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RESEARCH ON EMPLOYEE SUCCESS, PERFORMANCE, AND SATISFACTION IN THE BULGARIAN IT INDUSTRY*

Ivan Dimitrov ¹, Yoana Krumova ², Adile Dimitrova ³

^{1,2,3} Prof. Dr Asen Zlatarov University-Burgas, 1 Prof. Yakimov str, 8010 Burgas, Bulgaria

E-mails: ¹i.t.dimitrov@abv.bg; ²yoana.krumova@mail.com; ³adiledimitrova@abv.bg

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Abstract. In the heart of Bulgaria's booming IT industry, a hidden blueprint for success is emerging. Sustaining competitive advantage requires a nuanced understanding of the factors that drive employee performance, satisfaction, and retention. This study investigates how different elements of the job requirements influence workforce dynamics among IT professionals in both technical and managerial roles. Through a comprehensive quantitative survey, this research examines the impacts on achievements, performance, and role fulfilment, revealing that Bulgarian IT employees prioritise balanced workdays, defined advancement pathways, and compensations that respect their talent. Matching quality standards with a solid people-centred focus optimise productivity, while career development opportunities partially offset the need for higher compensation, enhancing overall satisfaction. The findings offer actionable recommendations for human resource strategies uniquely suited to Bulgaria's IT sector. To foster a thriving workforce, IT firms are advised to invest in initiatives supporting work-life balance, structured career development, and employee recognition, strengthening engagement and satisfaction. By addressing the distinct needs of Bulgaria's IT professionals, this research enriches the discourse on human resource management in technology sectors, proposing a framework that empowers organisations to cultivate a resilient, motivated workforce. This approach ensures that Bulgaria's IT industry remains well-positioned to thrive within the fast-evolving, high-demand global market, ultimately contributing to sustainable sectoral growth and innovation.

Keywords: employee success; employee performance; job satisfaction, Bulgarian IT industry; workforce retention; career development; employee engagement; work-life balance; compensation satisfaction; talent management

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1. Introduction

As a rapidly evolving and high-growth sector, Bulgaria's IT industry has become an essential contributor to the national economy, drawing on a rich legacy of technical expertise and innovation (Stefanov, Boeckholt, & Pontikakis, 2021) (Duque, Collins, Abbate, Azambuja, & Snaprud, 2007) (Đorđević, 2021). The industry's success is primarily attributed to a technically proficient, multilingual workforce concentrated in key cities, including Sofia, Plovdiv, Varna, and Burgas (NCube, 2022). This workforce, comprising over 70,000 skilled professionals, serves a diverse range of international clients, primarily in Europe and the US, with more than 80% of the sector's revenue generated through exports (International Trade Administration, 2024).

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Bulgaria also ranks among the top in Europe for software development quality, highlighting its professionals' technical rigour and problem-solving capabilities (Triakha, 2016). This industry has shown resilience and adaptability, achieving a 10% revenue increase even during the economic challenges of the COVID-19 pandemic, while the national GDP declined by 5.5% (BASSCOM, 2023). However, as the IT industry expands, it faces critical challenges in retaining top talent and meeting employee expectations for career development, work-life balance, and job satisfaction. Addressing these complications in workforce retention and skill development will be essential for the Bulgarian IT sector to sustain its competitive advantage.

This study explores the factors influencing employee success, performance, and satisfaction in the Bulgarian IT sector, where these dynamics are particularly pertinent due to the industry's high demand and competitive job market. Through a quantitative survey targeting IT professionals across various technical and managerial roles, this research examines trends, experiences, and skill levels to gain insights into workforce dynamics. Main constructs are analysed to understand their impact on employee outcomes, including productivity, job satisfaction, and role fulfilment.

By investigating these relationships, this study seeks to offer actionable insights into employee engagement and retention strategies that align with the unique needs of the Bulgarian IT industry. The findings will contribute to the broader knowledge base on talent management in tech, guiding IT firms in Bulgaria to develop targeted interventions that foster a sustainable, competitive workforce.

2. Theoretical background

Employee success, performance, and satisfaction are interconnected aspects of workforce dynamics that are critical to organisational productivity and employee retention (Prentice, 2022; Pepple & Ambilichu, 2024). Success, as a concept in the workplace, is multi-dimensional, encompassing personal achievements, career advancement, and fulfilment of professional objectives. It integrates cognitive abilities, personality traits, educational background, and social competencies—all factors highly valued by companies and that enhance individual employability and career growth (Hogan, Chamorro-Premuzic, & Kaiser, 2013). Early career success is typically grounded in support systems, resilience, and work-life balance, while long-term success benefits from continuous learning, goal-setting, and the acquisition of business and leadership skills (Bell, Cake, & Mansfield, 2019). Research has shown that employee conscientiousness, extraversion, and age are strong predictors of perceived job success. This achievement is often associated with higher personal accomplishment, lower levels of emotional exhaustion, and more stable, responsibility-driven roles (Rubio-Valdehita, Díaz-Ramiro, & López-Núñez, 2023). Happiness, rather than merely resulting from workplace success, serves as a catalyst, encouraging greater engagement and productivity (Boehm & Lyubomirsky, 2008; Raza & Yousufi, 2023; Hemsworth et al., 2024; Shah et al., 2024).

In industries like Bulgaria's IT sector, where talent is a core driver of success, a deep understanding of these factors is essential for companies aiming to attract and retain top employees.

Employee performance, particularly in the IT sector, is complex, requiring technical and soft skills. Defined as the quality and quantity of work delivered by employees (Pradhan & Jena, 2017), performance encompasses productivity, quality of work, and goal achievement. Effective performance relies on goal alignment, where employees have clear targets and are aware of how to direct their efforts toward them (Lawler & Porter, 1967). Managing employee performance requires setting goals, providing feedback, and evaluating progress (Osmani & Maliqi, 2012). Employee performance can be measured through various indicators—productivity, work quality, customer satisfaction, and behavioural traits like creativity, problem-solving, teamwork, communication, and self-management (Murphy & Cleveland, 1995). Self-management skills, in particular, are essential for IT professionals who often work in autonomous or flexible environments. Campbell also emphasises that performance is an individual-level variable or something a single person does (Campbell, 1990).

This skill enables employees to set priorities, manage time effectively, and maintain focus in a high-demand workplace.

