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Individuality Matters: A World View of Individual Issues of IT Professionals

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Abstract:

Individuality matters. While information technology (IT) is important, more critical for the success of IS functions in an organization are its people, their values, attitudes, norms, and behavior. There are differences among IT professionals, not only at the organizational level, but also at the global level. Using data collected from more than 10,000 IT employees in 37 countries under the World IT Project, this study examines some fundamental issues of IT workers from a global perspective. While there are differences, we find that almost universally, nine individual issues are important across many countries, and they are interrelated in a similar manner. IT employees in some countries maintain stronger social bonds among themselves than those in others, which provide them with the necessary social capital to utilize in times of high work exhaustion, environmental dynamism and insecurity, as well as their efforts to change jobs. In difficult situations, the professional self-efficacy of the workers secures them. A significant number of IT employees feel that excessive work overload upsets the balance between their lives at home and workplace demands. Nevertheless, an intellectually stimulating and well-balanced work environment ensures job satisfaction for a significant number of IT employees in many countries.

Keywords: Individual IT Issues, The World IT Project, IT Employees, Turnover, Turnaway, Conceptual Model.

1 Introduction

"There is a popular belief that technology has nothing to do with people. The contrary is true." (Hofstede, 2020: ix-x)

The field of information systems and information technology (IS/IT) has been changing at a blistering pace in recent years, spanning organizations and countries on a truly global scale (Bresnahan et al., 2002; Heeks, 2010). On the one hand, the field holds a great promise of rapid career advancement and growth for a large number of IT workers. On the other hand, the field's extreme dynamism presents numerous challenges that significantly impact employees' personal happiness, job satisfaction, and career fulfillment desires (Allen et al., 2008). As a result, IT professionals face a number of critical individual issues. The present study examines these individual issues in a global context, based on data collected under the auspices of the World IT Project[1].

An understanding of this nature and its practical consequences facilitate managers and IT executives to make strategic business decisions in the global IT environment (Allen et al., 2008; Lewin et al., 2009). For example, in organizations in South Asian, Latin American, Middle Eastern, East European, and African countries, major cultural, economic, political, and religious factors affect the lives of IT employees in ways significantly different from those in Western countries (Palvia et al., 2017; Palvia et al., 2020). Several prior studies (Bresnahan et al., 2002; Gurung & Prater, 2017; Ives & Jarvenpaa, 1991; Zaheer et al., 2009) have examined a number of individual issues of IT workers in some of these countries or geographical regions of the world and demonstrated that it is best to approach such issues from a holistic, coherent, and world-centric perspective while simultaneously recognizing country-specific peculiarities.

To respond to their call, the World IT Project attempts to capture and relate the organizational, technological, and individual issues of IT employees to cultural and organizational factors across the globe. Previous publications from the project emphasized cross-country differences (Yeo et al., 2022). Palvia et al. (2017) highlight the objectives of the project, its history, general framework, governance, and important decision points. Palvia et al. (2021a) examined the importance of information technologies as rated by global IT professionals to better understand the contextual factors that explain the differences in technology priorities across nations. Further, Palvia et al. (2022) examined groups of countries with strategic issues and those with tactical and operational issues. Palvia et al. (2021b) discuss the top IS organizational trends and how the importance of these trends differs between two country clusters. Yeo et al. (2021) and Scholtz et al. (2019) studied job satisfaction of IT workers in East Asia and South Africa, respectively; Cranefield et al. (2022) explored IT occupational culture in New Zealand; and Serenko et al. (2022) focused on turnover in Japanese IT professionals. However, none of the investigations above focused specifically on the global differences in individual issues. This is the area to which the present study contributes.

An extensive survey of the literature (both IS/IT and general business) and the collective experience of the core research team of the World IT Project bolster our consideration of the nine most critical individual issues of workers in the IT industry[2]. These include the following: job satisfaction, work overload, work-home conflict, work exhaustion, professional self-efficacy, job insecurity, turnover intention, IT career change or "turnaway" intention, and the friendship/social circles[3] of the IT employees. A few additional issues (for example, work stress, anxiety and isolation, dissatisfaction, disorientation, demanding workload, and technostress) that surfaced were either related to or could be subsumed under these nine issues.

The majority of the studies in the IS literature that have been examined are either specific to a country or based, for the most part, in particular geographical regions of the world. Employing the rich dataset of the

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[1] Launched in 2013, the World IT Project (*http://theworlditproject.org*) has collected more than 10,000 responses from IT workers in 37 countries. In particular, it examines a number of organizational IS issues, technology issues, and individual issues in the context of unique cultural, societal, economic, and political environments of countries of the world. Details of the project and some of these issues have appeared in earlier publications (Palvia et al., 2021; Palvia et al., 2020; Palvia et al., 2018; Palvia et al., 2017).
[2] A complete scientific survey or an exhaustive meta-analysis of IT workers' individual issues would be a major effort and a journal article in its own right; that was not our goal in this paper. Rather, our intent was to use the most common individual issues that have been reported in the IS literature. We mention this limitation in the Limitations section of the paper.
[3] A person's friendship circles, or social circles in more general terms, constitute a social network of mutually affective, and largely informal relationships. Such circles are individual-specific, in that each person builds his or her personal network of friends and acquaintances independently of any other persons to whom the focal person is not connected (Kadushin, 1968).

World IT Project, the present study attempts to reduce this gap in the literature by offering a global, holistic perspective on the individual issues using more than 10,000 responses from IT workers in 37 different countries exhibiting a great diversity in terms of their economic status, IT history, literacy, cultural levels, and a diverse set of macroeconomic indicators. In particular, we attempt, in this paper, to address the following three research questions:

1) How are the different countries ranked on each individual issue?

2) What are the ranks of the issues by economic classification of countries (measured in terms of income)?

3) How are the individual issues correlated with one another across the different countries of the world?

An empirical examination of these questions helps us gain valuable insights into the individual characteristics of IT workers from a holistic and balanced perspective. Our findings have major implications for managers and IT practitioners in global organizations. In an increasingly globalized world, it is of critical importance that strategic business decisions be made by organizational management with a full understanding of the nature of the issues that affect the IT employees in the different countries of the world. Our study finds that, while there are many similarities in the characteristics of the issues at the individual employee level, there are also a number of dissimilarities across different countries. One size does not fit all, and the differences must be incorporated into any organizational decision making. For the researcher, we provide both validation of the critical importance of the individual issues and their global applicability. We also propose a conceptual model that positions the nine individual issues in a nomological framework. Both the individual issues and the conceptual model could motivate future studies.

2   Literature Review

In almost any organization today, the effective level of productive output depends critically on the individual issues of the organization's employees that are intimately connected with the systems of production in use (Allen et al., 2008; Little & Little, 2006). Oftentimes, employees are reluctant to raise their issues or concerns to their management (Milliken et al., 2003). Unfortunately, these issues, when they go undetected or remain unresolved, lead invariably to reduced employee productivity and lower quality of output. To unravel these, we conducted an extensive review of both the IS/IT and general business literature to identify the most important individual issues in organizations worldwide. These findings were further supported by the collective experience of the core research team of the World IT Project. We identified nine critical constructs and briefly discuss the importance of each below. These constructs include: job satisfaction, work overload, work-home conflict, work exhaustion, professional self-efficacy, job insecurity, turnover intention, IT career change or "turnaway" intention, and friendship/social circles of the IT employees. A number of additional issues include, for instance, work stress, anxiety and isolation, dissatisfaction, disorientation, demanding workload, and technostress. However, these are either related directly to the nine issues or they can be subsumed under them.

Earlier researchers have already studied many of these individual issues of IT professionals in the context of specific countries or geographical regions of the world. As we show in this work, the individual issues possess a universality of character in their global appeal, in the sense that every one of them is important, to a greater or lesser extent, for the career and life of the IT workers in all of the 37 countries in our sample. Universality, in this regard, does not mean to claim that each of the issues is equally important when measured in terms of their country scores. There are variations in these scores among the countries, which presumably arise from country-specific peculiarities as well as from the effects of unobserved variables and contextual factors (involving country income levels, labor markets, and cultural attitudes) that affect the IT workers somewhat differently in each of the countries. For example, some countries may have a highly developed IT industry, which makes them excellent outsourcing destinations, where the work is challenging, and tasks are carried out with commitment and professionalism. Our message here is that, while the individual issues exhibit country-specific differences in their scores[4], there is still some level of uniformity among the IT professionals of the global workforce, irrespective of whether

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[4] An examination of the underlying causal dynamics of the similarities or dissimilarities in their country-specific scores is a major undertaking and a separate study in its own right, which lies beyond the scope of the present investigation.

they work in a developed economy or in a developing or transitional one. What is important to realize is the universality of the character of the individual issues that have global implications.

2.1 Job Satisfaction

Commonly, job satisfaction refers to a state of positive emotion of an employee that arises out of his or her experiences in the job (Locke, 1976). In particular, it signifies how satisfied workers feel about their jobs in general and about various aspects of their jobs in particular (Janssen, 2001; Spector, 1997). A number of earlier scholars have studied work-related correlates of job satisfaction in programmer/analysts in the IT field (Couger & Zawacki, 1981; Goldstein & Rockart, 1984; Willoughby, 1972). Primarily, three types of relationships govern job satisfaction: the relationship between the employee and the organization, the employee and his or her supervisor, and the employee and his or her coworkers (Alegre et al., 2016; Tang et al., 2014). Additionally, the quality of the work itself is a strong contributor to satisfaction.

In an organization, employees who are satisfied with their jobs exhibit a positive attitude toward their tasks, activities, and interactions with their coworkers (Locke, 1976; Janssen, 2001). Employees' job satisfaction can be derived from their sense of organizational belonging and their attachment to the environment of the workplace (Tang et al., 2014). A good relationship with the immediate supervisor or the project manager also contributes significantly to job satisfaction and is especially helpful when employees and their supervisors are like-minded individuals (Alegre et al., 2016). In addition, for an employee, the workplace environment is enhanced and becomes conducive to productivity when coworkers maintain amicable relationships and are able to engage one another in intellectual debates as well as in informal, social discussions of various topics of common interest (Spector, 1997). Finally, for employees who enjoy working on intellectually challenging problems, job satisfaction also comes from the work itself. It provides them with sufficient intellectual nourishment by engaging them in creative group discussions and brainstorming sessions, individual problem-solving efforts, as well as opportunities for further learning and education (Lewin et al., 2009).

2.2 Work Overload

Employees perceive work overload to the extent that they are confronted with too many tasks to complete in an insufficient amount of time allotted to them (Kirmeyer & Dougherty, 1988; Ply et al., 2012). This issue has emerged as a common problem in specific projects and, sometimes, in the organization as a whole (Li, & Shani, 1991; Moore, 2000). Prior research has found evidence that work overload affects how employees perform tasks and how they feel about themselves and their jobs (Kirmeyer & Dougherty, 1988). Work overload is also known to lead to aggravating conditions of physical and mental health, job dissatisfaction, reduced performance quality, heightened tension, bitter frustration, and cynicism among employees (Beehr et al., 1976).

2.3 Work-Home Conflict

Work-home conflict arises when employees experience an imbalance between the time they devote to their jobs and the time they spend at home with their family because of incompatible demands between work and family roles (Greenhaus & Beutell, 1985). This may make their participation in both roles difficult to redress. Managing this conflict is a critical concern for employees (Kreiner, 2006). For IT workers, work overload that requires them to remain in the workplace at odd hours or to work through irregular shifts can lead to a loss of balance between their family life at home and their work life in the organization (Greenhaus & Beutell, 1985). In particular, during the recent period of the COVID-19 pandemic that claimed millions of lives all over the world, many IT workers had to work long hours from home and engage in protracted meetings and group discussions, which took time away from their family responsibilities. Whether at home or in the office, aggravated work-home conflict contributes significantly to a decline in productivity and leads to behavioral dysfunction in the workplace (Michel et al., 2011). In this conflict, excessive demands in one domain may take a heavy toll on resources in another (ten Brummelhuis & Bakker, 2012). When the conflict remains unresolved over a significant length of time, it begins to erode the psychological wellbeing of the affected employees, oftentimes leading to occasional bouts of anxiety, alienation, mental depression, and even substance abuse (Buonocore et al., 2015; Frone, 2000). The organizational outcomes of work-home conflict include, for instance, absenteeism, reduced affective task commitment, and turnover intentions (Michel et al., 2011).

Prior research has shown that a happy family life is one of the essential preconditions for employees' active organizational sense of belonging, marked by high levels of work productivity and job satisfaction

(Kreiner, 2006). Spending time with family members provides the necessary diversion for employees to free up their minds from current predicaments, mental blocks, or intellectual impoverishment (Michel et al., 2011). The family is a precious source of mental support for an employee, especially at times when the employee is experiencing excessive stress and exhaustion at work (ten Brummelhuis & Bakker, 2012). It is, therefore, important, for an employee to maintain a stable balance between work and family, especially in a situation where the nature of the employment requires them to bear a significant amount of mental and physical strain for a prolonged period in the job.

2.4   Work Exhaustion

Work exhaustion is a state of mental, emotional, and physical burnout caused by long-term involvement in taxing situations (Lewig & Dollard, 2003; Moore, 2000). Severe exhaustion often gives rise to a feeling of psychological draining and tedium in an employee. The feeling arises primarily from long exposures to excessive occupational demands, pressures, uncertainties, conflicts, and irregularities at work (Moore, 2000). When working on many complex and time-consuming tasks requiring concentrated attention over a prolonged period, many IT employees experience symptoms of work exhaustion (Kirmeyer & Dougherty, 1988). For example, employees in many vendor or service-providing IT firms who do outsourced work in countries with significantly different time zones are often required to work in multiple shifts, on weekends, and, occasionally, at unusually odd hours. Long and irregular work schedules result in gradually debilitating mental and physical health conditions. Furthermore, employees whose nature of work requires them to perform critical, time-bound activities on a regular basis are prone to severe fatigue and mental exhaustion (Shih et al., 2013). When these activities continue for an indefinite period, employees feel the accumulating strain of the job and begin to suffer from burnout (Moore, 2000).

