Czech University of Life Sciences Prague

Faculty of Economics and Management

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Master's Thesis

Project Management in Practice: Evaluating Agile Methods, Virtual Teams, and Risk Management

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1. Investigate the effectiveness of Agile methodologies in software development.
2. Analyze virtual team management strategies in global projects.
3. Assess risk management practices in various project contexts.

Methodology

1. Conduct a literature review to identify key principles and practices.
2. Use case studies to examine real-life project examples.
3. Conduct in-depth interviews and surveys with project managers and team leaders to collect qualitative and quantitative data.
4. Analyze data to identify common themes, challenges, and best practices.
5. Develop practical recommendations based on research findings.

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HIGHSMITH, James A. and ORR, Ken. *Adaptive software development : a collaborative approach to managing complex systems.* New York: Dorset House, 2000. ISBN 0-932633-40-4.

KERZNER, Harold. *Project management : a systems approach to planning, scheduling, and controlling.* Hoboken: Wiley, 2017. ISBN 978-1-119-16535-4.

KERZNER, Harold. *Project management : case studies.* Hoboken: John Wiley, 2009. ISBN 978-0-470-27871-0.

SCHWABER, Ken and BEEDLE, Mike. *Agile Software Development with Scrum.* Upper Saddle River: Prentice Hall, 2002. ISBN 0-13-067634-9.

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Declaration

I declare that I have worked on my master's thesis titled " Project Management in Practice: Evaluating Agile Methods, Virtual Teams, and Risk Management" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on date of submission _____

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Project Management in Practice: Evaluating Agile Methods, Virtual Teams, and Risk Management

Abstract

This research explores the practical utility of techniques of project management, especially related to Agile approaches, managing virtual teams, and risk management when applied to contemporary software development projects. Even though these aspects of project management are long known and recognized as best practices from a theoretical point of view, their practical utility under specific organizational settings and related projects can be a completely different matter.

A methodological approach of this research will include a comprehensive analysis of existing literature related to Agile methods, managing virtual teams during software product development projects, and risk management related to these projects as a background material analysis upon which this research analysis will be built.

A further potential research method involves conducting a series of interviews or distributing a structured questionnaire among relevant experts having first-hand knowledge of managing projects related to the software industry as a means of better understanding practical aspects related to this topic.

In general terms, the results of this research will attempt to answer questions related to what specific methods may be useful when applied to a practical project or team management setting related to software product development projects, and will provide specific advice related to this area at the conclusion of this analysis, as mentioned above.

Keywords: Agile Project Management, Scrum Methodology, Virtual Teams, Remote Collaboration, Software Development Projects, Risk Management, Project Success Factors, Project Management Practices, Distributed Teams, Real-Life Case Studies

Project Management in Practice: Evaluating Agile Methods, Virtual Teams, and Risk Management

Abstrakt

Tento výzkum zkoumá praktickou užitečnost technik projektového řízení, zejména v souvislosti s agilními přístupy, řízením virtuálních týmů a řízením rizik, při aplikaci na současné softwarové vývojové projekty. Přestože jsou tyto aspekty projektového řízení z teoretického hlediska dlouhodobě známé a uznávané jako osvědčené postupy, jejich praktická užitečnost v konkrétních organizačních prostředích a souvisejících projektech může být zcela jiná věc.

Metodologický přístup tohoto výzkumu bude zahrnovat komplexní analýzu existující literatury týkající se agilních metod, řízení virtuálních týmů během projektů vývoje softwarových produktů a řízení rizik souvisejících s těmito projekty jako podkladovou analýzu, na níž bude tato výzkumná analýza založena.

Další potenciální výzkumnou metodou je provedení série rozhovorů nebo distribuce strukturovaného dotazníku mezi relevantními odborníky, kteří mají zkušenosti s řízením projektů souvisejících se softwarovým průmyslem z první ruky, jako prostředek k lepšímu pochopení praktických aspektů souvisejících s tímto tématem.

Obecně řečeno, výsledky tohoto výzkumu se pokusí odpovědět na otázky týkající se toho, jaké konkrétní metody mohou být užitečné při aplikaci na praktické prostředí projektového nebo týmového řízení souvisejícího s projekty vývoje softwarových produktů, a na závěr této analýzy, jak je uvedeno výše, poskytnou konkrétní rady týkající se této oblasti.

Klíčová slova: Agilní řízení projektů, Metodika Scrum, Virtuální týmy, Vzdálená spolupráce, Projekty vývoje softwaru, Řízení rizik, Faktory úspěšnosti projektu, Praktiky řízení projektů, Distribuované týmy, Případové studie z praxe

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1. Introduction

Project management has become increasingly important in the contemporary organizational context, especially for the software industry. During the past two decades, the application of the Agile method, remote team working, as well as risk management practices, has become important in the efforts of improving the performance of projects. The approaches are well advocated for in the theoretical context as well as in the international standards for their ability to enhance flexibility, speed in the project execution process, and the satisfaction of the stakeholders.

However, while such notions are well grounded in theory, their implementation in organizational reality is anything but consistent. The efficacy of Agile approaches may well depend on some factors, such as organizational culture, management commitment, project nature, and organizational maturity. Furthermore, the emergence of virtual and globally distributed teams poses new risks in terms of communication, trust building, coordination, and monitoring of effectiveness. Risk management, despite its recognized importance in project management, may lack consistency in implementation or may be poorly comprehended in organizational practice.

This thesis seeks not only to examine the application of Agile methodologies, virtual team management, and risk management tactics in modern software development projects, but also to examine their practical application in reality. This study is directed at not merely theorizing about software development practices, dependencies, and challenges, but also at understanding their applicability in day-to-day software development project settings. This can be achieved via literature reviews and empirical data acquisition from software development professionals.

The need to conduct this research comes from a real-world experience of the author as a software engineer working within the bounds of an Agile framework. The author finds it interesting to learn from his experience and gain a deeper understanding of project management, particularly because project management processes impact his work directly as a software engineer working within a project

environment. This research therefore aims to address the gap between project management theories and real-world project management by providing project management best practices from both ends. Overall, the purpose of this study hopes to bring a better understanding of how a project management strategy such as Agile can be utilized with virtual teamwork and risk management. These outcomes have the possibility of assisting project managers and business organizations in improving methods and enhancing teamwork for a positive project result.

2. Objectives and Methodology

In this chapter, the research objectives and research approach to be used in conducting this thesis are clarified. The aim is to explore the actual implementation of Agile methodologies and risk management practices within software projects and to determine the effectiveness of team management processes in software project success. The research objectives are designed to explore a range of important factors involved in team management in a software project related to assessing current practices and areas for improvement.

2.1 Objectives

The primary objectives of this study are as follows:

- To understand the application of Agile project management practices in a real-world software development setting and their perceived efficacy.

- Investigate the issues and factors of success that exist in the management of virtual project teams.

- To understand how risk management is done in software projects and determine the most effective method of reducing risks.

- In order to compare theoretical best practices with lived experiences in assessing the gap in needs and adaptations.

- To come up with valuable recommendations that can help organizations enhance project results through efficient application of Agile concepts, virtual team management, and risk management strategies.

- Via the above objectives, the study hopes to enhance the comprehension of how modern project management practices function and how they could be improved for the current software development context.

2.2 Methodology

In order to satisfy the mentioned objectives, the research utilizes a structured approach and methodology that encompasses both theoretical analysis and empirical research. The research methodology will ensure that all results derive from a blend of knowledge and practical experience.

First of all, there will be a literature review. The review will comprise scholarly publications as well as industry documents that relate to the concepts of Agile approaches; the management of remote teams; as well as risk in project work. The literature review will help in the identification of gaps in the body of research that has already been undertaken.

Secondly, empirical data gathering will be conducted using structured researcher-administered questionnaires and semi-structured researcher-conducted interviews with software developers and project managers and other appropriate professionals with direct experience in Agile and/or virtual projects. This will enable the study to glean actual opinions, challenges, and perceptions concerning the practices investigated.

Third, case studies or actual project instances might also be used for analysis to see how project management techniques are employed under varying organizational conditions and projects. Such case studies assist in understanding differences in application mechanisms of project management techniques. These case studies bring reality to project management principles designed for ideal project conditions.

Finally, all the collected information will be analyzed for insights that fit the objectives of the research. This will be carried out using both qualitative and quantitative analysis where necessary. This research approach combines the analysis of literature with input from industry professionals to ensure that the research is kept grounded while at the same time pursuing rigor within academia. The research combines the strengths of both to ensure a high degree of reliability of the results and contributes to project management within modern software development.

3. Literature Review

In this chapter, there is a review of the state of current knowledge in relation to project management in software development efforts, specifically in relation to agile methods, remote teams, and risk management. The need to review what has already been discovered in terms of project management best practices in software development is to lay a theoretical basis for the practical component within the thesis and to determine dominant ideas and themes in relation to the body of research in the area. Through a review of prominent publications and academic studies within the area of project management in software development, it is hoped to determine not only what has been successful in terms of best practices in project management but also what has yet to be discovered within the area and therefore requires additional academic research and exploration within the thesis work.

3.1 Introduction to Project Management in Software Development

Project management as a practice has assumed importance in the software development world due to the uncertainties, dynamic nature of requirements, and technological complexities, although common in most software projects. Successful project management enables the development of project activities according to plans, thereby meeting the expectations of stakeholders with regard to project costs, time, and quality, according to the Project Management Institute (2021).

Software projects, unlike other engineering projects, are more iterative, more knowledge-intensive, and more prone to changes, thereby posing more challenges to project managers compared to other projects.

Traditionally, most software development projects were handled through predictive and plan-driven methods like Waterfall development. In this process, different stages of a particular project were executed in a linear sequence (Royce, 1970). Though this process ensured a great deal of documentation and understanding among developers and customers, flexibility in dealing with changes was a constraint. This gave a clear signal for developing new methodologies called Agile that focus on customer collaboration and flexibility (Beck et al., 2001).

Conversely, there has also been the rise and advancement in global communication and software development across virtual and distributed geographic teams due to globalizations (Powell, Piccoli, & Ives, 2004). However, despite their ability to lower costs and raise talent accessibility, they pose significant challenges in communication, coordination, trust development, and project leadership. Thus, project managers today face new challenges that require technical skills and people skills in handling virtual project environments.

Risk management is another important area of software project management. Software projects are notoriously susceptible to risks such as requirement uncertainty, estimation risk, technology risk, and stakeholder risk. There have been numerous studies confirming that risks, if left unmanaged, are a common cause for project slippage and failure (Boehm, 1991). Risk management has been widely advocated as an essential part of good project management practices. In summing up, project management in software development has come to be a broad interdisciplinary field that integrates organizational behavior studies, technology management, and systems thinking. Knowledge about how the processes of Agile methodologies in software development, remote collaboration, and risk management can function in real-world settings has become critical in making improvements in management practices.

3.2 Agile Project Management

Agile project management has proven to be one of the most prominent models in contemporary software development. Agile methods came into being as an antidote to conventional software development plans, which had been facing challenges in dealing with ever-changing business needs, technological trends, and uncertainties associated with software development. Agile development emphasizes flexibility, customer collaboration, gradual software delivery, and has been a radical departure from traditional software development planning.

Agile development was formalised by the Manifesto for Agile Software Development in 2001, which enshrines four key values and twelve principles emphasizing customer satisfaction, collaboration, and responding to change over processes and documents respectively (Beck et al., 2001). Since then, Agile

development has become ubiquitous in organisations around the global world and is now embedded into project management best practices (Project Management Institute, 2021).

3.2.1 Background and Principles of Agile

Before the advent of the Agile process, it was common for software development projects to be managed by techniques that came from Waterfall methodologies. These assumed that it was possible to plan for all of its needs right from the outset. In most cases, however, it has been found that software development projects involve changing needs and uncertainties.

The Agile Manifesto introduced four core values:

- individuals and interactions over processes and tools
- working software over comprehensive documentation
- customer collaboration over contract negotiation
- responding to change over following a plan

(Beck et al., 2001).

These values include the following and are driven by the following principles: frequent delivery, sustainable pace, self-organized teams, and continuous improvement. This is because Agile promotes an adaptive and learning culture rather than a predictive control-based model.

