



Sofia University „Saint Kliment Ohridski“  
Faculty of Economics and Business Administration

## ABSTRACT

of dissertation work

# **FACTORS THAT INFLUENCE JOB SATISFACTION OF EMPLOYEES IN THE ICT SECTOR**

For obtaining a scientific-educational degree "Doctor" in professional field  
3.7. Administration and Management



PhD Candidate:  
Irina Yanchovska

Supervisor:  
Prof. Zhelyu Vladimirov, Dr.

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# 1. General Characteristics of the Dissertation Work

The dissertation work consists of 192 pages, out of which 163 pages main text, which includes Introduction, Chapter 1, Chapter 2, Discussion and Conclusion, 18 pages Appendices and 11 pages References. In addition, the dissertation contains 27 tables and six figures. 198 sources were used during the dissertation development, 11 of which in Bulgarian.

On the topic of the dissertation, the author, a full-time doctoral student at the Faculty of Economics and Business Administration at Sofia University "St. Kliment Ohridski", has done four quantitative research studies, which served to compile a number of scientific publications and presentations in front of six scientific forums – three Bulgarian and three international. Two of the author's research studies are described in detail in Chapter 2 of this dissertation.

## 1.1. Relevance of the Study

Employee job satisfaction is a phenomenon that directly affects the health and effectiveness of all business organizations and due to its importance it is subject of numerous studies during the years. The “job satisfaction” concept has been established in literature as a multifaceted construct that encompasses the way employees perceive various aspects of their work in different ways and with different feelings (Locke, 1976; Smith et al., 1969; Spector, 1997).

Job satisfaction is directly related to employees’ happiness and welfare and therefore it plays a key role in their long-term retention and increasing their productivity, commitment and loyalty to the organization. Higher job satisfaction enables the creation of a motivating work environment that enhances employee mental and physical health and is a major competitive advantage. Higher job satisfaction is directly related to lower turnover levels (Bakkal et al., 2019) and affects positively the intent of employees to stay in the organization (Mardanov, 2020). Additionally, higher job satisfaction is associated with lower absenteeism and higher employee engagement (Harter et al., 2002; Sinval & Marôco, 2020; Yalabik et al., 2017), higher motivation (Ismail & Razak, 2016) and improved job performance (Judge et al., 2001; Yanchovska, 2021). Many authors have witnessed a negative relationship between job satisfaction and high levels of stress in the organization (George & Zakkariya, 2015), unbalanced workload, exhaustion and work pressure (Huang & Wang, 2019). Considering these dependencies, in-depth research and understanding of the factors that have a direct impact on employee job satisfaction, especially in the context of the ICT industry, becomes essential

not only from an academic, but also from a practical point of view, since employee satisfaction can substantially influence the effective achievement of organizational strategic goals.

Some authors measure job satisfaction as an overall value, others consider it as a combination of factors that are classified in many different ways – internal and external, motivational and hygienic, individual characteristics, work and organizational characteristics, elements of the work environment, macroeconomic factors and others. Regardless of the approach, none of the established scales for measuring job satisfaction is specifically designed to measure satisfaction of employee in the ICT sector. This sector is currently facing rising turnover rates and has to deal with the increasingly difficult retention of highly qualified personnel (Korsakienė et al., 2015) and is characterized by intense intellectual work and high levels of stress. For this reason, identifying the most significant factors that affect the satisfaction of employees in the ICT industry and analyzing their impact is extremely important.

The relevance of the study can be summarized as follows:

- Despite the significant amount of research on the topic, employee job satisfaction and the factors that directly influence it continue to be among the most relevant topics in the business area, due to its importance for employee welfare and for the development and prosperity of the organizations.
- The ICT sector is relatively new and its personnel differs significantly from other work groups studied in the past. Researching the satisfaction factors, which are applicable specifically to this sector, adds value to the existing literature. In addition, the obtained results can be used by companies in the sector to improve the understand of the nature of employee satisfaction, which, if used effectively, can become a powerful influence instrument.

## 1.2. Main Goals and Tasks of the Study

In response to the above, the main goal set in the dissertation is to study the most important factors influencing job satisfaction of employees in the ICT sector and to measure their importance and strength of influence. The following research questions have been asked:

**Research question 1:** Which are the factors that ICT employees identify as most important for their personal job satisfaction?



**Research question 2:** How do the various identified factors affect the overall job satisfaction of ICT employees?

The study objectives can be specified in the following research tasks:

**Research task 1:** Identification of the factors that ICT employees consider as the most important determinants of their overall job satisfaction.

**Research task 2:** Review and analysis of the level of satisfaction among ICT employees, as well as the level of satisfaction with the various factors, object of the present dissertation.

**Research task 3:** Study of the influence of the individual factors on the overall employee job satisfaction.

**Research task 4:** Examine the manifestation of job satisfaction among the different sociodemographic groups.

### **1.3. Object, Subject and Scope of the Study**

#### **Object**

The object of study in the present dissertation are employees at different levels, with different professions and from all age groups in the ICT industry in Bulgaria and other countries and the way in which these employees perceive their personal job satisfaction.

#### **Subject**

The subject of the study is employee job satisfaction, measured as a total value, as well as the identification and detailed study of the various factors that directly affect it.

#### **Scope**

The study covers a pre-defined group of employees from Bulgaria and other countries working in companies operating in three main segments of the ICT industry - 1) production of computer, electronic and optical products, 2) telecommunications and 3) computer programming, consulting and related activities and information services. This ICT segment is characterized by rapid market and technological changes, as well as consistent and continuous innovation of the products and services.



## 1.4. Research Hypotheses and Conceptual Model

After a careful theoretical analysis and a detailed empirical review, the research part of the dissertation will test the validity of eleven research hypotheses that examine the impact of the selected factors on the overall job satisfaction of employees in the ICT sector, measured by two different scales – general and global. The hypotheses are:

**Research hypothesis 1:** Satisfaction with the personal sense of achievement in the workplace has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 2:** Satisfaction with the supervision has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 3:** Satisfaction with the flexible working conditions has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 4:** Satisfaction with the communication in the organization has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 5:** Satisfaction with the nature of work has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 6:** Satisfaction with the promotion opportunities has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 7:** Satisfaction with the received payment has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 8:** Satisfaction with the recognition in the workplace has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