Employee satisfaction is closely linked to both success and performance. Employee satisfaction captures employees' overall perceptions and attitudes toward their job roles, workplace environment, and the organisation. It involves the degree to which employees feel that their needs and expectations are met in the workplace, encompassing elements such as job fulfilment, engagement, and the level of support and direction provided by leadership (Saari & Judge, 2004). Satisfaction is often influenced by critical factors like compensation, work-life balance, opportunities for advancement, and the company's culture, which shape employees' willingness to invest in their roles and remain committed to the organisation (Melián-González, Bulchand-Gidumal, & López-Valcárcel, 2015; Shafagatova et al., 2023). Satisfied employees are more likely to deliver high-quality service, which improves customer satisfaction, supports employee retention, and contributes to the long-term profitability and efficiency of the business (Fang, Gao, & Hu, 2021).

The relationship between these three constructs—employee success, performance, and satisfaction—forms a complex web that businesses must navigate to foster a thriving workforce. This research explores these interconnections within the Bulgarian IT sector, providing insights that can inform best practices in recruitment, retention, and employee development. By addressing the unique challenges and opportunities present in this rapidly evolving industry, the study seeks to contribute to the body of knowledge on human resource management and organisational behaviour in Bulgaria.

3. Research objectives and methodology

This study uses a quantitative approach, utilising an online survey to capture demographic, technical, and experiential data from IT professionals. The target population consists of technical professionals employed in the Bulgarian IT industry. This includes a range of technical and managerial roles, such as software development, DevOps, cybersecurity, project management, and IT support. The sampling is meant to capture a diverse cross-section of the Bulgarian IT workforce, recognising the industry's various skills, responsibilities, and career stages. Specifically, the research aims to:

- ✓ Examine demographic trends across various technical roles and career stages to reveal patterns that may impact employee advancement.
- ✓ Explore the distribution and self-assessment of technical skills across different job functions to determine how perceived expertise varies with role type and seniority.
- ✓ Analyse workplace experience constructs—work-life integration, employee reward systems, collaboration practices, etc.—and assess their impact on job satisfaction and productivity.
- ✓ Investigate the relationship between specific predictors (self-management, career development resources, compensation satisfaction) and their combined effects on employee success and role fulfilment.
- ✓ Explore the moderating role of interaction effects between factors like user satisfaction and quality emphasis to provide insights into how IT professionals balance technical rigour with user-centred outcomes.

With these objectives, the study intends to elucidate critical aspects of workforce dynamics in the Bulgarian IT sector, inform potential interventions for enhancing employee experience, and contribute to the broader discourse on diversity and work-life balance in the technology industry.

A convenience sampling approach was used, primarily reaching participants through LinkedIn and Bulgarian IT industry networks. Invitations to participate in the study were distributed to individuals and groups within these platforms, focusing on technical employees across various firms. The survey questions were adapted from established scales used in prior research on employee satisfaction, performance, and workplace experience constructs, ensuring consistency with validated frameworks. The survey includes six main sections:

- 1) Demographic information: This section collects respondents' gender, age, educational background, type of employer, job title, and years of experience to profile the workforce and allow for comparative analysis across different groups.
- 2) Insights on the selection stages: Participants were asked about the duration, transparency, and perceived fairness of the hiring journey, including the types of assessments used and their perceived relevance. These responses help identify factors within the candidate's experience that may later influence job satisfaction and alignment with role expectations.
- 3) Workplace experience and onboarding: Questions in this section explore the onboarding resources provided, including formal training, mentorship, and on-the-job learning. Participants also rated the importance of a balanced lifestyle approach, flexibility, and cultural fit, as well as the efficacy of workplace support resources such as feedback and coaching.
- 4) Skills, performance, and collaboration: The survey included questions assessing self-rated technical skills, collaboration abilities, time and self-management, etc. This section also addressed employees' challenges, such as adapting to new technologies, balancing workloads, and managing work stress.
- 5) Employee satisfaction and motivation: Respondents evaluated their satisfaction with compensation, benefits, recognition, career development opportunities, and the supportiveness of the work environment. Motivation was also measured to understand employees' engagement and drive toward achieving personal and corporate objectives.
- 6) Career goals and feedback systems: This section covers goal-setting practices, methods of tracking success, and feedback-seeking habits. Additional questions assessed the extent to which respondents felt prepared and equipped for career advancement, reflecting on organisational support and personal development.

Through this methodology, the research aims to generate a comprehensive dataset that enables a robust examination of factors influencing engineers' career experiences in Bulgaria. Data analysis was performed using a combination of descriptive and inferential statistical techniques:

- Descriptive statistics: Summary statistics (e.g., means, standard deviations, and frequencies) were computed for key variables such as demographic information, self-rated technical and soft skills, satisfaction with hiring and onboarding processes, and workplace support. This provided an overview of the distribution of responses and highlighted patterns within the dataset.
- Chi-square tests: Chi-square analyses were conducted to examine associations between categorical variables, particularly demographics and other factors. This helped identify any significant patterns or disparities within various subgroups.
- Factor analysis: Principal component analysis with Varimax rotation was used to reduce and organise responses from sections covering workplace experience, skill development, and employee satisfaction. Factor analysis was conducted on responses related to job satisfaction, onboarding, feedback systems, and challenges faced in work-life balance. Loadings and reliability coefficients (Cronbach's alpha) were calculated to validate the factors and ensure internal consistency.
- Correlation analysis: Bivariate correlations were calculated to explore relationships between key variables such as compensation satisfaction, work-life balance, collaboration, and job satisfaction. These correlations provided insights into how specific skills and workplace resources are related to employee fulfilment, motivation, and success.
- Regression analysis: Multiple regression models were employed to identify predictors of productivity and role satisfaction, using independent variables such as the perceived effectiveness of feedback, career development resources, and onboarding processes. Specific focus was given to assessing how skills in self-management, technical expertise, and communication predict overall productivity and job fulfilment. Satisfaction with compensation and benefits, feedback mechanisms, and career advancement opportunities was also analysed to determine their impact on employee motivation.
- Moderation analysis: Interaction terms were created for selected variables to assess potential moderation effects. Mean-centring was applied to reduce multicollinearity, and interaction terms were tested in separate regression models to determine whether specific predictors moderated relationships with productivity and satisfaction.

The reliability of the constructs was assessed using Cronbach’s alpha, with coefficients above 0.75 indicating good internal consistency. Sampling adequacy for factor analysis was confirmed using the Kaiser-Meyer-Olkin (KMO) measure, and Bartlett’s sphericity test verified the data’s appropriateness for factor analysis. Although the study’s cross-sectional design and reliance on self-reported data may present limitations, including multiple items per construct mitigates these concerns. This yields a robust and credible analysis of factors influencing employee outcomes in the Bulgarian IT sector. By combining demographic profiling, technical skills assessment, and workplace experience analysis, this methodology allows for a comprehensive examination of the elements influencing employee success, performance and satisfaction in the Bulgarian IT industry.

