



Engagement of Computer Professionals (On the Example of Bulgarian Companies in the IT Sector): Incentives as Moderator

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Abstract: *Employee engagement is linked to enthusiasm and passion about the job, identification with the company's values and loyalty to the employer. It is directly dependent on the incentives applied by the management. We have conducted a study in Bulgarian IT companies to analyze how certain incentives affect the engagement levels of computer professionals. Our main hypothesis suggests that intangible incentives have a stronger impact on employee engagement than tangible ones. The means of collecting empirical data from respondents are surveys and in-depth interviews, and the statistical method used is X^2 analysis.*

1. INTRODUCTION

The IT sector in Bulgaria is extremely unpredictable and dynamic. Many organizations have faced the problem of finding talented, highly educated professionals and retaining them, which seems equally difficult. The issue of employee engagement, especially highly skilled employees, is becoming more and more relevant. If they don't feel committed to their job, an experienced IT professional will look for another company.

Employee engagement is directly related to the degree of satisfaction with specific incentives management hands out. Rewards, material, and social benefits are traditionally perceived as important to employees, but they usually lose their motivational power quickly. In our view, due to the complex and creative nature of the work performed in the IT sector, intangible incentives outweigh tangible ones and it is these that engage employees. In addition to attractive remuneration and excellent working conditions, the manager must provide interesting and stimulating tasks for his staff, provide opportunities for the realization and development of their ideas, and create an environment of satisfying team relationships. All the below leads to higher employee productivity, customer satisfaction, and a good reputation for the company.

2. LITERATURE REVIEW

2.1. Employee Engagement

Employee engagement is a complex concept, with various theoretical frameworks exhibiting different constructs. Key terms include “employee engagement,” “work engagement,”

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“organization engagement,” and “job engagement.” The first two, according to [Schaufeli and Bakker \(2010\)](#), “are typically used interchangeably”.

[Kahn’s \(1990\)](#) influential study found that meaningfulness, safety, and availability were the three psychological factors connected to employee engagement or disengagement at work. This model was empirically tested in a study ([May et al., 2004](#)), which found a significant relationship between meaningfulness, safety, and engagement. Additionally, [May et al. \(2004\)](#) discovered that meaningfulness was positively correlated with job enrichment and role fit; safety was positively correlated with rewarding coworker and supportive supervisor relations; self-consciousness and adherence to coworker norms were negatively correlated with safety.

Other researchers rely on the five-factor model of personality (FFM) - a set of five personality trait dimensions, often referred to as the Big Five: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience ([McCrae & Costa, 1989](#)), conduct independent research, discovering that extraversion and agreeableness were found to be positively correlated with vigor; conscientiousness was found to be positively correlated with absorption and dedication; neuroticism was found to be negatively correlated with dedication; and openness to new experiences was positively correlated with vigor and absorption. The results point to the following relationships: (i) extraversion is negatively related to absorption, (ii) agreeableness is negatively correlated with dedication; (iii) neuroticism is positively correlated with vigor; (iv) openness to experience is negatively correlated with dedication. This study shows that the effects of personality characteristics on employee engagement vary across the five dimensions ([Narayanasami et al., 2023](#)).

[Schaufeli \(2016\)](#) describes employee/work engagement as a positive, fulfilling state of mind characterized by vigor (e.g., being highly energetic), dedication (e.g., being highly involved in work), and absorption (e.g., being highly concentrated in work). Job engagement is defined as the extent to which an individual is psychologically present in a work role ([Saks, 2006](#)). Something more - [Jia and Hou \(2024\)](#) argue that work engagement is the result of a complex dance between an individual’s innate qualities and the larger organizational environment, which includes structural subtleties and HR procedures. [Myrden and Kelloway \(2015\)](#) consider employee engagement as an employee’s enthusiasm, passion, and commitment to their work and the organization, the willingness to invest their discretionary effort to help the employer succeed. In an interesting study, [Nissinen et al. \(2023\)](#) look for the relationship between job crafting profiles of public sector employees and how they differ in terms of employees’ work engagement, workaholism, and approach to learning.

According to [May et al. \(2004\)](#), employee engagement is most closely associated with job involvement and “flow”. “Flow” is defined as the “holistic sensation that people feel when they act with total involvement” ([Csikszentmihalyi, 1975](#)), without external rewards or goals.

Employee engagement is a cognitive, emotional, and behavioral state directed toward desired organizational outcomes ([Shuck & Wollard, 2010](#)), which not only results in higher productivity, talent retention, and increased loyalty but also brings customer satisfaction and company reputation ([Lockwood, 2007](#)). Engaged employees come to work every day feeling a connection to their organization, have high levels of enthusiasm for their work ([Buckingham & Coffman, 1999](#)), and consistently produce at high levels ([Meere, 2005](#)).