2.5   Self-efficacy

Professional self-efficacy centers on the question as to whether an employee in an organization is capable of carrying out an action to successful completion (Cupertino et al., 2012). Although excessive work pressure creates psychological stress in employees and often leads to dissatisfaction, burnout, and turnover (Yu et al., 2015), there are employees who feel a high degree of self-confidence in their abilities to perform complex tasks and overcome difficulties as well as to come up with novel ideas and solutions to problems in their IT jobs. Social cognitive theory posits that employees with high professional self-efficacy are likely to regard pressure created by problems and obstacles at work more in the nature of enablers of progress rather than as impediments to it (Bandura, 1997). Employees possessing this capability and attitude will therefore handle conditions of work exhaustion more effectively.

A strong sense of self-efficacy results in a high level of job performance (Cupertino et al., 2012). Employees of this nature have the ability to embark upon and eventually accomplish highly complex tasks that might easily daunt other employees who possess little or no self-efficacy. To an employee, self-efficacy gives the fortitude needed to face diverse challenges beset with grave difficulties, as well as a sense of courage, mastery, and conviction of control over events that affect their life in the organization (Cherniss, 1993). As a result, employees possessing high professional self-efficacy can cope successfully with highly stressful tasks. It is a quality that often projects such employees as positive role models for their co-workers to aspire to (Yu et al., 2015). Professional self-efficacy in certain employees has also been found to alleviate conditions of burnout and excess strain as well as to enhance engagement and a deeper sense of organizational belonging (Ventura et al., 2015).

2.6   Job Insecurity

Employees' job insecurity results from the immediate threat to various job features, the seriousness of the threat to the job as a whole, and employees' lack of power to control or nullify the threat (Ashford et al., 1989). A persistent feeling of anxiety arises from this sense of insecurity. Frequently, threats are posed to jobs as positions are made redundant in organizations. In particular, employees face challenges in some areas of IT when their current skills become outdated due to rapid technological obsolescence. Underskilling issues appear for employees in situations where their existing skills cannot keep pace with the demands of rapid technological changes or innovations (Buonocore et al., 2015; Silla et al., 2009). By contrast, overskilling issues arise when employees possess more skills than are required by their current jobs; as a result, their skills are not adequately utilized (Buonocore et al., 2015; Gallie et al., 2017). These problems add to the growing concerns of many IT workers. In addition, because of cost-cutting measures

adopted by some employers, certain types of jobs are outsourced to low-cost, offshore locations, posing threats to the job security of the incumbents (Tjader et al., 2010; Youngdahl & Ramaswamy, 2008).

The IT field is exceedingly competitive, requiring workers to keep sharpening their present skills and to continue acquiring knowledge and developing expertise in diverse new technologies (Ashford et al., 1989). Applications are being developed at an extremely rapid pace today, where current technological features and computer programs are constantly being replaced by new ones, some of which, albeit faster and more powerful than earlier ones, are transitory, experimental, or even unstable. The past decades have witnessed the obsolescence of numerous provisional innovations, and many novel IT products and services that showed great initial promise and were launched amid much fanfare have ended up in complete fiasco (Silla et al., 2009). Unlike employees in many traditional and stable engineering fields, IT workers have to constantly contend with the struggle for professional survival in the rapidly changing environment (Gallie et al., 2017). In addition, IT jobs in many industrialized nations are increasingly being outsourced to distant offshore locations, where the cost of skilled human labor is lower (Lewin et al., 2009; Palvia et al., 2002; Youngdahl & Ramaswamy, 2008). This has contributed to an increasing perception of job insecurity by many IT employees today and has led to a high rate of employee turnover.

2.7 Turnover Intention

Turnover signifies that IT workers leave their present employer to begin working for another employer while remaining in the IT profession (Joseph et al., 2015; Joseph et al., 2007). Employees commonly exhibit this intention when they find their present jobs to be insecure, perceive their current workload to be oppressively high for a protracted period, or find themselves struggling with desperate working conditions (Korunka et al., 2008). In this situation, IT employees actively contemplate leaving their current organization to seek employment elsewhere (Joseph et al., 2012; Guimaraes & Igbaria, 1992). In many countries where the IT employee turnover rate is high, employees explore job openings as well as find new jobs through contacts in their friendship circles. These individuals are highly cognizant of the job market situation in the IT industry and of the work environments of many organizations through the personal experiences of their friends and professional acquaintances (Shih et al., 2013). Furthermore, in many countries where the IT industry is growing rapidly, it is much easier for employees to find new employment opportunities (Lewin et al., 2009; Moore, 2000; Rutner et al., 2008).

In the IT area, a high rate of employee turnover can be extremely detrimental to the operations of an organization for two primary reasons: the shortage of skilled and experienced employees, and the excessive cost of training and orienting new hires to be productive (Guimaraes & Igbaria, 1992). There also exists evidence of a direct relationship between job satisfaction and turnover decisions of employees (Chen et al., 2011). The extremely high demand for IT projects today further necessitates the retention of IT professionals. Therefore, the chronic shortage of skilled IT personnel is a major concern for many organizations (Moore, 2000), which further underscores the importance of turnover intention.

2.8 IT Career Change or Turnaway

Turnaway signifies the complete abandonment of the IT profession (Armstrong et al., 2015; Joseph et al., 2015; Oehlhorn et al., 2020). When the mounting demands of the IT profession place intolerable pressure on employees, they are often forced to take extreme measures by changing their career from IT to something else (Shropshire & Kadlec, 2012). One typical concern among many IT workers is the frequent change in technological trends, with which many employees, especially those of advanced years, cannot cope effectively (Rutner et al., 2008). In order to satisfy the demands of a changing technology-dependent industry, they find it both disturbing and distracting to have to go for frequent upgrades of their technical skills in novel technologies, particularly when many of them are of provisional nature and phase out for lack of support and use (Joseph et al., 2007).

Prior research has found evidence of a supply-demand discrepancy in the IT labor market (Bresnahan et al., 2002). This problem has given rise to difficulties in many organizations in their ability to maintain adequate staffing in IT, as the professionals who are dissatisfied with their present IT careers are likely to look for alternative employment opportunities or leave the IT field altogether (Moore, 2000). Besides concerns for technical competence and security that influence all stages of the career of an IT worker, managerial competence and autonomy become increasingly important as the worker progresses through the later stages of their career (Chang et al., 2011). When these desires remain unfulfilled and the concerns unresolved, employees find alternative career opportunities outside of IT more valuable. A high rate of employee attrition due to IT and business process outsourcing and technological transience has

posed a major psychological challenge and hindrance to many employees who started their professional IT careers with high hopes (Rutner et al., 2008). It is also difficult for many employees, especially the ones with families to support, to spend long hours in the workplace or to work frequent odd shifts, including late evenings and weekends, because of the extreme demands of their jobs (Moore, 2000). Within the software development industry in particular, work-related, psychological, and emotional issues have been found to be the major causes of IT career abandonment (Colomo-Palacios et al., 2014). These issues involve effort-reward imbalance, perceived workload, emotional exhaustion, and burnout. Sometimes, internal politics, infighting, hostile work environment, and a lack of resources aggravate the conditions of the IT workers (Colomo-Palacios et al., 2014). Increasingly, over the past decades, many IT employees have started to leave the industry, feeling disgruntled at the way their demanding IT jobs have come to control their lives and personal wellbeing. At a certain stage in their career, they look for ways to settle down to jobs with more stability, security, and peace in life.

2.9   Friendship/Social Circles

The success of most creative work and intellectual endeavors is contingent on the effectiveness of the processes of exploration, generation, mixing, dissemination, and transfer of relevant knowledge among employees (Nahapiet & Ghoshal, 1998). Friendship circles represent the most frequently utilized resource in this regard (Gottlieb & Bergen, 2010; Kadushin, 1968). These circles are the primary source of social support that employees need in easy as well as in difficult times. The strength of the support derives from the nurturing and the consolidation of personal relationships (Mouw, 2006), and it reveals itself in the expression of mutually affective relationships (Gottlieb & Bergen, 2010). The support is critically important to the well-being of the IT workers because it attenuates the debilitating effects of various work-related stressors. It also gives them a feeling that they are cared for, respected, and valued in the organizational environment (Kirmeyer & Dougherty, 1988).

The affect theory of social exchange (Lawler, 2001) posits that the degree of utilization of this rich source of support by employees is heightened when there is reciprocity in the relationships. Most frequently, the relationships are affect-based and are not driven simply by common exchanges of materials or services. In particular, the majority of affect-based social exchanges are founded upon a strong bedrock of emotional content, which is why such relationships are strategically groomed and carefully reciprocated by employees (Lochner et al., 1999). Personal connections help employees effectively deal with changing work conditions that give rise to the anticipation of uncertain outcomes in their activities and tasks (Zimet et al., 1988). In this regard, not only do close personal contacts of employees prove beneficial for various professional engagements and opportunities, but also contacts with distant acquaintances frequently turn out to be even more useful in their search for new employment opportunities and ultimately finding the right jobs for themselves (Granovetter, 1973). Prior research has shown that mutual feelings and exchanges of this nature are prevalent among employees working in organizations that are involved in complex IT innovation for their clients or where firms work on outsourced projects that are unconventional or atypical in design and development (Lewin et al., 2009; Youngdahl & Ramaswamy, 2008).

3   Methodology[5]

Data used in the present study were collected as part of the World IT Project. The details of this project, including its structure, function, and major challenges, can be found in Palvia et al. (2021, 2020, 2018, 2017). Briefly, a core team of five IS researchers based in the U.S., Canada, Turkey, and India and a supporting group of more than 80 investigators in 37 countries collected data from IT workers, using a survey instrument containing 160 items prepared by the core team[6]. The countries represented major regions of the world with different cultures, economic growth patterns, religions, and political systems. For some countries, the survey instrument was translated into the local language and then back-translated into English to ensure accuracy. Pilot tests were conducted to refine the instrument. For the majority of the countries in our sample, a minimum of 300 data points were collected.

The cleansing process of the raw data included eliminating all response categories involving non-IT workers, incorrect numeric ranges, "straight-lined" patterns, and incomplete entries. Eventually, 10,386 useable data points were obtained. Nine constructs for the most salient individual issues of IT workers were identified, based on an extensive survey of the relevant IS literature, as described above.

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[5] All statistical analyses in this study were performed with the STATA 16 and SPSS 26.0 packages.
[6] All data is survey based. No qualitative interviews were conducted with IT professionals who completed the survey.

Measurement items for each construct were adapted from the literature. Each item was rated by every respondent on a 5-point Likert-type scale, with 1 representing "most important" and 5 representing "not important." Factor analysis (FA) was performed for each of the nine constructs. Single-factor solutions were generated in each case. Tests of convergent and discriminant reliability were also conducted. Employing the factor scores computed for each of the constructs, ANOVA tests were performed for the countries divided into three groups according to their economic classification to examine whether the mean for each construct differed significantly between these groups. The scales employed in the measurement of the constructs characterizing the individual issues of the IT employees are summarized in Table A1, included in Appendix A.

4 Analysis and Results

4.1 Descriptive Statistics, Reliability, and Validity

All respondents who provided data for the World IT Project represented workers from the IT profession and came from diverse backgrounds. The common IT roles included systems designer and analyst, programmer, project manager, database designer, and system administrator. Sample demographic information is presented in Table 1.

Table 1. Demographics

Age		Education		Work Experience		IT Experience		IT Role		Gender	
< 18	0.0%	High School or less	7.6%	0 – 4	23.0%	0 – 4	28.6%	Programming	17.9%	Men	72.3%
18 – 20	3.0%	Associate (2-year degree) or some college	12.9%	5 – 9	23.9%	5 – 9	28.2%	Design & Analysis	9.7%	Women	27.0%
21 – 29	32.5%	Bachelor's	48.1%	10 – 19	27.4%	10 – 19	26.9%	Mgt & Strategy	7.7%	Missing	0.7%
30 – 39	32.2%	Master's	28.8%	20 – 29	16.6%	20 – 29	13.5%	Project Mgt	7.1%		
40 – 49	20.3%	Ph.D.	2.4%	>= 30	8.7%	>= 30	4.8%	System Admin	6.8%		
50 – 59	9.8%	Missing	0.1%	Missing	0.3%	Missing	0.1%	Operations	6.4%		
>= 60	2.2%							Consulting	4.6%		
Missing	0.0%							Database Admin	3.7%		
								Telecom	3.5%		
								Other	31.7%		
								Missing	0.9%		

Before performing FA, we assessed the multivariate normality of data using Mardia's skewness and kurtosis tests along with Henze-Zirkler and Doornik-Hansen tests. At 95%, all the data were found to be multivariate normal and therefore ready for FA. The individual issues along with their relevant metrics are summarized in Table 2.

<p style="text-align:center">Table 2. Individual Issues of IT Professionals</p>

Individual issues	KMO	Alpha	AVE	CFI	RMSEA	SRMR	COD
Job satisfaction	0.67	0.79	0.71	0.98	0.01	0.01	0.85
Work overload	0.76	0.80	0.63	0.96	0.04	0.03	0.84
Work-home conflict	0.71	0.84	0.75	0.98	0.01	0.01	0.86
Work exhaustion	0.81	0.88	0.74	0.97	0.03	0.03	0.89
Self-efficacy	0.80	0.83	0.66	0.99	0.04	0.03	0.83
Job insecurity	0.67	0.76	0.69	0.99	0.01	0.01	0.83
Turnover intention	0.61	0.60	0.56	0.96	0.03	0.04	0.69
IT career change	0.60	0.65	0.60	0.98	0.02	0.01	0.77
Friendship circles	0.63	0.60	0.55	0.98	0.02	0.01	0.62
Notes: KMO: Kaiser-Meyer-Olkin measure of sampling adequacy. Alpha: Cronbach's alpha for scale reliability. AVE: Average variance extracted. CFI: Comparative fit index. RMSEA: Root mean squared error of approximation. SRMR: Standardized root mean squared residual. COD: Coefficient of determination.							

