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POVEZAVA MED ZADOVOLJSTVOM Z DELOM IN MOTIVACIJSKIMI DEJAVNIKI ZA POVEČANJE PRODUKTIVNOSTI V PROJEKTNO ORGANIZIRANEM IT PODJETJU

THE LINK BETWEEN JOB SATISFACTION AND MOTIVATIONAL FACTORS WITH INCREASING PRODUCTIVITY IN PROJECT ORGANIZED IT COMPANY

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ABSTRACT

The dissertation presents a thorough investigation of the complex dynamics of motivation and telecommuting in project companies. It relies on Herzberg's two-factor theory, studies the project organizational structure and the developing concept of work from home (WFH). The study that was carried out combines both quantitative and qualitative approaches, which provides a comprehensive insight into this field.

With an in-depth research design that includes diverse data collection methods and insightful analysis, the dissertation provides valuable insights into the factors that influence employee satisfaction and motivation in the ever-evolving telecommuting environment. Revealing these findings, supported by key quantitative survey results and in-depth assessments from focus groups, adds depth and credibility to the overall research.

Focusing on the specific characteristics of project-based companies and the concept of working from home, this dissertation offers a comprehensive and rich exploration of workplace dynamics in modern times. In addition, it also brings strategic perspectives that can help in understanding and strengthening the motivation of employees in dynamic work environments. With all these elements, the study not only offers insight, but also points of departure for further research and the development of strategies to improve motivation and productivity in companies that operate under similar circumstances.

Keywords: employee satisfaction, Motivational factors, Productivity, Working from home, Project-oriented companies.

IZVLEČEK

Disertacija predstavlja temeljito raziskavo kompleksne dinamike motivacije in dela na daljavo v projektnih podjetjih. Pri tem se opira na Herzbergovo dvofaktorsko teorijo, proučuje projektno organizacijsko strukturo ter razvijajoči se koncept dela od doma (WFH). Študija, ki je bila izvedena, združuje tako kvantitativne kot kvalitativne pristope, kar omogoča celovit vpogled v to področje.

S poglobljenim raziskovalnim načrtom, ki vključuje raznolike metode zbiranja podatkov, in pronicljivo analizo, disertacija prinaša dragocene ugotovitve o dejavnikih, ki vplivajo na zadovoljstvo in motivacijo zaposlenih v nenehno razvijajočem se okolju dela na daljavo. Razkrivanje teh ugotovitev, podprtih s ključnimi kvantitativnimi rezultati raziskave in poglobljenimi ocenami iz fokusnih skupin, dodaja globino in verodostojnost celotni raziskavi.

S poudarkom na specifičnih značilnostih projektno organiziranih podjetij in konceptu dela od doma, ta disertacija ponuja obsežno in bogato raziskovanje dinamike delovnega mesta v sodobnem času. Poleg tega pa prinaša tudi strateške perspektive, ki lahko pomagajo pri razumevanju in krepitev motivacije zaposlenih v dinamičnih delovnih okoljih. Z vsemi temi elementi študija ne le ponuja vpogled, temveč tudi izhodišča za nadaljnje raziskave in razvoj strategij za izboljšanje motivacije in produktivnosti v podjetjih, ki delujejo v podobnih okoliščinah.

Ključne besede: Zadovoljstvo zaposlenih, motivacijski dejavniki, produktivnost, delo od doma, projektne organizacije.

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LIST OF ABBREVIATIONS

DT	*Decision Trees*
ICT	*Information and Communication Technologies*
IT	*Information Technologies*
ML	*Machine Learning*
PM	*Project Management*
SMITCs	*Small and Medium-Oriented*
WFH	*Working from Home*

1 INTRODUCTION

1.1 Introduction

Chapter 1 serves as the entrance to the research, commencing with a comprehensive introduction that sets the stage for the thesis study. It defines the field of research and provides an overview of the current state of knowledge in the domain of project management. The chapter proceeds to articulate the research gap, research objectives and poses the central research questions, highlighting the purpose and direction of the study. A thorough exploration of the chosen research methodology follows with detailed description of the quantitative and qualitative approaches employed. The chapter then underscores the scientific and social relevance of the research and emphasises its potential contributions to the field. Finally, the chapter concludes with a short thesis outline and summary with the key elements and intentions of this study.

1.2 Field of research

Over the last few years, the world has undergone some sort of digital transformation in almost every field. Companies were and are increasingly experiencing digital transformation, especially since 2020, when they were faced with the COVID-19 pandemic (OECD 2021). This created a new need for teleworking[1], which previously was not often found in project-oriented companies. As a result, new requirements for employee motivation have emerged; many of the approaches were adopted from open-source technologies (Gerosa et al. 2021). However, a gap appeared between management and the use of modern information ICT technologies in teleworking. The rapid change and trend towards teleworking is not yet well integrated between ICT technologies and management. Some indicators might show this uncharted aspect. For example, according to report from Gallup, which puts a price tag on workplace unhappiness, disgruntled employees cost US companies an estimated $1.9 trillion in lost productivity last year (Harter 2024). The new challenges and benefits therefore require more investigation, similarly to before the arrival of COVID-19 (Shukla and Baypai, 2012) and moreover need to grasp new needs and changes that have taken place in digital transformation (Project Management Institute and Project Business Foundation 2020).

In our thesis we are investigating new approaches to project management based on the Herzberg Two Factor motivation theory that are appearing, during which the trend towards working from home has significantly accelerated. We concentrate on the effect and the improvements to employees' added value in small and medium-oriented (SMITCs) IT companies. IT SMITCs companies are of particular interest because of the development and use of modern ICT tools, which has significantly increased during the pandemic in order for the new flexibility to become standardised. For that purpose, a deep analysis was conducted of the current state of the art, authors, and findings on key motivational factors for

[1] In this thesis we will use the terminology of teleworking or working from home (WFH) in different situations respectively

productivity in IT projects. Findings, practices, and motivational factors at telework were investigated for project-oriented IT SMITCs companies. Including some practices in the development of IT projects in open-source communities, whose members often telework and share environments when developing software. The findings of a review in literature including qualitative and quantitative research, and analyses of pilot examples of IT project-oriented SMITCs, guided us to establishing principles and factors for this study and further benefits to the current approaches in project management.

This research is divided into two parts. In the theoretical segment, we employ quantitative methods to explore the connections between identified motivational factors and employee satisfaction in project management of project-oriented companies. Through the Herzberg Two Factors Theory our investigation involves an extensive review of unstructured data, including research papers, to identify factors such as opportunities for skill enhancement, career advancement, work attractiveness, employee self-confidence, work independence, relationships, management perception, working hours, project success, and the impact of both monetary and non-monetary factors on satisfaction. Further in the empirical section, we adopt a quantitative approach, utilising a survey method based on Berg and Lune (2012, 10) and informed by previous research findings. This method proves particularly effective for evaluating the problem area within project-oriented IT companies, supported by practical pilot examples that follows.

1.3 The State of the Art

Due to rapid technological development, companies today use more and more advanced operating techniques. This poses certain difficulties, one of the most important being acquiring new professional and technical knowledge (McKinsey & Company 2020). Examples include the matter of how to maintain satisfied employees (Bin Shmailan 2016, 1–3) and the satisfaction and performance of the individual (Paais and Pattiruhu 2020, 577–578).

Studies have shown that employee engagement is a key element (Menon 2015, 6) and that there is a strong link between job satisfaction and performance (Bakotić 2016, 126). This in turn affects project-oriented company productivity. There is practical evidence that greater employee engagement increases overall performance, creates a more productive environment, and ultimately increases overall project-oriented company productivity. Nevertheless, employers still face the question of determining what employee engagement really represents (Saks and Gruman 2014, 157).

Motivational factors and strategies at telework have been the subjects of many recent studies. The major shifts and changes are shown in an analysis of the types of work; a group of academics from MIT reported survey results indicating that half of those who were employed before the pandemic were now working telework. This was a significant change, since in the pre-pandemic era, the survey estimates that this figure was even below 10 percent (Sutherland et al. 2021, 5–7). These data show that the pandemic is not only rapidly transforming the way in which people work, but also that the shift in telework working

technology has brought new possibilities and is changing the way in which people view their work. Consequently, new requirements for employee motivation have emerged. The IT sector has reused and adapted many of the approaches from open-source technologies (Gerosa et al. 2021, 3) that is not a temporary change only but rather a new set of principles being established in digital transformation, pushed by pandemic (ECLAC 2021, 7–8).

In 2021, several studies examined working from home during a pandemic. They studied various factors in this field, and everywhere emphasised the importance of the disintegration of the border between professional life and private life. The pandemic highlighted both the advantages and disadvantages at telework, which is the main topic of these studies. One study, examining academics and their effectiveness at telework, highlighted how telework is becoming the main element of their lives (Aczel et al. 2021, 1)). Another study examines telework under two conditions: before and during a pandemic. Consequently, the results are intended to reflect on the development of new technologies to aid teleworking (Teodorovicz et al. 2021, 1). Another study, conducted from April to June 2020, examined social, behavioural, and physical factors in employees working from home. These factors affect employees' well-being and health, which leads to thinking about how to improve the experience of telework (Xiao et al. 2021, 181–182). Closest to our research, however, was a study conducted at an Asian IT company. It studied productivity before and during the period of telework. It is important mainly because of its analysis of key findings, which can be used for comparison to our research, and the results obtained (Gibbs et al. 2021, 1).

Additionally, details on motivational and satisfaction factors focused on project-oriented IT companies, which are important for this research, are addressed by different authors. Vlacseková and Mura (2017) and Pang and Lu (2018) offer new insights into novel approaches to project management through teleworking in recent years. Levine (2018) and Novianty and Siti Noni (2018) in this regard emphasise that employees should be motivated by project managers to concentrate on the successful implementation of projects, seeking to identify the aspects of the process that they will enjoy, instead of being too focused on the financial outcome of their work. How this should be done however remains an open question. Nevertheless, as already mentioned, an example may be seen within the open-source community, which today guides and leads successful software development (Napoleão et al. 2020). Today, a satisfied employee does not work solely for financial compensation but has much higher expectations of the job including factors such as: a home environment, with the benefits of working from home, including a better work–life balance; less stress; financial savings; and environmental flexibility (Davidescu et al. 2020).

To summarise, mentioned studies show that the advantages of teleworking, which motivates employees to do this kind of work, are many including functional flexibility. This also means the daily saving of time that employees would spend commuting to and from work, and the adjustability of working hours and the workspace. All these advantages have shown a positive effect on job satisfaction, and consequently, mainly due to the new adaptability of the work–life balance, on work performance (Rahmat and Alam 2021, 396). In the IT sector, which is turbulent and changing rapidly, innovation and new knowledge are much more intense, and the technology life cycle is shorter than in other domains. Therefore, all of this

affects leadership styles and attitudes towards changes in project management (Blaskovics 2016, 272).

1.4 Research gap, objectives and research question

1.4.1 The gap in current research

During the COVID-19 pandemic, the prevalence of remote work has increased dramatically, giving rise to numerous challenges, including the necessity to regulate control and productivity in the workplace under these novel conditions (Eurofound 2022). Consequently, there has been an escalation in the need to investigate this phenomenon further. Despite technological advancements, many companies were unprepared for the substantial rise in remote work, and prior to this period, scientific research into this domain had been insufficient and not so understudied (Gifford 2022).

The research gap of this thesis is therefore to investigate the circumstances where managers and the majority of employees were unprepared for the significant increase in remote work and consequently were unprepared for understanding how working from home affects their productivity. These relate especially to the exploration of motivational factors and productivity, which undergo continuous reshaping with the introduction of new tools and working methods.

While Herzberg's Motivational Theory and its application in Project Management have been utilized in various contexts, the specific relevance of Working from Home in Herzberg's aspect influencing project management remains largely unexplored (Murphy 2023). This thesis therefore investigates research gap in the factors of employee satisfaction and motivation in the workplace, with a focus on the use of modern technology and remote working within SMITCs that operate within project-oriented environments and aims to provide practical insights by exploring and upgrading theoretical framework into actionable guidelines through the interpretation of empirical results.

In the case of SMITCs, companies are small and medium-sized IT companies, which are the heart of the country's economy, as they employ most of the working population in Slovenia and generate more than half of the revenues of all companies. In Slovenia, they represent as much as 99.8% of all companies (GOV.SI 2022). We focused on such companies mainly because of the comparison with the researched companies, however also because most existing literature presents project management in these companies as complex and overwhelming. The results are based on the key finding that larger companies can afford professional project management, which can save time and money, and consequently affect the performance of individual parts of the company (Meister 2006, 1). We state that this is one among the relevant reasons to study methods that make the work of Small and Medium-sized IT Companies (SMITCs) easier.

Productivity was explored through empirical studies, big unstructured data and a practical pilot case where the acceleration of digital transformation, open-source innovation with new technologies and new global business models developed. With the rise of remote work, it's

essential to assess how it affects motivation. This evaluation is vital for adjusting strategies, keeping employees engaged, and improving project outcomes.

1.4.2 Objectives and research question

The central focus of this thesis is therefore to explore the connection between motivation theory and remote work. It specifically investigates Herzberg's Two-Factor motivation theory and its relevance to the impact of working from home. We aim to examine the dynamics of productivity within SMITCs, an IT project-oriented company, by addressing specific research objectives such as:

- Firstly, we seek to identify the key motivational factors that significantly impact productivity in telework scenarios.
- Secondly, we aim to examine the role of control mechanisms in traditional work settings compared to the reduced control experienced in telework and
- Finally, our objective is to analyse the findings with a focus on strategies for maintaining or enhancing work productivity within the specified context.

The research questions guiding this exploration are as follows:

- How is Herzberg's Two-Factor motivation theory impacted by working from home with the support of flexible management and ICT technology?
  Additionally,
- Do specific motivational factors from Herzberg's theory influence productivity in a remote work setting?
  And lastly,
- Does the presence of control mechanisms in a traditional work environment have an impact on productivity when working from home?

Notably, the research question in teleworking has not yet been addressed in the literature in this specific manner.

1.5 Research Methodology

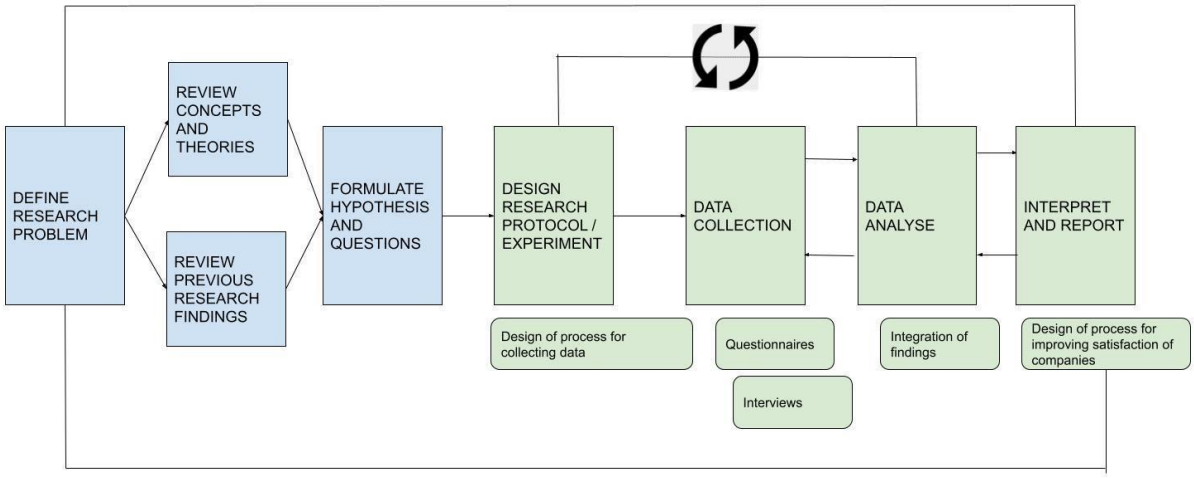
The research methodology comprises both theoretical and empirical parts. Illustrated in Figure 1 is the proposed iterative research process, maintaining consistency across both theoretical and empirical domains through six key steps:

1. Data Collection involves the compilation of a corpus of scientific articles and the exploration of databases accessible through online repositories.
2. Data Analysis employs analytical techniques to derive meaningful insights from the gathered information.
3. Preparation of Questionnaire develops a well-structured questionnaire to gather targeted information from relevant stakeholders.
4. Interviews conduct insightful interviews to deeper examine specific aspects of the research, capturing various perspectives.
5. Integration of Findings syntheses and merges collected data, and ensures an understanding of the research landscape.

6. Design of Process to Improve Satisfaction in Companies formulates a strategic process design aimed at enhancing satisfaction levels within corporate environments.

This research methodology strengthens the research by merging theoretical foundations with empirical investigation, providing a thorough and insightful examination of the factors influencing satisfaction in SMITCs.

Figure 1: Iterative Research process



Source: Kokot 2022.

In the theoretical part of a thesis a deep literature review is implemented (See Chapter 2 respectively), using advanced methods of text analysis and a large corpus of scientific articles from Scopus and SCI. We use a comparative method to compare similar facts and processes in the linking of employee satisfaction and higher productivity to motivational factors in a project-oriented SME IT company. Using a compilation method, we review and summarise the results and relevant publications of foreign scientific research articles in large corporations. For that purpose the modern ICT tools (semantics, web) and semantically analyse contributions (Dagiene et al. 2015, 224–227) were used. Related terms were further used to form sets of important terms, which were then applied for further analysis and review of the literature. The analysis of important terms was performed by VOSviewer software (Van Eck and Waltman 2010), which was developed for the analysis and presentation of bibliometric networks. The relevant literature was then investigated to make a deep literature overview presented in Chapter 2.

Both quantitative and qualitative methodologies were then employed in the empirical phase of this study. The quantitative research utilised the survey method, while the qualitative research employed both the decision tree method and the focus group method. The formulation of questions for both methods was guided by established theoretical foundations, as outlined by Lobe (2006 55–57), and informed by the practical experiences observed in the chosen project-oriented company as presented in the details in this study.

1.6 Scientific and Social Relevance

The purpose of the research is to obtain and analyse data and resources in the field, to gain new insights into which models related to Herzberg motivational factors and productivity can be further applied and explored, including many new experiences and approaches that emerged at telework during recent years. These models in the designed motivational process represent our new approach and contribution to science, especially in the area of the gap between digital transformation and project management in a defined sector and project-oriented companies. We explore new insights into data-driven motivational strategies for employee satisfaction and introduced a new motivational methodology to increase company productivity when using telework.

1.6.1 Contribution to Science

This thesis seeks to explore Herzberg Motivational Theory in conventional settings with the new advancements of Working from Home. By exploring how remote working transforms the dynamics in project oriented SMITCs, this research intends to extend to extend Herzberg Motivational Theory with a new aspect and so provide insightful contributions to Project Management.

Research in IT project oriented SMITCs will help to understand the principles and factors and benefit the current state of project management approaches in this area. It is expected to be a scholarly contribution to project management practices and theoretical understanding in the pandemic and post pandemic era in the IT sector, as the needs and transformations in recent years have rapidly changed the way people work (Brynjolfsson et al. 2020, 23–24).

We upgraded the theoretical and empirical knowledge by obtaining new information that connects the satisfaction and motivational factors of employees during telework and consequently affects the company's productivity - a valuable and important lesson for many companies and managers (Armstrong and Taylor 2014, 177–180; Furnham 2005, 775–777; Padmaja et al. 2013, 76–79). In addition, findings from the pandemic era, through analysis of surveys and other research methods, articles and pilot data, yielded new insights into employee satisfaction. This will significantly contribute to the new approach and models of motivation theory and productivity in management in these aspects being developed recently.

The thesis contributes with:

- additional research that can show organisations and companies the importance of developing the concept of employee satisfaction and its impact on productivity and, consequently, on the company's profit, including new experiences and approaches in recent years when teleworking (relevance of control mechanisms),
- findings that deal with key insights that can potentially raise the level of employee satisfaction when working from home (the influence of different work environments),
- research that significantly contributes to the understanding of developments in the field of digital technologies and digital transformation in SMITC in Slovenia,

- findings that can facilitate further research in this area and enable connection with existing studies,
- possible extension of new hygienic and motivational factors for remote working in line with Herzberg's Motivational Theory,
- need for further research of control mechanisms on more precise data on the existing control practices in individual IT companies and their impact on the motivation and productivity.

1.7 Thesis Outline

The thesis is structured as follows. After this chapter which commences with a well-structured outline, featuring a comprehensive introduction that defines the research field, outlines the current state of knowledge, and establishes research objectives, the Chapter 2 presents a detailed literature review and explores Herzberg's Two-Factor Theory, project-based organisational structures, and the Work from Home (WFH) concept. Chapter 3 further elaborates on the research design, data collection methods, and the analysis of remote work and motivation. Chapter 4 then examines the qualitative aspect of the study, presenting first key findings and insights, while Chapter 5 provides results and interpretation of this study. Throughout, this thesis endeavours to contribute valuable insights to the scientific field of project management, presenting a coherent and insightful study in chronological order. This structure facilitates readers in navigating and comprehending the dynamics of motivation when WFH in project management for SMITCs.

1.8 Summary

In this chapter, we have presented a compelling introduction that outlines the field of study in project management and provides a description of the current state of knowledge in the field. We have established clear research objectives and a central research question, offering a roadmap for this study. The chosen research methodology, encompassing both quantitative and qualitative approaches, was also presented. This was followed by a discussion of the scientific and social significance of the research, highlighting its contributions to the scientific field. The chapter concludes with a thesis outline providing insight into the research structure, ensuring clarity for further reading, and laying the foundation for a comprehensive exploration of valuable insights and meaningful contributions from the study.

2 LITERATURE REVIEW

2.1 Introduction

In this chapter, we explore the fundamental concepts of Herzberg's theory and its applicability in the domain of project management in the literature. The discussion begins with an examination of organizational structures, providing insights into how various models and approaches impact project implementation and employee motivation.

The exploration continues with an in-depth look at remote work and its influence on employee motivation and performance. Key aspects of telecommuting are carefully examined, exploring their connections to satisfaction, motivation, and productivity.

This chapter explores the organizational shift towards remote work, highlighting how companies that offering this option differ in their approach compared to traditional work environments. The chapter concludes with the discussion emphasizing the challenges and opportunities that remote work introduces to the concepts of Herzberg's motivational theory.

2.2 Herzberg's Two-Factor Theory in Project Management

Modern project management is increasingly aware of the importance of employee motivation for the successful implementation of projects. In this chapter, we will explore Herzberg's theory of motivation, which is one of the key theoretical frameworks for understanding how factors of motivation and job satisfaction affect project teams and their performance. For the research carried out as part of this thesis, the findings of how Herzberg's theory can be used and adapted in the context of project management, especially with and what value it can introduce to the field bring to improve project performance will be used. Particular attention will be given to how these concepts, especially when applied strategically, can significantly enhance project performance and contribute substantial value to the field.

2.2.1 A dual perspective on the factors of employee satisfaction and motivation

Two-factor model developed by the American psychologist Frederick Irving Herzberg in the late 1950s is one of the most used motivational theories. It argues that there are mechanisms in place to influence employee performance. Herzberg divided motivational factors into hygienists and motivators. Hygienists (organizational policy, interpersonal relationships, working conditions, job stability, pay, etc.) do not encourage people to take action, but remove inconveniences or otherwise create conditions for motivation. They are necessary for workers to be satisfied with their work, although they only have a limited effect on job satisfaction and do not increase motivation. If we increase them, the quality of work does not improve, but if they are absent, there is frustration or dissatisfaction with work. Motivators on the other hand (passion for work, social responsibility, opportunity for advancement, respect, praise and recognition for work, achievements, etc.) motivate and, create job satisfaction and so directly encourage people to work, and also lead to productivity and creativity, provided that hygienists are guaranteed.

For the manager, this theory is very important, the definition of motivators because of their provoking activities in individuals, and hygienists because they affect satisfaction and remove excess tension. However, the theory also has criticisms, especially at the expense of generalizations, that happy people are also more productive, as it is not necessary that we increase productivity at work and increase productivity. Criticisms of this theory were mainly based on the fact that it is a theory that essentially explains job satisfaction rather than motivation (too much attention is paid to job satisfaction and dissatisfaction) and that it is not applicable to different types of organizations because it is too general (Osemeke and Adegboyega 2017, 167–168).

2.2.2 Herzberg's theory in the context of project organization structure - a basis for research on motivation and job satisfaction

Herzberg's theory of motivation in connection with project management is useful for understanding how motivation affects the satisfaction and productivity of employees in IT companies, especially in small and medium-sized enterprises (SMITCs). The theory distinguishes between satisfaction factors (motivational factors) and dissatisfaction factors (hygiene factors). At the same time, hygiene factors such as the work environment, communication and relationships between team members must be taken into account to prevent dissatisfaction and loss of productivity. Understanding what motivates and displeases project team members can lead to better project management, increased productivity, and better bottom lines. The relationship between Herzberg's theory and project management lies in their effective application to comprehend employee motivation and satisfaction, particularly in the context of remote work.

Understanding the pivotal role played by motivational factors, including achievements, recognition, and responsibility, is therefore crucial for shaping the successful implementation of projects in companies.

2.3 Project-Based Organizational Structure

A project-based company is one where the project life cycle is reflected through the effective allocation of resources, enabling a style of coordination, clear communication, leadership and accountability at all levels (Eby 2022). Clear communication and accountability play a key role both before the start of the project and during its implementation, because only in this way the plan and successfully implementation of the project can be followed (Barron and Barron 2014, 89). In this context, also touch on the reduction of potential obstacles in the process is incorporated, which includes avoiding conflicts between team members or between members and management (Dasgupta 2019, 3), as well as productivity and efficiency among members involved in the project (Eby 2022). Only a well-planned and implemented organizational structure, which represents the ways or methods by which organizational activities are divided, organized and, of course, coordinated, in the case of project management leads to the achievement of the goal and in the case of business operations, the creation of value (Ahmady et al. 2016, 455; Barron and Barron 2014, 13–14; Eby 2022).

Success and productivity in the case of a company organized on the basis of projects also depend on the members themselves who participate in the project (Bond-Barnard et al. 2018, 433–434). Even with a well-organized project, it is important that individuals focus on the correct priority tasks, otherwise they may perform non-priority tasks and thus hinder the progress of the project (Eby 2022). In this case, the necessary organizational structure is addressed, which is one of the tools for connecting the strategy and vision between everyone who participates in the project. As Milano (2021) explains, in the case of organizational structure, it is about ensuring that tasks are assigned to the right people, those who understand and successfully perform their role. Among other things, the organizational structure also explains how to cooperate and support each other, especially when several individual groups are involved in the implementation of the project. Depending on its structure, the company has the option of choosing a certain level of organizational structure, regardless of whether it is a small, medium or large company (Chokheli 2015, 90).

2.3.1 Organizational structure of projects in a general context

A project is fundamentally a goal-oriented process of related tasks that is unique and limited in time and cost. The goal of the project is to create a product or service that meets quality standards and satisfies the needs and requirements of the end consumer (Stare 2019, 1). Projects are divided into three main groups according to various criteria, such as content, specificity of goals, duration, intensity and repeatability: investment projects that appear in business projects between the investor and the contractor; research and development projects and organizational projects. These can be divided into external projects, which are carried out under a pre-signed contract with a known payer (they are mainly carried out by project companies in the field of engineering, construction, software development) and internal projects aimed at business results (e.g. the development of the company's website, transformation of processes, new production capacities) (Stare 2019, 3).

The organizational structure of a project is defined as a specific structure that depends on external and internal factors (San Cristóbal et al. 2018, 792). While establishing an organizational structure for a project, there are many important aspects to consider, such as the physical constraints of the project, market conditions, time for project implementation, etc. All of these factors shape the context in which decisions are made, the shape of the project's organizational structure is shaped, where project managers and teams are selected, and the project's future is determined. This is very demanding work, especially in the early stages of planning (MacAskill and Guthrie 2017, 866).

When designing a project, one of the most important decisions is the structure that will be used for implementation. Indeed, this decision determines many aspects of the project, such as relations between project members, relations with other projects, communication, control, coordination and cooperation between members, etc. (Kerzner 2017, 103; Villínová 2013, 23).

An efficient organizational structure of projects is therefore key to the success of the company. Several key factors play a very important role in achieving this efficiency,

including division of labor, past experience, interdependence, modern engineering approaches, authority and leadership, leadership style, personnel selection, number of participants, supervision, flexibility, cultural values, and other specific factors, such as project size and duration, environmental conditions, location and technology used. All these factors must be taken into account when planning and implementing projects (San Cristóbal et al. 2018, 792–793).

There are several options for the organizational structure of projects, with differences occurring in size, responsibilities, reporting, etc. The literature deals in more depth with some of the most common forms, where no one format is the most effective for all types of projects. Each project is therefore unique and requires its own, different approach to management and the choice of organizational structure (Villínová 2013, 19–21).

2.3.2 The impact of project management on organizational structure

Project management is an essential part of the process of successful project implementation. Kerzner (2017, 50–51) describes project management as a process that includes planning, organizing, recruiting or leading a team, and supervising and directing. Project management, on the other hand, is defined as the application of knowledge, skills, tools and techniques to meet project requirements.

Planning is a key step in sequencing and linking tasks according to their duration. This part also defines the contractors, the necessary resources and the cost estimate of the project, as well as the possible risks in case of any unforeseen events. Depending on the type of project, planning also addresses issues such as who will oversee the project, how to ensure quality, and a communication plan (Kerzner 2017, 50). Idoro (2012, 39) points out that planning is a very important part that affects both the implementation of the project and its success, and actually monitors the entire process of project implementation.

In the case of an organization, certain relationships between project participants are also important, as well as the responsibilities of the project manager and the relationship between teams, especially if several individual teams are involved in the project. Team management differs from general project management in that the project manager does not, for example, determine the pay or leave of the team members who implement the project. It is primarily a matter of temporarily assuming a role, which is not based on the position, but on the fact that the leader knows how to encourage the team to communicate openly and resolve potential conflicts. For this reason, interpersonal relationships are very important, but not the strength of personality of the person leading the project (Kerzner 2017, 50). Harrison and Lock (2016, 6) point out that project management must be undertaken by people who, among other things, are trained to deal with human resource problems arising from the specific characteristics of the project or its specialized nature.

Another key step is project monitoring and steering that involve assessing current performance, comparing it to the plan, identifying deviations, and taking corrective actions to keep the project on track. This includes monitoring work results, time, costs, quality, and risks, with monitoring defined as the ongoing comparison of actual versus planned

performance. The monitoring process analyses deviations, assesses trends for process improvement, evaluates possible alternatives and, as already mentioned, proposes appropriate corrective measures if necessary (Kezner 2017, 51).

Project management therefore requires extensive knowledge, experience and skills and the use of various tools and techniques. The person in this position must set requirements, set clear and achievable goals that will be in line with the planned requirements for quality, scope, cost and duration of the project. Sometimes plans and approach need to be adjusted due to various key factors that include unforeseen events that can affect project implementation delays among others (Kezner 2017, 51). It is often emphasized that established management practices and processes or their imitation bring success, but today organizations can manage several projects at the same time, which can set new requirements that are difficult to reconcile with past experience, since the content of the projects can be very different. Therefore, project management must be a deliberate, disciplined approach to the implementation of decisions and measures that concern both the organization and the implementation of the selected project (Bryson 2018, 4–5).

To summarize, project management involves defining requirements, setting clear and achievable goals, balancing requirements against time, cost, scope, and quality, and adapting to the expectations of all project participants. Projects at the organizational level are often associated with complexity, uncertainty and unknowns, which requires the administration to constantly collaborate and use different functions (Annantatmula 2021, 6–7).

