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Explaining employee turnover latency in IT professionals

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MSc. in Computer Science and Business Management

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To thank my family in general. To my mother, for being living proof that strength is something that comes from ourselves. To my father, for being the best example that enjoyment and hard work pays off. To my brother, for showing me that discipline and persistence lead us to what we want.

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#### Resumo

Entre a abundância de estudos sobre rotatividade externa que têm sido desenvolvidos nas últimas décadas, há uma dimensão subtil da rotatividade que tem passado despercebida: a latência da rotatividade. Esta dimensão refere-se ao tempo que os indivíduos demoram a abandonar efetivamente a organização depois de terem tomado essa decisão. As consequências desta dimensão temporal da rotatividade são importantes uma vez que podem criar uma situação de saída repentina, bem como fomentar uma força de trabalho pouco motivada, o que representa um possível custo oculto em termos de produtividade e clima. Este estudo baseia-se na proposta de que as situações de equilíbrio entre as exigências e os recursos do posto de trabalho podem ser uma explicação para a latência da rotação.

Ao reunir num modelo de interação tripla a carga de trabalho, as recompensas organizacionais e a conciliação entre vida profissional e vida privada, uma análise PLS-SEM dos dados de 52 profissionais de TIC mostra que nenhum efeito direto destes fatores explica a latência do turnover, e também que nenhuma interação dupla o consegue. No entanto, ao considerar a interação entre a carga de trabalho, as recompensas organizacionais e conciliação entre vida profissional e pessoal, foi possível explicar a latência da rotatividade.

Os resultados sugerem que a latência da rotatividade requer modelos complexos que considerem as configurações entre fatores bem conhecidos na investigação sobre rotatividade. Os resultados são discutidos à luz da teoria bem como as implicações que deles derivam.

**Palavras-Chave:** latência de rotatividade, carga de trabalho, recompensas, conciliação vida profissional e pessoal, profissionais de informática

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#### Abstract

Among the plethora of turnover studies that have been produced in the last decades there is a subtle dimension of turnover that has been passing unnoticed: turnover latency. This refers to the time individuals take to actual leave the organization after they have made such a decision. The consequences of such temporal dimension of turnover are important as it may create an emergency as well as it may foster a low-motivated workforce that represents a possible hidden productivity and morale cost. This study is set on the grounds of a proposal that balance, or equilibrium, situations between job demands and job resources may be an explanation for turnover latency.

By bringing together in a three-way interaction model, workload, organizational rewards and work life balance, a PLS-SEM analysis of data from 52 IT professionals shows no direct effects from these factors explain turnover latency, and also no two-way interactions achieve that. However, by considering the interaction of workload, organizational rewards, and work life balance, it was possible to explain turnover latency.

Findings suggest turnover latency requires complex models that consider the configurations between well-known factors in turnover research. Findings are discussed in the light of theory and implications derived from them.

Keywords: turnover latency, workload, organizational rewards, work-life balance, IT professionals

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#### Introduction

The turnover of IT professionals is a hot topic these days. The number of IT professionals in relation to demand in the job market is in deficit, and this area is characterized by constant growth (Lo, 2013). As Nelson & Todd (2004) point out, back in the 2000s, the turnover rate was around 15% in many organizations.

The topic of "turnover" creates major constraints for organizations, which are constantly searching for ways to retain these professionals or predict their departure. Many studies indicate the factors that lead to turnover. However, one issue that has not yet been explored in the literature is the latency with which it occurs, since there may (or may not) be a long period of time between the intention and the behavior of a human being.

The question that arises is "What factors accelerate or delay turnover?". This study explains employee turnover latency in IT professionals by reviewing the literature in order to understand a series of theories and models that help to understand human behavior, and by analyzing data collected through a questionnaire on this same target audience.

This study therefore addresses issues such as employee turnover and IT, an explanation of the concept of turnover latency and theories that support it (Theory of Reasoned Action (Fishbein, 1967), Theory of Planned Behavior (Ajzen, 1980), Theory of Interpersonal Behavior (Triandis, 1980), ASE Model (De Vries et al., 1998), JD-R Theory (Bakker & Demerouti, 2007), COR Theory (Hobfoll, 1989) and Field Theory (Lewin, 1942). This is followed by a contextualization of the study's fundamental variables and the hypotheses defined, thus constituting the literature review. That said, the practical part begins. After applying the questionnaire and analyzing the data, it was possible to construct the conceptual model that underpins this study. The method chapter includes the procedure, sample, data analysis strategy and measures. Following this chapter, the results are presented - descriptive and bivariate statistics and hypotheses testing. Finally, the discussion and conclusion of the study are presented.

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#### **CHAPTER 1**

#### **Literature Review**

There are a number of important concepts, theories and models which seek to explain turnover and which may be useful in explaining the turnover latency associated with IT professionals. The following sub-chapters provide context and theoretical support for topics such as employee turnover and IT, turnover latency and the role of intention-behavior gap.

#### 1.1. Employee turnover and IT

Nowadays and over time, human capital has gained the importance and recognition it deserves. Results come from people, from the creation, application, sharing and use of knowledge that contributes to smooth organizational functioning and success (Li & Lu, 2014). In this line of thinking, retaining the best talent becomes a challenging objective, coupled with a major problem that has plagued organizations with ever increasing intensity – voluntary turnover (Shukla & Srivastava, 2016).

Various authors have defined the concept of turnover over the decades. The first systematic approach to voluntary turnover was introduced in the Journal of Applied Psychology by Bills (1925) and identified an indirect relationship between the stability of administrative workers and their parents' profession. Although some literature on turnover can be identified, it was only in the 1970s that the subject came to the forefront of researchers' concerns. Price (1977, p.4) explained the term as "the degree of individual movement across the membership boundary of a social system". In turn, Tett e Meyer (1993) described it as the conscious and intentional desire to leave one's job by terminating the contractual relationship. Maertz e Campion (1998), on the other hand, when studying voluntary turnover, portrayed it as "instances wherein management agrees that the employee had the physical opportunity to continue employment with the company, at the time of termination" (p.50). In the 2000s, two of the main authors who addressed the issue of turnover were Phillips and Edwards (2009), reporting it only as the employee's initiative and determination to leave the organization. For Jonos and Machado (2019), turnover corresponds to the oscillation of workers entering and leaving an organization. In short, turnover has been defined in different ways, sometimes emphasizing its quantitative nature (as expressed in the calculation) and sometimes its attitudinal nature in relation to the employee's decision to continue or terminate an employment relationship with an employer. Its voluntary character makes the phenomenon more important as it is something that is determined by the individual and may be contrary to the interests of the organization. For this reason, turnover is approached in this work according to the definition of Tett and Meyer (1993) complemented by that of Phillips and Edwards (2009) corresponding to:

# The voluntary and conscious act of leaving a job, having the opportunity given by the employer to continue in that job.

Although employee turnover is a relatively ubiquitous phenomenon, some industries are known for their exceptionally high turnover. Among these Information Technology (IT) has been widely noticed. According to Hagel and Miller (2011) in the US the average reported turnover in 2005 was comprehended between 0.5% and 0.7% but IT professionals then were having a staggering 7% turnover rate. More recently, a doctoral study also conducted in the US (Velez, 2019) reported based on a qualitative approach IT turnover rate to be around 21.5%, which means that about one fifth of IT professionals in any given organization will voluntarily change organization. Although there seems not to be a single comprehensive and reliable source of IT turnover rates, the shared understanding in literature and professional outlets is that this industry is prone to such events, and this is considered an issue.

These figures are more impactful because IT has been gaining relevance across the world. Alongside the continuous innovation, there is a long felt increase in demand for qualified IT professionals (Lo, 2013), as their skills are critical to the success of firms. However, the supply-demand ratio is persistently in deficit status meaning, there is a shortage of IT professionals, which gives them many opportunities to freely choose where to work. The combination of several features of IT industry, namely their high technical skills transferability (McKnight et al., 2009), the need to be permanently challenged and learning (Aydogmus, 2019), the shortage of job market workforce (Gubler et al., 2018) and the globalization of this job market (McKnight et al., 2009), easily explain the high voluntary turnover rate in this industry (Hagel & Miller, 2011).

Considering the value of IT professionals in a society connected by electronic and computer means, and the power of their knowledge in developing, maintaining and protecting this functional digital infrastructure, organizations are investing in controlling the turnover that is persistent. This investment is proportional to the damage that turnover in IT professionals does to companies. IT turnover cannot be innocuous for any company. This is because knowledge, both explicit and tacit (in other words, the knowledge that we are able to document and the knowledge that is more difficult to formalize and transmit, respectively), is what allows companies to achieve competitive advantage in a knowledge economy and society. In addition, if an employee leaves voluntarily for the competition, there is an involuntary transfer of knowledge and a loss of potential which, in extreme cases, can lead to a decline in market positioning. High turnover has also a major impact on an organization's direct

and indirect costs. Direct costs correspond to the entire process involved in recruiting a new employee, such as selection, orientation and training. While the indirect costs are not superficially observed, and are reflected in the loss of self-confidence, unfamiliarity with the organizational culture, stress management and teamwork (Mamun & Hasan, 2017). This shows the importance of voluntary turnover.

