



# **Examining the Influence of Self-determination Theory on Motivation and Performance in the High-tech Industry**

Alberto Brihuega García

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## **ABSTRACT**

Tampere University of Applied Sciences  
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Alberto Brihuega García  
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This thesis investigates the impact of self-determination theory (SDT) on employee motivation and performance in the high-tech industry. The data presented in this thesis involve a qualitative research methodology using semi-structured interviews with ten senior technical professionals from the telecommunications and robotics sectors. The study reveals how fulfilling the basic psychological needs of autonomy, competence, relatedness, and meaningfulness impacts employee motivation and well-being. This work proposes five key themes to support such fundamental needs: creating a supportive environment, empowering through autonomy, providing constructive feedback, creating meaningful roles, and sustaining motivation through balanced rewards and challenges.

The findings suggest that creating a supportive work environment, providing appropriate levels of autonomy, and providing meaningful feedback can enhance employee motivation and performance. It also reveals that while intrinsic motivation is crucial for ensuring sustained performance and motivation, external factors such as feeling fairly compensated and recognized are essential prerequisites. The research also underscores the importance of creating meaningful roles and balancing challenges with external rewards.

This thesis contributes to understanding how the SDT principles can be effectively applied to the high-tech industry to enhance employee motivation and performance, helping to fill the gap in current state-of-the-art.

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Keywords: Self-determination, Motivation, Performance, High-tech Industry, Employee well-being

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## **1 Introduction**

Employee motivation and performance are critical issues that affect companies across all industries worldwide. Companies strive to foster a motivated and productive workforce capable of adapting to changing customer and market needs. On the other hand, employees seek roles that align with their interests and values and offer opportunities for growth, which provides them with a sense of well-being and fulfillment.

Effective organizations acknowledge that profitability is essential but also understand the importance of employee well-being and satisfaction. Such organizations foster high performance, profitability, and employee well-being, which results in an environment where all stakeholders experience growth. Employee motivation is a key driver of their performance because it influences their willingness to invest their efforts to achieve the organization's goals. Employees who are motivated tend to be more productive, engaged, creative, innovative, and find their jobs more satisfying.

In the field of job motivation, it is key to understand that there exist different types of motivation, which result in very different outcomes. Self-determination theory (SDT) posits that there are two different types: controlled and autonomous, and that the relative strength of autonomous over controlled drives an individual's behaviors rather than the total amount of motivation, which was the traditionally accepted premise for motivation. SDT thus provides a well-established framework to understand how to drive and nurture employee motivation. This thesis explores how SDT can assist work organizations, particularly technical organizations with technically demanding jobs, to promote employee motivation, performance and well-being.

### **1.1 Self-determination Theory**

SDT is a broad theory of human behavior that suggests that individuals naturally develop a unified sense of self and seek connections with others in their social worlds. It is founded on prior studies concerning intrinsic and extrinsic motivation as well as various facets of life (Deci & Ryan, 1985).

The new perspective provided by SDT is that there exist different types of motivation, namely, intrinsic and extrinsic, which yield very different outcomes. In this context, autonomous means doing things with a sense of choice and volition. Intrinsic motivation, which comes from within the individual, represents one form of autonomous motivation. On the other hand, controlled motivation entails acting due to pressure or obligation. Autonomous and controlled motivations are intentional, but autonomous motivation generally leads to better long-term outcomes. These types of motivation differ from amotivation, which denotes a lack of intention and drive.

Another important aspect of SDT is that employees have three basic psychological needs, namely: competence, autonomy, and relatedness. SDT suggests that meeting these needs helps determine whether different environments support or harm human functioning and psychological well-being. Therefore, it argues individual's performance, behavior, and well-being can be predicted based on the level to which the needs are fulfilled. These three psychological needs are defined as follows:

1. **Competence** implies that individuals can effectively show their worth and feel capable in their jobs and daily interactions.
2. **Relatedness** refers to feeling connected to others, having a sense of belonging to a community, and that others care about them.
3. **Autonomy** means that one perceives they have the power and freedom to direct their actions and behavior. This sense of autonomy can still be present even when external sources influence their actions if individuals agree with and internalize those influences, which is known as regularization (Ryan et al, 2001).

According to SDT, these needs are fundamental requirements needed to achieve personal growth and well-being. A need is defined as something that, when satisfied, enhances psychological health and well-being and undermines it when not. Based on this definition, the needs for competence, autonomy, and relatedness are seen as essential by all individuals. While previous theories posited that the total amount of motivation is what matters to achieve higher performance, SDT emphasizes that the type of motivation is more relevant. SDT defines three types of motivation: autonomous, controlled, and amotivation (lack

of motivation). Another key differentiating aspect of SDT is that it posits that there are different types of extrinsic motivation depending on how controlled or autonomous it is. Extensive research on intrinsic motivation has shown that when these universal psychological needs are met, people can function effectively and experience psychological health. Studies conducted across several countries with different traditions and values have confirmed these findings (Deci & Ryan, 2000).

Autonomous motivation is comprised of intrinsic motivation and well-internalized extrinsic motivation. When someone is autonomously motivated, their actions are driven by their own interest in the task itself. This type of motivation originates when individuals internalize the value of the task and integrate it into their sense of self, leading to self-endorsement of their actions. Individuals who are intrinsically motivated engage in activities or tasks willingly, motivated by their interest in them and the enjoyment resulting from them, there usually exists a strong alignment between people's identity and the task. It is noted that externally regulated or motivated activities can also result in autonomous motivation, for instance, if important people encourage such activity, individuals may accept it and make it part of themselves, eventually doing it out of their own will. This is commonly referred to as internalization, and the larger the internalization is, the more the task becomes more a part of who they are.

Controlled motivation implies that a person's actions are influenced by external factors like receiving rewards, approval, or avoiding punishments or shame. People who experience controlled motivation feel forced to act or think. The degree of controlled motivation shows how much one feels pressured or influenced by external factors or internalized expectations.

Another important aspect of this theory is that extrinsic motivation ranges from being more autonomous to more controlled. Generally, activities or tasks that are not inherently interesting need extrinsic motivation. To start these activities, people must see a clear link between their actions and a desired outcome. In this context, organismic integration theory (OIT) defines a "self-determination continuum" with different forms of motivation and regulation (Deci & Ryan, 1985; Ryan & Deci, 2000). OIT posits that individuals have a natural tendency to

embrace requested behaviors provided they have the necessary nutrients. The spectrum of motivation, ranging from least to most autonomous includes external, introjected, identified, integrated, and intrinsic forms of motivation. OIT proposes different types of regulation for extrinsic motivation, which differ in their level of autonomy. For extrinsic motivation, it defines four different levels:

- **External regulation**, in this case, motivation is driven by the desire to obtain rewards or avoid punishments. This occurs when an individual intends to please external demands.
- **Introjected regulation** involves partly internalizing external regulation without completely acknowledging it as one's own. This sort of regulation occurs when individuals seek to avoid shame, and guilt or have a sense of worth.
- **Regulation through identification** is a type of external motivation that feels more self-driven. It means you see the goal or behavior as important and meaningful to you personally. Identification is crucial for transforming external regulation into genuine self-regulation.
- **Integrated regulation** happens when the activities align with one's values, goals, and needs. It no longer requires external contingency. It is the most autonomous of all.

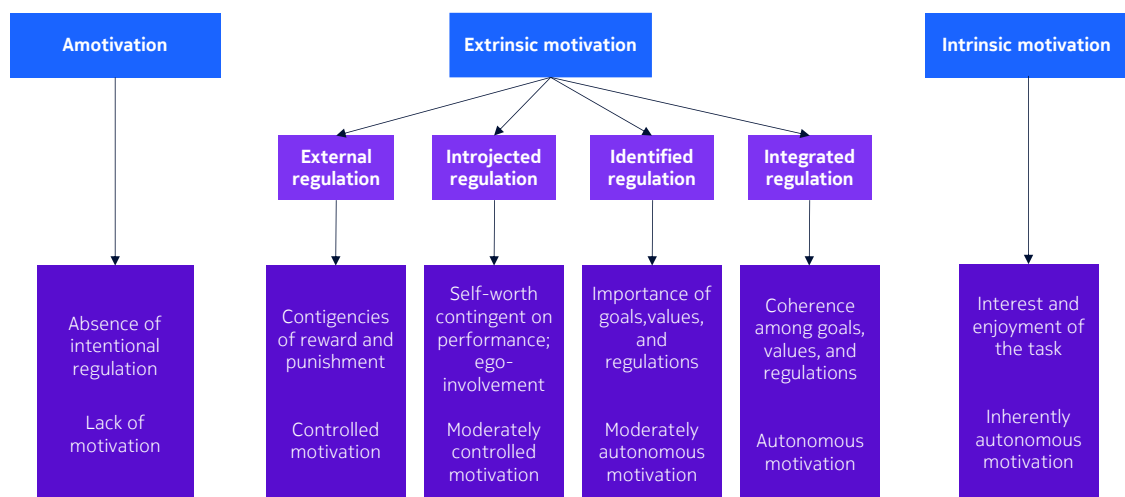


Figure 1 The SDT continuum. Modified from Gagné and Deci (2005)

As already discussed, motivation and internalization require nutrients to operate optimally. SDT posits that satisfying the basic psychological needs

provides such nutriment. Studies show that people need to feel competent and autonomous to maintain their intrinsic motivation, and both are also necessary for internalization. Relatedness, the third or the psychological needs, is crucial for internalization. When individuals feel their basic needs are fulfilled the value and regulation are fully internalized. Furthermore, SDT posits that the level of autonomy determines which kind of regulation will take place.