4. Results

4.1. Demographic profile and technical skills distribution

A detailed analysis of the demographic profiles of respondents shows notable patterns in gender distribution, with 76.7% of respondents identifying as male and 23.3% as female. Although overall participation rates across roles such as backend, frontend, and full-stack development appear relatively balanced, Chi-square test results reveal significant gender disparities in several specialised technical roles (

Figure 1). These disparities are particularly evident in fields like mobile development ($\chi^2=9.96$, $df=1$, $p < 0.01$), cloud computing ($\chi^2=7.16$, $df=1$, $p < 0.01$), DevOps/Security ($\chi^2=19.34$, $df=1$, $p < 0.001$), and web development ($\chi^2=5.01$, $df=1$, $p < 0.05$). Such roles exhibit a higher male representation, highlighting a potential area for targeted diversity initiatives to promote female participation in highly specialised technical domains.

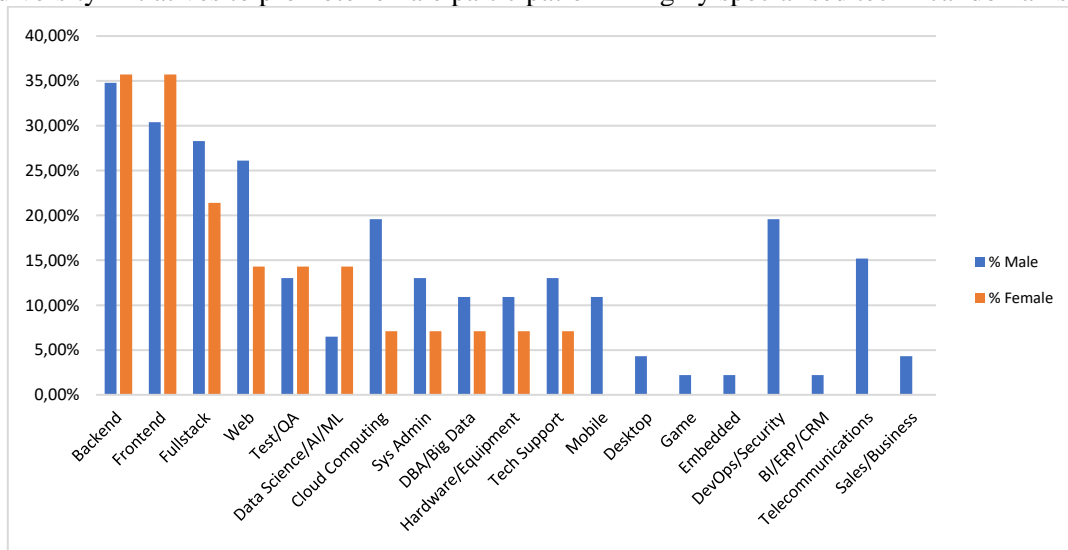


Figure 1. Gender distribution across various technical functions, visually emphasising the male-dominated nature of certain specialities

Furthermore, gender-based disparities appear to widen with increased seniority. Males are more frequently represented in senior technical roles, particularly those requiring more than five years of experience, while females are predominantly found in the early stages of their careers. This trend suggests the presence of potential barriers to advancement for women within the Bulgarian IT industry, potentially indicative of a glass ceiling effect that merits further investigation.

The educational background of participants also reflects high qualifications, with 41.7% holding a master’s degree or equivalent and 38.3% a bachelor’s degree, underscoring the advanced educational standards among Bulgarian IT professionals (AIBEST, 2020). However, it is notable that females are less commonly found with

advanced postgraduate qualifications. Higher educational attainment is correlated with more senior roles, especially in leadership positions, where respondents also rate their technical expertise at the highest levels.

Self-assessed technical expertise ratings vary significantly across roles. Multi-functional roles, such as full-stack development, show higher average self-assessment scores in technical expertise (between 4.5 and 5.0 on a 5-point scale), compared to more specialised functions, such as backend development, which averages around 3.3. This finding suggests that professionals in roles with broader scopes perceive themselves as more versatile and competent across a range of technical skills. Leadership roles also show high self-assessed expertise levels, with average ratings reaching 5.0. This reflects a concentration of perceived expertise among more senior professionals, likely attributed to extensive experience and a broader scope of responsibility.

Despite the underrepresentation of females in senior roles, women are well-represented in entry-level and early-career positions. This distribution raises an important area for further research: the potential challenges women encounter when advancing to senior technical or leadership roles. Examining factors such as structural barriers, workplace culture, and recruitment biases could shed light on whether these factors contribute to the observed disparities.

4.2. Factor structure and reliability of employee experience constructs

The factor model explained a cumulative variance of 61.9% across the first 11 factors, indicating a complex structure underlying employee experiences. Notably, Factor 1 alone accounted for 14.1% of the total variance, suggesting that a select group of variables captures a substantial proportion of the variation in employee responses. Each subsequent factor contributed incrementally, providing more nuanced insights into different dimensions of employee success and satisfaction. The rotated component matrix further clarified this structure, delineating variables into distinct factors, each representing a unique latent construct. Below is a summary of the 4 most prominent factors:

Factor 1: Assessment effectiveness and job role fit is characterised by high loadings on variables such as the usefulness of technical tests, situational cases, and work samples, reflecting the perceived effectiveness of these assessments in evaluating job fit. This suggests that rigorous testing processes are seen as critical predictors of job compatibility.

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.83, indicating that the data is well-suited for factor analysis. Bartlett’s test of sphericity was significant ($\chi^2 = 990.52$, $df = 21$, $p < 0.001$), confirming intercorrelations among the variables. With a Cronbach’s alpha of 0.85, this factor demonstrates strong internal consistency, suggesting reliability in measuring the underlying construct. Notably, none of the items improved reliability significantly if removed, as confirmed by corrected item-total correlations and alpha values, indicating that each item contributes meaningfully to the factor.