According to some recent studies, employee engagement is the enthusiasm and commitment a person has towards their work, which is crucial for job satisfaction and staff morale and can lead

to increased efficiency and better performance within a company (Kerdpitak & Jermstittiparsert, 2020; Johansen & Sowa, 2019), as cited in Arokiasamy et al., 2023). After analyzing the most popular definitions of employee engagement in the literature, Pincus (2023) concludes that they can all be reduced to a core set of human motives. These motives are arranged in a comprehensive model of twelve human motivations. Other authors focus on the role of leadership in engagement development: the relationship between workplace engagement and the growth mindset in a professional setting. Through investigation, managers can get specific guidance on how to encourage concept-related thinking and behavior in their workforce (Lyons & Bandura, 2023); incorporating organizational culture as a moderating factor (Sharafizad et al., 2020); technology impacts employee engagement, and the leadership during the Covid-19 pandemic (Woods, 2021). Additionally, some researchers (Mudannayake et al., 2024) looked at how team conflict and work engagement interact to affect role innovation and career commitment. It clarifies the role that motivated staff members play in encouraging creativity. Celebi Cakiroglu and Tuncer Unver (2024) are testing a conceptual model that integrates the relationships between psychological well-being, work engagement, and toxic leadership. It's an intriguing point of view. Research on social media use in the workplace and the effects of "doomscrolling" on occupational well-being, which is defined as work engagement (Hughes et al., 2024) is incredibly interesting.

Since each study looks at employee engagement using a different protocol, it is challenging to assess the state of knowledge regarding employee engagement due to disparate definitions. For the purposes of our study, we assume that *employee engagement is linked to enthusiasm and passion for work, identification with the company's values, and loyalty to the employer. It is directly dependent on the incentives applied by the management.*

2.2. Incentives as Determinants of Employee Engagement

Incentives are seen as a social factor that more or less determines human behavior, incites it and defines its direction. Incentives have been the object of analysis and research for many scientists in the area of classical behaviorism; neo-behaviorism and social behaviorism (Pierce & Cheney, 2008, as cited in Koleva, 2016). Incentives motivate or determine behavior in two ways, by either creating necessary conditions to respond to some basic needs (indirectly) or by excluding any other behavior than that induced by the external environment. Managers apply diverse motivation instruments that ought to be adequate to the environment and conditions and which can provoke a motivated and committed behavior of people within an organization.

Different types of incentive typology can be distinguished from one another according to their respective formal and substantive criteria and characteristics. We consider incentives and their categorization into material and non-material factors to be the most important from both a theoretical and practical standpoint. The purpose of material incentives is to meet material needs. These can be financial, and technological, linked to hygienic and temporal conditions, incentives concerning safety and working conditions, social and living benefits, sports, etc. One could argue that financial incentives are crucial. Conversely, non-material or spiritual needs are intended to be met by moral and spiritual (intangible) incentives. This category can also include other incentives, such as those that are moral, legal, political, artistic, social and psychological, cognitive, etc. (Koleva, 2016).

2.3. Study Hypotheses

For the study, we explore a specific set (10 in number) of incentives and their impact on the engagement of IT professionals (the tangible incentives are written in the *Italic font style*, while the intangible ones are in the regular font style).

- *High salaries (high labor costs) including social security*
- *Extra forms of reward (bonuses, perks) at successful project completion, financial bonuses (every three or six months or yearly), payment for overtime, percentage of profit, paid annual leave, etc.*
- *Social benefits such as a place to rest, food vouchers, excursions, cell phone, fuel coupons for own transport, etc.*
- Work on dynamic and interesting projects and tasks.
- Opportunities to be creative and take independent action when executing tasks.
- *Work with modern technological devices, including the latest state-of-the-art (innovative) technologies.*
- *Work in cozy and well-appointed offices.*
- Opportunities for self-advancement and recognition (inspiring talent, high achievement, knowledge, expertise)
- Participative leadership style, the role of the charismatic leader.

The **research hypothesis** is that due to the complex and creative nature of the work performed in the IT sector, non-material incentives have a greater influence on employee engagement than material incentives.

3. METHODOLOGY

The sample size of (148) firms was determined by simple random sampling with an initial maximum variance of two leading attributes - location and number of employees, a confidence probability $P(z)=0.95$ and a maximum marginal error of 5.5%. We are interested in firms with the number of employees distributed according to the Small and Medium Enterprises Act, namely: micro firms (with up to 9 employees); small firms (with 10 to 49 employees), medium firms (with 50 to 249 employees) and large firms (over 250 employees).

On the principle of random selection, the sample includes 76 firms in the city of Sofia and 60 firms in Varna. The sample consisted of 60 companies in Varna and 60 companies in Sofia, which have computer programming as their economic activity. Respondents were selected from the respective firms on a random basis.