3.2.2 Common Agile Frameworks

A number of methodologies and frameworks exist under the Agile philosophy. The most popular ones are:

- Scrum: This is a framework that structures work in iterations commonly referred to as sprints. This framework also defines various roles such as Product Owner, Scrum Master, and the Development Team.
- Kanban, which is workflow visualization and managing work in progress to maximize throughput.

- "Extreme Programming (XP), with a heavy focus on the technical aspects of the process, such as Pair Programming, Continuous Integration, and other similar practices

These methodologies are based on common Agile values but are structured in a different way. In reality, most companies use a hybrid approach, mixing Agile techniques with classical project management concepts.

3.2.3 Benefits and Limitations of Agile in Practice

There are a variety of important advantages associated with agile development approaches. They provide for rapid delivery of value, enhanced levels of satisfaction, alongside flexibility in responding to changes. They ensure the early detection of defects, as well as a focus on meeting the needs of stakeholders. There are high levels of autonomy, alongside teamwork, among agile development teams. However, Agile does not prove to be an effective approach in all situations. There are studies that show Agile can pose certain challenges in terms of organizational culture, role, lack of involvement, and lack of knowledge about Agile. The environment in Agile team projects needs intensive communication, discipline, and trust, which are always absent in all organizations. For large-scale or regulated environments, Agile deployment also becomes even more complicated.

3.2.4 Critical Success Factors for Agile Adoption

In order for Agile approaches to be successfully implemented, there are many factors that play an important role. These factors include management commitment, involvement of stakeholders, team maturity, strong product ownership, and integration of Agile methodologies and business processes. Training is another factor which plays an important role because many times cultural transformation is required instead of change in processes. It is equally important that the teams have the ability to collaborate and function autonomously through the help of communication and feedback processes and structures. It is expected that the self-organization and continuous improvement processes that the Agile teams undergo will not be taken as mere rituals but for their potential impact.

3.3 Virtual and Distributed Teams in Software Projects

The increased trend in globalisation and the development of advanced communication technologies in the digital age have made it feasible for companies to parallelize the development of their software in various locations. This trend has led to the increased use of virtual and geographically dispersed teams in the software development sector. Virtual teams are made up of members who work together on a common assignment despite being divided by geographical, temporal, and often cultural differences (Powell, Piccoli & Ives, 2004).

Utilization of virtual teams within the software development context provides several advantages such as leveraging a diverse pool of skills and talents, cost-effectiveness, and the capability to function effectively within different time zones that could potentially hasten the software development process. However, the complexity level pertaining to the management of virtual teams is different compared to colocated teams.

3.3.1 Definition and Characteristics of Virtual Teams

In most cases, virtual teams can be described using three factors: geographical dispersion, use of electronic communication, and diversity or structure/culture of teams. Team participants could belong to different companies and even operate in different time zones and very rarely, if ever, meet in person. This alters or changes team dynamic because trust, communication, and leadership methods can differ significantly (Duarte and Snyder, 2006).

Within software development, virtual teams are most likely to function in Agile or mixed development projects. Even though Agile development relies heavily on communication, virtual teams must have additional support for communication.

3.3.2 Communication and Collaboration in Distributed Environments

Communication has been identified time and again as a key success factor for virtual teams. Unlike traditional colocated teams, virtual teams cannot have informal communication that takes place outside the formal meeting setup, such as in the hallways (Olson & Olson, 2000). It has been identified that communication tool used,

communication intensity, and clarity of communication exert a major influence on the outcomes of teamwork (Olson & Olson, 2000).

Virtual teamwork usually rely on a combination of:

- synchronous tools (video conferencing, instant messaging)
- asynchronous tools (email, project management platforms, shared repositories)

Often, structured communication practices like daily meetings, sprint reviews, or feedback sessions can compensate for the lack of physical closeness.

3.3.3 Challenges in Managing Virtual Teams

Despite these advantages, virtual teams have several challenges associated with them. These include:

- fewer opportunities to foster trust and team spirit
- cultural and linguistic differences
- time-zone misalignment
- coordination difficulties
- reduced visibility of individual efforts
- risk of miscommunication

These factors could work to negatively affect productivity and morale if they are not effectively managed. A useful way to summarise some of these issues is shown below:

Table 1: Common Challenges in Virtual Software Teams and Mitigation Strategies

Challenge	Description	Mitigation Strategy
Time-zone differences	Delays in responses and limited overlapping hours	Define core collaboration windows
Lack of trust	Limited social interaction	Encourage regular video meetings and informal check-ins
Communication breakdowns	Misinterpretation of messages	Standardise communication protocols

Cultural differences	Different working expectations	Provide cross-cultural awareness training
Low visibility	Difficulty tracking progress	Use shared dashboards and task-tracking tools

Source: Powell, Piccoli and Ives, 2004

3.3.4 Best Practices and Success Factors

Effective virtual software teams usually have:

- clear delineations of goals and roles
- strong leadership and facilitation
- use of collaborative digital tools
- frequent communication communication communication communication communication
- trust-building initiatives
- supportive organizational culture

A key aspect where leadership matters in distributed settings is in communication climate creation, conflict resolution techniques, and developing motivation techniques (Duarte & Snyder, 2006).

3.4 Risk Management in Software Development Projects

The risk management framework is an integral part of the project management aspects that take center stage in software projects, since these projects are usually marked by a lot of uncertainty, requirements flux, technological changes, and human competency. A project risk is generally an uncertain event or condition that, if it occurs, has a positive or negative effect on project objectives such as cost, schedule, quality, or scope (Project Management Institute, 2021). Effective risk management hence focuses on the identification, analysis, prioritization, and response to potential threats before they turn into critical issues.

Software development projects tend to involve higher risk levels when compared with many other engineering domains, given the nature of the intangible

output, the rapidly changing technologies, and complex team interactions. It has been proved through various studies that risks that are not managed properly often result in schedule overruns, increase in budget, and at times complete project failure (Boehm, 1991). This calls for well-structured risk management frameworks to be followed, as generally recommended, both in traditional and Agile project environments.

3.4.1 Overview of Project Risk Management

Formal risk management processes usually include the following key activities:

- risk identification
- risk analysis and assessment
- risk prioritisation
- risk response planning and implementation
- risk monitoring and review

These activities can be iteratively applied during the entire project life cycle. In software projects, risks can be present at levels of strategic, organizational, technical, or human-related issues. The aim of risk management is not to avoid all uncertainty but rather increase the predictability and robustness of the project environment.

3.4.2 Types of Risks in Software Projects

Software development projects are typically exposed to a wide spectrum of risk categories. Some common examples are:

Table 2: Common Types of Risks in Software Development Projects

Risk Category	Examples
Technical risks	new or immature technologies, integration issues, performance limitations
Requirements risks	unclear specifications, changing requirements, stakeholder misalignment
Project management risks	unrealistic schedules, weak planning, poor estimation

Human-related risks	staff turnover, skills shortages, communication problems
External risks	regulatory changes, vendor failure, market shifts

Source: Boehm, 1991

Many of these risks can interact with each other. Many times, the unclear requirements may trigger rework that leads to schedule overruns or escalation of budget.

3.4.3 Risk Identification, Assessment, and Mitigation

The most common techniques used for risk identification in software projects include expert workshops, checklists, historical project reviews, and structured interviews. When risks have been identified, they need to be assessed on the basis of probability and impact, often visualized as a risk matrix.

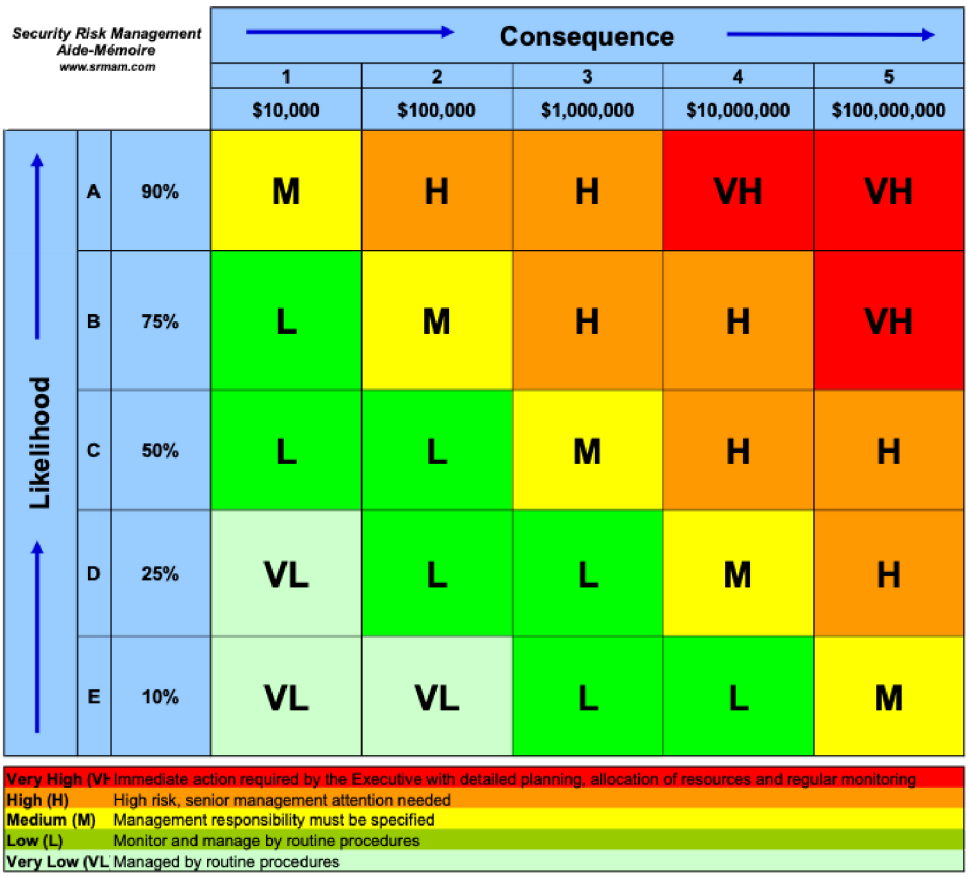

Figure 1: Example Risk Matrix

Generally, there are four categories of risk mitigation strategies:

- avoidance: eliminating the source of risk
- reduction: lowering probability or impact
- transfer: shifting responsibility (e.g., outsourcing or insurance)
- acceptance: acknowledging the risk without intervention

Ongoing risk monitoring is essential, especially in projects lasting several months, or characterized by dynamic conditions.

3.4.4 Integration of Risk Management with Agile Practices

Traditional risk management frameworks were largely developed for predictive project models. In Agile, the approach to risk is much more incremental and adaptive. Shorter iterations, continuous customer feedback, review meetings, and prioritization mechanisms all act as tools to reduce risk, as problems surface sooner than in long-cycle developments.

At the same time, Agile environments create new dimensions of risk, for instance, dependence on team collaboration, evolving requirements, or inconsistent stakeholder participation. For this reason, best practice increasingly recommends a hybrid approach where formal risk analysis is complemented by Agile inspection and adaptation practices.

3.5 Linking Agile, Virtual Teams, and Risk Management

Agile project management, remote collaboration, and management of project risks are regularly mentioned in relation to individual fields. But in the context of software development, it has been found that the interconnections between these three are such that they impact each other often. It is necessary to comprehend the interconnections among them.

The agile development methodologies were originally intended for teams that were smaller and colocated, ensuring that communication and feedback were facilitated by physical co-location (Beck et al., 2001). However, contemporary software industry operations involve an increased focus on teams that are distributed and virtual, with communication occurring via electronic platforms and increased complexity of project

coordination. Additionally, software projects face numerous risks that are technical, organizational, and humane; these risks must be proactively managed to avoid failing projects (Boehm, 1991). The above three factors of agile development methodologies, virtual teams, and risk management then interact with each other in positive and negative ways within project settings.

3.5.1 Interdependencies Between These Areas

Agile project management, virtual team collaboration, and risk management are very much intersecting aspects in contemporary software development projects. Agile models were originally developed on the premise of geographically co-located, smaller-scale team collaboration and even relied on extensive team collaboration, communication, and rapid feedback (Beck et al., 2001; Highsmith, 2009). Such an environment is automatically conducive to Agile values and ideals like rapid decision-making, building a shared understanding, and improving and learning (Beck et al., 2001). Nonetheless, given the increasing trend in geographically distributed and virtual team collaboration in most contemporary business organisations, the operative context for Agile has undergone a marked shift (Powell et al., 2004).