For these motives it is not surprising that employee turnover, and also IT employee turnover are vastly researched for decades. A simple search in scholar google for scientific papers published on employee turnover, and IT (information technologies) shows over 4200 papers, 1300 published in the last four years, and in 2023 up to this date (September 2023) already 200 papers. This means each month on average there is almost one new paper per day. So, turnover itself, its intention and behavior has attracted this much attention. However, not much is known about the length it takes employees from the moment they experience an intention to leave to the moment they do so. This might be called "turnover latency" and is an under-researched phenomenon. The question then is: What factors accelerate or delay the decision making in IT professionals as regards voluntary turnover?

#### **1.2.** In search of the turnover latency explanation

Behavioral prediction models vary but they converge as regards the need to include a behavioral intention to explain actual behavior. Such is the case e.g. if the Theory of Reasoned Action (Fishbein, 1967) or the Theory of Planned Behavior (Ajzen, 1980) which will be detailed below.

According to APA (2022, p. 1) intention refers to "a prior conscious decision to perform a behavior" while behavior refers *stricto sensu* to "any action or function that can be objectively observed or measured in response to controlled stimuli". According to the same source, behavior can also be broadly defined *lato sensu* as "an organism's activities in response to external or internal stimuli, including objectively observable activities, introspectively observable activities, and nonconscious processes". In this research we adopt the restrict definition and link behavioral intention to behavior as its main outcome and relevant process within organizations.

Ajzen (1991) explains that intentions not only reflect the motivational strength with which one is willing to execute a behavior, but it also "how much of an effort they are planning to exert, in order to perform a behavior" (p. 181). The motivation factor is assumed to be a predictor of behavior, whether in a positive or negative position. However, according to several authors, including Sheeran (2002), there is often a gap, as actions do not necessarily follow the individual's intentions.

According to the literature reviewed, there are theories that sustain the intention-behavior gap: the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Theory of Interpersonal Behavior (TIB) and the Attitudes, Social influence, and Efficacy Model (ASE).

#### 1.2.1. Theory of Reasoned Action

Going back to the 1960s, Martin Fishbein, one of the big names in the field of Psychology during that decade, developed the first introduction to the Theory of Reasoned Action (Fishbein, 1967). However, a few years later it was further developed together with Ajzen (1975). This theory essentially posits that people's behavior is rational and sensible. As such, the triggering of decisions is based on the expression "start at the end and work backward" which, in other words, indicates the consideration and knowledge of the outcome before any behavior is deployed. In order to substantiate the expected prediction, TRA considers all available personal information, with special attention to pre-existing attitudes. This theory defines intention as the determining and motivating factor for a behavior which, in turn, is influenced by two factors: attitude towards behavior, and subjective norm.

Attitude is a personal aspect; it refers to people's views, i.e. the pros and cons, the positive or negative thoughts about a certain behavior. Studies indicate that when a person is more unmotivated to change, the cons weight much more heavily in the equation, while in a scenario where the person is more open, it is the pros that are more valuable (Gass & Seiter, 2022). In addition to this situation, emotional factors have been shown to outweigh rational factors. The attitudinal factor also has two influencers: what one believes the consequences of a particular action will be, and the degree/value of those consequences.

The second factor that influences intention is the subjective norm. APA dictionary of Psychology defines it as "a perception that an individual has regarding whether people important to that individual believe that he or she should or should not perform a particular behavior" (APA 2022, p.1). Thus, this concept overall refers to social influence, most precisely, to the pressure felt by an individual to display a given behavior and, just like attitudes, it comprises two influencing factors. These are: the perceived expectations people have that (with an emotional charge to the individual at stake), and the motivation to agree and abide with what is expected.

Fishbein and Ajzen's (1975) TRA additionally considers external variables that impact the process. Namely, demographic variables such as gender, age, civil status, religion, education, and the socioeconomic level; but also personality traits such as being introverted or extroverted, and attitudes concerning the objects, i.e. differentiate between attitudes towards people or institutions.

However, with the passage of time and the analysis of TRA, a major limitation was identified (Abraham & Sheeran, 2003). This theory was designed for single instance activity and has triggered several criticisms in this regard. Clarifying the type of behavior is essential to align TRA monitoring with the intended results. So, what differentiates single acts from behavioral categories? Single acts, according to Ajzen and Fishbein (1980), correspond to a specific behavior carried out by an individual. Behavioral categories, on the other hand, are not directly observable and their determination is based

on a set of unique acts (Moutinho & Roazzi, 2010). This model is successful when applied to single acts over which people exercise volitional control.

#### 1.2.2. Theory of Planned Behavior

The Theory of Planned Behavior (TPB, Ajzen, 1980) rose from a question about TRA - isn't there another factor that influences intention and behavior? In fact, the intention focuses on the motivation of the act, but its execution requires control over the behavior. The TPB basically combines the factors previously studied that lead to the formation of behavioral intention, attitude towards behavior and subjective norm, with perceived behavioral control. Control is a mix of self-efficacy which, according to Bandura (1997) is "the belief in one's capacity to perform a specific task or reach or risk a specific goal" (p. 3), and controllability in relation to behavior. In other words, it refers to the degree of difficulty, or ease, of the individual in carrying out the desired behavior. The uniqueness of this theory lies in the perceived behavior control factor which, contrary to what previous proposals, can be related to behavior both indirectly through intention, and, as well directly.



Figure 1 - From Theory of Reasoned Action to Theory of Planned Behavior. Source: Adapted from Ajzen (1991)

The two theories reviews, TRA and TPB, are currently seen as theoretical-methodological tools for predicting various behaviors, with more accurate results once the control component was added to the study. However, these theories have no contribution to account for what may accelerate or delay the time it takes for one individual to go from intention to behavior.

#### 1.2.3. Theory of Interpersonal Behavior

Another psychosocial theory that analyzes behavioral intention is the Theory of Interpersonal Behavior (TIB) by Triandis (1977). In this, the author outlined three levels of influence to demonstrate and categorize the factors that affect behavior: first Level - includes personal characteristics, such as values, beliefs, personality and past experiences; second Level - covers emotions, cognitions and expectations and social norms, i.e. how people understand and evaluate a certain action; third level - considers how intentions (2nd level), past experiences (1st level) and the conditions of the current situation predict actual behavior.

In other words, personal characteristics and past experiences shape attitudes and beliefs (1st level), which in turn influence intentions (2nd level), and these intentions, combined with the conditions of the current situation and past experiences, predict actual behavior (third level) as depicted in Figure 2.



Figure 2 - Theory of Interpersonal Behavior. Source: Adapted from Triandis (1980)

TIB is considered more complete and enlightening compared to Ajzen and Fishbein's theories, given that it incorporates habits, facilitating conditions, and emotions as essential components that affect the relationship between intention and behavior in complex social situations, including the workplace (Robinson, 2010). In other words, while Fishbein (1967) argued that behavior is triggered directly by intentions, Triandis (1977) considers intervening factors.

This model suggests that eventual temporal differences from intention to behavior may reflect external variables, namely the "habit" and the "facilitating conditions". Habit can here be interpreted as an inertial factor that could foster a "remaining" decision, while "facilitating conditions" can, conversely, be a factor that pulls individuals out of the organization. Another model that adds complexity to the previously characterized, is the Attitude, Social influence, and Efficacy (De Vries et al., 1998).

#### 1.2.4. ASE Model

In 1998, De Vries et al. presented the ASE Model - Attitude, Social influence, and Efficacy. For these authors, behavior is essentially influenced by three dimensions, as the name implies. Attitudes, beliefs and personal perceptions correspond to the first dimension, where the aim is to demonstrate that a positive attitude leads more quickly to behavioral intention. The second dimension is based on social influence. That is, the opinion of social groups such as friends or family influences a person's decisions regarding a behavior. Self-Efficacy is the third and final dimension of the ASE Model, which states that the greater the perceived self-efficacy, the greater the intention to perform the behavior (de Vries et al., 1998).

Although the authors highlight these three dimensions, they also consider that recognizing external factors can influence the intention to behave in a certain way. With external factors they refer to age, marital status, gender, education, among others in this sense. In addition to the external variables, the ASE Model refers to factors that can affect the transition from intention to behavior: skills and barriers (Figure 3).



Figure 3- ASE Model. Source: Adapted from De Vries et al. (1998)

Barriers are understood as obstacles and can be of a social, psychological, physical, or contextual nature. Skills correspond to the practical ability of the person in question. Both factors play a significant role in the ASE Model and can prevent the desired behavior from taking place.

#### **1.3.** The balance hypothesis in explaining turnover latency

There are three important theories or models that help establishing the balance hypothesis: The JD-R (Bakker & Demerouti, 2007), the COR Theory (Hobfoll, 1989) and the classic Field Theory by Kurt Lewin (1939).

The ASE model is clearer about what processes could delay or accelerate an individual's actual exit ensuing the intention to leave. On the one hand, "barriers" is a moderator that interacts with the direct effect of intention on behavior together with a reverse valence moderator "skills" which can pressure in the inverse direction. If these drivers are independent and can interfere directly in the intentionbehavior link, then it is quite possible that they co-occurrence can establish a balance that will make the individual back-and-forth in enacting his or her intention.

