

Turnover in Japanese IT Professionals: Antecedents and Nuances

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Abstract

The Japanese information technology (IT) workplace is unique compared to that of other nations. IT represents a large sector of the country's economy, and organizations need to develop proactive approaches to retain their IT workforce. In order to manage employee turnover, they need to understand the distinctive factors influencing employee turnover intention, as turnover intention is known to be a reliable predictor of actual turnover. In this study, a model was constructed and tested with data collected from 284 Japanese IT professionals. Our findings show that the effects of work exhaustion, personal accomplishment, and friendship networks on turnover intention are fully mediated through job satisfaction. Work-home conflict has no impact on job satisfaction. The strength of the relationships is stronger for younger than for older organizations. Furthermore, individualistic factors (i.e., work exhaustion and personal accomplishment) have a stronger impact on job satisfaction than collectivistic factors (i.e., work-home conflict and friendship networks). These results show the fragility of the notion of long-term employment, which is supposed to be embraced within the entire Japanese work culture.

Keywords: Japan, Job Satisfaction, Turnover Intention, Friendship Networks, Personal Accomplishment, Work Exhaustion, Work-home Conflict, Long-term Employment, the World IT Project.

1 Introduction

This work is part of a series of empirical studies being coordinated by the World IT Project (Palvia et al., 2017; Palvia, Ghosh, Jacks, Serenko, & Turan, 2018; Palvia, Ghosh, Jacks, Serenko, & Turan, 2020), and it tries to understand under what conditions IT professionals in Japan intend to leave their organizations. The Japanese IT industry is highly knowledge-intensive, and employees' skills, talent, and expertise represent perhaps the most important component of the overall intellectual capital of Japanese IT organizations. Generally, the longer IT workers stay with their organizations, the more knowledgeable and productive they become which increases their value to their employers. On the one hand, turnover may not appear to be a serious issue because Japan's average tenure of full-time permanent employees is higher than that of most other countries, including the U.S. (Anonymous, 2018a; 2018b; 2018c). On the other hand, there are looming signs that the voluntary turnover rate of Japanese workers may

quickly grow in the future (Kawaguchi & Ueno, 2013; Suzuki, 2010; Takahashi, 2018). In particular, voluntary turnover rates in Japan's IT industry are likely to increase due to stressful work conditions, many job opportunities, diminishing seniority system, and growing competition for talented IT professionals. Thus, it behoves Japanese organizations to develop proactive approaches to retain their IT workforce (Wiesche, Joseph, Thatcher, Gu, & Krmar, 2019); for this, they need to become aware of the factors influencing their employees' turnover intention because turnover intention is deemed a reliable predictor of actual turnover.

To date, IS researchers have developed a good understanding of the factors affecting turnover intention of IT professionals in the U.S. and the West (e.g., see Igarria & Siegel, 1992; McKnight, Phillips, & Hardgrave, 2009; Rutner, Hardgrave, & McKnight, 2008; Sasaki, Serenko, Sato, & Palvia, 2019). However, the nature of the Japanese IT industry differs from that of its western counterparts. Job attitudes and perceptions of Japanese IT workers are influenced by the country's Confucian roots, the dominance of collectivistic values, its geographic, demographic, and political idiosyncrasies, unique and fixed hierarchical structure of the IT industry, mechanistic and bureaucratic management style, and the notion of long-term employment (Huff & Kelley, 2003; Kuo & Chen, 2004; Paramore, 2016; Sasaki, 2012). Thus, the models and recommendations developed for western countries may not apply well in the unique context of Japan.

In this study, based on the heuristic model of employee turnover (Mobley, 1977; Mobley, Horner, & Hollingsworth, 1978), we hypothesize and demonstrate that turnover intention of Japanese IT workers is driven by their level of job satisfaction. Based on affective events theory (Weiss, 2002; Weiss & Cropanzano, 1996; Weiss, Nicholas, & Daus, 1999), we further propose that job satisfaction, in turn, is influenced by employees' affective work experiences (i.e., mood and emotions) resulting from work exhaustion and a feeling of personal accomplishment, which represent individualistic factors, as well as by the presence of work-home conflict and the availability of friendship networks, which refer to collectivistic factors. Our study places these constructs in a nomological network and subjects them to empirical testing using data from 284 Japanese IT professionals. The results indicate that the effect of work exhaustion, personal accomplishment, and friendship networks on turnover intention is fully mediated through job satisfaction. In contrast to expectations, work-home conflict has no direct impact on job satisfaction. In addition, the age of an organization moderates the strength of these relationships: most relationships are stronger for younger organizations because they have weaker collectivistic culture and are less affected by the notion of long-term employment.

The rest of this paper is structured as follows. The next section reviews the extant literature and presents the theoretical underpinnings of this study. Specifically, it covers the unique nature of the Japanese IT sector, describes prior works and research gaps, identifies the key constructs, and develops six hypotheses. Section three documents the research method, and section four outlines the findings. Section five presents implications, limitations and future research directions, and section six concludes this paper.

2 Literature Review and Theoretical Underpinnings

2.1 Background

The roots of the Japanese IT industry may be traced back to the 1960s when the country introduced the first IBM System/360 computers to support data aggregation during the Tokyo Olympic Games and to computerize ticket reservation processes at the National Railways

(Sasaki, Sato, & Palvia, 2020). In the 1970s, in order to protect the domestic IT industry from U.S. competition, the Japanese government urged the creation of three local computer manufacturer groups – Fujitsu and Hitachi, NEC and Toshiba, and Mitsubishi and Oki – which led to the development of IBM-compatible machines and the introduction of national mainframe computers for both individual consumers and enterprises. Since the 1980s, the Japanese IT industry has matured dramatically due to various IT innovations, which came largely from the U.S. At the same time, it has progressed in a somewhat unique manner and the Japanese IT sector has distinct differences compared to its western counterparts.

First, Japan's cultural attributes are based on unique Confucian roots (Paramore, 2016) which affect the job attitudes and perceptions of its IT workers. *Second*, the Japanese social and work culture values collectivism instead of individualism, which dominates the western professional world. Traditionally, collectivism has always been an important attribute of the Japanese workplace where loyalty towards one's company is highly regarded (Huff & Kelley, 2003; Nakane, 1970). In most organizations in Japan, human resource departments launch months-long training for new recruits hired right out of college on the 1st of April every year. A long training period gives new workers an opportunity to build social networks among their colleagues and supervisors. They often enjoy informal talks together in bars and restaurants after work (Huff & Kelley, 2003; Nakane, 1970). This informal socialization process is referred to as "nominication" (nomi=drinking alcohol in Japanese + communication), and it can be a good way to develop better workplace communication and intimate relationships (Tsutsui, 2010). In this way, the collectivistic culture, where employees view themselves as highly interdependent (Gelfand, Bhawuk, Nishii, & Bechtold, 2004), is formed. Thus, as noted by Abegglen (2006, p.89), the "key practices in Japan's employment system – an emphasis on continuity, on group integrity, and on egalitarianism – remain in effect."

Third, Japan enjoys a number of geographic, demographic, and political idiosyncrasies which inimitably affect IT employees' perceptions of workplace factors (Kuo & Chen, 2004). *Fourth*, most Japanese organizations rely on custom-built IT solutions rather than standardized vendor products as are commonly used in North America and Europe. IT workers are often considered craftsmen possessing a narrow range of skills and producing unique high-quality products with zero defects. *Fifth*, the Japanese IT industry has a fixed hierarchical structure with a few large players at the top and a large number of small and medium-sized enterprises at the bottom (Sasaki, 2012), many of which are recent entrants. *Sixth*, the management style in all industries, including IT, is largely mechanistic and bureaucratic. As a result, the Japanese IT industry exhibits a number of idiosyncrasies that must be taken into consideration when studying IT workers and factors affecting their turnover.

Another critical issue that affects the turnover of Japanese IT professionals is the notion of long-term employment, which has been generally considered the most important feature of the traditional Japanese workplace. Long-term employment represents an implicit social contract between the organization and the employee according to which both are committed to working within a professional community to achieve a certain level of economic security for all of its members (Abegglen, 2006). In many Japanese industries, this implicit social contract has survived since the 1950s. At present, the mobility of Japan's workers still remains much lower than that in other Organization for Economic Co-operation and Development (OECD) countries, including the U.S. (Ono, 2010). According to the Japan Institute for Labour Policy and Training, the average tenure of permanent full-time employees is around twelve

years (Anonymous, 2018a) with 44.5% of employees having at least ten years of tenure (Anonymous, 2018b). In contrast, an average U.S. employee remains with his or her organization for only four years (Anonymous, 2018c).