2.3.3 Specifics of the organizational structure in IT companies

The information technology (IT) sector includes companies in three main industries involved in the production of software, technological hardware or semiconductor equipment and related services. In these three main industries are companies that define themselves as different industries and t.i. sub-industry (Miller 2021).

Table 1 shows the definition of companies that, according to their operation, are classified in the IT sector in the field of software and services. Among the most well-known companies engaged in software development and services in this area are: Google, eBay, Facebook, PayPal, Adobe, Microsoft, Apple, Samsung, Sony, Panasonic, Lenovo, IBM, Dell, Toshiba, HP, Amazon. These are mainly companies with the highest global distribution of IT products. According to an in-depth analysis of the global market for 2021 by the digital agency Iron Paper, companies such as Apple and Microsoft bring North America as much as 30% global distribution share. Companies that dominate the Asian market, such as Samsung and Sony, bring a 29% share to their market. They are followed by European IT companies, which provide Europe with a 24% market share (Complete I. T. 2022)

Table 1: Software and service companies

Industry	Sub-industry	Companies
Internet software and services	Internet software and services	Internet software development and marketing companies; companies providing Internet services (including companies offering online databases and interactive services); companies that generate most of their revenue through online advertising.
IT services	IT consulting and other services	Companies that offer IT services, systems integration services, which also includes consulting and information management.
	Data processing and external services	Companies providing data processing services, outsourcing and automation services for digital back-office services (business database support function, company file organization, technical support, etc.).
Software	Application software	Companies that develop and produce software for business as well as consumer use, including business applications and technical software (this does not include educational and entertainment software).
	System software	Companies that develop and manufacture software and systems for database management.
	Home entertainment software	Businesses that produce software such as video games and businesses and educational software for consumers.

Source: Miller 2021.

Table 2 shows the definition of companies that, according to their operation, are classified in the IT sector in the field of production of technological hardware. Companies are divided in more detail into those dealing with communication equipment, technological hardware or electronic equipment, and companies that are distributors or manufacturers of original equipment (OEM) (Miller 2021). In the case of OEM, we are talking about companies that manufacture the actual components that other companies use to build their entire system. Examples include Dell or HP, which manufactures personal computers, and to provide the product to the end user, additional equipment must be used, e.g., processor and operating system. None of these companies develop hardware, so another company's product, such as an Intel processor and an operating system developed by Microsoft, is used. This means that Intel and Microsoft can also be considered OEMs, even though the end product, which is a personal computer, is sold under the Dell or HP brand (Yfantis 2018). Among the most well-known companies producing technological hardware are: Apple, HP, Dell, Motorola, Cisco Systems, SanDisk and Western Digital (Miller 2021).

Table 2: Technological hardware companies

Industry	Sub-industry	Companies
Communication equipment	Communication equipment	Companies engaged in the production of communication equipment, which also includes local area networks (LANs), routers, telephones and switchboards.
Technological hardware, storage and external devices	Technological hardware, storage and external devices	Companies engaged in the production of mobile phones, personal computers, servers, electronic computer products and external devices such as motherboards, sound and video cards, monitors, keyboards, printers, etc.
Electronic equipment, instruments and components	Electronic equipment and instruments	Companies engaged in the production of electronic equipment, which also includes scanners, lasers, vending machines and security systems.
	Electronic components	Companies engaged in the production of electronic components, which also includes transformers, electronic capacitors, resistors, electronic coils, etc.
	Electronic production services	Companies engaged in the production of electronic equipment as an OEM.
	Technology distributors	Companies that are distributors of hardware and technological equipment for other companies (they do not produce or sell this equipment to consumers themselves).

Source: Miller 2021.

Table 3 shows the definition of companies that, according to their operation, are classified in the IT sector in the field of semiconductor and semiconductor equipment production and companies that manufacture semiconductor peripherals. Among the most well-known companies producing semiconductors and related equipment are: Intel, Microchip Technology, Nnidia, Qualcomm and Texas Instruments (Miller 2021).

Table 3: Semiconductor equipment companies

Industry	Sub-industry	Companies
Semiconductors and semiconductor equipment	Semiconductor equipment	Companies engaged in the production of semiconductor equipment, which also includes companies that produce raw materials and manufacture solar energy equipment.
	Semiconductors	Semiconductor manufacturing companies and solar module and cell manufacturing companies.

Source: Miller 2021.

The latest collected and analysed data show that in 2019, 29,030 employees and the self-employed worked in the IT sector in Slovenia (an increase of 5% compared to the previous year), while companies generated EUR 4,440 million in sales revenue and EUR 1,573 million in value added. These are companies that are classified in Slovenia into two groups of the IT sector, namely those engaged in the production of information and communication technology and those engaged in the provision of IT services. Compared to 2018, companies generated 7% more sales revenue, with two thirds (68%) of all revenues generated by companies engaged in computer programming, consulting and other related services (37%) and companies in the telecommunications industry (31%). Compared to 2018, the revenue of the IT sector in 2019 was 30% higher. The added value of the IT sector was also 10% higher in 2019 than in 2018, of which half of the added value was generated by companies in the field of computer programming, consulting and related services (SURS 2021).

Over time, the IT sector has evolved from supporting government transactions (Schelin 2003, 120–121) to becoming a foundational element in all organizations (Rosacker and Rosacker 2010, 589). Initially an operations department, IT now plays a key role in the success of modern organizations, with their success closely tied to the effectiveness of IT projects. Today, organizations are shaped and supported by ever-changing IT capabilities (Prescient 2021) influenced by technological advancements (Tohidi 2011, 925).

An IT project therefore involves developing products or services within the IT domain, encompassing areas like software and mobile app development, network configuration, software implementation, hardware installation, and database management (ProjectManager 2022). Given the dynamic nature of technology, IT projects are so in constant flux, influencing job transformations, emphasizing individual skills in hiring, and highlighting the role of education in tech development (Tohidi 2011, 925). Managing IT projects requires sensitivity, particularly due to the potential disruptions caused by new technology. IT projects are very sensitive, as the introduction of new technology in the organization can disrupt the entire system, so it is extremely important that project management is carried out in such a way that there is a solution for possible problems (e.g. backup) (Prescient 2021).

Rapid changes in industry so force IT companies specializing in these projects to continually explore strategies to enhance efficiency and deliver effective solutions for planners and managers (Tohidi 2011, 925). Effective project management is therefore crucial, emphasizing quality and efficiency in today's professional project management models. The main tasks include defining goals, developing a strategy, and executing tasks while adhering to best business practices that incorporate proven methods and modern techniques (Prescient 2021; Schwalbe 2019, 3).

Additionally, also the role of a leader in project management has evolved. Beyond professionalism and management skills, today's leaders need people skills and a global perspective. They are responsible for steering the project toward its goals, influencing employee commitment and motivation, and creating an environment conducive to successful implementation (Tohidi 2011, 925–926; Udo 2015, 9).

2.3.4 Factors affecting organizational structure in the telework context

Some studies on the factors influencing telework highlight only positive aspects, including improved productivity, greater satisfaction, and better work-life balance. However, a 2018 research study (Sarbu 2018, 37–38)concludes that telework has both positive and negative aspects. It may blur the line between professional and private life, reduce the likelihood of employees reconciling professional and personal interests, and increase conflicts in the family due to work.

Factors that most influence telework are:

- Productivity is an extensively studied aspect of telework and its influence on outcomes. Numerous researchers have found that telework tends to enhance employee productivity. This is often attributed to the comfortable home work environment and the flexibility for employees to organize their working days and hours. However, it is important for employers to recognize that granting flexibility for employees to choose suitable work hours, while also specifying expectations for remote work hours, can be beneficial (Kilpi 2020, 9).
- Work-life balance is a key motivation for some employees to opt for telework, aiming to minimize the boundary between their professional and personal lives for a more favourable balance. However, as previously noted, certain studies indicate that working from home may not always positively impact this aspect. The primary issue is the blurred line between work and private life, resulting in the intrusion of work into personal space and vice versa. Additionally, supervisors may sometimes disregard this boundary, assuming that employees are constantly available (Kilpi 2020 10).
- Job satisfaction is self-reported contentment with one's work, a crucial factor linked to increased productivity and prompting employers to seek ways to maintain employee happiness (Golden and Veiga 2005, 312–315). Working from home (telework) is a subject extensively studied in relation to job satisfaction, with findings indicating higher satisfaction levels among remote workers, attributed to time and cost savings from reduced commuting (Kilpi 2020, 10–11). However, it's crucial to

note that for employees engaged in telework, additional support, technological assistance, and adequate training are imperative for successful job performance (Allen et al. 2015, 47–48).

- Social isolation is a primary challenge in telework, stemming from a lack of personal collaboration, diminished social interactions with co-workers potentially resulting in social stigma, absence of informal conversations, and challenges related to the exchange of knowledge or opinions, among other issues (Allen et al. 2015, 52).

Other factors include employee participation in how they will perform telework; security breach issues and training on proper data protection; performance measurements; challenges of how superiors will monitor and evaluate employees and their work (Kilpi 2020, 11).

2.3.5 Project management in various types of IT projects

IT project management is not fundamentally different from general project implementation; the key distinction lies in the unique characteristics and heightened risks associated with IT projects. Here are some examples:

Software development presents challenges due to its abstract and multidimensional nature, making it difficult for stakeholders to comprehend limitations. The intangibility of software can lead to requests for infeasible features, and issues may only become apparent after a significant project duration. The flexibility of software also opens the possibility of misuse. Specially engineering projects have obvious limitations, in which case the inability to visualize encourages excessive demands on functions or changes to existing functions (The Royal Academy of Engineering and The British Computer Society 2004, 13–15).

Another limitation in IT projects is their inherent complexity, often challenging to fully grasp initially, leading to potential underestimation. Advanced research and analysis are crucial to understanding and addressing this complexity, aiding in the planning and management of such projects. Moreover, the uncertainty in IT projects arises from the increasing integration of complex systems, taking on tasks previously within the domain of human capabilities. The restrictions in this case relate mainly to the functions performed by the IT system and based on pattern recognition and understanding of natural language, functions that try to function as a human being (The Royal Academy of Engineering and the British Computer Society 2004, 15–16).

While software lacks physical degradation mechanisms, it is not immune to failure. Complex IT systems can face disruptions due to the countless assumptions embedded in the software, some of which may prove incorrect over time. Even correct assumptions can become invalid with environmental changes, which are challenging to predict and explain. For this reason, it is especially important to consider IT projects, their design should be based on the assumption that the system is designed to more easily diagnose the causes of failure, which means that precautionary measures must be taken (The Royal Academy of Engineering in and The British Computer Society 2004, 16).

To address the limitations of IT projects effectively, collaborative planning involving all project stakeholders is crucial. Ensuring active participation, awareness of goals, and thorough discussions among team members aids in resolving potential issues. Following detailed reviews and precise task completion, continuous monitoring and control are essential to steer the project towards its goals, leading to successful project completion. It should be noted that in this case it is the simplest and most understandable approach, but in the implementation of IT projects there are other types of approaches that depend on the type of IT project (Prescient 2021).

In the example above, we introduced an approach suitable for small, non-complex IT projects that a company can handle with its own resources. However, in recent years, the agile approach, with various methodologies sharing a systemic focus on key processes and activities, has gained popularity. It is designed for more complex projects, addressing the constraints highlighted in the case of IT projects.

2.3.5.1 Agile approach

The agile approach, gaining widespread popularity, involves a systemic focus on key processes and activities. Stare (2013, 1) notes the agile process's distinctive feature of focusing on the project implementation phase, where design and planning are integrated during implementation. Mihelj (2014, 29) highlights the iterative development in close collaboration between the client and contractor. It's essential to acknowledge that the cooperative nature of such projects can lead to challenges arising from varied participant roles and business cultures, potentially affecting motivation, mood, and project timelines.

When emplacing for an agile approach in software development project management, a manifesto was established and signed by seventeen authors representing various agile development methods. The manifesto is available on the website https://agilemanifesto.org/. The agile values prioritize individuals and interactions over processes and tools, working software over extensive documentation, collaboration with the client over contractual negotiations, and responsiveness to change over following plans. The authors called these values the values of agile software development. Stare (2013, 3) believes that this is not a novelty or a contradiction to the traditional approach, but these values should not guide the work on projects, as it is important that the results of work and agreements are concise documented. It also has to be a kind of plan, not to invent new requirements. He also emphasizes that controlled management of project changes is even more important.

Stare (2013, 3–5) critically evaluates twelve principles of agile software development, including: prioritizing customer satisfaction with early and continuous software releases; welcoming changing requirements; releasing software within shorter time frames; emphasizing daily client-contractor cooperation, and promoting motivated individuals. He also stresses face-to-face communication, consider working software as the primary measure of progress, and advocate sustainable development with a constant pace and noted challenges regarding the constant pursuit of technical excellence, the importance of simplicity, self-organization, and regularly seeking ways to enhance team efficiency.

For IT projects, organizations must choose between traditional and agile approaches based on project type and needs. Traditional project management involves meticulous advance planning and control methods, with client requirements defined at the project's outset and not subject to changes later. Because the tasks are carried out in an orderly sequence, each individual phase of the project can be identified (Hass 2007, 1).

In today's rapidly changing environment, project dynamics and flexibility are crucial. The agile approach offers the ability to respond swiftly to changes in a dynamic business environment. Although this approach was basically developed as a concept for software development, today it is used for many complex IT projects and represents a competitive advantage to many modern organizations (Ciric et al. 2019, 1408).

Despite their popularity, many organizations remain sceptical or unprepared for agile methodologies, diverging from traditional performance models. Research is lacking on adapting agile approaches to organizations or specific projects, and the potential challenges of introducing them in traditional environments are not well-explored (Ciric et al. 2019, 1412–1413). Employee engagement is increasingly crucial for organizational success, as it directly impacts employee performance and well-being. In today's competitive landscape, companies prioritize employee well-being as a source of competitive advantage (Bedarkar and Pandita 2014, 106).

2.4 Work From Home (WFH) concept

The concept of work from home (Work from Home - hereafter WFH) has become extremely important, as several factors appear in the workplace that directly affect the performance and well-being of employees. Nowadays, companies are struggling to survive and rise above the ever-increasing competition, with the physical and mental well-being of employees being an important aspect to focus on. Employee involvement is thus seen today as a strong source of competitive advantage (Bedarkar and Pandita 2014, 106).

Before Kahn in 1990 defined the concept of employee involvement as the psychological presence of an individual in performing work duties (Gruman and Saks 2011, 125), this concept was defined in several ways. Attempts to define employees and their involvement date back to the early studies of the 20th century. Among the most famous pioneers in this field is Frederick Taylor (late 19th century), the father of scientific management, whose thoughts and principles still strongly influence business practices today (Kemp 2013, 345). Among other things, Taylor justified the assumption that employees need an economic motivator for greater efficiency, i.e. higher wages (Dagher et al. 2015, 234). Some authors have criticized his emphasis on the productivity of the company, where people are just elements that can be used in any way. His basis for scientific management was aimed at improving business efficiency, cost efficiency and time efficiency while maintaining quality. It was based on the efficient use of resources, including people, which, as we have already mentioned, has also been criticized by some. However, it should be noted that his theories represented a turning point that took the industry into its next evolutionary period. Even

today, he is considered a pioneer of the approach to new management (Dent and Bozeman 2014, 158–159)

WFH has gained significance in the past decade due to technological advancements and evolving work environments. Exploring historical aspects, Lillian Gilbreth in the early 20th century emphasized employee involvement, influencing the development of the concept. Mary Parker Follett, a proponent of humanist human relations in the 20th century, stressed collaboration between employers and employees, with an emphasis on conflict resolution. In the 1990s, William Kahn introduced the term 'employee involvement' and linked psychological states to job involvement, setting the foundation for subsequent studies in this area (Dagher et al. 2015; Gibson 2014; Shuck and Wollard 2009).

In the following subchapters we will examine how the concept of working from home aligns with relevant theories and explore the shifts in this context within the modern work environment. The continual evolution of technology and changes in work dynamics have namely rapidly positioned working from home (WFH) as a significant trend. However, understanding how WFH fits into the broader area of employee engagement—characterized by an employee's enthusiasm and commitment—is crucial also in present, as this has long been recognized as a key factor in a company's success. Despite the widespread use of the term today (WFH), Shuck and Wollard (Shuck and Wollard 2010, 89 - 90) namely highlight a shortage of academic and empirical research in this area. The absence of a solid foundation for practice for example, despite numerous collaboration theories in professional journals, can lead to confusion and potential misuse of the term, particularly in defining employee commitment.

2.4.1 Effects of WFH on productivity

2.4.1.1 Productivity through time

Beginning with an exploration of productivity, it can be clearly defined as a concept that productivity broadly involves a workforce generating high and increasing levels of output. In essence, work yields more value than it consumes, leading to high savings, investment opportunities, and increased growth rates. Without high productivity, a company has no savings or economic growth (Greiner 2014).

In his work, William Bernstein notes that global productivity remained exceptionally low until 1850. Substantial changes in productivity only occurred with the significant global transformations in the mid-19th century. Discussing the history of productivity before this period is challenging due to a lack of recorded information. However, it is plausible to infer that the rise in the percentage of the population working for subsistence was associated with lower productivity levels, supported by historical evidence. In the middle of the 19th century, everything that the majority of the population produced annually was consumed (e.g. food), since productivity came mainly from agriculture (Greiner 2014).

In the late 18th century, societal priorities shifted from mere survival to a pursuit of monetization, comfort, and possession. The Industrial Revolution in the mid-18th century

marked a turning point, intensifying goods production with the aid of machines, so boosting the economy. Technological advancements resulted in increased employment and the creation of products aimed at enhancing people's lives (Greiner 2014).

Noteworthy is the 20th-century a development based on the study carried out by Elton Mayo as a leading expert in the case of the Hawthorne experiments deserves special mention, especially the renowned but critiqued Hawthorne experiments in management (Dagher et al. 2015, 236). These experiments, while popular, faced criticism, including claims that they did not discover new facts but echoed similar findings from predecessors. The study's findings showed that (Shafritz et al. 2015, 134–141):

- social and psychological factors affect employee productivity and job satisfaction, while physical conditions and high wages alone do not ensure high productivity;
- productivity increases when employees participate in decision-making, express their opinions and believe that their superiors care about them;
- informal relationships between employees have a greater influence on their behaviour than formal relationships within the organization.

The Hawthorne effect, derived from this study, highlights that behaviour changes merely because the subject is aware of being under research. Common criticism points to the study being in a controlled situation, as employees knew they were being observed and adjusted their behaviour accordingly. Some argue that the study overemphasizes human factors, neglecting the significant influence of technological and other factors on productivity. Conversely, critics suggest that the study places too much emphasis on employee freedom, potentially reducing productivity (Shafritz et al. 2015, 134–141).

In the early 20th century, productivity experienced a decline due to the First and Second World Wars, although there was an increase in the production of war materials. Subsequently, the growing demand for convenience, driven by increased work and commuting hours, led to a surge in the production of ready-made food. The food industry's development reflected increased commitments to productivity in various sectors by the 1970s (Zantal-Wiener 2020).

The emergence of personal computers and the World Wide Web created opportunities for digital productivity solutions. In the 1990s, productivity became not just a result of industry but an industry in itself, driven by the rapid adoption of digital tools and technologies. From then onwards, everything revolved only around increasing productivity and its importance (Zantal-Wiener 2020). Smart devices, new technology, artificial intelligence, automation, various systems, today, on the one hand, satisfy customers, and on the other, contribute to high profitability. Many modern workplaces today use productivity tools that maintain productivity levels and strive to increase them (Zantal-Wiener 2020).

2.4.1.2 Effects and Productivity

As many studies confirm, today the success of an organization largely depends on employees who are willing to work hard for its success (Park et al. 2017, 351). Success and consequent competitiveness therefore require committed employees who, among other things, persist in

facing challenges and obstacles (Bakker 2017, 67). In the last few years, it has also been confirmed that engaged and satisfied employees are in fact the most important resource of the organization. From this, the great importance of positive psychology in the workplace has developed, especially through leadership and positive organizational behaviour that focuses on the strengths and psychological abilities of human resources that can contribute to organizational results (Park et al. 2017, 351–352).

Two theoretical models have been found considering research on employee engagement:

- JD-R (Job Demands-Resources), which refers to workplace requirements and workplace resources;
- COR (Conservation of Resources), which refers to the conservation of employee resources.

The JDR model categorizes profession-specific factors into job demands and work resources, providing a universal framework adaptable to diverse professional environments. Factors such as workplace demands, including excessive workload, uncertainty, vague roles, time pressure, and conflicts, exhaust mental, emotional, and physical resources and so reducing employee engagement. Conversely, work resources such as pay, career opportunities, job security, good interpersonal relationships, good work organization can help an employee achieve work goals, reduce work demands, reduce psychophysical stress and promote personal growth, development and learning (Bakker and Demerouti, 2007, 312–313).

The COR model however posits that individuals actively seek to acquire, maintain, and preserve valued resources. These are resources that include material resources (home, clothing, food), personal characteristics (self-confidence, optimism), status (status, social support, financial security) and energy resources (time, money, knowledge) that individuals need, to successfully cope with stress and tension (Costantini et al. 2017, 3). The basic principle of COR theory is that individuals must invest resources to protect them from loss, to recover from loss, and to gain resources (Karatepe and Karadas 2015, 1256).

Companies are already taking significant steps to enhance employee engagement, and the process is more effective when they measure engagement before implementing crucial actions. It's essential to measure the right aspects in the right manner, as improper measurements may not contribute to business results (Sorenson 2013, 1).

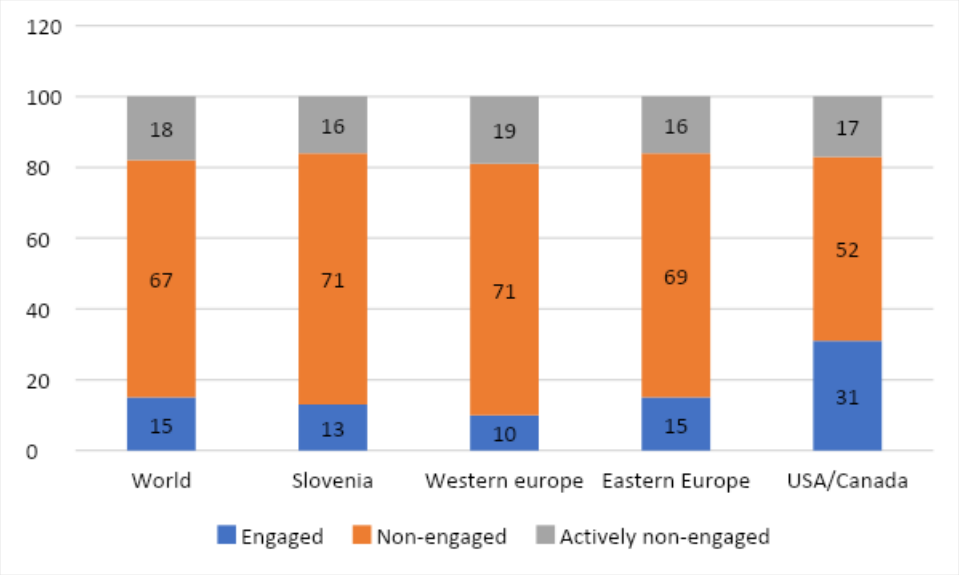
Gallup Q12 questionnaire is most commonly used in organizations to measure employee engagement. It is one of the most well-known and useful questionnaires for measuring engagement. It includes twelve claims made by the Gallup organization through years of research and interviews conducted in several countries around the world. Based on the questionnaire, three levels are defined that determine whether employees are in the organization (Transformacija, razvoj človeških potencialov 2020) engaged, non-engaged and actively non-engaged. Engaged employees passionately love their work, contribute to innovation, and feel a strong connection to the company, they trust their colleagues and managers while non-engaged employees are partially absent and passive employees who do

the minimum required for their pay check. They invest time but lack energy and passion in their tasks. Actively non-engaged are however those dissatisfied employees who actively express their discontent, often underestimating their co-workers' efforts. Their negative attitude can impact other employees and even customer or partner satisfaction. The researchers however discovered that the order of claims is crucial. Engagement is categorized into four groups: basic needs, motivation, affiliation, and growth. The first and second statements address basic needs, the third to sixth focus on motivation, the seventh to tenth indicate affiliation, and the last two define employee growth (Fleming and Asplund 2007).

The Gallup engagement assessment, in scientific sense, identifies vital aspects for employee engagement and business performance. Researchers regularly review findings, conducting meta-analyses every two to four years, ensuring the model's effectiveness in predicting key performance factors (Sorenson 2013, 1).

From the example below, based on the latest statistically processed data on the level of employee engagement worldwide, shown in Graph 1, the highest situation is with non-engaged employees and actively non-engaged employees, as they represent 85% to 90% of the analysed employees. The situation is similar worldwide, except in the USA and Canada, where the most engaged employees were analysed (Transformacija, razvoj človeških potencialov 2020). The state of the obtained results of the last research is even worse, namely it shows a new decrease in the engagement of employees around the world, except again in the case of the USA and Canada.

Figure 2: Gallup occupancy rate



Source: Transformacija, razvoj človeških potencialov 2020, 3.

The impact of remote work on productivity is evident from a 2021 global employment survey during the COVID-19 pandemic. The worldwide employment rate decreased by 2%, a notable shift after a steady increase since 2009. Interestingly, the decline wasn't uniform globally, with a slight increase of 2% in the USA and Canada. Stress was identified as the

primary cause of reduced employment, marking the largest global stress increase since 2009 (Shenton 2021).

To summarize. Productivity has evolved significantly due to various factors, especially with recent trends in telecommuting. Fuelled by technological advancements, remote work has transformed how productivity is achieved. Tools, digital platforms, and communication technologies have facilitated work from diverse locations. The COVID-19 pandemic accelerated this shift, making remote work a permanent option for many organizations.

2.4.2 Concepts and methods for measuring productivity

In today's evolving organizational landscape, with a focus on knowledge management, employees are gaining increased importance as central contributors to organizational success. Consequently, there's a growing acceptance of concepts and methods for measuring productivity.

The determination of productivity is a crucial factor in the success and competitiveness of modern organizations, reflecting the relationship between an employee's knowledge, abilities, and efforts and their impact on work outcomes. While simple measurements like production quantity are common, challenges arise due to industry variations, even within narrow sectors, and complexities, where product is mental and productivity is not so easy to measure (Črešnar 2018, 33). Various interpretations emphasize different aspects, such as individual contributions, creativity, well-being, and more.

Some define it as a measure of effort required for creation, encompassing daily output or the speed of machine production. It is to be expected that productivity management will become even more demanding and conceptually broadly defined, as trends in the field of information technology and other technologies predict even greater changes (Črešnar and Nedelko 2017, 124–125).

The literature, however, makes a clear distinction between two main aspects of employee productivity: work productivity and economic aspects. We argue that by combining both aspects, we can consider enough factors to get a clearer picture of the concept of employee productivity. While in discussions on employee productivity, literature distinguishes labor productivity as a vital determinant of organizational success, where efficiency involves a comprehensive measurement of business system operations to achieve desired results, with reflecting internal processes, performance measures external processes, defining productivity as the relationship between input and output processes. Work productivity therefore pertains to work processes, design, measurement, scheduling, and implementation, influenced by factors like human capital, technological changes, and economic size, where these factors are key to cost reduction and business success and encapsulate the essence of labor productivity (Črešnar 2018, 34; Črešnar and Nedelko 2017, 125–126; Syverson 2011, 327–329).

On the other hand, economic factors affecting employee productivity and include both positive and negative elements. Negative factors encompass low cooperation, poor

involvement, and motivation leading to low productivity, absenteeism, excessive turnover, and administrative inefficiency. Positive factors include creativity, seen as a driver of productivity, and processes of conquering and identity creation. Additionally, factors like training and development play a crucial role too, serving as predictors of employee burnout. While training ensures organized learning, development involves activities to enhance skills and contribute to organizational growth (Nda and Fard 2013, 91; Walters 2010, 7–11)

Beside work productivity and economic aspects there is also happiness that significantly impacts productivity as general, as confirmed by experiments demonstrating causal relationships. Major life upheavals causing reduced happiness result in lower productivity, while emotional well-being is a crucial factor influencing productivity growth (Oswald et al. 2015, 789; 807).

2.4.3 Satisfaction and motivation in WFH

The impact of job satisfaction and the direct impact on employee satisfaction are topics that have emerged in numerous studies over the decades. Today, there is no longer any doubt that the factors are intertwined (Bauer and Erdogan 2012, 32).

On one side satisfied employees influence performance and productivity on the other job satisfaction is vital for fair treatment, affecting behaviour and organizational goals (Byars and Rue 2011, 15).

Employee satisfaction is so influenced by payment, working conditions, relationships, and promotion opportunities. It's a therefore a blend of positive and negative factors, including experience, skills, individual qualities, work environment, and motivation (Dugguh and Ayaga 2014, 11), while job satisfaction in general, encompassing attitudes and feelings toward work and significantly influences motivation, performance, leadership, relationships, and organizational performance (Armstrong 2014, 177; Gu and Siu 2009, 563; Parvin and Kabir 2011, 131–132).

Among the most important theories that define employee satisfaction are:

- AET (emotional event theory): developed in the 1990s, it is based on the fact that various events at the workplace trigger a certain emotional reaction in employees, which then affects their job satisfaction (Ashkanasy and Daus 2002, 77–78);
- equity theory, which focuses on determining whether the distribution of resources is fair for both people (Dugguh and Ayaga 2014, 14) and,
- theory of job characteristics, which is based on a motivational approach to job design and focuses on how to change job characteristics so that employees are motivated and consequently satisfied (Dugguh and Ayaga 2014, 15).

Job satisfaction lacks a universal definition however is crucial in organizational psychology. Scholars like Happock (1935) see it as a mix of psychological, environmental, and physiological factors that cause an individual to admit whether he is satisfied or dissatisfied with his job. This definition summarizes job satisfaction through a sense of satisfaction (Inuwa 2016, 93). Job satisfaction, according to Vroom (1964), is influenced by an

individual's effective orientation toward their role and schedule, emphasizing the employee's role. Further Spector (1997) describes it as an individual's feelings about their work, indicating whether they feel positive or negative about the job, where Kaliski (2007) sees job satisfaction as a sense of achievement and success, directly linked to an employee's performance and well-being (Inuwa 2016, 93).

There are also other dimensions. Job satisfaction, as per Barakat et al. (2016) involves an emotional response to work tasks and workplace conditions. Overworked individuals tend to be less satisfied and perform poorly. It is also defined as a multifaceted psychological response, encompassing cognitive and affective aspects, reflecting internal evaluations and emotional responses to one's work (Judge et al. 2009, 500).

Different individuals deal with job satisfaction in different ways, but they tend to have many common factors that are also related to motivation. Therefore, when we talk about job satisfaction, we are talking about a multifaceted and complex concept.

2.4.4 Unlocking employee satisfaction and motivation, strategies for workplace success

In today's competitive landscape, organizations strive for a satisfied and motivated workforce. Satisfied employees not only enhance productivity but also contribute to organizational success. Studies, such as those by Ybema and colleagues, reveal that job dissatisfaction leads to higher absenteeism, emphasizing the importance of employee contentment. Additionally, satisfied employees exhibit better physical and mental well-being, loyalty to the company, and increased profitability (Statistik 2022).

Armstrong (Armstrong 2014, 177) identifies some factors that influence job satisfaction or dissatisfaction based on a historical review of various theories and models:

- internal motivational factors related to work characteristics, derived from the five work dimensions developed by organizational psychologists Greg Hackman and Richard Oldham (1976). The key factors of work characteristics that are important in all areas relate to the variety of work tasks, task identity, task importance, autonomy and feedback;
- the quality of supervision, based on the Hawthorne study, which claims, among other things, that supervision is the most important factor in an employee's position
- The factor of success or failure, where it is clear that success creates satisfaction, especially when it allows the individual to be convinced that he has used his full potential. The same effect is achieved with the reverse effect, i.e., the impact of failure.