#### 1.3.1. JD-R Theory

This interpretation goes in line with a well-known model on organizational behavior: Job Demands-Resources (JD-R, Bakker & Demerouti, 2007). This model proposes that job characteristics can be classified as either demands or resources. Job demands refer to all factors that require employees to put effort, independently of being physical, psychological, or social. Conversely, job resources refer to job factors that motivate and help employees to achieve their objectives and also stimulating learning and growth. According to JD-R theory, unbalanced situations where demands outweigh resources lead to stress and burnout (Bakker et al., 2023). In line with ASE model, JD-R enables us to conceive all demands as pushing out factors and all resources as pulling in factors.

According to this theory, demands at work, such as tight deadlines and intense workloads, can increase stress and burnout, while resources, such as social support and development opportunities, can help workers cope with these demands and feel more engaged and satisfied. The balance between demands and resources plays a key role, and JDR Theory highlights the importance of organizations creating work environments that provide adequate resources to cope with demands, thus contributing to a healthier and more productive environment.

Thus, experiencing a situation where one feels a balance between resources and demands may create doubts as to whether one should or not leave despite the intention.

#### 1.3.2. COR Theory

Another important theory, called Compensation of Resources (COR) was proposed approximately four decades ago by Hobfoll (1989). It was initially directed only to explain stress. However, nowadays it has a vast array of applications where employee turnover is also. The premise of this theory is "people strive to retain, protect, and build resources and that what is threatening to them is the potential or actual loss of these valued resources." (Hobfoll, 1989, p.516). Hobfoll thought then that extant stress models were not sufficiently clear or were unable to provide precise empirical guidelines to those that could deploy them and to overcome this the author proposed resources as the key for its explanation. That is, stress occurs when individuals feel they are losing resources because there is an innate drive in all human beings to conserve and accumulate their resources.

As the COR theory evolved, Hobfoll (1993) add two fundamental principles: 1) gaining resources is less prominent than losing resources, and 2) individual investment in new resources needs to be constant and exceeding current status. Empirical studies do support the first claim as resource loss was found to have a greater impact on mental health than resource gain, thus evidencing the asymmetric effect proposed. The second principle directly relates the individual resources to the social system (or the organization), i.e. in order to acquire new resources or to prevent their loss, investment is essential both for individuals and organizations. As individual motivation is intrinsically consistent but collective motivation may entail divergent conceptions of what are the valuable resources, it is reasonable to assume the drive with which individuals endeavor to regain balance (to compensate for resource loss) is stronger than the one observable in social systems such as organizations.

To attain a determined level of stability, mental and physical health, it is important that individual factors, social relations, and cultural values are aligned, and consistent while being supported by many types of resources (Hobfoll, 2001). Morelli and Cunningham (2011) measured 74 types of resources which they grouped into two categories: psychological and social resources; and material resources. Findings show individuals give different priorities to these types of resources, and that such differentiation varies from individual to individual, reflecting their values and beliefs. They found that the positive alignment of resources lowers stress levels and, consequently, decreases the likelihood of turnover. This is fully consistent with COR that suggests, as a mirror, that resource loss leads to increased stress, which is known to be linked to higher turnover.

#### 1.3.3. Field Theory

A much older theory than the ones depicted above, predates these by almost half a century and is signed by the father of contemporary theories of applied behavioral science, action research and planned change (Burnes & Cooke, 2013): Kurt Lewin.

Kurt Lewin has contributed, among others, with the Field Theory, also known as topological Psychology as he called it (Lewin, 1942). This theory is based on Gestalt Psychology (Köhler, 1967) that advocates the human brain processes information in a holistic way (not the Cartesian traditional way as an analytical process) and that perception, more than objective reality, is important to explain individual behavior.

Kurt Lewin opted for the field metaphor because it depicts a holistic reality (Burnes & Cooke, 2013). The main thesis is that individual behavior is influenced and determined by the set of physical and psychological realities that are interdependent jointly with the space where people coexist with their environment. He proposed six characteristics (Lewin, 1942) to back up the theory: Firstly, the constructive method, that proposes the meaning of a given concept depends on its relationship with other concepts. Secondly, the dynamic approach, that proposes individuals experience a quasistationary equilibrium, meaning individuals remain in a dynamic life balance that results from changes in psychological forces that trigger distinct behaviors. Thirdly, the psychological approach highlights individuals are not mere observers of reality, but they subjectively capture it and produce an introspective representation that does not have to match objective reality. Fourthly, primacy of holism, that proposes perception starts by the whole and not from the parts that analytically make the whole, and that whole is not only the stimuli outside the individual. Fifth, the life space (the specific configuration of the psychological field) at a given moment, is the determinant of behavior which discards the influence of past events in explaining current behavior. Lastly, mathematization, which translates the idea that human behavior can be represented by means of mathematical equations to search for scientific rigor.

Human behavior is thus a function of the interaction between people and environment, which can be represented as follows:

#### B = f(p,e)

Where B stands for behavior, p for person and e for environment (p,e), the author argues that behavior arises from psychological forces in the living space (Lewin, 1939). When psychological forces change, so will behavior. Wheeler clearly defined the concept of life space "(...) is the total psychological environment which the person experiences subjectively, although not necessarily

consciously" (2008, p.1640). Lewin assumed that there were several living spaces per person, such as family and professional. He also added that it was possible not only to perceive behavior, but also to discover, through the power of the forces in the life space, which forces would need to be calibrated in order to bring about change.

Kurt Lewin's Field Theory initially faced resistance from some authors due to its application of topology and hodology. After Lewin's death, there was a temporary decline in interest in the theory, but in the 1990s, there was a resurgence, highlighting its centenary and the relevance of the theory in understanding resistance to change, especially in organizations. Many authors, including Schein (1996), Elsass & Veiga (1994), Dent & Goldberg (1999) and Liden & Antonakis (2009), adopt Lewin's theory, focusing on the first five characteristics, while excluding the mathematical function. Field Theory remains relevant, being used to analyze driving and constraining forces in organizational contexts, highlighting the importance of identifying and acting on these forces to promote the desired change.

Overall, employee turnover models, namely the ASE Model, suggest plausible mechanisms to explain latency between intention and action. The underlying idea is that behavior can be conceived as a product of concomitant forces that push and pull individuals into a given direction. These forces, create a whole that can help understand intention-behavior latency. Kurt Lewin's Field Theory explains the mechanisms underlying our proposition.

Although the balance hypothesis to account for turnover latency may be attractive, one has still to define what resources and what demands may be playing to explain the phenomenon. Among turnover literature, one of the recurrent demands that are often mentioned concerns "workload". Workload seems to occupy a central position among job demands because it relates directly with required effort, conflicting roles, or time pressure. Conversely, among job resources, eventually one of the most cited is "organizational rewards", which may be eventually the most evident as regards how much employees gain a valuable resource in such fundamental dimensions such as income level or growth opportunities.

Additionally, bringing Lewin's Field Theory into the equation, external factors concerning family or personal life, should also be considered when the individual is gauging his or her balance as regards life fields. In this respect work-life balance is eventually the most representative of Lewin's conception.

As a tentative integration of literature Joseph et al. (2007) proposed a specific employee turnover model for IT professionals: the Model of Turnover Intention of IT Professionals. The authors posit there are four types of variables that affect the IT professionals' turnover. The individual variables comprise

personal attributes and sociodemographic characteristics, such as level of education, experience, career expectations and age (associated with the Intergenerational Value Change Theory). The work variables include factors such as workload, work-life-balance, development opportunities and job satisfaction. The organizational variables relate all of its surroundings, organizational culture, human resources policies, leadership support and financial stability. The last type of variable is associated with the external context. In other words, external factors such as the availability of job opportunities and the technology job market.

Thus, to operationalize the balance hypothesis, for parsimony's sake, we opted to focus on workload, organizational rewards, and work-life balance while controlling for sociodemographic variables and also some other highlighted by Joseph et al. (2007).

#### 1.4. What resources, what demands?

There are a number of variables (resources and demands) that become essential when talking about the turnover latency of IT professionals.

#### 1.4.1. Workload

According to Hart and Staveland (1988), workload can be assessed through objective and subjective measures. With objective measures, the authors refer to direct observation or data collection, such as the number of tasks performed per unit of time or the amount of time spent on specific tasks. Subjective measures correspond to self-assessments made by the professional, in order to understand how "heavy" their work is. This measure provides real feedback on each person's individual experience; however, it can easily be influenced by personal characteristics (such as resilience), while objective measures deal with factual data, leaving out the worker's perspective and feelings.

To account for the subjective experience of workload, Tarwaka (2015) sees it as the interaction between the number of tasks to be performed, the environment/workplace, the skills, behavior and perception of the worker to produce a sense of required effort. Still, independently of the subjective perception, the amount of time and individual or group spends in performing tasks is an unescapable feature of workload (Kurnia, 2010). For a more comprehensive understanding of workload and how it affects IT professionals, it is essential to consider both conceptual definitions, as presented by Kurnia (2010) and Tarwaka (2015), and assessment approaches. Work overload is a term with an intrinsic negative connotation. Whether it is due to causing a feeling of inability/failure to meet deadlines or because it does not allow for full performance/talent (Ratnasari & Lestari, 2020). In this sense, the expected diagnosis would be a high level of stress, causing poor physical and mental health for the worker and poor results for the company.