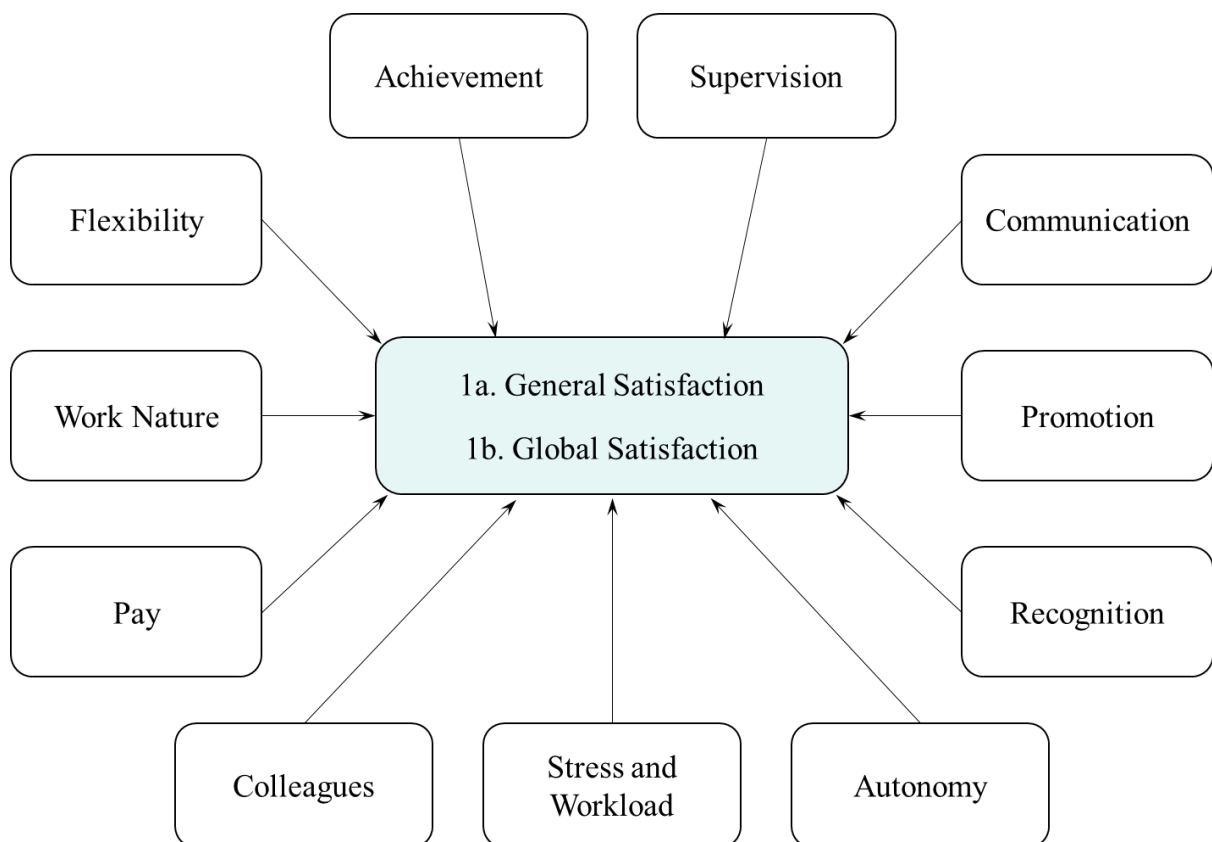
**Research hypothesis 9:** Satisfaction with the relationships with the colleagues has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 10:** Satisfaction with the level of autonomy in the workplace has a positive effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

**Research hypothesis 11:** Stress and excessive workload have a negative effect on the overall job satisfaction of employees in the ICT sector, measured in two different ways – as general and as global satisfaction.

The research model is presented in Figure 1 below:

Figure 1. Research model



Source: the author

## 1.5. Methodology

The dissertation is based on two author's quantitative studies, conducted via specially developed questionnaires and carried out in the period November 2021 – March 2022. The first

survey is preparatory and serves to identify the factors that ICT employees consider as most important for their overall job satisfaction. The questionnaire for this survey, which consists of 20 special and two demographic questions, was completed by 451 respondents from Bulgaria and other countries. The aim set in the second study was to examine in detail the 10 factors identified as the most significant among the ICT employees, who participated in the first one. The second survey, which consists of 45 specialized and 11 demographic questions, involved 755 participants from Bulgaria and other countries.

The data analysis was performed via IBM SPSS Statistics and MS Excel. In the course of the research, several different types of analysis were utilized: 1) one-dimensional studies for preliminary analysis and review of the mean values, 2) cross tables and Kruskal-Wallis H test to examine the differences in the satisfaction levels of the various sociodemographic groups, 3) factor analysis to test and differentiate the individual influencing factors, 4) Cronbach's alpha to measure the reliability and internal consistency of the used scales, 5) correlation analysis and multiple linear regression to examine the dependencies and influences among the research variables.

## **1.6. Practical and Theoretical Implications**

According to Clark (2015) it is easier to describe the level of employee job satisfaction than to advise how it can be changed, since many work aspects may have an impact on job satisfaction. The present dissertation contributes in both directions in the context of employees in the ICT sector. First, the level of satisfaction was measured (described) using two separate scales – general and global. Satisfaction with the individual factors was also measured, as well as satisfaction among the different sociodemographic groups. Regarding Clark's second, more complex task, the present study identifies the factors that directly affect the satisfaction of employees in the ICT industry, which is the first step towards finding suitable instruments to proactively influence the dependent variable in the desired direction. Based on the current results and the presented literature review, the companies from the ICT sector can: 1) better understand the relationships between employee satisfaction and other important aspects of the work environment – turnover, commitment, job performance, motivation, etc., which are directly related to organizational results and 2) better understand the way in which the individual factors affect job satisfaction and consequently design more adequate corporate practices and procedures that will have a positive overall effect.





The results of this research are important from an academic point of view to identify the specific factors that have a direct impact on employee job satisfaction in the ICT industry. In practice such knowledge can be used by technology companies to create effective tools to increase employee satisfaction, which would have a positive impact on improving strategic organizational results.

## **1.7. Limitations**

The first limitation of the present study is that the data used for the analysis is based on respondents' self-assessment. To address this limitation, a common method bias test was performed, which showed that the results were objective and reliable. As a second limitation, the research model examines the impact of the 11 most important factors for employees in the ICT industry, but there may be other factors that also play an important role in employee job satisfaction, which are not explored in the current study. Finally, the observations and analysis for some of the studied factors are based on data collected in a single personal study, i.e., the data is cross-sectional and examines respondents' state of mind at a given time. This limitation is partially mitigated, as some of the factors (nature of work, pay and promotion, colleagues and flexibility) have been studied in two other smaller-scale author studies, conducted respectively in 2019 and 2021, and the reported results correspond to a large extent to the results obtained in the present study.



## 2. Contents of the Dissertation Work

The dissertation is developed in two main chapters. The first chapter is the theoretical and empirical literature review. The theoretical part focuses on the foundations and concepts presented in the topic, with an emphasis on how different authors define employee satisfaction, an overview of the most commonly used scales for measuring job satisfaction and the satisfaction factors that the different authors use as composite elements in their studies. The literature review summarizes the results of numerous empirical studies conducted in different countries and industries, which explore similar issues and are used to outline similarities and differences with the results presented in Chapter 2 of the dissertation, as well as to build a practical framework in addition to the theoretical. The second chapter details the design and methodology, analysis and results of two author's studies, examining the factors that affect employee job satisfaction in the ICT sector. The first study is preparatory and the second one is major and examines the main research hypotheses. The dissertation ends with a presentation of the achieved results, discussion, conclusion and recommendations.

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## **3. Brief Presentation of the Dissertation Work**

### **3.1. Introduction**

The introduction of the dissertation synthesizes the relevance of the topic, the research questions, goals and tasks, the object, subject and scope of the study, which are presented in more detail in the first section of this abstract. The introduction also includes a brief summary of the research section, the author's studies, as well as the analytical methods and approaches used. The introduction ends with a brief description of the dissertation structure.

### **3.2. Chapter 1: Theoretical and Empirical Literature Review**

#### **3.2.1. Theoretical Foundations**

In relation to employee attitudes toward their jobs, no phenomenon in organizational research has been studied more than job satisfaction (Schleicher et al., 2011). Job satisfaction has a central place in organizational psychology and influences various elements of employee behavior that are key for the development of organizations. Employee satisfaction is important for all business organizations, regardless of their specific activity, size or industry. Job satisfaction is not a static variable but is subject to constant influences and changes from internal and external forces that affect the personal perceptions of employees and the work environment and climate (Polbitsyn & Abidullah, 2017). For this reason, companies must take constant measures to maintain good levels of satisfaction among their employees, and the first prerequisite for this is a good understanding of this complex variable, as well as the factors that directly influence it.