Virtual teams, as defined, rely heavily on technology-mediated communication and coordination. Thus, there can be changes to Agile processes such as the daily stand-up meetings, sprint review, and backlog refinement. The type, degree of occurrence, and richness of communication can either enhance or hinder Agile team collaboration. For illustration, lack of overlap of teamwork hours or poor tool support can hinder feedback cycles with resulting misunderstandings and enhance project risks militating against project delays and misalignment (Powell et al. 2004).

Risk Management represents a third important component in this process. Software projects, per se, involve inherent technical, organizational, or human risks, many of which might be magnified in the context of Agile projects (Boehm, 1991). On the one hand, the mere fact that Agile projects involve Agile methods also provides inherent risk abatement mechanisms; consider, for example, the way Agile short iterations or incremental delivery provide early indicators or minimize the negative consequences of errors (Highsmith,

2009). On the other hand, the way that collaborative mechanisms amplify certain risks in global Agile projects also has to be managed.

The state-of-the-art data from industry surveys, for example, “State of Agile,” shows that in practice, organisations tend to implement Agile methodologies in conjunction with distributed team collaboration and complex organisational designs (VersionOne, 2023). Consequently, in real-world scenarios, information technology risk management, virtual team collaboration, and Agile project management are no longer isolated concepts. Instead, they tend to impact an organisation's or project's state simultaneously. For example, ineffectively managed virtual collaboration and lack of effective risk understanding may impair the efficiency of project management using Agile models, and proper risk understanding may improve their efficiency.

3.5.2 Gaps Between Theory and Practice

Although the existing literature on Agile, virtual teams, and risk management does offer a clear set of models or best practices, actual implementations can be different from the ideal models. The existing concept of Agile development can be viewed as a lightweight and very disciplined approach to the development of software in a highly collaborative way (Beck et al., 2001; Highsmith, 2009). It often happens in practice that only a superficial level of Agile practice is achieved without actual full-scale transformation in those concerned groups and institutions (VersionOne, 2023).

In regard to emphasizing a focus on collaboration, there appears to be a mismatch between theory and best practices in terms of how to organize a team geographically. Agile best practices assume a fully collocated team, while many corporations are trying to apply similar principles to geographically distributed teams without sufficient adjustment (Powell, Piccoli, & Ives, 2004). Indeed, there may be limitations in terms of communication loops in applying Agile principles in a distributed organizational setting.

In a similar fashion, in regard to risk management, expert literature calls for systematic risk identification and analysis and continuous risk monitoring throughout all phases of a project (Project Management Institute, 2021; ISO, 2018). However, in practice, risk management on software projects tends to be ad-hoc and reactive and/or

underdocumented. This can occur in environments where Agile processes prevail and documentation work is supplanted in favor of quicker approaches. As a consequence, certain risks may be underrated and not formally managed. These categories of risks may relate to human ones in virtual teams (Boehm, 1991).

There is evidence to suggest that empirical research on software development agility is affected by organizational context, management style, and governance structure, which significantly impact Agile values being put into practice (Lee and Xia, 2010). In recent years, for instance, it was noted that it became common for organizations to speak Agile but maintain a hierarchical management style for decision-making and approval procedures regarding projects related to software development, thus being in a pseudo-Agile environment.

This gap between theory and practice is also reflected in project performance metrics. Industry studies, like the CHAOS reports, continue to point to a substantial number of software projects that are troubled or unsuccessful at realizing their original goals, even as project management best practices are largely in place within the software industry (Standish Group, 2020). This obviously means that it's not merely having Agile namesake practices and risk management structures, but rather their effective combination within a certain organizational culture.

These inconsistencies make a strong case for the need for empirical research, like the practical part of this thesis, to examine the actual usage of Agile approaches, virtual teams, and risk management practices, identify the practices that add value, and where the struggle is to match the processes with the recommended strategies.

3.5.3 Lessons from Existing Case Studies

There exist several empirical and conceptual studies that offer valuable insights into the interplay between the use of the Agile approach and virtual teamwork and risk management. Critical studies involving virtual agile projects in the information technology industry have revealed that the success factor is never a single event or action but the result of a set of issues such as communication level, leadership style, team composition, and the management of risk when virtual. For instance, a study that examined virtual agile projects

based on the approach of grounded theory listed success characteristics that include communication protocols, the selection and expertise of team members, the approach to the transfer of knowledge, and leadership that can provide a proper mix of autonomy and coordination (Amar & Haag, 2017).

Other research considers more specifically risks related to the internal context of the Agile teams, especially risks related to people. For example, a conceptual framework for the management of conflict risks within the context of Agile software development projects emphasizes the negative impact of unchecked conflict on teamwork, productivity, and eventually on the outcome of projects, with well-managed conflicts being a driving factor for enhanced teamwork, solutions, and adaptability (Tshabalala & Khoza, 2021). This further contends the notion of risk management in the Agile context, not just focusing on technical risks, but more on people/behaviour risks, especially where working remotely.

Conceptual models of Agile approaches to project management similarly highlight that Agile methods affect projects in more than one way and through mediating variables like leadership, team roles, stakeholder interaction, and cost/time trade-off perspectives (Muayad & Younis, 2021). What can be interpreted from these conceptual and case study papers is that managing risk and integrating Agile, remote working, and risk management successfully is possible under these conditions:

- deliberate design of communication structures in relation to regions or time zones
- explicit treatment of human and conflict-related risks, other than purely technical ones
- alignment of Agile values and principles with organizational culture, leadership, and governance structures

3.6 Summary of the Literature Review

This chapter has explored in detail some of the essential theoretical bases that are considered to have a direct relevance to project management in software development, and this includes Agile models of software development, virtual collaboration, and risk management strategies. To begin with, this discussion has pointed out that projects in

software development tend to be vastly different from those in engineering for various reasons.

The rise of agile project management was particularly an end result of shortcomings in plan-driven models of prediction. The application of iterative development, collaboration, and flexibility with regards to changes and adaptation was strongly promoted under agile. The available research shows that there are potential gains in terms of reaction and aligning the developed item based on customer requirements. The application and implementation of Agile vary widely by context. In other words, it does not work well everywhere; otherwise, there are strong gains.

The literature review also indicated that there have been major changes in the composition of software development teams in the modern age because of globalisation and advancements in information and communication technology. Virtual or distributed team formation allows organisations to tap into the talent pool of the global village, but at the same time, these team formations create issues like coordination, communication gaps, cultural differences, and difficulty in trust development.

Risk management is the third overarching topic considered in the course of the chapter. Software development is generally prone to a vast number of risks. For successful management of risks, it is necessary to systematically identify, evaluate, prioritize, and monitor risks throughout the software development process. It is a fact that risks can be systematically addressed by using the principles of Agile methodologies. However, environments provided by the Agile methodologies are also not free of risks.

The last section of the literature review highlighted the intricate links existing between Agile techniques, virtual team collaboration, and risk management. On one hand, Agile techniques could possibly eliminate some of these risks, whereas on the flip side, team structures in virtual settings could potentially bring about some risks. It has been observed in practical settings that projects may not always follow theoretical patterns owing to constraints within organizations. This has been supported by industry trends, which indicate that implementation of Agile or risk management strategies does not necessarily lead to success. This synthesis shows there is a definite need for empirical

study regarding the implementation of these activities within a software development environment, which is the practical component of this thesis. From this literature review, it becomes apparent there is provided both a conceptual foundation and also a reason for subsequent study of where theory is applicable regarding real-world practice.

4. Practical Part

The applied part of this thesis revolves around an investigation of Application of Agile project management concepts, Virtual collaboration tools and strategies for Risk Management in real-life situations for software development. Though the previous chapters showed the theory associated with different concepts studied in this thesis, this chapter aims to shift from theory to reality. The concern of this chapter is to inquire whether concepts in reality are applied in the same manner in real-life institutions and what difficulties the practitioners are facing in this context.

The study relies on data that is derived from professionals working in software development. These include software engineers, project managers, Scrum masters, team leaders, and product owners. These groups of people have firsthand experiences related to Agile, virtual/distributed teams, and risk management. They are in a position to offer significant background information pertinent to how projects are managed in a professional setting.

This chapter has the following structure. First, the objectives and questions that have guided this research are introduced. Subsequent sections introduce the methods that have been followed, which include a description of the overall research strategy, approaches to data collection, as well as a description of a data-collecting tool. Later sections give a description of the results, comparison against other pieces of literature, and implications. The final section gives a wrap-up of the main finding, as well as a discussion about the limitations that have been identified.

4.1 Introduction to the Practical Part

The purpose of practical part of this thesis is to explore how actual implementation of project management practices occurs in practice, especially where Agile, virtual/distributed development teams, and risk management are concerned. It should be noted that, while all three related to widely explored practices in academic literature, actual application can vary greatly depending on organizational or cultural contexts, complexity, or actual development mode. Hence, there is value in determining to what extent best practices map to actual reality.

This study will use an empirical approach in collecting data from individuals who are practicing software development. The objective of the study will be achieved through analyzing their personal experiences in software development. The objectives will include:

- how Agile principles are implemented in everyday project work,
- how virtual or geographically distributed teams communicate and collaborate, and
- how risks are identified, assessed, and managed in practice.

The results of this study are expected to contribute to a better understanding of the strengths and weaknesses of existing practices of managing projects within the domain of software development. The results could also assist organizations and managers of projects to enhance their practices, keeping in view good practices and problematic areas. This introduction lays the foundation for the forthcoming sections in the chapter, in which the research aims, methodology, and analysis of the data are also provided in detail.

4.2 Research Objectives and Questions

4.2.1 Main Research Objective

The goal of this research is to investigate how Agile project management practices, virtual teamwork, and risk management are actually implemented in real software development projects and the perceived effectiveness of such practices from an industry practitioner's perspective.

This objective therefore reflects the central aim of the thesis: to understand the extent to which theoretical recommendations match real-world application and to understand what factors influence project success in a modern software development environment.

4.2.2 Specific Research Objectives

To guide this, the study is informed by the following specific objectives that support the main research objective:

1. To analyse how Agile methodologies are implemented in real-world settings and by real software development teams, as well as to understand the perception of practitioners about their benefits and limitations.

2. This will examine how virtual and geographically distributed teams communicate, collaborate, and organize their work within the confines of software development projects.

3. The study aims to observe how the activities of risk management in software projects are done, including the identification, assessment, and mitigation strategies of risks

4. It will also seek to find the major challenges faced by a software team while applying Agile methods, working virtually, and managing risks.

5. To compare empirical findings with insights from the literature in order to highlight gaps between theory and practice.

6. Formulate practical recommendations for enhancement in project management practices within software development based on research findings.

4.2.3 Research Questions

Based on the above objectives, the research will try to answer the following fundamental question:
RQ1: How are agile project management, virtual teamwork, and risk management practices applied in real software development projects, and how effective are they perceived by practitioners?

To further explore the question, the following sub-questions are developed:
RQ1.1: How do agile principles and practices guide software development teams in their everyday way of working?

RQ1.2: What benefits and challenges practitioners face when working in a Virtual or GD Team?
RQ1.3: How do organizations identify, assess, and manage the risks of software development projects?
RQ1.4: Which factors help or hinder Agile and virtual project environments the most?
RQ1.5: How well do the practices that occur in real life match the concepts and suggestions expressed in the literature?

4.2.4 Expected Contribution of the Study

The expected contribution from this research is twofold: it seeks to add to the sum of knowledge by providing the needed empirical evidence on how Agile, virtual teamwork, and risk management are implemented in practice; thus, it contributes to the ongoing discussion about the relevance and applicability of project management theory in real-world contexts. From a pragmatic point of view, it is expected that the research will offer insights and recommendations that may support project managers, software development teams, and organisations in their quest for improving processes and results from projects.

4.3 Research Methodology

In this section, the methodological design that was used in the practical study will be described. The purpose of the research study will be defined as exploring how Agile project managment, virtual teamwork, and risk management activities can be practiced in real-world environments in software development projects. In order to fulfill the purpose, an empirical research design with both quantitative and qualitative aspects will be used.