Table 1. Key variables and loadings for factor 1: Assessment effectiveness and job role fit

Top Variables	Loading
Usefulness of Practical Assignments	1.81
Value of Work Sample Evaluations	1.63
Relevance of Cognitive Tests	1.52
Effectiveness of Group Discussions	1.25
Utility of Technical Tests	1.24
Value of Situational Cases	1.06
Usefulness of Reference Checks	1.03

Factor 2: Work-life challenges and support systems represents the interplay between personal challenges and the potential mitigating effect of support systems within the workplace. It encapsulates the difficulties employees face in managing professional and personal commitments, stress, skill demands, and time constraints

while also highlighting the beneficial role of support mechanisms. High loadings on stress and conflicts between professional and personal priorities indicate that employees in the Bulgarian IT industry are under considerable strain, and without adequate support, these challenges could lead to reduced engagement and performance.

A KMO of 0.78, deemed acceptable, and Bartlett’s test of sphericity was significant ($\chi^2=2021.54$, $df = 45$, $p < 0.001$), confirming the suitability of the data for factor analysis.

Table 2. Key variables and loadings for factor 2: Work-life challenges and support systems

Top Variables	Loading
Frequency of Overtime Work	0.86
Difficulty Adapting to Workplace Changes	0.56
Challenges in Work-Life Balance	1.05
Issues with Managing Work Stress	1.15
Difficulty Learning New Skills	0.62
Struggles with Technical Issues	0.67
Challenges in Time Management	0.69
Usefulness of WLB recourses // <i>removed for reliability</i>	-0.51
Effectiveness of Group Discussions // <i>removed for reliability</i>	0.51
Work & Personal Life Balance // <i>removed for reliability</i>	-1.01

After removing misaligned items, a reliability analysis revealed a Cronbach's alpha of 0.85, suggesting good internal consistency among the remaining items. This reliability score indicates that the items within this factor coherently measure the underlying construct of work-life challenges and support systems. The factor suggests that enhancing support systems and promoting healthy work-life blend may help alleviate some of these challenges, enabling employees to perform better and experience greater success in their roles.

Factor 3: Employee rewards and satisfaction capture the key elements of the workplace that contribute directly to employee satisfaction and a sense of support. High loadings on these variables suggest that employees value both tangible rewards (like fair compensation and growth opportunities) and intangible benefits (like recognition and constructive feedback). The KMO was 0.79 and Bartlett's test of sphericity was significant ($\chi^2=1406.78$, $df = 28$, $p < 0.001$), verifying that this data set is appropriate for factor analysis. The reliability analysis yielded a Cronbach's alpha of 0.86, suggesting that the items within this factor are cohesively measuring the construct of employee rewards and satisfaction.

Table 3. Key variables and loadings for factor 3: Employee rewards and satisfaction

Top Variables	Loading
Value of Career Advancement Opportunities	0.81
Frequency of Employee Recognition	0.63
Usefulness of Constructive Feedback	0.62
Perceived Fairness of Compensation & Benefits	1.00
Comfort in Work Environment	0.62
Satisfaction with Compensation	0.72
Importance of Work-Life Balance Support	0.53
Supportiveness of Organisational Culture	0.55

The factor underscores that satisfaction in the Bulgarian IT industry is closely linked to compensation, advancement opportunities, and recognition. While work-life balance and supportive culture are valued, tangible success is also important. The insights suggest employers can enhance employee satisfaction by focusing on fair compensation, clear career advancement paths, and a positive recognition culture. This approach can help retain talent and foster a supportive and satisfied workforce.

Factor 4: Collaboration and advancement skills emphasise the dual importance of effective communication and career-focused skills in the workplace (KMO=0.77, $\chi^2=916.05$, $df = 15$, $p < 0.001$). High loadings on

variables related to communication abilities—such as writing, speaking, presenting, and negotiating—underscore the value of these skills for career advancement. Mastery in these areas enables employees to navigate the workplace more effectively, take on leadership roles, and interact confidently with clients, colleagues, and stakeholders.

The factor achieved a Cronbach's alpha of 0.81, which indicates good internal consistency. Although removing the importance of career advancement would increase Cronbach's alpha to 0.85, this item was kept given the central relevance of career advancement to employee satisfaction and professional development in the Bulgarian IT industry. Thus, it was retained to provide a more comprehensive representation of the skills necessary for collaboration and career advancement.

Table 4. Key variables and loadings for factor 4: Collaboration and advancement skills

Top Variables	Loading
Importance of Career Advancement	0.78
Writing Collaboration	0.85
Verbal Communication	0.71
Negotiation Skills	0.78
Active Listening Skills	0.72
Presentation Skills	0.88

This factor suggests that employees in the Bulgarian IT industry regard communication skills as fundamental for career growth. Employers can support this by offering communication training programs, public speaking workshops, and career development resources. By fostering these skills, companies can enable employees to achieve their career goals while enhancing team collaboration and overall organisational communication effectiveness.

4.3. Correlation insights: Relationships between satisfaction, skills, and workplace support

Data for this analysis were derived from questions assessing satisfaction, confidence, and perceived usefulness of various workplace elements among IT employees in Bulgaria. Using correlation analysis, significant relationships were examined (with $r > 0.3$), reflecting relationships that may influence employee satisfaction, performance, and work-life balance.

4.3.1. Task-specific relationships

Employees who find compensation and benefits resources useful report higher satisfaction with new solution implementations ($r=0.359$). This suggests that a well-structured benefits program positively impacts adaptability and receptiveness to innovation. These correlations align with factor 3, highlighting that satisfaction with compensation is integral to overall job satisfaction and adaptability. Similarly, employees confident in their time management skills tend to be more satisfied with troubleshooting tasks ($r=0.309$). This indicates that time management is key to managing technical responsibilities and reducing frustration in problem-solving. Mentorship programs also show value; mentoring usefulness correlates positively with satisfaction in troubleshooting ($r=0.390$) and system upgrade tasks ($r=0.307$). This suggests that mentorship programs can help employees navigate challenges and adapt to technical changes more smoothly.

4.3.2. Collaboration and job satisfaction

Challenges with collaboration are associated with lower contentment with tasks that rely on teamwork, such as testing ($r=-0.327$) and presentations ($r=-0.316$). This negative relationship underscores the importance of teamwork training, as collaboration issues can reduce job fulfilment in communication-intensive tasks. Conversely, employees with strong leadership confidence report higher gratification in presentation tasks ($r=0.336$), highlighting the role of leadership development programs in building confidence for outward-facing responsibilities like public speaking and team demonstrations.