Due to its importance and being a subject of numerous studies, job satisfaction has received many definitions from different authors and researchers, and the first studies on the subject date decades back in time. In the 1930s Robert Hoppock was one of the first researchers to view employee job satisfaction as a complex and balanced experience accompanied by multiple determinants. According to him, job satisfaction is a combination of psychological and physiological factors and environmental conditions that make the individual define oneself as truly satisfied with one's job (Hoppock, 1935). Edwin Locke's definition is maybe the most cited and used in literature. According to him job satisfaction can be defined as "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences" (Locke, 1976, p. 1300).



A large number of Bulgarian scholars also study the multifaceted nature of job satisfaction. Ilieva (1998) defines job satisfaction as a complex and multifaceted mental phenomenon that is influenced by a number of subjective and objective factors and is an indicator of the quality of life, of adaptation to work and of the effectiveness of the individual, the group and the organization (Ilieva, 1998). Job satisfaction can also be defined as the affective reaction of employees to various factors in the workplace – the work environment, the nature of work, the relationships with colleagues and management, the results that employees achieve and the resulting positive or negative consequences (Radoslavova, 2001).

According to Paul Spector, the overall feeling of satisfaction is a result of the influence of various factors (Spector, 1997). This approach has also been adopted by many other researchers. Among the factors that are defined as essential and significant for the general satisfaction of employees are interesting work, good pay, opportunities for career development, relationships with management and colleagues, job security, physical working conditions, etc.

### **3.2.2. Empirical Review**

To analyze the relationships between job satisfaction and other important aspects of employees' work life and to compile a comprehensive list of satisfaction factors, the dissertation contains an empirical review that examines a number of studies with similar context. The studies are grouped into four categories – 1) studies from different countries examining employee satisfaction in the IT/ICT sector; 2) research that analyzes the antecedents and consequences of employee job satisfaction; 3) studies that describe the relationship between job satisfaction and other job characteristics (personal performance, commitment, motivation, leadership, stress, workload and turnover) and 4) studies that present different scales for measuring job satisfaction.

#### **Consequences of Employee Job Satisfaction and Job Dissatisfaction**

Summarizing the literature review, it can be concluded that employee job satisfaction directly or indirectly affects many other aspects of their work life, regardless of the country or the industry in which employees work. Job satisfaction contributes significantly for the achievement of organizational goals and stimulates positive behaviors such as engagement, commitment, enthusiasm and attachment to the organization, higher motivation and personal job performance. Employees who are satisfied with their current employer are more loyal,



which can reduce the turnover rates and support the longer-term retention of highly qualified staff – one of the main issues that companies in the ICT industry are facing.

On the other hand, dissatisfied employees exert much less efforts and diligence. They are also not interested in the prosperity and general well-being of the organization and have low personal productivity, which in the long run outlines a general downward spiral of inefficiency.

A summary of the various effects of employee job satisfaction and dissatisfaction is presented in Table 1.

*Table 1. Consequences of Employee Job Satisfaction and Job Dissatisfaction*

<b>High Job Satisfaction</b>	<b>Low Job Satisfaction / Job Dissatisfaction</b>
Positive attitude	Negative attitude
High productivity	Counterproductive behavior
Motivation	Demotivation
Engagement	Disinterest
Enthusiasm	Apathy
Good overall job performance	Poor overall job performance
High quality of work	Low quality of work
Low absenteeism	High absenteeism
Low turnover	High turnover
Loyalty	Desire to leave the organization
Attachment to the organization	Intentional will to harm to the organization
Excellent business results	High organizational costs
Good physical and mental health	Impaired physical and mental health
Emotional well-being	Emotional exhaustion
Better work life quality	Tension, stress, burnout

Source: the author

### **3.2.3. Scales for Measuring Job Satisfaction**

In an attempt to explain and measure most accurately the complex nature of job satisfaction, numerous measurement scales have been created, varying in nature and scope, containing a number of behavioral, cognitive and affective measures.

A detailed literature review shows that the scales can be divided into three main categories – 1) global scales, which measure the overall level of employee satisfaction, 2) facet scales, which measure the different satisfaction factors separately and 3) composite scales, which are used least often as an evaluation tool and measure the overall level of job satisfaction as an average of the satisfaction with the individual factors. Facet scales better examine the structure and composition of job satisfaction, while global scales are a better indicator of the overall level of employee contentment.



## **Global Scales**

There are two types of global scales, the first one measures the overall job satisfaction using a single question and the second type is composed of multiple questions. There are researchers who believe that from a psychometric perspective single-item scales provide the best overall measure of employee satisfaction (Dolbier et al., 2005; Oshagbemi, 1999; Wanous & Lawler, 1972) and others, who consider that a higher number of elements are able to present a more complete and comprehensive assessment (Brayfield & Rothe, 1951; Churchill et al., 1974; Ironson et al., 1989; Thompson & Phua, 2012). The literature review of the present dissertation contains a review of 25 global measurement instruments – 16 single-item scales and 9 scales containing multiple elements.

## **Facet Scales**

Facet scales use groups of questions containing mainly cognitive and behavioral elements to measure employee satisfaction with specific aspects of their work and compare the current working conditions with specific expected outcomes. Some researchers limit their scales to a smaller number of constituent factors that they consider essential (Fu et al., 2011; Ironson et al., 1989; Vitell & Davis, 1990), others include an exhaustive list of elements of the work environment (Hofstede, 1980; Korsakienė et al., 2015; Warr, 2007; Davidkov, 2019). The present literature review includes an overview of 36 facet scales examined in detail and groups the factors, which they contain into common factor groups, thus forming 33 separate factors.

## **Composite Scales**

Composite scales represent a combination between global and facet scales, as they aim to measure the general level of satisfaction by finding the average value of satisfaction from the different aspects of work. These scales are the least frequently used since they are highly criticized among researchers as having low reliability.

The review of the different scales – global, facet and composite – shows that despite many similarities and some close measurement results, the scales are also very different from each other even within their categories. Some of the scales are universal, i.e., can be applied in different industries and among different work groups, others are specifically designed to measure job satisfaction in a particular work context. The creation of a valid and reliable scale specifically designed to measure ICT employees' job satisfaction that is brief, clear and easy to administer, has considerable academic and practical value.



In the present dissertation, three satisfaction measurement scales were used, two global and one composite.

### **3.2.4. Job Satisfaction Factors**

Considering the complex nature of employee job satisfaction and the fact that it has different dimensions – affective, behavioral, cognitive and situational, many researchers have created theories that try to determine the exact factors that influence this complex variable.

Seashore & Taber (1975) created a theoretical framework, according to which aspects of job satisfaction can be grouped into five broad categories – 1) individual characteristics, 2) work and organizational characteristics, 3) contractual conditions, 4) physical working conditions and 5) macroeconomic factors. According to Herzberg (1965) satisfaction factors can be grouped into four main areas – 1) economic aspects, 2) interpersonal relationships, 3) activities and tasks and 4) working conditions.

A large number of researchers unite around the theory that the main factors of satisfaction can be divided into two main groups – internal and external (Bakkal et al., 2019; Caycho-Rodríguez et al., 2020; Karamanis et al., 2019; Mardanov, 2020; Mathieu & Babiak, 2016). Other authors use Herzberg's two-factor theory of motivation and divide the factors into motivational and hygiene (Bezdrob & Šunje, 2021; Jan et al., 2016; Sypniewska, 2014). Still others select specific factors, based on their ability to comprehensively explain employee job satisfaction on the basis of their applicability in a given cultural or industrial context.

It is also important to note that not all aspects of work are equally important to all employees and for this reason a detailed knowledge of the various satisfaction factors and their influence on individual aspects of work is of key importance for the development of adequate company policies and procedures (Clark, 2015).

After analyzing the 36 facet scales included in the literature review, it was observed that the five most frequently used satisfaction factors were pay, supervision, colleagues, promotion opportunities and work nature. The remaining factors vary in popularity and often appear under different names.