To test for construct validity, we performed FA on the items in the measurement scales in order to revalidate their legitimacy by ensuring that the items loaded strongly on their associated constructs. We measured each of the nine constructs by employing the scales taken directly from the published literature cited in Section 2 and also summarized in Table A1. For each, we found single-factor solutions, which substantiated construct validity and provided adequate justifications for using them in our study. Furthermore, we ran FA separately for each of the 37 countries in our sample and again found a dominant single-factor solution in each case, as it was also for the pooled sample (Table 3). Table A2 (Appendix A) exhibits the country-wise item loadings and also indicates ranges for the model fit parameters.

<p style="text-align:center">Table 3. Item Loadings</p>

Individual Issues	Item Loadings
Job satisfaction	0.868, 0.887, 0.764
Work overload	0.756, 0.766, 0.854, 0.796
Work-home conflict	0.849, 0.899, 0.854
Work exhaustion	0.865, 0.890, 0.824, 0.858
Self-efficacy	0.787, 0.844, 0.822, 0.787
Job insecurity	0.764, 0.876, 0.851
Turnover intention	0.752, 0.670, 0.813
IT career change	0.819, 0.631, 0.848
Friendship circles	0.705, 0.780, 0.747

Because the World IT Project data sample involved observations from many countries, we conducted analyses of measurement invariance (Borsboom, 2006; Kim et al., 2017; van de Schoot et al., 2012) across all 37 countries in our sample. It was neither practical nor useful to perform the analyses by comparing the 37 countries pairwise. Moreover, invariance analyses applied to many pairs of countries invites unwanted complications, including, for instance, false invariance assignments due to numerous pairwise comparisons and tight model fit criteria (Kim et al., 2017). We, therefore, performed the analyses by forming three groups of countries in accordance with their economic classifications described below (Tables 4 and 5): High-income; Upper-middle income; Lower-middle income. We first conducted a form or configural invariance test to ensure the same factor structure for all countries (Meitinger, 2017). At this stage, we did not examine whether the means of the latent variables were the same or different across countries. Our results showed a $\chi^2(1107) = 16439.48$, $p < 0.001$; RMSEA = 0.05; CFI = 0.97. The form-invariance fit is convincing, with statistically significant and substantial loadings. A likelihood ratio (LR) test performed by comparing this model with a single-group model (which, by the way, is nested in the form-invariance model) with a $\chi^2(1359) = 23092.77$, $p < 0.001$ produced a chi-squared difference with $\chi^2(252) = 6653.29$, $p < 0.001$. Thus, it is clear that a form-invariant model fares significantly better than one in which all model parameters are constrained to be equal across all three groups of countries. Next, for all of the constructs, we conducted a metric invariance model constraining equality of factor loadings. In this case,

we found a significant chi-squared; the fit was also excellent: $\chi^2(1149) = 17053.72$, $p < 0.001$; RMSEA = 0.03; CFI = 0.99. An LR comparison test with the previous form-invariance model gave a chi-squared difference with $\chi^2(42) = 614.23$, $p < 0.001$. We did not think it reasonable to constrain both factor loadings as well as error variances of the latent variables, because country-specific peculiarities responsible for measurement errors in the indicator variables could not be captured by our data collection processes. However, we applied the tightest scalar invariance test that constrains equality of intercepts in addition to that of loadings. This produced a $\chi^2(1209) = 19161.47$, $p < 0.001$. An LR comparison test with the metric model generated a chi-squared difference given by $\chi^2(60) = 2017.75$, $p < 0.001$. This gives us confidence in the metric model for all subsequent analyses. Furthermore, we computed composite reliability estimates (not reported here) by calculating the total variation in the concerned scale of items associated with the true score of the factor. A high value of the estimates guaranteed that a large fraction of the variation in the scale has been accounted for, because the factor itself was assumed to represent the true score.

4.2 Individual Country Findings

4.2.1 Rank Analysis

Table 4 displays the ranks of the nine individual issues across all 37 countries, with the top three positions identified in bold and the bottom three positions underlined. The ranks of the issues were computed in two ways: using factor scores and using item means. A very slight difference was observed between the two procedures (in two pairs of countries at most). The results in Table 4 correspond to the ranks computed by employing the factor scores of the individual issues. A lower value maps to a higher rank and thus signifies a higher level of importance for the concerned issue. In addition, all 37 countries are classified by their economic levels using the 2018-19 World Bank classification scheme[7] (WBDB, 2019) using the Gross National Income (GNI) per capita into four income groups: high, upper-middle, lower-middle, and low. This classification employs the Atlas method[8], in which exchange rate fluctuations are smoothed out by a 3-year moving average, price-adjusted conversion factor. The high-income group had 17 countries, the upper-middle group had 13, and the lower-middle income group had 7. No country in our dataset lies in the low-income group. Furthermore, we based the GNI per capita on purchasing power parity (PPP) for each country from the World Bank database (WBD, 2019). Figures for Taiwan[9] were not available in this database; they were retrieved from Index Mundi (2019).

Table 4. Ranks of All Thirty-Seven Countries on Individual Issues of IT Professionals

Country	Job satisfaction	Work overload	Work-home conflict	Work exhaustion	Self-efficacy	Job insecurity	Turnover intention	IT career change	Friendship circles	GNI per capita PPP ($)
Argentina	9	16	29	31	18	32	4	<u>36</u>	9	20,250***
Bangladesh	23	**1**	**3**	13	19	5	13	5	6	4,040*
Brazil	13	20	31	29	6	17	28	32	7	15,200**
Canada	24	19	18	14	26	11	24	15	28	46,070***
China	<u>35</u>	15	5	20	31	4	11	14	23	16,760**
Egypt	15	27	9	4	**2**	19	16	23	**1**	11,360*
Finland	22	13	25	33	17	27	21	29	25	45,400***
France	32	6	6	15	22	12	10	13	33	43,790***

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[7] Based on the Gross National Income per capita and using the Atlas method, the World Bank classifies countries into four income categories: high, upper-middle, lower-middle, and low. The Atlas method serves to smooth out exchange-rate fluctuations by employing a 3-year moving average, price-adjusted conversion factor. Using the 2018-19 classification scheme (WBDB, 2019), we placed each of the thirty-seven countries in a single category. Without a country in our dataset in the low-income category, we ended up with the following 3-category classification: high, upper-middle, and lower-middle.

[8] The classification scheme of the Atlas method (WBDB, 2019) is not strictly according to GNI per capita. Because of this, Argentina falls in the high-income group, and Jordan in the upper-middle income one.

[9] Taiwan's political status is somewhat contentious. While some countries recognize Taiwan as an independent country, others do not. We list Taiwan separately, primarily because it has its own sovereign government and functions independently of any other country.

Table 4. Ranks of All Thirty-Seven Countries on Individual Issues of IT Professionals

Germany	19	_36_	28	25	13	_37_	17	_37_	32	51,680[***]
Ghana	34	26	20	16	23	20	15	**1**	12	4,280[*]
Greece	20	10	16	17	25	29	33	20	13	27,620[***]
Hungary	12	31	15	23	14	34	_35_	30	29	26,960[***]
India	**1**	34	_36_	_36_	**1**	_36_	_36_	_35_	**2**	6,980[*]
Iran	_37_	9	13	5	_37_	14	**1**	**2**	_36_	20,880[**]
Italy	16	12	14	22	20	23	_37_	19	11	39,640[***]
Japan	_36_	22	12	12	_35_	8	29	10	_37_	44,850[***]
Jordan	21	11	11	7	10	16	7	8	19	9,110[**]
Lithuania	5	33	_35_	32	28	30	25	28	27	31,910[***]
Macedonia	17	25	23	24	15	26	8	22	8	14,680[**]
Malaysia	29	5	8	9	29	**1**	14	4	4	28,660[**]
Mexico	**3**	_35_	33	27	4	18	6	33	16	17,840[**]
New Zealand	8	28	32	26	8	22	19	27	22	39,740[***]
Nigeria	25	**2**	**2**	**1**	24	7	5	25	**3**	5,700[*]
Pakistan	30	**3**	**1**	**2**	11	**2**	9	6	5	5,830[*]
Peru	7	32	_37_	_37_	**3**	28	27	21	20	12,880[**]
Poland	4	_37_	34	_35_	32	13	31	18	34	27,970[***]
Portugal	6	7	26	28	16	_35_	30	31	18	30,980[***]
Romania	10	30	30	34	12	21	26	11	15	25,940[**]
Russia	14	18	22	18	34	25	12	16	31	24,890[**]
South Africa	18	21	21	19	9	31	22	26	17	13,090[**]
South Korea	26	8	7	**3**	_36_	**3**	32	7	_35_	38,340[***]
Taiwan	27	17	19	6	21	6	20	17	24	49,800[***]
Thailand	31	4	17	8	30	10	**2**	12	14	17,040[**]
Turkey	28	23	4	11	27	15	23	9	30	26,170[**]
U.K.	11	14	10	10	7	33	18	24	26	42,560[***]
U.S.	**2**	29	27	21	5	24	34	34	21	60,200[***]
Vietnam	33	24	24	30	33	9	**3**	**3**	10	6,450[*]

Notes: [***]: High-income group; [**]: Upper-middle income group; [*]: Lower-middle income group

Employees' overall satisfaction with their current jobs and work activities renders them more productive in the workplace. In this regard, India, the US, and Mexico ranked particularly high. By contrast, employees in Iran, Japan, and China expressed rather low levels of job satisfaction. As is well known, India and Mexico are highly active outsourcing destinations for IT, and the US is a country where many IT innovations are carried out. Iran is noted primarily for its service sector, but in manufacturing, it is also strong. Many Indian product and service companies in IT are commissioned to work on IT projects for their clients based in the US and Western Europe. Job satisfaction also depends on the nature of the IT functions that the professionals are required to execute. An important antecedent of IT job satisfaction is the social and cognitive uses of technology in the job (Shu et al., 2011). Therefore, jobs that involve only routine tasks and activities fail to provide the necessary intellectual stimulation and nourishment that is required for innovative performance by IT workers. The satisfaction derived from these types of jobs is low in countries such as Japan and China which are large manufacturers of products, and the manufacturing sector is highly developed. These countries are not entirely dependent on IT services, and there are a large number of alternative jobs available for workers in both the public and the private sectors. By contrast, India specializes primarily in the service sector, and large manufacturing is relatively less developed.

IT employees who usually perceived more work than they are actually able to cope with often suffer from the pangs of work pressure and, in course of time, are likely to develop symptoms of work exhaustion, such as stress, and anxiety. Perceptions of work overload ranked exceedingly high among IT employees in Bangladesh, Nigeria, and Pakistan, whereas they were quite low among workers in Poland, Germany, and Mexico.

If not addressed adequately and dealt with in a timely and effective manner, the conflict between work and home engagements confronting the everyday life of IT employees may lead to their reduced productivity at work, job stress, and a higher likelihood of developing physical and mental health problems. IT employees in Pakistan, Nigeria, and Bangladesh reported having suffered from a high degree of this conflict in their lives. By contrast, the level of conflict was found to be low in countries such as Peru, India, and Lithuania. Another related issue is the level of physical and mental exhaustion an employee suffers from while being engaged in performing various job-related tasks and activities. Our data indicated that IT employees' work exhaustion was highest in Nigeria, Pakistan, and South Korea and lowest in Peru, India, and Poland.

Even when contending with the adverse elements of job stress, employees possessing high professional self-efficacy are able to maintain adequate levels of productivity with necessary aplomb by acknowledging the difficulties and problems they encounter in their tasks and by considering them as enhancers, rather than inhibitors, of their work experience. Our data provided evidence that India, Egypt, and Peru ranked among the top countries in terms of employee self-efficacy, whereas Iran, South Korea, and Japan figured among the lowest. On the other hand, job insecurity dominates the minds of IT employees when they experience an enveloping sense and a growing concern that their current jobs may be outsourced or entirely eliminated in the near future, making them redundant in the organization. In areas of IT characterized by heightened environmental dynamism and a high rate of technological transitions and innovations, this sense of insecurity is particularly prevalent among IT employees. Our data revealed that employees working in Malaysia, Pakistan, and South Korea were among the highest to have been troubled by feelings of job insecurity and the uncertainty of continued employment. By contrast, employees in Germany, India, and Portugal reported the lowest level of job insecurity.

Retaining existing human capital is crucial for staying competitive. However, while remaining continuously unsatisfied with their current employment, IT workers exhibit a strong intention to change jobs. Oftentimes, such an intention does not signal so much a career change as simply an exploration of new opportunities elsewhere in the IT field. Excessive work pressure, low compensation, and task misfit are known to be among the largest contributory factors leading to turnover intention of IT employees (Guimaraes & Igbaria, 1992; Korunka et al., 2008). The findings indicate that IT employees in Iran, Thailand, and Vietnam exhibited the highest level of turnover intention. By comparison, Italy, India, and Hungary were marked by the lowest degree of turnover intention. At times, however, the job situation may become so extreme in terms of irregularities in work schedules, uncertainties in technological uses and applications, as well as poor adjustments to the prevailing workplace conditions that many IT employees are perhaps left with no alternatives but to leave their current IT jobs to look for a better opportunity in a non-IT field. This issue is particularly pronounced, although not always so when there exists a strong feeling of insecurity among the IT employees in terms of their survival in the current field. However, career change for them may not be a viable option and is often not uniformly smooth or painless (Chang et al., 2011). In particular, it can be especially difficult when there are meager opportunities available to make the move to other non-IT fields with comparable remuneration packages and benefits. Our results showed that the highest tendency to change their current IT careers existed among the IT employees in Ghana, Iran, and Vietnam. By comparison, IT employees working in firms in Germany, Argentina, and India seemed to be most stable in their jobs in the IT industry.