Thus, considering workload as a demand, and that its excessive presence should hasten exiting decisions, we hypothesize that:

H1: Workload is negatively related to turnover latency

#### 1.4.2. Organizational Rewards

Organizational Rewards includes both financial and nonfinancial compensation for work done (Carrell & Heayrin, 2007). Rewards play an essential role in promoting employee motivation and retention, while at the same time consolidating the affective and rational bonds between employees and the organization, thus contributing to the deepening of organizational commitment.

Non-financial compensation includes career development and opportunities, including training and development opportunities, career planning and mentoring and coaching. Noe (2017) highlights the importance of training in a knowledge-based economy. The opportunity to improve the technical skills promoted by the organization is a factor highly valued by IT professionals today, and this is one of the characteristics of the new generations – the continuous need for learning. The second factor mentioned above, when structured, allows professionals to set work goals which, according to Locke and Latham (2002), is motivating as it provides direction and focus. With regards to coaching and mentoring, the indication of guidelines and advice is also appreciated within an organization. This set of factors builds non-financial compensation, which not only meets the needs of IT professionals and invests in their growth, but also promotes a development-oriented work environment.

Financial compensation refers to all monetary rewards and tangible benefits. Fair salaries and bonuses are what any employee, IT professionals included, expect to have. Fair reward for the work done is key to avoiding turnover (Cascio, 2016). According to this author the management of benefits and well-being is critical. The author argues that while the organization offers these benefits, it is also demonstrating commitment and support for its employees. One highly valued example is health insurance (Grawitch et al., 2006). Having guaranteed access to healthcare is something that is really sought after in a time healthcare is becoming increasingly expensive (Yeganeh, 2019).

Either via financial or non-financial compensation, organizations strive to offer the most attractive rewards which may entail a mix of these but, whatever the options are, IT professionals will definitely look at this as a retainment factor as long as it does not fail to meet expectations.

Likewise, considering organizational rewards as an important retaining factor, its strong presence should refrain individuals from wanting to go even when they nurture some intention to. Therefore, we hypothesize that:

H2: Organizational rewards is positively related to turnover latency

#### 1.4.3. Work-Life Balance

As early as 2003, Greenhaus and Allen explored the topic of work-life-balance and defined it as how well a person manages to reconcile their role at work with their role in the family, covering three main aspects: balance of involvement, balance of time and balance of satisfaction (Greenhaus et al., 2003). Involvement balance refers to the commitment and effort they put in, time balance to the amount of time spent that is proportionate or appropriate to each, and satisfaction balance to the fact that there is not a great disparity in the degree of contentment between the two.

As the years go by, more and more importance is being placed on the balance between personal and professional life, mainly because of the consequences that imbalance brings. Stress and burnout are mental health conditions that can have a serious impact on the well-being of professionals and are often linked to the work environment (Allen & Shockley, 2020). Ultimately, stress can cause anxiety, depression, sleep disorders and even cardiovascular problems, as well as reduced productivity due to poor concentration (Kossek & Lautsch, 2017). 34% of IT Professionals feel constantly or frequently stressed by their work (Hytry, 2022), also experienced burnout, reporting feelings of exhaustion and emotional exhaustion. Maslach et al. (2001) also indicate detachment from human interactions and a decreased sense of personal fulfillment as characteristic factors of burnout. Dissatisfaction at work is another consequence of the imbalance between professional and personal life, manifested by low motivation, absenteeism, and visible discontent (Greenhaus et al., 2003).

Support from organizations is also a key aspect of work-life-balance. It is essential that an organization's culture strives for the well-being of its employees, encouraging them to prioritize their personal lives and foster healthy lifestyle habits. From the organization's point of view, it is also possible to implement policies and practices that prevent an imbalance (Eby et al., 2005). Work-life balance is an ongoing challenge, and as society and organizations evolve, understanding this balance and promoting it has become a positively imperative issue.

Lastly, considering the importance of WLB as an external factor, and reasoning that a subjective experience of balance should operate as a conservative factor, we hypothesize that:

#### H3: Work-Life Balance is positively related to turnover latency

By equating the process of resource compensation as stated in the COR theory (Hobfoll, 1989), together with the ASE model (De Vries et al., 1998) that considers interaction effects, we hypothesize that:

H4: There is an interaction effect between workload and organizational rewards in explaining turnover latency in such a way that turnover latency is higher when workload is high but organizational rewards are also high.

H5: There is an interaction effect between workload and Work-Life Balance in explaining turnover latency in such a way that turnover latency is higher when workload is high but Work-Life Balance is also high.

H6: There is an interaction effect between Organizational Rewards and Work-Life Balance in explaining turnover latency in such a way that turnover latency is lower when organizational rewards are high and Work-Life Balance is also high.

Overall, the factors that work to generate equilibrium and, therefore, indecision as to the best time to make the intention to leave a reality, include both positive organizational factors (which prolong the time) and negative factors (which shorten the time), as well as extra-organizational personal factors that depend on the job (such as WLB). We hypothesize that:

H7: There is a three-way interaction effect between workload, organizational rewards and WLB in explaining turnover latency in such a way that turnover latency is lowest when workload is high, organizational rewards is low and WLB is low, and turnover latency is highest when workload is low, organizational rewards is high and WLB is also high.

These hypotheses should not disregard other factors that might not be so central in the explanation of turnover latency but still exert an important effect on its variation. Namely, the ease with which individuals may find alternatives in the job market. Movability should be considered because the perception of easy of move is also mentioned frequently in employability and turnover studies (Dysvik & Kuvaas, 2013). Other factors that emerge in turnover literature and may also deserve attention are self-efficacy (a well-known dispositional variable related to behavioral choices (Stajkovic & Luthans, 1998) and social support (another inescapable variable in explaining the psychosocial basis of behavior (Soltis et al., 2013).

# 1.4.4. Other potential factors: Movability, self-efficacy, social support and other macro level variables

#### Movability

The term "Movability" encompasses many concepts within it. Movability is generally understood to mean changing jobs (Mobley, 1977; Dysvik & Kuvaas, 2013). Other aspects relevant to the analysis of Movability are: a) Contagion Effect), b) Ease-of-move and c) Market Opportunities.

The contagion effect refers to the influence that the actions of close friends or colleagues have on a particular person. In other words, from an informal point of view, considering individuals whose profession is in the field of technology, if the people around them have recent experiences of quitting their jobs, the likelihood of following out increases (Felps et al., 2009). It is a settled idea that the departure of close colleagues can trigger a cascade of moves (Gerges-Yammine & Ter Wal, 2023).

Ease-of-change refers to the obstacles (or lack thereof) to leaving a job. In this respect, age is an important proxy as the flexibility IT professionals have at the start of their careers is usually not very long-lasting. In other words, the ease-of-change is dependent on factors such as family responsibilities. In the 1960s, this subject was already addressed by Becker (1960), who emphasized the importance of the absence of personal constraints in the decision to change jobs.

Job opportunities are currently not scarce in IT industry. This is undoubtedly a driver of turnover - the ease with which new job opportunities, similar or better to the current one, can be found on the job market.

Movability is therefore a factor that integrates both individual and external factors in the decision to stay or leave an organization.

#### Self-Efficacy

Self-efficacy refers to a person's belief in their own abilities to perform desired tasks or achieve goals (Bandura, 1997). When related to turnover latency, we contend that self-efficacy can take on several roles: motivation and resilience, looking for challenges, and job satisfaction.

Motivation and resilience are characteristics often found in IT professionals, namely coders. People with a high level of self-efficacy tend to show greater intrinsic motivation and resilience which are required for lengthy and focused complex tasks such as coding. The need to endure and think of alternatives to reach the goal is often considered enticing for many of these professionals and is per se a motivational factor.

Looking for challenges is a watermark of IT professionals, as group is notorious for actively and repeatedly looking for new opportunities when they feel a certain stagnation in the performance of tasks and the resources they use. Self-confidence helps wishing for constant challenges. However, an organization that manages to capture and deal with these profiles has valuable human capital in its hands. The possibility of offering training and continuous growth is a decisive factor in the decision to stay or leave (Stajkovic & Luthans, 1998).

Job satisfaction is known to be higher in IT professionals who are considered to have also high self-effectiveness (Saks, 1995). The fact that they believe strongly in their abilities gives them a taste for execution, which we reason could cause longer latency interval in exiting an organization. Self-efficacy is undoubtedly "on the table" when it comes to turnover.

#### Social Support

Social Support refers to a person's perception of how well they are supported by the core of people in their social environment (Jolly et al., 2021). Given that IT professionals work remotely most of the time, social support is a topic of great importance. The feeling of belonging and cohesion becomes slightly more difficult to achieve in this context (Smite et al., 2023).

It is long known that knowledge sharing between colleagues and mutual support translate into strong team bonds (Cohen & Wills, 1985) and within IT teams, team cohesion and knowledge sharing have reciprocal reinforcing effects (Kakar, 2018). In other words, fostering a working environment in which characteristics such as collaboration and a willingness to help each other prevail is often an indicator of unity, productivity and success. In a complex technological environment, it has become a good practice to solve problems as a team (Drury et al., 2012). It is also known that a team that experiences a low trust work climate and limited collaboration has a higher turnover (Soltis et al., 2013).

Thus, social Support can be seen as a critical variable when it comes to IT professionals, where the environment is characterized by its dynamism and constant advancement with strong work team dependencies. A cohesive social environment not only strengthen bonds, but also optimizes team efficiency.