When combining the factors from all 36 examined scales, 33 separate factors were identified, which are presented in Table 2, ordered by popularity.



*Table 2. Job Satisfaction Factors – Summary*

<b>Job Satisfaction Factors</b>		
1. Pay	12. Communication	23. Contingent rewards
2. Supervision	13. Use of skills	24. Social responsibility
3. Colleagues	14. Workload	25. Clients and users
4. Promotion	15. Recognition	26. Innovation
5. Work nature	16. Work-life balance	27. Available resources
6. Job security	17. Responsibility	28. Employee-job fit
7. Physical conditions	18. Operational efficiency	29. Power
8. Autonomy	19. Work location	30. Ethical norms
9. Work time	20. Influence	31. Performance evaluation systems
10. Achievement	21. Trainings	32. Equity
11. Benefits	22. Social status	33. Teambuilding initiatives

Source: the author

The information in Table 2 was used to identify an initial list of 20 factors (Table 3) that play a significant role in determining ICT employee job satisfaction. This list was used as a basis for conducting a preparatory study, presented in detail Chapter 2 of the dissertation.

*Table 3. Factors Selected to Conduct the Preliminary Study*

<b>Job Satisfaction Factors – Initial Selection</b>	
1. Pay	11. Benefits
2. Supervision	12. Communication
3. Colleagues	13. Use of skills
4. Promotion	14. Workload
5. Work nature	15. Recognition
6. Job security	16. Operational efficiency
7. Physical conditions	17. Influence
8. Autonomy	18. Trainings
9. Flexibility	19. Stress
10. Achievement	20. Corporate culture

Source: the author

The goal set in the preliminary study was the identification of 10 of the initially selected 20 factors that ICT employees themselves consider as the most important for their job satisfaction. This selection was made in a quantitative analysis, based on a questionnaire. 451 employees from the ICT sector took part in the preliminary study and the 10 factors, which they chose as most important for their personal job satisfaction are (in order of importance): 1) achievement, 2) supervision, 3) flexibility, 4) communication, 5) work nature, 6) promotion, 7) pay, 8) recognition, 9) colleagues and 10) autonomy. In addition, although they did not find a place among the 10 factors selected as most significant by the participants in the study, stress and



workload were also included in the final study as an eleventh factor in order to examine its impact on ICT employees' overall job satisfaction.

The main characteristics of the finally selected 11 factors are briefly outlined in the next paragraphs.

### **Achievement**

Achievement or the sense of personal accomplishment that employees get from their work acts as a strong motivator and incentive for them to maintain high productivity, efficiency and quality of work. A sense of higher personal accomplishment is associated with higher employee satisfaction and lower turnover (Allam et al., 2021; Tourangeau et al., 2010). Additionally, personal accomplishment plays a role in the relationship between job performance and employee job satisfaction (Prentice et al., 2019). Personal achievement in the workplace and the feeling of individual contribution are very important for creating a sense of fulfillment and usefulness among employees. Low level of personal accomplishment, along with emotional exhaustion and depersonalization are among the main factors that lead to burnout (Siegel & Nagengast, 2019).

### **Supervision**

The relationship with the direct supervisor is one of the most important aspects of work. Fostering a supportive work environment and adequate management support can strongly influence employee work attitudes and perceptions (Alegre et al., 2016). Management has a direct influence on different prerequisites for employee career development and autonomy, on the promotion of open and transparent communication, on the choice of a strategic direction for development of the organizations, as well as on the organizational climate and corporate culture. For this reason, supervision and its impact on job satisfaction ranks among the most important factors of influence. Job autonomy and trust from the management are highly significant factors for the satisfaction of IT employee (Gribanova & Abeltina, 2019).

### **Flexibility**

Flexible working conditions are one of the newest factors affecting employee job satisfaction, but one that is gaining quite a bit of popularity and attention, especially among high-tech companies. This is even more true in the past two years, as the pandemic has acted as a catalyst for digital transformation in many industries. Flexible working arrangements include elements such as flexible working hours, the option to work from home or any location, as well as various



programs that promote work-life balance and increase the general well-being of employees in the workplace. A number of researchers have found that telecommuting leads to higher employee satisfaction (Crespi-Vallbona & Mascarilla-Miró, 2018; Felstead & Henseke, 2017; Gribanova & Abeltina, 2019; Torten et al., 2016). The ability to flexibly plan and organize the work process and to maintain a good work-life balance is especially important for ICT employees, who often work under high pressure and have to meet tight deadlines.

### **Communication**

Open and transparent communication at all levels of the organization is a factor that influences a number of organizational outcomes and partially shapes employee behavior in the workplace. The information that comes from the top management to the employees about the company's strategy, about the important organizational decisions and about the current state of the business is an invaluable guide and an instrument for creating a sense of belonging and a common purpose. In their study Kulachai et al. (2018) observed the positive influence of internal communication on more effective employee participation and job satisfaction. Vermeir et al. (2018) reported that all dimensions of satisfaction with the organizational communication were positively related to employee job satisfaction and reciprocally related to negative organizational outcomes such as the intention to leave and burnout.

### **Work Nature**

Satisfaction with the job itself is the main criterion that employees use to evaluate their work in general (Skalli et al., 2008). For this reason, many researchers have found that the nature of work is among the most important determinants of job satisfaction. A large number of studies in different cultural and industrial settings show that job satisfaction increases when employees find their work interesting and meaningful (Hakanen et al., 2008; Hauff et al., 2015; Qasim & Syed, 2012; Sousa-Poza & Sousa-Poza, 2000). The work nature, which represents the essence of the daily duties and tasks that employees perform, is also found to be the factor that has the strongest influence on the overall job satisfaction of IT employees (Crespi-Vallbona & Mascarilla-Miró, 2018; Korsakienė et al., 2015; Kowal & Roztocki, 2015).

### **Promotion**

The factor promotion, which refers to the opportunities for individual growth and advancement, the improvement in one's social position and the opportunity to take more responsibilities in the company (Robbins & Judge, 2009) is positively related to employee job satisfaction



(Bednarska & Szczyt, 2015). Employees that are more ambitious are motivated to a greater extent by the opportunities for career development and taking more responsibilities at work, compared to those who prefer static, known and standard tasks, but in general, the opportunities for career development and increasing one's professional qualifications and competencies have a beneficial effect on both employees and organizations. Employees benefit from their own professional development and companies benefit from the enhanced overall potential in the organization.

### **Pay**

There are many and diverse theories about the influence of the financial element on employee job satisfaction. According to some researchers pay has a central role, while others claim that its influence is rather short-lived. Many authors, who conduct their studies in countries with a low standard of living, report results that show that compensation is an important factor in determining employee job satisfaction (Bednarska & Szczyt, 2015; Čulibrk et al., 2018). Other authors argue that the impact of pay on job satisfaction is rather short-term (McLean et al., 1996) and can be used as an incentive to increase employees' positive attitude towards work and to reduce stress only up to a certain point, after which higher levels of pay no longer affect these results.

### **Recognition**

Getting recognition for a job well done in a work or social context is of utmost importance to any individual. Recognition at work can serve as an important tool for stimulating desired behavior among employees. According to Bezdrob & Šunje, (2021) receiving recognition is among the most important intrinsic motivational factors, along with the nature of work and the sense of personal achievement. Recognition and mutual respect in the workplace are among the prerequisites for higher employee satisfaction and emotional commitment. A number of researchers have found a positive relationship between receiving recognition and employee job satisfaction (Ann & Blum, 2020; Ayalew et al., 2021; Korsakienė et al., 2015).

