, limitations set by peculiarities of particular industry or market, cultural clashes, etc. – these should be evaluated and chaos should be avoided.

#### **4. Development of Methodological Approach for the Determination and Improvement of the Corporate Agility Level within a Construction Company**

Chapter four comprises 2 subchapters, 2 tables, 4 figures, and 26 pages. Following the findings discussed in previous chapters, the author decided to develop a methodological approach for the determination and improvement of corporate agility level (henceforth – methodological approach) within a construction company. The methodological approach is the systematic method to resolve a problem. For this purpose, all companies should start with data gathering – to understand the current situation and then, by application of various managerial techniques, move towards the strategic aim of the company. The methodological approach developed by the author should assist the company in identifying its weaknesses from a corporate agility point of view and provide guidelines for improvement of these weaknesses. It is based on both theoretical and practical findings.

Theoretical background is based on the in-depth study of change in management approaches (Kotter's change management theory, Lewin's change management model, Nudge theory, etc.). The author has decided to use Burnes' (2017) recent studies and the author's personal experience as a founder and a board member of a large international construction company to substantiate the way the change should be implemented (see step "Years" for the details).

As a fundamental part of the methodological approach, the author has developed the seven-step A. G. I. L. I. T. Y. concept of performance valuation of the construction organization, its analysis and development of the recommendations for change implementation and result monitoring as shown in Fig. 4.1. As part of the A. G. I. L. I. T. Y. concept, the author developed a questionnaire that assists in determining the level of corporate agility of the construction company. The questionnaire consists of nine blocks and 68 questions based on the factors affecting corporate agility determined in Chapter 3. Such structure allows the performance of a more detailed analysis of the results, systematizing the approach, and allowing for more accurate implementation.

As was previously discussed, corporate agility should become an integral part of a company's DNA: structure, behaviour, decision-making process, goal setting, communication and even way of thinking. Thus, organizations should be prepared for change at any level and at any scale. New challenges will require new transformations, which in turn will require new



tools and approaches. The management task is to keep the company prepared to face and overcome any challenge to come while the minimal resources are being used and while operational activity is being minimally affected. The role and personality of the Agent after the core transformation occurred, and the company could be considered as corporately agile, should be reviewed. There is an advantage to having a specialist on board who knows the organization and is accepted by its personnel. On the other hand, the biggest disadvantage of such an Agent is too deep involvement in the company and its corporate life, losing the ability to have a bird's eye view and provide an independent, objective opinion.

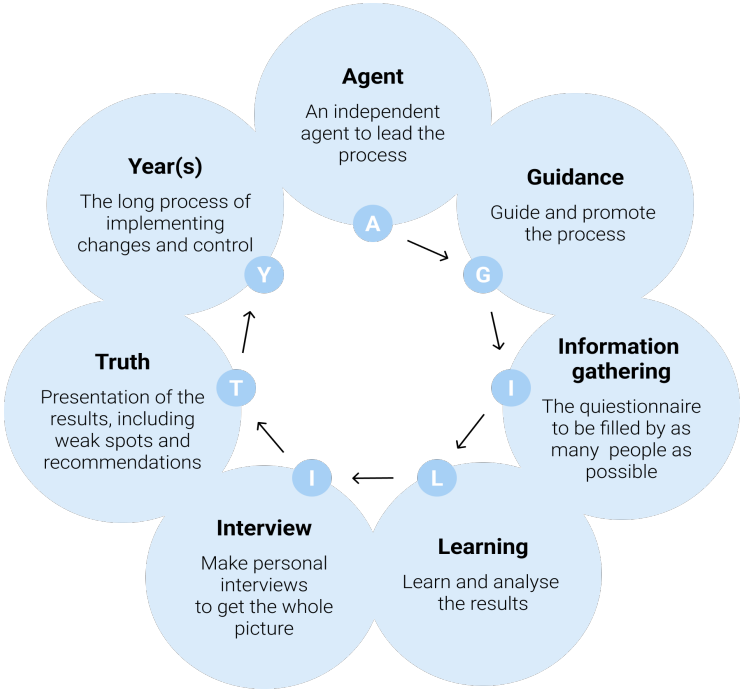


Fig. 4.1. The seven-step A. G. I. L. I. T. Y. concept as a fundamental approach for the methodological approach developed by the author.