However, after the collapse of the “bubble economy” in the 1990s and the financial crisis of 2008, the job stability of Japanese IT workers has started to decline (Kawaguchi & Ueno, 2013; Suzuki, 2010; Takahashi, 2018). In particular, the Japanese IT industry exhibits some unique characteristics which may be somewhat inconsistent with the traditional interpretation of the long-term employment concept. *First*, IT professionals are frequently exposed to stressful work conditions. This, in turn, may affect their behavior and loyalty towards their employers. *Second*, due to continuous appearance of new job opportunities, many IT workers prefer less stable (i.e., high risk and high return) workplaces and take on more challenging and ambitious work. *Third*, a somewhat diminishing seniority system in the IT environment has accelerated job-hopping, especially among talented workers. *Fourth*, rivalry among competitors in the IT industry is fierce. The term “3K” (i.e., *kitsui* – hard, *kibishii* – demanding, and *kaerenai* – having irregular working hours) is used to refer to the IT work environment (Anonymous, 2018e). *Fifth*, many IT workers are young and are employed in small organizations. Evidence suggests that junior Japanese workers from small organizations are highly mobile and are less prone to seeking long-term employment (Kambayashi & Kato, 2017; Shimizutani & Yokoyama, 2009). Thus, there are signs that the Japanese IT industry has started deviating from the notion of long-term employment and it is time to look into the factors driving the turnover of Japanese IT professionals.

2.2 Prior related work

A large number of previous projects have investigated the turnover of IT personnel (Igbaria & Siegel, 1992; McKnight et al., 2009; Oehlhorn et al., 2020; Rutner et al., 2008). However, except for a few notable studies (e.g., see Kuo & Chen, 2004; Maamari, 2014; Scholtz, Van Belle, Njenga, Serenko, & Palvia, 2019; Wang, Tolson, Chiang, & Huang, 2010; Weli, 2014; Wickramasinghe, 2009), the literature is dominated by projects conducted in the western context, mostly in the U.S. On the one hand, western-centric studies have enriched our understanding of employee turnover factors and facilitated the development of various IT employee retention policies. On the other hand, their generalizability is often very limited beyond their western contexts (Palvia, 2013). Even though people from all over the world share many personality traits and values, those living in the western countries often differ from their non-western counterparts in terms of reasoning, preferences, and behaviors (Henrich, Heine, & Norenzayan, 2010a), and such differences are particularly conspicuous between those living in the western and the Asian countries (Henrich, Heine, & Norenzayan, 2010b). As a result, several studies have documented cross-national differences in employees’ perceptions of their workplaces (Spector et al., 2007; Yeo et al., 2021; Yousef, 2000). Thus, whereas previous studies on the antecedents of turnover of IT workers provide a useful benchmark and a starting point, they may not fully apply to organizations operating in other parts of the world. It is, therefore, vital to explore the factors affecting IT workers’ retention in the context of individual countries (Scholtz et al., 2019), including Japan.

In order to understand the antecedents of employee turnover in Japan, a comprehensive search for relevant empirical works published in English language was conducted, and 19 studies were found (see Table 1). Their analysis leads to several important observations.¹

Work	Context	Factors affecting turnover
Blinder & Krueger (1996)	General labor market.	Cultural factors and human resource policies such as pay, benefits, participatory management, and reluctance to recruit from outside firms.
De Moura et al. (2009)	Education.	Job satisfaction and organizational identification.
Gamage (2014)	Manufacturing.	Human resources practices, such as staffing, training & development, performance evaluation, and compensation management.
Higuchi (1993)	General labor market.	Age and education.
Honda-Howard & Homma (2001)	General women's labor market.	Job satisfaction.
Huang (2011)	Electric light industry and telecommunications industry.	Job satisfaction.
Kachi et al. (2020)	Financial industry.	Job stressors, psychological/physical stress response, workplace social support, and job strain.
Kim (2018)	General labor market.	Job satisfaction, psychological empowerment, and organizational commitment.
Kudo et al. (2006)	Healthcare.	Job satisfaction.
Liu (2010)	The IT industry (women only).	Organizational culture, competitive pressure, achievement motivation, and job stress.
Matsumoto & Gopal (2019)	General labor market.	Job satisfaction and organizational solidarity.
Shimizu, Feng, & Nagata (2005a)	Healthcare.	Burnout.
Shimizu, Eto, Horiguchi, Obata, Feng, & Nagata (2005b)	Healthcare.	Personal health factors.
Suzuki, Tagaya, Ota, Nagasawa, Matsuura, & Sato (2010)	Healthcare.	Burnout, job satisfaction, and location.
Takahashi (2014)	General labor market.	Job satisfaction (under certain conditions).
Takase, Teraoka, & Yabase (2016)	Healthcare.	Psychological contract fulfilment and perceived advancement opportunities.
Takase, Oba, & Yamashita (2009)	Healthcare.	Autonomy, work-home conflict, losing the confidence to care, economic return, and job security.
Tei-Tominaga & Miki (2010)	Healthcare.	Psychological distress, fatigue, lack of co-worker and supervisor support, and personal unsuitability for work.
Yanadori & Kato (2009)	General labor market.	Flexitime and longer nursing/childcare leave.

Table 1. Empirical Studies of Employee Turnover in Japan

First and foremost, only one of the studies presented in Table 1 was conducted in the context of the IT industry in Japan (see Liu, 2010), and it focused on women alone. Second, researchers

¹ A preliminary version of this paper was presented at the 2019 Americas Conference on Information Systems (Sasaki et al., 2019) and is not included in Table 1.

concentrated on the general labor market (i.e., not a specific industry), the healthcare sector (i.e., medical professionals such as nurses), and a variety of other industries, but not the IT sector. Thus, factors affecting the turnover of Japanese IT employees hitherto remain unknown. Third, job satisfaction emerged as the most frequent driver of employee turnover in various industries and the general labor market. A number of studies in the IT domain (but not in Japan) have also identified job satisfaction as a major determinant of employee turnover (Joseph, Ng, Koh, & Ang, 2007; Rutner et al., 2008; Thatcher, Stepina, & Boyle, 2002). Therefore, it is likely that job satisfaction is a key driver of turnover in the Japanese IT sector. Fourth, exhaustion-related factors (e.g., stress and burnout) and work-home conflict appeared in several investigations. Thus, such factors are worth looking into.

2.3 Theoretical underpinnings

2.3.1 Job satisfaction

Job satisfaction refers to an employee's overall assessment of all aspects of his or her job (Spector, 1997). The concept of job satisfaction has attracted the attention of the research community since the birth of the management discipline. In 1931, Fisher and Hanna pioneered the notion of job satisfaction by suggesting that it is a product of workers' emotional maladjustment (Fisher & Hanna, 1931). Hoppock (1935) further empirically explored this topic and showed that job satisfaction is related to employees' socio-demographic characteristics and compensation. Locke (1970) further analyzed the relationship between job satisfaction and productivity, and Churchill, Ford, and Walker (1974) proposed the use of occupation-specific measurement techniques for job satisfaction. After this, job satisfaction has become a well-recognized management research topic (Judge, 1993), and it soon entered the realm of IT research (Igarria & Siegel, 1992; McKnight, Phillips, & Hardgrave, 2009).

Literature indicates that some studies have examined a direct relationship between job satisfaction and turnover intention, while others have explored a relationship among job satisfaction, turnover intention, and organizational commitment. In particular, some non-IT models included the organizational commitment construct, positioned as an antecedent of turnover intention or as a moderator of the job satisfaction → turnover intention relationship. In the IT field, however, the majority of studies have omitted organizational commitment and focused on the job satisfaction → turnover intention relationship as well as on the antecedents of job satisfaction. Accordingly, we excluded organizational commitment as well and positioned job satisfaction as an antecedent of turnover intention. Furthermore, we also identified factors that affect job satisfaction of IT professionals in Japan.

A further analysis of the literature revealed four antecedents of job satisfaction which may be fruitfully employed in this study's context: work exhaustion, personal accomplishment, work-home conflict, and friendship networks. The following sub-sections describe these constructs in more detail.

2.3.2 Work exhaustion

Prior research suggests that work exhaustion-related constructs, for instance fatigue, tension, burnout, and stress, are frequently positioned as antecedents of job satisfaction. As documented in Table 1, work exhaustion has also been identified as an important factor in the context of employee turnover due to the "3K" situation in Japan. We selected work exhaustion as an antecedent of job satisfaction because it is a higher-level construct defined as the depletion of mental resources needed to cope with one's work demands (Lee, 2011), and it is

supposed to have a negative effect on job satisfaction. Tension, burnout, and stress may be regarded as factors contributing to work exhaustion. Previous researchers have also considered work exhaustion as a variable that influences job satisfaction and/or turnover intention (Cho, Rutherford, Friend, Hamwi, & Park, 2017; Kim, 2012; Rutherford, Wei, Park, & Hur, 2012).

The notion of work exhaustion was introduced in IT research by Moore (2000) who built on and extended several concepts in management and psychology literatures which posit that organizational work environment has an impact on employees' psychological health and mental state. In this pioneering work, Moore (2000) argued that, while work exhaustion takes place in many occupations, IT workers are particularly vulnerable to work exhaustion due to the very nature of the profession. For example, IT workers have to keep up with constant technical changes, acquire new skills and unlearn old ones, compete for organizational resources, embrace ambiguity, and accept high workloads. As a result, they may feel drained, taxed, and overextended leading to work exhaustion. Most importantly, high levels of work exhaustion reduce the level of job satisfaction of IT workers (Kim & Wright, 2007): this makes the work exhaustion construct highly relevant in the context of the present study.