This methodology section outlines the research design or the structure of the research in terms of the data collection and the sampling process. All these factors ensure a systematic procedure of research that relates to the research objectives and questions detailed in the foregoing section.

4.3.1 Research Design

This study adopts a descriptive and exploratory approach. Firstly, this study is descriptive as it endeavours to portray the current application of Agile, virtual collaboration, and risk management in industry. Furthermore, this study is exploratory as it

intends to find out the underlying patterns, associations, and issues that may perhaps be unclarified in the literature.

Data collection would be done through administering a structured questionnaire to professionals working within the software development field. The administers of this method have designed this type of questionnaire to reach a wide audience and provide an opportunity to get similar data from all participants. The data collected could be supplemented with some quantitative information through other open questions, based on availability and time constraints of participants, to give an insight to their personal experience within this field.

4.3.2 Data Collection Methods

The primary instrument utilized in this research to collect data is that of an online questionnaire. The use of this instrument is optimal, given that the respondents are not fixed in one location geographically. They are likely to have experience with virtual settings. The areas that this questionnaire is seeking to cover are:

- demographic and role related characteristics of respondents,
- adoption and implementation of Agile methodologies,
- characteristics of virtual or distributed teams.
- methods for the identification as well as the management of risks involved in projects,
- perceived benefits, challenges, and success factors.

Included in the survey are closed questions like multiple choice and statements utilizing the Likert scale, in addition to open questions in which the surveyee can personally qualify his or her experience. These provide means for analyzing both systematically and qualitatively.

When possible, follow up conversations or interviews may also be held with selected research subjects in order to better understand or probe certain findings. Nevertheless, the foremost concern of the research is focused on obtaining information through questionnaires.

4.3.3 Target Group and Sampling

The intended audience for this study includes professionals involved in software development projects, and this list is not exhaustive:

- software engineers & developers,
- project managers and Scrum Masters,
- product owners and business analysts,
- quality assurance engineers and testers, and
- technical leads or team leaders.

Respondents are collected through non-probability sampling techniques; specifically, convenience and snowball sampling are used. This is considered applicable because the study is aimed at gathering information from people with specific knowledge on Agile development tools and concepts. The questionnaire will be distributed through their occupational networks.

The objective is to find a sample size that is amenable to analysis, taking into account the reality of voluntary participation.

4.3.4 Ethical Considerations

Ethical integrity is an essential aspect of the research process. Participation in the study is voluntary, and respondents will be informed about the purpose of the research and the intended use of the collected data. No personally identifiable information will be collected unless voluntarily provided, and all responses will be treated as confidential and anonymous.

Participants will be assured that their data will be used solely for academic purposes and will not be shared with third parties. They may withdraw from participation at any time without providing a reason. By completing the questionnaire, respondents will be considered to have given their informed consent.

4.4 Research Instrument Design

It describes the design of a research instrument, the self-administered online questionnaire used for collecting empirical data in this study. A structured online questionnaire was designed to capture information from software development professionals about their experiences with Agile project management, virtual teamwork, and risk management in real project environments. Its design directly relates to the research objectives and research questions defined earlier in this chapter.

It contains both closed-ended and open-ended questions. While the former (multiple-choice or Likert-scale questions) allow for quantification and comparison across subjects, the latter provide the leeway to elaborate on one's experience in one's own words. This mixed format supports both descriptive analysis and interpretation of qualitative insights.

4.4.1 Structure of the Questionnaire

The five main sections of this questionnaire include the following:

Section A-Personal and Demographic Information

This section collects background information about respondents that puts the data into context. Example items that may be included in this section are:

- role in the organisation
- years of professional experience
- industry sector
- size of the organisation
- project type (e.g., product development, client delivery, internal systems)

The latter information allows for analysis of differences in responses based on: role, experience level, or organisational characteristics.

Section B-Agile Project Management Practices

This section focuses on the adoption and implementation of Agile methodologies. It aims to support RQ1.1 and RQ1.5. Examples include:

- What is the primary Agile framework that you use?
- How often does your team hold sprint planning / daily stand-ups / retrospectives?

- How strongly do you agree with the following statement:
  "Agile practices improve collaboration and communication in my team."
- What are some of the challenges that your team has faced while implementing Agile?

The formats include multiple-choice and 5-point Likert scales (from "strongly disagree" to "strongly agree"), with optional open-ended responses.

Section C – Virtual and Distributed Team Collaboration

This section supports RQ1.2, focusing on communication and coordination in virtual environments. Example items include the following:

- Is your team fully remote, hybrid, or co-located?
- How often do you communicate via video conferencing/chat/project management tool?
- How strongly do you agree:
  "Working in a virtual team creates communication challenges."
- What are the greatest benefits and drawbacks of working within a virtual team?

This section will also touch on time-zone coordination, usage of tools, and cohesiveness of the team.

Section D: Risk Management in Software Projects

This section supports RQ1.3 and explores how the identification and management of risks take place in practice. Sample items include:

- Does your organization formally document project risks?
- How often is risk reviewed through the project life cycle?
- What risk types do you experience most? For example, technical, organisational, human
- How strongly do you agree:
  "The activities of risk management contribute to the success of the project."

Optional open-ended questions enable respondents to describe real examples of risks they have experienced and how these were addressed.

Section E – Perceived Effectiveness and Success Factors

This final section covers the research questions-RQ1.4 and RQ1.5-through a discussion on outcomes and general perceptions. Example items include:

- How would you grade the overall success of Agile in your organisation?
- Based on your experience, which have been the variables that most contribute to project success?
- In what ways does your practice in real life differ from theory or the recommended model?

Finally, the respondents are given the opportunity to make final comments or reflections.

4.4.2 Key Variables and Constructs

The following key constructs are targeted for capture in the questionnaire:

- level of Agile adoption
- level and form of virtual collaboration
- the degree of formal risk management activity
- perceived effectiveness of practices
- challenges and success factors experienced.

These are measured mainly with Likert-scale questions to allow for later statistical summarization.

4.4.3 Link Between Research Questions and Questionnaire Sections

Table 3: Link Between Research Questions and Questionnaire Sections

Research Question	Questionnaire Section
RQ1.1 – Agile practice application	Section B
RQ1.2 – Virtual teamwork	Section C
RQ1.3 – Risk management approaches	Section D
RQ1.4 – Success/failure factors	Section E
RQ1.5 – Theory vs practice comparison	Sections B, E

4.5 Data Collection Process

4.5.1 Distribution of the Questionnaire

This online self-completion questionnaire described in Section 4.4 was issued using a web-based survey tool. Distribution of the link of the questionnaire was done through professional networks and university contacts, LinkedIn groups, and personal contacts within the software development industry. A non-probability convenience and snowball sampling approach was adopted whereby respondents were invited to forward the questionnaire to other appropriate colleagues.

The group targeted professionals in software development projects. Participation was voluntary, anonymous, and not incentivised. The respondents were informed about the aims of the research and consented prior to the questions being answered. Data collection took place over approximately three weeks.

In total, 58 valid responses were obtained and analyzed. Since the focus of the research is on European software development environments, the majority of the respondents were from the Czech Republic and Türkiye, supplemented by responses from other European countries. No data was collected from North America or from Asian regions.

4.5.2 Response Rate and Sample Description

Although the questionnaire was distributed on an informal basis, it is estimated that around 90–95 people received the link to the survey. This gives an approximate response rate of 60–65%, which is considered sufficient for a voluntary online questionnaire. A summary of the demographic characteristics of the sample is presented below.