Other various methods that are used to measure job satisfaction and enable the assessment of overall job satisfaction, as well as satisfaction with individual aspects of work (e.g. pay, supervision, working conditions, etc.). Some methods include (Inoyatova 2021, 458 - 460):

- job Satisfaction Survey (JSS), which measures nine factors of job satisfaction;
- Job Descriptive Index (JDI), which examines five factors including salary, promotion and work;
- Abridged Job Descriptive Index (AJDI), a shorter version of JDI;

- Minnesota Satisfaction Questionnaire (MSQ), which contains 20 or 100 job satisfaction factors;
- Job Diagnostic Survey (JDS), which measures various factors of job satisfaction;
- Job and General Scale (JIG), which measures overall job satisfaction, in conjunction with other methods such as the JDI;
- Michigan Organizational Assessment Questionnaire Subscale, a simple method for assessing job satisfaction;
- Scale of Faces, which enables assessment of job satisfaction with the help of illustrations;
- Overall, Job Satisfaction Scale, which measures overall job satisfaction;
- Global Job Satisfaction Questionnaire, which takes into account various aspects of job satisfaction.

Measuring job satisfaction allows the organization to obtain information about the current situation, on the basis of which it can be determined where changes and improvements are needed. It is recommended to carry out measurements regularly, especially when introducing important changes in the organization (Statistics 2022).

Among the most important theories of motivation are Maslow's hierarchy of needs, McClelland's achievement theory, Alderfer's ERG theory, Herzberg's two-factor theory and cognitive evaluation theory. Each of these theories offers its own perspective on employee motivation.

Different interpretations of the concept of motivation for example includes research by Ahmed (2011), who finds defining work motivation complex, emphasizing its impact on individual traits and cognitive processes and Verle and Markič (2010) who indicates that motivation enables employee success. As a force influencing actions and goal-oriented behaviours in a complex psychological process, motivation is described by other such as Mubarko and Talukder (Griffin et al. 2015; Mubarok 2019; Talukder and Saif 2014), where Mubarko intricacies that motivation is crucial for effective work (Mubarok 2019, 71).

Although there are various theories of motivation, there is no universal theory that applies to everyone. Understanding what motivates individuals is key to promoting motivation and job satisfaction.

2.4.5 Satisfaction and motivation in WFH

Telecommuting emerged in the 1970s amid the oil crisis, responding to rising fuel prices. It aimed to reduce office trips, saving on transportation and offering increased flexibility (Tavares 2015). Coined by Jack Nilles in 1974, the term "teleworking" gained popularity in the US, while in Europe, "working from home" became more common. The development of computers in subsequent years facilitated remote work, evidenced by a positive IBM study in the late 1970s (Kilpi 2020).

Successful telecommuting relies on effective communication, time management, a flexible work environment, employee motivation, and proper use of information and communication

technology (ICT). Organizations should understand and enhance these factors for mutual benefits. The COVID-19 pandemic necessitated remote work, presenting challenges like increased pressure, parental responsibilities, social isolation, and technology adaptation. Balancing work location, software, and a reliable internet connection became crucial during this health crisis (Anderson and Kelliher 2020). Remote work, while not new, surged during the COVID-19 situation, with many companies urgently adopting it to sustain their services (Gibbs et al. 2021).

Factors for successful telecommuting encompass crucial elements influencing the productivity and well-being of remote employees, such as effective communication, planning, time management, and a conducive work environment. Those accustomed to occasional telework adapted more seamlessly, while those new to remote work faced greater challenges. The substantial increase in remote work during the first half of 2020, prompted by the COVID-19 outbreak, marked a significant shift from the pre-pandemic scenario, where only a fraction of workers embraced regular remote work (Sostero et al. 2020, 7–8).

Telecommuting's pre-pandemic growth was driven by its benefits for employers, offering increased flexibility and freedom from office constraints. Remote work fosters a quiet environment, enhances focus, and often extends beyond traditional work hours. While telecommuting saves on office expenses, there are divergent views on its long-term benefits. Bellmann and Hübler (2020, 24–25) contend that, contrary to initial expectations, working from home does not have a lasting impact on work-life balance and only temporarily boosts job satisfaction.

2.4.6 Motivating factors in telecommuting

Remote work, now a commonplace practice due to COVID-19, lacks sufficient empirical evidence regarding motivational factors and satisfaction, hindering the development of effective strategies (Sultana et al. 2021, 2411). Companies responded to this shift by leveraging digital media for virtual activities and providing support programs to address potential emotional challenges (Camilleri 2021, 1–2; Kohll 2020). Maintaining communication and involvement with remote employees has been crucial for preserving morale and a sense of belonging, countering feelings of isolation and potential job insecurity (Berezan et al. 2020, 258–261).

Motivating employees during the pandemic, especially in an IT company with project-organized work, is challenging, requiring adaptation of traditional approaches. The dynamic nature of the IT sector, marked by rapid changes and innovation, necessitates a revaluation of motivational factors. Telecommuting, although not new to IT, has altered work habits and workplace needs. For programmers, who are accustomed to home-based work, the focus shifts to hardware quality and a reliable internet connection. Despite the sector's familiarity with telecommuting, employers must employ unconventional, virtual methods to motivate employees, adding to their responsibilities (Hitka et al. 2021, 6–7).

Presented literature from Herzberg theory towards Work from Home review confirm scientific dilemma from research gap that is describe in chapter 1.4.1.

2.5 Discussion

In this chapter, we examined in the detail's key aspects of the topic, delving into crucial factors related to the literature review within Herzberg's Two-Factor Theory and the domain of Project Management, incorporating the concept of Working From Home (WFH). This exploration facilitated the identification of research gaps, novelty, and the domain of the proposed research. By integrating insights from the theoretical aspects, we assert that our research significantly contributes to addressing a current and pertinent subject for organizations actively engaged in project implementation (project-oriented companies). The research opens novel perspectives on how these organizations navigate environmental changes induced by the digital era and the challenges posed by the COVID-19 situation.

An essential aspect of theoretical research involves pinpointing and substantiating a research gap. Currently, limited research examines the analysis of the intricate interplay between the organizational structure of projects and remote work, as well as the consequential impact on productivity, employee satisfaction, and project effectiveness itself. The majority of studies tend to concentrate on isolated aspects, overlooking the nuanced dynamics that unfold in contemporary organizations and dynamic environment. As a result, there is a gap in research that requires addressing by merging theoretical concepts concerning organizational structure and remote work with their application and implementation in real workplace scenarios.

Our research makes a novel contribution to the management and organizational field by introducing a fresh perspective to the analysis of project organizational structures in settings that integrate project approaches with Working from Home WFH (remote work). The uniqueness of our study lies in its emphasis on identifying factors that impact productivity, employee satisfaction, and motivation within this specific context. Employing a combination of quantitative and qualitative approaches in our methodology further underscores the distinctive nature of our contribution to the literature.

Moreover, our research is particularly timely, given the substantial changes in the business landscape, notably triggered by the COVID-19 pandemic. The prominence of WFH has become a critical concern for organizations and adapting project organizational structures to these shifts is paramount for the survival and success of companies. Our study directly addresses this contemporary challenge, offering insights into the strategies that organizations employ to effectively manage projects in new working environments.

2.6 Summary

In this chapter we presented the analysis of project organizational structures and the impact of remote work (WFH) on productivity, employee satisfaction, and motivation. Through a comprehensive literature analysis and discussion, we underscored the significance of these aspects for contemporary organizations. Our exploration began with observations of changes in the business environment, particularly the transformative effects of the COVID-19 pandemic that affected on work dynamics, organizational structures, management practices, and project implementation. This prompted us to recognize the pressing need for research

that address how project organizational structures are influenced by the efficacy of remote work, especially within the IT sector.

In the upcoming chapter, we will comprehensively examine the methodology employed for proposed research. This section will provide a detailed overview of the systematic approach undertaken to gather, analyse, and interpret data. We will clarify the reasoning behind our chosen research methods, highlighting their appropriateness for addressing the specific objectives of doctoral dissertation.

3 MEASURING MOTIVATION AND REMOTE WORK

3.1 Introduction

This chapter introduces the theoretical framework, methods, and empirical research employed in the thesis. It outlines the structure of the research methodology, from research design to survey design process, data collection and research analysis. Furthermore, it highlights the fundamental constructs underpinning the theoretical model for measuring motivation and remote work, including 'control mechanisms,' 'motivational factors,' and 'productivity,' while also detailing the methods used to investigate and analyse the research questions.

3.2 Research Design

In project-oriented companies, where teamwork is key, measuring motivation is crucial. With the rise of remote work, it's essential to assess how it affects motivation. This evaluation is vital for adjusting strategies, keeping employees engaged, and improving project outcomes. By understanding motivation and remote work in this context, organizations can adapt and maintain a motivated workforce within remote collaboration.

The main research question in the thesis therefore connects Herzberg's Two-Factor motivation theory with remote work in the sense: "How is Herzberg's Two-Factor motivation theory impacted by working from home with the support of flexible management and ICT technology?" To address this question, the following sub-research questions, which are related to motivational factors, were formulated:

1. *Which motivational factors affect productivity when working from home as defined by Herzberg Theory?*
2. *How control mechanisms at regular work influence productivity when working from home?*

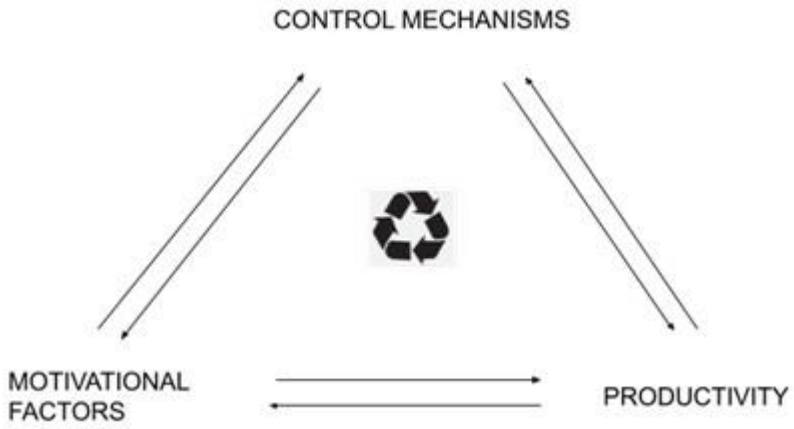
3.2.1 Model and Hypothesis Development

To address these research questions, three key constructs have been identified for model development: control mechanisms, motivational factors, and productivity. Following are their short descriptions.

Control Mechanisms are defined as the set of rules, policies, and managerial strategies that govern the work environment and employees' behaviour, particularly in the context of teleworking. Motivational Factors will be examined within the framework of Herzberg's Two-Factor motivational theory to identify and measure the factors contributing to employees' motivation and satisfaction. Productivity is seen as a multifaceted construct that encompasses the efficiency, effectiveness, and overall output of employees while working from home.

Based on the previous work described in Chapter 2 and the model relating these key constructs (see Figure 3 respectively), hypotheses for the research were defined.

Figure 3: Constructs and model



Source: Own source 2023.

The first hypothesis is grounded in the idea that remote work has the capability to influence motivational factors, subsequently affecting productivity, as discussed in "Impact of Work-from-Home on Employee Performance and Productivity" by Anakpo et al. (2023). Our hypothesis is formulated as follows:

Hypothesis 1: Which motivational factors affect productivity when working from home as defined by Herzberg Theory?

Our second hypothesis from the proposed model explores deeper into the interplay between motivational factors and control mechanisms, as analysed in the context of organizational innovation at various levels by Khanagha et al. (2022). Thus, we have formulated our second hypothesis as follows:

Hypothesis 2: How control mechanisms at regular work influence productivity when working from home?

3.2.2 Selection of cases and participants

For the framework of research scope and goals we have selected a large scope of the individuals and organizations that have been involved. In selecting our cases, we have employed a purposeful sampling strategy that focused on companies and individuals who have a significant history of remote work experience in the geographical area in Slovenia. Our aim was to capture a diverse range of job roles in the ICT industry to ensure the broad applicability of our findings. Our participants therefore consisted of both employees and employers in ICT focused on project-oriented companies, allowing us to gather perspectives from both sides.

Factors such as organizational size, geographical location in Slovenia, and remote work policies, size, activity, and reachability were considered to ensure a representative sample that reflects the current landscape of remote work practices in the defined area. Five companies were selected based on these criteria, where at least 20 employees who met the

criteria survey and had a consistent history of remote work during a similar time frame were consequently selected from those companies to participate in the study.

This comprehensive approach to case and participant selection provided us with a well-rounded and balanced dataset by data collection, enhancing the reliability and validity of research outcomes.

3.2.3 Designing a Questionnaire: Analysing Motivational and Hygienic Factors in Remote Work through Herzberg's Theory

In each section of the questionnaire, we identified statements that reflect motivational and hygiene elements according to Herzberg's theory.

In the first group related to statements about factors in working from home, motivational factors are related to statements about: the possibility of choosing working hours; self-organization of work; achieving a balance between professional and private life; saving time and increased creativity when working from home. Hygienic factors are associated with statements about: choosing an informal way of dressing; lack of direct interaction with colleagues; lack of mutual trust between employees and management; lack of team spirit; excessive management expectations; difficult communication with colleagues; lack of feedback; blurred boundaries between personal life and work; the presence of disturbances in the home environment; challenges of self-organization; promotion restrictions; information or communication overload; the lack of focus of the team on tasks, but mainly on communication; difficulties in determining the beginning and end of several simultaneous tasks; self-motivation and challenges; the need for high digital literacy, time management, great responsibility for work and good communication skills; maintaining commitment to the organization and creativity when working from home.

In the second group related to claims about negative factors when working from home, motivational factors are linked to claims about: the desire for an inspiring work environment; facing challenges in independent work organization; worries about the lack of important information on the part of the company; doubts about the correct assessment of results by superiors; career limitations and self-motivation problems. Hygienic factors are associated with claims about: lack of direct interaction with colleagues and superiors; limitations on mutual trust; lack of team spirit; limited access to information; the blurred line between work and personal life; desire for fixed working hours; the feeling that work at home never ends; information overload; challenges of self-motivation and interference with work by family members.

In the third group, related to claims about positive factors in working from home, motivational factors are linked to claims about: the possibility of adjusting working hours and thus productivity; absence of office distractions and autonomy and freedom in determining work and schedule. Hygienic factors are associated with claims about: work in a comfortable and homely environment; saving time; better balance between professional and private life and reduced absence from work. In the last group related to claims about productivity when working from home, motivational factors are associated with claims

about: greater productivity when working from home; greater motivation when working from home and satisfaction with your work from home. Hygienic factors are associated with claims about: increasing interest in work through praise, financial rewards and additional benefits; about greater benefits and consequent productivity when working from home and about flexibility of working hours as a factor that can affect productivity when working from home.

3.3 Data Collection

Data collection is a crucial aspect for study and it forms the foundation for testing hypotheses and drawing meaningful conclusions. We have employed a mixed-methods approach to gather data for research. Quantitative data were obtained through surveys and questionnaires aimed at employees who have experience with remote work for assessing motivational factors and productivity levels. Additionally, qualitative data based on the analysis of quantitative research were gathered through in-depth interviews and focus groups to gain a deeper understanding of the interplay between motivational factors and control mechanisms. This multifaceted data collection approach allowed us to comprehensively examine the hypotheses and provide a well-rounded perspective on the impact of remote work on employee motivation and productivity.

3.3.1 Quantitative Data Collection

We have gathered data using structured surveys or questionnaires to collect quantitative information from a sample of workers. We have used a survey instrument that includes carefully selected and scientifically validated items to measure our constructs of interest—control mechanisms, motivational factors, and productivity. The survey has been administered to target group within Small and Medium-sized IT Companies (SMITCs) and IT project-oriented companies where we have ensured informed consent from all participants and adhere to ethical guidelines regarding data privacy and confidentiality.

We conducted a rigorous data collection using structured surveys to gather quantitative information from a targeted sample of workers. Our survey instrument, comprised of scientifically validated items, assesses control mechanisms, motivational factors, and productivity. The survey was administered to employees in Small and Medium-sized IT Companies (SMITCs) and IT project-oriented firms. We obtained informed consent, adhering to strict ethical guidelines for data privacy and confidentiality. Our sampling strategy involved systematic selection to ensure representation across various roles. This approach allows us to explore the relationships between control mechanisms, motivational factors, and productivity in a focused and ethical manner.

3.3.2 Qualitative Data Collection

In qualitative data collection, we utilised focus groups as a valuable platform for in-depth discussions and insights from participants. This approach allowed us to examine the interconnected perspectives on remote work, building upon the insights obtained in the initial step. The inclusion of 8 employees, two from each studied company, who had

previously participated in our survey, was a deliberate decision based on key considerations. By ensuring representation of those who had already expressed their views in the survey, we aimed to comprehensively capture diverse experiences.

Using decision tree analysis from the quantitative survey data, specific questions addressing key factors influencing remote work were formulated for the focus groups. These questions aimed to prompt discussion, gather practical examples, and embrace diverse perspectives. Strategic use of sub-questions, such as seeking further explanation or alternative viewpoints, ensured a comprehensive exploration. Questions soliciting practical examples, like 'Can you give a practical example?' and 'Do you have any practical experience?' were introduced.

The qualitative data gathered from these focus group discussions forms a foundational component that offers a rich qualitative lens through which we have analysed and interpreted the complexities of our study as described in the Results chapter.

3.3.3 Survey design

Survey design process is addressing research objectives, and the steps involved in the research. The measurement of variables involved use of established scales and instruments such as Likert scale (Tanujaya et al. 2022). Control mechanisms, motivational factors, and productivity were therefore operationalized through specific survey questions which have been validated.

3.3.3.1 Constructs

When developing the survey instrument, we took into account several key factors in order to ensure high-quality and reliable results. The first step was to formulate questions that focused on key constructs such as satisfaction, motivation and productivity in telecommuting in IT companies. This step was based on a review of relevant literature and research on telecommuting and motivational factors. We then prepared a survey questionnaire that included several sets of statements evaluated on the basis of a Likert scale. The statements were carefully designed to capture different aspects of the constructs under consideration. We previously tested the questionnaire on a small group of employees from one IT company in order to check its comprehensibility and improve the clarity of the questions.

We conducted the pilot survey among employees in five IT companies who had been working remotely for at least 5 months. The implementation method was online using the 1KA platform. We gave access to the survey to the managers of individual companies, who then invited their employees who met the previous criteria (remote work in the same or similar circumstances) to participate. There was a total of 116 suitable employees, and we collected 100 completed questionnaires, which represents 86 percent of the sample realization. Due to the special circumstances related to the COVID-19 pandemic, we considered the logistics of survey administration to ensure comfortable completion of the questionnaire for all participants. All data were then collected and analysed.

For survey design we have used several key constructs to investigate different aspects of teleworking in IT companies and their impact on employees. The use of these constructs has been key to understanding the complex factors that influence the satisfaction, motivation and productivity of telecommuting employees. The constructs used were:

- satisfaction with working from home (this construct was measured using several statements covering different aspects of satisfaction with telecommuting. Respondents rated their opinion on the statements on a Likert scale from 1 to 5, where 1 means "I don't agree at all" and 5 "I completely agree". This gave us a quantitative assessment of employees' satisfaction with working from home concept);
- motivational factors (we divided them into positive and negative. We also measured these with the help of statements that included various aspects of motivation for remote work. Respondents rated their opinion on these statements on a Likert scale. In this way, we gained insight into which factors have a positive or negative effect on employee motivation);
- telework productivity (it was also measured by respondents' assessment of various aspects of their work efficiency. Similar to other two constructs, respondents rated statements on a Likert scale, which allowed us to quantitatively assess telework productivity).

The use of these constructs and their operationalization were carefully considered and pilot tested to ensure that the questions were clear and relevant to our target population. By using these constructs, we gained a comprehensive insight into various aspects of remote work in IT companies and analysed their impact on employees.

3.3.3.2 Pilot testing

The preliminary testing (pilot testing) that we carried out as part of our research played a key role in ensuring the validity and reliability of the survey questionnaire and in preparing for the final data collection of the target population, employees of IT companies who work remotely. Preliminary testing was first conducted by obtaining feedback from IT company managers who are experts in the research field. We presented them with our survey questionnaire and asked them to evaluate the structure of the questions, the clarity of the questions, the relevance of the content and any shortcomings. This step helped us identify potential problems with the questionnaire and ensure that the questions were appropriately designed for our target population.

During the review with the experts, we noticed that some statements in the questionnaire are repeated or too similar. Based on their feedback, we eliminated duplicate claims and claims that did not yield significant results, which improved the clarity and transparency of the questionnaire. After adjustments based on expert feedback, we conducted pilot testing of the questionnaire on a small group of employees in one of the IT companies who were part of the target population.

This pilot testing allowed us to assess the comprehensibility of the questions and the feasibility of the survey in practice. The results of the pilot testing were very positive, as

100% of the participants successfully completed the questionnaire, which confirmed the clarity and feasibility of the questionnaire. During the pilot testing, we also monitored the time required to complete the questionnaire. The average time to complete the questionnaire was 8 minutes, which was in line with expectations and meant that the questions were not too extensive or challenging for the respondents.

Pre-testing helped us improve the quality of the survey questionnaire, ensure the clarity of the questions, and identify potential problems before proceeding to the final collection of data from the entire target population. Thus, we increased the credibility and quality of our research.

3.3.3.3 Sampling

We chose to implement a sampling approach which involved focusing on a specific subset of the population. This decision was primarily driven by the practical constraints and limitations of our research, including time, financial considerations, and participant availability. The population in our study encompassed all employees in IT companies who were working remotely during the COVID-19 pandemic. This population consisted of diverse professional profiles, age groups, educational backgrounds, and other factors. Given the challenges associated with accessing the entire population, we employed a stratified sampling method, selecting five distinct IT companies. This approach resulted in a total sample of 116 employees who closely matched our desired profile. Consequently, this approach allowed us to determine a practical sample size for our research.

3.3.4 Statistical Reliability

To ensure the comparability and representativeness of our results, we carefully chose five IT companies that exhibited similarity in terms of size, industry activity, and willingness to participate in our research. Collectively, these companies employed a total of 116 individuals who had engaged in remote work during the COVID-19 pandemic. From this pool of employees, we selected a sample of 100 respondents, with each company contributing 20 participants.

Our decision regarding sample size was informed by a statistical calculation, which indicated that a minimum of 90 respondents was required to attain the desired level of statistical reliability. The deliberate selection of companies that shared similarities in terms of remote work duration and industry context allowed us to ensure the relevance and comparability of our findings within the target population of IT company employees. This, in turn, strengthened the reliability of our research and contributed to the precision of our results.

In order to determine the statistical reliability of our sample and ensure that our research is grounded in a sufficiently large sample size to make dependable results, we employed an online calculator. This tool utilizes the formula provided below for calculating sample size based on population proportion. This formula enabled us to estimate the minimum sample size (n) required for a specified proportion (p) within the population, while considering a predetermined confidence level and a maximum acceptable margin of error:

$$n = \frac{z^2 \cdot p \cdot (1-p)}{E^2}$$

were:

- n is the minimum sample size we wanted to calculate;
- is the critical value of the standard normal distribution corresponding to the chosen confidence level (for example, Z for a 95% confidence level is approximately 1.96);
- p is the estimated proportion in the population;
- E is the maximum acceptable error (margin of error) that we have determined to accept when estimating the population share.

We had to enter the following information:

- Confidence level
  We chose 95%, which is the standard confidence level for many studies. This means that we wanted our analysis to be reliable at the 95% level. The confidence level thus tells us how "probable" it is - e.g. A 95% confidence level means that the estimate of p is expected to be within the confidence interval for 95% of the random samples that can be taken. The confidence interval depends on the sample size, n (the variance of the sampling distribution is inversely proportional to n, meaning that the estimate approaches the true proportion as n increases;
- Maximum sample error
  We set the maximum acceptable error in estimating the population proportion to ±5%, which means that we expected to be able to estimate the proportion with an accuracy of ±5%;
- Estimated share in the population
  Based on a pilot survey, we estimated that the share of employees in IT companies who are satisfied with working from home will be approximately 50%, and this percentage is also recommended in cases where we are not completely sure of the estimate of the share in the researched population;
- Population size
- This represents the total number of subjects in the research, which in our case is 116 employees.

The online calculator determined that a minimum of 90 participants was essential to achieve our research objectives. This ensured a confident and accurate assessment of remote work satisfaction among employees in IT companies.

3.4 Limitations

When interpreting the findings and considering the broader implications of the research, it was essential to acknowledge several limitations such as: the research relies on a specific sample of employees from particular IT companies, which may introduce sampling bias. Consequently, the findings may not offer a fully representative perspective of the broader population of remote workers across various industries and company types; furthermore, the study's outcomes may not be easily and comprehensively generalizable to remote workers

in industries beyond IT, in different geographic regions, or diverse cultural contexts, as the research predominantly reflects the distinct circumstances and characteristics of the selected companies; and not at last, there is the possibility that the constructs used to measure motivation, control mechanisms, and productivity may not fully encompass all aspects of these complex phenomena, potentially failing to capture all the aspects of the theoretical model.

3.5 Chapter Summary

In this chapter, we have examined the research design of the thesis, including the sampling strategy, target population, and data collection methods employed to establish a structured approach for examining the influence of remote work on Herzberg's Two-Factor motivation theory in quantitative and qualitative aspects. The subsequent chapter will provide a comprehensive analysis of those quantitative and qualitative dimensions, which constitute the core of our research.

4 ANALYSIS AND MAJOR CHARACTERISTICS OF REMOTE WORK AND MOTIVATION

4.1 Introduction

In the upcoming chapters, we thoroughly examine both quantitative and qualitative methods and analysis, forming the core of this research. We present a mix of diverse methodologies; a survey coupled with decision tree analysis to address quantitative data and focus groups to qualitative perspectives. By bringing these findings together, our goal is to untangle the complex connections between remote work and its effects on satisfaction, motivation, and productivity in the sense of Herzberg's Two-Factor Theory. Our aim is therefore to gain profound insights into the underlying dynamics, employing a variety of graphical charts, tables, and statistics to show pivotal connections between remote work and the factors influencing employees. This methodical approach is designed to provide an insightful exploration of the relationships in the phenomenon of Remote Work and Motivation.

4.2 Quantitative Analysis

With quantitative analysis our attention is directed toward the processing and visualization of data, as well as enhancing our understanding of interpersonal relationships within demographic data gathered through a survey questionnaire. Within the subsection on descriptive statistics, we employ various statistical methods to effectively describe and summarize the results of the survey questionnaire. This analysis not only provides insights into fundamental data properties but also offers a grasp of distribution and central tendencies among the variables under investigation.

Additionally, we utilize decision trees to analyse the collected quantitative data from the survey questionnaire. This method enables us to accurately describe and dissect the data, unveiling key patterns and trends.

4.2.1 Data Preprocessing and Visualization

In the initial stages of data preprocessing, our primary focus was on ensuring the accuracy and coherence of the dataset. Despite the absence of missing values, our examination aimed at confirming the uniformity of responses across various questions, thereby fortifying the overall reliability of the data. The survey data, acquired through the online tool 1ka, was inherently well-suited for subsequent analysis, eliminating the need for any textual-to-numeric conversion or other data transformations, given that responses adhered to the intended format.

Furthermore, the survey questionnaire encompassed demographic details, including gender, age, education, employment status, and personality type. This information facilitated a comprehensive understanding of the respondents. A visual presentation with graphs illustrating the demographic characteristics of respondents and the relationships between different demographic categories is presented in the Table 4 below.

Table 4: Demographic data results of the survey questionnaire

Category	Subcategory	Frequency	Percentage (%)
Gender	Male	92	92
	Female	8	8
Age	From 21 to 30 years	14	14
	From 31 to 40 years	76	76
	From 41 to 50 l years	10	10
Completed education	Higher prof. program	13	13
	Higher prof. and university program	86	86
	Master of Science	1	1
Status of job	Permanent employment	79	79
	Temporary employment	6	6
	Part-time work	2	2
	Work through an author´s contract	13	13
Years of employment in company	Up to 12 months	5	5
	From 1 to 2 years	19	19
	From 3 to 5 years	56	56
	From 6 to 8 years	18	18
	9 years or more	2	2
Type of personality	Extravert	31	31
	Introvert	69	69

Source: Own source 2023.

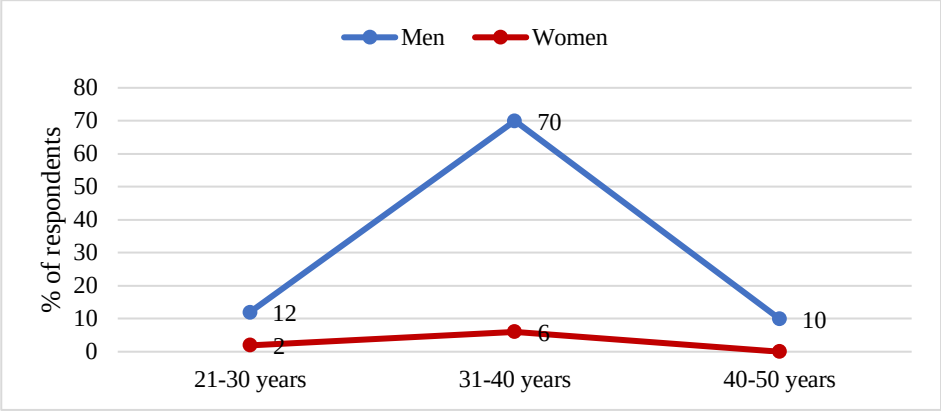
4.2.1.1 Representations of discern patterns and trend in demographic data

Analysis of demographic data revealed key characteristics of the respondents included in our sample. According to the gender of the respondents, there is a predominance of men, who represent 92% of the entire sample. The largest share of respondents, 76%, belongs to the age group of 31 to 40 years. The majority of respondents, 86%, have completed higher education at professional or university level. As many as 79% of respondents are employed for an indefinite period in the organization in which they work. The largest share of respondents, 56%, has been employed in the current organization for 3 to 5 years. The majority of respondents, as much as 69%, defined themselves as an introverted personality type.

In addition to a thorough examination of the demographic data, the figures below provide a visual representation, enhancing our ability to discern patterns, trends, and interdependencies across various demographic categories. This graphic display facilitates a more holistic understanding of the characteristics and dynamics among participating respondents such as key relationships within demographic data, including connections between gender and age, education and work status, age and personality type, length of

service and education, as well as associations between age and work status, and education and personality type.

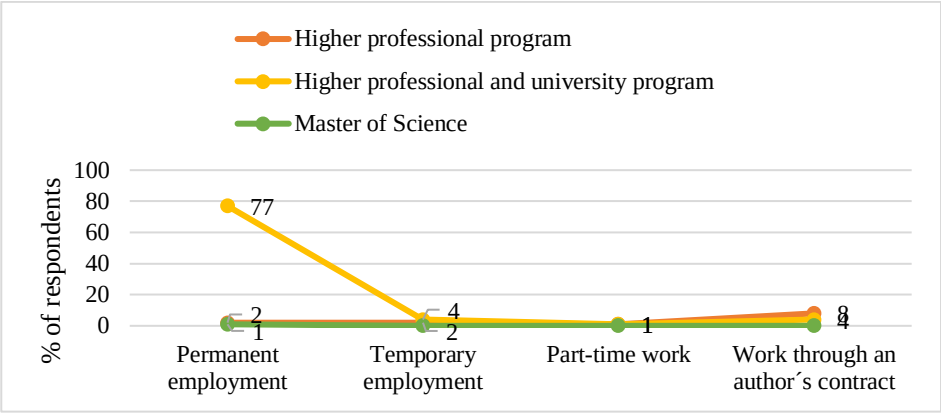
Figure 4: Association between age group and gender of respondents



Source: Own source 2023.