2.3.3 Personal accomplishment

Another important construct that predicts job satisfaction is personal accomplishment at work, defined as employees' feeling of competence and successful achievement in the workplace (Shih, Jiang, Klein, & Wang, 2013). Personal accomplishment is different from work exhaustion because the former is related to employees' perceptions of their professional growth while the latter is determined based on the interplay between workplace demands and the extensiveness of people's resources. The degree of personal accomplishment depends on a number of factors, many of which are controlled by an organization. For example, if an organization offers sufficient resources, support, social guidance, relevant feedback from supervisors, and an opportunity to control one's own work, workers may feel empowered which, in turn, boosts their perceptions of personal accomplishment within their professional environment (Abhicharttiburtra & Tungpunkom, 2019). Employees who have a sense of personal accomplishment find their work to be meaningful, feel competent, and are self-determined to further contribute to an overall organizational success. The importance of personal accomplishment and its predictive power are highlighted by the fact that this construct is included as one of the three dimensions in the Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1997).

In addition, personal accomplishment is highly relevant in the IT domain. IT occupational culture is very unique and differs from other occupational cultures according to six dimensions that are valued by IT workers: autonomy in decision-making, structure in environment, precision in communication, innovation in technology, reverence for technical knowledge, and enjoyment at the workplace (Cranefield, Gordon, Palvia, Serenko, & Jacks, 2022; Jacks & Palvia, 2014; Jacks, Palvia, Iyer, Sarala, & Daynes, 2018). Each of these dimensions is related to the feeling of personal accomplishment. For instance, decision-making autonomy and flexible structure facilitate independent thinking and freedom which are necessary to excel in a dynamic IT environment. Precision in communication eliminates ambiguity and helps IT employees make better decisions which boosts their competence. An opportunity to experiment with the latest innovative technologies may fulfil a need for being competent and staying up to date with recent IT breakthroughs. Reverence for technical knowledge may fulfill

a need for career growth and future employability, and enjoyment in the workplace may create a perception that, as fully accomplished professionals, IT workers may combine work with pleasure, instead of pressure. As a result, the unique nature of IT occupational culture corresponds to a need for personal accomplishment at work. Therefore, this study proposes that personal accomplishment of IT workers is important in the study's context.

2.3.4 Work-home conflict

Work-home conflict, which refers to the irreconcilable demands from work and family (Ahuja, Chudoba, Kacmar, McKnight, & George, 2007; Turel, Serenko, & Bontis, 2011), is a third important antecedent of job satisfaction. Having a happy personal and family life is extremely important for all individuals regardless of their occupation (Kreiner, 2006). Spending time with family and friends helps people relax after work and prepare for another productive working day. However, the IT profession in all countries, including Japan, is extremely demanding: as the volume of technical knowledge grows, IT employees are expected to continuously update their skills which is often done beyond regular working hours. Tight budgets, unrealistic deadlines, and various emergencies (e.g., security breaches, software crashes, network issues) have become a part of today's IT profession, and workers are expected to deal with ad-hoc situations almost in real-time by making themselves available 24/7. As a result, the boundary between work and home has become blurred, and IT workers often find it difficult, or even impossible, to manage the incompatible demands between work and personal life (Kreiner, 2006). Given the limited availability of time and cognitive resources, excessive demand in one domain puts pressure on another leading to an irreconcilable conflict (ten Brummelhuis & Bakker, 2012). When a work-family conflict lasts for a significant period of time, IT employees become frustrated with their current job or the chosen profession which undermines their job satisfaction. This makes the work-family conflict construct highly applicable for the inclusion in this study.

2.3.5 Friendship networks

The fourth, last antecedent of job satisfaction explored in this study refers to employees' friendship networks. Friendship is "a voluntary, personal relationship, typically providing intimacy and assistance, in which two parties like one another and seek each other's company" (Fehr, 1996, p. 7). People establish friendship in various contexts, including the workplace. When people work in close proximity, they start sharing common ground and engage in extra-organizational socializing during and beyond formal working hours (Sias & Cahill, 1998). As a result of such interactions, workplace friendships often develop, which eventually evolve into the networks of friendship ties among multiple co-workers. Friendship networks refer to informal circles of friends in one's work environment where employees approach one another for help and maintain strong personal relationships. These networks reflect nonexclusive workplace relationships that involve mutual trust, commitment, reciprocal linking, and shared interests or values (Berman, West, & Richter, 2002). In friendship networks, employees help one another with various matters, ranging from help with job-related tasks to assistance with intimate personal matters (Sias & Cahill, 1998).

Recall that Japan has a strong collectivistic culture that values loyalty to one's organization and workers feel themselves highly interdependent (Gelfand et al., 2004; Huff & Kelley, 2003; Nakane, 1970). Thus, Japanese IT employees are likely to value relationships established within their organizational friendship networks and heavily rely on them for both work issues and personal matters. As a result, the strength of organizational friendship networks is

expected to be positively related to employees' job satisfaction (Raile et al., 2008), while work-home conflict sheds light on the negative side.

2.3.6 Individualistic factors vs. collectivistic factors

The four antecedents of job satisfaction discussed above – work exhaustion, personal accomplishment, work-home conflict, and friendship networks – may be classified into two general categories: individualistic factors and collectivistic factors. Work exhaustion and personal accomplishment represent individualistic factors because they are formed based on the interaction of each employee with his or her workplace environment in isolation from other factors. As such, they pertain to the workplace-employee interaction on the individual level when workers reflect on the direct effect of their work environment on themselves. Other individuals (family members, co-workers) do not directly affect employees' perceptions of work exhaustion and personal accomplishment.

Work-home conflict and friendship networks are considered collectivistic variables because employees form their perceptions of these factors based on their interaction within their home and professional environments, respectively. As such, it is the actions of other people that determine how employees perceive and respond to these constructs when being submerged in a collective. In fact, perceptions of work-home conflict and friendship networks cannot exist without the influence of other individuals. The inclusion of these collectivistic factors is particularly important given the collectivistic nature of the Japanese culture (Hofstede, 1980).

Table 2 summarizes the constructs used in this study and their conceptual definitions.

Construct	Definition	Source
Job Satisfaction	An employee's overall evaluation of all aspects of his or her job.	Spector (1997)
Friendship Networks	Informal circles of friends in one's work environment where employees approach one another for help and maintain strong personal relationships.	Berman et al. (2002)
Personal Accomplishment	An employee's feeling of competence and successful achievement in the workplace.	Shih et al. (2013)
Turnover Intention	An employee's conscious and deliberate willingness to leave his or her current organization.	Tett & Meyer (1993)
Work Exhaustion	The depletion of mental resources needed to cope with one's work demands.	Lee (2011); Moore (2000)
Work-home Conflict	An employee's perception of the irreconcilable demands from work and family.	Ahuja et al. (2007); Turel et al. (2011)

Table 2. Constructs and Their Definitions

2.4 Hypotheses development

We propose and empirically test a model explicating the antecedents of turnover intention of Japanese IT workers. The model shows that turnover intention is driven by job satisfaction, which, in turn, is influenced by work exhaustion and personal accomplishment, which represent individualistic factors, and work-home conflict and friendship networks, which reflect collectivistic factors. The impact of these antecedents on turnover intention is fully mediated through job satisfaction: it is postulated that none of these variables directly affects turnover intention. The strength of these relationships is believed to differ between younger and older organizations. Figure 1 presents this study's model. The rest of this sub-section elaborates on hypotheses development in detail.

In the proposed model, we hypothesize a direct negative path between job satisfaction and turnover intention. As demonstrated by previous studies (e.g., see Ahmed, Taskin, Pauleen, & Parker, 2017; Bhagwatwar, Bala, & Ramesh, 2014; Lee, 2003; Maier, Laumer, Eckhardt, & Weitzel, 2015; Soonhee & Wright, 2007; Tripathi & Srivastava, 2020), IT workers who are less satisfied with their jobs are more likely to voluntarily leave their organizations. The relationship between job satisfaction and turnover intention may be explicated from the perspective of Mobley's (1977; Mobley et al., 1978) heuristic model of employee turnover. This model is robust, and it has been applied in a variety of industries (Hom, Caranikas-Walker, Prussia, & Griffeth, 1992), including IT (Rouse, 2001).