Employees' friendship circles constitute a highly potent source of their social capital (Nahapiet & Ghoshal, 1998), which they harness in order to access actual or potential resources required to solve specific problems or to overcome difficulties encountered in their current tasks and activities. Our data suggested that the effect of friendship circles on IT employees was uniformly prominent for employees working in Egypt, India, and Nigeria, while in countries such as Japan, Iran, and South Korea, its utilization was the lowest. Furthermore, with a large IT market and a vibrant community of IT professionals in India, the country remains the top choice among offshoring destinations for client firms based in developed economies (Luo et al., 2010; Zaheer et al., 2009). As Table 4 shows, India does emerge as a top performer in the ranking of the nine individual issues of IT workers in the world.

4.2.2   Economic Classification Analysis

IT workers' individual issues depend to a considerable extent on the external economic environments of their organizations. Earlier researchers have found evidence of variations of IT-related issues among countries characterized by differing levels of their economic prosperities (Heeks, 2010; Palvia et al. 2002). For example, in most countries of the developed world, IT is already well-established, and IT development and innovation activities have been underway for the past several decades now (Ives & Jarvernpaa 1991; Palvia et al., 2020). By contrast, in the majority of the countries in the developing world, the advent of IT and its entry into the economy is a fairly recent development (Kozma & Vota, 2014). Naturally, therefore, individual issues of IT professionals are expected to differ across these groups of countries. On the other hand, many countries of the developing or transitional economies quickly built ITC infrastructure and developed IT employee skills to compete in the world market (Houghton, 2010). In recent years, employees in these countries have become highly competent in the IT field with improved productive capacity (Palvia et al., 2020). It is therefore conceivable that their individual issues might reflect some commonalities with those of IT employees in the developed world.

It is a rather daunting task to perform an exhaustive, comparative analysis of the individual issues at the global level across all 37 countries in our dataset. Even when executed, such an analysis might not have many practical or economic implications for the global situation. Therefore, as mentioned earlier, we found it more pragmatic to categorize the countries by their economic levels based on a classification scheme used by the World Bank. This categorization allows us to see how the individual issues rank among the 37 countries that are classified according to the levels of their economic development. Table 5 displays this information.

Table 5. Ranks of Individual Issues by Economic Classification of Countries

Country groups / Individual issues	High-income	Upper-middle income	Lower-middle income
Job satisfaction	3	2	1
Work overload	1	2	3
Work-home conflict	1	2	3
Work exhaustion	1	2	3
Self-efficacy	2	1	3
Job insecurity	1	2	3
Turnover intention	1	3	2
IT career change	1	2	3
Friendship circles	1	2	3

In our sample, the job satisfaction of IT employees is highest in the lower-middle income group of countries. In the majority of these countries, the entry of IT in the economy is a fairly recent development, with higher levels of salary and job variety compared with those in most other traditional fields of employment. Information and communication technologies (ICT) have also contributed significantly to leapfrogging, whereby many processes that lead to the development of employee capabilities and firm investments are bypassed (Steinmueller, 2001). This helps to considerably reduce the gaps in the productivity of employees and their output that draws clear lines of demarcation between high-income, industrialized countries and developing nations in the lower-middle income group (Steinmueller, 2001). Moreover, because of the somewhat late entry of ICT in the latter group of countries, their governments and private organizations perceive ICT as a catalyst for rapid economic development and, therefore, make large investments in educational ICT to train their IT workforce (Houghton 2010; Kozma & Vota, 2014). This has made the workers more enthusiastic about or receptive of newer forms of employment opportunities in ICT. By comparison, many real instances of offshoring of ICT jobs as well as a growing premonition of job loss have made employees in an increasing number of firms in the high-income group of countries uneasy and concerned about the stability of their jobs (Ashford et al., 1989; Geishecker et al., 2012). Moreover, employees working in high-income countries have already witnessed the emergence of a wide variety of IT applications over a longer period and have, in all probability, experienced frequent instances of obsolescence or failure of many IT innovations than most employees in the countries in the other two categories (Shao & David, 2007). Having spent a longer span of time experiencing the transience of many innovations in IT, their personal satisfaction with IT jobs has considerably deteriorated over the years. Consequently, working under adverse conditions with higher levels of work overload, work-home conflict, and work exhaustion, IT employees in high-income countries have increasingly grown

more dissatisfied with their jobs over time (Palvia et al., 2021a). This has also contributed to turnover intention of their employees, and even to decisions on IT career change in extreme cases.

Alongside job-related difficulties experienced by many IT employees in the high-income group of countries, overall job insecurity in these countries is also higher than it is in the countries in the other two groups. The primary job-related concern for the IT employees working in high-income countries seems to be the outsourcing of many IT jobs to low-cost offshore (often, remote) vendors and service-providing companies located in countries of developing or transitional economies (Tjader et al., 2010; Youngdahl & Ramaswamy, 2008). In particular, job insecurity is found to be the lowest in the lower-middle income group of countries, where implementations of IT applications and industrial IT automation depend, to a considerable extent, on the technical skills of software engineers and design architects. With huge investments in IT by both the public and the private sectors of these countries and with a mature stock of human capital, a large number of IT companies in the lower-middle countries thrive on contracts with firms based in the high-income countries (Gurung & Prater, 2017).

4.2.3 Relationships Among Issues: Correlational Analysis

Table A3 (Appendix A), lists all the correlations, significant at $p < 0.05$ or $p < 0.10$, among the nine individual issues of IT workers for every country in our sample. A number of correlations among the nine individual issues of IT workers are particularly interesting. Consider, for example, the countries such as Bangladesh, France, Ghana, Japan, Mexico, New Zealand, Pakistan, Poland, Portugal, Thailand, Turkey, and South Africa. Notice a moderately strong correlation between the IT employees' dependence on or the use of their friendship circles and some of the other individual issues. In particular, friendship circles are found to be positively correlated with self-efficacy but negatively correlated with job insecurity. In addition to the intellectual stimulation that employees receive by working on many challenging tasks and problems in their regular job activities, a significant part of their job satisfaction comes from a feeling of fulfillment through diverse interactions within their friendship circles. These include not only their friends from outside the organization but also coworkers, colleagues, and other acquaintances in the workplace with whom they interact on a regular basis either face-to-face or virtually. As Table A3 shows, for a number of countries, there is indeed a positive correlation between friendship circles and job satisfaction.

On the other hand, when employees find it difficult to balance life between work and home, presumably due to excessive work pressure or multiple job-related engagements, they are able to spend less time on their social interactions. Accordingly, this signifies a negative correlation between friendship circles and work-home conflict, which is observed in some of the countries in our sample. In addition, when there is excessive work exhaustion, social interactions are less engaging, which indicates that the correlation should be negative in this situation. This is seen to be predominantly the case in most of the countries. However, one may also argue that, when employees suffer from excessive stress at work, they may attempt to release some of it by engaging in social interactions as a form of relaxation through which they look for ways to cope with their present exhausting work situation by seeking advice or help from the contacts in their friendship circles. In this case, the relationship can, in fact, have a positive correlation, which may be the case with France. Given the nuances in this relationship, it may require further exploration in future research.

For almost all countries, job satisfaction is negatively correlated with turnover intention. This is expected because when employees are satisfied with their current jobs, they are less likely to contemplate leaving their organizations to seek employment elsewhere. For countries such as Argentina, Canada, Hungary, India, Mexico, Portugal, South Africa, South Korea, Taiwan, Turkey, and the USA, this effect is not only significant but also particularly strong in practical terms. For the majority of employees, a happy life at home that is well balanced with life in the workplace produces greater job satisfaction. Without proper satisfaction derived from work, a balanced life between work and home is hard to come by. This implies a negative correlation between job satisfaction and work-home conflict, an effect that is observed in the majority of the countries in our sample.

When employees perceive more workload due to tasks to be completed within a stipulated, short period than what they consider appropriate, they devote much more time to finishing pending tasks than to enjoying life at home with families. An aggravated perception of this workload is likely to create more friction and conflict in lives at home. This suggests a positive correlation between these critical concerns for employees. It is particularly prominent, both statistically as well as in practical terms, among the employees working in Brazil, Canada, Egypt, France, India, Jordan, Pakistan, Peru, Poland, Romania, South Africa, South Korea, Taiwan, Turkey, the UK, and the US. Similarly, greater work exhaustion is

likely to make employees stressed, mentally fatigued, and increasingly irritated. This may alter their normal functioning and give rise to the loss of mental peace that comes from a well-balanced work-home life. The implied correlation is positive in this case, and the effect is pronounced in most of the countries.

In a number of areas of IT applications where new products and services are delivered quickly, the jobs of many IT employees are affected by various uncertainties of the associated technologies. Employees who cannot keep pace with the rapidly changing technologies run the risk of being made redundant by their organizational management. Oftentimes, employees in such situations perceive excessive work overload. This is predominantly due to the fact that irregular demands for the products and services cause market instabilities, which force many companies to develop products and services at a rapid pace and bring them to the market within a short time. This sometimes helps companies obviate the need for facing steep competition from other companies offering similar products and services in the same or allied sectors. Nevertheless, such rapid pace of ongoing work in new technological domains causes IT workers to perceive excessive work overload. Employees who are subject to job insecurity also feel the pressure of higher work overload. The relationship between these issues will therefore show a positive correlation. Some countries in our sample (for example, India, Pakistan, Vietnam, and a few others) exhibit this relationship; however, it is not strong in practical terms.

Of the remaining correlations, the one between turnover and career change intentions is the most significant. As we have argued earlier, when the individual issues of IT employees related to mental stress, rapid technological changes in the IT field, erratic demands for novelty in various IT products and services, and job insecurity become increasingly unbearable, workers begin to contemplate a change of career in order to settle down to a more stable, secure, and relatively peaceful field of work. However, a career change necessarily entails a risk for all IT employees, and it is especially high for those in more advanced years. Initially, most employees look for internal transfers within their present organizations, but in situations where such transfers are infeasible, they seek better opportunities in different IT organizations rather than making a complete career change. In general, any observed correlations between turnover and IT career change are not strong in practical terms—perhaps because only a few seek a career change beyond a job change. Nevertheless, the effect is strong in countries where alternative career opportunities are available in other, settled and more mature, fields. In this regard, Pakistan, Poland, and Vietnam exhibit the strongest effects.

Finally, it is important to note that correlations could be also computed for the combined samples of all 37 countries (that is, the entire global dataset). Whereas this approach is certainly feasible, producing correlations for each country individually helped us explain the findings by considering the unique attributes of each country.

4.3 Positioning of Individual Issues

As discussed earlier, the nine constructs for the IT workers' individual issues have already appeared in the IS literature, albeit not together in one study. The results of the present study for the individual issues were obtained at an *exploratory* level of empirical analysis based on our full sample of 37 countries. We uncovered several peculiarities in the nature of these issues and also highlighted a number of counterintuitive features among the various countries. Although these results are highly interesting per se, we emphasize that our analysis does not claim to possess the *explanatory* power that derives only from the consideration of a large, exhaustive model, in which some underlying causal dynamics operating between the individual issues give rise to their observed behavior. Such an analysis, worthwhile as it certainly is, falls outside of the purview of the present paper.

While it may be an ambitious goal, we do not know at this stage whether it is at all possible to formulate a definitive "universal" model of individual issues that is applicable worldwide. Although the nine individual issues show country-specific variations (in terms of average and variance), they certainly constitute important elements of the IT profession of employees all over the world in at least some settings for all of the 37 countries. Therefore, in order to gain a deeper understanding of the individual issues, we propose a number of relationships to position these issues with respect to one another in terms of the specific roles they play in influencing the work and life of IT professionals. Our analysis found some interesting differences among the countries in our sample, and these may indeed reveal some deeper truth when examined in more theoretical depth and with closer empirical scrutiny. For example, in some countries, IT workers' dependence on their friendship circles is critical for both their survival and professional success. In some other countries, it is less so. We acknowledge that the individual differences across countries or

groups of countries depend, most certainly, on country-specific factors as well as on other antecedent variables that influence the individual issues (Alegre et al., 2016).

Although we did not present empirical analysis for the estimation of these relationships for particular groups of countries, such an analysis could reveal true country-wise differences governed by some fundamental dynamics underlying the global nature of these issues. For example, if a particular association between two constructs holds for the high-income group of countries but not for the low-income one, then wealth can function as a lens for creating variations on the general understanding of these constructs. It makes perfect sense to believe that wealth qualifies as a factor because it governs the labor market, general working conditions, the purchasing power of remuneration, and a number of other macroeconomic variables. In such a case, an investigation of the cause of the discrepancy between the two groups of countries might necessitate a change of viewpoint from an IS perspective.

In positioning the individual issues in a nomological network, we relied on theoretical arguments and evidence from existing IS literature and placed them with respect to the endogenous or exogenous roles they play in the various relationships connecting them. Figure 1 schematically displays the general structure of these relationships. The positioning schematic shown in the figure features a simple conceptual framework with which to view the individual issues of the IT professionals in relation to one another. In particular, the scheme leaves out external moderating factors and context-specific controls arising out of political, geographic, regional, socio-economic, and cultural effects.