#### Other macro level variables

This literature review could not be complete without referring to macro level variables that have a broad effect on employee turnover. These are of a societal, generational or historical nature. An important work in this field is signed by Inglehart (1997): the theory of intergenerational value. The labor market is essentially based on three generations. The Baby Boomer Generation, corresponding to people born between 1946 and 1964, the Generation X (from 1965 to 1979), and the Generation Y or Millennial (from 1980 to 2000) and these have been widely differentiated as regards work-related values.

Inglehart (1997) posit that individuals' basic values are acquired during childhood and adolescence, and remain stable throughout their lives. Naturally, as time progresses, the context changes and, as such, differences between the values of different generations are inevitable because it is the historical and salient societal events in formative phase of individuals that help shaping their

world view and. Therefore, their values. Generation Y or Millennials, for example, were brought up in times of economic expansion and prosperity but entered the job market at a time of economic uncertainty. This generation is characterized by seeing continuous training as a priority (Cennamo & Gardner, 2008) and, although they are considered materialistic, a job they enjoy is preferable to a job that merely guarantees high-level remuneration without much enjoyment (Maxwell et al., 2007). As the Millennial Generation is the most recent to enter the job market and therefore has the most up-to-date knowledge, the likelihood of turnover is higher. Sociodemographic variables other than age are also known to relate with turnover namely gender (Young et al., 2023) or education (Froese et al., 2019). Thus, empirical research should at least control the effects of these variables in the conceptual model.

#### **CHAPTER 2**

#### **Conceptual Model**

Considering all the hypotheses as well as the complementary control variables of self-efficacy, movability, and social support, and the sociodemographic variables (gender, age, education) the following conceptual model is proposed.



Figure 4 - Conceptual Model

#### 2.1. Hypotheses

Thus, for clarity's sake, the hypotheses entailed are the following:

H1: Workload is negatively related to turnover latency.

H2: Organizational rewards is positively related to turnover latency.

H3: Work-Life Balance is positively related to turnover latency.

H4: There is an interaction effect between workload and organizational rewards in explaining turnover latency in such a way that turnover latency is higher when workload is high but organizational rewards are also high.

H5: There is an interaction effect between workload and work-life balance in explaining turnover latency in such a way that turnover latency is higher when workload is high but work-life balance is also high.

H6: There is an interaction effect between organizational rewards and work-life balance in explaining turnover latency in such a way that turnover latency is lower when organizational rewards are high and work-life balance is also high.

H7: There is a three-way interaction effect between workload, organizational rewards and work-life balance in explaining turnover latency in such a way that turnover latency is lowest when workload is high, organizational rewards is low and WLB is low, and turnover latency is highest when workload is low, organizational rewards is high and WLB is also high.

# CHAPTER 3

#### Method

This section starts by showing in detail the procedure for data collection, the options made as regards data treatment and analysis strategy, the sample profile, and the measures and their respective measurement quality (as evidenced by validity and reliability indicators).

#### 3.1. Procedure

The questionnaire was designed in Qualtrics software that produces a link ready for online diffusion. This link allows for anonymous participation and can be inserted in emails or any other message outlets. The invitation to participate in the study was sent via professional networks (linkedin) and social networks (whatsapp, facebook, instagram) to the researcher's direct contacts that were actively working in IT. This invitation asked participants to fill in the survey by stating its nature (empirical research for a master degree in Computer Science and Business Management at ISCTE) as well as its topic (IT job mobility).

The invitation made clear the profile of the eligible participants ("This survey is intended to IT professionals that have experienced working for at least two different employers in the last 10 years (but you do not have to have at least 10 years working experience)")

Following Informed Consent guidelines, the invitation stated the anonymous and voluntary nature of the participation as well as the expected time it would take to fill in (4 minutes) together with an email address of both the researcher and thesis supervisor should any doubt emerge.

The message ends with a thank you note and inviting to forward the survey link to personal and professional contacts that could fit the profile. This corresponds to a non-random sampling with snow-ball strategy.

#### 3.2. Sample

After a long data collection period, with many re-send actions and extending contacts, 110 individuals clicked the survey link. Among these, 16 replied they have had only one employer in the past 10 years and were thus excluded. Another 22 participants only entered the survey, read the cover invitation but

did not reply any item. An additional 12 participants only answered the first couple items but opted not to start the scales section. Three of the participants started the survey, answered some scales but abandoned the survey with too many missing values and were excluded. And the remaining 5 participants, filled in the whole questionnaire but their pattern of monotonous answers (also contradictory when items in the scale were reverse) evidenced low data quality, and for that reason they were also excluded. The valid final sample is comprised of only 52 IT professionals that have had at least one employer change in the last decade, filled all the questionnaire without indication of lack of attention or speedy answers. The sample is mainly masculine (62% male, and one participant preferred not to disclose their gender), and with ages ranging from 23 to 51 years-old, averaging 35.5 years-old. As regards education, most participants report having a master degree (46.2%) followed by undergraduate degree (36.5%) and pre-university level (17.3%).

#### 3.3. Data analysis strategy

As a standard, the data analysis starts with checking the quality of data by observing missing values cases as well as streamlining, i.e. cases where participants took less time than the minimum reasonable to carefully read the questions and simultaneously answered in monotonous way. After data checking is completed, the analysis proceeds to gauging the validity and reliability of the measures used.

Validity concerns how well the measures are actually measuring the construct at stake (Hajjar, 2018). As "construct validity" it can be probed by means of factorial analysis which is a data analysis technique that is able to show latent constructs extracted from the patterns to shared variance between the items (Hughes, 2018). The specific data analysis technique for this purpose is Principal Components Analysis (PCA, a derivation of factorial analysis) which relies on a set of indicators to judge its viability. Namely, if the items under analysis share enough variance the KMO value will be .500 or above. Likewise, if there is a differentiation pattern of associations between the items Bartlett's test of sphericity statistic (X2) should reject the null hypothesis, thus having a p-value below 0.05. Each item in the PCA is also analyzed to understand its specific level of variance shared with the remaining ones. This is observable with the Communality value which should attain at least .500. Because a PCA is also intended to reduce the number of explaining factors while keeping the most possible explained variance, we use Kaiser criterion to extract the principal components, i.e. if the eigenvalue reaches at least 1, then we know it is explaining more than the average variance accounted by the items. To optimize the reading of the components, a mathematical procedure is applied, named as rotation, which may orthogonalize. A PCA should be able to account for at least 60% total variance.
Additionally, measurement quality considers reliability, i.e. the capacity to measure the same construct consistently, e.g. having items intended to measure the same construct converging in direction. This is called internal consistency and is indicated by Cronbach's alpha which should attain the .700 threshold. In some special cases, when the measures are novel the threshold can be lowered to .600 to still be acceptable (Nunally, 1994). If the scale comprises less than three items, then the internal consistency is reported with Spearman-Brown correlation coefficient (Bryman, 1989).

Considering the nature of the model that corresponds to a moderated moderation and the small sample size, both structural equations modeling and path analysis are not advisable due to assumption constraints. According to Hair et al. (2019), Partial Least Squares Structural Equations Modelling (PLS-SEM) can offer a robust approach to data analysis when models are complex, and samples are small sized. PLS-SEM operated on a PLS algorithm, and the validity of the model can be gauged through (Standardized Rood Mean Square Residual (SRMR) which should not overpass the 0.08 value for acceptance. Additionally, the Normed Fit Index (NFI) is also required not to fall below 0.90 for acceptance. We also have to consider Stone-Geisser's Q2 (that should not show negative values) together with the explained variance in the model (expressed as R2) to gauge its predictive power. As a caveat in using predictive models, we also have to consider possible multicollinearity issues which are judged based on Variance Inflation Index (VIF) that cannot be above 5. Otherwise, the estimates on explained variance would be biased upwards.

Smart-PLS 4.0 was used to run the analyses and it also offers an estimate of the effects (f2) and explained variance (R2). Following recommendations, we run a 5000-repetition bootstrapping with 95% confidence interval.

## 3.4. Measures

**Workload** as an expression of job demands, was measured with a scale built by Moore (2000) comprehending 3 items organized in a single factor ("1. I always felt that the number of requests, problems, or complaints I dealt with was more than I ever expected", "2. I always felt that the amount of work I did interfered with how well it was done", and "3. I continuously felt busy or rushed and under pressure."). The scale is valid (KMO=.672; Bartlett's X2(3)=85.958, p<.001) and has good reliability (Cronbach alpha=.866). The PCA showed a single component accounting for 78.9% of total variance with good factor loadings (Table 1).

#### Table 1- Component matrix for workload

	Component
WL3 I continuously felt busy or rushed and under pressure.	.936
WL2 I always felt that the amount of work I did interfered with how well it was done.	.913
WL1 I always felt that the number of requests, problems, or complaints I dealt with was more than I ever	.812
expected.	
Cronbach alph	na .866
Extraction Method: Principal Component Analysis.	

a. 1 components extracted.

**Work-Life Balance** (WLB) was measured with Syrek et al. (2013) scale comprising three items ("I was satisfied with the balance between my work and private life", "It was difficult for me to balance my work and private life" (rev), "I was meeting the requirements of both my work and my private life"). The scale is valid (KMO=.722; Bartlett's X2(3)=64.442, p<.001) and has good reliability (Cronbach alpha=.845). The PCA showed a single component accounting for 76.9% of total variance with good factor loadings (Table 2).