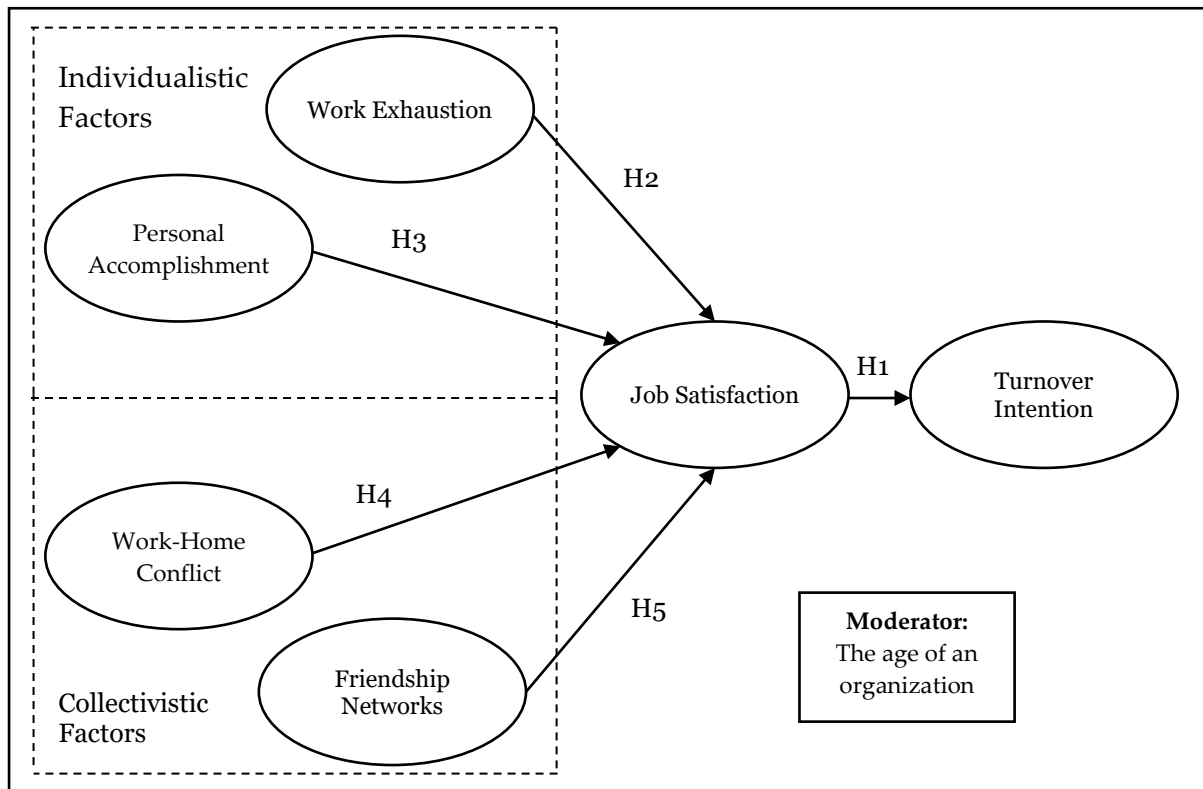


Figure 1. The research model

The heuristic model of employee turnover suggests that when individuals elaborate on and evaluate all aspects of their jobs, they reach a certain mental state of some degree of satisfaction or dissatisfaction with their current place of employment. If they are satisfied with it, they routinely perform their duties. However, in the case of dissatisfaction, they initiate a withdrawal decision process. As a first step, they trigger the thoughts of quitting which lead to an assessment of the expected utility of search for an alternative position (e.g., the likelihood of securing a more satisfactory job), search costs (e.g., time lost, travel, other expenses), and the cost of quitting (e.g., loss of seniority, status). If the expected utility of search is low while the costs are high, the employee may decide to re-evaluate the current job, adjust the level of job satisfaction, stop thinking of quitting, and select other withdrawal methods, for instance, to reduce work effort and engage in counterproductive workplace behavior. However, if the probability of securing a suitable position is high while the costs are acceptable, an individual consciously forms a behavioral intention to search for an alternative position and to compare the available jobs with the current one, and if the alternative appears to be more potentially satisfactory than the present job, the person forms a deliberate intention to quit (i.e., turnover intention). As such, job satisfaction is considered a key factor within the heuristic model of

employee turnover because it triggers the entire withdrawal process (Mobley, 1977; Mobley et al., 1978).

The same line of reasoning applies in the context of IT workers in Japan: when they are generally satisfied with the overall aspects of their jobs, they do not activate a withdrawal process and are likely to maintain the relationship by staying with their organization, but as their satisfaction level decreases, they are more likely to trigger the withdrawal process which ultimately leads to the development of turnover intention. Thus, we hypothesize:

H1: *Job satisfaction has a negative direct effect on turnover intention.*

Job satisfaction is best conceptualized as an attitudinal construct which reflects one's overall evaluation of all aspects of his or her job. Job satisfaction does not suddenly appear on its own; its development is influenced by a number of affective experiences. In this study, we position work exhaustion, personal accomplishment, work-home conflict, and friendship networks as antecedents of job satisfaction of Japanese IT professionals and explicate their effect by using affective events theory (Weiss & Cropanzano, 1996) as a conceptual lens of analysis. Affective events theory posits that employees' work attitudes, including job satisfaction, are developed based on affective responses to their first-hand workplace experience (Weiss & Cropanzano, 1996). Affect refers to mood and emotions which facilitate the development of evaluative judgements regarding all aspects of one's job (i.e., job satisfaction) (Weiss, 2002; Weiss et al., 1999). In other words, employee-workplace interaction processes trigger a number of moods and emotions which in turn determine employees' job satisfaction. Below, we hypothesize and describe how each of the antecedent variables influences employees' affective states which lead to their job satisfaction.

As discussed before, burnout (Shimizu et al., 2005a; Suzuki et al., 2010), job stress, strain (Kachi, Inoue, Eguchi, Kawakami, Shimazu, & Tsutsumi, 2020), psychological distress, and fatigue (Tei-Tominaga & Miki, 2010), which reflect one's general state of work exhaustion, have emerged in several studies of employee turnover in Japan. Previous studies in many countries and various industries, including IT, have also suggested that work exhaustion is a critical factor that influences job satisfaction (Ashill & Rod, 2011; Cho et al., 2017; Kim, 2012; Lee, 2011; Moore, 2000; Rutherford et al., 2012). For the Japanese IT professionals in particular, the "3K" phenomenon, referred to earlier, may contribute to work exhaustion and employees may feel stress, burnout, frustration, and fatigue leading to major psychological and physical discomfort. Because these negative emotions result from employees' exposure to their workplace, they are likely to attribute the cause of their problems to their job and become dissatisfied with it. Therefore, we postulate:

H2: *Work exhaustion has a negative direct effect on job satisfaction.*

Personal accomplishment refers to feelings of competence and successful achievement in one's professional environment (Maslach et al., 1997). It is related to perceived mastery experience and self-realization which boosts employees' job self-efficacy (Bang & Reio, 2017). Recall that the Japanese IT workplace is focused on the development of custom solutions, and IT professionals are considered craftsmen possessing specific skills and producing high-quality systems (Sasaki et al., 2020). However, the Japanese management culture is very mechanistic and bureaucratic. IT jobs are challenging, demanding, and require substantial effort which may not be easily recognized by managers and colleagues. Moreover, while the development of zero-defect customized systems requires IT workers to use a variety of innovative solutions,

the bureaucratic management style may impede their creative process. As a result, many Japanese IT workers may feel that they cannot realize their potential in the workplace.

According to Maslow's (1970) hierarchy of needs, a feeling of personal accomplishment is an important psychological need that boosts people's self-confidence and self-esteem. When IT employees cannot realize their full potential, they experience negative emotions and attribute the source of their negative feelings to their present organization. In contrast, those who realize their professional potential are likely to be in a good mood and develop positive emotions towards their employer. In addition, personal self-accomplishment is related to employees' professional self-identity (Edwards & Dierette, 2010): those who believe that they have accomplished their workplace objective boost their professional self-identity which, in turn, leads to positive perceptions of employers and increases their job satisfaction. Previous research has also identified personal accomplishment as a reliable predictor of job satisfaction in several contexts (Brewer & Clippard, 2002; Koeske, Kirk, Koeske, & Rauktis, 1994). Thus, consistent with affective events theory (Weiss & Cropanzano, 1996), we hypothesize:

H3: *Personal accomplishment has a positive direct effect on job satisfaction.*

Work-home conflict causes imbalance between an IT professional's work responsibilities and personal life (Ahuja et al., 2007; Dinger, Thatcher, & Stepina, 2010; Igarria & Guimaraes, 1993; Ngo, Foley, & Loi, 2005) and it affects both men and women employees (Emslie, Hunt, & Macintyre, 2004). It is an independent construct that is not directly associated with work exhaustion (Armstrong, Brooks, & Riemenschneider, 2015). The line between personal and work time of a contemporary IT worker is often blurred; it is expected that IT employees respond to ad-hoc requests and deal with emergencies far beyond regular working hours. Furthermore, an accelerating velocity of change in the IT sector requires IT workers to continuously update their skills to effectively perform their jobs and to remain competitive on the job market, which requires a tremendous investment of time at the expense of family-related activities. At the same time, most employees also wish to spend time with their family. As a result, when work interferes with family life, employees consider it a negative event that is accompanied by psychological and physiological tension (Grandey & Cropanzano, 1999). This tension, in turn, produces negative emotions and, consistent with affective events theory (Weiss & Cropanzano, 1996), decreases employees' job satisfaction because they believe that it is their employer that is solely responsible for creating a sense of irreconcilable differences between their professional and personal lives. Accordingly, we propose:

H4: *Work-home conflict has a negative direct effect on job satisfaction.*

Many people seek social support, interaction, communication, and integration within their personal and professional communities (Gottlieb & Bergen, 2010; Rath, 2006). In the workplace, they tend to form and maintain friendship networks consisting of informal circles of like-minded co-workers who they approach for help if needed and offer assistance as a form of reciprocation (Serenko & Bontis, 2016). Developing and maintaining friendship networks contributes to job satisfaction for several reasons (Raile et al., 2008). First, strong friendship networks create an atmosphere of mutual trust and collegiality which leads to positive feelings towards the entire workplace. Second, friendship networks attenuate a negative impact of tension arising from work-related duties (Kirmeyer & Dougherty, 1988) which reduces negative emotions associated with one's organization. Third, having strong friendship networks creates a perception that organizations care for their employees by fostering a positive workplace environment which, in turn, boosts employees' morale and mood. The IT

profession in Japan is challenging, dynamic, and requires workers to frequently consult with their peers on various IT-related issues. Given the collectivistic nature of the Japanese culture and the workplace environment, friendship networks are particularly important because workers expect their organizations to create an environment conducive to social exchange and support. As a result, friendship networks should have a positive effect on the level of job satisfaction of Japanese IT employees. Thus, we propose:

