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Investigating the Process of Developing and Retaining Competent IT Personnel: The Role of IT Leadership

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ABSTRACT

Given the critical role of information technology (IT) in achieving organizations' strategic goals, it becomes increasingly important for organizations to develop and retain a competent IT workforce. We investigate how organizations make IT personnel feel content with their job, motivate them to perform at their best, and consequently retain them. We develop a model in which IT leadership, conceptualized as "transformational" and "transactional" IT leader behaviors, influences IT personnel's perceptions of requisite soft skills and IT personnel's Quality-of-Work-Life (QWL), and how IT personnel's QWL in turn affects IT personnel's intention to stay. Using survey data from 205 IT professionals, we found that IT leadership behaviors, particularly transformational leadership behaviors, positively influence IT personnel's intention to stay. We also found that this relationship is fully mediated by IT personnel's QWL. In addition, we found that transformational leadership behaviors positively influence IT personnel's perceptions of requisite soft skills. We discuss the implications of our findings for theory and practice.

Keywords: IT Manager's Leadership, Transformational and Transactional Behaviors, IT Personnel, Requisite Soft Skills, Quality of Work Life, Intention to Stay

Ⅰ. Introduction

Information technology (IT), in addition to its role of supporting daily operations, has been helping and enabling organizations to respond to fast changing markets, global competition, and dynamic customer preferences (Gillemette and Pare, 2012; Knight and Radosevich, 2011). As organizations have a variety of strategic objectives to achieve, they must have proper IT planning strategies and their IT resources should be readily available and appropriately aligned with business strategies (Gerow et al., 2014; Gillemette

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and Pare, 2012; Knight and Radosevich, 2011). In particular, while striving to align IT to business to capitalize on IT innovations in the age of information and the world of digital business, IT leaders in business organizations are required to facilitate business problem solving and provide technical solutions in support of organizational strategies by expanding their traditional roles and assisting clients in meeting market expectations and performance goals (Luftman, 2003; Luftman et al., 1999; Manyika et al., 2011; Weiss and Anderson Jr., 2004). To achieve this, IT leaders are expected to have in-depth IT knowledge and understanding of an organization's needs, business operations and strategy, and organizational priorities. In addition, IT leaders need to have soft interpersonal skills to build and maintain a good, collaborative, and engaging relationship with business units, and operate IT units staffed with IT personnel who can deliver IT services to the organization in a timely manner (Choudhury et al., 2010; Eom and Lim, 2012; Ferratt et al., 2005; Jiang et al., 2003; Luftman, 2003; Luftman and Kempaiah, 2007; Luftman, 2007a). For sufficiency of adept IT units, as IT activities have become more pervasive, IT personnel with business and technology competencies are in great demand (Eom and Lim, 2012; Jiang et al., 2003; Ko, 2010; Lee et al., 1995; Luftman and Kempaiah, 2007; Luftman, 2007a). Accordingly, developing and retaining a competent IT workforce is becoming increasingly important to organizations (Anonymous, 2010; Chan et al., 1997).

However, as baby-boomers retire, the IT industry faces a challenge in which the demand for a technology-competent and business-savvy IT workforce is rising, and yet, the interest in IT careers is declining (Betts, 2015; Luftman, 2007b). A recent survey of 900 IT-focused hiring managers and recruiters showed that employers across many industries struggle to retain current IT professionals and to attract new ones with the 'right' mix of skills (Eddy, 2013). The Society for Information Management's (SIM) IT trend survey shows that the turnover rate of IT professionals was 8.96% in 2014 and 8.59% in 2015, which were more than 30% higher than 2013's 6.6% (Kappelman et al., 2016b). These surveys indicate that organizations are struggling to find new IT talent as well as to develop and retain their existing one.

As posited by a number of prior studies, IT personnel possess unique charateristics and traits that differentiate them from professionals in other business functions (Bassellier and Benbasat, 2004; Hunter et al., 2008; Roepke et al., 2000; Wynekoop and Walz, 1998): IT personnel are creative and intellectually curious as their work environment often presents task ambiguity and requires constant learning. More than other compensations, they also value work autonomy, artistry of their work with peer and public recognition of their accomplishments, and authority in decision-making processes. Thus, IT professionals do not leave solely based on financial motivation (Reddon, 2014). Then, the question is how organizations make IT personnel feel satisfied with their job, motivate them to perform at their best, and retain them. One answer can be found in Leadership and Management studies: leadership is effective in improving organizational variables at all levels including the individual-level and work-related variables such as an individual worker's job attitude, efficacy, job satisfaction, and overall performance (e.g., Bartram and Casimir, 2007; Yukl, 2009). Specific to IT, leadership by a CIO, vice president of IT, director of IT, or IT manager is vital in overseeing how to utilize all IT resources in pursuit of organizational goals (Luftman, 2007b; Turner et al., 2009). The leadership capability of IT executives is known as one of the most important attributes required