Most of the proposed associations between the individual issues were supported by our correlation analysis discussed above, although that does not, in any way, indicate evidence of causation. A few expected associations may not even hold for some countries. We attribute the likely causes of this failure primarily to a number of country-specific factors. Therefore, the positioning structure of the individual issues should be considered only as a preliminary version of a more complete picture from a theoretical standpoint. Importantly, all of the individual issues depend on several antecedent factors that have not been considered in the positioning schematic, given the focus and scope of this study. Nevertheless, these variables are important for their influence on the primary individual issues and are best investigated by employing a multilevel model of analysis in terms of the country, the organization, and the individual. That analysis lies beyond the scope of the present investigation. We provide below an explanation and a corresponding proposition for each relationship.
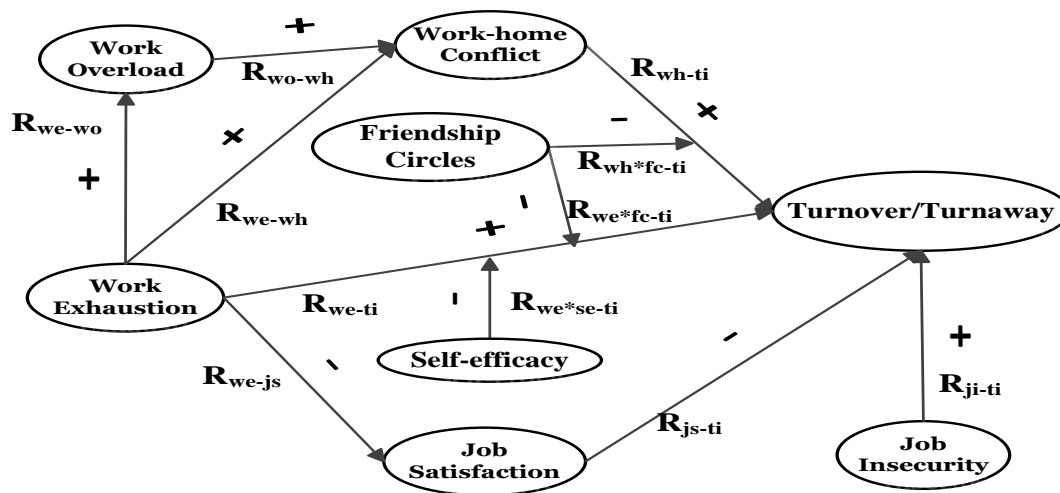

Figure 1. Positioning of Individual Issues

Excessive work exhaustion of IT employees burdened with a heavy load of current tasks and activities adversely affects the level of enjoyment and pleasure that they are able to derive from their work (Moore, 2000). The pent-up stress caused by this exhaustion makes them feel emotionally drained. It saps their power of concentration to carry out mentally strenuous work any further (Kirmeyer & Dougherty, 1988). IT work involving such arduous applications repeatedly over time debilitates IT employees intellectually and quickly leads to their burnout. In turn, it eliminates the pleasure they usually derive from engaging in intellectually challenging activities and results in much reduced satisfaction with their jobs (Michel et al.,

2011). Their level of job satisfaction, therefore, depends endogenously on the amount of work exhaustion they are suffering from in their everyday workplace life. We, therefore, propose:

Proposition 1: Work exhaustion of IT employees is negatively related to their job satisfaction ($R_{we\text{-}js}$).

Furthermore, frequent periods of highly exhausting tasks and multitasking activities that demand long hours of physical presence in the office, odd shifts, and irregular schedules make the minds of employees overly burdened with anxiety and apprehension, severely preventing them from effectively carrying out tasks with requisite vigor and application (Kreiner, 2006). This mental burden leads frequently to a concomitant loss of balance between employees' lives in the workplace and their lives with family at home (Greenhaus & Beutell, 1985). This argument allows us to suggest:

Proposition 2: Work exhaustion of IT employees is positively related to their work-home conflict ($R_{we\text{-}wh}$).

In addition, prolonged work exhaustion is known to cause mental fatigue to accumulate over time in a way that makes employees perceive a higher amount of workload than they are habituated to or find to be acceptable under ordinary conditions (Shih et al., 2013). In reality, a large and significant correlation between work exhaustion and work overload is also governed by a number of exogenous factors (Michel et al., 2011), including, for instance, the nature of the current project, the organizational work environment, and current economic conditions in the home country (ten Brummelhuis & Bakker, 2012). Nevertheless, it is reasonable to expect, ceteris paribus, that the work exhaustion of IT employees endogenously governs their perception of work overload, and the concerned association, in this case, is positive. This allows us to postulate:

Proposition 3: Work exhaustion of IT employees is positively related to their work overload ($R_{we\text{-}wo}$).

Similarly, when IT employees perceive work overload higher than what they can possibly accommodate during their regular working hours, they begin to spend more time at work to finish their tasks and assignments and much less time at home with their families (Ply et al., 2012). Over time, this growing perception of work overload will unsettle them and destabilize the balance of their life at work and at home, giving rise to an increasing level of work-life conflict. This suggests a positive relationship between the work overload perceived by IT employees and their work-home conflict. Hence:

Proposition 4: Work overload of IT employees is positively related to their work-home conflict ($R_{wo\text{-}wh}$).

Therefore, in addition to the direct association postulated between work exhaustion and work-life conflict, it is also possible to think of an indirect relationship between these two constructs mediated by an IT employee's perception of work overload. We list it as a separate proposition:

Proposition 5: The positive relationship between work exhaustion and work-home conflict of IT employees is mediated by their work overload ($R_{we\text{-}wo}$ * $R_{wo\text{-}wh}$).

In the IT field where market technologies, as well as client requirements for products and services, are changing rapidly, major burdens involving job-related difficulties, demands for frequent skill enhancement, and multiple unanticipated adjustments cause work exhaustion of the IT workers to grow to a level that may eventually appear to be overwhelming and insuperable to them (Michel et al., 2011). If such difficult situations in the workplace appear unlikely to improve in the future, employees will begin to lose hope and attempt to leave the job in their current organization to seek employment opportunities with more favorable working conditions elsewhere within or outside the IT profession. This leads us to postulate:

Proposition 6: Work exhaustion of IT employees is positively associated with their turnover/turnaway intention[10] ($R_{we\text{-}ti}$).

In addition to the direct effect, turnover and turnaway intention of IT employees may also arise indirectly through their increasing work-home conflicts as a result of excessive mental and physical strain caused by stressful work or from their perceptions of heavy workload. Over time, an aggravating disequilibrium

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[10] IT career change or turnaway may be considered an extreme form of turnover intention of IT employees. However, for a detailed empirical estimation of the various relationships, it is necessary to include more antecedents to the variables shown in Figure 1. In particular, antecedents for turnaway may differ somewhat from those of turnover (Joseph et al., 2012; Oehlhorn et al., 2020).

between their life at work and their life spent with their families at home may give rise to heightened tension, anxiety, burnout, alienation, and family troubles (Michel et al., 2011). The ideal of a happy family life that is severely compromised by the growing strain arising from a prolonged physical presence in a mentally taxing work environment will make employees progressively disenchanted with their IT jobs or the entire IT profession (Kreiner, 2006). When stress builds up over a period of time to such an extent that it eventually becomes unbearable, an employee, perceiving an increasingly higher workload, will make attempts to look for IT or non-IT jobs in other organizations where working conditions are more conducive to keeping a well-adjusted balance between work and family (Greenhaus & Beutell, 1985; Moore, 2000). Therefore, we postulate the relationship:

Proposition 7: The positive relationship between work exhaustion and turnover/turnaway intention of IT employees is mediated by their work-home conflict ($R_{we-wh} * R_{wh-ti}$).

IT employees may be actuated to leave their current jobs by additional concerns of insecurity or instability in the IT field itself (Youngdahl & Ramaswamy, 2008). The turnover/turnaway issue, therefore, is completely endogenous to these aggravating circumstances typical of the IT field in an IT employee's professional life. However, in many countries, jobs within the IT field itself show a lot of variations (Korunka et al., 2008). For example, some types of jobs are comparatively more stable, and some work environments are relatively more peaceful than others that are marked by steep competition, career insecurity, high employee attrition, and an aggressive rough-and-tumble culture (Rutner et al., 2008; Shropshire & Kadlec, 2012). Many employees who suffer for a prolonged period from the vicissitudes of professional life in the IT field are particularly prone to leave their current organization to seek employment elsewhere in more congenial working environments within or outside IT. This leads us to hypothesize:

Proposition 8: Job insecurity of IT employees is positively associated with their turnover/turnaway intention (R_{ji-ti}).

Unfortunately, organizational management often fails to react to and remedy problems related to employees' dissatisfaction with their jobs arising out of their prolonged work exhaustion and mental stress (Guimaraes & Igbaria, 1992; Moore, 2000). As the feeling of job burnout or dissatisfaction grows over time, and employees begin to perceive no immediate prospects of improvement in the current situation, they attempt to change jobs or their field to find a new workplace with a congenial working environment. We therefore postulate:

Proposition 9: Job satisfaction of IT employees is negatively related to their turnover/turnaway intention (R_{js-ti}).

Ceteris paribus, it is possible, therefore, to envisage two critical paths through which work exhaustion can influence turnover intention of IT employees. A direct path (R_{we-ti}) and an indirect one that is mediated by employees' job satisfaction ($R_{we-js} * R_{js-ti}$). It is likely that the mediated path is more influential than the direct path because job satisfaction (or dissatisfaction, as the case may be) acts as the endogenous latent variable that generates employees' intention to look for employment elsewhere. By contrast, the direct effect is likely to be less strong in most practical situations, because employees must first undergo a strong internal change of mental state before they can actively contemplate leaving their current organization or field to work elsewhere. We list the mediated path in a separate proposition:

Proposition 10: The relationship between work exhaustion and turnover/turnaway intention of IT employees is mediated by the level of satisfaction with their current jobs ($R_{we-js} * R_{js-ti}$).

There is a strong influence of the dependence on the social circles of friends and professional acquaintances of IT employees on the way in which employees deal with problems associated with their work exhaustion or work-home conflict leading eventually to their turnover intention (Nahapiet & Ghoshal, 1998). On the psychological side, this network helps them to contend effectively with many problems caused by accumulated personal stress in their current jobs (Frone, 2000). Fundamentally, it works as a channel for relieving employees' pent-up frustration or anger through friendly chats and informal discussions (Kadushin, 1968; Weiss, 1974). On the practical side, it helps them to develop social capital that may be useful for their career advancement and growth (Mouw, 2006). In particular, the social network of friends and acquaintances furnishes them with valuable information about marketable IT skills, IT job opportunities in other organizations, and helpful professional contacts for exploring prospective matches between their IT skills and various job requirements currently available (Gottlieb & Bergen, 2010). Our data reveal that, in a number of countries, the dependence of IT employees on their friendship circles and networks is quite strong. Friendly discussions with circle contacts help employees to find

effective means to minimize the ill effects of work exhaustion. Work-home conflict is also common among many IT employees today. Besides those who suffer from regular stressful hours in the workplace, it also arises in employees who work odd hours and irregular shifts or in those who have to undertake extensive business travels and tours or to work at client sites for long periods (Shih et al., 2013). Helpful discussions with friends and acquaintances within the circle help these employees find effective ways to restore a balance between their lives in the office and their family-life at home. Therefore, IT employees' dependence on their friendship circles works in moderating the strength of both the positive associations between work exhaustion and turnover/turnaway intention and between their work-home conflict and turnover/turnaway intention. Therefore, we make the following two propositions:

> Proposition 11: IT workers' dependence on their friendship circles moderates the relationship between their work exhaustion and turnover/turnaway intention ($R_{we*fc-ti}$). In particular, the positive association between the two is reduced by higher friendship circle dependence.

> Proposition 12: IT workers' dependence on their friendship circles moderates the relationship between their work-home conflict and turnover/turnaway intention ($R_{wh*fc-ti}$). In particular, the positive association between the two is reduced by higher friendship circle dependence.

IT workers often have to contend with diverse challenges unique to the IT field (Hoisl et al., 2015). These include, for instance, new technologies, information systems innovations, customer demands for novel products and services, client support and maintenance services round the clock, and so on. With the concomitant increase in work pressure and exhaustion resulting from long work hours, many IT workers begin to suffer burnout and contemplate future job or field changes (Moore, 2000). Nevertheless, a redeeming feature of their work lies in the level of professional self-efficacy with which they perform their job functions and technical operations with high effectiveness (Cupertino et al., 2012). When the efficacy is high, IT workers are able to deal with highly exhausting work and extenuating circumstances with confident composure and self-assurance (Cherniss, 1993). Such employees may not, therefore, have immediate turnover/turnaway intention. Their self-efficacy ameliorates the debilitating effect of work exhaustion to a considerable extent, making them much less prone to initiating moves for IT employment elsewhere. On the other hand, workers who do not possess self-efficacy may be burdened more with their present work responsibilities and pressing demands for duty. They may, therefore, be more likely to seek employment elsewhere with serious determination. Therefore, IT workers' self-efficacy functions to moderate the relationship between work exhaustion and turnover intention, mitigating the strength and the immediacy of the sentiment and subsequent reaction to change jobs. Thus, we posit the following proposition:

> Proposition 13: IT workers' level of self-efficacy moderates the relationship between their work exhaustion and turnover/turnaway intention ($R_{we*se-ti}$). In particular, the positive association between the two is reduced by higher self-efficacy.

The positioning scheme shows, at a high level, how the roles of the various constructs could be logically connected in the profession of IT employees all over the world in some settings. Of course, it is expected that a few of the relationships will hold more strongly than others for some countries, for men or women IT employees, or for some other classes of factors. It's also quite conceivable that some of the associations will not be found significant for some countries. Although we did not perform an exhaustive empirical investigation of the nomological structure of the model, we did conduct a few preliminary studies of some of the associations in the model[11]. One interesting observation pertains to the relationship between job satisfaction and turnover intention. For the three income groups of countries considered in this study, we executed regressions for this association, controlling for a number of demographic variables of the IT employees. In all three income groups, we found the relationship to be highly significant, both statistically as well as practically. In the lower-middle income group, the relationship is the weakest (*β=-0.42; p<0.001*). It is much stronger (*β=-0.51; p<0.001*) in the upper-middle income group and the strongest (*β=-0.58; p<0.001*) in the high-income group. The weakest relationship seems to point to the observation that the number of equivalent paying jobs is much scarcer in the lower income group of countries than those in the other two groups.