H5: *Friendship networks have a positive direct effect on job satisfaction.*

Previous research has established that the age of an organization is an important variable affecting firms operating in various industries. In particular, it has been found that an organization's age is positively related to its probability of surviving (Kalleberg & Leicht, 1991), mature firms are more likely to set long-range objectives than younger ones (Titus, Covin, & Slevin, 2011), younger and older organizations behave, compete, and perform differently (George, 2005), and stakeholders (employees, customers, distributors, suppliers, and bankers) prefer supporting older organizations (Choi & Shepherd, 2005). As organizations mature, they become less agile and less responsive to a constantly changing environment unless they facilitate the infusion of fresh human capital (Jain, 2016). Older organizations are less innovative and prefer maintaining a status quo: Voss and Voss (2013) show that an organization's age is negatively correlated with product and market exploration, and Choi and Phan (2014) demonstrate that as organizations mature, their rates of new product development slow down. In addition to various differences at the strategic level, employee perceptions of older and younger organizations also differ (e.g., see Glisson & Durick, 1988; Morris & Sherman, 1981; Popescu, Deaconu, & Popescu, 2015).

In this study, we hypothesize that, in the Japanese IT sector, the age of an organization affects employee behavior. On the one hand, the competitive landscape of the Japanese IT industry is highly fixed and hierarchical where a few major players occupy a leading position (Sasaki, 2012). Such companies tend to be older and larger in size. On the other hand, the IT domain is very dynamic by its nature where constantly emerging disruptive innovations represent lucrative opportunities for new entrants. As a result, the Japanese IT industry is also represented by a large number of younger small and medium sized enterprises jockeying for position. We, therefore, posit that it is likely that the strength of the causal relationships proposed in H1-H5 depends on the age of an organization: the relationships are stronger for younger than for older organizations. The rationale is that older organizations are likely to have a stronger culture of long-term employment than their younger counterparts which are less bureaucratic but are more open, flexible, and innovative. Younger Japanese IT companies may exhibit a weaker culture of long-term employment than their older counterparts because the former have not had enough time to build a cumulative body of organization-specific traditions, norms, and values that promote loyalty to their employers.

With respect to the satisfaction-turnover intention relationship (H1), it is argued that in older organizations with strong long-term employment culture, IT workers' decisions to remain with their current employers may be affected by other factors, particularly loyalty and culture. As a result, consistent with the heuristic model of employee turnover (Mobley 1977; Mobley et al., 1978), those working in older organizations are less likely to initiate a withdrawal decision process when they feel that they are unsatisfied with their current job than those employed in younger organizations which do not have a strong long-term employment culture. In terms of H2-H5, it is hypothesized that the impact of affective responses to first-

hand workplace experience of older-organization employees on their level of job satisfaction is suppressed by the perceptions of long-term employment. When people's job security cannot be threatened and they believe that they must remain loyal to their company, they are likely to continue being satisfied with their jobs regardless of their perceptions of work exhaustion, personal accomplishment, work-home conflict, and friendship networks. In contrast, job satisfaction of those working in younger organizations, where the culture of long-term employment is less prominent, may be strongly driven by their workplace mood and emotions (as per affective events theory by Weiss & Cropanzano (1996)). Thus, the following hypothesis is proposed:

H6: *The strength of the relationships in H1-H5 is stronger for younger than for older organizations.*

3 Methods

Empirical data were collected as part of the World IT Project by means of an online survey of Japanese IT workers. The World IT Project was initiated in 2013 and collected data until 2017, as a response to the fact that IT research is dominated by western views.

This project involves more than 80 researchers from 37 different countries who collected data from IT employees by using the same survey instrument (Palvia et al., 2017; 2018; 2020). It focuses on various organizational, technological, and individual issues of IT employees in the unique national, cultural, and organizational contexts of the participating countries. As such, the participating countries represent various economic, political, religious, and regional settings.

The entire survey contained 160 items. All items were based on previously validated instruments, and the final questionnaire was pilot tested in several countries and refined as needed. Items that were used to operationalize the constructs employed in this study were measured on a 5-point Likert-type scale. The survey was administered in Japanese. It was translated into Japanese from English and then back-translated and adjusted as needed. Email invitations were sent to a number of random IT workers from all regions of Japan asking them to respond to the online questionnaire. The list of emails was provided by a web survey company that specializes in online data collection for research purposes. In all, 310 responses were received. Of these, 26 were incomplete and removed, leaving a sample of 284 valid responses. Of these, 9.2% of the respondents were women.

Table 3 presents key statistics of the constructs and their items. An initial confirmatory factor analysis for all constructs and indicators found that, with a factor loading cut-off value of 0.5, items FN1 (0.428) and TI2 (0.485) did not meet the criterion and were removed.

4 Results

In order to further assess the reliability and validity of all factors, we conducted a confirmatory factor analysis using the maximum likelihood estimation method with the criteria provided by Fornell and Larcker (1981) and Hair, Black, Anderson, & Babin (2018). We determined that: a) standardized loading estimates were 0.5 or higher; b) for discriminant validity, both maximum shared variance (MSV) and the average shared squared variance (ASV) were lower than the average variance extracted (AVE) for all constructs; and c) composite reliability (CR) was 0.7 or higher. Cronbach's alpha values confirmed internal consistency of the measures because they met or exceeded the threshold of 0.7. Table 4 summarizes the results indicating

that every criterion was met. Overall, the constructs possess sufficient reliability and validity, enabling the model's use in subsequent steps.

Construct	Indicator	Average	Standard deviation	Factor loading
JS1	In general, I like working here.	2.49	0.93	0.811
JS2	All in all, I am satisfied with my current job.	2.70	0.94	0.794
JS3	In general, I don't like my current job. (R)	2.62	1.00	0.533
FN1	When you face a problem in your professional work that may be of a technical nature or otherwise, to what extent do you seek help from your personal circle of friends or acquaintances who may or may not be in your organization	2.45	0.68	0.462*
FN2	When these friends or acquaintances seek help from you in problems of technical nature or otherwise, to what extent do you attempt to help them?	1.96	0.67	0.838
FN3	To what extent do you maintain a relationship with these friends or acquaintances?	2.17	0.76	0.651
PA1	I feel I'm making an effective contribution to what this organization does.	2.49	0.83	0.704
PA2	In my opinion, I do a good job.	2.50	0.83	0.799
PA3	I have accomplished many worthwhile things in this job.	2.49	0.84	0.849
PA4	At my work, I feel confident that I am effective at getting things done.	2.34	0.78	0.792
TI1	I will be with this organization one year from now. (R)	3.74	0.95	0.839
TI2	I will take steps during the next year to secure a job at a different organization.	3.37	0.97	0.488*
TI3	I will be with this organization five years from now. (R)	3.26	1.03	0.673
WE1	I feel drained from activities at work.	2.95	1.10	0.895
WE2	I feel tired from my work activities.	2.92	1.16	0.905
WE3	Working all day is a strain for me.	2.96	1.04	0.705
WE4	I feel burned out from my work activities.	3.44	1.07	0.672
WHC1	There is a blurring of boundaries between my job and my home life.	3.33	1.10	0.697
WHC2	My work-related responsibilities create conflicts with my home responsibilities.	3.23	1.09	0.771
WHC3	I do not get everything done at home because I find myself completing job-related work.	3.39	0.98	0.818
Note: * – removed item (Factor loading < 0.5). JS: job satisfaction; FN: friendship networks; PA: personal accomplishment; TI: turnover intention; WE: work exhaustion; WHC: work-home conflict. R – negatively-worded items.				

Table 3. Key Statistics of Construct Items

A covariance-based structural equation modeling technique was used to assess the structural model by means of AMOS (Arbuckle, 2006). The model had acceptable fit: CFI (0.947: slightly lower than the cut-off criteria); NFI (0.900); NNFI (0.933); χ^2/df (1.99: $\chi^2 = 240.412$, $df = 121$); SMAR (0.0796); RMSEA (0.059) (Ahmad & Islam, 2018; Browne & Cudeck, 1993; Galarraga, Saies, Cecchini, Arruza, & Luis-de-Cos, 2017; Hu & Bentler, 1999; Li, Fang, Wang, Sun, & Cheng, 2018). Figure 2 illustrates that all standardized coefficients were significant at the level of 5% or below, except the work-home conflict→job satisfaction path. Thus, all of the hypotheses except H4 were supported.