Since the implementation of the methodological approach in full is a long and time-consuming process the author has decided to validate the questionnaire and conduct interviews with few representatives of a large international company. This approach allows to check whether the questionnaire works or not, to improve it if needed, and to prepare the initial recommendations to the company for the improvement of its corporate agility after the process is completed. After the recommendations are submitted the decision on implementation of change stays with the company. In order to validate the questionnaire, in January 2022, it was sent to three representatives of JSC LNK Industries (turnover of about EUR 100 million). After

the questionnaire was completed, individual interviews were conducted with all three participants.

A short summary of the results is provided in Table 4.1.

Table 4.1

Level of Corporate Agility at JSC LNK Industries

#	Block of the questionnaire	Results		
		Resp. A	Resp. B	Resp. C
1	Human resources	4.90	6.00	5.90
2	Communication, including reputation	4.57	5.71	6.14
3	Operational planning and approach	5.80	6.40	6.00
4	Management and organizational behaviour	5.75	6.38	6.50
5	Structure and corporate governance	4.56	5.11	5.33
6	Strategy and values	6.86	7.71	7.14
7	Financial data	6.64	6.55	7.17
8	Influence of PESTEL factors (political, economic, social, technological, environmental, legal – external macro factors)	3.50	4.33	4.83
9	General valuation	4.80	5.60	5.20
	Average	5.26	5.98	6.02
	Overall average	5.75		

The results show a medium level of corporate agility. Considering the size, global operation and other industry problematic/limiting factors, this result can be considered good. However, going through the results in detail (68 questions and answers) may reveal fields in which the company should improve its performance.

The author did not analyse answers in detail. Nevertheless some general conclusions can be made based on the results received from the respondents. The overall results analysis shows that the lower the position the lower the detected level of corporate agility. Respondent A, who is a board member of the company, considers the company to be more agile compared to the valuation given by Respondents B and C, who are engineers and occupy positions of a technical director and a project manager.

The human resource issue, the factor with the second weight, is always a problematic one. While the board sees the big picture, project managers deal with personal issues of both “white collars” from the project management team and “blue collars” from the construction site. This conflict of interest and perception escalates when the project is initially won with an insufficient budget or when the project is highly profitable, but all profit is redirected to cover losses from other projects. In such cases, the issue of human resources may be wrongly evaluated. The Agent should go deeper in order to understand whether there is an ongoing wrong practice or it is a specific and temporary issue.

Another topic to be studied in detail is internal communication. The mid-level management considers it insufficient, and, as a result there is a poor understanding of strategy and goals, as

well as of financial data of the company. One may find that the board member thinks that it is appropriate and acceptable. The provided results indicate that, in general, the company is in good shape with corporate agility value measuring above “5”; it still should aim to lower it, but the difference is not significant. Improving communication may appear to be the only issue that needs to be fixed. After the necessary measures, but not earlier than three months, the author suggests resending the questionnaire once again to verify whether the actions taken were successful.

Even though the questionnaire was validated and its viability was proven, i.e. it allows a comprehensive analysis of the company and determines the level of company’s corporate agility, still there are several issues that might be improved upon.

- a. The length of the questionnaire. The number of questions can be reconsidered after a few implementations of the methodological approach.
- b. An important aspect to improve further is the way the questionnaire is filled out and analysed. The software tool should also provide a solution for the graphical presentation of valuation and an option to compare historical results.
- c. Additional points for deeper investigation and further research are the tools and approaches used during the post-analysis process.
- d. The final point to consider is the adaptation of the questionnaire for the companies operating in other industries.

## **Conclusions and Recommendations**

Construction companies and industry have been developing through the ages together with mankind, and the terminology has been as diverse as the industry itself. Within the Thesis the author has analysed several terms which characterize the industry. For a better understanding of industry particularities in the course of the research, the author proposed upgraded definitions. Within the research, the term *corporate agility* was analysed by reviewing theoretical frameworks for corporate agility, and on the basis of the research the author found the main components of corporate agility, adapted them to the construction industry, and offered his own definition of *corporate agility*, which is applicable for a construction company and industry.