### **Colleagues**

A relaxed work atmosphere, where team spirit and mutual support prevail, certainly has a significant positive impact on the emotional well-being of employees and thus favorably affects their overall job satisfaction. Friendly colleagues willing to help when needed have a significant effect on employees' perception of their own work (Chalofsky, 2003), which in turn is directly



related to their job satisfaction. Healthy teamwork also creates psychological security (Crespi-Vallbona & Mascarilla-Miró, 2018) and can significantly increase employees' overall efficiency and productivity, because it is not only the sum of the individual competences and knowledge of the individual members, but also stimulates initiative, creativity and diligence.

### **Autonomy**

Workplace autonomy can be defined as the extent to which employees can independently structure, organize and control how and when to perform their job duties, as well as the ability to make independent decisions related to various aspects of the work process. According to Spector (1985), a job that allows a high level of autonomy increases both job satisfaction and employee performance. Independence and flexibility at work have been identified as one of the main determinants of job satisfaction (Alegre et al., 2016; Chang & Cheng, 2014). In a survey among IT employees in Latvia, Gribanova & Abeltina (2019) confirm that autonomy, innovative work, creativity and trust from the management are the most significant factors for IT employees' job satisfaction.

### **Stress and Workload**

Employees in the ICT sector are often subjected to high levels of stress and workload due to the short deadlines for completing the work tasks and the high customer demands, the changing technological environment and the rapid development of the industry. Stress has a negative effect on employee overall job satisfaction (Igbaria & Guimaraes, 1992; Orgambidez-Ramos et al., 2015). Additionally, higher levels of job satisfaction are associated with lower levels of emotional exhaustion and stress (Ninaus et al., 2021; Zhao et al., 2016) and job satisfaction, engagement and empathy can prevent burnout symptoms (Siegel & Nagengast, 2019). Stress prerequisites such as being overworked, not having enough time to do quality work and not being able to work from home have a negative impact on employee job satisfaction (Miao et al., 2016).

Considering the specifics of the industry, the factor stress and workload a work was included in the detailed study along with the 10 factors identified as most important for the satisfaction of ICT employees.

### **Sociodemographic Factors**

The dissertation also investigates the relationship between various specially selected sociodemographic factors and the general job satisfaction of employees in the ICT sector,



aiming to establish the specific manifestation of job satisfaction based on the sociodemographic characteristics of the respondents. The sociodemographic factors included in the main study are 1) gender, 2) age, 3) marital status, 4) number of children, 5) education, 6) work experience, 7) household income, 8) employer's field of work, 9) department, 10) management functions and 11) country of residence.

### **3.3. Chapter 2: Factors that Influence Job Satisfaction of Employees in the ICT Sector from Bulgaria and Other Countries**

In the present chapter of the dissertation, the results of the two author's studies are presented – the first is preparatory with a set goal to identify the factors that employees from the ICT sector consider as most important predictors for their personal job satisfaction. The second study is main for the dissertation and represents a detailed investigation of the impact of these factors on the overall job satisfaction of employees in the ICT sector. The manifestation of job satisfaction among the different sociodemographic groups was also analyzed in the dissertation in order to bring out some interesting trends and differences.

#### **3.3.1. Preliminary Study**

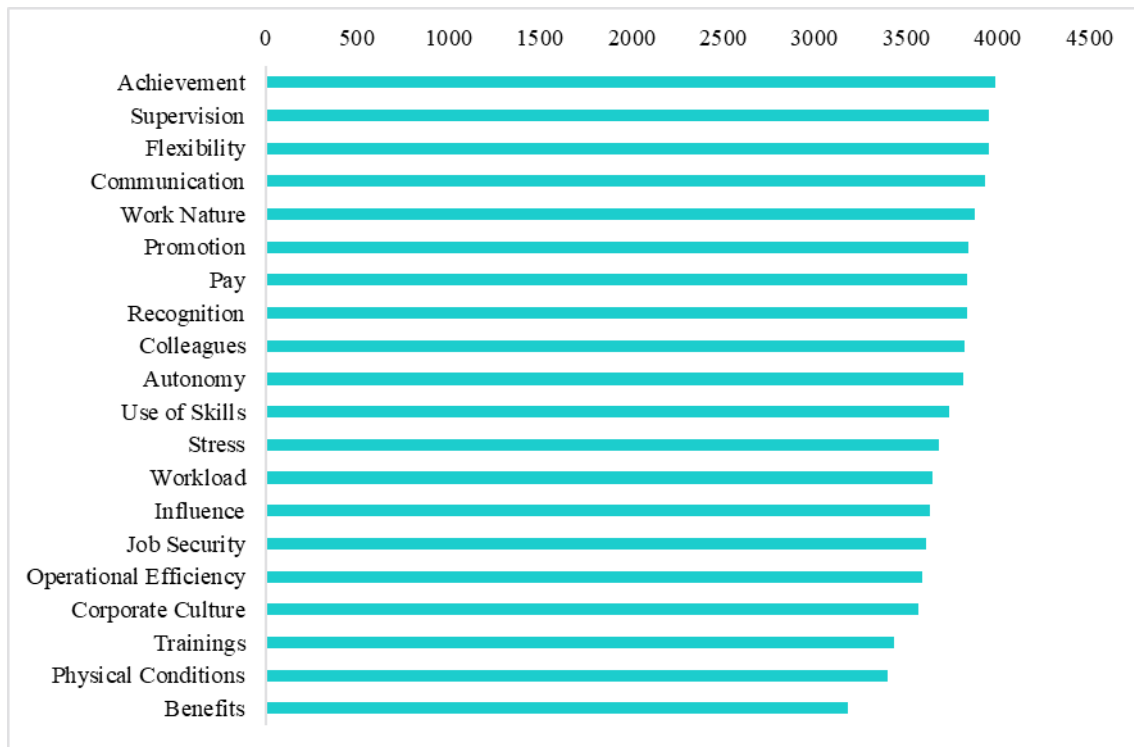
The preliminary study was conducted among a pre-selected sample of approximately 1,500 individuals, who fall into three major areas of activity in the ICT industry – software development, IT technology and telecommunications. The 20 factors presented in Table 3, identified in the analysis of the 36 facet scales, were used to create a questionnaire that was sent to the target group. The participants were asked to rate these 20 factors according to their importance in determining their personal job satisfaction. The questionnaire for the preparatory survey contains a total of 22 questions – the first 20 examine the importance of each of the selected factors and the last two collect information about the respondents' gender and country of residence.

451 respondents from the ICT sector took part in the preparatory study. A comparative analysis, in which the examined factors were sorted in descending order based on their ranks and mean values was used to evaluate the top 10 factors according to the participants' responses. The final ranking is shown in Figure 2. In addition, the factors were also compared in two separate



sub-samples – "men vs. women" and "employees living in Bulgaria vs. employees living outside Bulgaria".

Figure 2. Factors Ranking



Source: the author

As the most important for their job satisfaction the participants choose factors “**achievement** – the sense of personal accomplishment that employees get from their work”, “**supervision** – the relationship with the direct manager” and “**flexibility** – where, how long and in what time range employees can perform their duties (includes the possibility of working remotely, reduced or flexible working hours, etc.)”. As most insignificant the participants mark factors “**benefits** – the fringe and social benefits that employees receive in addition to pay”, “**physical conditions** – working space, appropriate equipment, air conditioning, lighting, etc.,” and “**trainings** – an opportunity to improve or acquire new skills”. The latter is an interesting result, considering the intensive nature of work of ICT specialists and the need for constant improvement of skills and professional qualifications. Outside the top 10 are also factors “use of skills”, “stress”, “workload”, “influence”, “job security”, “operational efficiency” and “corporate culture”.

When comparing women and men, it is clear that the most important factor for women is the relationship with the direct manager, while for men the most important is the feeling of personal accomplishment at work. The most important factor for employees who live and work in



Bulgaria is "supervision", while for the rest of the participants it is on 7th position – much lower in the ranking. For people who work outside of Bulgaria, the most important factor is the feeling of personal accomplishment at work.