#### Table 2 - Component matrix for Work-Life Balance

		Component
WLB1 I was satisfied with the balance between my work and private life		.900
WLB3 I was meeting the requirements of both my work and my private life		.871
WLB2 It was difficult for me to balance my work and private life (rev)		.860
	Cronbach alpha	.845

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

**Organizational rewards** were measured with two scales from Kim (2005), which target "development and career opportunities" and "compensation". Development and career opportunities were measured with three items ("I used to receive the training necessary to stay up to date", "My previous employer took an interest in my career development and advancement", "My development needs were addressed") and Compensation was measured also with two items (e.g. "Overall, the rewards I received in my previous job were quite fair", and "I was generally satisfied with the amount of pay and fringe benefits I received."). The joint PCA showed valid indicators (KMO=.725, Bartlett's X2(10)=160.826, p<.001). The PCA showed a single component accounting for 65.5% of total variance with good factor loadings (Table 3). The single component has good reliability (Cronbach alpha=.864) and to rule out possible biases from integrating the two subscales into this single component we tested reliability for the original subscales, which was found to be also good (Development and Career Opportunities alpha=.790; Compensation RSB=.942).

	Component
OrgRss4 Overall, the rewards I received in my previous job were quite fair	.889
OrgRss2 My previous employer took an interest in my career development and advancement	.852
OrgRss5 I was generally satisfied with the amount of pay and fringe benefits I received	.841
OrgRss3 My development needs were addressed	.829
OrgRss1 I used to receive the training necessary to stay up to date	.604
Cronbach alph	a .864

#### Table 3- Component matrix for Organizational Rewards

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

**Self-efficacy** was measured with Beierlein et al. (2013) scale comprising three items ("I felt I could rely on my own abilities in difficult situations", "I felt I was able to solve most problems on my own", "I felt I could usually solve even challenging and complex tasks well"). The scale is valid (KMO=.6426; Bartlett's X2(3)=47.393, p<.001) and has good reliability (Cronbach alpha=.778). The PCA showed a single component accounting for 70.1% of total variance with good factor loadings (Table 4).

#### Table 4- Component matrix for Self-Efficacy

		Component
SEff3 I felt I could usually solve even challenging and complex tasks well		.899
Seff1 I felt I could rely on my own abilities in difficult situations.		.819
SEff2 I felt I was able to solve most problems on my own.		.790
	Cronbach alpha	.778

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

**Social support** was measured with Bakker et al. (2003) three item scale ("I could easily count on my colleagues help if necessary", "I could easily count on my colleagues when I was facing difficulties at work", "I felt appreciate by my colleagues"). The scale is valid (KMO=.665; Bartlett's X2(3)=126.875, p<.001) and has good reliability (Cronbach alpha=.892). The PCA showed a single component accounting for 82.4% of total variance with good factor loadings (Table 5).

#### Tabela 5- Component matrix for Social Support

		Component
SSup1 I could easily count on my colleagues help if necessary		.952
SSup2 I could easily count on my colleagues when I was facing difficulties at work		.950
SSup3 I felt appreciate by my colleagues		.814
	Cronbach alpha	.892

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

*Movability* is conceived as a composite of job market opportunities, easy of job movements, and contagion effects from observing former colleagues moving out of job. Job market opportunities was measured with Tatcher et al. (2002) three-item scale ("I had many alternative job opportunities including some that were different from what I used to do then", "There were many jobs available similar to mine", "I could find another job doing exactly what I was doing then"). Easy-of move was measured based on (Quan & Cha, 2010) with three items ("Changing a job would not require much effort of adaptation from me (adaptability/flexibility)", "I had no family or other responsibilities that would collide with me changing the job (family)", "My life was organized in such a way that job mobility was effortless for me (readiness for change)"). Contagion effects were measured based on Felps et al. (2009) with three items ("I have had many colleagues that have left the organization before me at the time I was also thinking to do so", "It was very common to learn about people having had 3 or more professional experiences across a short time.", "Very close friends of mine changed their jobs by that time"). These variables were jointly subjected to a principal component analysis which showed valid indicators (KMO=.550, Bartlett's X2(36)=96.236, p<.001). All communalities are above .500 and the PCA extracted four components accounting for 70.1% of total variance after Varimax rotation. Table 6 shows the component matrix which evidences some issues in the solution found.

By removing the offending items, we were left with a 6-item solution arranged in three components as follows: Job market opportunities (2 items, "MktOpp2 There were many jobs available similar to mine", "MktOpp3 I could find another job doing exactly what I was doing by then"), Easy-of-move (2 items, "EoM2 I had no family or other responsibilities that would collide with me changing the job", "EoM3 My life was organized in such a way that job mobility was effortless for me"), and contagion effects (2 items, ""Contag1 I have had many colleagues that have left the organization before me at the time I was also thinking to do so", "Contag3 Very close friends of mine changed their jobs by that time""). The joint PCA showed valid indicators (KMO=.504, Bartlett's X2(15)=73.660, p<.001). All communalities are above .500 and the PCA accounts for 78.7% of total variance after Varimax rotation. Table 7 shows the component matrix which evidences some issues in the solution found. All three variables have good reliability (Job market opportunities had a RSB=.660; Easy-of move had a RSB=.689; and Contagion effects had a RSB=.728). Because the three dimensions are conceived as integrating the wider construct of movability it is advisable to test the reliability of the three scales together. Cronbach alpha for the 6 items is .662 which is below the comfortable threshold but still acceptable for new measures (as this integrative one is).

**Turnover latency** was measured with a single item after requesting the respondents to think about the previous job move they did. The question was: "Consider the last time you have moved out of a job. Thinking back before you moved, how much time did it take you from thinking about moving out and actually moving out?". The answer was open-ended to accommodate the use of different time frames, e.g. 2 weeks, 1 month, 1 and a half years.

**Sociodemographic variables** comprise gender (1=Female, 2=Male, 3=Non-binary; 4=Prefer not to say), age (measured in integer natural numbers), and education (1=High school / Pre-university level; 2=Undergraduate / BSc degree level; 3=Post-graduate / Master level; 4=PhD level).

### Table 6- Rotated component matrix for Movability (first analysis)

		Component		
	EoM	Contag.	MktOp	Incons.
EoM2 I had no family or other responsibilities that would collide with me changing the job	.848	.162	032	134
EoM3 My life was organized in such a way that job mobility was effortless for me	.804	.018	.150	.055
EoM1 Changing a job would not require much effort of adaptation from me	.499	050	.307	.471
Contag1 I have had many colleagues that have left the organization before me at the time I was also thinking to do so	012	.880	.024	.087
Contag3 Very close friends of mine changed their jobs by that time	.172	.840	.181	.006
MktOpp2 There were many jobs available similar to mine	.199	043	.828	.009
MktOpp3 I could find another job doing exactly what I was doing by then	036	.366	.817	.052
MktOpp1 I had many alternative job opportunities including some that were different from what I used to do by then	.145	.285	.188	.712
Contag2 It was very common to learn about people having had 3 or more professional experiences across a short time. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.	.306	.127	.243	643

a. Rotation converged in 6 iterations.

EoM = Easy-of-move; Contag.= Contagion; MktOp = Job Market Opportunities; Incons.=Inconsistent component

### Table 7- Rotated component matrix for Movability (final)

	Co	mponent	t
	Contag.	EoM	MktOp
Contag1 I have had many colleagues that have left the organization before me at the time I was also thinking to do so	.876	.027	.058
Contag3 Very close friends of mine changed their jobs by that time	.859	.143	.157
EoM2 I had no family or other responsibilities that would collide with me changing the job	.156	.884	011
EoM3 My life was organized in such a way that job mobility was effortless for me	.003	.834	.197
MktOpp2 There were many jobs available similar to mine	053	.249	.872
MktOpp3 I could find another job doing exactly what I was doing by then	.379	060	.809

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

b. Rotation converged in 5 iterations.

EoM = Easy-of-move; Contag.= Contagion; MktOp = Job Market Opportunities; Incons.=Inconsistent component

### **CHAPTER 4**

# Results

## 4.1. Descriptive and bivariate statistics

The control variables show no case of association among themselves to the exception of a positive correlation (r=.409, p<.01) between social support and self-efficacy, as shown in Table 8.

Workload is reported at a moderate level (M=3.24, SD=1.00) not significantly far from the scale midpoint (t(51)=1.772, p=.082). Participants expressed a substantially high level of self-efficacy (M=3.81, SD=0.61) and moderately high social support (M=3.60, SD=0.85). Movability, as an expression of job market opportunities, easy-of-move and contagion effects is moderate (M=3.45, SD=0.59) and so is the average WLB (M=3.23, SD=1.11), although with larger dispersion in the sample. The lowest value pertaining to work settings is observed in organizational rewards (M=2.59, SD=0.87), which falls statistically below the scale's midpoint (t(51)=-3.329, p<.01), thus indicating low levels of reward recognition by participants. Organizational rewards comprise career development and opportunities and compensation facets.