The first graph on Figure 4 illustrates the correlation between age groups and gender in the IT sector. Notable patterns emerge: in the 21-30 age group, more men than women are observed; in the 31-40 age group, men dominate with fewer women; and in the 40-50 age group, there's a significantly higher representation of men with no female respondents.

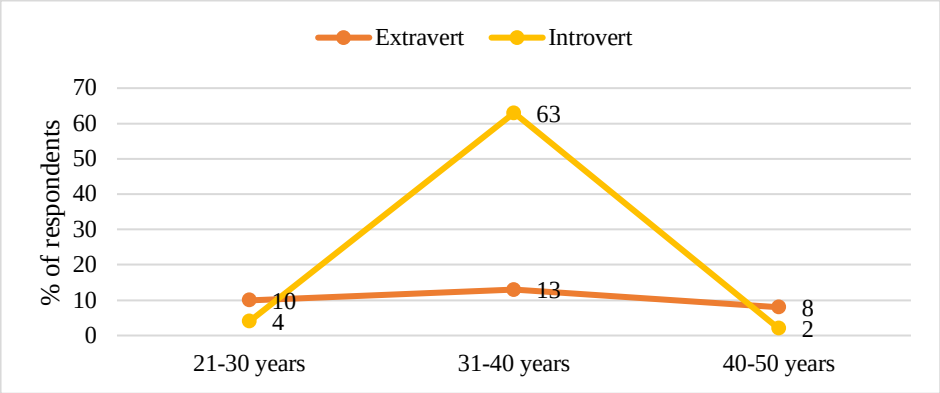
Figure 5: Association between educational background and employment status



Source: Own source 2023.

Followed in the graph (Figure 5) that depicts the link between educational background and employment status in the IT sector. It reveals that those with post-secondary education predominantly engage in copyright contracts, whereas over three-quarters of individuals with post-secondary or university education hold permanent positions.

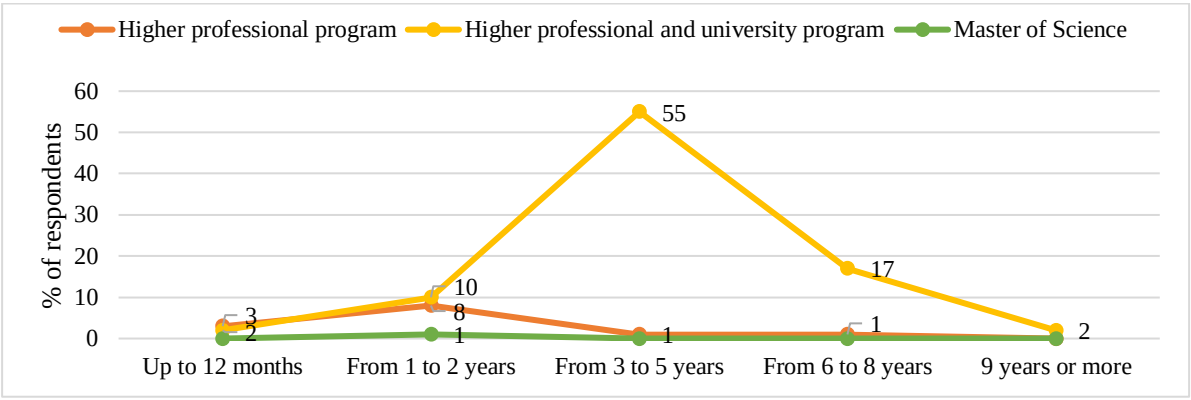
Figure 6: Association between age group and type of personality



Source: Own source 2023.

The graph (Figure 6) then shows the connection between age groups and personality types. Notable preferences emerge: the younger age group favours extroverted types, the middle age group leans towards introverted types, and the older age group again exhibits a preference for extroverted personalities of individuals with post-secondary or university education holding permanent positions.

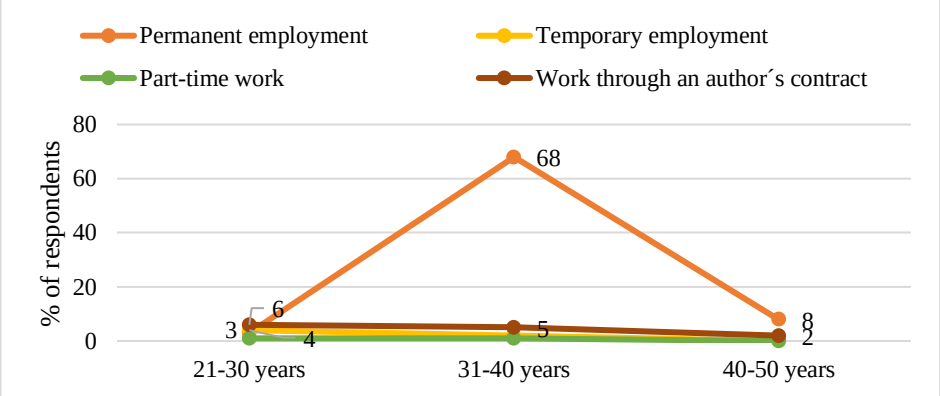
Figure 7: Association between period of employment and completed education



Source: Own source 2023.

On the graph (Figure 7) we have shown the link between employment duration and education levels with variations noted in completed education levels.

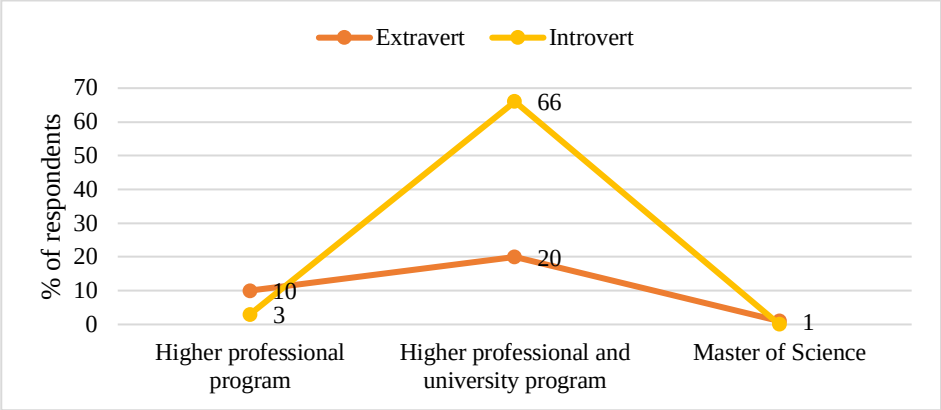
Figure 8: Association between age group and status of job



Source: Own source 2023.

Not at last the graph (Figure 8) depicts age-based employment patterns where younger respondents (21-30) favour author contracts, those aged 30-40 lean towards indefinite employment, and those aged 40-50 predominantly hold permanent positions.

Figure 9: Association between completed education and type of personality



Source: Own source 2023.

Finally, the graph (Figure 9) shows the relationship between educational structure and personality type among employees. We notice that the majority of respondents with a completed post-secondary education have an extroverted personality type, while an introverted personality type prevails among respondents with a post-secondary and university education.

In summary the analysis of demographic data highlights significant associations. Males dominate across age groups, with fewer female respondents. Those with post-secondary/university education and indefinite employment show the highest representation. Additionally, introverts in the 31-40 age group and those with 3-5 years of employment stand out. This suggests strong correlations between demographic data and specific characteristics.

4.2.2 Descriptive Statistics

We employed descriptive statistics to further examine the essential aspects of remote work, gaining insights into patterns, trends, and key features. This analysis serves as the groundwork for our subsequent qualitative investigation. The results, categorised by key topics such as employee satisfaction, interpersonal relationships, and motivational factors (both negative and positive), as well as productivity in the remote work setting, are presented in the following subchapters.

4.2.2.1 Employee satisfaction and relations at telework

In the first part, we highlighted 29 statements that can affect satisfaction and relationships at telework. The obtained results are presented in Table 5 below and the graphic visualisations by individual subsets, according to the semantic connection of individual claims, which enables their mutual comparison.

Table 5: Result of the survey questionnaire for the first set of data

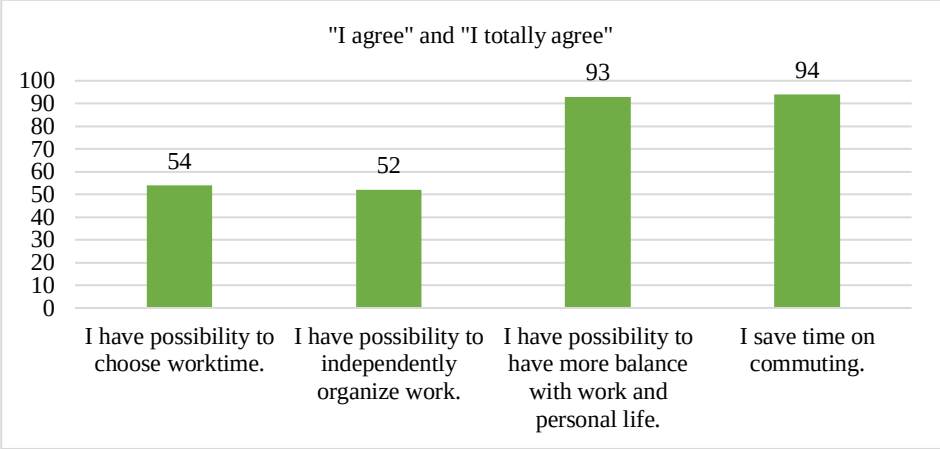
The statements below relate to factors in telework satisfaction and relations										
	Sub-questions	Answers (%)						No. units	Mean	Std. defl
1	Choice of working hours	1 1	2 5	3 40	4 5	5 4	Total 100	100	3,5	0,70
2	Independent organization of work	1	16	31	47	5	100	100	3,4	0,85
3	Work-life balance	1	0	6	85	8	100	100	4,0	0,48
4	Time saving in transportation	1	0	5	19	75	100	100	4,7	0,67
5	No formal dress code	1	0	8	80	11	100	100	4,0	0,53
6	Lack of contact with colleagues	2	2	90	5	1	100	100	3,0	0,44
7	Lack of contact with management	3	7	85	4	1	100	100	2,9	0,52
8	Lack of management-employee trust	5	81	13	0	1	100	100	2,1	0,51
9	Lack of team spirit	3	71	22	3	1	100	100	2,3	0,62
10	Expectations from management are too high	3	83	12	1	1	100	100	2,1	0,51
11	Communication problems	3	55	41	0	1	100	100	2,4	0,60
12	Lack of feedback	46	39	13	1	1	100	100	1,7	0,81
13	Blurring the lines between work and privacy	2	18	75	4	1	100	100	2,8	0,56
14	Disturbances in working from home	2	70	22	5	1	100	100	2,3	0,65
15	The challenge of self-organization	1	9	57	32	1	100	100	3,2	0,66
16	Doubts about evaluating work	3	84	9	3	1	100	100	2,2	0,56
17	Career limitation	3	81	8	7	1	100	100	2,2	0,66
18	Information overload	2	3	68	26	1	100	100	3,2	0,61
19	Communication overload	1	7	58	33	1	100	100	3,3	0,65
20	Problems due to communication orientation	3	53	41	2	1	100	100	2,5	0,64

21	Problems starting and ending concurrent tasks	2	49	38	10	1	100	100	2,6	0,74
22	Self-motivation and challenges	1	2	10	84	3	100	100	3,9	0,53
23	Time management skills	1	3	11	77	8	100	100	3,9	0,62
24	High digital literacy	1	1	7	22	69	100	100	4,6	0,76
25	Good communication skills	1	1	14	80	4	100	100	3,9	0,54
26	Commitment to the organization	1	1	26	70	2	100	100	3,7	0,57
27	Personal responsibility for work	1	0	10	77	12	100	100	4,0	0,56
28	Creativity while working from home	1	0	12	85	2	100	100	3,9	0,46
29	Organization of time and achievement of goals	1	0	31	67	1	100	100	3,7	0,55

Source: Own source 2023.

Following are our visualisations.

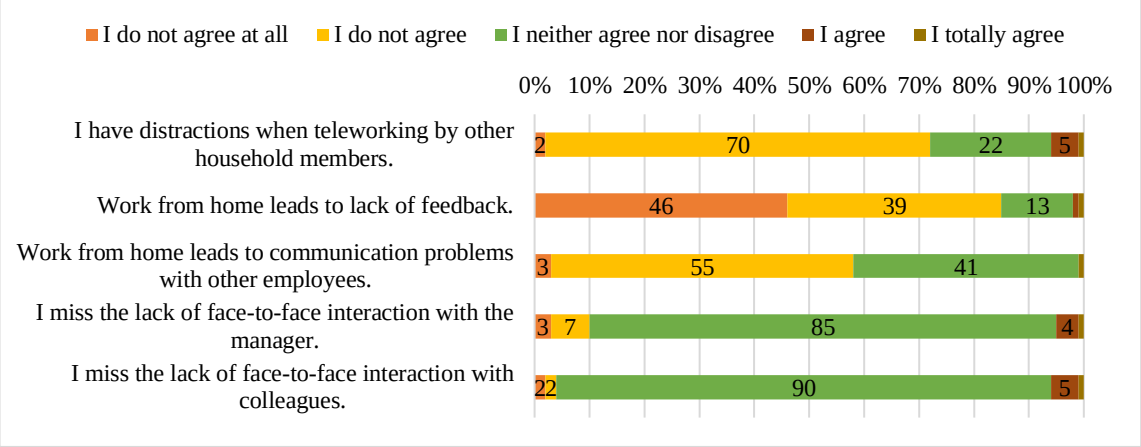
Figure 10: Agreeing with the statements in connection with the organisation of telework (% respondents answering I agree + % answering I totally agree)



Source: Own source 2023.

At Figure 10 we show the results of the statements related to the organisation of work at home in relation to satisfaction with work at home. More than half of the respondents agree with the statements about the possibility of choosing working hours and independent organisation of work. The vast majority of respondents agree on the possibility of a better balance between work and personal life and saving time when travelling to work.

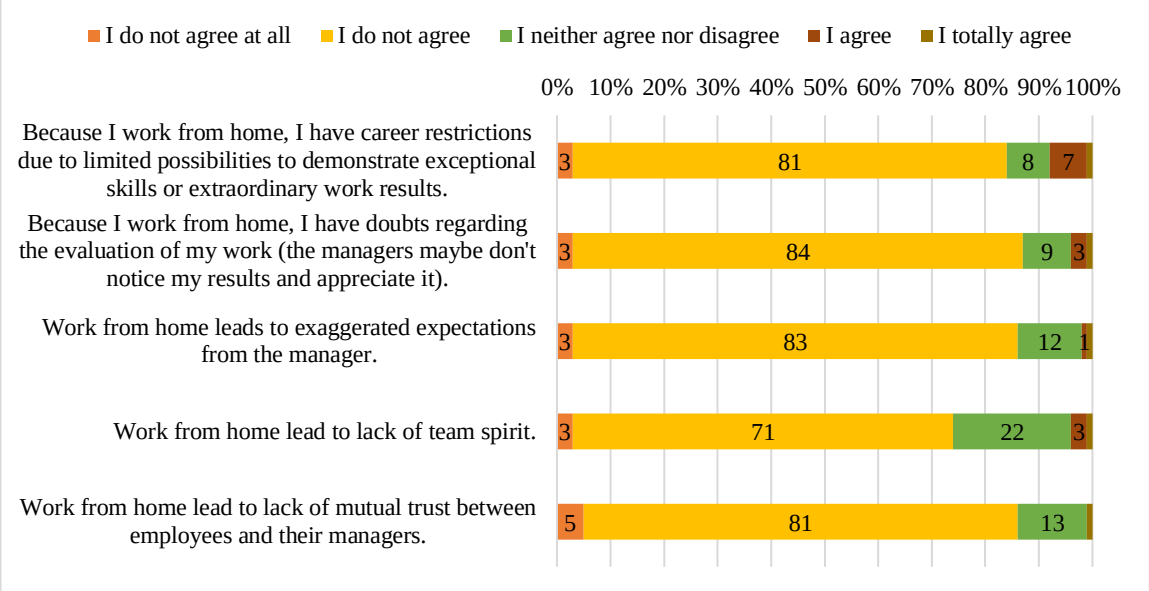
Figure 11: Agreeing with statements related to interaction and communication in telework



Source: Own source 2023.

The next Figure 11 above displays responses on homework interaction and communication. Most respondents disagree about distraction from household members. The majority disagrees that working from home leads to a lack of feedback. Over half don't see homework causing communication issues with colleagues. More than four-fifths disagree about lacking direct interaction with supervisors or colleagues.

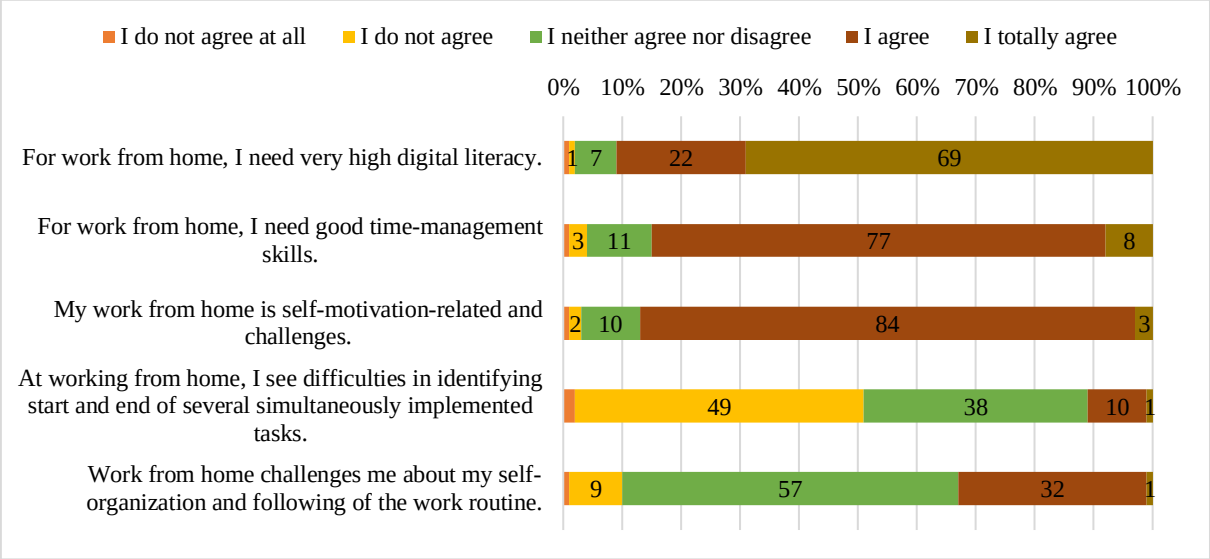
Figure 12: Agreeing with statements related to challenges and limitations at telework



Source: Own source 2023.

Figure 12 reveals responses on challenges and limitations of working at home in relation to satisfaction. Most respondents disagree that homework brings career limitations or concerns about evaluation by managers. The majority doesn't worry about excessive expectations or a lack of mutual trust. Almost three-quarters don't agree that working at home causes a lack of common spirit among colleagues.

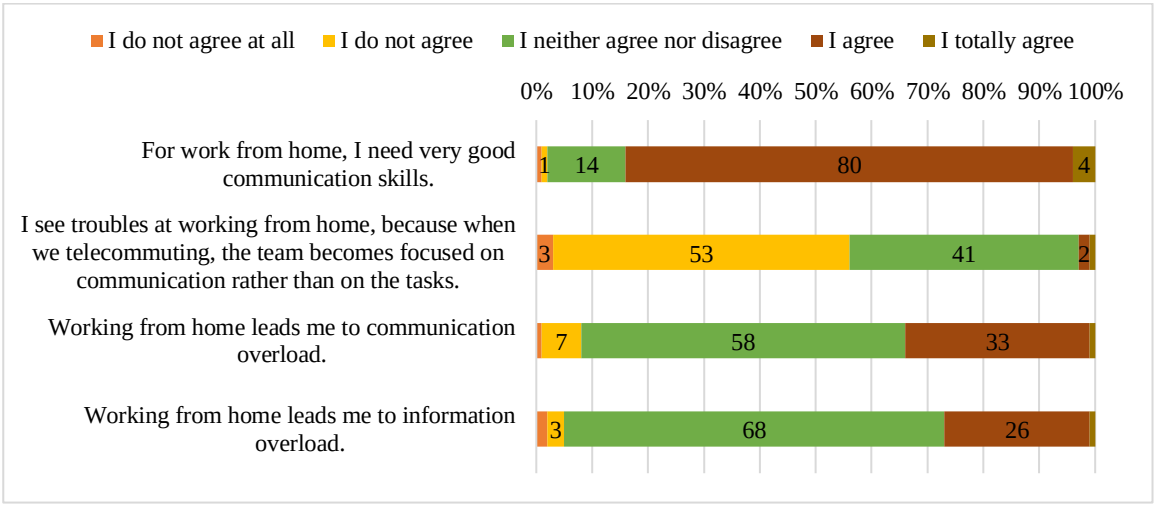
Figure 13: Agreeing with statements related to time and skill management challenges at telework



Source: Own source 2023.

Next graph at Figure 13 displays responses on challenges in time management and skills for remote work satisfaction. Most respondents agree on the importance of digital literacy, time management, and self-motivation, however some express concerns about recognizing task boundaries and maintaining a work routine when working from home.

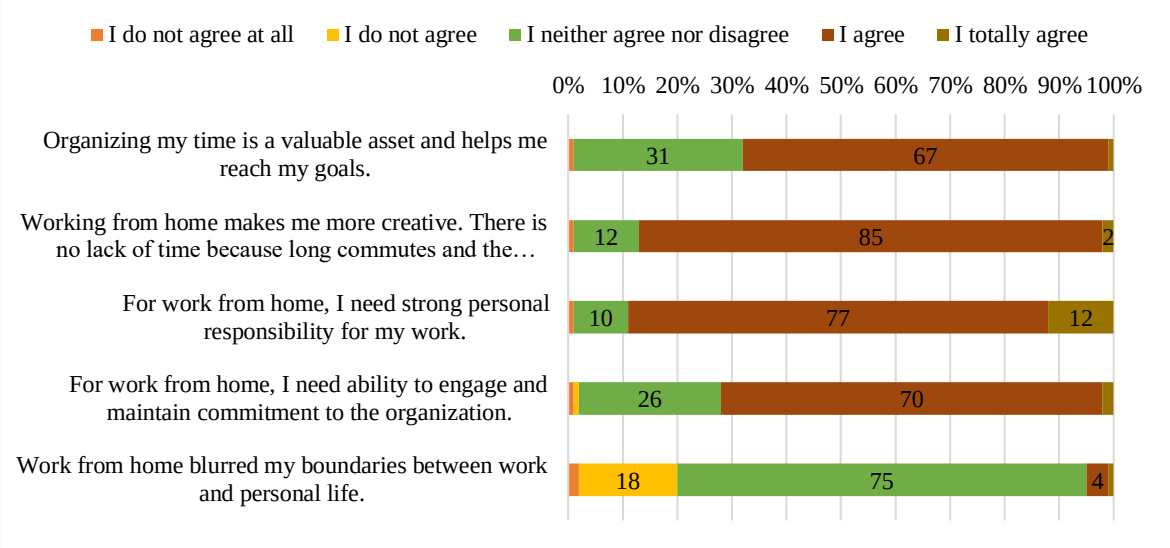
Figure 14: Agreeing with statements related to communication challenges at telework



Source: Own source 2023.

Figure 14 depicts agreement with statements on telecommuting communication challenges and relationships. Most respondents agree on the importance of high communication skills in remote work, while over half see no issues, where around two-fifths have no strong opinion when the team prioritises communication over tasks. Regarding claims of communication and information overload, the majority of respondents have no strong opinion, with only a few agreeing.

Figure 15: Agreeing with statements related to personal responsibility and benefits of telework



Source: Own source 2023.

The last Figure 15 reveals agreement with statements on personal responsibility and telecommuting benefits in relation to satisfaction. Most respondents agree on the importance of time management, finding that telecommuting boosts creativity and reduces the sense of time scarcity. Additionally, there is agreement that successful remote work requires personal responsibility and commitment to the organisation. However, most respondents have no strong stance on the claim that remote work blurs boundaries between work and private life.

4.2.2.2 Negative and positive motivational factors at telework

In the second part, we first highlighted 18 statements that are related to motivational factors that can have a negative impact on telework, and then 8 statements that are also related to motivational factors that can have a positive impact on telework. The obtained results are presented in graphic form by individual subsets, according to the semantic connection of individual claims, which enables their mutual comparison. The statements below relate to negative impact of factors in telework.

Table 6: Presentation of the results of the survey questionnaire of the first part from the second set

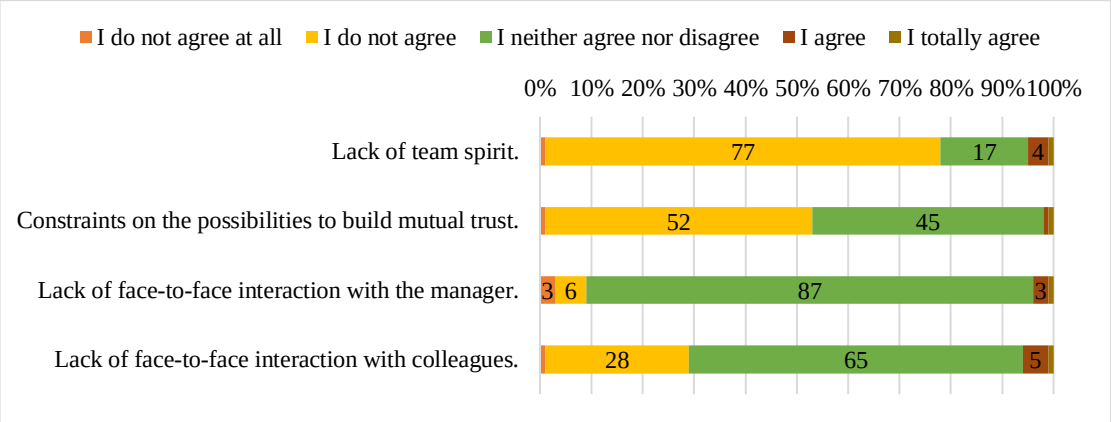
The statements below relate to negative impacts of factors in telework										
	Sub-questions	Answers (%)						No. units	Mean	Std. defle.
1	Lack of colleague interaction	1 1	2 28	3 65	4 5	5 1	Total 100	100	2,8	0,60
2	Lack of manager interaction	3	6	87	3	1	100	100	2,9	0,50
3	Limitations in building trust	1	52	45	1	1	100	100	2,5	0,60
4	Lack of team spirit	1	77	17	4	1	100	100	2,3	0,60

5	Complex work information access	1	64	34	0	1	100	100	2,4	0,56
6	Lack of feedback	2	87	9	1	1	100	100	2,1	0,48
7	Blurred work-life boundaries	2	56	37	4	1	100	100	2,5	0,66
8	Preference for fixed working hours over self-scheduling	1	8	64	26	1	100	100	3,2	0,63
9	Lack of inspirational work atmosphere	1	52	44	2	1	100	100	2,5	0,61
10	Lack of challenges in self-organization	1	49	47	1	1	100	100	2,5	0,60
11	Continual feeling of working from home	3	18	74	4	1	100	100	2,8	0,60
12	Concern about missing important work-related information	5	83	11	0	1	100	100	2,1	0,50
13	Doubts regarding managerial recognition	5	83	10	1	1	100	100	2,1	0,52
14	Career restrictions in telework	1	49	44	4	1	100	100	2,5	0,64
15	Information overload in telework	1	5	67	26	1	100	100	3,2	0,59
16	Time-consuming asynchronous communication	1	45	27	25	1	100	100	2,8	0,87
17	Self-motivation challenges	1	4	55	38	2	100	100	3,4	0,65
18	Distractions from household members while teleworking	2	42	51	4	1	100	100	2,6	0,65

Source: Own source 2023.

Negative factors

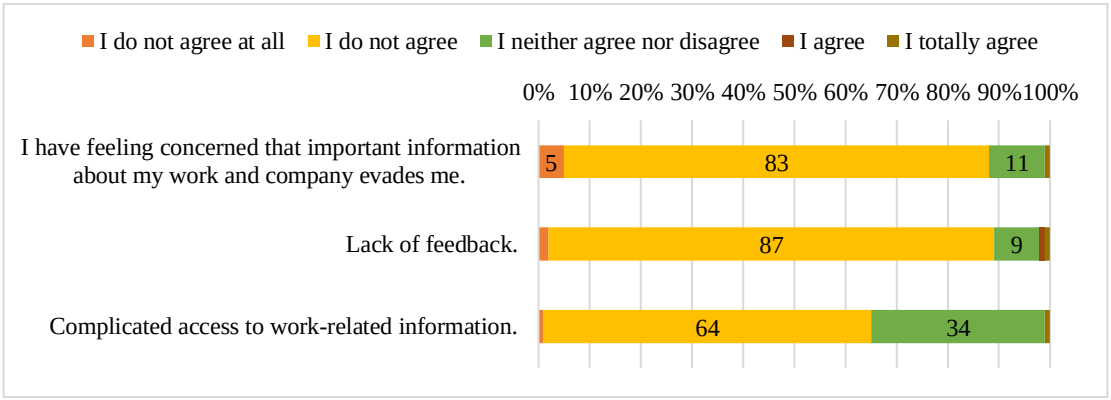
Figure 16: Agreeing with statements related to interpersonal relations and cooperation at telework



Source: Own source 2023.

First Figure 16 indicates agreement with statements on interpersonal relationships and cooperation's potential negative impact on remote work motivation. Over three-quarters disagree that remote work lacks team spirit. Around half don't agree that it limits trust-building, and about half remain undecided. The majority did not define their stance on the lack of personal interaction with the manager, and about two-thirds didn't define their stance on the lack of personal contact with colleagues, with less than a third in disagreement.

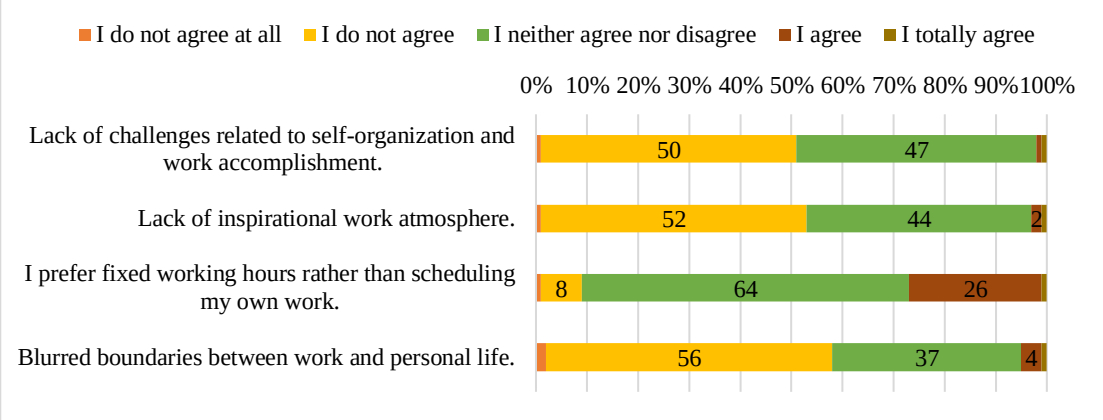
Figure 17: Agreeing with statements related to access to information and feedback at telework



Source: Own source 2023.