Based on the results of the preliminary survey, the second study (central for the dissertation) was constructed to examine in detail the 10 factors that received the highest rank during the preparatory phase, namely 1) achievement, 2) supervision, 3) flexibility, 4) communication, 5) work nature, 6) promotion, 7) pay, 8) recognition, 9) colleagues and 10) autonomy. Due to its importance and specific influence in the ICT sector, stress and excessive workload were added as an additional eleventh factor in the research model.

### **3.3.2. Main Study**

For the main study, which examines in detail the eleven selected factors and their influence on the overall job satisfaction of employees in the ICT sector, a slightly larger sample of about 2,000 individuals was targeted (the target group of 1,500 individuals used for the preparatory study, plus 500 additionally selected employees from the ICT sector).

A multi-section questionnaire was created to examine the hypotheses, set in the study. The first part uses one of the established global satisfaction scales with more than one element – Short Index of Job Satisfaction (SIJS), which measures employee overall job satisfaction with the help of five questions (Judge et al., 2000). The second section contains groups of questions that examine the level of satisfaction with the first 10 factors considered in the research model. Some of the items in this section have been taken from existing facet scales, while others have been created specially for the purposes of the present study. The third section contains a global scale with one direct question, which has been chosen as an alternative measurement of employee overall job satisfaction. Since both the first and third sections measure employee overall satisfaction, in order to easily distinguish between the two dimensions, the first measurement (with five questions) was named “global satisfaction” and the second one (with one question) was called “general satisfaction”. The fourth section of the questionnaire contains five items to measure the level of stress and workload in the workplace, and the last section contains a group of sociodemographic questions. In order to increase the survey accessibility and consequently the response rate, the questionnaire was compiled and distributed in both English and Bulgarian.





Before distributing the questionnaire to the broad target group, an internal review was done and a pilot study was conducted. 60 people were selected to participate in the pilot – employees on different positions and at different ages, relatively equal distribution of men and women, participants from different countries and working in different companies. The completion time for the pilot survey was 10 days, during which 52 complete and analyzable responses were collected. As a result of the internal review and the pilot study, the questionnaire underwent a number of changes, the most important of which were the addition of new items to measure four of the satisfaction factors, a narrowing of the target group and the addition of two new sociodemographic measures.

In its final version the questionnaire contains a total of 56 questions – 45 for measuring general satisfaction and the selected satisfaction factors and 11 for measuring the sociodemographic characteristics of the participants. The survey was conducted in the period January – March 2022 and collected a total of 755 responses, out of which 603 were fully completed and 152 were partially complete. On top of the incomplete questionnaires, 15 responses of employees working outside the ICT sector were also removed, so the final sample used in the detailed analysis of the study was compiled of 588 full responses.

The majority of respondents are male, which matches the demographics of the industry labor force. The most numerous age group are employees between 31 and 40 years, which represents almost half of the sample and the smallest representation are employees over 60 years. Over two-thirds of the employees are married and over 60% have one or more children. Notably, the participants in the study are quite highly educated, with the largest group being those who have completed a master's degree. As per the total work experience, most of the participants fall into the category between 11 and 20 years. The respondents in the survey have quite high household income – almost 75% define their household income as much higher or higher than the national average. This result is consistent with relatively higher pay levels in the ICT sector.

The largest number of employees work in software development companies, followed by those whose employers are in the field of developing IT solutions, technologies and integrations and the lowest percentage of employees work in telecom companies. In terms of position type, technical staff accounted for the largest percentage, followed by sales and business development specialists and employees working in project management and business analysis. Almost 40% of the respondents hold a managerial position, in the sense of managing people.



About 60% of the participants work in Bulgaria and the remaining 40% live and work in 37 different countries.

### **3.3.3. Methodology**

#### **One-dimensional Measures for Preliminary Analysis**

A review of the mean values and standard deviation of the main dimensions of the research model (global and general satisfaction, the 10 factors of satisfaction and factor stress and workload) was carried out as a first step. Variables that are measured by more than one question in the survey are presented as an arithmetic mean value. The two measures of overall job satisfaction (global and general satisfaction) have similar mean values, which is a good signal about the reliability of the survey data. The observation shows that the overall level of employee satisfaction is relatively high. When looking at the average values of the individual factors, employees show the highest level of satisfaction with the flexible working conditions, followed by factors colleagues, independence, work nature and achievement. Employees are mostly dissatisfied by their pay, as well as by factors communication, growth and recognition.

#### **Analysis of Job Satisfaction among the Different Sociodemographic Groups**

The analysis and comparison of the level of satisfaction among the different sociodemographic groups was done via cross tables and Kruskal-Wallis H test. The Kruskal-Wallis non-parametric method was chosen since the overall satisfaction is not normally distributed. A Dunn-Bonferroni post hoc multiple comparison method was used to distinguish the significant differences for these sociodemographic groups, which had more than two categories. In the comparative analysis, the highest average values of satisfaction and the highest percentage of "very satisfied" employees were observed in the following groups – the youngest participants and these with the least years of work experience, employees who define their household income as much higher than the country average level, these occupying senior management positions and the respondents from Bulgaria. The most dissatisfied employees are these over the age of 50 and these who define their household income as "much below" or "below" the national average.

The difference in satisfaction between men and women in the present sample is statistically insignificant, which corresponds with the results of a number of previous studies. There are also statistically insignificant differences in the levels of satisfaction among employees



depending on their marital status and number of children, employer's field of work and education level.

Analyzing the respondents in terms of their age, it is noticed that the level of job satisfaction decreases with age. The youngest employees are the most satisfied and those over 50 are the most dissatisfied. A similar trend is observed based on employees' work experience. A review of the comparative data shows a non-linear relationship between the length of service and job satisfaction, but employees with the lowest number of years work experience define themselves as the most satisfied.

There is a positive linear relationship between the household income and employee satisfaction. Employees in leadership roles are more satisfied than those who do not have managerial functions, although the difference is not large. A statistically significant difference in the level of satisfaction was also observed depending on the country of residence of the respondents. In the current survey, employees living and working in Bulgaria are significantly more satisfied than those who work in other countries. This interesting result can be partly explained by the good remuneration and excellent working conditions in the country's ICT sector, which has seen a significant growth in the recent decades.

### **Factor Analysis for Defining Factor Groups**

Proceeding the analysis of the main research hypotheses, the statements examining the 11 satisfaction factors were tested in an exploratory factor analysis in order to reduce the number of initial variables and create the actual factor groups. The requirements of this type of analysis (random nature of the data, over 300 survey responses, intercorrelated variables, KMO test values above 0.5, significance of the Bartlett's test of sphericity and non-zero determinant) were all tested and fulfilled in the present study.

The factors were extracted based on eigenvalues and the Varimax method was used for rotation. In the rotated solution small coefficients with an absolute factor loading below 0.4 were ignored.

As a result, nine factors were identified and their data variance showed a cumulative value of 71.9% (> 50%). The first factor does not account for more than 50% of the total variance (32.8%), which is an indication that there is no danger of common method bias (Jordan & Troth, 2020). A very good distribution of factor groups is observed when examining the rotated component matrix and all 39 measures included in the analysis have factor loadings above 0.5.



Nine factors were extracted instead of the original 11, because two pairs of factors fell into the same factor group – 1) pay and promotion, measured by seven items and 2) work nature and achievement, measured by six items. The combination of factors pay and promotion is not unprecedented, although these two dimensions are often considered as two separate factors of satisfaction. However, these incentives often go hand in hand as two aspects of companies' compensation plans. Similarly, work nature and achievement, which is defined as the sense of personal accomplishment at work, are two variables that are strongly associated. Employees who enjoy their job and find it meaningful and enjoyable are more likely to benefit from their work and experience a higher level of personal fulfillment. And although these two aspects are not identical and are often seen as different influencing factors, in combination they can significantly affect employee job satisfaction or dissatisfaction.