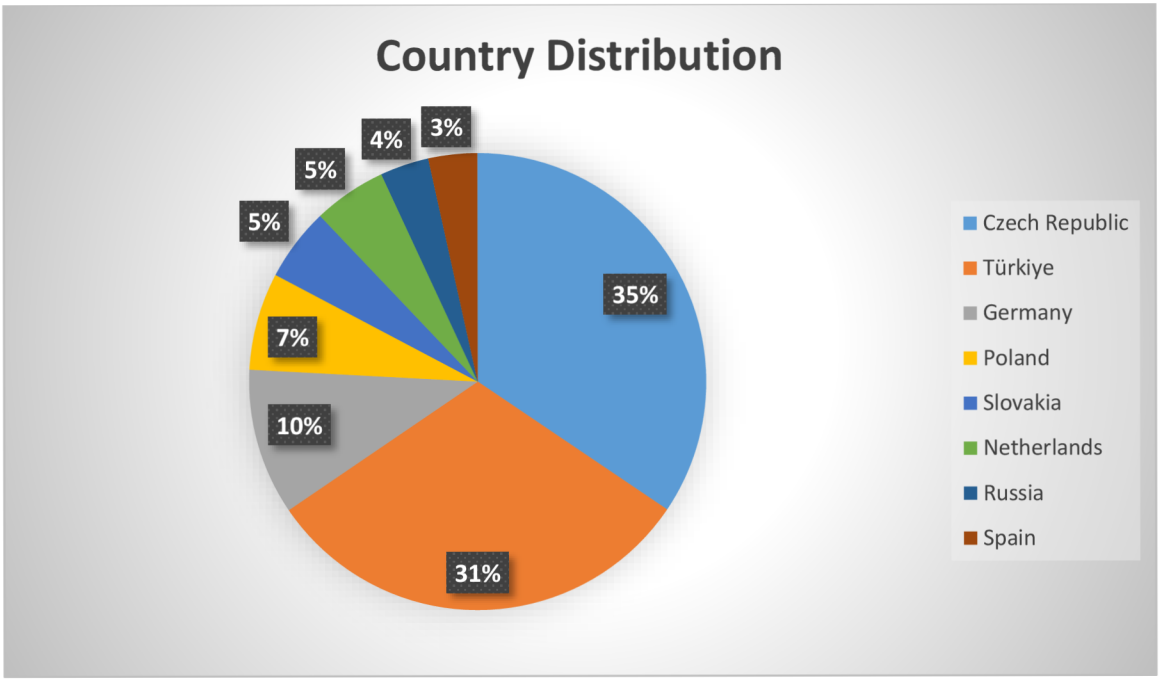

Chart 1: Country Distribution of Questionnaire

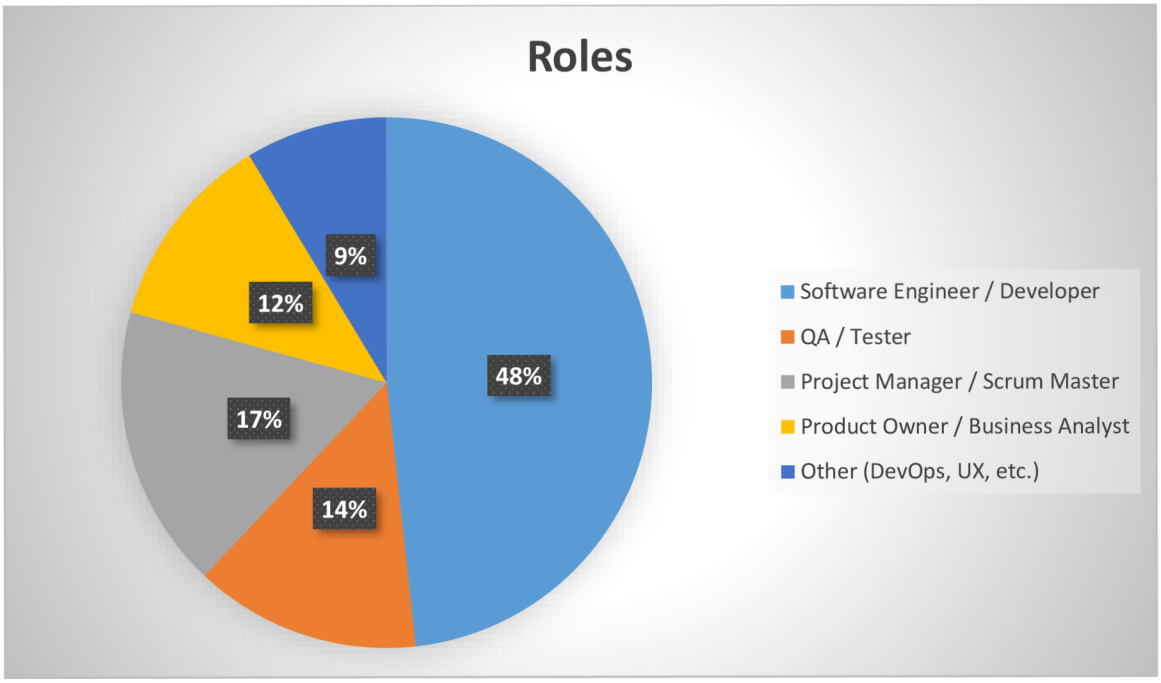

Chart 2: Professional Roles of Questionnaire

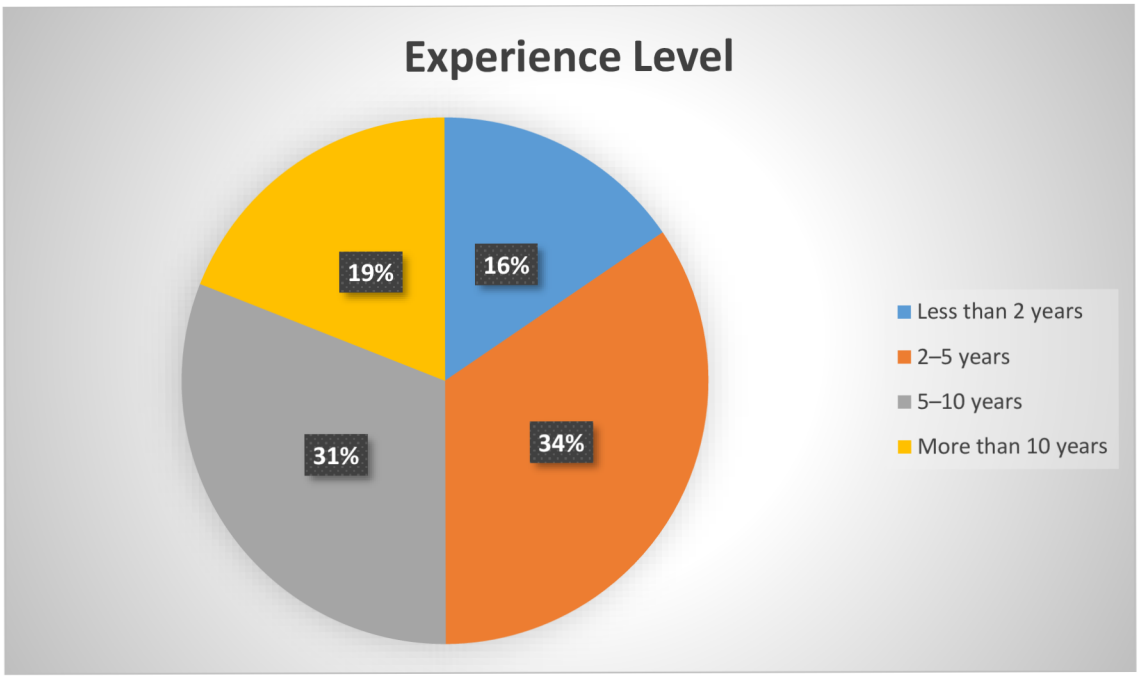

Chart 3: Experience Level of Questionnaire

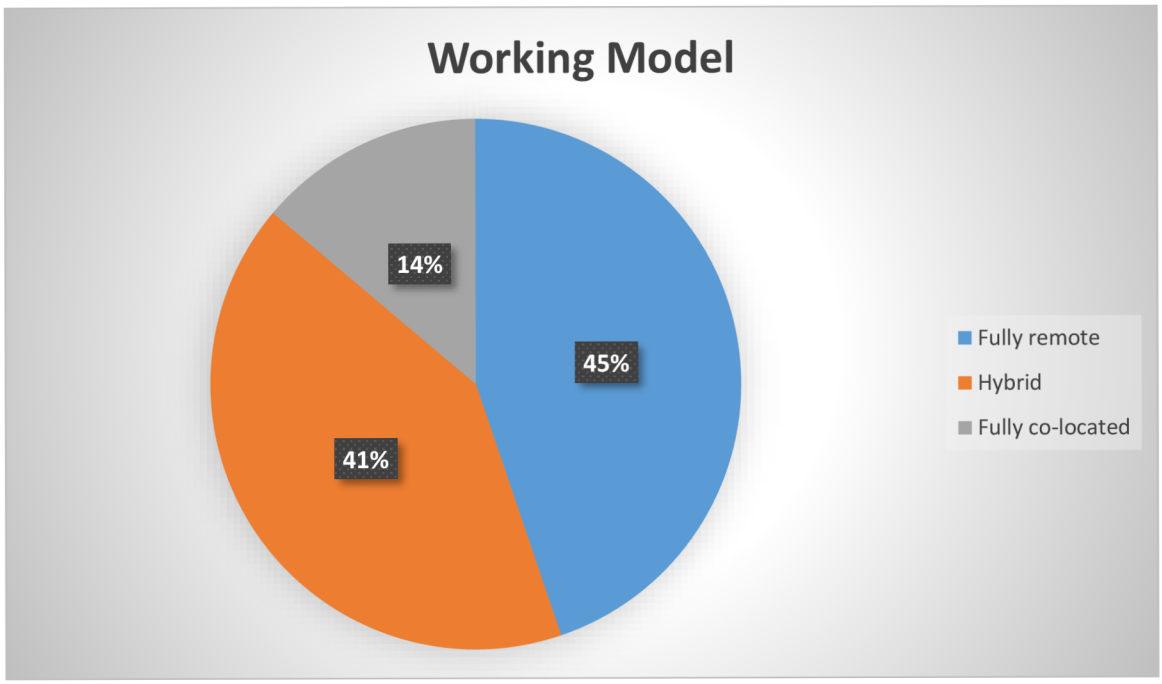

Chart 4: Working Model of Questionnaire

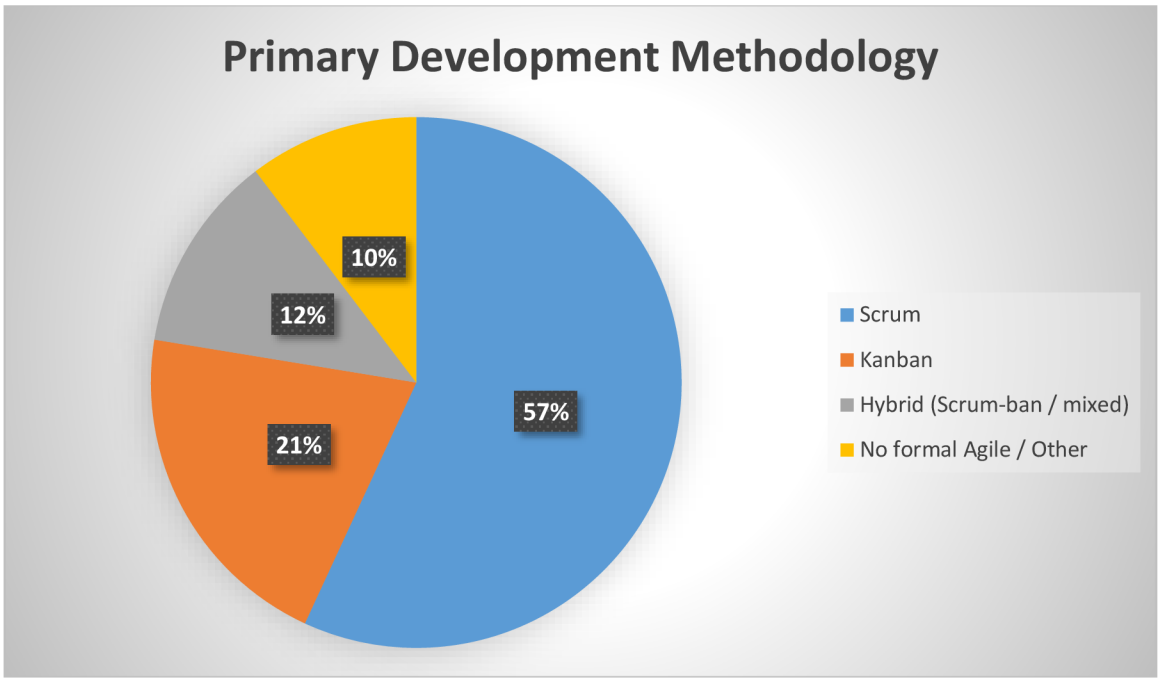

Chart 5: Primary Development Methodology of Questionnaire

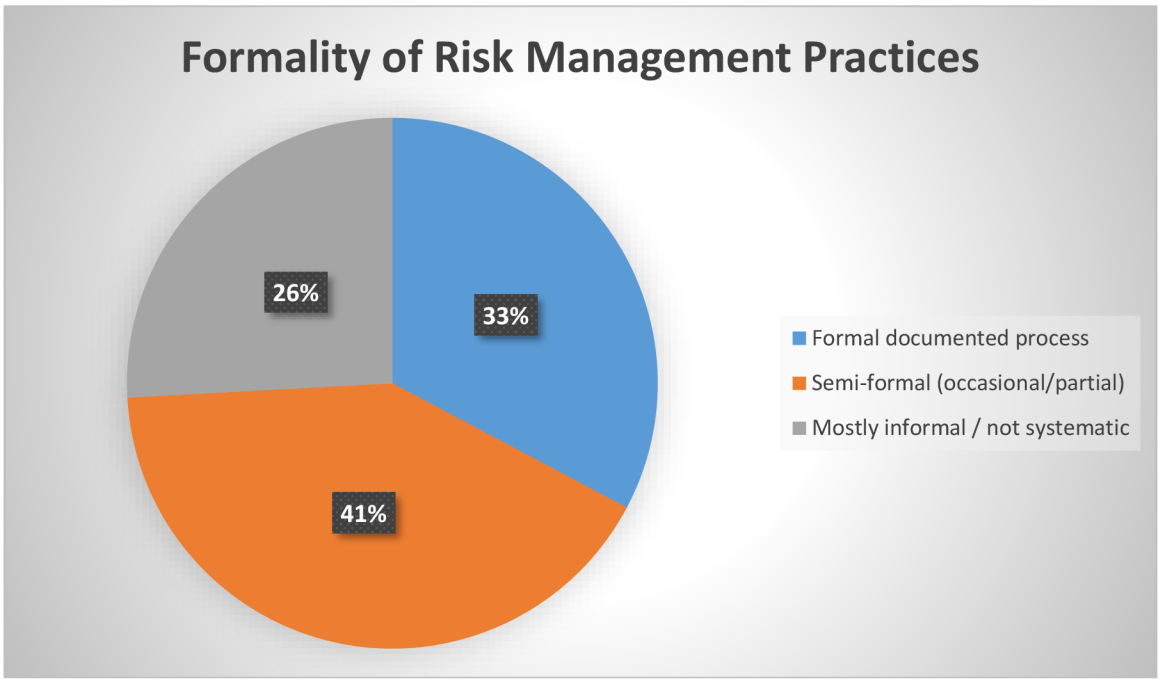

Chart 6: Risk Management of Questionnaire

4.6 Data Analysis Methods

In this section, the techniques that were used for the analysis of data obtained from the questionnaire will be presented. The aim of analysis is to derive responses of the respondents into conclusive findings which will answer the research questions identified in

Section 4.2. Both quantitative and qualitative analysis techniques will be applied, considering the structure of the questionnaire.

4.6.1 Preparation of the Data

The replies to the questionnaires were all extracted from the online survey software into spreadsheets. The next procedures that took place before analysis included:

- responses were examined for completeness
- The duplicate or invalid entries were removed
- open-ended response data were analyzed for understanding
- The responses were coded numerically for analysis (for example, 1 = Strongly Disagree to 5 = Strongly Agree).

As there were no missing data, no imputation of missing data was required, since all responses were valid and complete, all 58 of them.

4.6.2 Quantitative Analysis

Quantitative analysis was mainly used in closed questions such as demographic variables, multiple-choice questions, and rating scale questions.

Descriptive Statistics

In most of the variables, the use of descriptive statistics involved:

- frequencies
- percentages
- mean values
- distribution by categories

These measures were used to summarise:

- respondent demographics
- Agile methodology usage
- working model (remote, hybrid, co-located)
- risk-management formality
- perceptions of effectiveness

The results are given in the form of tables, as well as textual representation of charts, which enables easy understanding of the findings.