The next Figure 17 on negative and positive motivational factors displays agreement with statements on information access and feedback's potential negative impact on remote work motivation. Over four-fifths disagree about worrying about information escape. Similarly, over four-fifths believe there's no lack of feedback in remote work. About two-thirds however disagree with the statement about complicated access to work-related information when working remotely.

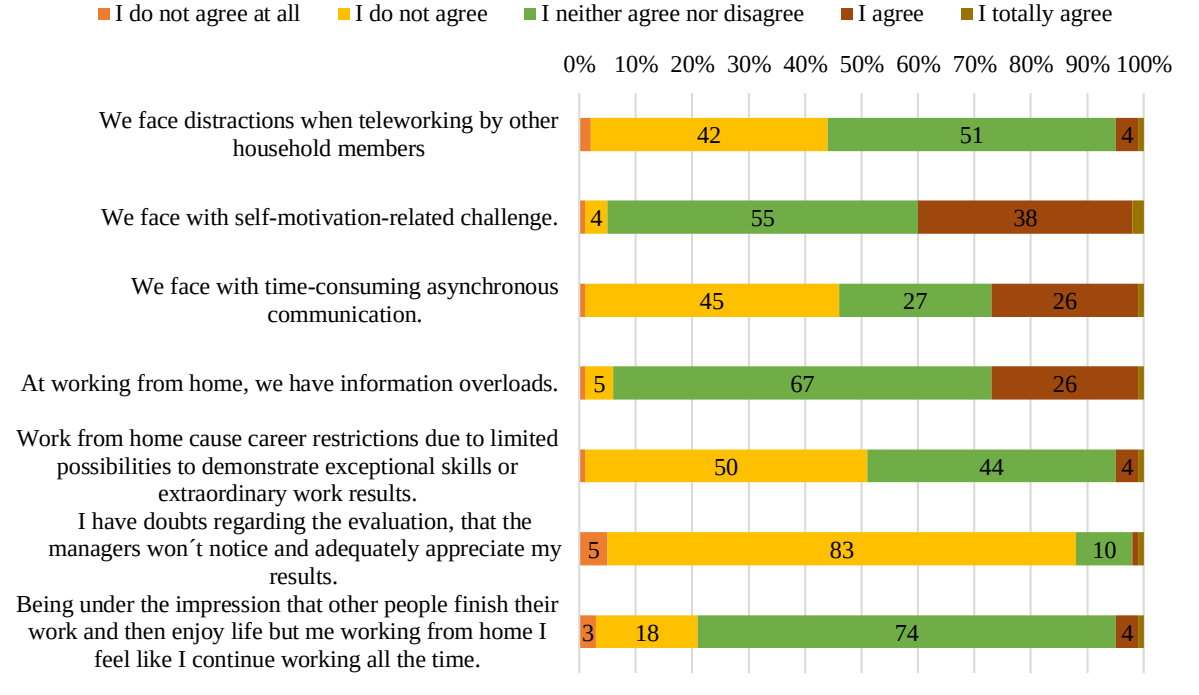
Figure 18: Agreeing with statements related to effects of work environment at telework



Source: Own source 2023.

Figure 18 above reveals responses on the agreement with statements about the effects of the teleworking environment on potential negative motivational factors. Approximately half of the respondents disagree that telecommuting lacks challenges related to their organisation and work performance, where about half have no strong opinion on this. Slightly over half do not agree that telecommuting lacks an inspiring work atmosphere, with almost all other respondents having no strong opinion. About two-thirds have no strong opinion on preferring fixed working hours or independent scheduling. More than half do not agree that telecommuting erases boundaries between work and private life, with about a third having no strong opinion on the matter.

Figure 19: Agreeing with statements related to challenges and distractions at telework



Source: Own source 2023.

The last Figure 19 shows responses on challenges and obstacles in telecommuting and their potential negative impact on motivation. Regarding interference from household members, self-motivation, information overload, and the feeling of constant work, varied positions are observed, with disagreement prevailing. For time-consuming asynchronous communication, almost half disagree, a quarter agree, and others have no precise opinion. Regarding the limitation of career growth in remote work, about half disagree, and most have no precise opinion. Over three-quarters disagree with doubting evaluations or management noticing and evaluating results in remote work.

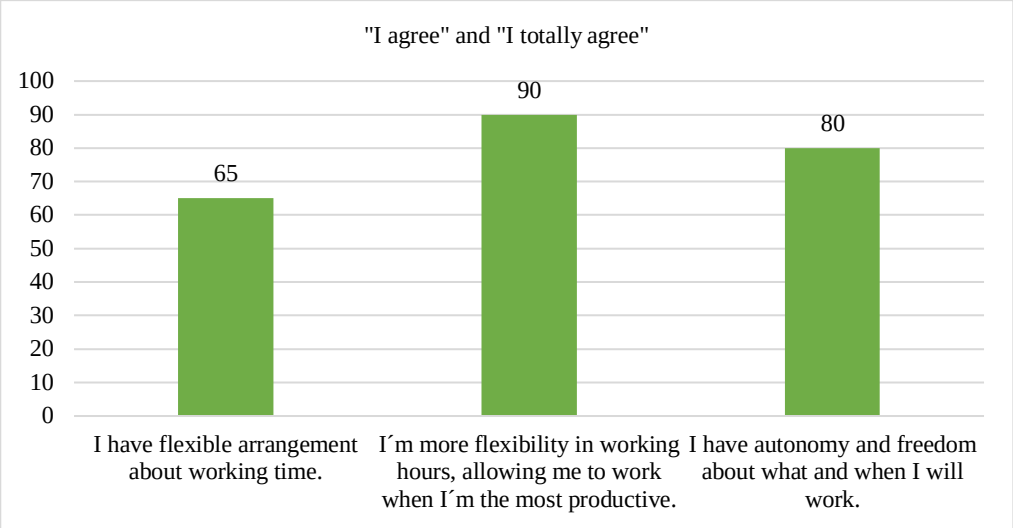
Positive factors

Table 7: Presentation of the results of the survey questionnaire of the second part from the second set

The statements below relate to positive impact of factors in telework										
	Sub-questions	Answers (%)						No. units	Mean	Std. defle.
1	Flexible working time arrangement	1 1	2 64	3 24	4 10	5 1	Total 100	100	2,5	0,73
2	Increased flexibility in working hours for productivity	1	0	9	88	2	100	100	3,9	0,44
3	Absence of office distractions	1	2	44	52	1	100	100	3,5	0,61
4	Autonomy and freedom in work	1	5	14	78	2	100	100	3,7	0,63
5	Comfortable and familiar working environment	1	0	9	84	6	100	100	3,9	0,49
6	Time saving due to no commuting	1	1	10	77	11	100	100	4,0	0,59
7	Improved work-life balance	1	0	11	86	2	100	100	3,9	0,46
8	Reduced work absenteeism	3	51	42	2	2	100	100	2,5	0,69

Source: Own source 2023.

Figure 20: Agreeing with statements related to flexibility of working hours and autonomy at telework (% respondents answering I agree + % answering I totally agree)

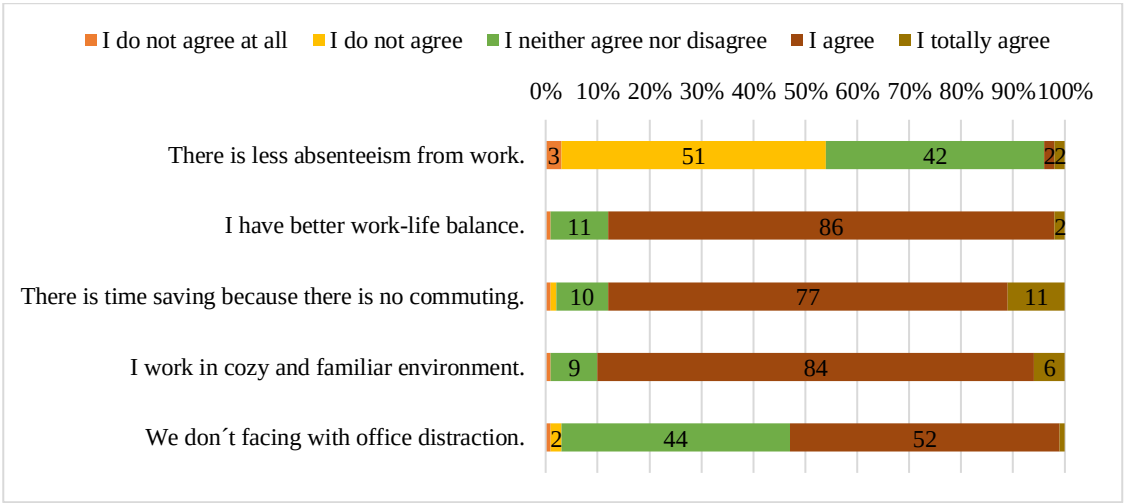


Note: The bars show the shares of respondents who answered 'I agree' or 'I totally agree' on the following scale: 1 – I do not agree at all, 2 – I do not agree, 3 – I neither agree nor disagree, 4 – I agree, 5 – I totally agree.

Source: Own source 2023.

Figure 20 displays responses on the agreement with statements about time flexibility and autonomy, positively influencing telecommuting motivation. Over half agree with having flexible working hours, and most agree with having the flexibility to work when most productive. A high percentage also agrees with having autonomy and freedom in deciding what and when to work.

Figure 21: Agreeing with statements related to benefits of telework



Source: Own source 2023.

On the Figure 21 we can see responses on the agreement with statements about telework advantages positively impacting motivation. Some respondents do not agree that remote work reduces absenteeism. A high percentage agrees with achieving better work-life

balance, saving time without commuting, and enjoying a pleasant home working environment. Slightly over half however agree about fewer distractions at home, with a smaller proportion having no clear position on this statement.

4.2.2.3 Productivity on telework

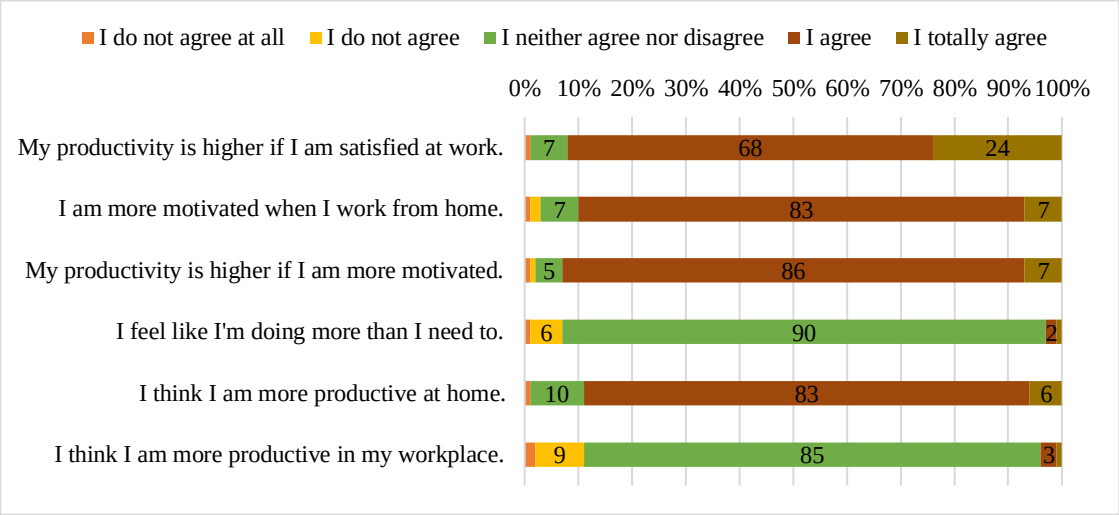
In the third set, there are 11 statements related to productivity in the company. The obtained results are presented in graphic form by individual subsets, according to the semantic connection of individual claims, which enables their mutual comparison.

Table 8: Presentation of the results of the survey questionnaire from the third set

The statements below relate to positive impact of factors in telework										
	Sub-questions	Answers (%)						No. units	Mean	Std. defle.
1	Workplace productivity perception	1 2	2 9	3 85	4 3	5 1	Total 100	100	2,9	0,49
2	Home productivity perception	1	0	10	83	6	100	100	3,9	0,50
3	Feeling of overworked	1	6	90	2	1	100	100	3,0	0,40
4	Productivity linked to motivation	1	1	5	86	7	100	100	4,0	0,50
5	Motivation at home workplace	1	2	7	83	7	100	100	3,9	0,56
6	Link between productivity and job satisfaction	1	0	7	68	24	100	100	4,1	0,62
7	Impact of praise on job interest	1	1	56	38	4	100	100	3,4	0,64
8	Impact of financial rewards on job interest	1	1	24	69	5	100	100	3,8	0,61
9	Impact of additional workplace benefits on job interest	1	4	83	10	2	100	100	3,1	0,51
10	Benefits of working from home perception	1	1	11	85	2	100	100	3,9	0,50
11	Effect of adjusted working hours on home productivity	1	0	12	86	1	100	100	3,9	0,45

Source: Own source 2023.

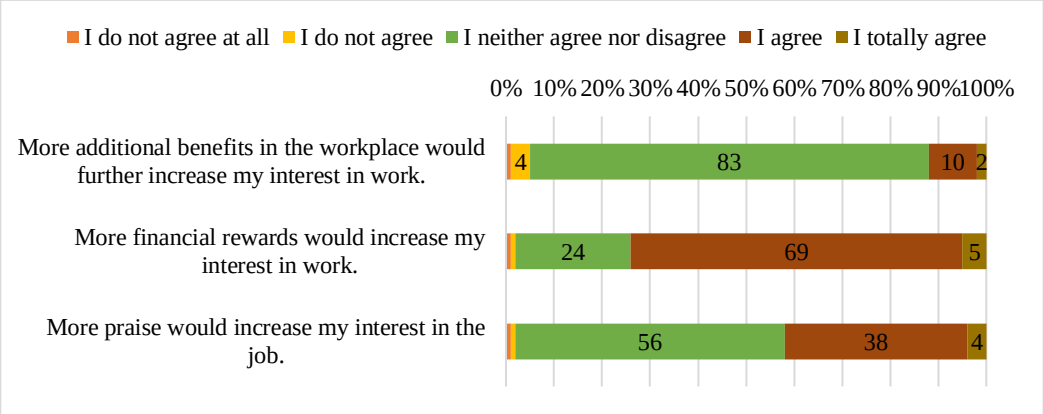
Figure 22: Agreeing with statements related to productivity and motivation at telework



Source: Own source 2023.

When assessing productivity at work Figure 22 displays responses on productivity and motivation in telecommuting. Most agree that satisfaction enhances productivity. A high percentage believes working from home increases motivation and, in turn, productivity. Regarding working more than necessary, the majority neither agrees or disagrees. However, additionally, the majority believes remote work enhances productivity, with a small number in disagreement.

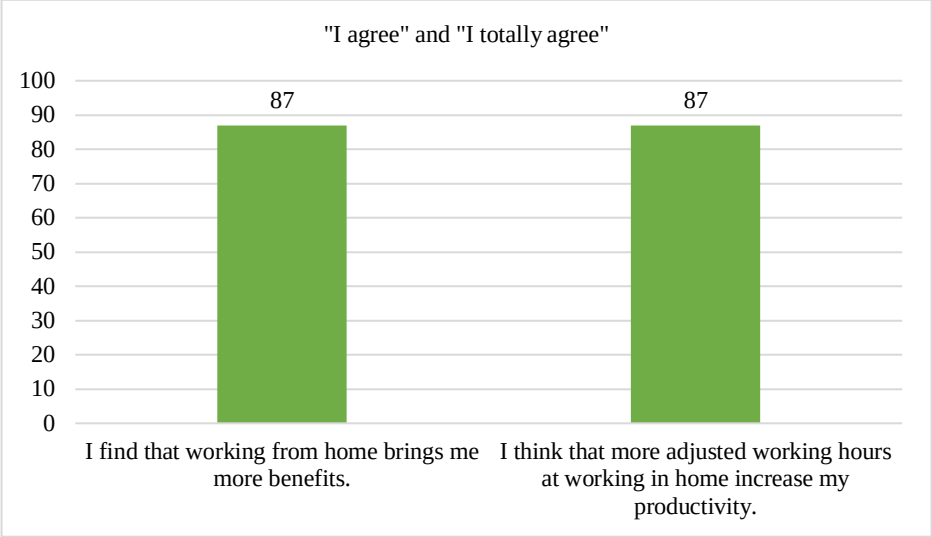
Figure 23: Agreeing with statements related to rewards and motivation at telework



Source: Own source 2023.

Figure 23 shows the results in terms of agreement with statements about motivation and rewards in telecommuting. Most respondents did not have a clear opinion on whether more additional benefits at work would increase their interest in work. However, most respondents agree that more financial rewards would increase their interest in work. Over a third agree that more praise boosts work interest, while over half have no strong opinion.

Figure 24: Agreeing with statements related to advantages of telework (% respondents answering I agree + % answering I totally agree)



Note: The bars show the shares of respondents who answered 'I agree' or 'I totally agree' on the following scale: 1 – I do not agree at all, 2 – I do not agree, 3 – I neither agree nor disagree, 4 – I agree, 5 – I totally agree.

Source: Own source 2023.

The last Figure 24 shows the results regarding agreement with the statements about the benefits of teleworking. Most respondents agree that working from home brings more benefits. An equally high percentage of respondents agree that more flexible working hours when working from home would increase their productivity.

4.3 Quantitative Analysis

Building upon insights from the initial quantitative analysis, we seamlessly integrated these findings into our qualitative approach for further research involving focus groups. To prepare materials for these sessions, we implemented diverse data models derived from the gathered quantitative data, with decision trees playing a crucial role in enhancing our understanding and preparation for the qualitative phase of the thesis. This strategic integration enabled us to effectively leverage quantitative insights, laying the foundation for meaningful discussions.

4.3.1 Decision tree analysis

In addition to the descriptive statistics of diverse questionnaire responses, our quantitative research further leveraged the powerful decision tree method to derive meaningful insights from the gathered data. Decision trees, structured as hierarchical models, dynamically form decision branches guided by input variable values. This approach facilitated our data segmentation and formed subgroups based on various conditions and criteria, enabling the prediction of response variables through a combination of input values. By employing this method, we not only classified employee productivity estimates but also visualised

subgroups based on influential characteristics, providing a symbolic representation through the branches of a tree diagram.

Decision trees are powerful tools in data analysis and machine learning. They are hierarchical models that use a tree-like graph of decisions and their possible consequences. These trees are constructed based on input variables, branching into different pathways according to specific conditions. In this sense they are valuable for classification and regression tasks, providing a clear and visual representation of decision-making processes. They are widely used for exploring relationships in data, predicting outcomes, and extracting meaningful insights from complex datasets (Breiman et al. 1984; Mertik 2007; Quinlan 1986).

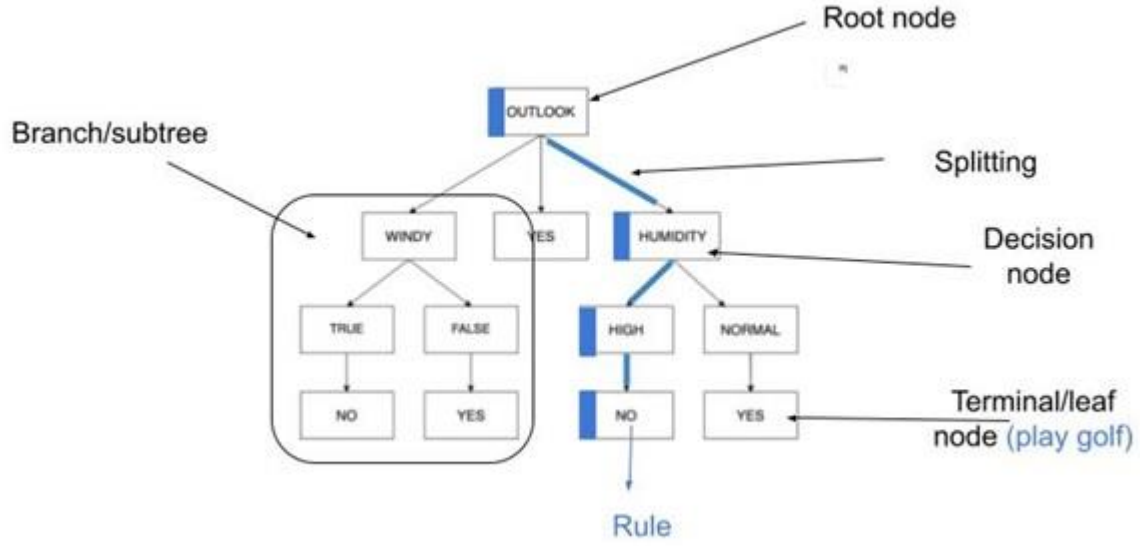
The strategic use of decision trees in our research has enhanced our understanding of the intricate decision-making processes, however more importantly has facilitated the interpretation of the key findings presented in the following chapter.

4.3.1.1 Decision tree algorithm

A decision tree is a graph structure in which each internal node represents a "test" on an attribute (e.g. whether a coin flip comes up heads or tails), each branch represents the outcome of the test, and each leaf node represents a class label or decision, taken after computing all attributes. The paths from root to leaf represent classification rules and are used as a visual and analytical decision support tool, where the expected values of competing alternatives are calculated. With such rules in the tree, we can discern the reasons and the path leading to the calculation of specific decisions. This capability enables us to utilise the so-called symbolic representation of knowledge. In this manner, we generalise knowledge from the data through the inductive learning aspect, generalising knowledge from individual patterns to generalised knowledge.

A fairly well-known example of the explanation of the decision tree algorithm and its use is the presentation of the algorithm on a golf table (our presentation with Figure 25 is based on this). The golf table example serves as a renowned illustration for explaining the decision tree algorithm and its practical application, where decision trees are employed to determine whether playing golf is feasible based on various weather-related conditions and player preferences. The golf play example dataset contains three categorical features (outlook, temperature, and humidity) and one target variable (play golf) with two output classes (yes or no).

Figure 25: Decision tree representation on the play golf example set



Based on Grégoire et al. 2023.

In this problem, we need to segregate decisions whenever we will play golf based on highly significant input variables among outlook, temperature, and humidity (an example is presented by table 9). This is where decision tree helps, it will segregate the playing option based on all values of three variables and identify the variable, which creates the best homogeneous sets of all conditions (heterogeneous to each other).

Table 9: Data set Golf

Outlook	Temperature	Humidity	Windy	Play
sunny	hot	high	false	no
sunny	hot	high	false	no
sunny	hot	high	true	no
overcast	hot	high	false	yes
rainy	mild	high	false	yes
rainy	cool	normal	false	yes
rainy	cool	normal	true	no
overcast	cool	normal	true	yes

sunny	mild	high	false	no
sunny	cool	normal	false	yes
rainy	mild	normal	false	yes
sunny	mild	normal	true	yes
overcast	mild	high	true	yes
overcast	hot	normal	false	yes
rainy	mild	high	true	no

Based on Grégoire et al. 2023.

Creating a decision tree is just a matter of choosing which attribute should be tested at each node in the tree, whereas information gain is the measure which is used to decide which attribute/feature should be tested at each node. Information gain is itself calculated using a measure called entropy, which is mathematically defined as:

$$E(S) = \sum_{i=1}^{c} -p_i log_2(p_i)$$

Entropy calculates the disorder in the data, the low score is good, as it reflects our desire to reward categories with few examples. So, when p gets close to zero (i.e., the category has only a few examples in it), then the log (p) becomes a big negative number, but the p part dominates the calculation, so the entropy works out to be nearly zero. Similarly, if p gets close to 1 (i.e., the category has most of the examples in), then the log (p) part gets very close to zero, and again 'p' which dominates the calculation, so the overall value gets close to zero. Therefore, we see that when both the category is nearly or completely empty, or when the category nearly contains or completely contains all the examples, the score for the category gets close to zero.

The information gain is then a measure that depends on the decrease in entropy after a dataset is split into attributes. Creating a decision tree revolves around the idea of finding the attributes that return the highest information gain, where the entropy is maximum if all the outcomes are equally likely on one hand and on the other if some outcomes are more probable than others than the entropy decreases.

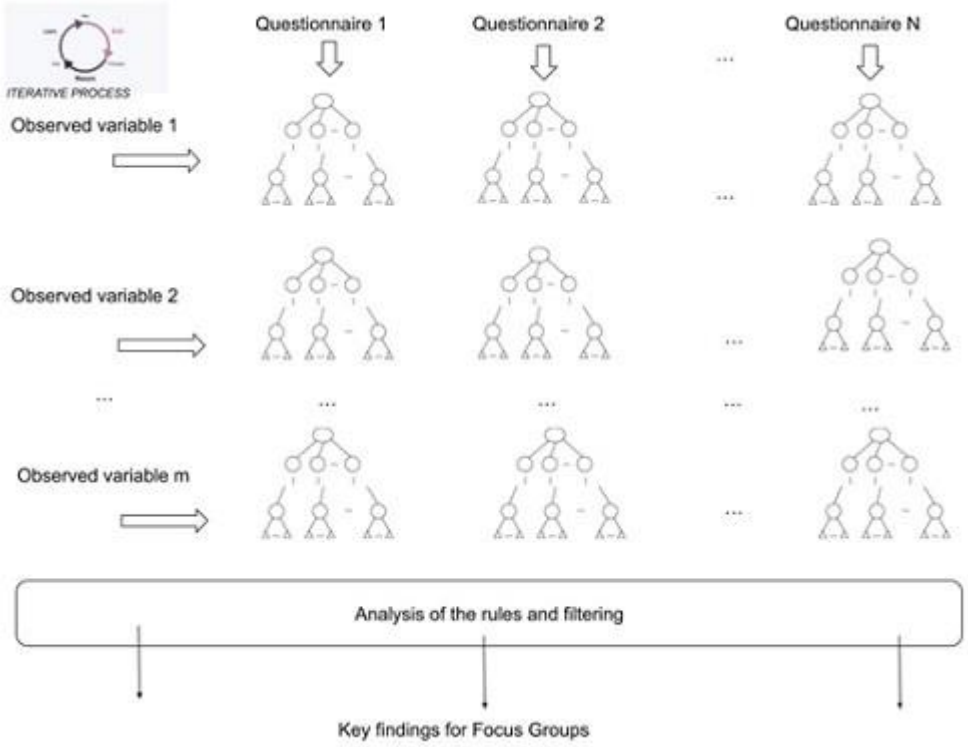
4.3.1.2 Use of the decision tree models for generating knowledge on the data

We have used the RapidMiner tool with Decision Tree algorithms for our rule's examination.

The data set was based on the data of a survey conducted among 100 employees in the IT sector. With the help of the decision tree algorithm, we determined the importance and influence of individual factors on the dependent variable. The algorithm was adapted to the specific characteristics of our data. The process of extracting the most important findings was iterative, so we considered branching criteria and selected a key variable (remote work productivity) to separate different groups of statements.

We put together a hierarchical structure that clearly shows the connections and importance of individual statements and the final result, the most important statement, which we analysed further within the focus groups. The use of the decision tree method thus enabled us to identify key factors and understand the connections between different variables to prepare material for the focus group, as well it helps ad with a clear interpretation of the obtained results presented in analysis. Following Figure 26 represents our use of decision trees on the gathered data.

Figure 26: Use of decision trees on the gathered data



Based on Zhang et al. 2020.

The result of the method used is the ten most important findings, which highlight the essential findings of the research and their connection with positive or negative aspects of working from home.

4.3.2 Focus groups and qualitative analysis

Qualitative data collection was enriched through the utilisation of focus groups. These sessions provided a valuable platform for in-depth discussions and insights from participants, enabling us to explore nuanced perspectives on the research topic and insights

provided in the first step. By convening these groups, we fostered a collaborative environment that encouraged open dialogue and the exchange of diverse viewpoints.

We chose to include seven employees, with two from each of the studied companies, who had previously taken part in our research by completing a survey questionnaire. This decision was considered and based on several key reasons. In our survey, we wanted to capture diverse perspectives and opinions of employees regarding remote work. By including those who had already participated in the survey, we ensured that we would also explore the experiences of those who had already expressed themselves in the original study. This allows us to better represent and comprehensively understand diverse experiences.

In order to gain a more detailed insight into the challenges, benefits and advantages of remote work the focus group took place via the MS Teams application, lasting 1 hour and 10 minutes. The questions were formulated based on the analysis of the results of the decision tree, which enabled us to have a systematic approach to data acquisition. With the use of the decision tree analysis specific questions that pinpointed key factors influencing remote work success and adoption were framed for focus groups based on the analysis of quantitative survey data. These questions were then designed to encourage discussion, elicit practical examples, and embrace diverse perspectives. Then additionally sub-questions were strategically used to examine deeper into the conversation and ensure to gather all details and aspects such as "*Could you please explain the answer a little more*?" or "*Does anyone think otherwise*?". To get practical examples questions like "*Can you give a practical example*?" and "Do you have any practical experience? were introduced. In this way, we obtained valuable findings that helped us identify the key aspects that influence the success and adoption of remote work. Participants were encouraged to express their opinions, which enabled equal representation of all viewpoints in the focus group. The data were obtained taking into account the basic ethical principles of qualitative research.

The qualitative data gathered from these focus group discussions forms a foundational component that offers a rich qualitative lens through which we have analysed and interpreted the complexities of our study with the main findings described in the following chapter.

4.4 Discussion and Limitations

Experienced individuals may question the reliability and validity of our chosen methodologies, fostering discussions on their appropriateness for capturing the essence of remote work dynamics. The chapter opens avenues for discussing alternative research methods, fostering a dialogue on the strengths and weaknesses of different approaches and their relevance to the organizational context.

The application of Herzberg's Two-Factor Theory to remote work is a focal point, inviting discussions on its suitability and effectiveness in understanding employee motivation within the unique context of our organization. Employee segmentation becomes a topic of exploration, with discussions on variations in responses based on demographics or specific roles within the workforce.

The chapter concludes by prompting conversations on the practical implications of our research findings—how they can be translated into actionable strategies to enhance remote work conditions and employee motivation within our specific organizational landscape. On the other hand, we find out limitations. Discussions centre around the limitations of generalizing our findings beyond our specific company or industry, prompting considerations for external validity. Limitations related to self-report bias, technological dependencies, and potential biases arising from participant non-participation are acknowledged and discussed.

Acknowledging the dynamic nature of remote work, the chapter highlights the limitations associated with capturing a moment in time and its potential impact on the evolving perceptions of employees. Cautionary notes are raised regarding the limitations of inferring causation solely based on observed correlations, stimulating thoughtful reflections on the research outcomes.

This concise chapter aims to provoke insightful discussions among stakeholders, fostering a deeper understanding of the multifaceted relationship between remote work and employee motivation within the unique context of our organization.

4.5 Summary

In this chapter we have presented both quantitative and qualitative aspects and methods of our research on gathered data. Through a combination of survey and decision tree analysis, we explore quantitative data, while qualitative perspectives were further enriched through the use of focus groups. The extensive use of graphical charts, tables, and statistics in this chapter aims to illuminate key links between remote work and influencing factors, which is our key objective, when researching intricate connections between remote work and satisfaction, motivation, and productivity, guided by Herzberg's Two-Factor Theory. In the following chapter we will present our findings and key results.

5 FINDINGS - PROJECT ORGANISED COMPANIES AND WORKING FROM HOME CONCEPT

5.1 Introduction

This chapter presents discovered connections and relations in the area of remote work, focusing on the intricate interplay with factors such as satisfaction, motivation, and productivity through the lens of Herzberg's Two-Factor Theory. Commencing with major insights drawn from data model analysis and decision rules, it unveils relationships linking productivity with elements like flexible work hours, time efficiency, freedom from commuting, and an adaptive homework environment. Subsequently, it navigates through a series of questions derived from quantitative data findings and models, shaping discussions in the focus groups. The chapter concludes with the presentation of key results, the quantitative and qualitative findings of a study and finally discusses the hypothesis of the thesis. Limitations and a thorough discussion round off the chapter, providing a comprehensive overview and concluding observations on the study's hypotheses.