for the success of an organization's strategic positioning and utilization of IT resources (e.g., Anonymous, 2003; Wu et al., 2004). Such leadership is also effective in influencing IT personnel and the IT unit. For example, Eom (2015) found a positive and direct influence of an IT manager's transformational leadership style on the retention of IT personnel. Building on Eom (2015), this study further investigates how IT leadership behaviors affect IT personnel's intention to stay and how these relationships work through two key mediators, IT personnel's Quality of Work Life (QWL) and IT personnel's requisite soft skills. We argue that IT leadership behaviors do not directly affect, but exert impact on employee intention to stay by influencing IT personnel's perception of the extent to which their work meets their needs (Betts, 2015; Moon, 2002; Purvis et al., 2001). This argument departs from that of most of the previous studies (Coombs, 2009; Eom, 2015; Thite, 2000) that assert the direct influence of leadership on individual performance or intention to stay. For example, Thite (2000) asserts a positive influence of IT leadership behaviors in improving the performance of IT project teams, and Eom (2015) and Coombs (2009) show that leadership on the part of an IT manager positively influences retention of competent IT personnel in diverse industries through transcending IT personnel's perception of the value of their IT works and strategic relevance of their IT works. On the contrary, some studies emphasize the role of leadership as a meta-structuring action in forming the individual structuring actions of followers pertaining to career-specific decisions (Coombs, 2009; Purvis et al., 2001) or call for further research on the relationship between IT leadership and IT personnel's intention to stay with an organization (Hetland et al., 2007). For example, Hetland et al. (2007) asserts that the relationship between transformational IT leadership and IT personnel's burnout is not straightforward and needs further investigation of attributes for understanding the relationship between the two. Eom (2015) states that while transformational leadership behaviors seem to have a direct and positive effect on IT personnel's intention to stay, some sub-components of transformational leadership are significant and some are not.

Hetland et al. (2007) and Eom (2015) suggest future research to examine how exactly the IT leadership behaviors influence IT personnel's intention to stay. Furthermore, a significant gap exists in literature concerning: 1) How do different IT leadership behaviors influence IT personnel's intention to stay? 2) What is the mechanism by which IT leadership behaviors influence IT personnel's intention to stay? We intend to answer these questions by theorizing and testing a nomological network which includes IT leadership behaviors, conceptualized as 'transformational' and 'transactional' behaviors with different means of motivation as antecedents, IT personnel's QWL and requisite soft skills as intermediary variables, and IT personnel's intention to stay as the dependent variable. The proposed research model explains the mechanism of social information processing in that IT leadership as a meta-structuring action provides information about what is important to IT personnel. Once identified, this information can influence IT personnel's individual actions of recognizing and developing requisite soft skills. In addition, they form perceptions about their QWL, which eventually influence their intention to stay (Joseph et al., 2007; Orlikowski et al., 1995). The reason we add IT personnel's requisite soft skills and QWL to the model as individual structuring actions is that 1) desired work outcomes such as performance and job satisfaction can be achieved when individuals experience

QWL in terms of experienced meaningfulness, experienced responsibility, and knowledge of results (Hackman and Oldham, 1976; Hackman and Oldham, 1980) and 2) from the social information processing perspective, IT personnel's requisite soft skills are a critical part of sense-making through which they understand and learn the value system and dynamics of the organization (Eom and Lim, 2012). We tested our model with cross-industry survey data from 205 current IT personnel and analyzed data using PLS-based Structural Equations Modeling.

This study contributes to the current body of knowledge with three key findings: 1) transformational IT leader behaviors influence IT personnel's intention to stay, and this relationship is fully mediated by IT personnel's QWL, (2) transformational IT leadership behaviors have a significant influence on IT personnel's requisite skill set, and (3) transformational IT leadership behaviors predict IT personnel's QWL better compared to transactional IT leadership behaviors. This study also provides IT practitioners with managerial implications, illustrating how to make IT personnel feel relevant and be satisfied with their work, and, more importantly, how to retain competent IT personnel. In the next section, we review the extant literature. We then develop a research model and present our rationale for hypotheses. Finally, we present research methodology, data analysis, and results, and conclude with contributions and limitations.