Cross-Tabulation and Comparative Analysis

Wherever relevant, was used to examine associations among variables. These include:

- methodology (scrum, kanban, or hybrid) vs. perception of success in the project
- working model (remote/hybrid/co-located) versus communication challenges
- experience level vs. views on Agile effectiveness
- risk management maturity vs. reported frequency of project issues

These comparisons enable ascertaining whether perceived experiences vary among groups of respondents.

When significant, mean comparison or percentage comparison has been utilized in the research in highlighting trends, with the focus of avoiding over-interpretations in accordance with the non-probability sampling method.

Likert-Scale Interpretation

Likert-scale questions (e.g., 1 = strongly disagree to 5 = strongly agree) were analysed using:

- mean score
- distribution across agreement levels

This supports consistent comparison across questions. To aid interpretation, the following convention was used:

Table 4: Likert-Scale Interpretation

Mean Score	Interpretation
1.0–1.9	Strongly disagree
2.0–2.9	Disagree
3.0–3.4	Neutral
3.5–4.2	Agree
4.3–5.0	Strongly agree

4.6.3 Qualitative Analysis

Open answers were analyzed using a simple thematic analysis technique.
The reasoning involved the following steps:

- each response was read several times
- the recurring themes and ideas were identified
- responses were grouped according to themes
- representative statements were noted

Common topics may include:

- benefits of Agile
- communication barriers in Virtual Teams
- organisational & cultural influences
- examples of project risks and mitigation techniques

The purpose of qualitative analysis is to add meaning to the quantitative data by incorporating real-life experiences and knowledge.

4.6.4 Validation and Consistency Checks

There are some measures employed to ensure the validity of the findings:

- The data were assessed for internal consistency of response, for example, by comparing role, experience, and responsibility.
- Nonself-consistent or implausible response patterns were examined
- The integrity of the dataset was maintained by not modifying any of the responses given by the participants

In light of the scope and level of this thesis research, analysis will be directed towards interpretability and less towards inferential statistics.

4.6.5 Presentation of Results

The outcome of the analysis is presented in Section 4.7, organized around the various topic areas:

- Agile project management methodologies
- virtual and distributed team collaboration

- risk management practices
- perceived effectiveness and success factors

The results are supplemented with tables, text charts, or qualitative comments to support findings.

The purpose of this presentation is to prove and demonstrate how these data are used for answering these research questions, as well as comparing these findings to those that have been discussed in the literature.

5. Results and Discussion

5.1 Results

This section will provide the results of a questionnaire completed by 58 software development professionals practicing in various European countries. These results will be structured in a manner consistent with the research areas of focus, including Agile project management practices, work in a virtual/distributed team environment, risk management practices, and general perceptions of success.

Unless otherwise stated, Likert-scale responses were measured on a five-point scale (1 = strongly disagree … 5 = strongly agree), and averages are interpreted using the convention described earlier.

5.1.1 Analysis of Agile Practices in Real Projects

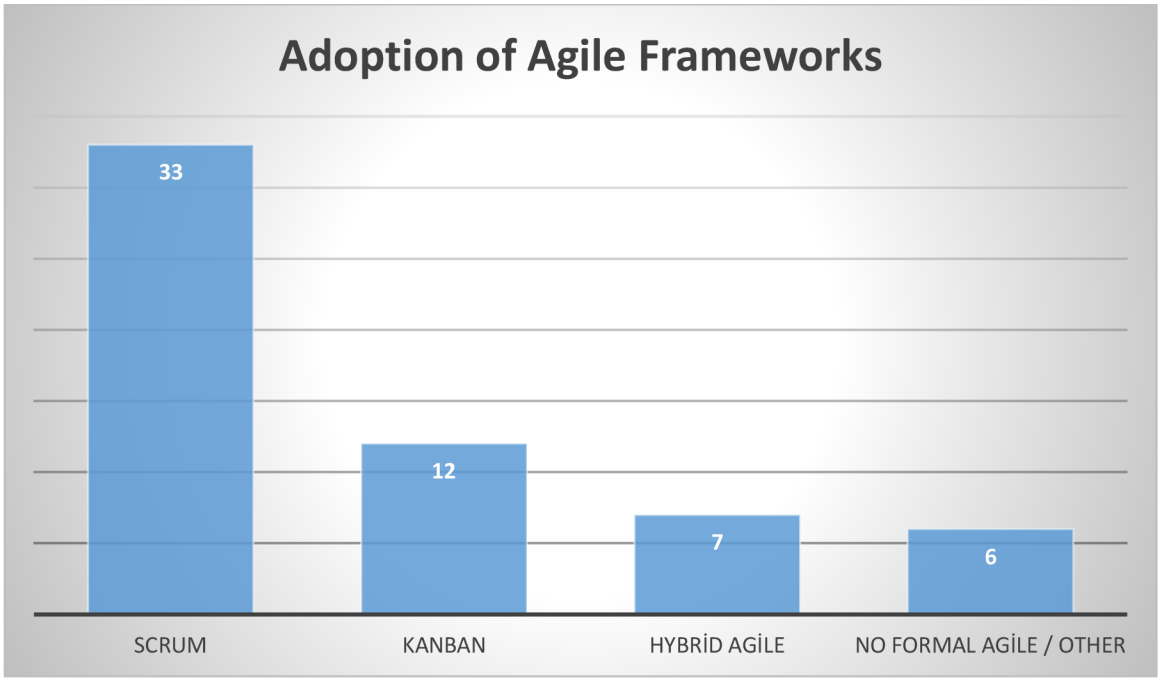

Figure 2: Adoption of Agile Frameworks in the Questionnaire

Interpretation: Agile practices are widely used, with Scrum being the most dominant framework.

Perceived Benefits of Agile

Table 5: Perceived Benefits of Agile in the Questionnaire

Statement	Mean	Interpretation
Agile improves collaboration in my team	3.9	Agree
Agile improves delivery speed	3.7	Agree
Agile improves product quality	3.6	Agree
Agile increases predictability of delivery	3.3	Neutral
Agile is well-implemented in my organisation	3.5	Agree (borderline)

Key observations:

- Most respondents agree on the improvement of collaboration, delivery speed, and quality.
- Perceived predictability is still only moderate, reflecting the fact that while Agile reduces the level of predictability, it does not remove
- Some respondents commented that Agile is "used in name only" in certain organisations, confirming the theory–practice gap noted earlier.

5.1.2 Analysis of Virtual and Distributed Team Management

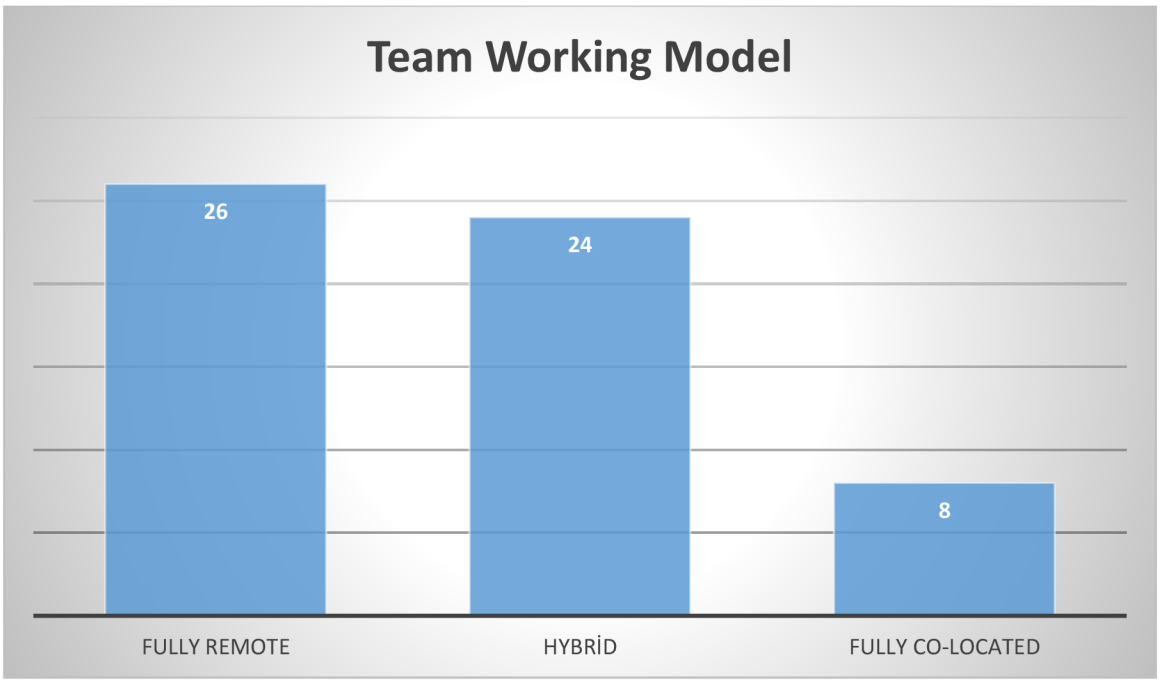

Figure 3: Team Working Model in the Questionnaire

Perceptions of Virtual Collaboration

Table 6: Perceptions of Virtual Collaboration in the Questionnaire

Statement	Mean	Interpretation
Working in a virtual team creates communication challenges	3.8	Agree
Our tools support effective remote collaboration	3.9	Agree
Time-zone differences create difficulties	3.2	Neutral
Team cohesion is harder in virtual teams	3.7	Agree
Knowledge sharing is effective in my team	3.6	Agree

Key observations:

- Respondents are in agreement that virtual work creates communication and cohesion problems.
- Nevertheless, they are confident in collaboration tools too. This indicates the maturity they have developed in working remotely.
- Time-zones is only a concern for about half the group, probably due to the fact that many respondents work in Europe.

5.1.3 Analysis of Risk Management Practices

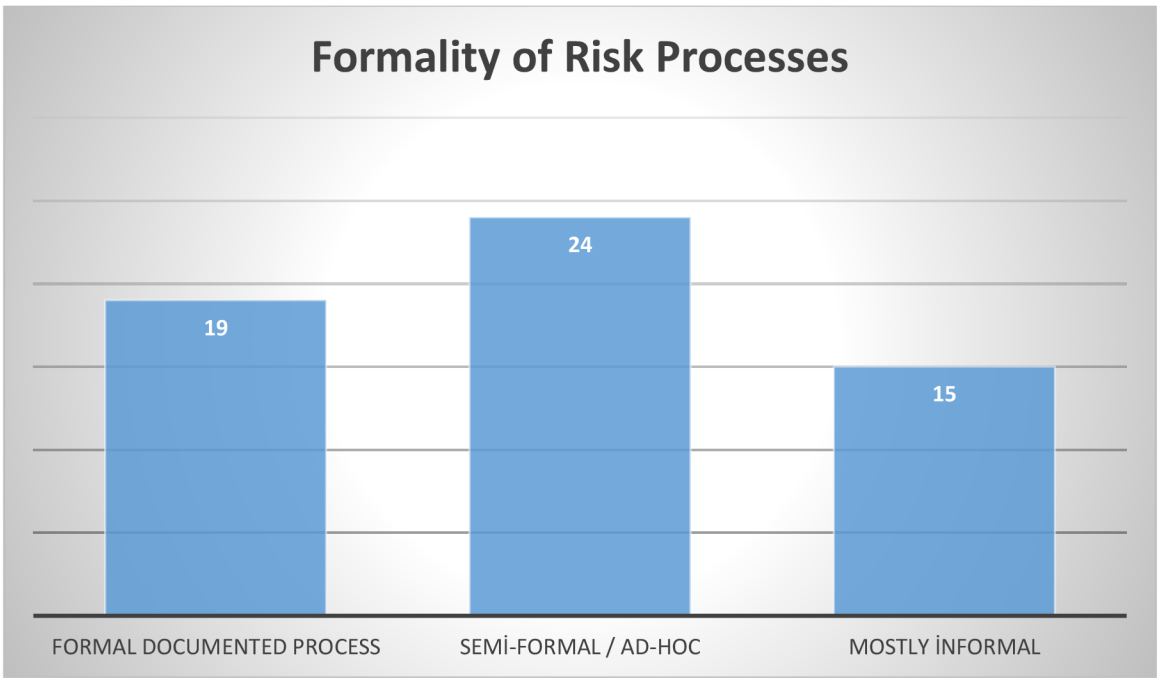

Figure 4: Formality of Risk Processes in the Questionnaire

Perceptions of Risk Management

Table 7: Perceptions of Risk Management in the Questionnaire

Statement	Mean	Interpretation
Risks are regularly reviewed during projects	3.4	Neutral
Risk management improves project success	4.1	Agree
Human-related risks (e.g., communication, turnover) are significant	4.0	Agree
Technical risks are the biggest challenge we face	3.5	Agree
Our organisation manages risks effectively	3.3	Neutral

Key observations:

- The respondents firmly agree that risk management enhances success, even when not fully formalised.
- Human-related and communication risks are perceived to be of high significance, complementing the findings observed in the earlier literature.
- Many teams do not review risks systematically, aligning with earlier claims that practice often deviates from formal frameworks.