Next, we added direct paths from work exhaustion, personal accomplishment, work-home conflict, and friendship networks to turnover intention (i.e., the saturated model, see Figure 3) and re-evaluated the model. The measures of fit were acceptable as determined by the indices'

thresholds: CFI (0.946: slightly lower than the cut-off criteria); NFI (0.900); NNFI (0.929); χ^2/df (2.04: $\chi^2 = 239.110$, $df = 117$); SMAR (0.0791), RMSEA (0.061: slightly higher than the cut-off criteria). Most importantly, we found no new statistically significant path coefficients to turnover intention at the level of $p < 0.05$ while all previously established relationships remained significant. Therefore, the effect of work exhaustion, personal accomplishment, and friendship networks on turnover intention is fully mediated through job satisfaction.

Construct	Indicator	Factor Loading	Cronbach's Alpha	AVE	MSV	ASV	CR
Job satisfaction	JS1	0.814	0.74	0.524	0.393	0.165	0.762
	JS2	0.794					
	JS3	0.528					
Friendship networks	FN2	0.780	0.70	0.541	0.165	0.055	0.701
	FN3	0.688					
Personal accomplishment	PA1	0.703	0.87	0.620	0.197	0.102	0.867
	PA2	0.799					
	PA3	0.848					
	PA4	0.793					
Turnover intention	TI1	0.822	0.72	0.572	0.393	0.113	0.726
	TI3	0.685					
Work exhaustion	WE1	0.896	0.87	0.643	0.404	0.119	0.876
	WE2	0.905					
	WE3	0.705					
	WE4	0.672					
Work-home conflict	WHC1	0.696	0.80	0.583	0.404	0.098	0.807
	WHC2	0.770					
	WHC3	0.819					

AVE: average variance extracted; MSV: maximum shared variance; ASV: average shared squared variance; CR: composite reliability.

Table 4. Confirmatory Factor Analysis

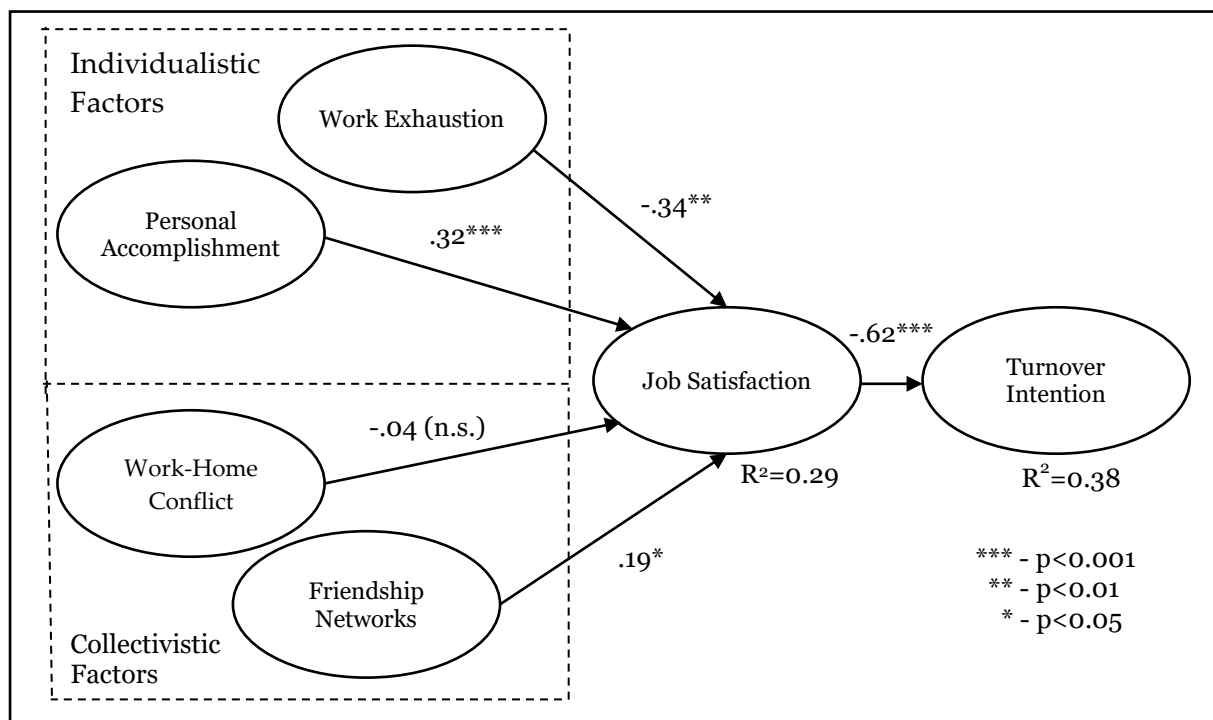


Figure 2. The structural model

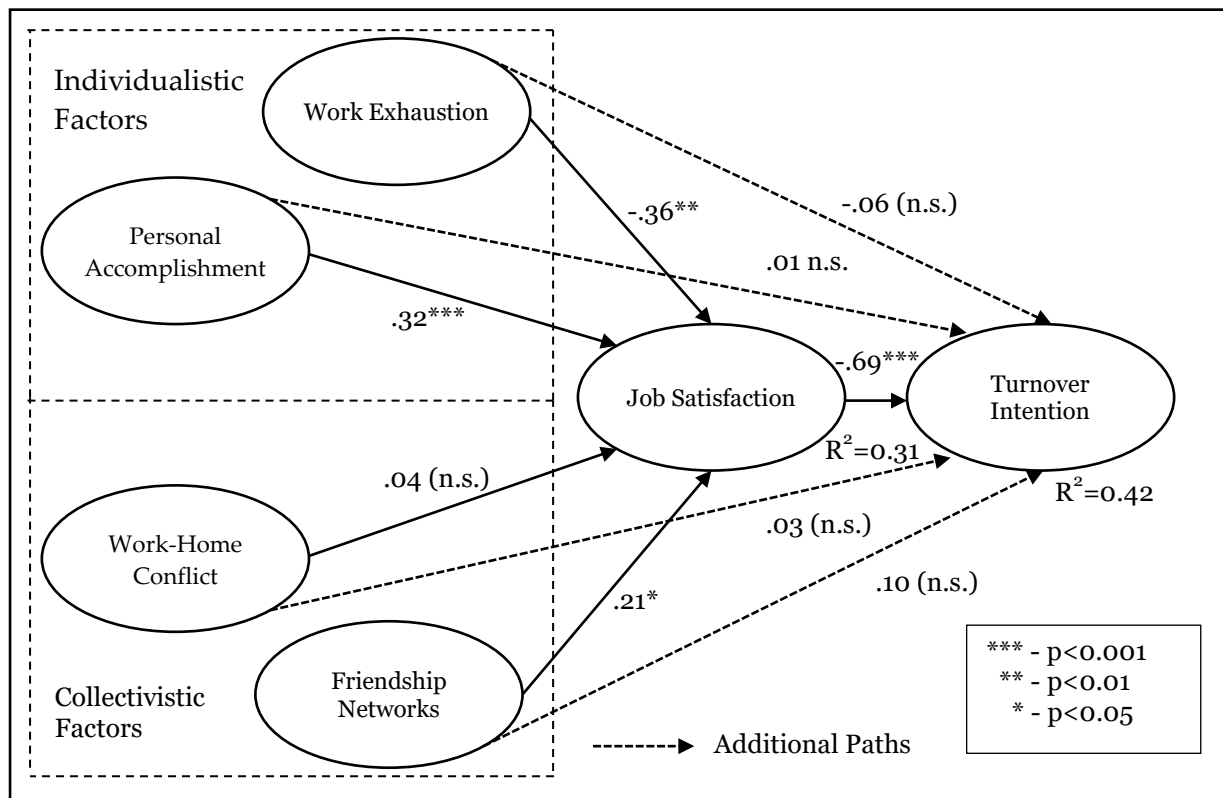


Figure 3. The saturated model

In order to examine whether the strength of the relationships is stronger for younger than for older organizations (i.e., H6), samples were stratified into two groups: younger organizations having the age from 1 to 29 years (158 firms) and older organizations having the age of 30 years or more (126 firms). Figure 4 shows the results of pairwise parameter comparisons conducted in AMOS (Arbuckle, 2006). We observed statistically significant differences in path coefficients between younger (Y) and older (O) firms for the following relationships: work exhaustion → job satisfaction (Y stronger negative effect), personal accomplishment → job satisfaction (Y stronger positive effect), and work-home conflict → job satisfaction (Y stronger positive effect). No statistically significant differences for the friendship networks → job satisfaction and job satisfaction → turnover intention links were observed. Overall, it is concluded that H6 is partially supported. Table 5 summarizes the results of hypothesis testing.