5.2 Key findings on quantitative research

At the outset of this chapter, we present the refined outcomes derived from descriptive statistics and key findings of our thesis. These results were obtained through the application of an analytical model and an iterative process of using symbolic data models, all based on the collected data (see Chapter 4, 4.1 respectively). The Following are underlined and interpreted 10 most significant findings used for focus group discussion.

A need for a high level of digital literacy

The first interpretation of the decision tree which is shown in Figure 27, highlights the distinct need for a high level of digital literacy among employees in the IT sector when working from home. The majority of respondents showed high support for this need. Also, employees most agreed with statements about personal responsibility for work and the importance of self-motivation and communication skills for remote work.

A key finding here is based on the fact that a high level of digital literacy is key to successful work from home in the IT sector. Following formulated question for the focus group was prepared: *How important is the level of complexity of digital literacy when working telework in the IT sector?*

Figure 27: Need for a high level of digital literacy

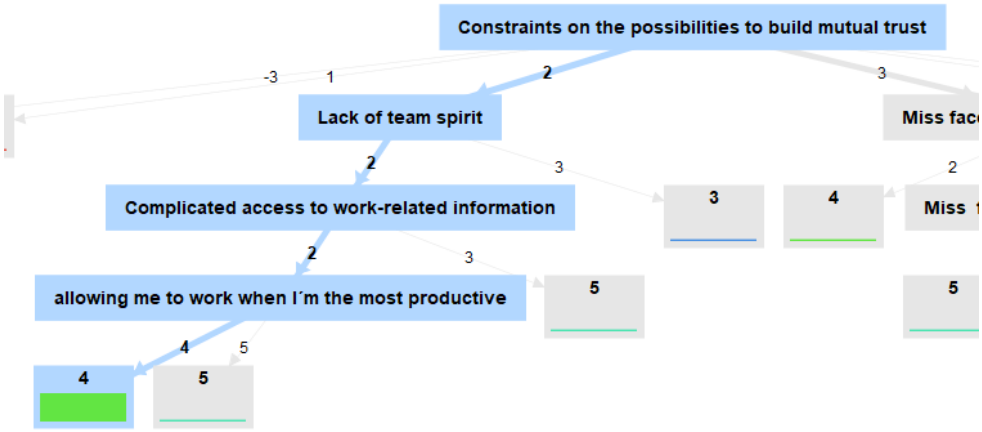
Source: Own source 2023.

Productivity gain when selecting working hours among employees

Another conclusion and interpretation of the decision tree of the examination which is shown in Figure 28, highlights the importance of the possibility of choosing working hours among employees by teleworking. The majority of respondents did not agree with the statements about limitations of mutual trust, lack of team spirit and difficult access to information. Nevertheless, they agreed that greater flexibility in working hours helps them to be more productive when working remotely.

The key finding here is that the ability to choose working hours is crucial for employees. When working remotely employees usually have a lot of control over the execution of tasks or over their schedule with the distinction of being at office. This flexibility can have a positive impact on work itself as well as on productivity and satisfaction. Employees can adjust their working hours in a way that better balances their professional life with their personal life. Following question was formulated for the focus group: *Could productivity be higher when working telework simply because employees can set their own time and therefore actually spend less time on non-productivity?*

Figure 28: Choosing working hour among employees



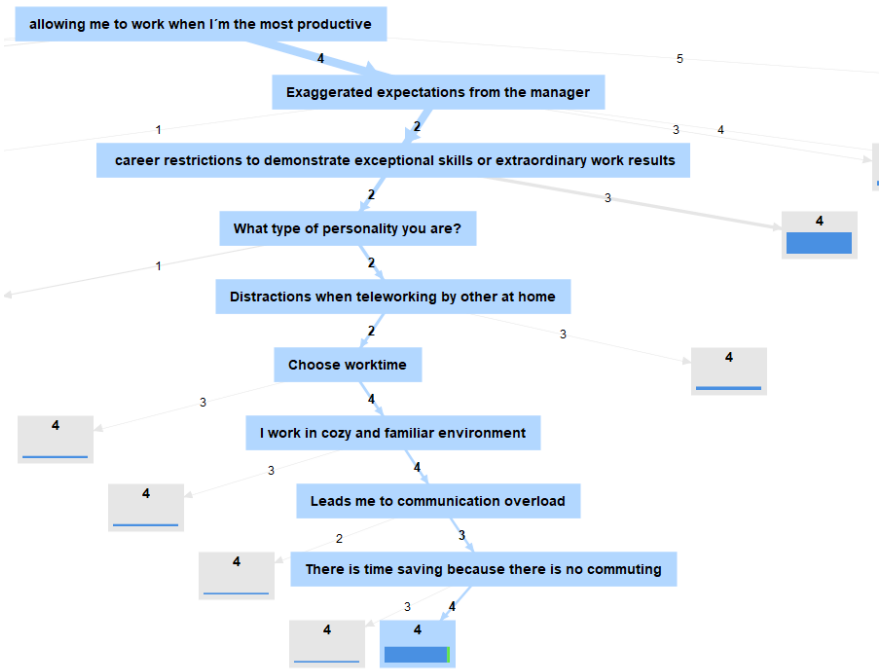
Source: Own source 2023.

Improvement of work-life balance

The third finding regarding the decision tree models which is shown in Figure 29, highlights the improvement of work-life balance when working from home. The majority of respondents agreed with the statements about greater flexibility of working hours, the possibility of choosing working hours, working in a pleasant and homely environment, and saving time due to the lack of commuting.

A key understanding for observation here is that telecommuting provides greater control over work-life balance. Formulated question for the focus group was therefore: *Could working telework, due to its potential benefit of improving work-life balance, contribute to the new normal of doing and accepting telework for jobs in the IT sector?*

Figure 29: Better work-life balance



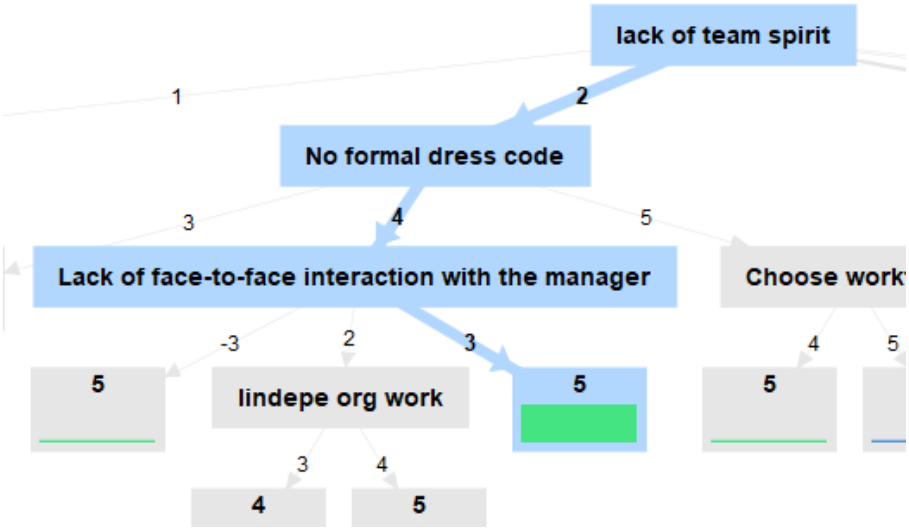
Source: Own source 2023.

Time savings due to the lack of commuting

The fourth examination of the decision tree model (Figure 30) resulted in highlighting the relation of time savings due to the lack of commuting. The respondents agreed with the possibility of avoiding formal dress at the workplace and completely agreed with the statement about saving time. On the other hand, they disagreed with the statement about the lack of team spirit when working remotely.

The key takeaway is that telecommuting really saves time because there is no commute. Formulated question for the focus group was therefore: *Maybe the reduction of mobility also has certain disadvantages, since commuting can also have some intrinsic value? (Or in the case of IT employees, it is a staff where there is not so much need for direct contact).*

Figure 30: Save time on the commuting



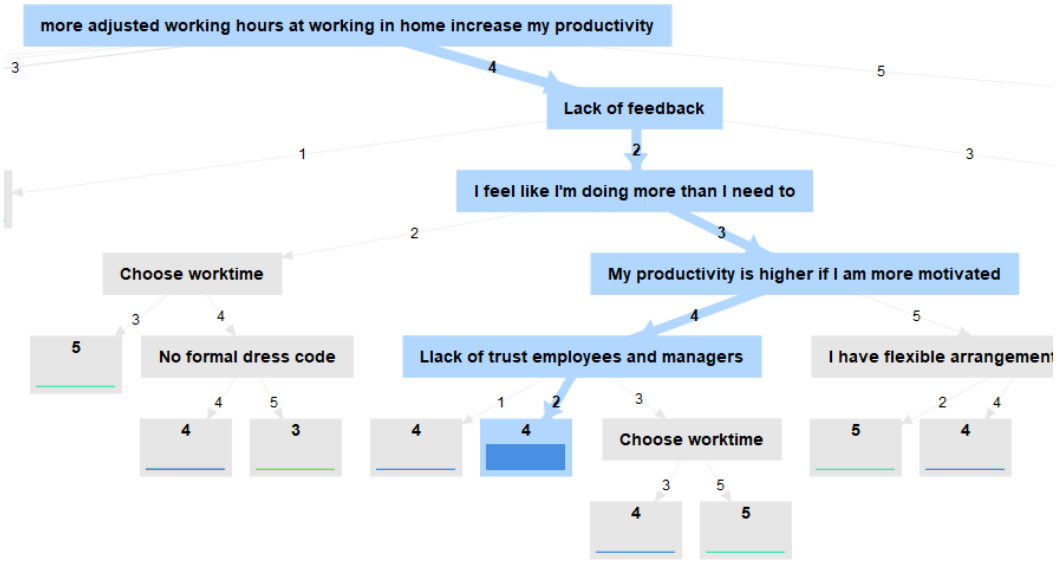
Source: Own source 2023.

Production better at home

The fifth finding on the model (Figure 31) shows that most respondents believe they are more productive at home. Respondents disagreed with claims that telecommuting leads to a lack of feedback or mutual trust. On the other hand, they highlighted important factors such as adjusted working hours and higher productivity, which results from greater motivation. Many respondents also highlighted the importance of greater productivity using working from home.

A key understanding here is that working from home can increase productivity, as many benefits, such as work-life balance or time management, can contribute to satisfaction and a greater volume of work done. Formulated question for the focus group was therefore: *How should an employer in the IT sector maintain greater productivity of employees when telework?*

Figure 31: More benefits contribute to productivity at working from home



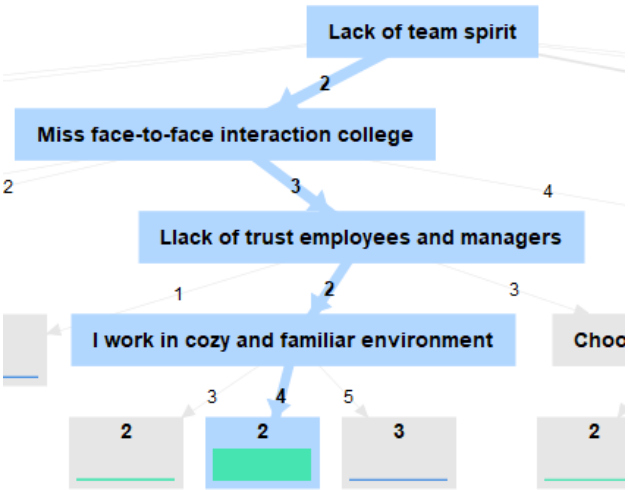
Source: Own source 2023.

No lack of team spirit by WFH

The sixth proposal of the data model (Figure 32) highlighted the fact that the majority of respondents do not agree with the feeling of a lack of team spirit when working from home. Respondents most agreed with the statement about working in a pleasant and homely environment, while they disagreed with the feeling of a lack of team spirit. When working from home, the lack of personal contacts can lead to the loss of a certain level of relationships between employees and also to less control over what is happening in the company.

The key understanding here is that most respondents do not experience a lack of team spirit by teleworking, therefore formulated question for the focus group was following: *In the case of the IT sector, due to the very nature of the work, where employees with a certain level of personality prevail, could employees have less problems with a lack of team spirit?*

Figure 32: Lack of team spirit



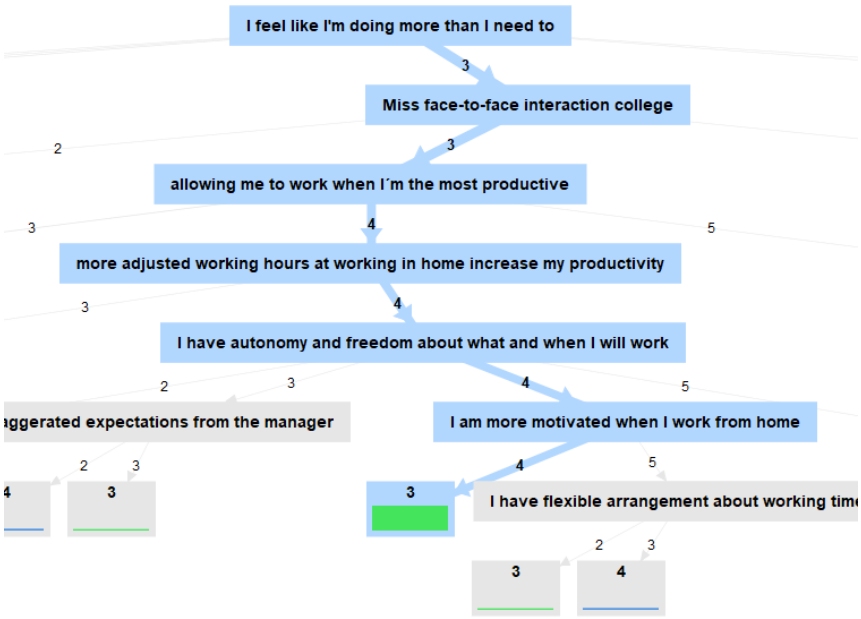
Source: Own source 2023.

No additional benefit with additional workplace in office and job interest

The seventh hint of the decision tree model (Figure 33) shows that the majority of respondents did not have a clear or convincing statement as to whether additional workplace benefits would further increase their interest in the job. Respondents highlighted flexible working hours, autonomy at work and greater motivation as the most important factors in working from home.

The key understanding here is that the respondents' assessment does not give a clear opinion as to whether additional benefits at the workplace would contribute to them preferring to do their work in a traditional way in the future. Formulated question for the focus group was therefore the following: *What are the additional benefits that would make you prefer to continue doing your work in the office? Which features of working telework could be highlighted as demonstrable advantages for an employee in the IT sector?*

Figure 33: Additional workplace benefits



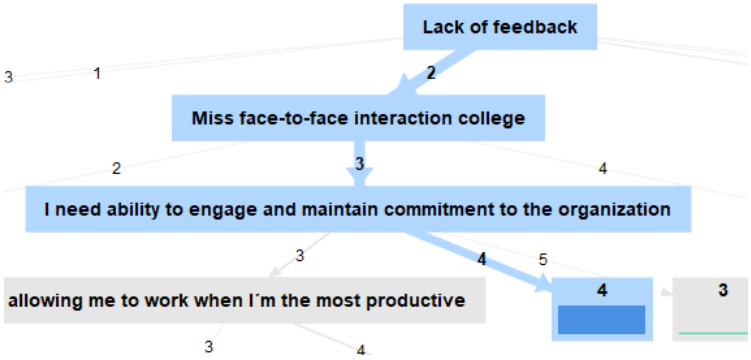
Source: Own source 2023.

No lack in feedback and personal contact with colleagues by WFH

The eighth rule inherited from the decision tree (Figure 34) shows that the respondents do not see a lack of feedback and personal contact with colleagues when working remotely. However, they pointed out that greater flexibility of working hours affects their productivity. New results of remote work surveys conducted after the COVID-19 epidemic, when employees were actually forced to do this type of work, also show that employees were more productive when working remotely. Various advantages were highlighted, such as time savings due to driving, as well as time savings because there is no so-called office conversation or socialising. The employee's greater effort to be more productive is also often mentioned, since he is not under the scrutiny of other colleagues who might even make fun of him for working more.

A key finding by this case is that working hours flexibility in telecommuting has a significant impact on productivity. Formulated question for the focus group was therefore additional: *How could employers in the IT sector, in the case of employees transitioning to full-time working telework, take care or be sure that the employees will cooperate enough, that they will be creative enough themselves, or that they will be able to do this work for a long time without negative consequences productivity implications?*

Figure 34: Flexibility on working hours has impact on productivity



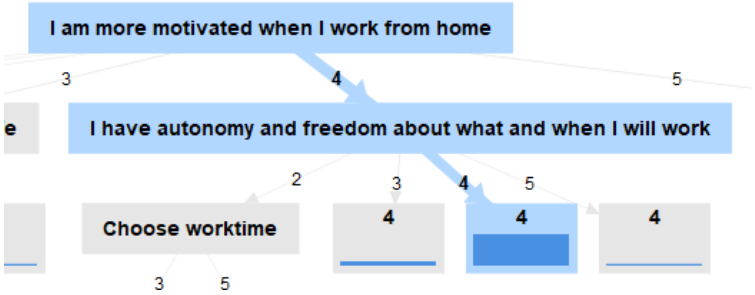
Source: Own source 2023.

Greater motivation, autonomy and freedom by WFH

The next ninth understanding of the decision tree rules (Figure 35) shows that most respondents agree with the statements about greater motivation when working from home and about autonomy and freedom regarding what and when they will work. To increase productivity when working from home motivation definitely has a big impact as home workers face many challenges and sometimes need to self-motivate to complete their tasks.

A key understanding here is that productivity is associated with higher motivation. Formulated question for the focus group was therefore in the direction: *How should employees in the IT sector motivate themselves when working telework? And how could the employer motivate them to increase productivity when working telework or to maintain it?*

Figure 35: Higer motivation is associated with productivity



Source: Own source 2023.

No experience of uncertainty and no lack of personal interaction with a supervisor

The last conclusion of the data models analysis (Figure 36) shows that the majority of respondents do not experience uncertainty in the evaluation of their work and do not agree with the lack of personal interaction with their supervisor when working from home. However, they agree that their productivity is higher when they are more motivated.

The key finding here is that working from home is significantly related to self-motivation and challenges. Formulated question for the focus group was therefore: *What are the most important telecommuting challenges that employees in the IT sector have to deal with?*

Figure 36: Self-motivation and challenges at work from home

Source: Own source 2023.

In summary Table 10 represents our key findings from data models and formulated questions that were finally carefully examined by the focus group.

Table 10: Key understanding and formulated questions for further investigation

No.	Key understanding from the data models	Formulated questions for Focus Groups
1	A need for a high level of digital literacy	How important is the level of complexity of digital literacy when working telework in the IT sector?
2	Productivity gain when selecting working hours among employees	Could productivity be higher when working telework simply because employees can set their own time and therefore actually spend less time on non-productivity?
3	Improvement of work-life balance	Could working telework, due to its potential benefit of improving work-life balance, contribute to the new normal of doing and accepting telework for jobs in the IT sector?

4	Time savings due to the lack of commuting	Maybe the reduction of mobility also has certain disadvantages, since commuting can also have some intrinsic value?
5	Production better at home	How should an employer in the IT sector maintain greater productivity of employees when telework?
6	No lack of team spirit by WFH	In the case of the IT sector, due to the very nature of the work, where employees with a certain level of personality prevail, could employees have less problems with a lack of team spirit?
7	No additional benefit with additional workplace in office and job interest	What are the additional benefits that would make you prefer to continue doing your work in the office? Which features of working telework could be highlighted as demonstrable advantages for an employee in the IT sector?
8	Greater motivation, autonomy and freedom by WFH	How could employers in the IT sector, in the case of employees transitioning to full-time working telework, take care or be sure that the employees will cooperate enough, that they will be creative enough themselves, or that they will be able to do this work for a long time without negative consequences productivity implications?
9	No lack in feedback and personal contact with colleagues by WFH	How should employees in the IT sector motivate themselves when working telework? And how could the employer motivate them to increase productivity when working telework or to maintain it?
10	No experience of uncertainty and no lack of personal interaction with a supervisor	What are the most important telecommuting challenges that employees in the IT sector have to deal with?

Source: Own source 2023.

5.3 Focus group assessment and Thematic Analysis

5.3.1 Focus Group Assessment

As mentioned in Chapter 4 we chose to include 8 employees, with two from each of the studied companies, who had previously taken part in our quantitative part of the research. By including those who had already participated in the survey, we namely ensured that we could also explore the experiences of those who had already expressed themselves in the original study which allowed us to better represent and comprehensively understand diverse

experiences. However, major tasks of the participants in focus groups were to elaborate on the questions referred in Table 11.

Table 11: Key understanding of focus groups on formulated questions

No.	Formulated questions for Focus Groups	Key findings
1	How important is the level of complexity of digital literacy when working telework in the IT sector?	When working remotely in the IT sector, a high level of complexity of digital literacy is crucial, as it enables the effective use of digital technologies in the work environment. The participants of the focus group highlighted the complex use of digital tools, the security of digital technology and the knowledge of information management as key aspects of digital literacy. Mastering programming, developing applications and understanding information security are key factors in the complexity of digital literacy, which participants consider extremely important when working remotely in the IT sector.
2	Could productivity be higher when working telework simply because employees can set their own time and therefore actually spend less time on non-productivity?	When working remotely, most participants agree that adjusting working hours contributes to greater productivity. This flexibility enables employees to have a calmer working environment, fewer distractions and the possibility to choose working hours according to their own focus, which in turn leads to greater efficiency at work. In addition, the ability to adjust the schedule allows for more short breaks, which encourages multitasking at work. About a quarter of the participants believe that they are more productive due to adjusting their working hours, as they save time that would otherwise be spent on smaller tasks. In short, adjusting working hours when working remotely can actually help increase productivity by allowing employees to have a better work-life balance, which in turn affects efficiency.
3	Could working telework, due to its potential benefit of improving work-life balance, contribute to the new normal of doing and accepting telework	Remote work in the IT sector already has other important advantages, which the participants consider essential. Nevertheless, slightly less than half of the participants believe that improving the balance between work and private life can

	for jobs in the IT sector?	contribute to the normalization of working from home in other sectors as well. These sectors include finance and banking, medicine and pharmacy, law and the arts. The possibility of improving work-life balance may thus influence the wider acceptance of working from home, although participants still see other key advantages of telecommuting in the IT sector.
4	Maybe the reduction of mobility also has certain disadvantages, since commuting can also have some intrinsic value?	Some participants do not miss driving to work, because by not driving they save time and are not stressed about driving. Others, however, highlight certain aspects of driving, such as the sense of independence, that they miss when working from home. The analysis shows that for most participants the reduction in mobility does not have negative consequences, as they experience benefits such as reduced traffic stress and time savings, while some still miss certain aspects of commuting.
5	How should an employer in the IT sector maintain greater productivity of employees when telework?	An employer in the IT sector could maintain greater productivity of employees when working from home with the following measures suggested by the participants: maintaining connections between employees, regularly updating the necessary equipment, promoting relaxed communication between employees (organized conversations, relaxed messages with useful tips), financial assistance in furnishing home offices and praise for a job well done. Most of the participants emphasized the importance of these factors for maintaining productivity when working remotely in the IT sector.
6	In the case of the IT sector, due to the very nature of the work, where employees with a certain level of personality prevail, could employees have less problems with a lack of team spirit?	Due to the nature of work in the IT sector, which is dominated by personalities of a certain level, most participants believe that they do not feel a lack of common spirit when working remotely. Despite the potentially introverted nature of job profiles such as programmers, employees still maintain contacts and communicate over the network. Technology makes it possible to maintain a high level of relationships and regular

		communication that supports teamwork, even without so much physical contact between colleagues. Almost all participants expressed that they communicate in a normal, friendly and relaxed manner when working remotely and maintain a high level of relationships and support for group activities.
7	What are the additional benefits that would make you prefer to continue doing your work in the office? Which features of working telework could be highlighted as demonstrable advantages for an employee in the IT sector?	Participants highlighted the advantages of telecommuting in the IT sector, including greater flexibility of working hours, familiarity and comfort of the workspace, geographical independence, less distractions and greater silence at work, lower costs, less stress and better work-life balance. Nevertheless, additional benefits such as the possibility of additional education, seminars, financial support for acquiring new skills could encourage consideration of working in a traditional office environment. Participants believe that these additional benefits could be implemented in a virtual environment, but the possibility of additional professional development could be more attractive and encourage consideration of working in an office.
8	How could employers in the IT sector, in the case of employees transitioning to full-time working telework, take care or be sure that the employees will cooperate enough, that they will be creative enough themselves, or that they will be able to do this work for a long time without negative consequences productivity implications?	To ensure cooperation, creativity and long-term productivity when working remotely in the IT sector, the participants highlighted the following elements: effective communication (the employer's concern for regular communication and the establishment of clear channels for cooperation and information exchange); control and monitoring of work (implementing a calendar with project deadlines that can help control work and productivity); weekly work reports (regular reporting of completed work can encourage employee engagement and motivation) and face-to-face meetings (occasional physical meetings can encourage creativity, good work, and prevent loneliness and negative effects on mental health). These elements have been highlighted as key to maintaining success in telecommuting in the IT sector, which shows the importance of proper

		supervision, communication and establishing conditions for a creative work environment even in remote work.
9	How should employees in the IT sector motivate themselves when working telework? And how could the employer motivate them to increase productivity when working telework or to maintain it?	Employees in the IT sector mostly draw their motivation to work remotely from the work they like to do, which is a source of internal motivation. Nevertheless, additional motivation or incentive to increase productivity can be provided by the employer. The participants of the focus group pointed out that the employer can additionally motivate employees with bonuses or financial incentives based on the set work standards and by providing certain equipment for working from home and partially amortizing the costs of other personal equipment. The participants emphasized that they are mainly motivated by the fact that they enjoy doing their work, but additional incentives from the employer, such as financial rewards or provided equipment for working from home, can further contribute to maintaining or increasing productivity.
10	What are the most important telecommuting challenges that employees in the IT sector have to deal with?	The main challenges that employees in the IT sector face when working remotely include: difficulties in solving errors or problems that arise during remote work, which can lead to longer interruptions or the inability to continue work; concern for safety when working remotely, since the home environment does not provide the same level of safety as an office workplace, and writing reports, which can sometimes present a challenge in describing the work done in a way that the employer would understand as actually completed tasks. The participants agreed that these are key challenges when working remotely in the IT sector, as they can affect the smooth flow of work, security and clear communication about completed tasks and achievements.

Source: Own source 2023.

5.3.2 Thematic Analysis

During the analysis of the focus group data, we identified key themes emerging from participants' conversations. A significant topic revolved around the importance of digital literacy when working remotely in the IT sector, proving to be a vital factor in employee productivity and satisfaction. Additionally, our findings emphasized the importance of factors such as flexible working hours, achieving a better balance between professional and private life, and having greater independence in work performance for satisfaction in remote work. Furthermore, our analysis uncovered reciprocal links between employee satisfaction and motivation, suggesting a positive relationship where higher satisfaction correlates with increased motivation to perform work tasks.

5.4 Hypothesis Testing

Hypothesis 1

From the findings of the quantitative analysis using the survey questionnaire method, several conclusions can be drawn that support Hypothesis 1 which is defined according to Herzberg's theory:

Hypothesis 1: Which motivational factors affect productivity when working from home as defined by Herzberg Theory?

These conclusions are:

- High level of satisfaction with working from home: the majority of respondents expressed high satisfaction with working remotely. Among the key factors of satisfaction are flexibility of working hours, a better balance between professional and private life and greater independence in the performance of work.
- The link between motivation and productivity: the respondents expressed the belief that greater independence at work and working in a pleasant environment positively influence their motivation. They also strongly agreed that greater work-life balance and time savings have a positive effect on motivation.
- Relationship between satisfaction and motivation: we found that there is a positive relationship between employee satisfaction and their motivation when working from home. A higher level of satisfaction is associated with greater motivation to perform tasks. We have also observed that higher motivation can lead to increased employee satisfaction.
- Impact of motivational factors on productivity: we found that motivational factors, such as greater flexibility of working hours, are associated with higher productivity. Higher motivation when working from home is associated with higher productivity.

Based on the data obtained from the survey, we can conclude that survey data provides strong support for Hypothesis 1. The survey showed that the participants expressed a high level of satisfaction when working from home and at the same time highlighted several motivational factors, such as independence at work, a better balance between professional and private life and greater independence in performing work. These factors are positively

related to higher productivity. This supports the hypothesis and shows that higher levels of motivational factors contribute to increased productivity of employees in working from home.

Hypothesis 2

From the findings of the quantitative analysis using the survey questionnaire method, several conclusions can be drawn that could support or refute Hypothesis 2. This hypothesis assumes that there is a positive relationship between Herzberg's motivational factors and productivity:

Hypothesis 2: How control mechanisms at regular work influence productivity when working from home?

This means that better management and control in remote work strengthen the positive connection between the motivational factors defined by Herzberg and employee productivity and the conclusions that we referred from study are:

- The influence of control mechanisms on motivational factors and productivity: from the analysis of the results, it is not clear whether the existing control mechanisms are related to the movement of motivational factors and productivity. However, a high level of independence and flexibility at work has been shown to influence motivation, which increases productivity.
- Relevance of control mechanisms: The survey results do not reveal details about existing control mechanisms that could affect productivity or motivation. However, we found that the respondents focused more on their own challenges brought about by working from home than on the effects of the existing control mechanisms.
- The influence of different work environments: although we did not use or check direct data on control mechanisms, it seems that the positive effects of motivational factors (e.g., independence, flexibility) on productivity are more pronounced in work environments that encourage greater freedom and independence, i.e. in in our case working from home.
- Need for further research: the results do not allow us to draw a definite conclusion about whether control mechanisms are important for the link between motivational factors and productivity in working from home. To confirm this hypothesis, we would need more detailed data on existing control practices in IT companies and their impact on motivation and productivity.

The obtained data does not allow for a definitive confirmation or refutation of Hypothesis 2. With the obtained results, we cannot therefore confirm that in our researched case control mechanisms are key to the connection between motivational factors according to Herzberg's theory and productivity. In order to better explain this aspect, we should analyse more precise data on the existing control practices in individual IT companies and their impact on the motivation and productivity of employees.

5.5 Summary

In this chapter, we present the key findings and results of the study. We initiate the chapter by examining data models based on quantitative data, serving as a foundation for in-depth qualitative research conducted through focus groups, where questions derived from these findings were discussed along with additional aspects. The analysis of focus group data reveals key themes, emphasising the key role of digital literacy in the IT sector and its influence on employee productivity and satisfaction. It underscores the significance of factors such as flexible working hours, achieving work-life balance, and greater work independence for overall job satisfaction. While the first hypothesis was successfully confirmed, the second hypothesis requires more precise data on existing control practices in individual IT companies to determine their impact on motivation and productivity. The chapter concludes with a discussion of limitations and a thorough exploration of the presented results.

6 DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter offers an in-depth discussion and draws insightful conclusions regarding the research findings and the impact of remote work on organizational culture and project dynamics across various dimensions. It is organized into several subsections, each addressing distinct aspects: firstly, it provides a contextualization of the research within the existing body of literature and findings; next, it analyses how the research findings intersect with project management principles and practices; and lastly, it examines practical implications of the research introducing a conceptual motivation model followed from the findings. Throughout the discussion, significant attention is given to the key findings of the study, particularly in relation to Herzberg's theory, encompassing themes such as organizational culture, trust, time management, and control mechanisms, while also highlighting the differences between project and non-project organizational cultures. The chapter further proposes enhancements to Herzberg's theory of motivation factors within the context of remote work—a central focus of this research endeavour and it concludes with recommendations for further research, thereby providing a comprehensive framework for future exploration.