The survey was the primary means of collecting empirical data from respondents. Due to the particularities of the industry and to refine the questionnaire, preliminary discussions were held with representatives from the IT sector, in the form of in-depth interviews, as well as document analysis. On this basis, the questionnaire was already structured in detail to reflect certain specificities of the industry. After conducting a pilot study and adjusting the questionnaire, the process of the actual research was launched. It was carried out via the web-based OptiS platform. It allowed the sending of emails to respondents with an individual web link through which each interviewee filled in the questionnaire, after which the answers were automatically allocated to the database. The system thus ensured the anonymity of the respondents as well as the security of the data collected.

After processing the results to deepen the analysis, we conducted in-depth interviews, expert assessments of senior management on “problem areas”, and content analysis of documents.

All data from the survey were processed using Microsoft Excel 365 and SPSS for Windows 10 and represented by frequency distributions, the most commonly used way to summarize data in an array. We work with bivariate distributions (crosstabs) on the specific variables. The statistical methods we use are chosen depending on the type of variables representing the dependence.

4. RESULTS AND ANALYSES

Below are the results of the correlation analysis between satisfaction with incentives and engagement with the organization.

Table 1. Correlation between satisfaction with incentives and engagement with the organization

	Incentive	Theoretical characterization of X ² distributions	If	Pearson's X ²	Relation/ Dependency	Cramér's V	Strength of connection (if any)	Statist. Signific. $\alpha = 0,05$
1	High salaries (high labor costs) including social security	16,919	<	56,487	Yes	0,357	Medium	0,000
2	Extra forms of reward (bonuses, perks) at successful project completion, financial bonuses (every three or six months or yearly), payment for overtime, percentage of profit, paid annual leave, etc.	16,919	<	41,892	Yes	0,307	Medium	0,000
3	Social benefits such as a place to rest, food vouchers, excursions, cell phone, fuel coupons for own transport	16,919	>	15,218	No	0,185	-	0,085
4	Work on dynamic and interesting projects and tasks	16,919	<	59,487	Yes	0,366	Medium	0,000
5	Opportunities to be creative and take independent action when executing tasks	16,919	<	56,649	Yes	0,357	Medium	0,000
6	Work with modern technological devices, including latest state-of-the-art (innovative) technologies	16,919	<	55,731	Yes	0,354	Medium	0,000
7	Work in cozy and well-appointed offices	16,919	<	29,778	Yes	0,259	Weak	0,000

9	Opportunities for self-advancement and recognition (inspiring talent, high achievement, knowledge, expertise)	16,919	<	81,584	Yes	0,429	Medium	0,000
10	Participative leadership style, the role of the charismatic leader	16,919	<	71,282	Yes	0,401	Medium	0,000

Source: Own research

From a statistical perspective, of the ten stimuli examined, nine had a medium-strength connection with the engagement. Only social benefits do not lead to employee commitment. Each of the others is directly related to employee engagement.

To prove our research hypothesis, we use Cramer's ratio. The values are more significant for non-material incentives, which we will discuss below:

- Opportunities for self-improvement and recognition (inspiring talent, excellence, knowledge, experience) (*Cramér's V - 0,429*) is the incentive whose satisfaction leads to the highest degree of engagement of professionals. Recognition from management, the opportunity to gain knowledge and develop professionalism are some of the strongest motivators for them.
- Participative leadership style, the role of the charismatic leader (*Cramér's V - 0,401*) is the second most important incentive that leads to professionals' commitment. Team relationships are largely determined by the leadership style and qualities of the leader - collegial, direct and personalized relationships combined with charismatic leadership create commitment and loyalty. Employees are engaged when they like their leaders. Leadership is not just about earning the trust of your colleagues but being able to engage them to achieve your goals. Effective leaders can model appropriate engagement behaviors, starting with their team.
- Work on dynamic and interesting projects and tasks (*Cramér's V - 0,366*) leads to diversity and dynamism, and stimulates the creativity of computer professionals, which in turn increases their motivation and commitment.

All the incentives mentioned are intangible. **Our research hypothesis is proven.**

5. FUTURE RESEARCH DIRECTIONS

The study of engagement is part of a larger study by the authors related to the motives for the behavior of IT professionals in Bulgaria. Our future research focuses on opportunities to prevent turnover and build loyalty through new forms of job design, especially in the wake of the changes in jobs following the COVID-19 pandemic.

6. CONCLUSION

The study proved the role and place of intangible incentives in the organization as a factor of employee engagement. They are particularly important for computer professionals in the IT sector. With high salaries, good bonuses and working conditions, i.e. when basic needs are satisfied, employees turn to their higher needs of self-realization and expression, proving abilities, creativity, and forming positive team relationships.

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