N	Hypothesis	β	p-value	Confirmed?
H1	Job satisfaction has a negative direct effect on turnover intention.	-0.62	0.001	Yes
H2	Work exhaustion has a negative direct effect on job satisfaction.	-0.34	0.01	Yes
H3	Personal accomplishment has a positive direct effect on job satisfaction.	0.32	0.001	Yes
H4	Work-home conflict has a negative direct effect on job satisfaction.	-0.04	n.s.	No
H5	Friendship networks have a positive direct effect on job satisfaction.	0.19	0.05	Yes
H6	The strength of the relationships in H1-H5 is stronger for younger than for older organizations.	NA	NA	Partially

Table 5. Hypotheses Testing Summary

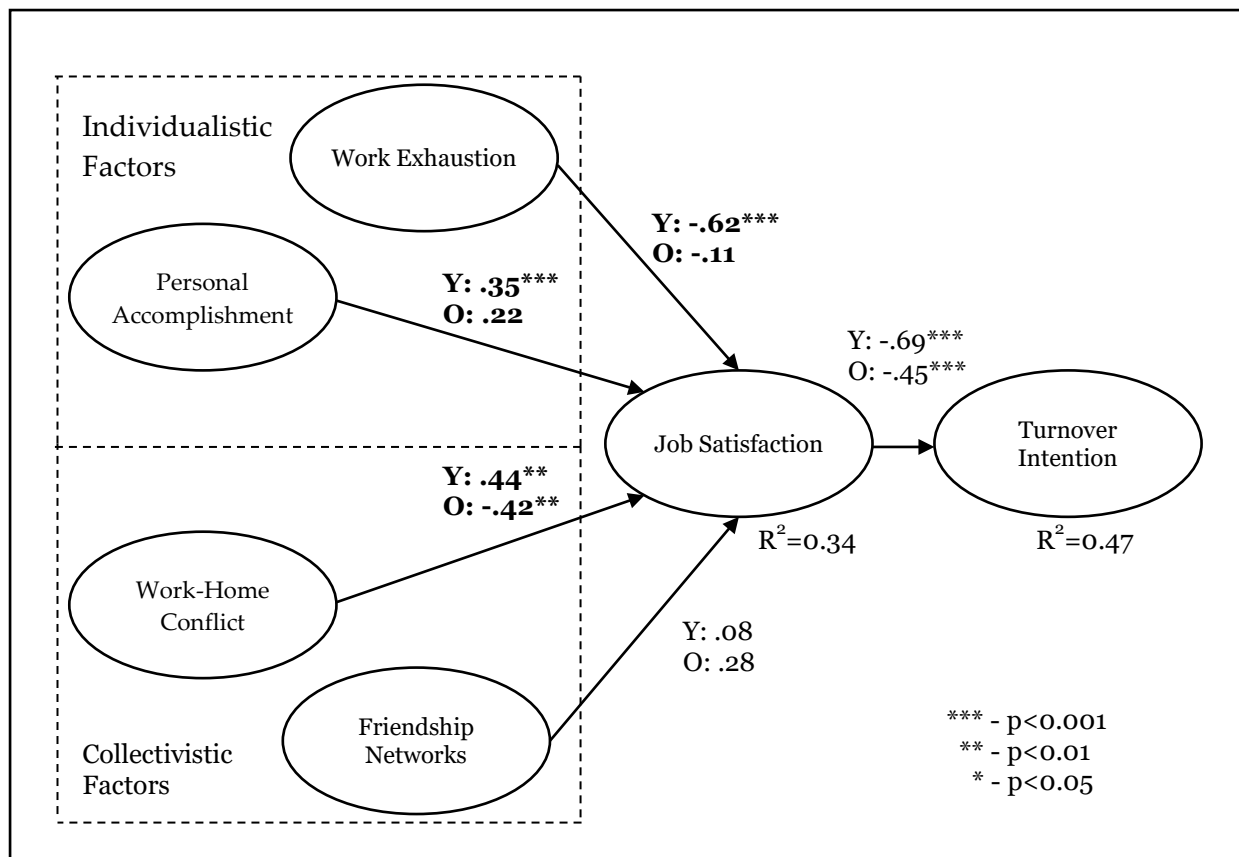


Figure 4. The effect of the age of an organization (statistically significant different pairs of beta coefficient are in bold)

5 Discussion

The purpose of this study is to understand the factors driving turnover intention of Japanese IT professionals. A model was proposed based on the extant literature, data was collected from 284 employees, and the model was tested by means of structural equation modelling. The findings resulted in a number of theoretical and practical contributions which are presented below after an overview of the findings.

5.1 Overview of the findings

First, the results highlight the fact that job satisfaction serves as a full mediator of the impact of work exhaustion, personal accomplishment, and friendship networks on turnover intention which further emphasizes the importance of job satisfaction of IT employees. This conclusion is consistent with the heuristic model of employee turnover (Mobley, 1977; Mobley et al., 1978) because it shows that on their own, high work exhaustion, insufficient personal accomplishment, and ineffective friendship networks cannot directly affect turnover intention of Japanese IT professionals unless they reduce their level of job satisfaction. Low job satisfaction, in turn, triggers a withdrawal process upon which employees form turnover intention.

Second, our study confirms that work exhaustion, personal accomplishment, and friendship networks have a direct effect on the level of job satisfaction of Japanese IT workers. Of these, work exhaustion has the strongest (negative) effect ($\beta=-0.34$, $p < 0.01$). It shows that Japanese IT

workers are not immune to stress, workload, and pressures which have become apart of the daily life of IT professionals. Higher levels of work exhaustion reduce the degree of job satisfaction of Japanese IT workers which makes them more likely to go on the job market. Prior research suggests that Japanese employees work long hours and experience constantly growing work pressure, stress, and accountability (Iida & Morris, 2008). These take toll on their physical and emotional health (Kawakami & Haratani, 1999) and, in some extreme cases, may even lead to suicide (Tamakoshi et al., 2000). At a bare minimum, exhausted IT professionals are likely to leave their employers and look for more appropriate working conditions elsewhere. This finding is consistent with the conclusions reported by Liu (2010) and Tei-Tominaga and Miki (2010) who emphasize the role of job stress of Japanese workers in the IT and healthcare industries, respectively.

As was theoretically expected, personal accomplishment ($\beta=0.32, p<0.001$) has a strong positive effect on job satisfaction. In all countries, including Japan, IT jobs are challenging: they require workers to continuously update their skills, and lifelong learning has become an integral part of the profession. As a result, IT workers who believe that they have achieved professional accomplishments feel a sense of self-reward, recognition, and pride. They also feel that their present position helps them establish their professional identity, and they are likely to attribute the source of these positive perceptions to their employer, which is reflected in higher job satisfaction.

Friendship networks ($\beta=0.19, p<0.05$), have a less salient yet statistically significant effect on job satisfaction. Friendship networks help IT employees develop positive emotions towards their workplace. Most people derive fulfilment from communicating, interacting, receiving help, and assisting others (Báez-Mendoza & Schultz, 2013), and IT employees are no exception. Thus, when organizations foster collaborative friendship networks, employees become more satisfied with their jobs.

Third, in contrast to the extant literature, it was observed that work-home conflict does not seem to affect job satisfaction. Several theoretical explanations of this phenomenon can be put forward. It is possible that Japanese IT workers consider their professional career more valuable than their personal life, including relationships with family and friends. Thus, they experience little or no negative emotions when their work interferes with their personal life, and their level of job satisfaction does not depend on work-family conflict. Also, from the perspective of boundary theory (Ashforth, Kreiner, & Fugate, 2000), it is possible that Japanese IT employees have learned to achieve a certain level of work-home balance by creating two independent segments or compartments: one for work and another for family which do not overlap. Thus, as spillover theory suggests (Grzywacz, 2002), they do not let their workplace emotions, feelings, and mood enter the realm of their personal lives. As a result, they do not associate family and/or personal problems with their workplace.

Fourth, an analysis of the differences in the model's structural relationships between younger and older organizations reveals two interesting phenomena. As indicated in Figure 4, three out of five structural relationships vary depending on the age of an organization. Particularly, a negative effect of work exhaustion and a positive effect of personal accomplishment on job satisfaction exist only for younger organizations. A difference between the younger and older organizations in terms of the link strength between job satisfaction and turnover intention is also consistent with the observation above (i.e., it is stronger for younger firms: $\beta=-0.69$ for younger vs. $\beta=-0.45$ for older organizations); however, this difference is not statistically

significant. Nevertheless, this shows that employees in younger organizations may embrace the concept of long-term employment to a lesser degree than those working in older organizations. Generally, younger Japanese organizations embrace a stronger individualistic culture whereas their older counterparts exhibit a stronger collectivistic culture. Therefore, the collectivistic culture which is a part of older organizations suppresses the effect of work exhaustion and personal accomplishment on job satisfaction and, subsequently, on turnover intention. This suggests that in organizations with strong collectivistic cultures, IT workers are less likely to be impacted by their personal preferences, feelings, and perceptions in the context of voluntary turnover.

Fifth, stratifying the samples into younger and older organizations clarifies the reason why the work-home conflict→job satisfaction path (H4) was not statistically significant in the combined sample. Actually, the path coefficient of work-home conflict→job satisfaction for younger organizations was positive and significant ($\beta=0.44, p<0.01$), whereas that for older organizations was negative and significant ($\beta=-0.42, p<0.01$). Resultantly, a combination of both groups could not provide a statistically significant beta coefficient. *Sixth and last*, based on the R-squared values, the proposed model has a good explanatory power: it predicts 42% and 31% of variance in turnover intention and job satisfaction, respectively, which is considered high in management research.