6.2 Relation of Study to Previous Research in Literature

Herzberg's theory of motivation, originating from the 1960s, has been extensively studied by various authors. While some studies have expressed doubts about its fundamental premise, criticizing the methodology and findings, others have supported the existence of Herzberg's factors influencing satisfaction. This divergence in research findings has led to ongoing debates regarding the validity of Herzberg's theory. Despite the criticisms, the theory remains recognizable and widely used due to its simplicity, persuasiveness, and direct relevance to organizational change.

The study conducted by Henning Bundtzen in 2020, titled "Adapting Herzberg's Motivation-Hygiene Theory to a VUCA World - A Repertory Grid Study," mirrors the research conducted in this study by examining the intersection of contemporary work environments and Herzberg's theory of motivational and hygiene factors. Bundtzen's (2020) research not only reaffirms the core principles of Herzberg's theory but also identifies novel factors, offering a fresh perspective. While the findings largely support Herzberg's theory, the study highlights the transformation of certain hygiene factors into motivational drivers in modern workplaces. Factors such as stimuli for motivation, constructive feedback, and a culture that embraces open acknowledgment of errors have emerged as pivotal motivators, emphasizing the need to adapt traditional theories to address contemporary challenges and evolving work environments.

This underscores the necessity for further research in this area, particularly focusing on the modern context of remote work. Addressing the reflection of motivational and hygiene factors of Herzberg's theory in modern times is crucial, as the theory has primarily been applied in traditional work environments. By examining how Herzberg's theory applies to

remote work settings, researchers can better enhance our understanding of motivation and job satisfaction in the contemporary workforce.

6.3 Relation to a Project Management

The research contributes significantly to the field of project management by providing a deeper understanding of how Herzberg's theory of motivation applies specifically to IT companies, particularly small and medium-sized enterprises (SMITCs). By highlighting the distinction between motivational factors and hygiene factors, the study underscores the importance of addressing both aspects to prevent dissatisfaction and enhance productivity within project teams.

The research findings emphasize the crucial link between organizational culture and project performance. We observed that increased satisfaction and motivation among telecommuters are associated with higher productivity levels. Additionally, digital literacy emerges as a key factor for success in remote work, enhancing both productivity and communication. Furthermore, our study underscores the importance of trust in remote work settings, prioritizing it over strict control measures. Trust-building initiatives, coupled with autonomy, play a significant role in driving productivity and satisfaction among telecommuters. Moreover, our research underline on notable shifts in organizational culture, particularly towards project-based approaches where projects encourage autonomy, foster innovation, and promote collaboration, ultimately leading to enhanced project outcomes.

These insights have however several implications for the management field. Firstly, they provide practical guidance for project managers in SMITCs, helping them better understand what motivates and displeases their team members and secondly by aligning management practices with these insights, project managers can improve team satisfaction, productivity, and ultimately, project outcomes.

Additionally, our research innovatively extends Herzberg's theory of motivation to the contemporary area of remote work. While traditionally applied in conventional work settings, our study explores how Herzberg's factors manifest in the modern context of telecommuting, offering fresh insights into motivation and job satisfaction dynamics and so minimizing the research gap produced by the rapid evolution of remote work and digital tools that produces disparity between theories and practices in project management, especially when considering the exploration of motivational factors and productivity, which undergo continuous reshaping with the introduction of new tools and working methods.

6.4 Research Study and Practice

The research findings of this study can be further translated into actionable insights by implementing a conceptual motivation model derived from the study's outcomes, thus informing practical strategies for organizational adaptation to remote work dynamics

Based on the key findings, we further contribute to the field in practical aspect by developing a comprehensive conceptual model of motivation specifically designed to enhance remote work productivity.

This model encapsulates the essence of the motivational process in telecommuting and includes the key elements that we have explored:

1. Factors of satisfaction in telecommuting:
   - Flexibility of working hours
   - Achieving work-life balance
   - Time and cost saving
   - Creating a comfortable and stimulating working environment at home
2. Key motivational aspects when working remotely:
   - Flexibility in choosing working hours
   - Satisfaction in performing tasks
   - Creating harmony between work and private life
   - Identifying the impact of working time flexibility
3. The connection between job satisfaction and motivation:
   - Increased satisfaction with remote work leads to higher employee motivation
4. Motivation as a key factor of higher productivity:
   - Increased motivation among employees leads to increased productivity when working remotely.

Incorporating these identified key elements to a foundational understanding of enhancing productivity in remote work settings forms a conceptual model of motivation developed through this exploration, which provides valuable insights into the crucial factors guiding to efficiency and productivity, particularly within IT companies operating in remote environments. Therefore, by recognizing the significance of factors such as flexibility, work-life balance, and task satisfaction, organizations can leverage motivational strategies to foster a conducive remote work culture that ultimately leads to heightened productivity and performance outcomes.

6.5 Contribution to Science

Our research represents an innovative contribution when using Herzberg's theory of motivation in terms of including the modern context of working from home. Herzberg's theory, which has long been the classic framework for understanding the factors of motivation and job satisfaction, has so far been predominantly used in traditional work environments. Our research, however, goes beyond this framework and investigates how the motivational and hygiene factors of Herzberg's theory are reflected in modern times in the case of individuals' experiences of working from home.

The modern work environment has changed dramatically compared to the time when Herzberg's theory was first presented, especially with the expansion of the option of working from home. By focusing on the specific challenges and positive aspects of working from

home, our research contributes to the understanding of how classical motivation theory can be adapted to modern working conditions. By identifying factors such as independence, flexibility of working hours research not only builds on Herzberg's theory, but also expands its applicability for the purpose of applying it to contemporary work environments, which contributes to a better understanding and design of work practices in today's rapidly changing work environment, especially with hygiene dimensions, where we upgraded working conditions with new entity of “work from home “in the field of ICTs SMes companies.

The motivational factors have been therefore updated so that the balance between work and private life has a motivating effect on employees related to a hygienic factor of work from home, measurable with a new motivational factor “work life balance” what broadens the understanding of motivation and job satisfaction in the field of tele working based on the Herzberg theory.

Research in this thesis therefore not only builds on Herzberg's theory, but also expands its applicability for the purpose of applying it to contemporary work environments, which can contribute to a better understanding and design of work practices in today's rapidly changing work environment. The motivational factors have been therefore updated so that the balance between work and private life has a motivating effect on employees, measurable with a new motivational factor “Work life balance” (see table 12).

Table 12: Updated Herzberg Motivational Factors Incorporating Research Findings and the Phenomenon of Working from Home

Hygiene issues	Motivators
Company and administrative policies	Work itself
Supervision	Achievement
Salary	Recognition
Interpersonal relations	Responsibility
Working conditions	Advancement
Working from home	**Work life balance**

Source: Own source 2023.

The primary scientific contribution of this thesis therefore lies in enhancing Herzberg's two-factor theory within project management in SMEs and IT companies. New hygiene factors, such as working from home, and motivators, like work-life balance, are introduced through the empirical research that extended use of the Herzberg's theory in modern environments thus enriching our understanding of workplace dynamics.

Key findings further include:

- A need for a high level of digital literacy
- Productivity gain when selecting working hours among employees
- Improvement of work-life balance
- Time savings due to the lack of commuting
- Production better at home
- No lack of team spirit by WFH
- No additional benefit with additional workplace in office and job interest
- No lack in feedback and personal contact with colleagues by WFH
- Greater motivation, autonomy and freedom by WFH
- No experience of uncertainty and no lack of personal interaction with a supervisor

These findings have shed light on the crucial connections between organizational culture and the effectiveness of remote work within the IT sector. It aims have been to explore Herzberg's Motivational Theory in conventional settings alongside the new advancements of Working from Home. Not only that the dynamics in project-oriented SMITCs have been explored through remote work phenomena, but the research also extends Herzberg's Motivational Theory with new aspects of modern working habits, thereby providing insightful contributions to the field. Through an examination of trust, control, and disparities between projected and actualized organizational culture, alongside additional considerations of the impact of remote work on project organizational culture and the conceptual motivational model, we have unveiled the significant correlation between organizational culture and both performance and perception of remote work.

The findings underscore the importance of specific facets of organizational culture, such as trust in employees and their work performance, as well as adapted supervision, in fostering high levels of satisfaction, motivation, and productivity while tele work. These insights however provoke new inquiries for further research and suggest ways to make remote work better and help employees work more efficiently in the future.

6.6 Limitations

It's crucial to recognize that our survey was conducted during the unprecedented circumstances of the COVID-19 pandemic, which significantly altered work conditions and remote practices. This unique context may have influenced participant perceptions and, consequently, the interpretation of our findings. Therefore, while our research offers valuable insights, further comprehensive studies are warranted to enhance our understanding.

Moving forward, future research should explore remote work dynamics beyond crisis periods and consider additional influencing factors. Conducting similar studies in non-epidemic times could provide more nuanced insights into remote work's impact on organizational culture, where additionally, deeper analyses could investigate the effects of different communication modes on productivity and so examine variations in team dynamics across sectors.

Lastly, the current research conducted empirical studies based on samples from SMEs and IT companies in Slovenia. Building upon these findings, future research in other regions and industries can draw upon this foundation for their own investigations.

In summary, our research provides insights into the organizational culture of remote work during the COVID-19 pandemic. While our study utilized a representative sample of five companies and one hundred respondents (as outlined in Chapter 3), it is important to note the limited but valid scope of participants. Nonetheless, the methodology presented here could be applied to larger samples for further validation. Moreover, our study was specific to a particular sector, and while some results may be transferable, variations across sectors could yield different outcomes.

6.7 Summary

In this chapter, we have presented an in-depth discussion and conclusions regarding the research findings and the impact of remote work on organizational culture and project dynamics across various dimensions. We outlined key points of Herzberg's theory of motivation and drew parallels with previous research, examining Herzberg's theory in the context of modern work environments. Furthermore, we demonstrated how our study extends Herzberg's theory to remote work settings and emphasized the importance of trust, digital literacy, and flexibility, which have significant implications for the project management field, highlighting the close relationship between organizational culture and project performance. We proposed a conceptual model of motivation for remote work in practice, derived from the research findings. Additionally, we addressed some limitations of this study, such as the sample size, sector-specific focus, and the influence of the pandemic, suggesting that future research should delve deeper into remote work dynamics to gain a more comprehensive understanding of these phenomena.

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ANNEXES

Annex A: The Working from Home Project Based Company Assessment Survey Instrument

I. EMPLOYEE SATISFACTION

1. **Assess each aspect of satisfaction by circling an appropriate assessment of satisfaction level. (Select the appropriate number.)**
   1 – Very dissatisfied
   2 – Dissatisfied
   3 – Neither dissatisfied nor satisfied
   4 – Satisfied
   5 – Very satisfied

SATISFACTION ASPECT	ASSESSMENT OF SATISFACTION LEVEL
- with the work from home	1 2 3 4 5
- with the management of the company	1 2 3 4 5
- with relations with colleagues	1 2 3 4 5
- relations with superiors	1 2 3 4 5
- with the amount of salary	1 2 3 4 5
- with working conditions	1 2 3 4 5
- with opportunities for advancement	1 2 3 4 5
- with the possibility of additional education	1 2 3 4 5
- with adjusting the schedule at work from home	1 2 3 4 5
- with my status in the company	1 2 3 4 5
- with independence at work	1 2 3 4 5

2. **The statements below refer to your job satisfaction. Assess the extent to which you agree with each statement. (Select the appropriate number.)**
   1 – I do not agree at all
   2 – I do not agree
   3 – I neither agree nor disagree
   4 – I agree
   5 – I totally agree

JOB SATISFACTION	ASSESSMENT OF THE SATISFACTION LEVEL
- I know what is expected of me although working from home involves different supervision by superiors	1 2 3 4 5
- I have all the necessary equipment for my work at home too	1 2 3 4 5
- my work allows me to do what I do best	1 2 3 4 5
- I have a sense of importance at my work even when I work from home	1 2 3 4 5

3. **The statements below relate to your financial satisfaction. Assess the extent to which you agree with each statement. (Select the appropriate number.)**
   1– I do not agree at all
   2 – I do not agree
   3 – I neither agree nor disagree
   4 – I agree
   5 – I totally agree

FINANCIAL SATISFACTION	ASSESSMENT OF THE SATISFACTION LEVEL
- the amount of salary is appropriate according to the effort	1 2 3 4 5
- the amount of salary is appropriate according to my education	1 2 3 4 5
- the amount of salary changes with the complexity of the work	1 2 3 4 5
- we are financially rewarded for additional work	1 2 3 4 5

4. **The statements below refer your satisfaction with working hours. Assess the extent to which you agree with each statement. (Select the appropriate number.)**
   1 – I do not agree at all
   2 – I do not agree
   3 – I neither agree nor disagree
   4 – I agree
   5 – I totally agree

SATISFACTION WITH WORKING TIME	**ASSESSMENT OF THE SATISFACTION**
- I am satisfied to do the work from home	1 2 3 4 5
- a lot of overtime is required	1 2 3 4 5
- employees do not feel time pressure due to deadlines	1 2 3 4 5
-I like that my working hours at home are more personalized	1 2 3 4 5
-even at home I stick to a regular schedule as I had at work	1 2 3 4 5
-when working from home I have a better balance between private and working hours	1 2 3 4 5
-in the future I want the flexibility of time as it is at work from home	1 2 3 4 5

II. MOTIVATIONAL FACTOS

5. **The statements below refer to the influence of motivational factors on your work. Assess the extent to which you agree with each statement. (Select the appropriate number.)**
   1 – I do not agree at all
   2 – I do not agree
   3 – I neither agree nor disagree
   4 – I agree
   5 – I totally agree

INFLUENCE OF MOTIVATIONAL FACTORS	ASSESSMENT OF LEVEL OF SIGNIFICANCE
- when working from home, we are more often praised by our superiors	1 2 3 4 5
- I wish I could be praised more often	1 2 3 4 5
- We often receive rewards when we do a great job	1 2 3 4 5
- Financial rewards mean a lot to me	1 2 3 4 5
- I would like to receive some other benefit (not financial) for my work	1 2 3 4 5

6. **Sort the motivational factors listed below according to the importance they represent to you. Rate with numbers from 1 (most important factor) to 6 (least important factor). (Sort by relevance.)**
   a) Salary: _____
   b) Additional financial benefits: _____
   c) Additional non-financial benefits: _____
   d) A more flexible working day at work from home: _____
   e) More flexible circumstances and location at work from home: _____
   f) The possibility of working from home in the future: _____

7. **Assess the importance of motivational factors and their impact on your workplace. Assess the extent to which you agree with the importance of each motivating factor. (Select the appropriate number.)**

   1 – Doesn’t motivate me at all
   2 – Does not motivate me
   3 – Neither doesn´t motivate me or motivates me
   4 – Motivates me
   5 – Motivates me a lot

MOTIVATIONAL FACTOR	**ASSESSMENT OF LEVEL OF SIGNIFICANCE**
- salary level	1 2 3 4 5
- good relations with colleagues	1 2 3 4 5
- good relations with superiors	1 2 3 4 5
- the possibility of promotion	1 2 3 4 5
- additional benefits for good work	1 2 3 4 5
- additional benefits at the workplace	1 2 3 4 5
- additional benefits because of working from home such as adjusting working hours	1 2 3 4 5

III. RELATIONS IN THE COMPANY

8. The statements below relate to relationship in the company. Assess the extent to which you agree with each statement. (Select the appropriate number.)

1 – I do not agree at all
2 – I do not agree
3 – I neither agree nor disagree
4 – I agree
5 – I totally agree

RELATIONS IN THE COMPANY	ASSESSMENT OF THE RATE OF RELATIONSHIPS
- employees understand each other well	1 2 3 4 5
- employees trust each other	1 2 3 4 5
-employees have better relationships as communication between us is more frequent due to the use of interactive tools	1 2 3 4 5
- employees have a good relationship with superiors	1 2 3 4 5
- employees have a respectful relationship with superiors	1 2 3 4 5
-we have better relationships with our superiors at work than at home, as communication between us is more frequent due to the use of interactive tools	1 2 3 4 5
- superiors follow our suggestions	1 2 3 4 5
- superiors are interested in our opinion	1 2 3 4 5
- I can participate in decision-making in the company even when I am work from home	1 2 3 4 5
- our superiors provide us with all the necessary information for our work from home	1 2 3 4 5
-When working from home, the manager not only sees another employee and an obligation with him in us, but also pays more attention to each individual due to the flexibility of the method of communication.	1 2 3 4 5

IV. PRODUCTIVITY

9. The statements below relate to productivity in company. Assess the extent to which you agree with each statement. (Select the appropriate number.)

1 – I do not agree at all
2 – I do not agree
3 – I neither agree nor disagree
4 – I agree
5 – I totally agree

PRODUCTIVITY IN COMPANY	ASSESSMENT OF THE LEVEL OF PRODUCTIVITY
- I think I am more productive in my workplace	1 2 3 4 5
-I think I am more productive at home	
- I feel like I'm doing more than I need to	1 2 3 4 5
- My productivity is higher if I am more motivated	1 2 3 4 5
- I am more motivated when I work from home	
- My productivity is higher if I am satisfied at work	1 2 3 4 5
- More praise would increase my interest in the job	1 2 3 4 5
- More financial rewards would increase my interest in work	1 2 3 4 5
- More additional benefits in the workplace would further increase my interest in work	1 2 3 4 5
- I find that working from home brings me more benefits	1 2 3 4 5
- I think that more adjusted working hours at working in home increase my productivity	1 2 3 4 5

DEMOGRAPHY

10. Gender: (Choose an answer.)

a) Male.
b) Female.

11. Age: (Select an age.)

a) From 21 to 30 years.
b) From 31 to 40 years.
c) From 41 to 50 l years.
d) 51 years and older.

12. Completed education: (Select the level of education.)

a) Elementary school.
b) High school.
c) Higher professional program.
d) Higher professional and university program.
e) Master of Science.
f) PhD.

13. How long have you been employed by the current company? (Choose an answer.)

a) Up to 12 months.
b) From 1 to 2 years.
c) From 3 to 5 years.
d) From 6 to 8 years.
e) 9 years or more.

14. What is the status of your job? (Choose an answer.)

a) Permanent employment.
b) Temporary employment.
c) Part-time work.
d) Work through an author´s contract.
e) Other: _____

Annex B: Focus Group and Interview Questions Phase

Formulated questions for Focus Groups
How important is the level of complexity of digital literacy when working telework in the IT sector?
Could productivity be higher when working telework simply because employees can set their own time and therefore actually spend less time on non-productivity?
Could working telework, due to its potential benefit of improving work-life balance, contribute to the new normal of doing and accepting telework for jobs in the IT sector?
Maybe the reduction of mobility also has certain disadvantages, since commuting can also have some intrinsic value?
How should an employer in the IT sector maintain greater productivity of employees when telework?
In the case of the IT sector, due to the very nature of the work, where employees with a certain level of personality prevail, could employees have less problems with a lack of team spirit?
What are the additional benefits that would make you prefer to continue doing your work in the office? Which features of working telework could be highlighted as demonstrable advantages for an employee in the IT sector?
How could employers in the IT sector, in the case of employees transitioning to full-time working telework, take care or be sure that the employees will cooperate enough, that they will be creative enough themselves, or that they will be able to do this work for a long time without negative consequences productivity implications?
How should employees in the IT sector motivate themselves when working telework? And how could the employer motivate them to increase productivity when working telework or to maintain it?
What are the most important telecommuting challenges that employees in the IT sector have to deal with?

Annex C: povzetek (Slovenian Summary)

V zadnjih nekaj letih je svet doživel izrazito digitalno preobrazbo na skoraj vseh področjih. Podjetja se tako danes vse bolj spopadajo z izzivi digitalne transformacije, še posebej od leta 2020, ko se je svet soočil s pandemijo COVID-19 (OECD 2021). Pandemija je povzročila potrebo po delu na daljavo, ki prej, v projektno usmerjenih podjetjih ni bilo tako zelo pogosto. Posledično so se pojavile tudi nove zahteve po motivaciji zaposlenih, pri čemer je bilo veliko pristopov prevzetih iz odprtokodnih tehnologij (Gerosa idr. 2021). Vendar pa je med upravljanjem in uporabo sodobnih informacijsko-komunikacijskih tehnologij pri delu na daljavo prišlo do razkoraka. Hitre spremembe in trendi dela na daljavo še niso v celoti usklajeni med tehnologijami IKT in upravljanjem. Novi izzivi in koristi zahtevajo preučitev, podobno kot pred pojavom COVID-19 (Shukla in Baypai 2012). Cilji raziskave torej sledijo novim potrebam in spremembam, ki so se zgodile v digitalni transformaciji zaradi vpliva COVID-19 (Project Management Institute in Project Business Foundation 2020).

Na podlagi tega lahko upravičeno trdimo, da so potrebni novi pristopi v vodenju projektov, ki se še posebej izpostavljajo po obdobju COVID-19, ko je trend dela od doma močno pospešen (Smith in Johnson 2023). Osredotočenost je usmerjena k učinkom in izboljšavam dodane vrednosti zaposlenih v malih in srednje velikih IT podjetjih (MSP, angl. SMITC) (Jones idr. 2022). Tovrstna podjetja so še posebej zanimiva zaradi razvoja in uporabe sodobnih orodij IKT, saj se zaradi standardizacije nove fleksibilnosti ta med COVID-19 povečala (Brown in Garcia 2021). V ta namen je bila izvedena poglobljena analiza trenutnega stanja tehnike, avtorjev in ugotovitev o ključnih motivacijskih dejavnikih za produktivnost v IT projektih (Choi idr. 2020). Za projektno usmerjena MSP IT podjetja so bile tako raziskovane številne prakse in motivacijski dejavniki pri delu na daljavo. Vključene pa so bile tudi nekatere prakse pri razvoju projektov IT v odprtokodnih skupnostih, kjer člani pri razvoju programske opreme pogosto delajo na daljavo (Gupta in Wang 2019).

Izvedena raziskava podrobno obravnava dejavnike motivacije in zadovoljstva (Pang in Lu 2018; Vlacseková in Mura 2017) v projektno usmerjenih MSP IT podjetjih, kar zagotavlja nov vpogled v nove pristope pri vodenju projektov preko dela na daljavo, ki so pospešeni med COVID-19. V zvezi s tem bi morali vodje projektov motivirati zaposlene, da se osredotočijo na uspešno izvedbo projektov, pri čemer si prizadevajo prepoznati vidike procesa, v katerih bodo zaposleni uživali, brez da bi bili preveč osredotočeni na finančni rezultat svojega dela (Novianty in Siti Noni 2018). Kako naj se to izvede pa pravzaprav še vedno ostaja odprto vprašanje. Vendar pa je primer mogoče videti v odprtokodni skupnosti, ki danes usmerja in vodi uspešen razvoj programske opreme (Napoleão idr. 2020). Zadovoljen zaposleni ne dela le za denar, ampak ima veliko višja pričakovanja od službe, vključno z dejavniki, kot so: domače okolje s prednostmi dela od doma, vključno z boljšim ravnotežjem med poklicnim in zasebnim življenjem; manj stresa; finančni prihranki; in okoljsko prilagodljivostjo. Mogoče pomanjkljivosti pri delu od doma lahko vključujejo zahtevo po protivirusni in internetni varnostni programski opremi na domačem računalniku ter uporabo varovanega omrežja (Davidescu idr. 2020).

Motivacijski dejavniki in strategije pri delu na daljavo so bili sicer predmet številnih nedavnih študij. Glavni premiki in spremembe so prikazani v analizi različnih vrst dela; skupina akademikov z MIT je poročala o rezultatih raziskave, ki kažejo, da polovica tistih, ki so bili pred pandemijo zaposleni v tradicionalni pisarni, zdaj dela na daljavo. To je vsekakor pomembna sprememba, saj raziskava ocenjuje, da je bilo v obdobju pred COVID-19 število zaposlenih od doma manjše kot 10 odstotkov (Sutherland idr. 2021, 5–7). Ti podatki pokažejo, da pandemija COVID-19 ne le hitro spreminja način dela ljudi, ampak tudi, da je premik v tehnologiji dela na daljavo prinesel nove možnosti in spremembo v načinu, kako ljudje gledajo na svoje delo. Posledično so se pojavile nove zahteve po motivaciji zaposlenih. Sektor IT je ponovno uporabil in prilagodil številne pristope iz odprtokodnih tehnologij (Gerosa idr. 2021, 3). Vendar to ni obdobje le začasnih sprememb. Gre bolj za nov nabor načel, ki se vzpostavljajo v digitalni transformaciji, ki jo spodbuja COVID-19 (ECLAC 2021, 7–8).

V okviru raziskovalnega dela smo temeljito raziskali ključna ozadja, ki so bistvena za razumevanje kompleksnih vprašanj v sodobnem delovnem okolju. Posebno pozornost smo namenili Herzbergovi teoriji dvofaktorske motivacije ter konceptu dela na daljavo, saj se zavedamo njune pomembnosti v današnjem poslovnem svetu. Raziskovalni pristop, ki se osredotoča na Herzbergovo teorijo motivacije v povezavi s projektnim managementom, je koristen za razumevanje, kako motivacija vpliva na zadovoljstvo in produktivnost zaposlenih v IT podjetjih, še posebej v MSP podjetjih. Herzbergova teorija, znana tudi kot dvofaktorska teorija, razlikuje med dejavniki zadovoljstva (motivacijskimi dejavniki) in dejavniki nezadovoljstva (higienskimi dejavniki). Hkrati pa se mora upoštevati higienske dejavnike, kot so delovno okolje, komunikacija in odnosi med člani ekipe, da se prepreči nezadovoljstvo in izguba produktivnosti (Raspor 2017, 21–22). Razumevanje, kaj motivira člane projektne ekipe in kaj jih ne zadovoljuje, lahko vodi k boljšemu upravljanju projektov, večji produktivnosti in boljšim končnim rezultatom. Povezava med Herzbergovo teorijo in projektnim managementom je torej v tem, da se lahko ti koncepti uspešno uporabijo za razumevanje motivacije in zadovoljstva zaposlenih pri delu, v našem primeru pri delu na daljavo.

V projektnem managementu je ključno razumeti, kako lahko motivacijski dejavniki, kot so dosežki, priznanja in odgovornost, vplivajo na uspešno izvajanje projektov. Z uporabo posameznih področji Herzbergove teorije smo v raziskavi proučevali kako lahko ti motivacijski dejavniki povečajo zadovoljstvo zaposlenih pri delu na daljavo. Prav tako smo analizirali higienske dejavnike, kot je delovno okolje, plačilo in odnosi s sodelavci in odražanje teh dejavniki pri zadovoljstvu oziroma nezadovoljstvu ter vpliv le-teh na produktivnost v primeru dela na daljavo. S tem raziskovalnim pristopom smo želeli pridobiti vpogled v to, kako Herzbergova teorija motivacije lahko prispeva k boljšemu razumevanju dejavnikov, ki vplivajo na uspeh projektov v IT podjetjih, še posebej v MSP podjetjih. Vzporedno s tem smo preučili tudi, kako se digitalna transformacija in spremembe v delovnih praksah, ki so se zgodile v času pandemije COVID-19, odražajo na motivaciji, zadovoljstvu in produktivnosti zaposlenih v IT podjetjih. Herzbergova teorija nam je v tem

primeru služila kot teoretični okvir za raziskovanje teh sprememb in razumevanje, kako jih upravljati v korist produktivnosti v IT projektih.

Koncept dela na daljavo postaja vedno bolj pomemben, še posebej z nenehnim napredkom sodobne tehnologije. Zaposleni imajo zdaj možnost opravljanja dela od doma, kar predstavlja premik od tradicionalnega pisarniškega okolja. Naša raziskava je osredotočena na razliko med delom na daljavo in tradicionalnim delom ter na raziskovanje, kako ta koncept vpliva na motivacijo in produktivnost zaposlenih. Poglobljena analiza teh dveh konceptov bo omogočila boljše razumevanje njunega medsebojnega vpliva in posledice za sodobne organizacije ter njihove zaposlene. Poleg tega smo se v naši raziskavi posebej osredotočili na analizo, kako se Herzbergova teorija motivacije odraža pri zaposlenih, ki delajo od doma. Ali so motivacijski dejavniki, kot sta priznanje in dosežki, enako pomembni v okolju dela od doma kot v tradicionalnem pisarniškem okolju? In kakšen je vpliv motivacije na produktivnost zaposlenih pri delu na daljavo? Naša raziskava pomembno prispeva k razumevanju povezave med motivacijo zaposlenih in delom na daljavo ter njenega vpliva na njihovo produktivnost in zadovoljstvo pri delu.

Namen doktorske disertacije je bil raziskati in identificirati dejavnike zadovoljstva in motivacije zaposlenih, ki neposredno vplivajo na produktivnost podjetja, v MSP IT projektno usmerjenih podjetjih, s poudarkom na digitalni transformaciji v času COVID-19. MSP IT podjetja so srce gospodarstva države, saj zaposlujejo večino delovno aktivnega prebivalstva v Sloveniji in ustvarijo več kot polovico prihodkov vseh podjetij. V Sloveniji predstavljajo kar 99,8 % vseh podjetij (GOV.SI 2022). Na ta podjetja smo se osredotočili predvsem zaradi primerjave z raziskovanimi podjetji, pa tudi zato, ker večina obstoječe literature projektno vodenje v teh podjetjih predstavlja kot kompleksno in preobsežno. Rezultati temeljijo na ključni ugotovitvi, da si večja podjetja lahko privoščijo profesionalno vodenje projektov, ki lahko prihranijo čas in denar ter posledično vplivajo na uspešnost posameznih delov podjetja (Meister 2006, 1). Verjamemo, da je to eden od razlogov, zakaj se je pomembno osredotočiti na raziskovanje metod in procesov, ki bodo podjetjem olajšali delo v MSP podjetjih.

Oblikovani sta bili dve hipotezi raziskave, in sicer:

Hipoteza 1: *Z delom od doma bodo višje ravni motivacijskih dejavnikov iz Herzbergove dvofaktorske motivacijske teorije povečale produktivnost zaposlenih*.

Hipoteza 2: *Pozitivno razmerje med Herzbergovimi motivacijskimi dejavniki in produktivnostjo bo močnejše, če bodo vzpostavljeni učinkoviti kontrolni mehanizmi pri delu od doma*.

Za raziskavo je bilo oblikovano glavno raziskovalno vprašanje, ki se navezuje na teorijo dvofaktorske motivacije: »*Kako na Herzbergovo dvofaktorsko motivacijsko teorijo vpliva delo od doma ob podpori fleksibilnega vodenja in IKT tehnologije?*«

Da bi odgovorili na to vprašanje, so bila oblikovana pod raziskovalna vprašanja, povezana z motivacijskimi dejavniki, in sicer:

1. Ali nekateri motivacijski dejavniki Herzbergove dvofaktorske teorije vplivajo na produktivnost pri delu od doma?

2. Ali nadzorni mehanizmi pri rednem delu vplivajo na produktivnost pri delu od doma?

Ta raziskovalna vprašanja v literaturi še niso bila obravnavana na takšen specifičen način, čeprav so bili nekateri vidiki v določenih raziskavah že obravnavani. V doktorski disertaciji preučujemo vplive trenutne situacije na preučevanih primerih in obravnavamo specifična vprašanja, kot so prepoznavanje ključnih motivacijskih in demotivacijskih dejavnikov v projektno usmerjenih malih in srednjih IT podjetjih, značilnosti dela na daljavo v projektno usmerjenem MSP IT podjetju in učinke motivacijskih dejavnikov na produktivnost v takem podjetju.