5.1.4 Cross-Analysis and Key Findings

5.1.4.1 Risk Management Maturity Vs. Perceived Success

Respondents were asked to rate overall project success.

Table 8: Perceived Success in the Questionnaire

Self-Rated Success Level	Number
Very successful	12
Mostly successful	30
Mixed success	13
Mostly unsuccessful	3

When grouped by risk-management maturity, the trend is clear:

Table 9: Average Perceived Success of Risk Approach in the Questionnaire

Risk Approach	**Average Success Rating (1–5)**
Formal	4.2
Semi-formal	3.8
Informal	3.4

Interpretation: Teams with formal or semi-formal risk processes report higher project success.

5.1.4.2 Working Model Vs. Communication Challenge Score

Table 10: Working Model Vs. Communication Challenge Score in the Questionnaire

Working Model	**Mean Agreement: "Virtual work creates communication challenges"**
Fully remote	3.9
Hybrid	3.7
Co-located	3.0

Interpretation: There are fewer communication problems for colocated teams, though remote teams also work well overall.

5.1.4.3 Experience Level Vs. Perceived Predictability of Agile

Experience Group	**Mean Score: "Agile increases predictability."**
< 2 years	3.6
2–5 years	3.4
5–10 years	3.2
> 10 years	3.1

Interpretation: More experienced individuals appear to be slightly more skeptical regarding Agile predictability, perhaps because of overall experience with complex projects.

5.1.5 Summary of Findings

From the above analysis, a number of important points can be concluded:

- Agile is widely used and overall viewed very positively, especially when it comes to teamwork, speed of delivery, and quality of work.
- Virtual teamwork is faced with communication and teamwork issues in actual practice. However, technology helps to make collaboration easier.
- Risk management is not always formalized, yet practitioners clearly believe it improves success.
- Technical risks share the same level of significance as human-related risks.
- Teams with a more structured risk management system report higher success.
- More experienced professionals rate predictability for Agile less positively.

These results will be used as the foundation for the Discussion section, in which they can then be compared with the material reviewed in Chapter 3.

5.2 Discussion

In this section, the empirical findings that have been presented in Section 5.1 will be considered in the light of the theoretical constructions that have been described in the literature review above. The intention is to interpret the results, draw certain implications from them, and determine the degree to which the current practices match the theoretical constructs that have been postulated for Agile project management, virtual team management, and risk management practices, respectively.

5.2.1 Agile Practices and Their Perceived Effectiveness

Analysis of the findings indicates that the adoption of Agile methods, specifically Scrum, is quite popular, with 90% of the respondents using the Agile paradigm in their project tasks. Notably, this finding aligns with the adoption trends for the industry reported

in the literature. It indicates that the use of Agile frameworks in project management is dominant in the industry.

The participants are in general agreement that user collaboration, working faster, and higher quality are improved by the use of Agile. These findings are consistent with theoretical justifications that propose that it is possible to increase communication, improve iterative learning, and create value quickly using the Agile method. Nevertheless, the level of predictability that is achieved through the use of Agile is found to be moderate, suggesting that the uncertainty problem is still not fully resolved by the application of the Agile approach.

There appeared to be a marked trend with regards to experience, in that those with greater experience in their field slightly doubted predictability in Agile projects. It would seem reasonable to assume that those with greater experience in their field will experience differing levels of Agile application quality in differing projects, thus reinforcing that those in favour of Agile need to apply such in a mature and disciplined manner, as asserted in literature.

From the data, it can be concluded that there is a perception that Agile is beneficial but not totally transformative in nature. It is helpful in terms of teamwork and flexibility but has not totally eliminated difficulties in dealing with uncertainty, coordination, and risk.

5.2.2 Virtual and Distributed Teams, Advantages and Disadvantages

A significant proportion of respondents are involved in remote or hybrid work, which confirms that remote collaboration is already commonplace in software development. A significant proportion of respondents also expect that virtual collaboration poses certain communication and teamwork issues. Such views are consistent with numerous arguments in the literature.

On the other hand, the respondents also demonstrate a strong confidence level in the use of digital collaboration tools. This affirms that the level of technological enablement for remote work has attained maturity to ensure effective coordination and

synchronization with proper work practices. Time differences were viewed as a factor with a level of moderation that aligns with the consideration that the respondents belong to a predominantly European time zone and thus a relatively congruent work day.

These results show that virtual teams face conditions of both advantages and limitations. While virtual teamwork is certainly possible and often successful, it is not easy and thus needs appropriate communication structures and team-building efforts because virtual teams do not physically coexist.

5.2.3 Risk Management in Software Development

A level of risk management maturity among the respondents varies. About a third of the respondents use risk management on a semi-formal and informal basis. However, the attitude among the respondents shows that they strongly agree that risk management has a positive impact on project success. Human and communication risks are viewed as being equally important as technical risks.

This result is further supportive of the contention that the risks involved in software development are neither exclusively technical, nor primarily influenced by organisational and other non-technical factors, but influenced by such factors as well. Moreover, it re-affirms the assertion that Agile, though very helpful for risk, does not diminish or replace risk management activities.

One of the interesting outcomes of this study is that people who work in a setting where there are more formalized processes for risk management perceive a level of project success. While it is not possible to determine causality for this result, because this study was designed descriptively, it is interesting to see that risk awareness and evaluation, if it is a structured process, could have a positive impact.

5.2.4 Integrating Agile, Virtual Teams, and Risk Management

It is evident from the findings that the interactions between Agile approaches, remote collaboration, and risk management in a project context are complex. For instance, while the adoption of the Agile approaches enhances malleability and intra-team

communication, remote teamwork presents unique challenges. Furthermore, the inability to adequately formalize risk management may accentuate these challenges.

These results confirm the hypothesis that Agile is most effective when combined with communication discipline, leadership, and risk management behavior. The gap that emerged from the observations noted in the literature regarding the theory and practice difference is again apparent, and this is the fact that the structures presented in the theory regarding Agile and the risk management method, although structured, lack consistency regarding the effectiveness of their practice within each organisation. In certain teams, the deployment of Agile is not thorough, thereby hindering the actual realisation of its potential.

5.2.5 Implications for Practice

There are several implications for practice based on the findings of the study. First, organisations should not rely on Agile methodological adoption for ensuring the success of their projects. There should be greater emphasis on the quality of communication, team maturity, and the quality of leadership. Second, virtual teams should have clear strategies for support, including trust-building and support strategies, and should not rely on mere technology. Third, risk management should always remain a part of Agile environments. It has been observed that simple and iterative risk identification and review strategies positively influence perceived success. Lastly, human risks like communication problems, expectations, and employee turnover should not be given less priority than technology-related risks.

5.2.6 Reflection on the Research Questions

The study has achieved satisfactory outcomes in answering the research questions. To identify answers for RQ1.1, Agile tenets are largely in use, considered positive overall, especially for teamwork and time efficiency. To answer RQ1.2, virtual teamwork is possible, but communication and teamwork are not identical concerns. To identify answers for RQ1.3, there are informal aspects about risk management, but it remains a positive element considered well associated with overall project success. To answer RQ1.4, success is no way directly related to methodologies, but rather more related to communication, leadership, along with risk management awareness. Finally, addressing RQ1.5, real-life

practice only partially reflects theory, with hybrid and context-dependent implementations being common.

5.2.7 Overall Discussion Summary

In conclusion, the results validate large portions of the current theory, which, together, point to the importance of implementation quality and context. Whether agile, virtual teamwork, and risk management should be assessed singularly or in combination is irrelevant, as their joint contribution impacts project work together. Projects perform best when flexibility, communication quality, and managed risk awareness are synergistically integrated within the software development environment.

6. Conclusion

6.1 Summary of Findings

The purpose of this thesis was to investigate how Agile project management, virtual collaboration, and risk management are practiced within software development projects, as well as how their use is perceived. Data was collected via a questionnaire distributed to 58 software developers, mostly from within the Czech Republic and Türkiye, but also from other European countries.

The findings of the study reveal that Agile approaches, especially Scrum, have been largely adopted and well-received, especially regarding the promotion of collaboration, speed, and quality. Nevertheless, the respondents also clarified that Agile cannot eliminate unpredictability and uncertainty and relies on how Scrum is applied and implemented. The research further revealed that virtual teamwork and combination teamwork processes have emerged as the norm of working. Although respondents believe online working tools and processes are very effective, they still have issues regarding online communication and the connectivity of the team working together, regardless of the fact that time zones may not be significantly different.

As regards the risk management aspect, there are inconsistent degrees of formality being observed on the part of the organisations. Nonetheless, it was discovered that risk management significantly influences the success of projects, and that risks related to the human aspect and communications have the same level of priority as risks related to the technical aspect. Moreover, the degree of formality in risk management was significantly related to the perception of success among the projects.

In conclusion, the findings of the study show the close connection between the use of Agile techniques, teamwork in a virtual environment, and risk management. Project success does not meet the criteria of either the theory or the practices, but rather their combination in disciplined use of the Agile philosophy, effective communication in virtual teamwork, and risk management behavior. Once again, the existence of the theory and practice gap is confirmed.

6.2 Recommendations for Practice

According to the empirical results of this thesis and their confrontation with the literature, a number of practical recommendations can be articulated for organizations, project managers, and software development teams. The following recommendations are enlightened by the observed relationships between Agile implementation quality and virtual teamwork dynamics on the level of risk-management maturity.

6.2.1 Recommendations for Organizations

- Agile should be implemented as a way of management, rather than an awareness of items on a checklist. Agile practices require underpinning by clarity of roles, stability of process, and culture of learning and feedback for continuous improvement.
- Establish formal but light processes of risk management. Even in Agile contexts, organizations should institutionalize the process of periodic identification and review of risks. These processes do not have to be bureaucratic but consistent and visible.
- Recognize the significance of human-centered risks. Communication breakdowns, ill-defined expectations, staff turnover, and cultural differences should be treated as critical risk categories alongside technical risks.
- Support communication culture and technology. Tools for collaboration are necessary, but they must be accompanied by clear rules on information sharing, responsiveness, and decision-making routines.
- Invest in leadership capability and team maturity. Agile and virtual depend upon trust and autonomy; hence, organizations should build competencies both in formal leadership and team members.

6.2.2 Recommendations for Project Managers and Scrum Masters

- Integrate Agile practice, team management, and risk management intentionally. These domains should not be treated independently but viewed as mutually reinforcing elements of the same project system.

- Ensure predictable and structured communication routines. Regular stand-ups, sprint reviews, retrospectives, and risk review moments should be implemented habitually-especially for virtual teams.
- Visibility and clarity can be presented in common. The priorities, risks, progress, and responsibilities of a project need to be broadly clear to each team member.
- Balance flexibility with discipline. While Agile encourages adaptation, deviations from recommended practices should be conscious, justified, and monitored rather than accidental.
- Create a psychologically safe environment. Team members should feel free to raise concerns, discuss risks, and challenge assumptions with no fear of repercussions.