Autonomous and controlled motivation drive behavior, unlike amotivation, which implies a lack of intention. People who lack motivation tend to do nothing or do it passively without intention. This sort of behavior originates because individuals seem themselves incapable of achieving what it is expected from them or because they do not value the outcome. As one could imagine, the results of behaviors that are driven autonomously versus controlled are very different. Autonomous motivation results in better psychological well-being, improved performance and persists over longer periods of time.

Next, the discussion will focus on how to promote integrated regulation.

## **1.2 Promoting Intrinsic Regulation and Motivation**

Early studies on cognitive evaluation theory (CET) posited that external factors such as tangible rewards, deadlines, surveillance, and evaluations harm the perception of autonomy due to the feeling that the tasks are not driven by one's desires. As a result, external factors also undermine intrinsic motivation. Tasks that have are designed in such a way they pose an optimal challenge were shown to be intrinsically motivating (Danner & Lonky, 1981). Intrinsic motivation can be enhanced by fostering a sense of competence among individuals by using positive feedback (Deci, 1971), which results in a greater sense of satisfaction because the success was due to their self-directed actions (Ryan, 1982). In contrast, negative feedback has been shown to be the reason for undermining perceived competence, which negatively impacted intrinsic and extrinsic motivation, leading to amotivation (Deci & Ryan, 1985). When negative feedback is formulated as a challenge to be solved, this effect is reduced.

External factors like competition and evaluations can negatively impact creativity, cognitive flexibility, and problem-solving (Amabile et al., 1990). In a similar manner, monetary rewards were found to reduce cognitive flexibility in problem-solving McGraw and McCullers (1979) and decrease performance on tasks with challenging goals (Erez et al., 1990). As a result, CET was criticized by other work motivation theories, arguing that work-related activities are not inherently exciting and people need to make money, making monetary rewards seem adequate. CET also suggested that managers should focus on either intrinsic or extrinsic motivation, but not both.

A meta-analysis done by Deci et al. (1999) discovered that when monetary rewards are not given subject to completing a given task, e.g., salary, they did not harm intrinsic motivation. In fact, when these rewards are given in the context of a supportive environment, they enhanced intrinsic motivation. People typically avoid activities they don't enjoy unless those activities lead to a desired outcome. These activities are often encouraged and supported by significant individuals or groups. The individual, seeking a sense of connection with these people or groups, will likely engage in the activity to gain their approval. Therefore, the level of internalization is strongly related to the need for relatedness. In general, relatedness is seen as less important for enhancing intrinsic motivation, however, it is pivotal to creating internalization. However, it needs to be supported by other factors such as having a feeling of competence regarding a task. People need to feel capable of completing the task, otherwise, they will find excuses not to do it and they won't internalize the task. This emphasizes the importance of having a balance between the psychological needs. Additionally, from the perspective of OIT, supporting autonomy is the main way to facilitate the internalization resulting from the sense of relatedness and competence- To integrate regulation, individuals must understand its personal significance and align it with other aspects of their lives. This relates to the concept of meaningfulness (Martela et al., 2018), discussed in Chapter 1.5.

### 1.3 Assessing Intrinsic and Extrinsic Motivation

To evaluate the concepts of autonomous motivation, controlled motivation, and amotivation, they are considered as variables that can be predicted based on two factors: (1) elements of their interpersonal relations, including characteristics of their work atmosphere, which can be described as autonomy-supportive, controlling, or amotivating; and (2) individual differences in causality orientations. As a result, it is possible to predict the extent to which individuals feel they are autonomously motivated by how much their autonomy and corresponding orientation are supported (Gagné & Deci, 2005). Similarly, it is possible to predict amotivation from controlling aspects of their work.

Causality orientations refer to the way people interact with their environment when it comes to initiating and regulating behavior. The extent to which they are driven by internal motivates can be defined as autonomy-oriented, control-oriented, and impersonally oriented (Deci & Ryan, 1985b). The development of a robust autonomous orientation results from ongoing satisfaction with autonomy, competence, and relatedness. A firm controlled motivation is developed when the needs for competence and relatedness are partially satisfied, but the need for autonomy is not met properly. It also defines that the impersonal orientation originates when there is obstruction of the three psychological needs. Autonomous orientation has always been linked to effective behavioral outcomes, as opposed to controlled orientation, which is commonly associated to sloppy functioning and reduced well-being. On the other hand, an impersonal orientation is commonly related to poor functioning and issues like self-criticism and low energy.

It is possible to identify if people's actions are driven by intrinsic or extrinsic factors just by the reasons they do them. To that end, Ryan and Connell made questionnaires in which participants were given different reasons for their actions, which included intrinsic and extrinsic factors. The participants had to rate the extent to which it was true for them. For example, external reasons might include doing a task to get a raise or to avoid upsetting the boss. Introjected reasons might involve acting to avoid feeling guilty or to feel worthy. Identified and integrated factors entail doing something motivated by the fact that the person

understands its importance and aligns with their goals, commonly resulting in greater well-being.

## **1.4 Other Work Motivation Theories**

### **1.4.1 Goal-setting Theory**

The goal-setting theory, proposed in 1990, greatly impacted the field of work motivation theory influencing how organizations approach performance and productivity (Locke & Latham, 1990). The theory posits that the way people visualize their goals directly influences their actions, and their performance improves when they (1) set clear and challenging goals that are meaningful to them and (2) know what actions will help them achieve these goals and feel capable of performing such actions. This theory treats all types of motivation equally and uses the attributes of the goals, such as their complexity or importance, to anticipate the outcomes. Setting clear goals is a key aspect of the theory. Goals should be precise and specific rather than ambiguous or broad, individuals have to be able to visualize them clearly. Specific goals offer clear direction, helping individuals understand what is expected of them. The challenge level of goals is another critical factor. Goals should be challenging yet attainable. Individuals are pushed to extend their efforts and capabilities when goals are challenging, leading to greater performance. However, if goals are perceived as too difficult, they may lead to frustration and decreased motivation.

### **1.4.2 Action Regulation Theory**

Action regulation theory relies on the notion of objectives or goals and highlights the mechanisms that help individuals remain efficiently centered on actions that are aimed at achieving their goals (Frese & Sabini, 1991). Action regulation theory makes use of the concept of “decision latitude”, which is the equivalent of autonomy in SDT. It refers to the extent of authority and freedom individuals possess regarding their actions and choices in their work environment. It then proposes that optimal motivation and performance arise when there is substantial decision latitude (autonomy) because individuals can set their own goals. Haacker (Hacker, 2023) even suggested that increased decision latitude fosters

intrinsic motivation. Frese further suggested that optimal performance and well-being are achieved when individuals have control over their behavior and when the complexity of the task is balanced. Specifically, tasks should be optimally complex, which should be challenging enough to engage individuals but not so complicated that they become overwhelming (Frese and Fay, 2001). When individuals have control over their actions and the tasks they are working on are appropriately complex, they experience deep focus and enjoyment in their work.

### **1.4.3 Job Characteristics Theory**

Job characteristics theory proposed by Hackman and Oldham (1980) states that the optimal design of jobs results in the most effective approach to motivating individuals. To this end, the goal is to increase internal work motivation, similar to the autonomous motivation concept in SDT. The main difference with respect to SDT is that this theory does not distinguish between the different types of motivation, which is the distinctive feature of SDT. Therefore, there is no means to assess the negative implications of e.g., introjected motivation. Hackman and Oldham suggest that to boost internal work motivation (autonomous motivation), jobs should be design such that (1) they offer a variety of tasks, which are done until their completion, and positively affect the lives of others; (2) employees should be given decision making power and freedom; and (3) employees need to receive positive and useful feedback. The theory also states that the extent to which individual seek growth, sets the degree to which these job features improve performance.