5.2 Contribution to theory

First, the findings confirm the efficacy of the heuristic model of employee turnover (Mobley, 1977; Mobley et al., 1978) in the context of the relationship between job satisfaction and turnover intention of IT workers in Japan. The heuristic model of employee turnover suggests that employees continuously evaluate and re-evaluate all aspects of their jobs to reach a certain state of satisfaction or dissatisfaction with their place of employment. In the case of dissatisfaction, they initiate a certain withdrawal process which may result in an intention to leave their employer. Consistent with previous Japanese research (e.g., see De Moura, Abrams, Retter, Gunnarsdottir, & Ando, 2009; Honda-Howard & Homma, 2001; Huang, 2011), this study shows that job satisfaction has a strong negative effect on turnover intention.

Second, this study shows that affective events theory (Weiss & Cropanzano, 1996) applies well in the context of Japanese IT professionals. The theory posits that employees' affective first-hand experiences at work influence their mood and emotions which, in turn, determine their evaluative judgements of all aspects of their job. In this study, it is shown that IT employees' perceptions of their work exhaustion, personal accomplishment, and friendship networks are emotion-based perceptions resulting from actual on-the-job experiences which lead to job satisfaction. As such, this theory is robust which confirms that future researchers may successfully employ it in other countries and contexts.

Third, the fact that turnover intention of Japanese IT professionals is determined by their job satisfaction, which, in turn, is driven by their work exhaustion, personal accomplishment, and friendship networks, shows the fragility of the "long-term employment" paradigm – which is supposed to be embraced within the entire Japanese work culture. Under the long-term employment assumptions, Japanese IT workers should exhibit little, if any, intention to leave their organizations regardless of their first-hand on-the-job experience. Moreover, their level of job satisfaction should not be strongly negatively associated with turnover intention – they are expected to remain loyal to their employer regardless of their workplace perceptions. Yet,

an entirely different picture has emerged from this study, suggesting that the notion of long-term employment has become less dominant given the unique nature of the IT industry.

Fourth, a comparison of individualistic factors (work exhaustion and personal accomplishment) with collectivistic factors (work-home conflict and friendship networks) reveals that the former have a stronger impact on job satisfaction than the latter. This observation has important theoretical implications. There are two competing perspectives on cultural variability – divergence and convergence (Stohl, 2001). The divergence viewpoint posits that people living in different countries vary due to diverse social-psychological and anthropological roots. The macroeconomic gravity model (Isard, 1954; Van Bergeijk & Brakman, 2010) further assumes that the more geographically distant countries are from one another, the less likely they are to trade and to share cultural values. For example, Japan is physically distant from the western world and, therefore, its citizens are expected to exhibit cultural values that are different from those of their western counterparts.

In contrast, the convergence perspective postulates that a growing emphasis on individualism, fueled by globalization trends and social media, gradually minimizes cultural differences resulting in a highly homogeneous world, organizational structures, national cultures, and work environments (Stohl, 2001). The present investigation supports the convergence perspective in the context of Japanese IT workforce where individualistic factors play a more salient role than collectivistic ones despite the overall collectivistic national culture of Japan. It further proves the existence of an IT occupational culture (Cranefield et al., 2022; Jacks & Palvia, 2014; Jacks et al., 2018) driven by individualistic values rather than national cultural norms. It seems that the IT occupational culture has shifted the perceptions of job-related factors of the Japanese IT workers in favor of individualistic factors as embraced by their western IT colleagues. Therefore, we recommend future researchers to investigate how the IT occupational culture may cause a shift in employees' values from divergence to convergence resulting in a more homogenous IT workforce. It is also possible that it may create a spillover effect when employees and their families start questioning other traditional Japanese values, for instance, the notion of long-term employment.

Fifth, whereas a negative relationship between work-home conflict and job satisfaction was theoretically explicated earlier to justify H4, a positive one for younger organizations warrants further elaboration. It is possible that younger organizations employ a different type of IT personnel, for example, junior, ambitious, energetic, and career-focused workers who, instead of reacting to the stress caused by irreconcilable demands between personal life and work duties, embrace a potential work-family conflict as "eustress." Eustress refers to "stress that creates a challenge or an opportunity" (Tarafdar, Cooper, & Stich, 2019, p. 12). Thus, these employees perceive such stress positively which enhances their mood, feelings, and perceptions of all aspects of the job and manifests itself in higher job satisfaction. In contrast, employees working for older organizations react negatively to stress caused by work-family conflict and exhibit a negative relationship between work-family conflict and job satisfaction. Nevertheless, the observed positive relationship between work-home conflict and job satisfaction for younger organization is somewhat surprising, and it is suggested that future researchers examine this issue in greater depth.

Sixth and last, previous meta-analysis studies of the antecedents and consequences of job satisfaction and turnover intention have often reported mixed, inconclusive, and inconsistent findings (Bowling, Alarcon, Bragg, & Hartman, 2015; Judge & Bono, 2001; Ng & Feldman,

2010). The present study contributes to theory by showing the importance of individualistic and collectivistic factors as well as the age of an organization. By considering these variables, future researchers may shed more light on the role of workplace perceptions and their impact on turnover intention in the IT industry and beyond.

5.3 Contribution to practice

Our study has at least four important practical implications for Japanese managers. *First*, managers should recognize the fact that the shortage of advanced IT professionals in Japan is estimated to be at around 170,000 workers (Blair, 2021). As a result, it behooves managers to do their best to understand the factors facilitating turnover decisions of IT professionals. As this study demonstrates, managers should measure the level of their employees' job satisfaction and find factors affecting it.

Second, IT managers should boost their employees' perceptions of personal accomplishment by means of formal training and mentorships. They should also further support the development of friendship networks by means of active socialization during and after work hours, which has traditionally been a part of the Japanese work culture (Tsutsui, 2010) and should be promoted further. In addition, they need to manage work exhaustion of their employees, particularly in younger organizations. Thus, effective and efficient human resource management policies and procedures are required to ensure the retention of IT workers.

Third, managers should keep in mind the importance of the age of their organization. Older organizations in Japan tend to embrace more collectivistic values which may affect the impact of workplace perceptions of job satisfaction. Of particular importance to managers of older organizations should be work-family conflict because it reduces IT employees' job satisfaction leading to voluntary turnover.

Fourth, IT managers should keep in mind that the traditional notion of long-term employment may not apply well in younger organizations. The IT profession has embraced its own, unique occupational culture (Cranefield et al., 2022) which converges with the occupational values of Japanese IT employees and makes them more aligned with their western counterparts, whose turnover decisions are less affected by their perceived loyalty to their employer.

5.4 Limitations and future research directions

Despite its contributions, the study has limitations. *First*, factor analysis identified two indicators with low loadings which were removed. It is possible that this affected the content validity of the measurement instrument (Nunnally & Bernstein, 1994). *Second*, the findings are Japan-specific and may not generalize to other Asian or Western countries (Henrich et al., 2010a). Future researchers are recommended to replicate this analysis in other countries. Nevertheless, we believe that this limitation is not serious enough to negate our findings, and we invite future researchers to extend the scope of inquiry to other contexts in order to further unravel the determinants of turnover intention of IT professionals. *Third*, this study relied on cross-sectional data which is quite common in IS research; however, a longitudinal study, although difficult to conduct, may reveal more nuances in the findings (Sedgwick, 2014) as well as result in re-specification of the research model. *Fourth*, due to the nature of the data collection approach, the response rate and the non-response bias could not be measured, and it is unknown how this affected the findings, although our sample was representative of several demographic metrics. Moreover, to ensure anonymity, the data cannot be traced back

to organizations and thus organizational level controls were not included. Thus, potential organizational differences which were not accounted for in this study should be taken into consideration in future research. *Fifth*, this study's methods focused on a single perspective – the “supply side of labor” – while approaching the issue from the “demand side of labor” point of view may help researchers uncover new perspectives. For instance, it is possible that the model's relationships may be affected by job market conditions or the level of a country's IT infrastructure (Palvia, Ghosh, Jacks, & Serenko, 2021). *Sixth*, it is feasible that the strength of the tested relationships depends on the personality types and other attributes of IT employees (Allen, Weeks, & Moffitt, 2005), and we recommend for future researchers to look into this possibility. *Seventh*, we relied on self-reported, explicit measures which may be affected by social desirability bias. Thus, we recommend future researchers to employ implicit constructs which are measured beyond people's conscious awareness (e.g., see Serenko, 2022; Serenko & Turel, 2019; Serenko & Turel, 2021). *Eighth and last*, while this study's model has a good predictive power, a major proportion of variance is still unaccounted for. Thus, the model may be further extended with additional constructs and moderating variables.

6 Conclusion

Much of previous IS research on employee retention has been conducted in the context of western countries. On the one hand, these studies have improved our understanding of employee turnover intention and generated valuable practical recommendations. On the other hand, some of their conclusions may not generalize to the global IT workforce due to differences in national culture, economic growth, norms, beliefs, and historical development of the IT sector. The present investigation takes an important step and goes beyond the western context by accounting for the idiosyncrasies of the Japanese IT workplace environment.

The Japanese IT workforce has evolved in its own unique way driven by the country's various distinctive attributes including the traditional Japanese value of long-term employment. This study has confirmed the dynamic nature of the IT sector and shown that the IT occupational culture may challenge the traditional Japanese assumption of long-term employment and create a convergence force to align the nature of the Japanese IT workplace with that of its western counterparts. This movement may be especially strong in younger Japanese IT companies that employ junior, energetic, ambitious, and career-focused IT professionals.

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