4.3.3. Challenges and their impact on stress and balance

The high correlation between dealing with technical issues or bugs and stress management ($r=0.576$) underscores the role of technical challenges in increasing workplace stress. This points to the need for both technical and stress management training. Employees who find it difficult to learn new skills also struggle with adapting to changes ($r=0.550$), suggesting that companies should focus on continuous skill development to foster adaptability in a dynamic environment. The strong correlation between these factors highlights the impact of stress on work-life balance ($r=0.694$), suggesting that businesses should prioritise stress management programs and initiatives to support balance.

4.3.4. Confidence factors and their interactions

Confidence in problem-solving is strongly linked to technical self-assurance ($r=0.617$), underlining the need for analytical skills training as a foundation for building domain expertise. Similarly, time management skills correlate positively with self-management ($r = 0.651$), showing that strong time organisation enhances overall productivity and autonomy in the workplace. Employees with confidence in managerial skills are also likely to report high levels of creativity ($r=0.447$), suggesting that leadership development programs could encourage creative thinking, which is essential for innovation in the IT industry.

4.3.5. The role of mentoring, feedback, and career development

The data reveal that mentoring correlates positively with perceived career growth ($r=0.523$), suggesting that it supports professional development by making career advancement seem more attainable. Constructive feedback also correlates with career opportunities ($r=0.487$), showing that an effective feedback culture can motivate employees toward professional goals. Furthermore, employees with positive perceptions of their compensation and benefits are more likely to view career advancement as achievable ($r = 0.698$). This highlights the motivational role that a competitive benefits package plays in fostering long-term career aspirations.

4.3.6. Culture, work-life balance, and productivity

The received feedback on work environment and culture shows a strong positive correlation with work-life balance ($r = 0.727$). This underscores the role of a supportive culture in helping employees achieve harmony between professional responsibilities and personal well-being. Companies that prioritise a positive work culture are likely to have more success in implementing work-life balance initiatives. Additionally, a positive work environment appears to extend beyond general culture, as satisfaction with maintenance tasks shows a moderate positive correlation with work effectiveness ($r = 0.376$). This suggests that employees not only benefit from an overall supportive culture but also from finding meaning in specific, routine tasks, which can enhance their performance. Maintenance tasks often represent essential, albeit repetitive, responsibilities that keep systems functioning optimally. Satisfaction in these tasks can reflect a positive work attitude, attention to detail, and resilience in handling day-to-day responsibilities. Fostering a culture that values and supports task gratification can help ensure that employees see their role's operational aspects as meaningful, thus enhancing overall productivity.

A similar moderate positive correlation (0.360) between confidence in self-management and overall productivity indicates that employees who feel capable of managing their own workload and time are more likely to be efficient. Self-management involves autonomy, discipline, and the ability to prioritise tasks effectively, which are crucial in fast-paced IT roles. Businesses should consider investing in programs that strengthen these skills, as self-management contributes to both individual performance and team efficiency. Lastly, meeting deadlines shows a positive correlation with overall productivity ($r = 0.370$). Adhering to timelines is essential in the IT industry, where project schedules are often stringent and delays can lead to customer dissatisfaction or additional costs. Employees who consistently meet deadlines are typically well-organised and effective in workload management, contributing to higher performance. Organisations should therefore focus on setting realistic timelines, providing resources that support efficient project management, and recognising achievements in meeting deadlines.

4.4. Performance drivers: A regression analysis of key predictors

This study leverages regression analysis to assess the impact of several predictors on overall success and role contentment among IT employees in Bulgaria. Employees rated their skills and goals through survey questions covering areas like communication abilities, success-tracking habits, self-management confidence, and the importance of quality work and user satisfaction. These variables were analysed to determine their influence on productivity and fulfilment.

4.4.1. Productivity Model

The regression model for productivity achieved an R^2 of 0.51, showing that 51% of the variability in productivity is explained by the included predictors. This is a robust result in social science research, suggesting that these factors have meaningful, real-world impacts on employee performance. The model’s statistical significance ($p < 0.001$) further confirms that the combined effect of these predictors is unlikely due to chance, underscoring the importance of these variables.

Table 5. Regression results for predictors of productivity

R	R Square	Adjusted R Square	Std. Error of the Estimate			
0.71	0.51	0.5	1.12			
Table: ANOVA (overall productivity)		Sum of Squares	df	Mean Square	F	Sig.
Regression		452.37	6	75.4	60.61	0
Residual		439.13	353	1.24		
Total		891.5	359			
Table: Coefficients (overall productivity)		Unstandardised Coefficients		Standardised Coefficients	t	Sig.
		B	Std. Error	Beta		
(Constant)		5.19	0.45	0	11.65	0
Speaking collaboration		0.09	0.09	0.05	1.01	0.311
Writing collaboration		0.3	0.07	0.21	4.3	0
Setting and tracking goals		-0.85	0.12	-0.27	-6.88	0
Self-management		0.49	0.07	0.29	7.29	0
Importance on high-quality work		-0.26	0.05	-0.23	-5.57	0
Importance on user satisfaction		0.36	0.05	0.29	7.02	0

The results revealed a complex relationship between collaboration skills and productivity. Writing skills emerged as a significant positive predictor, with a standardised beta coefficient (Beta) of 0.21. A one-unit increase in writing effectiveness leads to a 0.3-unit increase in performance, underscoring the importance of clear written communication in IT, where documentation and project notes are essential. Employees who effectively communicate through writing may experience smoother collaborations, fewer misunderstandings, and higher efficiency in task completion. Unlike writing skills, speaking skills did not show a significant impact on productivity, with a p-value of 0.311. This finding may reflect the industry’s emphasis on written communication, such as emails, project notes, and technical documentation, over verbal interactions.

One of the most surprising findings was the negative relationship between setting & tracking goals and performance. The standardised beta for this variable was -0.27, and it showed a significant p-value ($p < 0.001$). This outcome suggests that while setting and tracking specific and measurable milestones is a common performance strategy, the process may have unintended drawbacks in this context. Tracking specific metrics could introduce added pressure or create distractions, potentially hampering overall productivity. In a field where problem-solving and creativity are crucial, rigid task-tracking may conflict with the flexibility needed for innovative thinking.

Employees’ confidence in their self-management skills emerges as a strong positive predictor of performance, with a beta coefficient of 0.29 ($p < 0.001$). This result indicates that autonomous employees—those who excel

in time management, prioritisation, and personal accountability—are generally more productive. Self-management appears to foster a proactive attitude and resilience, helping employees handle demanding workloads effectively in the dynamic IT sector.