All other statements form seven distinct factors, just as they were originally set out in the questionnaire. The detailed results of the factor analysis and the nine formed factors that were used as a basis for the subsequent research analysis are presented in Table 4.

The Cronbach's alpha reliability analysis also shows very good results. All studied groups have an alpha value above the recommended level of 0.7 (Hair et al., 2006), indicating that the different items used in the study were well selected, grouped and consistent. Also, the test confirms the results obtained in the factor analysis and the identification of the new nine main factor groups.



Table 4. Factor Analysis – Results

Rotated Component Matrix										
Measures	F1	F2	F3	F4	F5	F6	F7	F8	F9	
My job is meaningful.	.832									
I like the nature of my work.	.823									
I get a personal sense of accomplishment from what I do.	.706									
I feel useful in the workplace.	.705									
My daily work tasks are enjoyable.	.674									
I can see the impact and contribution of my work.	.639									
I feel I am being paid a fair amount for the work I do.		.821								
I feel appreciated by the organization when I think about what they pay me.		.791								
The salary raises in the company are reasonable.		.760								
My organization pays better than other companies in the same sector.		.691								
I am satisfied with my chances for promotion.		.610								
Those who do well on the job stand a fair chance of being promoted.		.567								
My job offers good opportunities for career advancement.		.562								
In my work I often feel overworked.			.847							
In my work I often feel overloaded.			.846							
In my work I often feel exhausted.			.818							
In my work I often feel stressed.			.810							
In my work I often feel nervous and anxious.			.697							
My manager is supportive and around when needed.				.814						
My manager is fair to me.				.810						
My manager is interested in the feelings of his/her subordinates.				.794						
My manager is quite competent in doing his/her job.				.784						
Important organizational changes are communicated effectively and in a timely manner.					.788					
The information that employees receive from the management is accurate and transparent.					.778					
Communication seems good within the organization.					.750					
The organizational goals, procedures and processes are clear to me.					.681					
I enjoy working with my colleagues.						.821				
I like the people I work with.						.790				
I work with people who cooperate well with one another.						.789				
There is too much tension and fighting between colleagues at work.						.597				
My achievements at work are recognized.							.737			
I like the people I work with.							.720			
I feel that my work efforts are appreciated.							.708			
I am quite independent in doing my job.								.795		
I am free to decide how to organize and execute my work duties.								.775		
I feel free to take autonomous decisions.								.698		
My job offers a good degree of flexibility in terms of working hours, possibilities for remote working etc.									.791	
My work schedule fits well with my family and social commitments outside of work.									.767	
I find my work schedule and home office arrangements to be too strict and inflexible.									.671	
Eigenvalues	12.8	3.3	2.9	2.1	1.9	1.6	1.3	1.2	1.0	
% of variance	32.8	8.4	7.3	5.4	4.9	4.0	3.4	3.0	2.6	
Total variance explained					71.9%					
Cronbach's alpha	.897	.893	.888	.913	.878	.803	.922	.829	.708	

Source: the author



## Correlation Analysis and Multiple Linear Regression

Correlation analysis was used as a preparatory step before running the multiple linear regression with the aim to observe the relationship between the individual measures that play the role of dependent and independent variables in the research model. The correlation analysis shows the presence of a strong statistically significant positive correlation between the overall job satisfaction measured in two ways (as general and global satisfaction) and all of the satisfaction factors examined of the study. The factor stress and workload shows a negative, statistically significant relationship with all other variables. There is also a statistically significant interrelationship between all of the examined measures – positive between job satisfaction and the satisfaction factors and negative in relation to stress and workload.

The dependencies implied in the research model were investigated with the help of a multiple linear regression. Two sub-models were created to test the research model – model 1a and model 1b, in which the only difference is the dependent variable. In the first model, the output variable is **the general job satisfaction**, measured by a single direct question, and in the second one the dependent variable is **the global job satisfaction**, presented as the arithmetic mean value of the five statements of the SIJS scale. In both sub-models, the nine factors obtained in the factor analysis are used as independent variables.

Before the detailed review of the regression results, the requirements of this type of analysis have been tested, namely identification of responses with deviations (outliers), check for multicollinearity and non-zero variance of the independent variables. Initially, the enter regression method, in which all factor variables were included in the model was chosen, but the primary analysis showed condition index values above 30, which is a signal of multicollinearity. To solve this issue, the regression method was changed from “enter” to “stepwise”.

To reach a model without outliers, two inconsistent responses with a large deviation from the predicted value were removed in model 1a, and seven in model 1b.

In the stepwise regression of model 1a, five factor variables with a statistically significant effect on the general job satisfaction were included in the outcome model – 1) work nature and achievement, 2) pay and promotion, 3) supervision, 4) stress and workload and 5) communication. A similar result is observed in model 1b – the factor variables affecting the global job satisfaction as the outcome variable are six – 1) work nature and achievement, 2)



stress and workload 3) pay and promotion, 4) colleagues, 5) communication and 6) supervision. In both studies, factors flexibility, recognition and autonomy were excluded from the final stepwise regression models.

Both models are statistically significant and their summary shows relatively high levels of correlation coefficient and coefficient of determination. In model 1a –  $F(5,559) = 194.09$ ,  $p < .001$ ,  $R^2 = .635$ ,  $R^2_{adj} = .631$  and in model 1b –  $F(6,545) = 153.36$ ,  $p < .001$ ,  $R^2 = .628$ ,  $R^2_{adj} = .624$ . In the first model, the factor variables explain 63.1% of the changes in the overall job satisfaction and in the second – 62.4%.

The Durbin-Watson levels, which check the autocorrelation of the residuals, are close to 2 in both models and the histograms and P-P Plot diagrams of the two models show normal distribution of the standardized residuals.

In the coefficients table of model 1a, the factor work nature and achievement shows the strongest positive influence, followed by factors pay and promotion, supervision and communication. As expected, stress and excessive workload at workp showed a negative impact on the overall job satisfaction. The factors that were not included in model 1a as statistically significant are colleagues, flexibility, recognition and independence.

Similar results are observed in coefficient table of model 1b. Again, the two combined factors – work nature and achievement and pay and promotion – have the strongest positive influence, but the influence of the second factor is much weaker compared to the results, observed in model 1a. Factors colleagues, communication and supervision also have a positive statistically significant influence on the global satisfaction. An interesting observation in the second sub-model is the statistically significant effect of factor colleagues, which was not accounted for in model 1a. Stress and workload at work again show a strong negative impact on the overall job satisfaction. In the second model, the factors that were not included in the stepwise regression as statistically significant are flexibility, recognition and autonomy.

The systematized results of the two stepwise regressions are presented in Table 5.



Table 5. Regression Analysis – Results Summary

Independent Variables	Dependent Variables	
	General Job Satisfaction	Global Job Satisfaction
F1. Work nature and achievement	14.095**	17.752**
F2. Pay and promotion	8.744**	3.098**
F3. Stress and workload	-4.138**	-5.562**
F4. Supervision	5.055**	2.246*
F5. Communication	2.293*	2.248*
F6. Colleagues	-	2.745**
F7. Recognition	-	-
F8. Autonomy	-	-
F9. Flexibility	-	-

Source: the author

Comment: The table contains the "t" coefficient values and statistical significance is marked as follows: \* $p < 0.05$ , \*\* $p < 0.01$ , „-“ no statistical significance.