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[11] We greatly thank the Editor-in-Chief of the Communications of the Association for Information Systems for making this excellent suggestion to us. There is much scope of work in this direction, and major computational efforts are currently underway.

5   Discussion

5.1   Theoretical Considerations

On theoretical grounds, IT professionals all over the world share a number of fundamental issues that are of vital importance to their present career, current work effectiveness, family life and personal relationships, as well as their sense of organizational belonging. In this study, we have examined nine such issues for IT employees across 37 countries. These issues show specific individual variations for the countries where the workers perform their job operations in their organizations.

Diverse innovations and breakthroughs that continue to happen in the IT industry continually move into uncharted territories and encounter numerous blind avenues and dead ends before becoming fully mature. As a result, the high-tech sector itself suffers from these frequent instabilities (Hoisl et al., 2015). It is, therefore, a characteristic of the IT profession that workers have to frequently contend with the transience or obsolescence of many IT technologies. The very nature of their jobs forces them, therefore, to keep acquiring new skills and developing expertise in previously unseen domains of knowledge in order to keep their current jobs secure and to stay competitive in the job market. Oftentimes, this can result in a substantial amount of job stress and exhaustion as well as increasing deterioration in the balance between family and professional lives (Shih et al., 2013).

Social exchange theory posits that social relationships among human individuals frequently transcend commonplace exchanges of goods and services and are more deeply embedded in affect-based, emotional bonds between them (Lawler, 2001). For IT workers, these exchanges constitute the primary stock of their social capital, on which they depend during difficult times or periods of personal trials and professional tribulations. The strong bonds of friendship circles are known to alleviate such problems (Nahapiet & Ghoshal, 1998). In particular, in situations where IT workers suffer from excessive work overload and exhaustion due to the highly dynamic nature of their tasks, they tend to rely more on psychological support from social relationships with their colleagues, friends, and professional acquaintances to cope with this stress (Lin & Erickson, 2008). In support, our study found that, in a number of countries where employees maintain active friendship circles, there is a high level of job satisfaction and professional self-efficacy. Although these social relationships are culturally embedded in the very fabric of the societies in different countries (Gottlieb & Bergen, 2010), we found revealing evidence of a near universality of this reliance of IT employees on their social capital and the support they derive through these circles.

Our findings indicate that there is greater job insecurity among IT employees in the high-income countries. A large number of firms headquartered in these countries have, over the years, been outsourcing their IT projects to low-cost, offshore vendors and service providers (Palvia et al., 2020; Palvia et al., 2017; Tjader et al., 2010). Although managers of these firms primarily regard this strategy as a cost-cutting measure, it has, nevertheless, instilled a sense of job insecurity in the minds of their employees (Palvia & Palvia, 1992; Silla et al., 2009). Besides, many IT employees, particularly as they become more advanced in years, have found it difficult to keep pace with the demands of new skill development in phase with the rapid technological changes in the field. Similarly, employees who have spent a long span of their IT career on one specific technology often exhibit reluctance and slowness in their uptake of newer technologies. In extreme cases, IT employees may even contemplate a career change.

Employees who possess high self-efficacy in their IT profession are frequently known to proactively learn new skills, acquire new knowledge, and complete professional certification courses in new technologies in order to remain active in their current jobs as well as to stay market-ready at all times. They, therefore, suffer much less from work-related overload and exhaustion in their jobs than others who are more resistant to change or to learning new technological skills. There is, therefore, a steady demand for high-efficacy individuals in the IT job market. The nine individual issues examined in this study, therefore, provide, among themselves, an extensive coverage of the most critical aspects of the professional life of an IT worker.

5.2   Practical Implications

Our findings have important implications for managers and global IT practitioners. This study shows that, in today's globalized IT undertakings, it is essential that strategic business decisions be made by organizational management with a thorough understanding of the nature of the issues that affect the IT employees in the different countries of the world. This study points out that, while there are many

similarities in the characteristics of these issues at the individual employee level, there are also a number of dissimilarities across different countries. Understandably, these variations arise from a complex combination involving a multitude of societal, cultural, economic, political, and religious factors that characterize the organizations and the countries where IT employees perform their operations.

In most of the countries of the lower-middle income groups as well as in many developing nations, a large number of IT jobs are being created in recent times (Palvia et al., 2020). Social media and cloud computing are also becoming highly active and powerful in these countries (Greengard, 2010). New ICT tools are constantly being created for the purpose of closing the global digital divide (Heeks, 2010). Governments of these countries are taking active initiatives to develop IT infrastructure and opportunities for employees in the IT field. Privacy and security issues that were somewhat lax a decade ago in many of the firms in these countries are now being tightened and integrated into the design of technologies from the very outset. Organizational management is building strategies to protect and maintain the proprietary rights of their clients in developed nations. This has unleashed tremendous competitive pressures among the organizations that have given rise to more innovation and more job creation in IT. Employee opportunities in many IT organizations in these countries have far exceeded those in their counterparts in the developed nations.

Job satisfaction has, therefore, become particularly important for these employees. If organizational conditions do not match their level of satisfaction, they show a tendency to quickly to move to other organizations where they find better working conditions. The vibrant community of IT employees in these countries possesses extensive circles of friends and professional acquaintances so that they have a good idea of the internal working environments of many organizations to make informed decisions as to where to move to if they want more job satisfaction. There is, therefore, a considerable outflux of employees across IT organizations in these countries striving for better conditions and higher quality of work environment. Many firms in developed nations, including a number of multinationals, which outsource a considerable fraction of their product and service development as well as the design of business processes to these countries can use job satisfaction levels of employees as a strong indicator to decide where to send work. In addition, administrators and policymakers in the IT organizations in these countries can use these indicators to leverage resources and facilities to increase job satisfaction, which, in turn, reduces employee turnover and turnaway.

Whereas IT infrastructure and business operations are firmly established in the majority of the high-income group of countries (for example, France, Germany, New Zealand, US, UK, among others), IT labor has become more expensive and specialized, and job insecurity and employee turnover have both increased in recent years in these countries. By contrast, in many countries of the lower-middle income group (for example, Ghana, India, Nigeria, Pakistan, among others), IT has made a comparatively recent entry into the economy. With active support by the governments of these countries in infrastructure development and job creation, IT employees have greater job satisfaction and stability in the workplace. IT projects outsourced to vendors and service-providing firms in these countries by companies headquartered in the high-income group have, in turn, enriched the economies of these countries and the standards of living of the IT employees themselves. Managers and decision-makers for global ventures should be aware of the breadth and diversity of many IT areas that have recently opened up new directions of development and research in many of these countries today.

The 2020 World Investment Report (UNCTAD-WIR, 2020) asserts that production at the international level will transform significantly in the coming years, primarily because of how the coronavirus pandemic has complicated current challenges. The same report has predicted that technology trends will shape production in the international arena; however, different industries will be affected differently. Nevertheless, some of the challenges can actually be regenerated into global opportunities. As many face-to-face transactions and interactions involving the physical proximity of individuals are phased out, they will be increasingly replaced by virtual, online transactions across the globe. More and more IT projects will now be globally distributed with virtual operations and executions. This will bring more IT employees across geographically remote and dispersed regions together. High levels of effectiveness of product and service development will be derived when the IT employees and project stakeholders in different countries linked together by various projects begin to understand and respect mutual values, norms, practices, and cultural nuances. Our study spotlights the nine individual issues of IT workers in the different countries of the world from a holistic, world-centric perspective. A proper understanding of their specific nuances and variations with respect to the economic levels as well as current phases of IT development and maturity in different countries will benefit all stakeholders of global projects.

6 Limitations and Future Research Directions

This study provided a world-centric, globalized perspective of a core set of individual issues faced by the IT employees of the world, as distinct from the prevailing US- and western-centric views. Although we have examined nine issues for more than 10,000 IT workers from 37 different countries covering the major regions of the world, we, unfortunately, could not collect data from all countries for various reasons. It is, therefore, perfectly possible that some peculiarities or specific aspects of the individual issues have overstepped the limits of the investigation of our study.

As mentioned before, we selected the nine individual issues of the IT professionals based on an extensive review of the IS/IT and general business literature, supported by collective experience of the core research team of the World IT Project. We did not perform a meta-analytic survey, because it would be a separate investigation in its own right, and it was not the objective of this study. Rather, our intent was to look at the most common individual issues reported in the literature. We did find a few meta-analytic studies in the IS literature (Özkan, 2022; Zaza & Armstrong, 2016) that focused on turnover intention among IT professionals but limited the antecedents primarily to job satisfaction and work exhaustion. There was one recent study by Bellini et al. (2019) that examined turnover intention, turnaway intention, job insecurity, professional self-efficacy, and job satisfaction and the relationships among these constructs for Brazil. While references to the nine issues were reported in different publications, we were unable to find a single study that provided a comprehensive examination or a nomological framework encompassing all of them from a global perspective.

Nevertheless, our study provides both validation of the critical importance of the individual issues and their global extension. With IT becoming widespread and geographically dispersed, the issues are no longer limited to employees working in the western world. Local (that is, country- or region-specific) homogeneity of the issues should therefore be reconciled with global (transnational) heterogeneity. As we discussed above, while some pertinent characteristics remain relatively uniform across a large number of countries (for example, work-home conflict), variations in others seem to stem from national and cultural differences (for example, the influence of friendship circles and social networks). To be sure, the way some cultural dimensions influence the individual issues involves subtle and complex questions that require more extensive and fine-grained investigation, whose elaborate treatment lies beyond the scope of the present investigation. Nevertheless, our work may kindle interest and guide the work of future researchers, aiming to build a more comprehensive theory of IT workers' individual issues from a global perspective, currently unexplored in the IS literature.

The current survey-based research using a sample of more than 10,000 responses was a cross-sectional study that applied to the individual issues in one specific window of time. Naturally, this study cannot be expected to account for the long-term patterns and characteristics of these issues. Moreover, the data collected from a pool of IT employees with varied characteristics and demographics including age, gender, income, education, locations, ethnicity, and IT role are subject to change from one timeframe to another, and the timing of the snapshot for the sample data may not be representative. Thus, for example, the views expressed by a younger generation of IT employees today are unlikely to exactly correspond to their views several years hence. Additionally, if career intentions of IT workers were different across countries, they could lead to observable country-wise differences in the global nature of the individual issues (Amoroso et al., 1994; Fu, 2010). Career intention, motivation, and commitment presumably differ across age groups of IT workers and managers. For example, job mobility intention may not be high among older workers in multinational teams, whereas it may represent the prospect of career advancement for younger workers. In our study, career intention of IT workers in different countries served as a background variable for all nine individual issues, but we did not capture it directly in our data. As another example, low compensation and task misfit are known to be strong contributors to turnover intention (Guimaraes & Igbaria, 1992; Korunka et al., 2008), but we did not include these factors. In addition, the clustered dynamics of the individual issues based on national and occupational cultural differences were out of the scope of this study.

Furthermore, owing to changes in a number of organizational, technological, or personal conditions, the importance of some of the individual issues considered in this study might well show future subsidence or higher significance. In view of this, the IT role of an employee may evolve or change form and structure in application domains such as coding, quality assurance, requirements analysis, hardware and infrastructural support, architecture, systems analysis, design, and project management. The recent Great Resignation trend may also alter the functioning of the contemporary job market and present new

opportunities and challenges for both organizations and IT workers (Serenko, 2022). It was hard to see, within the scope and timeframe of the present study, what these particular conditions might be and what they might possibly engender. Some of these issues will be candidates for a future study.

Finally, our preliminary analysis shows that there are clusters of individual issues of IT workers that tend to belong together and affect employees in a concerted fashion rather than individually. These clusters are commonly characterized by national and occupational culture. Without a thorough understanding of this specific clustering structure, it is difficult to surmise how IT employees will be affected by the combined effects of some of their individual issues. This likelihood calls for additional investigation in the future.

7   Conclusion

Our study examined a core set of individual issues of IT professionals working in many different countries of the world. Data pertaining to these issues were collected under the auspices of the World IT Project from more than 10,000 IT employees in 37 different countries. Our results show that, while the core individual issues are critical for IT employees to function productively within their diverse organizational environments, the relative importance of these issues varies across countries. For example, employees in India reported high job satisfaction and self-efficacy, which is expected in view of the copious evidence that the development of IT products and services is vigorously pursued by Indian companies. However, while the Indian workers depend very strongly on their social support from friendship circles, it is much less prominent in many high-income countries, including the US. Other factors, such as job insecurity, work exhaustion, and work overload affect workers in similar groups of countries. On average, employees in the high-income group of countries suffer more from work-home conflict as a result of their work in the IT profession. It is possible that, because of the social structure of the countries in this group, people tend to maintain less overlap between their lives at home and in the workplace. In the lower-middle income group of countries, there is perhaps much more overlap between the work and family life of IT employees. Finally, we emphasize that further investigation is necessary to uncover many of the intricacies of the employee issues individually as well as collectively in order to reduce discrepancies and conflicts between global IT management and alleviate IT problems in the workplace around the world.