For the determination of the most significant problems in the construction industry, factors affecting the operational activities of the construction company were identified. Based on a historical and statistical overview of the industry, literature overview, qualitative content analysis (generated from 667 codes), and interviews with industry professionals, 13 significant factors (that affect the operational activities of the construction companies) were determined, namely: strategic long-term planning, short-term planning, quality of processes management, structure and organizational behaviour, targets, financial resources, human resources, risk management, globalization, PESTEL, availability of resources, PR and communication, stakeholders’ management. Research results confirmed that, if not controlled, these factors do

not allow construction companies to properly and timely react and face the challenges of the modern business environment.

The analysis of a construction company within the concept of corporate agility was performed. For this purpose, a review of the corporate agility of support and primary activities of the construction company was done. It was discussed and proved that corporate agility of support and primary activities, with a particular focus on cross-departmental cooperation and personal and corporate goals alignment, improves the corporate performance of the construction company. For the implementation of corporate agility, a “Captain’s model” for work with stakeholders was developed.

Within the scope of research, corporate agility in strategy, corporate governance, organizational behaviour, and general management of the construction company were studied and discussed. The agility of the management processes through different corporate levels is being translated into the agility of the whole system, while lower levels have more restrictions than the top.

A lot of emphasis in the research is on the analysis of primary and secondary activities of the construction company with a focus on operations, services, marketing and sales, as well as cultural differences, etc.

The research determined, eight major factors affecting the corporate agility of the construction company were determined. The research confirmed that 48 % of the influence on corporate agility of the construction company is attributable to two factors only – human resources and structure, further 36 % was contributed by management and planning. As a result, a list of tasks to enhance the corporate agility was developed.

The research results confirmed that there is a strong demand for corporate agility in the construction industry. This was confirmed by field research, which included 508 participants, whose response data was analysed using Alteryx, an analytic process automation platform. For the implementation of corporate agility in a construction company, the author has developed a methodological approach for the determination and improvement of the level of corporate agility of the construction company (A. G. I. L. I. T. Y.), which was tested on the example of a Latvian construction company, LNK Industries, that operates in several countries. After testing the methodological approach, the author drew the recommendations for the perfection of this methodology in the future.

Based on the field research, literature overviews, content analysis, theoretical frameworks, and interviews with industry experts the hypothesis of the dissertation that there is a demand for corporate agility in the construction industry, as well as two sub-hypotheses were proved.

SH1: A well-balanced corporate agility may significantly improve the performance of the construction company.

SH2: Detecting the level of corporate agility is an essential step for the overall improvement, successful development, and operation of a construction company.

The author has elaborated a set of recommendations which are addressed by groups of interests.

To the representatives of the construction industry, especially for owners and CEO's of the construction companies:

- To ensure competitiveness and productivity of companies; it is strongly recommended to analyse the agility level of each company and to create more agile governance.
- A detailed (comprehensive) study of factors affecting the operational activities of the construction company is highly recommended. Both internal and external activities to mitigate negative impact of these factors should be evaluated.
- In-depth study of general management, organizational behaviour, and corporate governance in terms of corporate agility is highly advised for mid and top-level managers.
- To promote the term "corporate agility" within the construction industry. It is recommended to organize different events, forums, conferences, etc. to promote agile concept.
- To apply methodological approach "A. G. I. L. I. T. Y." within companies to develop and ensure implementation of corporate agility.
- For those companies who are operating in several markets/countries, it is recommended to diversify corporate agility and adjust it to the needs/requirements of the country and national particularities.

To local authorities, municipalities, and governments of countries:

- It is advised to review further the main problematic factors that burden the development of the industry – over-bureaucracy and over-regulation of the construction industry, low productivity, lack of skilled manpower, etc.
- It is recommended to conduct broader research in different geographic regions to study the demand for corporate agility in the construction industry and compare it with other countries, for example, Western and Eastern Europe, South and North America, South Africa, India, China, South Asia, etc. because it could be different in the different countries.

To educational institutions:

It is highly recommended to include this concept in the educational programmes of higher educational institutions and programs provided by the construction institutions for the industry professionals.

In conclusion, it should be noted that the theses brought forward for defence have been confirmed:

There is a demand for corporate agility within the construction industry.

A vast number of complicated factors affects the operational activities of the construction company.

Determination and importance of factors affecting the corporate agility of the construction company.

There is a possibility to develop the methodological approach for the determination and improvement of the corporate agility level in the construction company.

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