6.2.3 Recommendations for Software Development Teams

- Attend Agile ceremonies and reflect on them. The results expected from retrospectives, planning meetings, and feedback loops are pegged on open and constructive participation by team members.
- Emphasize clarity of communication in virtual space: confirmation of understanding, documentation of important decisions, use of synchronous communication for complex and ambiguous issues.
- Contribute to the identification and monitoring of risks. It should be considered that risk awareness is a responsibility of all team members, rather than of the managers only.
- Share knowledge intentionally: Practices like documentation, pairing, mentoring, and team learning reduce vulnerability to staff turnover and improve resilience.
- Practice vs. theory: Teams should reflect periodically on which of the Agile principles they are following, which they have adapted, and whether the adaptations continue to serve the project's goals.

6.2.4 Overall Recommendation

One of the overarching recommendations that arise from this research is that software development projects are most successful when Agile project management, virtual

teamwork, and risk management are deliberately integrated. Flexibility should be underpinned by structured communications, disciplined implementation, and conscious attention to both technical and human-centered risks. Organizations and teams that take a holistic approach to such areas have more likelihood of attaining consistent and sustainable project success.

6.3 Limitations of the Study

Although this thesis provides valuable insights into the application of Agile project management, virtual teamwork, and risk-management practices in software development projects, a number of limitations must be recognised.

First, the research relies on the material obtained from a non-probability sample of 58 respondents, who come, for the most part, from the Czech Republic and Türkiye, and to a lesser extent from other European countries. The fact that participation was based on free will and that the sample was drawn using convenience and snowball sampling means that these findings cannot be generalized to the whole population of the software development industry. These findings thus present the experiences and perceptions of the particular respondents who took part in this study.

Second, the research is based on self-reported data gathered through a questionnaire. For that reason, it is possible that the responses would be biased by personal perception, recall bias, or organisational culture, instead of any objective measure of performance. Moreover, this study is cross-sectional in nature; it captures opinions in one snapshot point in time, and does not represent how practices or perceptions may change.

Third, while the questionnaire was designed to have both closed and open-ended questions, the latter have limited depth of qualitative insight compared with interviews or ethnographic observation. As a result, some subtleties of Agile practice, virtual collaboration, and risk management may be less than fully explored.

Finally, the study focuses on perceptions of effectiveness rather than measurable project outcomes such as delivery speed, cost control, or product quality indicators.

The relationship between reported practices and actual performance should therefore be interpreted with caution.

Although these are significant limitations, the study does provide a useful descriptive background of actual project management practices in software development, and it forms a good starting point for further investigation.

6.4 Suggestions for Future Research

Based on the findings and shortcomings of this thesis, a number of opportunities for future research could be outlined.

This could be future studies involving larger and more diverse samples, including participants from additional regions, industries, and organizational sizes, which would allow for greater generalisability of results and enable more detailed statistical comparisons between groups.

Second, qualitative research methods could include semi-structured interviews or case studies to gain deeper insight into how Agile, virtual teamwork, and risk management are implemented in practice. The application of such approaches would allow a richer understanding of organizational culture, leadership style, and team dynamics.

Third, future research should seek to connect reported practices with objective performance measures such as project delivery time, defect rates, customer satisfaction, or financial results so that stronger conclusions might be drawn about the causal effects of Agile methods and risk-management approaches.

Fourthly, further investigation would be worthwhile to understand better the role of human and behavioural factors, particularly those relating to psychological safety, the building of trust in virtual teams, and knowledge-sharing practices, all of which are important themes in this present study.

Finally, the investigation of Agile maturity and risk-management practices would longitudinally review how such a practice changes over time and how organizations would transition from traditional to Agile or hybrid models. On the whole, future research also

needs to consider the interaction between methodology and team structure with risk awareness, as it seems to be a critical determinant of success in software projects.

7. References

BECK, Kent, BEEDLE, Mike, VAN BENNEKUM, Arie, COCKBURN, Alistair, CUNNINGHAM, Ward, FOWLER, Martin, GRENNING, James, HIGHSMITH, Jim, HUNT, Andrew, JEFFRIES, Ron, KERN, Jon, MARRICK, Brian, MARTIN, Robert C., MELNIK, Steve, SAPERSTON, Ken, THOMAS, Dave and WAKE, Don, 2001. Manifesto for Agile Software Development [online]. 2001. Retrieved from: https://agilemanifesto.org/

BOEHM, Barry, 1991. Software risk management: Principles and practices. IEEE Software [online]. January 1991. Vol. 8, no. 1, p. 32–41. DOI 10.1109/52.62930. Retrieved from: https://ieeexplore.ieee.org/document/62930

POWELL, Anne, PICCOLI, Gabriele and IVES, Blake, 2004. Virtual teams: A review of current literature and directions for future research. The DATABASE for Advances in Information Systems [online]. 2004. Vol. 35, no. 1, p. 6–36. DOI 10.1145/968464.968467. Retrieved from: https://dl.acm.org/doi/10.1145/968464.968467

PROJECT MANAGEMENT INSTITUTE, 2021. A Guide to the Project Management Body of Knowledge (PMBOK® Guide). 7th ed. Newtown Square, PA: Project Management Institute.

ROYCE, Winston W., 1970. Managing the development of large software systems. Proceedings of IEEE WESCON [online]. 1970. p. 1–9. Retrieved from: https://www.cs.umd.edu/class/spring2003/cmsc838p/Process/waterfall.pdf

DUARTE, Deborah L. and SNYDER, Nancy, 2006. *Mastering virtual teams: Strategies, tools, and techniques that succeed*. 3rd ed. San Francisco: Jossey-Bass.

OLSON, Judith S. and OLSON, Gary M., 2000. Distance matters. Communications of the ACM [online]. Vol. 43, no. 7, p. 77–82. DOI 10.1145/353360.353380. Retrieved from: https://dl.acm.org/doi/10.1145/353360.353380

ASQ, 2024. Risk Management — Quality Resources [online]. American Society for Quality. Retrieved from: https://asq.org/quality-resources/risk-management

ISO, 2018. ISO 31000:2018 Risk management — Guidelines. Geneva: International Organization for Standardization.

STANDISH GROUP, 2020. CHAOS Report 2020: Beyond Infinity. Boston: The Standish Group International.

HIGHSMITH, Jim, 2009. *Agile project management: Creating innovative products*. 2nd ed. Boston: Addison-Wesley.

VERSIONONE, 2023. *17th Annual State of Agile Report* [online]. CollabNet VersionOne. Retrieved from: https://stateofagile.com/

LEE, Gwanhoo and XIA, Weidong, 2010. Toward agile: An integrated analysis of quantitative and qualitative field data on software development agility. *MIS Quarterly*. Vol. 34, no. 1, p. 87–114.

AMAR, Hassan and HAAG, Markus, 2017. Exploring the critical success factors of virtual-agile IT projects: A grounded theory study. *International Journal of Innovation, Management and Technology* [online]. December 2017. Vol. 8, no. 6, p. 427–433. DOI 10.18178/ijimt.2017.8.6.766. Retrieved from: https://www.ijimt.org/vol8/766-M032.pdf?utm_source=chatgpt.com

MUAYAD, Ahmed and YOUNIS, Hala, 2021. Conceptual framework of Agile project management, affecting project performance, key: Requirements and challenges. *International Journal of Innovative Research in Engineering & Management (IJIREM)* [online]. July 2021. Vol. 8, no. 4, p. 11–13. DOI 10.21276/ijirem.2021.8.4.3. Retrieved from: https://scispace.com/pdf/conceptual-framework-of-agile-project-management-affecting-21cppzaz1m.pdf?utm_source=chatgpt.com

TSHABALALA, M.M. and KHOZA, L.T., 2021. A conceptual framework for effective management of conflict risk within Agile software development environments. *South African Journal of Information Management* [online]. 2021. Vol. 23, no. 1, a1291. DOI 10.4102/sajim.v23i1.1291. Retrieved from: https://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1560-683X2021000100026&utm_source=chatgpt.com

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8.4 List of abbreviations

Agile: Agile Project Management Methodology

RQ: Research Question

UX: User Experience

Kanban: Visual workflow management method

Scrum: Agile framework for project management

Appendix

Questionnaire for Software Development Professionals

This survey aimed at gathering data on practical project management processes in the industry of software development, with a focus on agile methodologies, virtual collaboration, and risk consideration. This survey was conducted on a voluntary and anonymous basis and used solely for research purposes.

Section A: General and Demographic Information

A1. Country of residence

- Czech Republic
- Türkiye
- Germany
- Poland
- Slovakia
- Other (please specify): _____

A2. Your primary role in software development projects

- Software Engineer / Developer
- QA / Tester
- Project Manager / Scrum Master
- Product Owner / Business Analyst
- Team Lead / Technical Lead
- Other (please specify): _____

A3. Years of professional experience in software development

- Less than 2 years
- 2–5 years
- 5–10 years
- More than 10 years

A4. Size of your organisation

- 1–10 employees
- 11–50 employees

- 51–250 employees
- More than 250 employees

A5. Primary working model of your team

- Fully remote
- Hybrid (partly remote, partly on-site)
- Fully co-located (on-site)

Section B: Agile Project Management Practices

B1. Which project management methodology do you primarily use?

- Scrum
- Kanban
- Hybrid Agile (e.g., Scrumban)
- Traditional / plan-driven
- No formal methodology
- Other (please specify): _____

B2. How long has your team been using Agile methods?

- Less than 1 year
- 1–3 years
- 3–5 years
- More than 5 years
- We do not use Agile

B3. How frequently do the following Agile ceremonies take place? (Options: Never / Occasionally / Once per sprint / Weekly / Daily)

- Sprint planning
- Daily stand-up meetings
- Sprint review
- Sprint retrospective

B4. Please indicate your level of agreement with the following statements: (1 = Strongly disagree … 5 = Strongly agree)

- Agile improves collaboration within my team.
- Agile improves the speed of delivery.
- Agile improves the quality of delivered software.
- Agile increases the predictability of project delivery.
- Agile is implemented consistently and effectively in my organisation.

B5. In your experience, what are the biggest challenges in applying Agile methods? (Open-ended)

Section C: Virtual and Distributed Team Collaboration

C1. How would you describe your team's working model?

- Fully remote
- Hybrid
- Fully co-located

C2. Which tools do you frequently use for collaboration? (Multiple selection allowed)

- Slack / Teams / Chat tools
- Zoom / Google Meet / Video conferencing
- Issue-tracking tools (e.g., Jira)
- Wiki / documentation tools
- Version-control platforms (e.g., GitHub / GitLab)
- Other (please specify): _____

C3. Please indicate your level of agreement with the following statements: (1 = Strongly disagree … 5 = Strongly agree)

- Working in a virtual team creates communication challenges.
- Digital collaboration tools support remote teamwork effectively.
- Time-zone differences create difficulties for coordination.
- Team cohesion is harder to maintain in virtual teams.

- Knowledge sharing works effectively in my team.

C4. In your opinion, what are the main advantages and disadvantages of working in virtual teams?
(Open-ended)

Section D: Risk Management in Software Projects

D1. How are project risks handled in your organisation?

- Formal risk-management process with documentation
- Semi-formal / ad-hoc risk handling
- Mostly informal / no structured risk-management approach

D2. How frequently are project risks reviewed?

- Never
- Only at the start of the project
- Occasionally during the project
- Regularly throughout the project

D3. Which types of risks do you encounter most frequently? (Multiple selection allowed)

- Technical risks
- Human-related / communication risks
- Organisational risks
- Schedule / delivery risks
- Customer / stakeholder risks
- Other (please specify): _____

D4. Please indicate your level of agreement with the following statements: (1 = Strongly disagree … 5 = Strongly agree)

- Risk management improves overall project success.
- Human-related risks represent a significant challenge in projects.
- Technical risks represent a significant challenge in projects.
- My organisation manages risks effectively.

- Risks are discussed openly within my team.

D5. Please provide an example of a significant project risk you have experienced and how it was addressed.
(Open-ended)

Section E: Perceived Project Success and Overall Reflection

E1. In general, how successful are the software projects you work on?

- Very successful
- Mostly successful
- Mixed success
- Mostly unsuccessful
- Very unsuccessful

E2. In your opinion, what factors most strongly contribute to project success?
(Open-ended)

E3. To what extent do you agree with the following statement? (1 = Strongly disagree … 5 = Strongly agree)
Real-life project management practice in my organisation fully reflects what is recommended in theory.

E4. Please describe any major differences you see between theory and real practice in software project management.
(Open-ended)

E5. Final comments (optional):
(Open-ended)