### **1.4.4 Needs and Motives: Maslow, Herzberg, and Alderfer**

Maslow's (1954), Herzberg's (1966), and Alderfer's (1972) theories have significantly influenced the understanding of human motivation in the workplace and are recognized as some of the most classic theories in the field. In his work, Maslow introduced a five-level hierarchy of needs, which comprises physiological needs, safety needs, belongingness, esteem, and self-actualization. The theory posits that lower-order needs, e.g., physiological needs, are required to be addressed before the higher-order ones can be addressed. As individuals move up the ladder, they feel how they fulfill their potential and experience growth.

Herzberg introduced the two-factor theory, categorizing motives into hygiene factors and motivators. Hygiene factors, also known as extrinsic motives, include aspects such as salary, job security, and working conditions. These factors do not necessarily increase individuals' motivation but can lead to dissatisfaction if they are not properly met. Motivators, or intrinsic motives, include factors such as achievement and job recognition. These intrinsic factors are considered higher-order and are essential for true job satisfaction and motivation.

Alderfer proposed a similar but more condensed model, the Existence, Relatedness, and Growth Theory (ERG). This theory includes three categories of needs: existence needs, mirroring Maslow's physiological and safety requisites; relatedness needs, corresponding to social and esteem necessities; and growth needs, resembling self-actualization aspiration. Unlike Maslow's strict hierarchy, Alderfer posited that individuals can simultaneously be motivated by multiple levels of needs and that frustration in meeting higher-order needs can lead to a regression to lower-order needs.

### **1.5 Meaningfulness in the Context of SDT**

Meaningfulness in SDT is understood as the degree to which individuals perceive their activities as having purpose, significance, and value. In SDT, meaningfulness is closely tied to fulfilling the three basic psychological needs. Meaningfulness brings the following new perspectives.

1. **Enhanced well-being:** Engaging in meaningful activities significantly improves well-being and life satisfaction. This perspective emphasizes the qualitative aspects of motivation, focusing on the intrinsic values of activities rather than merely the quantity of effort or achievement.
2. **Sustainable motivation:** Meaningfulness fosters sustainable motivation. Individuals are more likely to persist in meaningful activities, leading to long-term engagement and improved outcomes.
3. **Personal growth:** Meaningfulness highlights the importance of personal growth and self-actualization. It suggests that people are driven by external rewards and the inherent value they find in their activities.

Research has consistently shown that activities perceived as meaningful are more likely to be intrinsically motivating, leading to higher well-being and life satisfaction. Deci and Ryan (2000) demonstrated that when individuals engage in activities that fulfill their basic psychological needs, they experience greater intrinsic motivation and psychological well-being. Ryan and Deci (2001) further highlighted the importance of meaningfulness in promoting both hedonic (pleasure-based) and eudaimonic (growth-based) well-being. They argue that employees who find their work meaningful report greater overall job satisfaction, emotional stability, and life satisfaction. Meaningful work gives employees a sense of accomplishment and personal growth, enhancing their overall well-being. Additionally, meaningful work creates positive relationships and a sense of belonging, contributing to job satisfaction.

Sheldon and Kasser (1995) found that activities fulfilling the three basic psychological needs are perceived as more meaningful, contributing to greater psychological integration and coherence. Baumeister and Vohs (2002) studied the impact that meaningfulness has in life and its connection to psychological health. They emphasized that meaningful activities provide a sense of purpose and direction, while Steger et al. (2006) provided empirical support for the idea that meaningful activities lead to sustained motivation and resilience when facing difficulties.

Employees who perceive their work as meaningful are more likely to experience higher levels of job satisfaction, commitment, and engagement, as revealed in a meta-analysis by Allan et al. (2019). These employees tend to be happier and more loyal to their organizations, while at the same time, show more enthusiasm in their roles, which leads to higher performance and productivity. Furthermore, the study revealed that meaningful work positively impacts overall well-being and life satisfaction, underscoring the profound effect that a sense of purpose in one's job can have on broader personal fulfillment.

Lastly, Martela et al. (2018) investigate the underlying factors that contribute to having a sense of meaning in life. The authors argue that meaningfulness arises when the four fundamental needs of autonomy, beneficence, competence, and relatedness are satisfied. The study analyzes how their satisfaction is related with

positive affect (experiencing positive emotions) and how this can act as predictor of meaning in life. The authors argue that while positive affect can result in sense of meaning, satisfying the four psychological needs provides a more robust and lasting meaningfulness. Their findings indicate that satisfying the psychological needs predicts meaning in life. Among these, beneficence is identified as a particularly strong predictor.

## 2 Related Research and State-of-the-art

This chapter reviews related research about SDT's impact on work organizations, with special emphasis on the high-tech industry.

### 2.1 SDT in Work Organizations

There is a wide diversity of jobs, each with specific characteristics that can vary significantly across organizations, industries, and sectors. People have careers that are interesting and valued by others, with good working conditions and fair compensation. Conversely, others can have demanding and demeaning jobs with lousy work conditions and possibly unfair compensation.

M. Gagné and L. Deci (2005) argued that work environments that support satisfying the three basic psychological needs would boost intrinsic motivation and help employees embrace extrinsically motivated behaviors. As a result, this will translate into the following outcomes: (1) increased persistence and willingness to accept behavior change, (2) optimal performance especially for work that needs creative thinking, adaptability and deep knowledge; (3) satisfaction in the workplace; (4) favorable attitudes towards their work; (5) behavior demonstrating organizational citizenship; and (6) well-being.

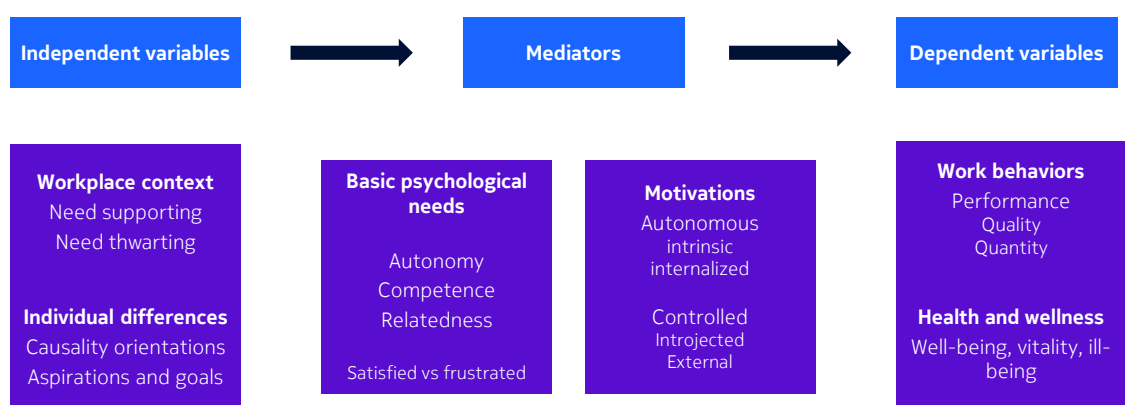


Figure 2 SDT model in the workplace, modified from Deci et al. (2017)

The model depicted in Figure 2 considers two independent variables: those related to the workplace context and those related to individual differences. The most relevant ones are those in the organization that support versus thwart

employees' needs for relatedness, autonomy and competence, and are considered to be highly impacted by the managers (Deci et al., 2017). In general, the support for autonomy is the one that is more commonly supported in work organizations. Deci et al., (2017) argued that when there is support for autonomy, the other two needs are also satisfied to a reasonable level because when people have the freedom and flexibility to do their job as they consider most appropriate, they tend to be able to figure out how to fulfill their other needs.

It was found by Deci et al. (1989) that the levels of satisfaction about their work and their trust in management are positively related to managerial practices, meaning how well they support their need for autonomy. This is achieved through acknowledging employees' perspectives, encouraging proactiveness instead of forcing employees to behave in specific manners, avoiding micro-management, and offering choices. Research indicates that when organizations prioritize autonomy, employees experience greater psychological empowerment, significantly reducing turnover intentions (Liu et al., 2011). By allowing employees to make choices and feel that they are the source of their behavior, organizations can foster a feeling of volition that enhances job satisfaction and performance (Unanue et al., 2017). Perceived competence has been shown to positively correlate with employee readiness to change and adapt to new challenges (Rahi et al., 2021). Organizations can enhance competence by providing training for employees to build their skills and confidence (Deci et al., 2017).