		Scale	Mean	SD	1	2	3	4	5	6	7	8	9
1.	Age	18 +	35.52	8.32									
2.	Gender	1-2	67% M	0.58	.130								
3.	Education	1-4	2.29	0.75	.032	237							
4.	SEffic	1-5	3.81	0.61	003	001	056						
5.	Movab	1-5	3.45	0.59	202	.022	.060	.135					
6.	SocSup	1-5	3.60	0.85	.023	087	.228	.409**	.087				
7.	Workload	1-5	3.24	1.00	.234	026	.038	.121	.224	.090			
8.	OrgRew	1-5	2.59	0.87	.158	049	052	.300*	042	.431**	050		
9.	WLB	1-5	3.23	1.11	243	064	.045	.124	143	.289*	671**	.243	
10.	TI Latency	0 +	0.87	0.95	.344*	179	099	.162	019	.158	.133	.160	123

\*p<.05; \*\*p<.01

As regards the association patterns between sociodemographic and control variables and those in the conceptual model, age is positively correlated with turnover latency (r=.344, p<.05), and organizational rewards are positive correlated with both self-efficacy (r=.300, p<.05) and social

support (r=.431, p<.01). Social support is also positively correlated with WLB (r=.289, p<.05). Lastly, correlations between variables in the conceptual model (Workload, Organizational Rewards, Work-Life Balance, and Turnover latency) showed Workload is negatively correlated with WLB (-.671, p<.01) but no significant case with Turnover Latency, and likewise, there is neither a correlation between workload and organizational rewards nor between WLB and organizational rewards.

## 4.2. Hypotheses testing

The model has strong fit indices with an SRMR of 0.011 and an NFI of .997. However, judging from Stone-Geisser's Q2 and R2, the model has a low predictive power but also without any sort of multicollinearity issues (no VIF equal or above 5).

The first hypothesis establishes a direct negative effect of workload on turnover latency, which was not supported by our findings (B=-.291, p=.225). Thus hypothesis 1 is rejected.

The second hypothesis establishes a direct positive effect of organizational rewards on turnover latency, which was also not supported empirically (B=.217, p=.178). Thus hypothesis 2 is rejected.

By considering the possible role of WLB, the third hypothesis mimics the first two by establishing a direct positive effect of work-life balance on turnover latency. This hypothesis was also not supported by our empirical findings (B=-.060, p=.441) which leads us to reject hypothesis 3.

The fourth hypothesis integrates the joint role of workload and organizational rewards by establishing an interaction effect between these in explaining turnover latency where turnover latency is expected to be higher when both workload and organizational rewards are high. Empirical findings did not support this hypothesis (B=.015, p=.481), thus rejecting it.

The fifth hypothesis, similar to the third one, integrates workload and WLB expecting to find an interaction between these in explaining turnover latency in such a way that turnover latency is higher when both workload and WLB are high. Again, empirical findings did not support this hypothesis (B=.437, p=.052), which led us to reject it.

In the same vein, the sixth hypothesis established a similar interaction effect between Organizational Rewards and WLB in explaining turnover latency in such a way that turnover latency is lower when organizational rewards WLB are both high. Empirical findings (B=.207, p=.260) did also not support this hypothesis, which led us to reject it.

Lastly, the seventh hypothesis added complexity to the previous ones by establishing a three-way interaction effect between workload, organizational rewards and WLB in explaining turnover latency in such a way that turnover latency was expected to be the lowest when workload is high, organizational rewards is low and WLB is low. Conversely, we expect to find turnover latency at its highest value when workload is low, organizational rewards is high, and WLB is also high. Findings did show a significant interaction coefficient (B=.489, p=.041).

The three-way interaction graph (Figure 5) shows turnover latency is found at its highest level when WLB was low but workload was also low and organizational rewards were high. Likewise, turnover latency is equivalently high when workload was high, WLB was high and rewards were high. Conversely, participants show their lowest turnover latency (they have made the move quickly after deciding to go) when their workload was high, WLB was low and organizational rewards were high. Likewise, when their workload was high, organizational rewards were low and WLB was high, they also showed the least latency to go.



Figure 5- Three-way interaction effect of Workload\*Organizational Rewards\*Work-Life Balance

			Turnover laten	су			
	Coeff.	T statistics	p-value	95% CI LB	95% CI UB	НН	f2
Direct effects							
Age	.193	1.009	.157	-0.135	0.479		
Gender	283	1.759	.039	-0.487	0.050		
Education	.080	0.439	.330	-0.235	0.363		
Self-efficacy	.317*	1.775	.038	0.039	0.626		.09
Movability	071	0.357	.360	-0.486	0.195		
Social Support	105	0.469	.320	-0.475	0.255		
Workload	291	0.754	.225	-0.841	0.429	H1 n.s.	
Organizational Rewards	.217	0.925	.178	-0.166	0.586	H2 n.s.	
WLB	060	0.148	.441	-0.673	0.599	H3 n.s.	
Two-way Interaction effects							
Workload*OrgRew->TurnLatency	.015	0.048	.481	-0.552	0.493	H4 n.s.	
Workload*WLB -> TurnLatency	.437	1.622	.052	-0.003	0.870	H5 n.s.	
OrgRew*WLB-> TurnLatency	.207	0.644	.260	-0.418	0.651	H6 n.s.	
Three-way Interaction effects							
OrgRew*Workload*WLB->TurnLat	.489*	1.741	.041	0.084	1.001	H7 sup.	.11
R <sup>2</sup>	28.2%						

## Table 9- Direct and interaction effects for turnover latency

\**p*<.05



The figure below (figure 6) reflects the coefficients of the conceptual model through PLS-SEM.

Figure 6- Coefficients for conceptual model

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### **CHAPTER 5**

# **Discussion and conclusion**

This study proposes a conceptual model that explores several possible predictors of turnover latency, a scarce researched topic in literature. The tentative nature of the topic enforced a set of hypotheses that, keeping parsimony, endeavored to explore direct effects as well as interaction effects with the mind set on the complexity of conditions used to decide when to go. These interaction effects are considered opposites (job demands and job resources) so to express an idea that equilibrium states lead to indecisiveness and thus, increase turnover latency. Alongside the job demands (workload), and job resources (organizational rewards) the model considered an external factor which is also central in turnover literature (work-life balance). For comprehensiveness' sake other factors were controlled, namely social support, self-efficacy, and movability. All of these could have entered the model as competitive factors with the respective hypotheses. However, only the main factors (workload organizational rewards, and work-life balance) were considered as stated in Joseph et al. (2007) model specialized in IT professionals' turnover. Additionality, there was concern that the model would be overly complex, potentially leading to challenges establishing all the possible interactions. Still, by controlling the effects of these variables, it is possible to eliminate their influence on the main direct and interaction effects under examination. The conceptual model proposes three direct effects, three two-way interaction effects, and the most important for the proposed balance approach, one threeway interaction effect. Prior to delving into the findings related to the hypotheses, it is valuable to discuss those concerning the sociodemographic and other control variables in the model.

As expected from literature, findings show that turnover latency is higher in older individuals in line with Inglehart (1997), Cennamo & Gardner (2008) and Maxwell et al. (2007), although no associations were found with respect to education or gender. The lack of association with education can be, at least partially, explained by the relatively homogeneous education level in the sample, which makes it more difficult to find associations due to low variance. Another bivariate pattern concerns workload, social support and work-life balance which are logically correlated among themselves showing that higher levels of workload co-occur with low levels of social support and also low levels of work-life balance.

The first hypothesis posits an acceleration of the exiting decision when the workload is high. The findings contradicted this hypothesis, which diverges from the literature that typically associates workload as a job demand with negative outcomes (e.g. Ratnasari & Lestari, 2020). Indeed, workload has been considered one of the key variables in explaining IT professionals' turnover (Joseph et al.,

2007). However, it has been linked to the turnover intention or to actual voluntary turnover rate in IT, not to turnover latency. Hence, failing to support this hypothesis does not necessarily conflict with extant knowledge. As a possible explanation for the lack of relation between these variables, workload may not have a linear relationship with turnover, but with turnover latency - employees may experience a sense of worthlessness as a consequence of having too little workload which could impel them to contemplate changing their job. Moreover, workload per se may not suffice in its current form as the same workload can be distributed along the week in vastly different ways, either with high and low workload or with a more consistent pattern.

The second hypothesis estimates a prolonged latency when organizational rewards are better, taking it as a job resource. This same variable has also a central status in Joseph et al. (2007) IT turnover model but, once again, it refers to the likelihood of voluntarily abandoning the employer. This variable must be approached with care because this type of rewards can be expressed in many different dimensions - subjectively perceived. The measure itself considers compensation level plus development and career opportunities, thus making it a comprehensive measure. However, other dimensions could have been made explicitly and, although they may be integrated in the larger construct of "compensation" (e.g. incentives or fringe benefits), participants may not have the same understanding when reading the word "compensation". Therefore, findings may reflect this ambiguity in evaluating organizational rewards subjectively.

The third hypothesis proposed work-life balance as a valued condition that can extend to the time that an individual take to leave, once their intention is settled. In addition, findings rejected this hypothesis. It can be explained by the clear insufficient nature of this variable to account for the overall professional situation at a given job. In other words, work-life balance may be considered a necessary condition albeit not sufficient.