A somewhat counterintuitive finding was the negative relationship between the importance placed on high-quality work and productivity ($B = -0.23, p < 0.001$). This suggests that employees who are highly focused on quality and performance may spend additional time perfecting tasks, leading to a reduced volume of completed work. While quality is undeniably important in IT, balancing quality and productivity could be beneficial. Managers might consider providing guidelines to help employees determine when work is “good enough” to meet standards, which could help mitigate performance losses without sacrificing quality and employee performance.

User satisfaction, on the other hand, is one of the most significant positive predictors of performance, with a beta coefficient of 0.29 and a high level of significance ($p < 0.001$). Employees who prioritise user satisfaction tend to be more productive, likely because they see a direct, rewarding impact from their work. This result aligns well with motivational theories that emphasise the importance of purpose in the workplace. Employees who recognise that their work contributes to user satisfaction may be more motivated and engaged, directly enhancing overall performance. This finding suggests that emphasising the value of work to the end-user can be a powerful strategy for boosting productivity.

4.4.2. Role Satisfaction Model

The regression model for role satisfaction explains a significant portion of variability, with an R^2 of 0.68. This means that our model explains a significant portion of the variation in role gratification. The model was statistically significant ($F = 57.85, p < 0.001$), confirming that the predictors are collectively meaningful in explaining role satisfaction.

Table 6. Regression results for predictors of role satisfaction

R	R Square	Adjusted R Square	Std. Error of the Estimate		
			Mean Square	F	Sig.
0.83	0.68	0.67	0.5		
Table: ANOVA (role satisfaction)	Sum of Squares	df	Mean Square	F	Sig.
Regression	184.65	13	14.2	57.85	0
Residual	84.95	346	0.25		
Total	269.6	359			
Table: Coefficients (role satisfaction)	Unstandardised Coefficients		Standardised Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.89	0.26	0	7.33	0
Application to offer time	-0.11	0.03	-0.12	-3.67	0
Hiring transparency	0.05	0.04	0.04	1.24	0.216
Preparation role	0.06	0.03	0.09	2.29	0.023
Time management	0.11	0.04	0.1	2.66	0.008
No progress measurement	-1.27	0.24	-0.19	-5.39	0
Training usefulness	0.14	0.04	0.13	3.72	0
Career advancement resources usefulness	0.17	0.04	0.22	4.4	0
Usefulness of compensation & benefits resources	-0.02	0.04	-0.03	-0.47	0.64
Culture support usefulness	-0.02	0.04	-0.02	-0.38	0.706
Work-life balance feedback usefulness	0.04	0.04	0.06	1.13	0.258
Deadlines success	-0.2	0.03	-0.22	-6.54	0
Compensation satisfaction	0.26	0.03	0.35	8.21	0
Work environment comfort	0.04	0.03	0.05	1.18	0.24

Among all variables, satisfaction with compensation (including pay, bonuses, and incentives) showed the strongest positive impact on role fulfilment ($B = 0.26, p < .001$). Employees who reported higher financial gratification tended to have much higher levels of role satisfaction, suggesting that competitive remuneration is a primary driver of contentment within roles. Career advancement resources also play a critical role in shaping role satisfaction, as reflected by a standardised beta of 0.22 ($p < 0.001$). This aligns with the idea that employees are more likely to be satisfied when they see clear pathways for growth within the company.

Similarly, the usefulness of training resources had a significant positive effect on role satisfaction ($B = 0.14, p < .001$), indicating that employees value the support and development offered by their companies. Investing in effective training programs can, therefore, have a substantial impact on employee satisfaction. Preparation for the role also shows a positive association with fulfilment, with a beta coefficient of 0.09 ($p = 0.023$). This finding highlights the importance of a thorough hiring process that equips new hires with the skills and knowledge necessary for their responsibilities. In addition, employees with strong time organisation skills who can effectively prioritise tasks and manage workloads reported higher satisfaction ($B = 0.11, p = .008$). This suggests that offering time management support could enhance overall job contentment. The extent to which employees feel prepared for their roles, based on the hiring and onboarding process, also influences satisfaction.

This model also identifies two strong negative predictors of role satisfaction: lack of progress measurement ($B = -0.19, p < 0.001$) and difficulties in meeting deadlines ($B = -0.22, p < 0.001$). Employees who lack tools or systems to monitor their success experience significantly lower role fulfilment, suggesting that providing mechanisms for performance evaluation could enhance their sense of achievement and satisfaction. Similarly, employees who struggle to meet deadlines report lower job contentment, indicating that support for time management and realistic project timelines (Krumova, 2024) could improve satisfaction levels. The model also identifies a minor negative impact on role fulfilment associated with lengthy application-to-offer times ($B = -0.12, p < 0.001$). Streamlining the hiring process could have positive downstream effects on employee fulfilment by reducing delays and uncertainties for prospective employees.

Certain factors like hiring transparency and work environment comfort, while potentially important to overall employee experience did not show a statistically significant impact on role satisfaction in this analysis. While these areas may contribute to general employee experience and organisational culture, they were not significant predictors of role fulfilment in this model. This does not imply they are unimportant but suggests they may not directly influence job contentment as strongly as the other factors examined. In summary, both productivity and role satisfaction are shaped by a combination of individual skills, organisational support, and workplace conditions. Written collaboration skills, self-management, and user experience are key to performance, while compensation, career advancement opportunities, and training resources are central to role fulfilment. Balancing quality with productivity, setting up performance assessment mechanisms thoughtfully, and supporting employees in time management are practical strategies that businesses can implement to foster an efficient, successful and satisfied workforce.

4.5. Interactive effects on employee success and satisfaction: A moderation analysis

To further explore the relationships identified in the primary regression analysis, a moderation analysis was conducted. This analysis examined whether specific predictor variables interact to affect productivity and role satisfaction, providing insights into their combined influence. By assessing interaction effects, the study aimed to understand how the impact of one predictor might vary depending on the level of another.

As part of the moderation analysis, all continuous predictor variables used in interaction terms were mean-centred. Mean-centering, which involves subtracting the variable's mean from each observed value, helps to reduce multicollinearity between predictors and their interaction terms, making it easier to interpret the interaction effects. The mean-centering formula applied for each predictor variable X is: $X_{mc} = X - \bar{X}$ where:

- X_{mc} represents the mean-centred value of the variable X
- X is the original score of the variable,

- \bar{X} is the mean of X , calculated as: $\bar{X} = \frac{1}{N} \sum_{i=1}^N X_i$ where N is the total number of observations.