Koestner and Losier (2002) found that people tend to do better at interesting or exciting tasks when they are intrinsically motivated. However, for tasks that were not perceived as interesting yet were important and required self-discipline, they do better when they understand why the task is important (autonomous extrinsic motivation). Overall, in both situations, the best results come from having a combination of extrinsic and intrinsic motivation.

It was found by Koestner and Losier (2002) that better performance on tasks that are perceived as interesting or exciting is essentially achieved when individuals are intrinsically motivated. On the other hand, tasks that are seen as uninteresting but that are important and require discipline result in improved performance when individuals fully grasp the significance of the task i.e., this is a form of autonomous

extrinsic motivation. Overall, in these situations, the best results come from a combination of extrinsic and intrinsic motivation.

SDT also considers life goals or aspirations as predictors of performance to discern individual differences among employees (Ryan et al., 1996). For instance, personal growth, having a positive impact on society, being perceived positively by their colleagues, and having a high salary are some of the most relevant aspirations that people seek to achieve, which fall into two categories, intrinsic and extrinsic. When individuals put more focus on the extrinsic ones, e.g., having a high salary, they tend to show signs of anxiety or unhappiness. On the other hand, when the focus is on the intrinsic ones, e.g., making a positive impact on society, people show indications of psychological well-being (Kasser & Ryan, 1996).

Every policy and procedure implemented within the workplace can either help or hinder these core psychological needs (Deci et al., 2017). Individuals seeking to enhance the work environment in an organization, thereby improving the performance and well-being of employees, should assess any proposed policy or practice based on whether it encourages employees to develop skills and confidence, allows them to initiate actions freely without feeling pressured, and fosters respect and a feeling of belongingness with supervisors and colleagues (Deci et al., 2017). Policies and practices that support employees in these ways have higher chances of promoting well-being, and high performance. For example, workplaces where supervisors recognize and value employee perspectives, encourage self-directed actions, provide choices for individuals and teams, deliver constructive feedback, assign suitably challenging tasks, and clarify the reasons behind requested actions are more likely to achieve high-quality performance and enhance employee well-being. Studies show that when immediate supervisors demonstrate support for autonomy, it results in various positive outcomes for employees, including increased trust in higher-level management.

## **2.2 SDT in the High-tech Industry**

Although SDT has been investigated mainly in the health care, education, and sports domains, growing research is beginning to shed light on its relevance and application within the high-tech industry, particularly concerning innovative work behavior. This section summarizes key findings from recent studies investigating the relation between SDT and various motivational dynamics in the technology sector, emphasizing the implications for promoting employee creativity and innovation.

### **2.2.1 Wang and Panaccio (2020)**

Wang and Panaccio (2020) studied the relationship between the fulfillment of the needs for competence, relatedness and autonomy, and different cultural aspects such as how much uncertainty people feel comfortable with, power distance, and whether the society is more individualist or collectivist, and when it comes to innovative work behavior. Their findings indicate a positive correlation between employees' creativity and the satisfaction of these needs. However, this relationship is modulated by the level of power distance within the organization. For instance, they posit that the positive effects resulting from fulfilling employees' psychological needs are diminished in work environments characterized by high power distance. This suggests that hierarchical structures may hinder innovation by limiting employees' autonomy and engagement.

The study further emphasizes the importance of providing supportive organizational practices in enhancing creativity. Claiming that managerial practices that foster employee well-being, meaningful social interactions, and positive feedback create a positive environment in which innovation can flourish.

### **2.2.2 Saether (2019)**

Saether (2019) studied the relationship between SDT and person-organization fit as a predictor of innovative behavior in high-tech companies. Person-organization fit is defined as the alignment between an individual's values, beliefs, and goals with those of the organization. The study reveals that employees who

perceive a higher degree of person-organization fit with their organization exhibit higher levels of intrinsic work motivation, which was observed to result in behaviors that contributed to higher innovative work outcomes.

Saether's findings highlight the importance of fostering a strong alignment between organizational culture and employee values. Organizations can cultivate a motivated workforce and actively engage in innovative practices by enhancing person-organization fit. This alignment favors creativity, enabling employees to leverage their intrinsic motivation to drive innovation.

### **2.2.3 Kyle et al. (2016)**

Kyle et al. (2016) explored the application of SDT principles to promote intrinsic motivation among university engineering students. Their research highlights the critical role of relatedness in this context. Contrary to their initial hypothesis that autonomy would be the most relevant need when it comes to enhancing their motivation, the study revealed that it is the students' sense of connection and belonging that had a more significant impact on their motivation to learn.

### **2.2.4 Tamunosiki-Amadi and Dede (2015)**

Tamunosiki-Amadi and Dede (2015) investigate the impact of SDT on promoting "innovative behavior" within the Nigerian telecommunication industry. Their research demonstrates a strong relationship between SDT and employees' capacity for innovative behaviors, where autonomy played the most dominant role. Therefore, their findings suggest that companies that put more emphasis on creating an autonomy-supportive environment have higher chances to nurture innovation.

### **3 Research Methodology and Data Collection**

This chapter discusses the research methodology and tools used during the data collection phase. The raw data was obtained via semi-structured interviews, which offers a flexible approach to gathering valuable insights from the respondents. The data was then processed following a thematic analysis approach. Furthermore, the chapter outlines the research questions and objectives guiding this study.

#### **3.1 Research Questions and Objectives**

This thesis explores the relationship between meeting the basic psychological needs and employee performance within the high-tech industry. The objective is to build a framework that makes it possible to foster workplace well-being and enhance overall performance levels. To this end, two main research questions were formulated:

1. How does fulfilling the basic psychological needs of autonomy, competence, relatedness, and meaningfulness impact the motivation of high-tech employees?
2. What strategies can be implemented in the high-tech industry to support and nurture intrinsic motivation among employees?

#### **3.2 Research Methodology**

Quantitative and qualitative research methods are commonly used to collect data and test the validity of the proposed hypothesis. Quantitative methods seek to answer the question of “how much,” whereas qualitative methods seek to focus on the “what,” “why,” and “how.” Quantitative methods involve e.g., surveys or structured interviews conducted with a large group of respondents, with the aim to gather data in a standardized manner. On the other hand, qualitative methods include techniques such as open-ended interviews, focus groups, and participatory observation. Qualitative methods are utilized to understand better topics that are not well-explored. Interviews are particularly valuable for gathering more detailed information that could provide deeper insights into the explored issues.

Interviews allow the participants to elaborate on their responses, offering context and examples that can lead to a more nuanced understanding. They are also very flexible, since the conversation can be adapted and steered based on the participants' responses. Furthermore, interviews may help establish a personal connection between the interviewer and the interviewee and favor open discussion.

Thus, a semi-structured interview format was considered as the primary data collection method. A semi-structured interview contains a set of predefined questions but also allows the flexibility to ask follow-up questions, probe for more detailed responses, or explore additional topics based on respondents' answers.

Ten interviews were conducted in this study throughout November 2024, face-to-face and online. Most respondents work in the telecommunication sector and hold senior technical roles, whereas the rest work in the automation and robotics industries. The interviews aimed to create an open and safe space where the respondents could comfortably explore the different topics and express their thoughts and experiences. The average interview duration was around 45 minutes and was recorded via Microsoft Teams or the mobile phone recorder. The recordings were deleted after being transcribed.

### **3.3 Thematic Analysis**

The thematic analysis framework was used to extract the key data from the interviews. It offers a flexible approach to analyzing qualitative data, allowing for identifying and reporting patterns or themes within the data. Specifically, the steps provided by Braun & Clarke (2006) were followed since they provide clear guidelines for practical thematic analysis. The process involves the following steps, summarized in Figure 3.

1. Familiarizing with the data: The first step involves generating transcripts from the interviews and reading them several times to gain a good perspective of the content.
2. Creating initial codes: creating codes representing the data's essence, meaning, and patterns.

3. Searching for themes: Once the data is coded, we search for patterns or recurring topics and gather them under a common theme or category.
4. Reviewing the themes: Once established, they must align cohesively with the interviews' narratives.
5. Defining and naming themes: Each theme is distinctly defined, elucidating its content and significance within the study context.
6. Producing the report: The final step is to write the analysis explaining each theme and providing quotes from the interview to support your findings.