V empiričnem delu je bil uporabljen kvantitativni in kvalitativni pristop. V kvantitativnem raziskovanju uporabljamo metodo anketiranja, v kvalitativnem pa metodo odločitvenega drevesa in metodo fokusnih skupin. Obe uporabljeni metodi oziroma njuna vprašanja smo sestavili s pomočjo teoretičnih izhodišč (Lobe 2006, 55–57) in na podlagi delovnih praks, ki se izvajajo v izbranem projektno usmerjenem podjetju. Filozofija naše raziskave temelji na interdisciplinarnem pristopu, ki združuje kvantitativne in kvalitativne metode za celovito razumevanje zadovoljstva in produktivnosti pri delu od doma. Naš cilj je raziskati, kako ključne teorije in motivacijske strategije pri upravljanju človeških virov vplivajo na uspešnost zaposlenih, pri čemer se osredotočamo na nedenarne nagrade kot pomembno komponento organizacijskega uspeha.

Naša raziskava se je osredotočila na analizo zadovoljstva, motivacije in produktivnosti zaposlenih, ki delajo od doma v IT podjetjih, predvsem tistih, ki so projektno usmerjena. Cilj je bil razumeti, kako različni dejavniki, vključno z nedenarnimi nagradami, vplivajo na uspešnost zaposlenih, ko delajo na daljavo. Raziskava je zajela zaposlene, ki so predstavljali tipične delavce v IT podjetjih, ki so v obdobju Covid-19 več mesecev delali na daljavo. Ker je raziskava potekala v kontekstu pandemije COVID-19, smo se osredotočili tudi na vpliv te situacije pri delo na daljavo in na pomen različnih dejavnikov, s katerimi so se zaposleni srečali v tej novi situaciji.

Empirični del – kvantitativna in kvalitativna raziskava

V primeru kvantitativne raziskave anketnega vprašalnika, ki je podrobno predstavljena v poglavju 4.2 smo se v prvem delu osredotočili na analizo demografskih podatkov ter na razumevanje medosebnih odnosov med pridobljenimi demografskimi podatki. V nadaljevanju smo analizirali vsako posamezno skupino vprašanj anketnega vprašalnika pri čemer smo uporabili različne deskriptivne statistične metode za opisovanje in povzemanje. Analiza je omogočila vpogled v osnovne lastnosti podatkov in razumevanje razporeditve ter centralnih nagnjenosti raziskanih spremenljivk.

Analiza demografskih podatkov je tako npr. razkrila ključne značilnosti anketirancev, ki so vključeni v naš vzorec. Glede na spol anketirancev je opaziti prevlado moških, ki predstavljajo 92% celotnega vzorca. Največji delež anketirancev, 76%, spada v starostno skupino od 31 do 40 let. Večina anketirancev, 86%, ima zaključeno višješolsko izobrazbo na strokovnem ali univerzitetnem nivoju. Kar 79% anketirancev je zaposlenih za nedoločen čas v organizaciji, v kateri delajo. Največji delež anketirancev, 56%, je v trenutni organizaciji zaposlen že od 3 do 5 let. Večina anketirancev, kar 69%, se je opredelila kot introvertirani osebnostni tip. Navedeni podatki so predstavljeni v preglednici 1 (na enak način so v disertaciji predstavljeni tudi ostali podatki).

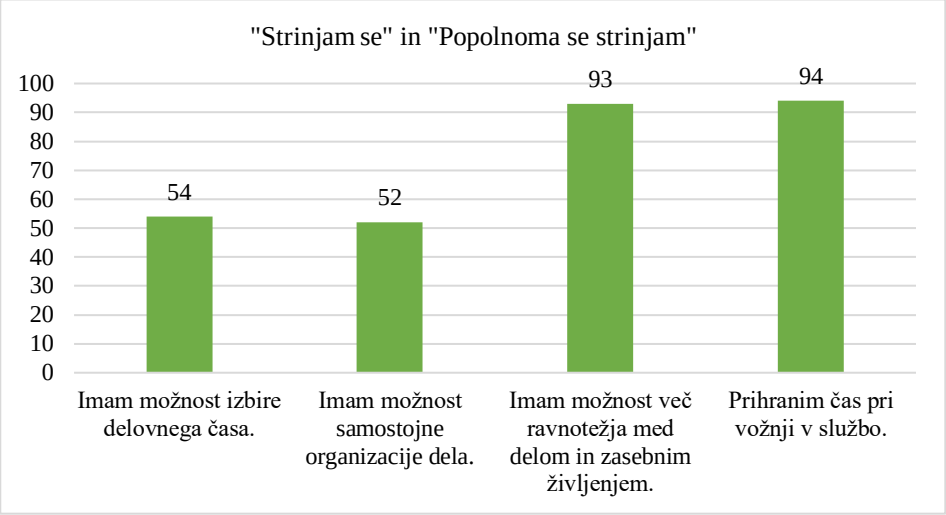
Preglednica 1: Demografski podatki rezultati anketnega vprašalnika

Kategorija	Podkategorija	Frekvenca	Odstotek (%)
Spol	Moški	92	92
	Ženski	8	8
Starost	Od 21 do 30let	14	14
	Od 31 do 40 let	76	76
	Od 41 do 50 let	10	10
Dosežena izobrazba	Višja izobrazba	13	13
	Visoka ali univerzitetna izobrazba	86	86
	Magisterij	1	1
Status zaposlitve	Nedoločen čas	79	79
	Za določen čas	6	6
	Honorarno delo	2	2
	Avtorska pogodba	13	13
Zaposlitev v podjetju (po letih)	Do 12 mesecev	5	5
	Od 1 do 2 leti	19	19
	Od 3 do 5 let	56	56
	Od 6 do 8 let	18	18
	9 let ali več	2	2
Tip osebnosti	Ekstravet	31	31
	Introvert	69	69

Vir: Lasten vir 2023.

Z kvantitativno analizo anketnega vprašalnika smo pridobili razumevanje bistvenih vidikov pri delu od doma, kot so vzorci, trendi in ključne lastnosti, kar nam je služilo kot osnova za nadaljnje korake. Rezultate smo predstavili glede na temo: zadovoljstvo zaposlenih in medosebni odnosi pri delu od doma; negativni in pozitivni motivacijski dejavniki pri delu od doma ter produktivnost pri delu od doma. S sliko 1 je predstavljen primer predstavitve enega izmed vzorcev analiziranih podatkov. Slika prikazuje rezultate izjav, povezanih z organizacijo dela na domu v povezavi s zadovoljstvom pri delu na domu. Ugotovljeno je bilo, da se več kot polovica respondentov strinja s trditvama o možnosti izbire delovnega časa in samostojne organizacije dela. Velika večina respondentov pa se strinja glede možnosti boljšega ravnovesja med delovnim in osebnim življenjem ter prihrankom časa pri potovanju v službo.

Slika 1: Strinjanje s trditvami v zvezi z organizacijo dela na daljavo (% anketirancev z odgovorom se strinjam + % z odgovorom se popolnoma strinjam)



Vir: Lasten vir 2023.

V kvantitativni raziskavi smo uporabili tudi metodo odločitvenih dreves, ki je predstavljena v poglavju 4.3. Odločitvena drevesa so hierarhični modeli, ki gradijo odločitvene veje glede na vrednosti vhodnih spremenljivk. S pomočjo tega pristopa smo uspeli razdeliti podatke v podskupine glede na različne pogoje in kriterije ter napovedati odzivno spremenljivko na podlagi kombinacije vrednosti napovedanih spremenljivk. Ta metoda nam je omogočila vizualno razumevanje procesa odločanja, kar je bilo ključno pri interpretaciji rezultatov. Pri raziskavi smo uporabili pristop klasifikacije ocen produktivnosti zaposlenih glede na druge vplivne značilnosti ter vizualizacijo podskupin glede na produktivnost preko vej diagrama drevesa.

Podatkovni set temelji na podatkih anketnega vprašalnika, izvedenega med 100 zaposlenimi v IT sektorju. Rezultat uporabljene metode je deset najpomembnejših ugotovitev, ki izpostavljajo bistvene ugotovitve raziskave in njihovo povezavo s pozitivnimi ali negativnimi vidiki dela od doma. S pomočjo algoritma odločitvenega drevesa smo določili pomembnost in vpliv posameznih faktorjev na odvisno spremenljivko. Algoritem je bil prilagojen specifičnim značilnostim naših podatkov. Proces pridobivanja najpomembnejših

ugotovitev je bil iterativen, upoštevali smo kriterije razvejanja in izbrali ključno spremenljivko (produktivnost pri delu na daljavo), da smo ločili različne skupine izjav. Sestavili smo hierarhično strukturo, ki jasno prikazuje povezave in pomembnost posameznih izjav ter končni rezultat, najpomembnejšo izjavo, ki smo jo nadalje analizirali. Uporaba metode odločitvenih dreves nam je tako omogočila identifikacijo ključnih dejavnikov in razumevanje povezav med različnimi spremenljivkami ter jasno interpretacijo pridobljenih rezultatov. Na podlagi vsake pridobljene ugotovitve smo oblikovali vprašanje, ki smo ga uporabili za metodo fokusnih skupin.

S sliko 2 je predstavljen primer predstavitve podatkov odločitvenega drevesa. Gre za ugotovitev s pomočjo odločitvenega drevesa, ki poudarja izrazito potrebo po visoki ravni digitalne pismenosti med zaposlenimi v sektorju IT pri delu od doma. Ključna ugotovitev je tako temeljila na dejstvu, da je visoka stopnja digitalne pismenosti ključna za uspešno delo od doma v sektorju IT. Za fokusno skupino je bilo pripravljeno naslednje formulirano vprašanje: Kako pomembna je stopnja kompleksnosti digitalne pismenosti pri delu na daljavo v IT sektorju?

Slika 2: Potreba po visoki ravni digitalne pismenosti

Vir: Lasten vir 2023.

Za pridobitev podrobnejšega vpogleda v izzive, koristi in prednosti dela na daljavo je bila izvedena še kvalitativna raziskava z uporabo metode fokusne skupine, ki je predstavljena v poglavju 4.3.2. Fokusna skupina, ki je bila izvedena s sedmimi zaposlenimi v IT podjetjih je potekala preko aplikacije MS Teams in je trajala 1 uro in 10 minut. Vprašanja so bila oblikovana na podlagi analize rezultatov odločitvenega drevesa, kar nam je omogočilo sistematičen pristop k pridobivanju podatkov, saj smo postavili specifična vprašanja na podlagi analize različnih možnosti in njihovih izidov. Na ta način smo pridobili dragocene ugotovitve, ki so nam pomagale identificirati ključne vidike, ki vplivajo na uspeh in sprejetje dela na daljavo. Sodelujoči so bili spodbujeni, da izrazijo svoja mnenja, kar je omogočilo enakovredno zastopanost vseh stališč v fokusni skupini. Podatki so bili pridobljeni ob

upoštevanju osnovnih etičnih načel kvalitativne raziskave. S preglednico 2 je predstavljen primer pridobljenih podatkov in analize le-teh na prvo vprašanje, ki je bilo zastavljeno fokusni skupini in se je nanašalo na pomembnost kompleksnosti digitalne pismenosti pri delu na daljavo v IT sektorju

Preglednica 2: Debata fokusne skupine v primeru digitalne pismenosti

Vprašanje	**Pomen kompleksnosti digitalne pismenosti/št. udeležencev s tem odgovorom**	**Najpomembnejši dejavniki digitalne pismenosti**
Stopnja kompleksnosti digitalne pismenosti	Izredno pomembna (5)	− Kompleksna uporaba digitalnega orodja in aplikacij; − ovrednotenje informacij in posredovanje informacij; − visoka oziroma dovolj visoka stopnja razumevanja in uporabe informacij; − visoka stopnja varne uporabe digitalne tehnologije.
	Je kar precej pomembna (2)	

Vir: Lasten vir 2023

V razpravi o pomembnosti kompleksnosti digitalne pismenosti v IT sektorju pri delu na daljavo so udeleženci izpostavili različne vidike. Večina se strinja, da je visok nivo kompleksnosti digitalne pismenosti ključen, saj omogoča učinkovito uporabo digitalnih tehnologij v delovnem okolju. Kot ključne vidike digitalne pismenosti so izpostavili kompleksno uporabo digitalnih orodij, varnost digitalne tehnologije ter znanje upravljanja z informacijami. Ugotovitve tako kažejo, da so udeleženci opredelili kompleksno uporabo digitalnih orodij in aplikacij kot nujno za obvladovanje programiranja in razvoja aplikacij. Izpostavljeno je bilo tudi zavedanje, da je digitalna pismenost programerja sestavljena iz več manjših dejavnikov obvladovanja te veščine. Analiza je pokazala, da večina udeležencev meni, da je kompleksnost digitalne pismenosti izjemno pomembna pri delu na daljavo v IT sektorju. Posebej pomembno pa se jim zdi tudi obvladovanje informacij in njihovo razumevanje ter uporaba varnostnih vidikov digitalne tehnologije.

Med analizo vseh podatkov pridobljenih na podlagi fokusne skupine smo identificirali več ključnih tem, ki izhajajo iz pogovorov udeležencev. Ena izmed ključnih tem je tako bila povezana s pomenom digitalne pismenosti pri delu na daljavo v IT sektorju, kar se je izkazalo kot pomemben dejavnik pri produktivnosti in zadovoljstvu zaposlenih. Poleg tega smo ugotovili večji poudarek na fleksibilnosti delovnih ur, izboljšanju ravnotežja med poklicnim in zasebnim življenjem ter večji samostojnosti pri izvajanju dela kot pomembne dejavnike zadovoljstva pri delu na daljavo. Naša analiza je tudi razkrila vzajemne povezave med zadovoljstvom zaposlenih in njihovo motivacijo, kar kaže na pozitivno razmerje med večjo zadovoljstvom in višjo motivacijo za izvajanje delovnih nalog.

TESTIRANJE HIPOTEZ

Iz ugotovitev kvantitativne analize lahko izpeljemo več zaključkov, ki podpirajo hipotezo 1, ki govori o tem, da višje ravni motivacijskih dejavnikov po Herzbergovi teoriji povečajo produktivnost zaposlenih pri delu od doma in sicer:

- visoka stopnja zadovoljstva z delom od doma: večina respondentov je izrazila visoko zadovoljstvo z delom na daljavo. Med ključnimi dejavniki zadovoljstva so fleksibilnost delovnih ur, boljše ravnotežje med poklicnim in zasebnim življenjem ter večja neodvisnost pri opravljanju dela.
- Povezava med motivacijo in produktivnostjo: respondenti so izkazali prepričanje, da večja neodvisnost pri delu in delo v prijetnem okolju pozitivno vplivata na njihovo motivacijo. Prav tako so močno soglašali, da večja ravnotežje med delom in zasebnim življenjem ter prihranki časa pozitivno vplivajo na motivacijo.
- Odnos med zadovoljstvom in motivacijo: ugotovili smo, da obstaja pozitiven odnos med zadovoljstvom zaposlenih in njihovo motivacijo pri delu od doma. Višja raven zadovoljstva je povezana z večjo motivacijo za opravljanje nalog. Prav tako smo opazili, da lahko višja motivacija privede do povečanja zadovoljstva zaposlenih.
- Vpliv motivacijskih dejavnikov na produktivnost: ugotovili smo, da se motivacijski dejavniki, kot je večja fleksibilnost delovnih ur, povezujejo z večjo produktivnostjo. Višja motivacija pri delu od doma je povezana z višjo produktivnostjo.

Na podlagi pridobljenih podatkov zaključimo, da obstaja podpora za hipotezo 1: *Z delom od doma bodo višje ravni motivacijskih dejavnikov iz Herzbergove dvofaktorske motivacijske teorije povečale produktivnost zaposlenih*. Respondenti so izrazili visoko stopnjo zadovoljstva pri delu od doma in hkrati izpostavili več motivacijskih dejavnikov, kot so neodvisnost pri delu, boljše ravnovesje med poklicnim in zasebnim življenjem ter večja samostojnost pri opravljanju dela. Ti dejavniki so pozitivno povezani z višjo produktivnostjo, kar podpira hipotezo, da višji nivoji motivacijskih dejavnikov prispevajo k povečanju produktivnosti zaposlenih pri delu od doma.

Iz ugotovitev kvantitativne analize lahko izpeljemo več zaključkov, ki bi lahko hkrati podprli in ovrgli hipotezo 2, ki predpostavlja, da obstaja pozitivna povezava med Herzbergovimi motivacijskimi dejavniki in produktivnostjo, ki je močnejša, ko so učinkoviti kontrolni mehanizmi vzpostavljeni pri delu od doma. To pomeni, da boljše upravljanje in nadzor pri delu na daljavo okrepijo pozitivno povezavo med motivacijskimi dejavniki, ki jih opredeljuje Herzberg, ter produktivnostjo zaposlenih in sicer:

- Vpliv nadzornih mehanizmov na motivacijske dejavnike in produktivnost: iz analize rezultatov ne gre jasno razbrati, ali so obstoječi nadzorni mehanizmi povezani s kretnjo motivacijskih dejavnikov in produktivnosti. Vendar pa se izkaže, da visoka raven neodvisnosti in fleksibilnosti pri delu vpliva na motivacijo, kar povečuje produktivnost.
- Relevantnost nadzornih mehanizmov: rezultati ankete ne razkrivajo podrobnosti o obstoječih nadzornih mehanizmih, ki bi lahko vplivali na produktivnost ali

motivacijo. Ugotovili pa smo, da so se respondenti bolj osredotočili na lastne izzive, ki jih prinaša delo od doma, kot na učinke obstoječih nadzornih mehanizmov.

- Vpliv različnih delovnih okolij: čeprav nismo uporabili oziroma preverjali neposrednih podatkov o nadzornih mehanizmih, se zdi, da so pozitivni učinki motivacijskih dejavnikov (npr. neodvisnost, fleksibilnost) na produktivnost bolj izraziti v delovnih okoljih, ki spodbujajo večjo svobodo in samostojnost, torej v našem primeru pri delu od doma.
- Potreba po nadaljnjih raziskavah: rezultati nam ne omogočajo natančnega zaključka o tem, ali so nadzorni mehanizmi pomembni za povezavo med motivacijskimi dejavniki in produktivnostjo pri delu od doma. Za potrditev te hipoteze bi potrebovali podrobnejše podatke o obstoječih nadzornih praksah v IT podjetjih ter njihovem vplivu na motivacijo in produktivnost.

Ugotovili smo, da iz pridobljenih podatkov ni mogoče nedvoumno potrditi ali ovreči hipoteze 2, ki pravi: *Pozitivno razmerje med Herzbergovimi motivacijskimi dejavniki in produktivnostjo bo močnejše, če bodo vzpostavljeni učinkoviti kontrolni mehanizmi pri delu od doma*. S pridobljenimi rezultati torej ne moremo potrditi, da so v našem raziskovanem primeru nadzorni mehanizmi ključni za povezavo med motivacijskimi dejavniki po Herzbergovi teoriji in produktivnostjo pri delu od doma. Za boljšo razlago tega vidika bi morali analizirati natančnejše podatke o obstoječih praksah nadzora v posameznem IT podjetju ter njihovem vplivu na motivacijo in produktivnost zaposlenih pri delu od doma.

UGOTOVITVE

Integracija kvantitativnih in kvalitativnih metod v raziskavi predstavlja ključni mejnik pri razumevanju kompleksnosti predstavljene študije. Kombinacija teh dveh pristopov omogoča pridobitev širše slike, ki presega zgolj površinsko razumevanje številk in opisov. Ta združitev prinaša edinstveno vrednost, saj kvantitativni podatki postanejo bolj poglobljeni in bolj razumljivi, ko jih dopolnjujejo kvalitativne ugotovitve. Raziskovanje v katerem smo združili obe metodi, nam je omogočilo boljšo interpretacijo rezultatov ter boljšo razlago kompleksnih odnosov in vzorcev, ki jih sami kvantitativni podatki sicer ne morejo povsem osvetliti. Prav tako smo s pomočjo integracije kvantitativnih in kvalitativnih metod razkrili subtilne podatkovne vzorce, ki bi jih lahko spregledali, če bi obravnavali le en vidik podatkov. Raziskali smo prednosti in ključne vidike, ki jih prinaša povezovanje teh dveh raziskovalnih pristopov s čimer predstavljamo širši in bolj celovit vpogled ter možnost za prihodnje raziskave in prakse na tem področju.

Ugotovljeno je, da respondenti kažejo visoko stopnjo zadovoljstva pri delu na daljavo. Ključni dejavniki, ki so izpostavljeni kot pomembni za zadovoljstvo, vključujejo prilagodljivost delovnih ur, boljše ravnotežje med poklicnim in zasebnim življenjem ter možnost neodvisnosti pri izvajanju dela. Študija je prav tako pokazala, da večja neodvisnost pri delu spodbuja večjo motivacijo. Dodatno so respondenti poudarili, da delo v prijetnem domačem okolju prispeva k višji ravni motivacije. Pri preučevanju negativnih motivacijskih dejavnikov pri delu na daljavo se respondenti v večji meri niso strinjali z specifičnimi vidiki, ki bi imeli negativen vpliv pri delu na daljavo. Določeni respondenti pa so se kljub temu

strinjali s splošnimi izzivi, kot so pomanjkanje osebnega stika, občutek nenehnega dela ter preobremenjenost z informacijami. V primeru pozitivnih motivacijskih dejavnikov so respondenti izpostavili neodvisnost pri delu, delo v prijetnem okolju ter boljše ravnotežje med delom in zasebnim življenjem kot dejavnike, ki spodbujajo motivacijo. Respondenti menijo, da so pri delu na daljavo bolj produktivni in bolj motivirani, višjo produktivnost pa so povezali z večjim zadovoljstvom pri delu. Prilagajanje delovnih ur pa se je izkazalo kot eden izmed pomembnejših dejavnikov, ki je tesno povezan z večjo produktivnostjo.

Prav tako je bilo ugotovljeno, da je visoka stopnja digitalne pismenosti ključna pri delu na daljavo v IT sektorju, ko tudi izbira časa izvajanja nalog za usklajevanje med poklicnim in zasebnim življenjem. Večina udeležencev ne pogreša vožnje na delo, izpostavljajo pa, da s tem prihranijo pri času in zmanjšajo stres zaradi vožnje na delo. Kot smo že izpostavili so prilagodljivost, večje ravnovesje med delom in zasebnim življenjem in prihranek časa ključni dejavniki za motivacijo, produktivnost, vendar so respondenti ob tem izpostavili tudi izzive, ki jih prinaša delo na daljavo (potreba po kreativnosti, samomotivacija, dobra organiziranost). Kljub temu pa respondenti niso prepričani, da bi jih dodatne koristi v primeru tradicionalnega dela prepričale, da bi se vrnili izključno k tej obliki dela.

Čeprav respondenti niso izpostavili konkretne negativne dejavnike, bi se lahko nadaljnje raziskave osredotočile na potencialne težave, ki jih prinaša delo na daljavo, kot so pomanjkanje osebnega stika, težave s samomotivacijo, preobremenjenost z informacijami in druge morebitne izzive, sploh v primeru daljšega obdobja oziroma pri delu na daljavo, ki pravzaprav ni nujno potrebno (kot je bilo v raziskovanem primeru, ko je delo na daljavo potekalo predvsem zaradi epidemije COVID-19). Enako velja za motivacijske dejavnike, kjer bi se lahko nove raziskave osredotočile izključno na spodbujajoče dejavnike pri delu na daljavo.

OMEJITVE RAZISKAVE

Ključno je vedeti, da je bila naša raziskava izvedena v izjemnih okoliščinah pandemije COVID-19, ki je bistveno spremenila delovne pogoje in prakso dela na daljavo. Ta edinstven kontekst je morda vplival na zaznavanje udeležencev in posledično na razlago naših ugotovitev. Čeprav naše raziskave ponujajo dragocene vpoglede, so za izboljšanje našega razumevanja upravičene nadaljnje celovite študije. V prihodnje bi morale prihodnje raziskave raziskati dinamiko dela na daljavo po kriznih obdobjih in upoštevati dodatne dejavnike vpliva. Izvajanje podobnih študij v času brez epidemije bi lahko zagotovilo natančnejši vpogled v vpliv dela na daljavo na organizacijsko kulturo, pri čemer bi poleg tega lahko globlje analize raziskale učinke različnih komunikacijskih načinov na produktivnost in tako preučile razlike v timski dinamiki med sektorji.

Prav tako je naša empirična študija usmerjena na področje malih in srednjih IT podjetji v Sloveniji. Naše ugotovitve so tako lahko temelj za prihodnje raziskave usmerijo, ki bi se lahko usmerili v druge regije in panoge.

Če povzamemo, naša raziskava ponuja vpogled v organizacijsko kulturo dela na daljavo med pandemijo COVID-19. Medtem ko je naša študija uporabila reprezentativen vzorec petih podjetij in sto anketirancev je pomembno opozoriti na omejen, a veljaven obseg udeležencev. Kljub temu bi lahko tukaj predstavljeno metodologijo uporabili za večje vzorce za nadaljnjo validacijo. Poleg tega je bila naša študija specifična za določen sektor in čeprav so nekateri rezultati lahko prenosljivi, lahko razlike med sektorji vodijo do različnih rezultatov.

PRISPEVEK K ZNANOSTI

Naša raziskava predstavlja inovativen prispevek pri uporabi Herzbergove teorije motivacije z vidika vključevanja sodobnega konteksta dela od doma. Herzbergova teorija, ki je že dolgo klasični okvir za razumevanje dejavnikov motivacije in zadovoljstva pri delu, je bila doslej pretežno uporabljena v tradicionalnih delovnih okoljih. Naša raziskava pa presega ta okvir in raziskuje, kako se motivacijski in higienski dejavniki Herzbergove teorije odražajo v sodobnem času na primeru izkušenj posameznikov z delom od doma.

Sodobno delovno okolje je doživelo pomembne spremembe v primerjavi s časom, ko je bila prvič predstavljena Herzbergova teorija. Širitev možnosti dela od doma je še posebej izrazito vplivala na to dinamiko. Naša raziskava je usmerjena v razumevanje specifičnih izzivov in pozitivnih vidikov dela od doma ter kako te spremembe vplivajo na klasično teorijo motivacije. Z analizo dejavnikov, kot so neodvisnost in prilagodljivost delovnega časa, ne le nadgrajujemo Herzbergovo teorijo, temveč tudi razširjamo njen koncept v sodobna delovna okolja. To prispeva k boljšemu razumevanju ter oblikovanju praks v hitro spreminjajočem se delovnem okolju, še posebej glede na higiensko dimenzijo, kjer je vloga dela od doma, še posebej v IKT MSP podjetjih, postala ključna.

Motivacijski dejavniki so bili posodobljeni z uvedbo ravnotežja med delom in zasebnim življenjem kot ključnim elementom motivacije pri delu od doma. Novi motivacijski faktor (glej preglednico 3), imenovan »ravnovesje med delom in zasebnim življenjem«, širi naše razumevanje motivacije in zadovoljstva pri delu na daljavo na podlagi Herzbergove teorije. S tem se ne le nadgrajuje Herzbergova teorija, temveč se širi tudi njena uporabnost v sodobnih delovnih okoljih. Raziskave v disertaciji tako prispevajo k boljšemu razumevanju in oblikovanju delovnih praks v današnjem hitro spreminjajočem se delovnem okolju.

Preglednica 3: Posodobljeni Herzbergovi motivacijski dejavniki, ki vključujejo izsledke raziskav in fenomen dela od doma

Higieniki	Motivatorji
Politike podjetja in upravne politike	Delo (samo po sebi)
Nadzor	Dosežki
Plača	Priznanje
Medsebojni odnosi	Odgovornost
Delovni pogoji	Napredovanje
Delo od doma	**Ravnovesje med delom in zasebnim življenjem**

Vir: Lasten vir 2023.

Primarni znanstveni prispevek te disertacije je nadgradnja Herzbergove dvofaktorske teorije v kontekstu projektnega vodenja v MSP in IT podjetjih. Novi higienski dejavniki, kot je delo od doma, in motivatorji, kot je ravnovesje med poklicnim in zasebnim življenjem, so predstavljeni skozi empirično raziskavo, ki je razširila uporabo Herzbergove teorije v sodobnih delovnih okoljih ter prispevala k bogatejšemu razumevanju dinamike delovnih mest.

Ključne ugotovitve te raziskave vključujejo:

- Pomembnost visoke ravni digitalne pismenosti.
- Povečanje produktivnosti z možnostjo izbire delovnega časa med zaposlenimi.
- Izboljšanje ravnotežja med poklicnim in zasebnim življenjem.
- Prihranek časa zaradi manjše potrebe po vožnji na delo.
- Povečana učinkovitost pri delu od doma.
- Ohranjanje ekipnega duha tudi pri delu na daljavo.
- Odsotnost potrebe po dodatnih ugodnostih ali delovnih mestih v pisarni za ohranjanje zanimanja za delo.
- Neprekinjeno zagotavljanje povratnih informacij in osebnega stika s sodelavci pri delu od doma.
- Večja motivacija, avtonomija in svoboda pri delu od doma.
- Odsotnost izkušenj s pomanjkanjem negotovosti ali osebne interakcije z nadrejenimi pri delu od doma.

Te ugotovitve so razjasnile ključne povezave med organizacijsko kulturo in učinkovitostjo dela na daljavo v IT sektorju. Cilj raziskave je bil preučiti Herzbergovo motivacijsko teorijo v običajnih delovnih okoljih v povezavi z napredkom dela od doma. Raziskava ne le, da je raziskala dinamiko v projektno usmerjenih MSP v IT okolju, ob upoštevanju dela na daljavo, temveč tudi širi razumevanje Herzbergove motivacijske teorije s poudarkom na novih vidikih sodobnih delovnih praks, kar prinaša pomembne prispevke na tem področju. Z

analizo zaupanja, nadzora ter razlik med predvideno in uresničeno organizacijsko kulturo, skupaj z razmislekom o vplivu dela na daljavo na projektno organizacijsko kulturo in konceptualni motivacijski model, smo razkrili ključno povezavo med organizacijsko kulturo ter uspešnostjo in dojemanjem dela na daljavo.

Ugotovitve poudarjajo pomen specifičnih vidikov organizacijske kulture, kot so zaupanje v zaposlene, njihova delovna uspešnost ter prilagojen nadzor, pri spodbujanju visoke ravni zadovoljstva, motivacije in produktivnosti pri delu na daljavo. Ti vpogledi pa postavljajo temelje za nadaljnje raziskave in predlagajo načine za izboljšanje dela na daljavo ter podporo zaposlenim pri doseganju večje učinkovitosti v prihodnosti.

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07

IZJAVA O AVTORSKEM DELU IN ISTOVETNOSTI TISKANE IN ELEKTRONSKE VERZIJE ZAKLJUČNEGA DELA

Priimek in ime študenta	Kokot Tomaž
Vpisna številka	31183020
Študijski program	Projektni management
Naslov zaključnega dela:	Povezava med zadovoljstvom z delom in motivacijskimi dejavniki za povečanje produktivnosti v projektno organiziranem IT podjetju
Naslov v angleščini:	The link between job satisfaction and motivational factors with increasing productivity in project organized IT company
Mentor:	Prof. Dr. Matej Mertik
Somentor:	Prof. Dr. Mladen Radujković
Mentor iz podjetja:	/

S podpisom izjavljam da:
- Je predloženo zaključno delo z naslovom: Povezava med zadovoljstvom z delom in motivacijskimi dejavniki za povečanje produktivnosti v projektno organiziranem IT podjetju.
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O6

POTRDILO O LEKTORIRANJU

Podpisana

Valentina Žitek,

po izobrazbi (strokovni oz. znanstveni naslov)

magistrica tolmačenja,

potrjujem, da sem lektorirala zaključno delo študenta

Tomaž Kokot

z naslovom:
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Kraj: Maribor

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