By mean-centring, we ensure that each variable has a mean of zero, which simplifies the interpretation of regression coefficients in the presence of interaction terms. Following mean-centring, interaction terms were created by multiplying the mean-centred versions of the relevant predictor variables. Each interaction term reflects the joint influence of two predictors, indicating whether the effect of one predictor on the dependent variable modifies based on the level of the other predictor. The general formula for creating an interaction term between two mean-centred predictors X_{mc} and Z_{mc} is *Interaction Term* = $X_{mc} \times Z_{mc}$.

The interaction terms were included in the regression models as additional predictors alongside the main effects of each variable. Each interaction term was included in a separate regression model to assess its effect on the dependent variables: overall productivity and role satisfaction. The focus of the moderation analysis was on the interaction term regression coefficients, which indicate whether the effect of one predictor depends on the level of the other. Significant interaction effects were interpreted as evidence of moderation, suggesting that the relationship between one predictor and the outcome variable changes in the presence of the other predictor.

5. Findings and interpretation of interaction effects

The interaction between confidence in self-management and goal setting/monitoring was tested to determine whether performance measurement practices moderate the relationship between self-management confidence and overall productivity. The interaction term, however, was not statistically significant ($B=0.23, p=0.268$), suggesting that the effect of self-management on productivity remains consistent regardless of the extent to which employees engage in setting goals and tracking them. This finding implies that confidence in self-management contributes to work effectiveness independently of success-tracking habits, which may indicate that employees who are adept at managing their tasks and responsibilities do not necessarily require structured task-tracking. In this context, each predictor appears to exert an independent influence on performance and success without reinforcing or detracting from each other's effects.

A significant positive interaction effect was found between the importance placed on user experience and emphasis on high-quality work ($B=0.16, p<0.001$). This interaction suggests that, although focusing solely on high-quality work may sometimes be associated with lower overall performance, combining it with a focus on user satisfaction can mitigate this effect. Specifically, when both user satisfaction and high-quality work are valued, outcomes are more favourable than when high-quality work is prioritised alone. This indicates that a dual emphasis on quality and user satisfaction helps counterbalance potential losses from focusing exclusively on quality. From an organisational perspective, fostering an environment that values both quality and user satisfaction may lead to greater productivity gains, as employees are encouraged to deliver results that meet end-user needs while maintaining high standards.

In contrast, a significant negative interaction was found between financial gratification and the perceived usefulness of career advancement resources in relation to role satisfaction ($B=-0.13, p<0.001$). This result suggests that while both high compensation satisfaction and career opportunities independently boost role satisfaction, their combined effect is less than the sum of their individual impacts. In other words, for employees who prioritise career development and perceive ample growth opportunities within the company, the positive effect of high compensation on role satisfaction is somewhat diminished. This finding implies a partial substitutive relationship between compensation and career advancement; employees focused on career growth may derive satisfaction more from professional development opportunities than from monetary rewards alone. Businesses may consider balancing compensation with career advancement resources to maximise role satisfaction, particularly for employees with strong career progression aspirations.

The analysis also examined whether time management skills and work-life balance resources interact to influence role satisfaction. This interaction was not statistically significant, indicating that these two factors

contribute independently to satisfaction. Employees with effective time management skills tend to report higher fulfilment, likely due to their ability to prioritise tasks and handle workloads efficiently. Similarly, work-life balance resources independently promote satisfaction by helping employees manage job demands relative to personal time. The lack of interaction implies that organisations may invest in both areas separately to support employee happiness. Finally, the interaction between writing skills and confidence in overall communication skills was also non-significant ($B=-0.07$, $p=0.296$), indicating that the relationship between writing and employee performance remains unaffected by an individual's confidence in broader communication abilities. Effective writing may be sufficient to support productivity, especially in work environments that prioritise written documentation or where clear written instructions are essential. This result reinforces the idea that strong writing skills alone can be a critical asset for success, independent of other communication and collaboration abilities, suggesting that companies might prioritise training in writing skills to enhance employee performance and success.

6. Discussion

This research examined the demographic profile, technical skill distribution, and key determinants of performance, success, and role satisfaction within the Bulgarian IT sector. The data reveal a marked gender imbalance in specialised technical roles, with disparities becoming more pronounced at senior levels. This trend indicates possible obstacles to career progression for women, highlighting the presence of a possible barrier limiting their advancement potential, which aligns with global research on gender disparities in tech (Fox-Robertson & Wójcik, 2024). Given the strong correlation between technical expertise and seniority, addressing these constraints may require targeted organisational interventions, such as mentorship programs, to support career growth and retention among women in IT. Future research should delve deeper into the structural and cultural factors that may inhibit female advancement in Bulgarian tech roles, adding granularity to the understanding of industry-specific obstacles.

The results from factor analysis further highlight critical workplace experience dimensions that shape employee satisfaction and advancement potential, particularly in relation to work-life balance and support systems. High factor loadings on work-life balance variables underscore a common challenge in the IT sector, where demanding workloads and time constraints contribute to stress and potentially reduce job fulfilment. These findings echo prior research, showing that work-life conflict often detracts from overall job satisfaction (Aruldoss, Kowalski, & Parayitam, 2021). To mitigate these effects, Bulgarian IT firms could prioritise supportive mechanisms such as flexible work schedules and wellness resources, fostering a workplace environment that supports employees' well-being and enhances job contentment.

Regression and moderation analyses provided nuanced insights into how individual and organisational factors interact to influence productivity and role gratification. Notably, self-management confidence was positively associated with productivity, yet its interaction with goal-setting practices was not statistically significant. This suggests that self-managed employees may thrive in IT roles without rigid monitoring, likely due to the adaptive, problem-solving nature of IT work. These findings indicate that autonomy skills could operate independently from goal-setting routines, highlighting an opportunity for IT firms to promote autonomous work styles, especially in roles requiring high adaptability.

On the other hand, a positive interaction between user satisfaction and quality emphasis indicates that balancing quality assurance with user-centric approaches is pivotal for optimal performance. When employees focus on both quality and user impact, they tend to experience increased productivity and job fulfilment, perceiving their work as both purposeful and impactful. This finding aligns with theories on purpose-driven work, which posit that connecting tasks to clear, valued outcomes fosters motivation and enhances performance (Meyer, Roy, Lam, & Damon, 2022). For IT businesses, this dual focus on quality and user satisfaction could thus serve as a strategic approach to increase both employee engagement and end-user experience, ultimately benefiting organisational performance.