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Appendix A

Table A1. Measurement Scales for Individual Issues

Construct	Description	Scale	Instrument
Job satisfaction	The degree of positive affect of employees as a result of their performing activities of the job, which are judged by them with respect to their personal values and norms.	Three items	Moore (2000). Example (reversed): "In general, I don't like my current job."
Work overload	The extent to which an IT worker is burdened with too much work to complete in an insufficient amount of time available to him or her.	Four items	Kirmeyer & Dougherty (1988) and Ply et al. (2012). Example: "I feel that the amount of work I do interferes with how well it is done."
Work-home conflict	The degree of imbalance for IT workers between the time they spend in their jobs and the time they spend at home with their family because of incompatible demands between work and family roles.	Three items	Kreiner (2006). Example: "My work-related responsibilities create conflicts with my home responsibilities."
Work exhaustion	The physical, emotional, or mental aspects of work exhaustion or strain in an IT employee is a feeling of tedium of work that arises from a prolonged exposure to the excessive occupational demands, pressures, uncertainties, conflicts, and irregularities at work.	Four items	Moore (2000). Example: "I feel drained from activities at work."
Professional self-efficacy	Whether an IT employee is capable of carrying out an action to successful completion.	Four items	Moore (2000). Example: "At my work, I feel confident that I am effective at getting things done."
Job insecurity	The immediate threat to various job features, the seriousness of the threat to the job as a whole, and the employee's lack of power to control or nullify the threat.	Four items	Ashford et al. (1989). Example: "I am concerned that my job may be eliminated soon."
Turnover intention	The possibilities of IT employees deciding to leave their current job for a better opportunity elsewhere.	Three items	Moore (2000). Example (reversed): "I will be with this organization five years from now."
IT career change	IT employee's attempts to find alternative career opportunities outside of the IT field.	Three items	Moore (2000). Example: "I will take steps during the next year to secure a job outside the IT field."
Friendship circles	The extent to which IT workers depend on their friendship circles of socially supportive relationships with their friends and acquaintances.	Three items	Lochner et al. (1999), Weiss (1974), and Zimet et al. (1988). Example: "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?"

Note: Example items are taken directly from the references cited in the text.

Table A2. Item loadings of Individual Issues for 37 Countries

Country \ Issues	Job satisfaction	Work overload	Work-home conflict	Work exhaustion	Self-efficacy	Job insecurity	Turnover intention	IT career change	Friendship circles
C1	.87, .90, .73	.77, .77, .83, .80	.86, .90, .86	.88, .90, .82, .87	.79, .85, .82, .79	.72, .88, .82	.76, .68, .83	.82, .65, .85	.73, .77, .75
C2	.85, .89, .76	.75, .78, .82, .79	.85, .91, .85	.88, .91, .84, .86	.80, .87, .80, .77	.76, .85, .85	.77, .68, .81	.83, −, .86	.70, .80, .78
C3	.88, .91, .77	.79, .76, .85, .82	.83, .91, .88	.86, .90, .85, .88	.81, .87, .82, .77	.73, .85, .84	.77, .69, .81	.86, .70, .83	.74, .79, .76
C4	.86, .90, .75	.78 .80, .86, .84	.85, .92, .83	.88, .92, .85, .89	.77, .83, .79, .76	.76, .89, .88	.75, .70, .84	.85, .64, .82	.72, .79, .75
C5	.88, .92, −	.76, .82, .85, .84	.84, 90, .86	.83, .91, .81, .89	.80, .89, .83, .78	.79, .90, .88	.77, .66, .79	.84, .66, .85	.72, .78, .75
C6	.87, .90, .79	.77, .76, .84, .84	.84, .90, .85	.89, .89, .86, .90	.79, .85, .84, .77	.74, .89, .91	.76, .69, .80	.83, .70, .79	.72, .79, .78
C7	.85, .90, .73	.78, .75, .86, .78	.86, .90, .87	.86, .85, .84, .86	.78, .88, .81, .80	.76, .89, .90	.75, .64, .83	.89, .75, .82	.73, .80, .76
C8	.87, .89, .79	−, .89, .87, .81	.84, .88, .89	.87, .90, 83, .86	.78, .86, .80, .77	−, .89, .89	.76, .69, .82	.85, .68, .85	.73, .78, .76
C9	.90, .90, .78	.74, .80, .82, .80	.78, .87, .89	.88, .89, .82, .84	.79, .86, .78, .75	.76, .91, .90	.79, .70, .81	.83, .67, .87	.72, .79, .76
C10	.87, .88, .80	.79, .81, .80, .79	.87, .84, .82	.87, .85, .86, .88	.77, .82, .77, .80	.75, .92, .80	.79, −, .81	.85, −, .84	.73, .81, .80
C11	.89, .90, .78	.76, .75, .87, .78	.83, .83, .86	.88, .88, .84, .86	.76, .89, .80, .84	.75, .90, .85	.76, .70, .82	.83, .67, .86	.75, .81, .78
C12	.90, .90, .80	.77, .80, .81, .77	.87, .92, .88	.88, .90, .88, .87	.78, .87, .82, .78	.73, .88, .83	.78, .67, .80	.82, .68, .86	.71, .77, .80
C13	.89, .91, .76	.77, .78, .82, .77	.87, .90, .89	.86, .89, .80, .86	.80, .84, .83, .81	.79, .86, .88	.77, .65, .82	.87, .67, .86	.70, .77, .77
C14	.88, .89, .78	.73, −, .82, .76	.89, .89, .85	.87, .90, .88, .85	.77, .86, .80, .80	.75, .87, .88	−, .67, .81	−, .69, .85	.74, .81, .79
C15	.89, .92, .81	.83, .80, .80, .79	.86, .89, −	.88, .88, .86, .86	.80, .86, .83, .80	.74, .90, .88	.73, .68, .81	.82, −, .86	.72, .84, .78
C16	.87, .90, .80	.76, .82, .80, .77	.84, .87, .86	.89, .91, .81, .88	.79, .84, .85, .78	.73, .90, .90	.75, .66, .80	.84, .68, .86	.70, .78, .74
C17	.89, .88, .75	.75, .81, .86, .74	.85, .90, .86	.83, .88, .83, .86	.78, .84, .83, .80	.72, .88, .85	.75, .84, −	.82, .69, .85	.71, .80, .77
C18	.91, .91, .82	.76, .77, .79, .78	.85, .89, .84	.88, .92, .82, .85	.76, .88, .83, .82	.74, .87, .87	.74, .68, .81	.84, −, .84	.71, .83, .79
C19	.87, .90, .77	.76, .79, .76, .80	.88, .90, .87	.89, .90, .88, .85	.78, .85, .88, .79	.76, .88, .87	.76, .68, .80	.83, .69, .84	.73, .77, .75
C20	.88, .90, .79	.79, .76, .84, .76	.85, .89, .82	.84, .87, .83, .87	.80, .87, .78, .79	.72, .91, .87	.80, −, .80	.84, −, .90	.75, .75, .78
C21	.91, .90, .82	.73, .76, .90, .78	.83, .88, .87	.92, .92, .91, .85	.75, .81, .78, .79	.76, .86, .79	.77, .67, .82	.83, .70, .86	.72, .78, .73
C22	.89, .88, .75	.76, .74, .88, .74	.90, .90, .88	.86, .89, .90, .89	.78, .84, .80, .77	.77, .90, .85	.76, .70, .82	.85, .70, .83	.70, .78, .75
C23	.87, .90, .79	.75, .77, .80, .78	.88, .91, .86	.86, .84, .85, −	.76, .82, .83, −	.74, .86, .88	.77, .68, .79	.75, .67, .86	.72, .76, .75
C24	.87, .87, −	.77, .74, .85, .78	.87, .92, .82	.88, .90, .86, .85	.79, .84, .79, .78	.72, .87, .85	.80, −, .82	.83, −, .88	.73, .78, .76
C25	.85, .91, .81	.79, .78, .87, .81	.88, .91, .88	.89, .92, .83, .89	.78, .83, .85, .79	.78, .89, .88	.75, .67, .82	.83, .71, .85	.71, .80, .78
C26	.92, .89, .75	.78, .79, .91, .80	.86, .92, .90	.85, .91, .84, .86	.78, .84, .82, .80	.79, .89, .90	.75, .66, .83	.81, .65, .89	.71, .82, .76
C27	.90, .90, .82	.74, .80, .86, .81	.87, .89, .90	.89, .87, .82, .88	.75, .83, .80, .78	.73, .89, .88	.79, .69, .84	.82, .67, .83	.74, .79, .76
C28	.85, .91, .74	.73, .78, .82, .77	.88, .89, .85	.89, .88, .89, .85	.78, .84, .79, .81	.75, .79, .83	.77, .67, .81	.82, .70, .85	.73, .78, .75
C29	.91, .92, .74	.73, .83, .81, .76	.86, .92, .87	.85, .82, .84, .80	.77, .85, .82, .80	.76, .89, .91	.78, .68, .81	.83, .65, .84	.69, .78, .74
C30	.88, .91, .78	.79, .80, .85, .84	.88, .92, .90	.91, .90, .84, .91	.75, .82, .82, .79	.76, .89, .87	.79, .67, .82	.83, .65, .81	.70, .77, .72
C31	.91, .89, .80	.75, .78, .88, .78	.87, .93, .88	.84, .87, .82, .85	.82, .86, .83, .77	.74, .89, .88	.77, .69, .82	.83, .69, .88	.70, .79, .74
C32	.89, .90, .84	.76, .87, .86, .76	.87, .91, .87	.88, .91, .89, .89	.74, .85, .87, .80	.77, .88, .87	.79, .68, .82	.86, .69, .85	.72, .84, .73
C33	.90, .92, .78	.78, .73, .84, .75	.85, .88, .86	.85, .89, .80, .90	.76, .82, .82, .81	−, .88, .89	.80, −, .82	.83, .71, .84	.71, .78, .75
C34	.93, .93, −	.80 .84, .88, .79	.88, .92, .86	.84, .87, .80, .86	.77, .83, .84, .80	.71, .90, .90	.80, −, .79	.84, .73, .88	.69, .79, .74
C35	.87, .91, .77	.70, .77, .83, .82	.89, .92, .87	.89, .87, .88, .87	.78, .83, .83, .78	.76, .84, .85	.76, .69, .79	.86, .70, .87	.73, .79, .75
C36	.89, .89, .78	.82, .85, .90, .80	.88, .90, .87	.83, .90, .86, .87	.77, .82, .82, .81	.74, .89, .86	.80, .71, .84	.88, .68, .86	.72, .80, .78
C37	.88, .92, .81	.79, .78, .76, .75	.89, .90, .88	.85, .90, .89, .85	.75, .85, .81, .86	.75, .87, .85	.78, .69, .82	.84, −, .86	.74, .81, .76

Notes: All items loadings on a single, unrotated factor.
A dash ("−") indicates item loading below 0.5.
Fit parameters ranges: RMSEA: (0.026, 0.061); CFI: (0.946, 0.989), SRMR: (0.025, 0.060).
Country labels (C1, C2, …, C37) are given in Table A3.