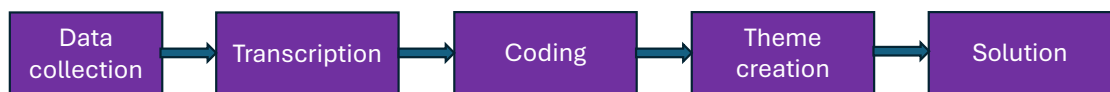


Figure 3 Qualitative data analysis flow

## 4 Results

This chapter provides the analysis from the semi-structured interviews presented as five main themes obtained through the thematic analysis framework described in Chapter 3.3. The five identified themes are

- **Creating a supportive environment:** It emphasizes the importance of a supportive team and work environment where employees feel they have reliable colleague support, enhancing their confidence and motivation.
- **Empowering through autonomy:** It stresses the importance of giving employees the flexibility to choose how they complete their tasks; it transmits trust and empowers them.
- **Providing constructive feedback:** It highlights the importance of providing constructive feedback for personal and professional growth. It transmits to the employees that they are cared for.
- **Creating meaningful roles:** This underlines the importance of creating roles in which people feel what they do is important and contributes to a greater thing than themselves. This is crucial for job satisfaction and motivation.
- **Sustaining motivation:** It highlights the importance of providing balanced rewards and challenges to sustain employee motivation over time.

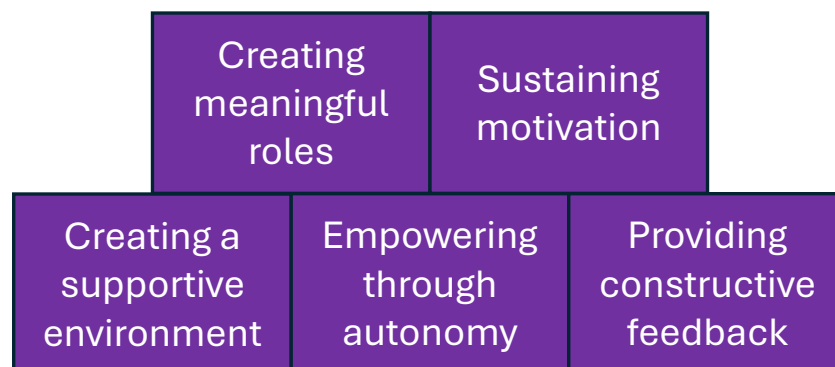


Figure 4 Proposed themes

These themes, illustrated in Figure 4, aim to address the following research questions:

1. How does fulfilling the basic psychological needs of autonomy, competence, relatedness, and meaningfulness impact the motivation of high-tech employees?

2. What strategies can be implemented in the high-tech industry to support and nurture intrinsic motivation among employees?

#### **4.1 Creating a Supportive Environment: Building Confidence and Motivation**

Creating a supportive environment is essential for building employee confidence and motivation. Employees feel more secure and capable when they know they can rely on their team for support. These feelings are further increased by having many years of experience in the field, which was also shown to be one of the main contributors. A supportive environment thus helps employees feel valued and encourages them to take on new challenges, because employees know they have a proper support system. This sense of security and growing experience are key to creating and maintaining employee confidence.

This theme is directly related to fulfilling the needs for competence and relatedness. The respondents highlighted that gaining experience and learning new skills increase their confidence, fulfilling the need for competence. They also emphasized the importance of having a supportive environment, which meets the need for relatedness by creating a sense of belonging and connection.

The first crucial element that stands out when creating a feeling of confidence and competence in the workplace is experience. All respondents mentioned experience in one way or another. Similarly, overcoming challenges over the years contributes to enhancing this feeling and increases confidence when facing new ones:

A: "I feel competent because I have many years of experience and have always been able to learn new skills that were needed."

B: "I feel confident because I have a very good background, I have learned a lot over the years, and I also have a very supportive team on which I can rely."

C: "I feel very confident. I am not afraid of not knowing how to do something. I have been doing similar tasks for many years, and I feel in my comfort zone"

D: "I feel very competent because I have a very good background and knowledge. I have many years of experience in my field."

Based on these answers, experience is the main element for creating confidence and a feeling of competence in the workplace. Naturally, experience is not taken for granted or inherent to people; it must be gained over the years. The follow-up question is, how do we ensure a perception of competence and high confidence while people are gaining such experience? As some of the respondents stated, having a supportive environment makes them feel more secure; knowing that you have people that you can count on and ask for help when needed contributes to creating a feeling of confidence and tranquillity:

B: "Having a supportive team on which I can rely makes me feel very secure and increases my confidence"

D: "When I am facing new challenging tasks alone and don't have anyone to ask for support, I feel insecure about my work".

D: "If my job were more oriented towards exploiting my strengths, I would have a much higher output and feel more motivated; I need an environment where I can flourish".

Most respondents firmly believe that feeling competent impacts their motivation; this is related to it creating a sense of accomplishment and satisfaction:

G: "You don't feel accomplished if you can't do your job correctly; this would affect my motivation significantly."

B: "I would feel underwhelmed if I could not do my job"

D: "If my job were more oriented towards exploiting my strengths, I would have a much higher output and feel more motivated; I need an environment where I can flourish."

## **4.2 Empowering Through Autonomy: Trust, Acknowledgement and Accountability**

Creating an environment that provides employees with a well-balanced level of autonomy is crucial for building trust, acknowledgment, and accountability. Employees feel trusted and valued when they feel they have control over how they complete their tasks. This creates a sense of empowerment. This autonomy

allows them to take ownership of their work and feel accountable for their outcomes. However, it is important to note that high levels of autonomy require experience. Employees' sense of autonomy and competence is directly enhanced by feeling trusted and valued, which leads to increased confidence and motivation.

This theme is directly linked to the need for autonomy, as providing employees with a well-balanced level of autonomy allows them to experience freedom and self-direction. It also contributes to the fulfillment of the need for competence. When employees are trusted to manage their tasks independently, it implies that the organization believes in their abilities and skills. This trust increases their confidence and motivation, reinforcing their sense of competence.

All the respondents felt they had full control over how they completed their tasks. However, most of them didn't have a say over what things they were supposed to work on; the needs of the project gave them. The respondents concurred that having autonomy implies positive things, such as being trusted and acknowledged; it transmits a sense of empowerment and accountability. However, it was acknowledged that high autonomy also requires experience:

C: "I have quite a lot of autonomy. I only receive what the expected outcome is, and I think it is a positive thing; it makes me feel trusted, but it is good to some extent; there needs to be clearly defined guidelines and objectives; I like to have a clear picture of the whole project, and how my part contributes to it, this should be self-explanatory, but it is not always so clear."

B: "Autonomy is linked with experience; at the beginning, it is not possible to have it, and you benefit from constant guidance and support. Having autonomy means there is trust and that you have the experience and competence to do your job".

E: "I try to foster a culture of empowerment by providing autonomy. I work with smart and capable people. There is no point in telling them how to do their tasks; they will probably know how to do them better; if you provide them with high-level guidance and objectives, they will come up with the answer. It also creates a sense of accountability for their actions".

D: "Having freedom is good, but it is good if you have full competence and feel capable of doing all the tasks. Granting autonomy should not imply zero supervision. The boss should always provide some sort of guidance and have proper competence to help if needed".

Most respondents concurred on the fact that autonomy has a positive impact on their motivation:

F: "My motivation is affected a lot by autonomy; I like to have control over my work; it makes me feel empowered and supported to achieve my goals".

B: "I feel I have much more freedom now. My previous boss even told me how I should do things. This has had a positive impact on my motivation."

C: "When you can make decisions by yourself, it improves motivation and dependencies to other teams, and people always impact how you do your work; it slows it down and makes things more complicated."

A: "Having control over how I do my job increases my motivation; I despise being micromanaged."

Naturally, you will not always be free to choose tasks or how you should complete them. When being told what to do, the respondents frequently brought up that there needs to be a clear purpose, and it needs to make sense:

A: "I feel particularly annoyed when management people who have no clue about what they are talking about (technically speaking) ask for things that I consider nonsense without any explanation; I tend not to do them."

### **4.3 Providing Constructive Feedback: Valuing People's Work**

Providing constructive feedback is essential for valuing employees' work and creating a positive work culture. When employees receive regular constructive feedback, they feel acknowledged and appreciated, which enhances their sense of value within the organization. Constructive feedback is not about blaming but about offering insights and suggestions for improvement, which helps employees understand their contributions and areas for growth. Furthermore, the absence of feedback or acknowledgment can lead to feeling undervalued and overlooked.

Employees who do not receive feedback may feel that their efforts go unnoticed, negatively impacting their motivation and engagement. On the other hand, regular and constructive feedback helps employees feel seen and appreciated.

This theme is directly linked to the need for competence, as feedback provides employees with the information, they need to improve their skills and performance. When feedback is delivered in a supportive and solution-oriented manner, it reinforces employees' sense of competence and encourages them to take on new challenges. Constructive feedback also contributes to the need for relatedness, demonstrating that the organization is attentive to employees' efforts and is invested in their development.