The results of the study confirm seven of the originally set research hypotheses (H1, H2, H4, H5, H6, H7 and H11), partially confirm one of them (H9) and reject three (H3, H8, H10).

### 3.4. Discussion and Conclusion

The focus on highly qualified personnel and their long-term retention and development turns job satisfaction and its determining factors into one of the most essential and strategic topics for companies in the ICT industry. On these grounds, the objectives set in the present dissertation were to determine the most significant factors for job satisfaction of ICT employees, to measure their influence and to track the manifestation of job satisfaction among different sociodemographic groups.

In the current study, a similar level of satisfaction was reported between men and women, which is in line with the results of numerous previous studies. These results, as well as Bulgaria's leadership position in terms of the number of women employed in the ICT sector (Capital, 2021), are extremely important as a step towards achieving gender equality and justice in the workplace.

When comparing the different sociodemographic groups, among the most satisfied groups are the youngest employees and those with the least years of work experience. Another interesting result is that employees living and working in Bulgaria are much more satisfied than those working in other countries. This can be partially explained by the good remuneration and excellent working conditions in the country's ICT sector. High satisfaction is also observed





among participants who define their household income as well above the average country level, as well as among those who have managerial functions.

Nine factor groups were identified in the factor analysis. Five of these factors showed a direct statistically significant impact on employee job satisfaction, while the impact of factor “colleagues” was significant only when job satisfaction was evaluated as a global measure. The strongest influence was reported by the newly formed factor – “work nature and achievement”. According to Bezdrob & Šunje (2021), the nature of work and the sense of personal accomplishment are among the most important intrinsic motivational factors that influence employee satisfaction, and this result is largely confirmed by other studies in a similar industrial contexts (Crespi-Vallbona & Mascarilla-Miró, 2018; Korsakienė et al., 2015; Kowal & Roztocki, 2015).

The other dimension that showed a strong impact on employee job satisfaction is the second joint factor – pay and promotion, a result which has also been reported in other studies (Erro-Garcés & Ferreira, 2019; Jan et al., 2016). The importance of this factor in the current study is partly due to the fact that the majority of respondents live and work in Bulgaria, an Eastern European country with a relatively low standard of living (Bednarska & Szczyt, 2015; Čulibrk et al., 2018). In addition, the study was conducted during the pandemic, when the importance of remuneration and career development opportunities became even higher.

In the present study, the factor stress and workload showed a strong negative impact on employee job satisfaction. The negative association between the level of stress, exhaustion and workload at work and employee satisfaction has also been reported in a number of previous studies (George & Zakkariya, 2015; Huang & Wang, 2019; Igbaria & Guimaraes, 1992; Ninaus et al., 2021; Orgambidez-Ramos et al., 2015; Zhao et al., 2020). These results and the confirmation of research hypothesis 11, justify the inclusion of factor “stress and workload” as an additional element with a significant impact on ICT employee job satisfaction.

The other factors that have a statistically significant but moderate effect on employee job satisfaction, measured as a general and as a global dimension, are the relationship with the direct manager and the communication in the organization. Similar results were also reported by Riaz & Ramay (2010) and Griбанова & Abeltina (2019). The role of the line manager to support and promote a healthy work environment, effective communication and free information sharing can have a strong impact on employees' work attitudes and perceptions. Moreover, fostering effective communication and information and knowledge sharing in the

workplace can significantly improve teamwork and the achievement of organizational results (Alegre et al., 2016; Kulachai et al., 2018; Vermeir et al., 2018).

The impact of factor colleagues is partial in the present study because it showed a statistically significant effect on employee job satisfaction only when it was measured as a global dimension. Even if it was partially confirmed in the present study, research hypothesis 9 has been confirmed in a number of past studies (Crespi-Vallbona & Mascarilla-Miró, 2018; Hauff et al., 2015; Korsakienė et al., 2015), which reinforces the relationships with colleagues as a factor that can have a significant impact on employee job satisfaction.

The factors flexibility, recognition and autonomy did not show a statistically significant impact on employee job satisfaction in the present study. Regarding flexible working conditions, it can be said that during the pandemic, the flexibility factor has become similar to one of the hygiene factors in Herzberg's theory of motivation, which, when in a certain norm, do not have a strong impact on employee satisfaction, but after a drop in the expected levels, can become a reason for strong dissatisfaction. On the other hand, gaining recognition and independence in the workplace are among Herzberg's motivational factors. Surprisingly, in both stepwise regression models they were not included as significant factors. On the other hand, the correlation analysis showed a moderate, but significant correlation between the two factors and employee job satisfaction, which means that there is an association between these variables that is rather bidirectional and most likely dependent on influences that were not investigated in the present study.

On the basis of the obtained results, it can be concluded that the nature of work combined with the sense of personal accomplishment, the competitive remuneration and good opportunities for professional development, a working environment in which adequate measures are taken to control stress and excessive workload, good relationships with line manager, transparent and effective communication at all organizational levels and good relationships with the colleagues are the key prerequisites that lead to high job satisfaction for employees in the ICT sector.

The results of the present study can be used in practice by different business units and at different stages of the development of the organizations – 1) by senior management at the level of strategic planning; 2) by human resources specialists in the selection and periodic evaluation of employees and in the monitoring of the work environment and 3) by the managers of departments and teams in setting adequate performance goals and measuring the achieved results.



Essentially, employee job satisfaction is of fundamental importance for their long-term retention and for lowering the turnover rates in the ICT industry, for increasing employee commitment and loyalty to the organization, for improving personal performance, as well as for creating a motivating work environment and building a strong and engaged team, which can become a major competitive advantage of the business.



## 4. Main Contributions

- A systematic review of a large number of studies that discuss similar topics has been done in order to identify a broad list of satisfaction factors.
- Two measurement instruments were created. Some of the elements used in the questionnaires are adaptations of items used in popular satisfaction measurement scales, while others were specially designed, tested and applied for the first time in the present study. The two questionnaires were created in English and translated into Bulgarian using the so-called forward/backward translation (FBT) technique (Kowal & Roztocki, 2015), which facilitates their useage not only in the present but also in future studies.
- On the basis of two author's studies, a systematic scheme for examining job satisfaction of employees in the ICT sector has been created. The first study is carried out with a preparatory purpose to set the basis for the second one, which is main for the dissertation and examines in detail the relationships and influences of interest.
- The most important satisfaction factors for employees in the ICT sector have been identified and their individual influence on employee overall job satisfaction, measured in two different ways – as a general and as a global variable, has been investigated.
- A number of differences in the level of satisfaction depending on the sociodemographic characteristics of the examined employees have been outlined.



## 5. Author's Publications in Relation to the Dissertation Topic

### Publications

1. Yanchovska, I. (2021). The relationship between job satisfaction and individual performance of IT employees. *Proceedings of CBU in Economics and Business*, 2. <https://doi.org/10.12955/peb.v2.267>
2. Yanchovska, I. (2022). Scales for measuring employee job satisfaction. "Mlad Forum" – *mladezhko izdanie na nauchno spisanie "Mehanika. Transport. Komunikatsii"*, 1 (accepted for publication).
3. Ivanova, S., & Yanchovska, I. (2022). Impact of COVID-19 on IT employees' job performance – A comparative analysis. *Proceedings of CBU in Economics and Business*, 3 (accepted for publication).

### Presentations

1. "Job Satisfaction Factors among IT Employees"  
PhD Seminar: "Innovation Management and Digital Transformation of Industries and Work: Future Trends and Research Methodologies", FEBA
2. "Impact of Social Distancing on Job Satisfaction - A Comparative Analysis among IT Employees"  
FEBA 22nd Annual Conference "Environmental, social and governance challenges for recovery and resilience"
3. "Flexible working and IT employees' job satisfaction before and during COVID-19"  
39th EBES Conference, Rome

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