Table A3. Significant Correlations among Individual Issues within Countries

Country	Significant Associations	Country	Significant Associations
Argentina (C1)	2↔3 (-0.19); 2↔5 (-0.25); 2↔6 (0.27); 2↔8 (-0.47); 3↔4 (0.47); 3↔5 (0.53); 3↔7 (0.21); 3↔8 (0.23); 4↔5 (0.60); 4↔7 (0.21); 2↔3 (-0.19); 5↔7 (0.19); 6↔9 (-0.19); 7↔9 (0.27)	Malaysia (C20)	2↔4 (-0.26); 2↔5 (-0.25); 2↔6 (0.42); 2↔8 (-0.31); 3↔4 (0.51); 3↔5 (0.44); 4↔5 (0.69); 4↔7 (0.32); 5↔7 (0.28); 6↔8 (-0.21); 8↔9 (0.33)
Bangladesh (C2)	1↔6 (0.28); 1↔7 (-0.28); 2↔4 (-0.37); 2↔5 (-0.42); 2↔6 (0.61); 2↔7 (-0.30); 2↔8 (-0.26); 2↔9 (-0.38); 3↔4 (0.53); 3↔5 (0.43); 4↔5 (0.66); 4↔6 (-0.21); 4↔7 (0.46); 5↔6 (-0.20); 5↔7 (0.57); 6↔7 (-0.36); 6↔8 (-0.48); 6↔9 (-0.35); 7↔9 (0.30); 8↔9 (0.23)	Mexico (C21)	1↔6 (0.19); 2↔4 (-0.29); 2↔5 (-0.38); 2↔6 (0.44); 2↔8 (-0.56); 3↔4 (0.54); 3↔5 (0.55); 3↔6 (-0.21); 3↔7 (0.21); 4↔5 (0.61); 4↔6 (-0.21); 5↔6 (-0.24); 5↔7 (0.18); 5↔8 (0.23); 6↔7 (-0.24); 6↔8 (-0.27)
Brazil (C3)	2↔5 (-0.35); 2↔6 (0.30); 2↔8 (-0.66); 2↔9 (-0.28); 3↔4 (0.61); 3↔5 (0.66); 4↔5 (0.61); 4↔9 (0.19); 5↔7 (0.19); 5↔8 (0.17); 6↔9 (-0.23); 8↔9 (0.20)	New Zealand (C22)	1↔2 (0.17); 1↔6 (0.17); 2↔3 (-0.16); 2↔4 (-0.15); 2↔5 (-0.38); 2↔6 (0.32); 2↔8 (-0.49); 3↔4 (0.51); 3↔5 (0.57); 4↔7 (0.16); 5↔6 (-0.15); 5↔7 (0.17); 6↔7 (-0.15); 7↔9 (0.16); 8↔9 (0.21)
Canada (C4)	2↔4 (-0.23); 2↔5 (-0.28); 2↔6 (0.58); 2↔7 (-0.29); 2↔8 (-0.55); 2↔9 (-0.42); 3↔4 (0.64); 3↔5 (0.67); 3↔7 (0.35); 3↔9 (0.18); 4↔5 (0.66); 4↔7 (0.45); 4↔9 (0.20); 5↔7 (0.36); 5↔8 (0.24); 6↔7 (-0.32); 6↔8 (-0.38); 6↔9 (-0.43); 7↔8 (0.33) 7↔9 (0.32); 8↔9 (0.49)	Nigeria (C23)	2↔3 (-0.44); 2↔4 (-0.35); 3↔4 (0.49); 3↔5 (0.42); 5↔7 (0.45); 7↔9 (0.37)
China (C5)	2↔5 (-0.24); 2↔6 (0.24); 2↔8 (-0.35); 2↔9 (-0.24); 3↔4 (0.49); 3↔5 (0.51); 3↔6 (0.30); 3↔7 (0.36); 4↔5 (0.61); 4↔7 (0.44); 5↔7 (0.37); 6↔9 (-0.19); 7↔9 (0.19); 8↔9 (0.24)	Pakistan (C24)	1↔3 (0.27); 1↔4 (0.22); 1↔5 (0.22); 1↔6 (0.23); 2↔5 (-0.19); 2↔6 (0.43); 2↔9 (-0.25); 3↔4 (0.67); 3↔5 (0.61); 3↔6 (0.36); 3↔7 (0.51); 4↔5 (0.64); 4↔6 (0.24); 4↔7 (0.51); 4↔9 (-0.21); 5↔7 (0.71); 5 ↔8-0.24; 7↔8 (-0.33); 7↔9 (-0.45); 8↔9 (0.68)
Egypt (C6)	2↔5 (-0.28); 2↔6 (0.27); 2↔8 (-0.46); 3↔4 (0.62); 3↔5 (0.67); 3↔7 (0.29); 4↔5 (0.69); 4↔7 (0.33); 5↔7 (0.31); 6↔7 (-0.27); 8↔9 (0.25)	Peru (C25)	2↔4 (-0.28); 2↔5 (-0.35); 2↔6 (0.40); 2↔7 (-0.40); 2↔8 (-0.27); 3↔4 (0.60); 3↔5 (0.533); 3↔7 (0.30); 3↔8 (0.29); 4↔5 (0.70); 4↔7 (0.30); 4↔9 (0.27); 5↔7 (0.32); 6↔7 (-0.35); 8↔9 (0.48)
Finland (C7)	2↔5 (-0.35); 2↔6 (0.35); 2↔8 (-0.64); 3↔4 (0.43); 3↔5 (0.68); 4↔5 (0.61); 6↔8 (-0.28); 7↔9 (0.27); 8↔9 (0.36)	Poland (C26)	1↔5 (-0.20); 2↔3 (-0.38); 2↔4 (-0.45); 2↔5 (-0.44); 2↔6 (0.37); 2↔7 (-0.32); 2↔8 (-0.36); 2↔9 (-0.36); 3↔4 (0.65); 3↔5 (0.65); 3↔7 (0.47); 3↔9 (0.34); 4↔5 (0.69); 4↔7 (0.56); 4↔8 (0.28); 4↔9 (0.31); 5↔7 (0.60); 5 ↔8 (0.25); 5 ↔9 (0.27); 6 ↔8 (-0.48); 6 ↔9 (-0.56); 7↔8 (0.32); 7↔9 (0.23); 8↔9 (0.58)
France (C8)	1↔4 (-0.25); 1↔5 (0.32); 2↔5 (-0.36); 2↔6 (0.46); 2↔7 (-0.29); 2↔8 (-0.42); 3↔4 (0.57); 3 ↔5 (0.40); 3↔8 (-0.20); 4↔9 (0.19); 6↔7 (-0.26); 6↔8 (-0.20); 6↔9 (-0.22)	Portugal (C27)	1↔6 (0.23); 2↔5 (-0.41); 2↔6 (0.50); 2↔7 (-0.36); 2↔8 (-0.61); 2↔9 (-0.34); 3↔4 (0.53); 3↔5 (0.56); 4↔5 (0.58); 5↔9 (0.24); 6↔7 (-0.30); 6↔8 (-0.37); 6 ↔9 (-0.29); 7↔9 (0.45); 8↔9 (0.34)
Germany (C9)	2↔3 (-0.30); 2↔5 (-0.40); 2↔6 (0.32); 2↔7 (-0.20); 2↔8 (-0.63); 2↔9 (-0.23); 3↔4 (0.43); 3↔5 (0.55); 3↔8 (0.22); 4↔5 (0.31); 4↔7 (0.19); 5↔8 (0.24); 6↔7 (-0.19); 6 ↔9-0.24; 7↔8 (0.22); 7↔9 (0.28); 8↔9 (0.33)	Romania (C28)	2↔5 (-0.21); 2↔6 (0.36); 2↔7 (-0.23); 2↔8 (-0.49); 2↔9 (-0.42); 3↔4 (0.66); 3↔5 (0.67); 3↔7 (0.36); 4↔5 (0.67); 4↔7 (0.42); 5↔7 (0.48); 5↔8 (0.18); 5↔9 (0.19); 6↔7 (-0.21); 6↔8 (-0.31); 6↔9 (-0.22); 7↔9 (0.42); 8↔9 (0.22)
Ghana (C10)	1↔7 (-0.43); 1↔9 (-0.21); 2↔3 (-0.19); 2↔5 (-0.47); 2↔6 (0.67); 2↔7 (-0.31); 2↔8 (-0.61); 2↔9 (-0.21); 3↔4 (0.50); 3↔5 (0.56); 3↔7 (0.23); 4↔5 (0.23); 4↔7 (0.40); 5↔7 (0.24); 5 ↔8 0.31; 6↔7 (-0.50); 6 ↔8 (-0.45); 6↔9 (-0.19)	Russia (C29)	2↔3 (-0.28); 2↔5 (-0.45); 2↔6 (0.44); 2↔8 (-0.34); 3↔4 (0.46); 3↔5 (0.63); 3↔7 (0.28); 4↔5 (0.48); 4↔7 (0.34); 5↔7 (0.30); 6↔9 (-0.28)
Greece (C11)	2↔6 (0.51); 2↔8 (-0.61); 3↔4 (0.45); 3↔5 (0.64); 4↔5 (0.41); 6↔7 (-0.54); 6↔8 (-0.37); 6↔9 (-0.47); 7↔9 (0.45); 8↔9 (0.48)	South Africa (C30)	1↔6 (0.26); 2↔3 (-0.25); 2↔4 (-0.26); 2↔5 (-0.46); 2↔6 (0.31); 2↔7 (-0.21); 2↔8 (-0.59); 2↔9 (-0.21); 3↔4 (0.63); 3↔5 (0.66); 4↔5 (0.61); 5↔7 (0.20); 5 ↔8 (0.23); 6 ↔7 (-0.24); 6↔8 (-0.22); 6 ↔9 (-0.34); 7↔9 (0.20); 8↔9 (0.26)
Hungary (C12)	2↔3 (-0.40); 2↔5 (-0.43); 2↔6 (0.47); 2↔7 (-0.62); 2↔8 (-0.62); 2↔9 (-0.51); 3↔4 (0.47); 3↔5 (0.67); 3↔7 (0.34); 4↔5 (0.55);	South Korea (C31)	2↔3 (-0.22); 2↔8 (-0.66); 3↔4 (0.56); 3↔5 (0.52); 3↔7 (0.41); 4↔5 (0.54); 4↔7 (0.46); 4↔9 (0.31); 5↔6 (0.19); 5↔7 (0.33); 7↔9 (0.32)

Table A3. Significant Correlations among Individual Issues within Countries

	4↔7 (0.40); 5↔7 (0.27); 5 ↔8 0.25; 6↔7 (-0.47); 6↔9 (-0.41); 7↔8 (0.46);7↔9 (0.51); 8↔9 (0.51)		
India (C13)	1↔2 (0.44); 1↔3 (-0.32); 1↔4 (-0.29); 1↔5 (-0.34); 1↔6 (0.48); 1↔7 (-0.35); 1↔8 (-0.36); 1↔9 (-0.34); 2↔3 (-0.45); 2↔4 (-0.54); 2↔5 (-0.53); 2↔6 (0.60); 2↔7 (-0.50); 2↔8 (-0.72); 2↔9 (-0.63); 3↔4 (0.63); 3↔5 (0.66); 3↔6 (-0.33); 3↔7 (0.42); 3↔8 (0.38); 4↔5 (0.66); 4↔6 (-0.40); 4↔7 (0.48); 4↔9 (0.46); 5↔6 (-0.40); 5↔7 (0.47); 5↔8 (0.40); 5 ↔9 (0.43); 6↔7 (-0.50); 6↔8 (-0.57); 7↔8 (0.50);7↔9 (0.45); 8↔9 (0.68)	Taiwan (C32)	1↔2 (0.20); 1↔6 (0.19); 1↔8 (-0.19); 2↔3 (-0.30); 2↔4 (-0.28); 2↔5 (-0.40); 2↔6 (0.38); 2↔7 (-0.24); 2↔8 (-0.60); 2↔9 (-0.37); 3↔4 (0.66); 3↔5 (0.67); 3↔7 (0.25); 3↔9 (0.19); 4↔5 (0.56); 4↔7 (0.30); 4↔9 (0.20); 5↔7 (0.23); 5 ↔8 (0.27); 5↔9 (0.22); 6↔7 (-0.19); 6↔8 (-0.28); 6↔9 (-0.33); 8↔9 (0.33)
Iran (C14)	2↔3 (-0.26); 2↔6 (0.65); 3↔5 (0.82); 7↔9 (0.45); 8↔9 (0.48)	Thailand (C33)	1↔2 (0.23); 1↔6 (0.21); 2↔3 (-0.18); 2↔4 (-0.29); 2↔5 (-0.34); 2↔6 (0.53); 2↔7 (-0.27); 2↔8 (-0.37); 2↔9 (-0.30); 3↔4 (0.53); 3↔5 (0.61); 3↔7 (0.26); 4↔5 (0.57); 4↔7 (0.38); 4↔9 (0.23); 5 ↔7 (0.34); 5 ↔8 (0.18); 5 ↔9 (0.15); 6 ↔8 (-0.26); 6 ↔9 (-0.33); 7 ↔9 (0.22); 8↔9 (0.26)
Italy (C15)	2↔3 (-0.43); 2↔4 (-0.30); 2↔5 (-0.43); 2↔6 (0.56); 3↔4 (0.52); 3↔5 (0.65); 4↔5 (0.56); 6↔7 (-0.25); 8↔9 (0.44)	Turkey (C34)	1↔2 (0.40); 1↔6 (0.49); 1↔7 (-0.23); 1↔8 (-0.21); 1↔9 (-0.25); 2↔6 (0.51); 2↔7 (-0.33); 2↔8 (-0.51); 2↔9 (-0.23); 3↔4 (0.72); 3↔5 (0.64); 3↔6 (0.24); 3↔7 (0.35); 3↔8 (0.23); 4↔5 (0.63); 4↔7 (0.37); 4↔8 (0.25); 4↔9 (0.19); 5 ↔6 (0.24); 5 ↔7 (0.40); 6 ↔7 (-0.23); 6 ↔8 (-0.28); 6 ↔9 (-0.28); 7 ↔9 (0.24); 8↔9 (0.47)
Japan (C16)	1↔2 (0.25); 1↔6 (0.32); 2↔4 (-0.20); 2↔5 (-0.32); 2↔6 (0.39); 2↔8 (-0.43); 3↔4 (0.53); 3↔5 (0.72); 3↔7 (0.33); 4↔5 (0.57); 4↔7 (0.38); 5↔7 (0.47); 6↔7 (-0.26); 6↔8 (-0.22); 8↔9 (0.45)	U.K. (C35)	2↔6 (0.33); 2↔8 (-0.51); 3↔4 (0.56); 3↔5 (0.57); 4↔5 (0.49)
Jordan (C17)	2↔5 (-0.26); 2↔8 (-0.31); 3↔4 (0.58); 3↔5 (0.72); 3↔7 (0.35); 4↔5 (0.69); 4↔7 (0.51); 5↔7 (0.42); 6↔9 (-0.23); 8↔9 (0.43)	U.S. (C36)	2↔3 (-0.28); 2↔4 (-0.36); 2↔5 (-0.39); 2↔6 (0.31); 2↔7 (-0.22); 2↔8 (-0.57); 2↔9 (-0.27); 3↔4 (0.62); 3↔5 (0.64); 3↔7 (0.23); 3↔8 (0.19); 4↔5 (0.66); 4↔7 (0.29); 4↔8 (0.21); 4↔9 (0.29); 5 ↔7 (0.31); 5↔8 (0.21); 5 ↔9 (0.23); 6 ↔8 (-0.19); 6↔9 (-0.18); 7↔8 (0.19); 7↔9 (0.32); 8↔9 (0.35)
Lithuania (C18)	2↔3 (-0.32); 2↔5 (-0.39); 2↔8 (-0.58); 3↔4 (0.37); 3↔5 (0.61); 4↔5 (0.46); 4↔7 (0.31); 5 ↔8 (0.29); 6↔8 (-0.35); 6↔9 (-0.38); 7↔8 (0.32); 7↔9 (0.31)	Vietnam (C37)	2↔3 (-0.28); 2↔4 (-0.37); 2↔5 (-0.33); 2↔6 (0.35); 2↔7 (-0.21); 3↔4 (0.50); 3↔5 (0.73); 3↔6 (0.20); 3↔7 (0.46); 4↔5 (0.68); 4↔7 (0.46); 5↔7 (0.63); 6↔8 (-0.21); 6↔9 (-0.24); 8↔9 (0.53)
Macedonia (C19)	2↔3 (-0.32); 2↔4 (-0.38); 2↔8 (-0.60); 3↔4 (0.53); 3↔5 (0.66); 4↔5 (0.51); 4↔7 (0.31); 5↔7 (0.29); 6↔7 (-0.26); 6↔8 (-0.28); 8↔9 (0.22)		

Notes: Individual issues: 1: Friendship circle; 2: Job satisfaction; 3: Work overload; 4: Work-home conflict; 5: Work exhaustion; 6: Professional self-efficacy; 7: Job insecurity; 8: Turnover intention; 9: IT career change.
Country labels are shown in parentheses next to each country name.
All correlations are significant at $p < 0.10$ or lower.

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