Most respondents feel their contributions are valued by their peers and organizations. The reason for this is the fact that colleagues seek their opinions and receive regular feedback that lets them know their importance within the organization:

C: "I feel my contributions are valued. I know this because I receive feedback on a regular basis. Feedback is something that is integrated into the company's culture; I think it is a very positive thing; it makes me feel valued; feedback is not about blaming but about providing constructive inputs that propose ways to improve."

D: "I think my work is valued, but I would like them to exteriorize it more. I have reached a point where people expect me to do my job well; people don't see how much effort I have to put into it. They take it for granted".

F: "Negative feedback needs to be constructive, introducing it as a challenge to overcome, proposing new points of view that might have been missed, without any actual input, feedback would be worthless"

E: "I think feedback needs to be given in a constructive way, not blaming for the sake of blaming, criticism needs to propose solutions or alternative ways. It needs to be given in a supportive manner".

Similarly, those who have felt undervalued mostly attribute it to the lack of feedback or acknowledgment:

D: "One reason for the lack of recognition is that my boss is not aware of my effort, does not pay much attention, and is very sloppy. Feedback means that you are being valued, taken care of, and observed."

I: "One situation in which I felt undervalued was after a period in which I had a lot of work to do, many things to take care of too and there was a lot of pressure. I invested a lot of effort and time, and after successfully completing everything, I didn't receive any acknowledgment or feedback".

#### **4.4 Creating Meaningful Roles: Unlocking Motivation and Well-being**

The concept of meaningful work emerged as a central theme regarding employee motivation, job satisfaction, and overall well-being. All the respondents emphasized the importance of finding their work meaningful, highlighting it as a key contributor to their motivation and sense of job satisfaction due to the following reasons. Firstly, the impact and usefulness of the job play a significant role. Employees who see their work makes a positive difference and contributes to broader organizational or societal goals are more likely to find it meaningful. Secondly, aligning job tasks with personal values and interests enhances the sense of meaningfulness. Employees who work on challenging and important problems that align with their values are more likely to feel fulfilled and motivated.

Recognition and acknowledgment from peers and supervisors also play a crucial role in enhancing the meaningfulness of work. Positive feedback and acknowledging contributions reinforce the perception that one's work is valued and important. Moreover, the opportunity to fully utilize one's skills and take on new challenges is closely linked to the perception of meaningful work. Employees who feel that their skills are underutilized or that they are spending time on tasks that lack clear justification may experience a decline in motivation and job satisfaction. Conversely, when employees are given meaningful and interesting tasks that allow them to leverage their skills and expertise, they are more likely to be motivated and engaged.

All the respondents stated that meaningfulness is very important for motivation and is a key aspect of job satisfaction and well-being. A few different reasons

were brought up as to why they perceived it as meaningful. Most respondents seemed to concur with the importance of perceiving their job as impactful and useful when it comes to having a feeling of meaningfulness:

B: "I find my job meaningful because it has a positive impact on people and because it is perceived as important"

H: "Feeling useful and feeling that what I do is impactful and valuable makes my work meaningful."

C: "I feel it is meaningful, and I consider this to be important, I spend more than eight hours a day at my work, plus the time you spend thinking about it, if it wasn't meaningful, it would be very difficult to be happy".

E: "I find my job meaningful because I can challenge myself frequently, working on problems that I consider important, and when I find the solution, it makes it feel meaningful."

When asked what would make their work feel more meaningful, many respondents mentioned reasons related to how other individuals or peers acknowledge or see their work.

H: "I think people like to feel special; if people acknowledge your contributions and your importance within the team, it helps a lot. Acknowledging other people's efforts is very important to make their work feel more meaningful."

I: "Receiving good feedback from supervisors, collaborators, more acknowledgments would help me feel more valuable and meaningful"

F: "Having more visibility would make it feel more meaningful; I feel that nobody cares about our team despite the relevance we have."

In general, the topic of meaningfulness came up in every of the three SDT categories for instance when asked if their job skills were being underutilized, which surprisingly all the respondents felt they were, one reason for this was having to invest much time on things they do not consider necessary, on things that are not perceived important or do not have a clear justification

F: "I feel I can do much more; I spend a lot of time with bureaucracy or explaining things to people who order things without any sense or justification."

When asked what would make them accept new challenges, the respondents commonly answered that the task needs to be meaningful and interesting:

A: "I would take on new challenges if the role was interesting, very innovative, meaningful, and purposeful, and I would get to work with talented people."

B: "For me to accept challenging tasks, I need to consider them interesting and ensure that they have a well-justified purpose."

E: "Feeling trust to do something important and meaningful is the biggest motivation; if you have trust in people, they try to be better."

E: "If it were a well-defined challenge with a meaningful purpose, I would be more willing to take on it. There also needs to be a reward after completion."

#### **4.5 Sustaining Motivation: The Importance of Balancing Rewards and Challenges**

Internal and external factors both play important roles in driving employee motivation. Internal factors, such as feeling useful, recognized, and challenged, are key for intrinsic motivation, as intrinsically motivated employees find satisfaction in the work itself and the sense of accomplishment it brings. However, for this type of motivation to thrive, basic needs like a fair salary and appropriate rewards must be met; if employees feel their compensation does not match their responsibilities, it can hurt their motivation. External factors, such as salary, rewards, and incentives, are also crucial drivers of motivation, as many employees are motivated by the tangible benefits they receive from their work, such as financial compensation and career progression opportunities. External rewards can encourage employees to go the extra mile and take on additional responsibilities. However, it is essential to balance internal and external factors for sustained motivation, as while external rewards can boost motivation in the short term, intrinsic motivation is often more enduring and fulfilling.

This theme directly relates to how to support intrinsic motivation within employees. Balancing internal and external factors is essential for sustained motivation. External rewards can provide immediate incentives and are a

prerequisite for intrinsically driven motivation, which can create a deeper, more lasting commitment to work. By addressing both types of motivation, organizations can create a work environment where employees feel valued, compensated, and challenged, which simultaneously helps to meet the needs of competence.

When asked if internal or external factors drive their motivation, both were equally common answers. However, those who think internal factors mainly drive their motivation acknowledged that some basic needs have to be fulfilled for that to happen (such needs mostly being related to salary and rewards), while others pointed out that there needs to be a balance between the two:

A: "I think my motivation is driven by internal factors such as feeling useful and recognized by my peers, although I reckon I have a good salary and good progression. The situation would be very different if I thought my salary was not paired with my responsibilities. In the past, this has had a negative impact on my motivation because I was asked to do tasks that would match positions with higher seniority levels."

B: "I think external factors drive my motivation; at the end of the day, people work to earn money. If I already consider that I am doing my job properly, why would I go the extra mile without any reward?"

C: "Challenge itself is a motivation. I don't like to take on simple tasks, but I reckon that accepting challenges will result in some sort of reward."

E: "I think people work for money, so I would say external factors are more important. It would be very demotivating if I had a job in which I fully invested myself and was not well-paid. I think the employee must have a sense of well-being in order to feel motivated"

The respondents seemed to concur with the fact that job recognition is very important and has a high impact on their motivation. However, recognition most commonly shows as purely verbal, and in general, it does not materialize into anything within a reasonable timeframe:

C: "Recognition affects a lot my motivation, but a salary raise would also have a very positive impact"

B: "Recognition is very important; it affects everything, the rewarding side too. I think most people do work for money, so it is important."

I: "I consider recognition to be very important, but things are slow; people may acknowledge your contributions, but it does not materialize into anything."

## **5 Discussion**

The five themes presented in Chapter 4 summarize the main findings from the interview data. These themes help us understand how fulfilling the basic needs of autonomy, competence, relatedness, and meaningfulness affects employee motivation in the high-tech industry.

### **5.1 Impact of SDT on Motivation of High-tech Employees**

#### **Autonomy**

The theme of "Empowering Through Autonomy" emphasizes the importance of providing autonomy to enhance employee motivation and well-being. A feeling of trust and empowerment is experienced by employees when they can decide how to complete their tasks. It creates a feeling of ownership over their work, directly increasing their motivation. The data suggests that employees who experience autonomy are more engaged, motivated, and willing to take on new challenges. Autonomy also contributes to a sense of accountability, as employees feel responsible for the outcomes of their self-directed efforts. Thus, by supporting autonomy, organizations can help create a positive work environment in which employees feel valued.

An important point to emphasize is that granting autonomy should not mean a complete lack of attention from supervisors or more senior employees. Autonomy should be combined with appropriate high-level guidance. It benefits everyone that employees can perform their tasks without needing constant intervention from more experienced colleagues. Therefore, it is crucial that employees feel their supervisors understand their work and the challenges they face so they can receive meaningful support if needed. Providing sufficient quality time and support is essential to sustaining and maximizing the benefits of these self-directed efforts.