Financial gratification emerged as a primary predictor of overall job fulfilment. However, the moderation analysis indicated a partial substitutive relationship with career advancement resources. Employees who prioritise career development gain greater satisfaction from growth opportunities compared to solely receiving wage enhancements. This suggests that companies should offer competitive remuneration and provide visible career pathways, particularly for high-potential employees whose happiness is closely tied to their professional growth prospects.

These insights have practical implications for hiring and onboarding processes as well. Employees who perceive their roles as clearly defined and achievable reported higher levels of contentment, emphasising the value of structured onboarding programs that clarify role expectations and provide comprehensive training. Moreover, streamlining the hiring process may improve job fulfilment and long-term commitment, as prolonged recruitment timelines were associated with lower overall satisfaction.

7. Limitations and future research directions

This study provides substantial insights into the demographic, technical, and psychological factors influencing performance and satisfaction in the Bulgarian IT sector. However, several limitations warrant consideration. First, while the research captures a wide array of factors influencing employee experience, it relies heavily on self-assessment measures. Self-reported data on technical skills, expertise, and job satisfaction may introduce biases, as individuals may overestimate or underestimate their abilities and satisfaction levels. Including objective performance metrics or 360-degree feedback could enhance the reliability of these findings in future studies. Additionally, while regression and moderation analyses provide valuable insights, they do not account for potential causal relationships. Future studies employing longitudinal data could offer a more robust analysis of causation, allowing researchers to observe the long-term impacts of workplace interventions and individual factors on employee outcomes.

Following this line of thought, the findings of this study open multiple avenues for further research aimed at fostering inclusive and productive work environments in the IT industry. One key area for future exploration is the strong correlation between stress and maintaining a healthy separation between work and home, as IT companies would benefit from exploring organisational strategies for managing job-related anxiety. Future research could examine the efficacy of various balanced lifestyle approach campaigns, such as flexible working hours, wellness programs, and remote work options, in reducing stress and improving job fulfilment. Experimental studies could assess which types of work-life interventions are most effective for different demographic groups within the IT sector, considering variables like role type, seniority, and family responsibilities.

Another promising research direction is the aligned focus on user needs and quality for enhancing productivity. Investigating how businesses can balance these objectives effectively could yield actionable strategies for maximising both performance and end-user happiness. Future studies might explore training programs that synchronise technical rigour with client-centred approaches, examining how different instructional designs impact both the quality of technical output and the user experience. Additionally, exploring the role of feedback culture in this balance would provide insights into how feedback delivery style affects employee motivation and work quality.

Lastly, considering the partial interchangeability between compensation satisfaction and career development opportunities, future research should investigate how to optimise these elements within organisational reward structures. Experimental studies examining the impacts of transparent career paths versus remuneration increases on employee retention and satisfaction could inform best practices for talent management. Expanding the research to examine the role of non-monetary incentives, such as skill-building resources and leadership training, may further clarify how organisations can build comprehensive reward systems that enhance job fulfilment and professional growth.

In summary, addressing these limitations and extending the research into new areas can provide more comprehensive guidance on promoting diversity, reducing stress, and balancing quality and user satisfaction in the IT sector. These insights would be valuable for developing policies and interventions that contribute to a sustainable and satisfying work environment for all employees.

Conclusions

In conclusion, this study reveals key insights into factors influencing performance, satisfaction, and overall success among IT professionals in Bulgaria. Role scope stands out as a significant contributor to self-assessed competence, with professionals in multi-functional roles reporting higher levels of expertise than those in specialised roles. Leadership roles further correlate with elevated confidence, suggesting that career breadth and seniority positively influence self-perceived technical abilities. This emphasises the value of promoting skill diversity and cross-functional training to cultivate a versatile and assured workforce.

Work-life balance challenges emerged as another pivotal factor, highlighting ongoing issues related to employee stress, time management struggles, and overtime demands. These findings suggest that current mechanisms may fail to address these challenges effectively. Enhancing support systems, such as by introducing flexible work arrangements and stress management resources, could mitigate these issues, fostering a more engaged and retained workforce.

Employee satisfaction is also shaped significantly by rewards, growth opportunities, and recognition, with compensation, career advancement pathways, and a positive feedback culture as critical drivers. The Bulgarian IT sector can enhance job satisfaction and retention by emphasising fair remuneration, establishing clear progression roadmaps, and nurturing a culture that values recognition. This approach directly impacts employees' perceptions of their roles and their sense of value within the company.

The research underscores the importance of core skills like time organisation, self-discipline, and effective communication, which are crucial for productivity and job satisfaction. High productivity is particularly associated with self-management skills, pointing to the need for businesses to support employees in developing these competencies. Additionally, writing skills emerged as an essential productivity factor, reflecting the industry's reliance on clear documentation and communication.

Interactive effects between user satisfaction and quality further reveal that a combined emphasis on these elements maximises productivity and engagement. Aligning organisational goals with end-user satisfaction and quality standards enhances performance and fosters a more motivated and purpose-driven workforce. This coupled focus can thus contribute to creating a results-oriented and highly engaged team.

Finally, findings indicate that financial gratification and career development serve as complementary satisfaction factors, although high career development aspirations may reduce the impact of compensation alone on role satisfaction. Professional growth often takes precedence over financial incentives for employees intensely focused on career advancement, suggesting that a balanced approach, combining monetary rewards with clear advancement opportunities, may yield optimal results for employee satisfaction.

This study highlights multiple factors shaping employee experiences within Bulgaria's IT sector. Addressing work-life balance issues, fostering skill diversity, and offering clear pathways for growth and recognition can collectively enhance performance, job satisfaction, and retention. These strategies provide practical insights for organisations striving to cultivate a more dynamic, resilient, and successful workforce in a rapidly evolving industry.

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Ivan DIMITROV is a Professor Dr in the Department of Economics and Management, Prof. Dr. Asen Zlatarov University – Burgas, Bulgaria. Research interests: Strategic Management, Operations, and Supply Chain Management.

ORCID ID: <https://orcid.org/0000-0003-4653-8634>

Yoana KRUMOVA is a Ph.D. student in the Department of Economics and Management, Prof. Dr. Asen Zlatarov University – Burgas, Bulgaria. Research interests: Talent Acquisition and Management, Strategic Management

ORCID ID: <https://orcid.org/0009-0006-7731-7032>

Adile DIMITROVA is an Associate Prof. Dr., Department of Economics and Management, Prof. Dr. Asen Zlatarov University – Burgas, Bulgaria. Research interests: Strategic Management, Operations and Supply Chain Management, Leadership, Human Resource Management.

ORCID ID: <https://orcid.org/0000-0002-5883-1478>

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