The fourth hypothesis proposes a configurational effect created by workload and organizational rewards where they are expected to exert a joint effect as workload operates as a job demand and, at the same time, as an organizational rewards as a job resource. Following the balance approach that conceives decision making latency as expressing doubts due to such balance, the findings would reject the null hypothesis that there was no association. However, findings do not allow to reject the null hypothesis which means there is no statistically significant interaction effect. This lack of interaction is per se not sufficient to discard the whole proposal of balance as a determining factor of turnover latency since there are more interactions to be tested, such as the ones stated in the subsequent hypotheses. Still, it is very likely that the configuration used by the individual decision maker to gauge how strongly the situation is tolerable (latency can be more extended), or intolerable (latency should

be short lived) considers far more factors than workload and organizational rewards only. Similarly, this sort of findings were found for hypotheses five and six which can also be explained on the very same grounds. In the case of workload and work-life balance, it is reasonable to assume that one's desire to leave quickly might not be judge without taking into account other factors, e.g. organizational rewards. The same applies to the interaction between organizational rewards and work-life balance, with the special note that these couldn't even test the balance proposal because they must be taken as aligned with the best interest of the individual. Eventually, both could be taken as retainers. Therefore, the true value of the balance proposal lies in the seventh hypothesis.

Findings pertaining to the three-way moderation suggest that subtle behaviors such as turnover latency are not quickly grasped by only considering the direct effects of organizational workload, rewards or work-life balance. These factors operate together to produce a configuration that is what individuals consider when thinking about moving out from a job. Findings show that the three factors are needed to find a pattern that is sufficiently good to explain turnover latency. Considering the exact findings, the lower latency turnover (faster decision deployment) was observed in two configurations: A) high workload, low work-life balance and high organizational rewards, and B) high workload, low organizational rewards and high work-life balance. Judging from the paired configurations, high workload seems to be a necessary condition as it paves the way to decrease the work-life balance as observed in the bivariate statistics table. Still, when workload is high and WLB is low, it is observed that organizational rewards is also high, which means paying well or offering a good career perspectives might not suffice to retain (at least on a provisory basis) a professional that is willing to go. Eventually, a highly paid IT professional can have equal high payment in other organizations due to scarce and valued competencies. The other configuration, shows that when workload is high, but individuals can still preserve their WLB, feeling they have low organizational rewards (low compensation, low career opportunities) will also hasten the deployment of the decision to go. This means that WLB is also not sufficiently valued to compensate the perception of not receiving enough rewards. It is interesting to note that workload was not correlated with rewards, which means that many individuals may not believe they are being fairly compensated.

These findings must consider limitations stemming from methodological options made. The main limitation of this study is clearly the small sample size. There is no obvious motive for the small response rate, but a probe made with the participants indicate the concomitance of many similar invitations to fill in surveys, which creates some fatigue, especially in so busy IT professionals.

A related issue with the small sample size pertains to the data analysis technique. In this case we opted for PLS-SEM because it is suitable for small samples like the one in this study but this data

analysis technique is not without its critics (Ronkko et al., 2023). As a reassuring finding, although path analysis is not recommended for such small sized samples, especially not with such a complex threeway interaction, we ran it on our data and, surprisingly, the findings converge with the ones found using PLS-SEM. Although the figures for coefficients and p-values differ, all the hypotheses had the exact same decision based on path analysis (as conducted in PROCESS Macro, Hayes, 2013), which encourages our trust in the reported PLS-SEM findings.

Another limitation of theoretical nature concerns not including any interaction between some of the control variables (e.g. social support) with the three main predictors in the presented study. There was the possibility of accommodating a more complex model. However, adding more complexity to this model could be counterproductive not only due to sample size requirements (which would be far greater than the one available) but also because of a higher level of difficulty that would be brought due to, e.g. the multicollinearity, which is a matter of concern in any regression analysis.

Building upon the current research, it could be considered more complex models with a much larger sample. They could also benefit from distinguishing between types of IT professionals, since not all have the same target market (e.g. IT consultants vs. coders). Even though the study invites the participants to think about one time in the past where they changed jobs, it would be much better to conduct a longitudinal study where such IT professionals would be periodically asked to answer questions in order to observe the phenomenon when it is occurring and not retrospectively. This could help overcome any bias created by memory and reinterpretation of the experience.

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## **APPENDIX**

## Questionnaire

My name is Rita Ferreira, and I am taking the Masters in Computer Science and Business Management at ISCTE - University Institute of Lisbon and would like to invite you to participate in an academic research on IT job mobility.

This survey is intended to IT professionals that have experienced working for at least two different employers in the last 10 years (but you do not have to have at least 10 years working experience). Your participation is entirely anonymous, voluntary, and it will take only 4 minutes.

In case you have any doubt please contact me at arsmf@iscte-iul.pt or the thesis supervisor, Nelson Ramalho (njcro@iscte-iul.pt).

I am very grateful for your time and help in collecting this data and also if you could forward the survey link to your professionals contacts. That would be great.

If you agree in participating in this survey please press the arrow below to proceed.

Many thanks Rita

Q2 - Not counting on your current job, did you have any previous job in the last 10 years? If so, how many different employers have you had?

• Yes. How many different employers before the current one?

🔘 No

Next to: End of survey If Not counting on your current job, did you have any previous job in the last 10 years? If so, how... = No

Q3 - When did you leave your previous job to move into your current job? How many years (if less than a year please write e.g. 0.5 for 6 months etc)?

And how many years or months passed since your started thinking about leaving your previous job until you actually left it?

Q4 - Please think about your previous job and what you used to feel and think about it by the time you were working there.

1	2	3	4	5
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

	1(1)	2 (2)	3 (3)	4 (4)	5 (5)
I felt I could rely on my own abilities in difficult situations. (1)	0	0	0	0	0
I felt I was able to solve most problems on my own. (2)	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$	0
I felt I could usually solve even challenging and complex tasks well (3)	$\bigcirc$	0	0	$\bigcirc$	0

## Q5 - And what about your career prospects and compensation by then. How did you feel about these?

-	1 Strongly disagree	2	3 Neither agree nor	4	5	
Į.	Strongly disagree	Disagree	disagree	Agree	Strongly agree	
		1(1)	2 (2)	3 (3)	4 (4)	5 (5)
I used to receive	the	. ,		. ,		
training necessar			$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
stay up to date			0	0	0	0
My previous						
employer took a interest in my car			$\sim$	$\bigcirc$	$\bigcirc$	$\bigcirc$
development a			0	$\bigcirc$	0	$\bigcirc$
advancement (						
<b>N A a a b a a a a a a a a a a</b>						
My developme needs were	nt		$\sim$	$\frown$		
addressed (3)			$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
Overall, the rewa						
I received in m previous job we	(	$\supset$	0	$\bigcirc$	$\bigcirc$	$\bigcirc$
quite fair (4)		-	-	-	-	
I was generally						
satisfied with th amount of pay a			$\sim$	$\sim$		
fringe benefits			$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
received (5)						

Q6 - And what about the workload, team work, and your ability to balance work and your private or family life? How did you feel about these?

1	2	3	4	5	
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
I always felt that the number of requests, problems, or complaints I dealt with was more than I ever expected. (1)	0	0	0	0	0
I always felt that the amount of work I did interfered with how well it was done. (2)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
I continuously felt busy or rushed and under pressure. (3)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
I was satisfied with the balance between my work and private life (4)	0	0	0	0	0
It was difficult for me to balance my work and private life (5)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
I was meeting the requirements of both my work and my private life (6)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	0
I could easily count on my colleagues help if necessary (7)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
I could easily count on my colleagues when I was facing difficulties at work (8)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	$\bigcirc$
I felt appreciate by my colleagues (9)	0	$\bigcirc$	$\bigcirc$	$\bigcirc$	0

## Q7 - And how was the job market when you start thinking about leaving your previous employer?

Г	1	2	3	4	5	
-	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	
L		1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
I had many alternative jol opportunities including some t were different fr what I used to do then (1)	s hat om	0	0	0	0	0
There were ma jobs available sin to mine (2)		$\bigcirc$	$\bigcirc$	0	0	0
I could find anot job doing exact what I was doing then (3)	tly	0	$\bigcirc$	0	$\bigcirc$	$\bigcirc$
Changing a job w not require mu effort of adaptat from me (4)	ch	0	$\bigcirc$	0	$\bigcirc$	$\bigcirc$
I had no family other responsibil that would colli with me changing job (5)	ities de	0	0	$\bigcirc$	$\bigcirc$	$\bigcirc$
My life was organ in such a way th job mobility wa effortless for me	nat as	0	0	0	0	0

Q8 - And what about your colleagues own job decisions in the previous employer?

1 2		3	3 4	
Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)
I have had many colleagues that have left the organization before me at the time I was also thinking to do so (1)	0	0	0	0	0
It was very common to learn about people having had 3 or more professional experiences across a short time. (2)	0	0	0	0	$\bigcirc$
Very close friends of mine changed their jobs by that time (3)	0	$\bigcirc$	0	0	$\bigcirc$

Q9 - And just for sample characterization could you please state... Your gender?

O Female (1)

 $\bigcirc$  Male (2)

O Non-Binary (3)

O Prefer not to say (4)

Q11 – Your education level?

 $\bigcirc$  High school / pre-university level (1)

O Undergraduate / BSc degree level (2)

O Postgraduate / Master level (3)

O PhD level (4)

You have completed the questionnaire. Many thanks! Please press the arrow below to submit your answers.

Rita

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