These conclusions are coherent with research done by Deci and Ryan (2000), which shows that when employees have control over their work, they experience greater intrinsic motivation. Similarly, Gagné and Deci (2005) showed that

autonomy-supportive environments lead to higher satisfaction, creativity, and engagement.

### **Competence**

Both the themes of 'Creating a Supportive Environment' and 'Providing Constructive Feedback' highlight the importance of feeling competent when it comes to boosting motivation and confidence. As employees gain experience, acquire new skills, and receive constructive feedback, their sense of competence grows. This motivates them to take on any task and enhances the likelihood of achieving positive outcomes. In this context, a supportive environment is crucial, encouraging employees to tackle tasks they might otherwise feel uncomfortable attempting. In technical roles, "learning by doing" is often the most effective approach. Therefore, providing proper guidance alongside reasonably complex tasks offers the best learning opportunities. Ryan and Deci (2000) emphasize that perceived competence is crucial in the internalization of behavior. When individuals lack confidence in their ability to do a specific task, they are unlikely to internalize its regulation. In fact, they may actively avoid the task, leading to amotivation. Furthermore, Locke and Latham (1990) state that goals or tasks that are challenging, yet attainable, result in the best results. Similarly, Frese and Fay (2001) proposed the concept of optimal challenge, arguing that a task should be challenging enough to promote learning and engagement but not so difficult as to cause overwhelming stress or failure.

Again, it is essential to emphasize the importance of creating a supportive work environment. In high-tech roles, employees tackling challenging tasks can easily feel overwhelmed if they do not see progress, this would quickly undermine their motivation and perception of competence. Thus, it becomes critical to address these situations as early as possible by providing the necessary support to move things forward and provide directions for improvement. Employees need to feel confident to take on any task, and having a network of experienced colleagues who can offer guidance significantly enhances such feelings. A higher level of confidence helps employees speak up and propose new perspectives and solutions. Altogether, this sense of competence creates a culture of continuous improvement, ultimately driving the organization forward. Providing constructive feedback is also essential to enhance this perception of competence and boots

confidence. A supportive environment is cultivated by individuals who genuinely care and are committed to listening and understanding the challenges faced by their peers, while offering insights and suggesting improvements for aspects that might have been overlooked or misunderstood. The data supports the idea that feeling competent creates a sense of accomplishment and satisfaction, which are shown to be key drivers of motivation.

The study by Eisenberger et al. (2005) has shown how performance-contingent rewards and positive feedback can enhance perceived competence. It highlights that when employees' performance is positive or above their expectations it results in an increase of their perception of competence, boosting their intrinsic motivation. The study agrees that constructive feedback is essential for perceived competence. In a similar manner, Deci (1971) concluded that positive feedback resulted in higher intrinsic motivation and perception of competence because individuals see themselves as responsible for such success. On the other hand, when feedback is negative, it has been shown to have the opposite effect (Deci & Ryan, 1985).

Positive feedback provides employees with information about their performance, helping them understand their strengths and areas for improvement, which enhances their competence and motivation. Bandura's (1997) research on self-efficacy indicates that employees who believe in their capabilities are likelier to take on challenging tasks and persist in facing adversity. Furthermore, positive feedback is considered a central element of job characteristic theory regarding increasing motivation (Hackman & Oldham, 1980).

### **Relatedness**

The "Creating a Supportive Environment" theme also addresses the need for relatedness. A supportive work environment where employees feel connected to their team and organization enhances their sense of belonging. This feeling of relatedness increases motivation by creating a safe space for employees to take risks, share ideas, and collaborate. When employees know they have a reliable support system and are cared for, they're more motivated to tackle challenging tasks and contribute to team goals.

There are apparent similarities between how competence and relatedness are built, with the common denominator being a sense of community and belonging. A supportive environment, where people invest time in helping each other grow, fosters both competence and relatedness. This sense of community ensures that employees feel valued and supported, which drives continuous improvement and collective success.

These conclusions align with the study conducted by Carmeli et al. (2009), which demonstrates that strong relationships result in employees experiencing a sense of belonging and connection to their colleagues and organization. When employees feel safe and supported, they are more willing to take risks, share their ideas, and collaborate. This safe and supportive environment motivates them to tackle challenging tasks and help their team achieve its goals. The study found that when employees know they have a reliable support system, they can endure and face difficulties more effectively, which helps them stay motivated and perform better.

### **Meaningfulness**

The theme "Creating Meaningful Roles" directly addresses how meaningfulness impacts motivation. Employees who perceive their work as meaningful report higher motivation and job satisfaction. Meaningfulness arises from various factors, including the perceived impact of their work, alignment with personal values, and recognition from peers and supervisors. The data suggests that employees who understand how their work contributes to broader organizational or societal goals are more likely to be intrinsically motivated. Furthermore, the data indicates that having a meaningful job is a key aspect of overall well-being and a strong driver of sustained motivation.

When assigning tasks to employees, it is crucial that the requests are technically sound and clearly demonstrate the value they bring to the team and organization. Basically, employees need to perceive that their tasks are important and technically valid, and that their outcomes will be effectively utilized. Therefore, it is important to consider employees' perspectives and remain flexible to adjust the requests accordingly.

Receiving recognition and acknowledgment from peers and supervisors also plays a crucial role in enhancing the meaningfulness of roles. Positive feedback and acknowledging contributions reinforce the perception that one's work is valued and important. People appreciate feeling valued by their peers; this feeling tends to manifest more commonly when the tasks they do are very relevant or have a high impact on the organization, meaning they have more visibility within the company. This recognition helps employees feel appreciated and respected, further boosting their motivation and job satisfaction. Moreover, the opportunity to fully utilize one's skills and take on new challenges is closely linked to the perception of meaningful work. Employees who feel that their skills are underutilized or that they are spending time on tasks that lack clear justification may experience a decline in motivation and job satisfaction. Conversely, employees can reach higher levels of motivation and engagement when they are given meaningful and interesting tasks that allows to leverage their skills and expertise. This is in line with goal-setting theory (Locke & Latham. 1990), which states that goals need to be clear so that individuals can better understand what is expected from them.

Another critical aspect of creating meaningful roles is providing employees with opportunities for growth and development that are aligned with their goals and aspirations. When employees see clear career advancement opportunities that align with their goals, they are more likely to invest in their work and strive for excellence. This sense of progress and personal development contributes to a deeper sense of purpose and fulfillment.

These claims align with research on workplace motivation. In their job characteristics theory, Hackman and Oldham (1976, 1980) emphasize that meaningful work emerges when employees can see how their tasks progress and are completed, and understand how their work positively affects others. Their research shows that when people see the significance of their work, they are more likely to find their jobs meaningful and stay motivated. Similarly, research by Rosso et al. (2010) indicates that meaningfulness comes from several factors, such as a positive perceived impact of their work, alignment with personal values, and recognition from peers and supervisors. Employees who understand how their work contributes to broader organizational or societal goals are more likely

to be intrinsically motivated. The study also suggests that meaningful work is a key aspect of overall well-being and a strong driver of sustained motivation.

## **5.2 Supporting Evidence and Divergent Findings**

The research findings demonstrate that the five identified themes, namely creating a supportive environment, empowering through autonomy, providing constructive feedback, creating meaningful roles, and sustaining motivation, are strongly connected and mutually reinforcing. For example, a supportive environment enhances autonomy by providing employees the confidence to make independent decisions, while constructive feedback strengthens competence and relatedness by acknowledging employees' capabilities within a supportive context. Similarly, meaningful roles contribute to autonomy and competence by allowing employees to utilize their skills purposefully. These aspects align with SDT's premise that the basic psychological needs of autonomy, competence, and relatedness work together to create optimal conditions for motivation and performance.

SDT emphasizes that intrinsic motivation is the most powerful and sustainable form of motivation, and that tangible rewards may undermine intrinsic motivation. The presented findings suggest a more nuanced perspective. Our respondents do acknowledge the fundamental importance of intrinsic motivation. However, they strongly emphasize that motivation requires carefully balancing intrinsic and extrinsic factors. Extrinsic factors, such as fair compensation, appropriate rewards, and career advancement opportunities, are essential foundations. When these basic needs are not adequately met, they can significantly undermine intrinsic motivation. Even the most passionate employees may struggle to maintain enthusiasm if they feel undervalued or unfairly compensated. The fact that SDT or CET originally posited that external factors such as tangible rewards tend to diminish intrinsic motivation was one of the points that raised the most criticism in the context of work organizations, as discussed earlier in Chapter 1.2. This finding suggests an important refinement to SDT's emphasis on intrinsic motivation: while intrinsic motivation may indeed be the most powerful form of sustained motivation, it cannot be effectively cultivated without ensuring that fundamental extrinsic needs are met. Therefore, organizations should focus

on creating an environment that satisfies basic extrinsic needs and nurtures intrinsic motivation rather than treating them as separate or competing factors. However, it is noted that later studies by Deci and Ryan, e.g., Deci et al. (1999), revealed that tangible rewards actually increased intrinsic motivation when the rewards were given upon high levels of performance and delivered in a supportive rather than controlling environment, which is more in line with the findings of this work.

### **5.3 Recommendations and Practical Tips**

Based on these results, we can draw important conclusions about what motivates tech workers and employees in highly specialized roles that require extensive technical expertise. To achieve sustained motivation among employees, it is crucial that there is a balanced level of satisfaction of their psychological needs for competence, relatedness, autonomy, and meaningfulness. As it has been discussed, each of these needs plays a unique and complementary role in driving motivation. Neglecting any of them can undermine overall motivation and job satisfaction. Long-term employees are key assets for high-tech companies because their experience is crucial. It can take years for new employees to learn and completely master the company's specific technology and products, this makes senior employees difficult to replace. In order to keep these valuable team members, ensuring their job satisfaction and well-being can play a great role.

Studies suggest that the way managers interact with their employees significantly impacts whether the basic psychological needs of the staff are met. Managers who value their team members' perspectives, share pertinent information without being overly controlling, give them choices, and foster self-initiative are better positioned to cultivate an environment that nurtures autonomy, competence, and relatedness (Deci et al., 1989).

The following tips are proposed to support the fulfilment of each psychological need.

### **Autonomy Support**

Organizations can support the need for autonomy by empowering their employees to choose how they tackle their tasks. This approach results in a sense of ownership over their work, resulting in higher trust and accountability. Manager can guide their teams by setting clear objectives while granting them with the flexibility to choose their own way to achieve these goals. Self-directed employees only need to know what is the end result they should achieve.

Similarly, encouraging employees to make decisions independently contributes to enhancing the level of autonomy. In general, when employees are given the freedom to choose, they feel more empowered in their roles, resulting in increased motivation and engagement. Another key aspect is to empower employees to take the initiative, to speak up and propose new ideas.

Managers must provide explanations and the rationale behind their requests. When employees understand the reason behind requested behaviors and decisions, they are more likely to feel committed and willing to accomplish the desired outcomes. Furthermore, it is equally essential to take into account employees' experience and point of view and adjust accordingly.

### **Competence Support**

Companies should offer training programs to help employees learn the skills they need to do well in their jobs. These programs should be well defined and tailored to address employees' specific needs. Furthermore, the training needs need to be regularly assessed and updated so that employees receive relevant training that aligns with their goals and the organization's targets.

Another effective way to support competence is by offering challenging tasks while providing adequate support and learning time, this offers them the opportunity to develop their skills and facilitates professional growth. It is essential to ensure that employees are not overwhelmed by offering proper guidance and support.

Establishing a feedback system focused on improvement and growth is deemed very important. Providing constructive feedback helps employees comprehend

their strengths and areas for development, allowing them to enhance their skills and performance. Recognizing and celebrating employees' accomplishments motivate and inspire them to excel.

### **Relatedness Support**

Organizations can support relatedness by promoting a positive workplace culture that encourages collaboration, teamwork, and support. By doing so, organizations can make their employees feel they belong to something greater than themselves. Allowing employees to have the flexibility to step out of their responsibilities to support others enhances the sense of community and improves collaboration.

Acknowledging and appreciating employees' contributions to the team and organization is also crucial. This recognition helps employees feel valued and respected, reinforcing their sense of belonging and motivation to contribute to the organization's success.

### **Meaningfulness Support**

Organizations can support meaningfulness by clearly communicating the company's mission and how each employee's work contributes to it. When employees can see clearly the way their work transcends themselves and the impact it has on the organization or society, they will have higher chances to have a sense of meaningfulness and thus, be motivated to perform at their best. Another way to do so is by aligning the tasks of the employees with their values and interests whenever it is possible. Furthermore, acknowledging and appreciating people's contributions and their importance to their team is pivotal to creating a sense of meaningfulness.

Providing opportunities for personal and professional growth is also crucial. When employees see clear career and skill development opportunities, they are more likely to be invested in their work and strive for excellence.

Implementing a reward system that acknowledges the importance of extrinsic and intrinsic rewards is also essential. While internal motivation is central, external rewards such as financial incentives and promotions are equally important and

cannot be disregarded. Employees need to perceive a good balance between job requirements and compensation.

## 6 Conclusions

This thesis studied the application of SDT to enhance the motivation and well-being of employees working in the high-tech industry. SDT provides a well-established framework for understanding human motivation and has been successfully applied across various fields and industries. However, its application in the high-tech industry has received limited attention, mostly focusing on its impact on innovation. This work has tried to fill the existing gap in this area.

The findings and discussion presented in this thesis reveal that SDT can offer very valuable insights on how organizations can enhance employee motivation and performance within the high-tech industry. The results show the importance of fulfilling the basic psychological needs of autonomy, competence, relatedness, and meaningfulness to foster a motivated and productive workforce. It is also shown that such basic needs are mutually reinforcing, therefore, ensuring their balanced satisfaction is pivotal. Despite SDT originally positing that extrinsically rewarding factors may undermine intrinsic motivation, the results presented in this thesis reveal a more complex relation between intrinsically and extrinsically driving motives. The data suggests that in order to allow intrinsic motivation to be the main driving force, basic extrinsic, such as feeling fairly compensated or rewarded, needs must be met.

This study identified five themes to promote motivation and performance: creating a supportive environment, empowering through autonomy, providing constructive feedback, creating meaningful roles, and sustaining motivation through balanced rewards and challenges. An enhanced sense of competence and relatedness can be incentivized by creating a supportive work environment where employees feel valued and connected. Empowering employees with autonomy allows them to take ownership of their tasks, this transmits a message of trust and accountability. Providing constructive feedback is essential for personal and professional growth, reinforcing employees' sense of competence and value within the organization. Creating meaningful roles ensures that employees find purpose and significance in their work, which is crucial for sustained motivation.

Building on these five themes, a set of practical tips to support the fulfillment of the basic psychological needs was proposed to help organizations enhance the motivation and well-being of their employees.

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## **Appendix**

### Appendix 1. Interview Questions

#### **Competence (Skill and Effectiveness)**

**1. How confident do you feel in your ability to perform your job effectively?**

- Can you give an example of a situation where you felt particularly competent?
- What makes you feel more (or less) confident in your skills?
- What else can you tell me about times you've felt especially effective at work?

**2. Do you feel your skills and abilities are fully utilized in your current role?**

- In what ways do you think your skills are being underutilized, if at all?
- How could your role be adjusted to better match your abilities?
- Tell me more about how this affects your motivation or sense of satisfaction.

#### **Relatedness (Connection with Others and Feeling Valued)**

**3. How connected do you feel to your colleagues and team members?**

- What contributes most to feeling connected (or disconnected)?
- How does this sense of connection impact your work?
- Can you share a recent example of a positive interaction with your team?

**4. Do you feel that your contributions are valued by your team and the organization?**

- What specific experiences have made you feel valued (or undervalued)?
- How does recognition—or the lack of it—influence your motivation?
- Tell me more about what kind of feedback is most meaningful to you.

**Autonomy (Control and Decision-Making)****5. How much control do you have over how you complete your work tasks?**

- Can you describe a time when you felt you had a lot of autonomy in your role?
- What are some decisions you wish you had more control over?
- How does the level of autonomy you have affect your job satisfaction?

**6. To what extent can you make decisions about your work without needing approval from others?**

- Can you tell me about a time when you successfully made an independent decision?
- How does the need for approval influence your workflow and motivation?
- What else could improve your decision-making freedom?

**Meaningfulness (Personal Relevance and Value Alignment)****7. Does your work feel meaningful and aligned with your personal values?**

- What aspects of your work do you find most meaningful?
- How does the alignment with your values affect your overall motivation?
- Tell me more about any changes you would like to see to increase this sense of alignment.

**8. To what extent do you feel your work contributes to the organization's goals?**

- In what ways do you see your role as important to the bigger picture?
- How does this impact your day-to-day motivation and engagement?
- What would make your contributions feel even more impactful?

**Nature of Motivation (Exploring Internal vs. External Motivation)****9. What motivates you to take on challenging tasks at work?**

- Is your motivation driven more by external rewards or internal satisfaction?
- Can you share a situation where you felt particularly motivated to push yourself?
- What factors do you think influence your willingness to take on complex responsibilities?