Ⅱ. Literature Review

2.1. Transformational and Transactional IT Leadership

Effective leaders consistently show instrumental, relational, and motivational behaviors including: defining what followers should do to maximize output (instrumental), creating mutual respect and showing concern for followers' needs (relational), and inducing them to perform (motivational). Leadership behaviors send signals to employees about what is important for them to be successful in the organization or their job (Bass, 1998). The IT leadership literature has conceptualized two types of leadership behaviors: transactional and transformational. (Keegan and Den Hartog, 2004). Both types of behaviors incorporate elements from three categories, which are instrumental, relational, and motivational. The instrumental component clearly defines roles and responsibilities and engages in exchange behavior, reward or punishment, contingent on outcomes. The relational component focuses on relationship building with followers, such as being an idol, mentor, or coach. The motivational component encourages and directs followers to exert extra effort going beyond their job description/responsibilities (Antonakis and House, 2004). The core behaviors of respective leadership based on different mediums of influence and motivation are illustrated in <Table 1>.

The core values of transformational and transactional behaviors tend to highly influence IT personnel and their ability to attain the demanding goals of an IT unit. In general, transformational leaders motivate followers by transcending followers' perceptions, while transactional leaders motivate by engaging in an exchange relationship with followers (Bass, 1998). Transformational leaders motivate followers to understand the value of their work and tasks, nurture and develop followers for the sake of higher organizational goals as well as followers' careers, and encourage followers to be creative and innovative in problem-solving (Bass et al., 2003; Podsakoff et al., 1990). Transactional leadership behaviors provide rewards

<Table 1> Transformational Leadership and Transactional Leadership Behaviors

	Transformational Leadership	Transactional Leadership
Medium of influence	Motivation through the behaviors that transcend followers' beliefs, value systems, and worldviews; Focus on intrinsic motivation of followers	Motivate through providing clarification of tasks, roles, responsibilities, and outcomes and engaging in exchange-based behaviors contingent on followers' outcomes; focus on extrinsic motivation of followers
Core Behaviors	1) Articulating a vision: a capable manager recognizes new opportunities for followers, 2) Providing an appropriate model: a manager sets a good example, consistent with higher goals and values for followers to emulate and relate to, 3) Fostering the acceptance of group goals: a manager promotes cooperation and collaboration among followers for the sake of higher-level common goals, 4) Showing high performance expectation: a manager demonstrates his/her expectations toward followers for excellence, quality, and high performance, 5) Providing intellectual stimulation: a manager challenges followers to be creative and innovative and to re-examine and rethink their work and operation, and 6) Providing individualized support: a manager, as a coach and a mentor, respects followers and cares for their personal feelings, well-being and needs.	1) Providing contingent rewards: a manager motivates with proper explicit rewards (e.g., monetary, promotion, etc.), and 2) Enforcing contingent punishment: a manager controls personnel through reprimands and disapproval contingent upon poor or subpar performance.

or punishments contingent upon the followers' ability to meet given goals and their performance (Bass, 1998).

Transactional and transformational behaviors, especially transformational behaviors, affect IT personnel's work-related perception (e.g., relevance of work, level of competency, etc.) (Andersson, 1996; Hetland and Sandal, 2003; Maslach et al., 2001). Although an exchange of rewards may be effective in obtaining IT personnel's attention, IT leaders are expected to go beyond merely establishing rewards. IT leaders need to be engaged in individualized interactions and bond with IT personnel by providing support, mentoring, and nurturing. With such leadership, IT personnel can alter the perception of their work and view it as relevant and important (Hater and Bass, 1988; Hetland et al., 2007).

Drawn from prior studies by Bass and his colleagues (Antonakis et al., 2003; Bass, 1998; Bass and Avolio, 1993), this study employs 'providing contingent rewards' and 'enforcing contingent punishment' as principal transactional leader behaviors. These behaviors refer to 'positive' (rewards) and 'negative' (punishment) feedback and corresponding actions (punishment) analogous to Bass' contingent rewards and management-by-exception (MacKenzie et al., 2001). We also employed 'transformational leadership' as a multidimensional construct consisting of six distinct behaviors which motivate and encourage followers (MacKenzie et al., 2001; Podsakoff et al., 1990). However, following the recommendations of prior studies (Bycio et al., 1995; Howell and Avolio, 1993), we operationalized both constructs as second-order factors to have better representation of both leadership behaviors and more accurately predict their influence on outcome variables. Both lead-

ership behaviors are found to provide rich information to IT personnel for sense-making of their works, which in turn affects IT personnel's individual structuring actions such as recognizing and building a skill-set and the perception of their work life (Bass, 1998). Lastly, both leadership styles are not mutually exclusive; an effective leader should display transformational behaviors on top of transactional behaviors (Podsakoff et al., 1990).

2.2. IT Personnel's Quality-of-Work-Life (QWL)

QWL is one's evaluation of work-related life quality and consists of three states of needs evaluation: one's perceptions of experienced meaningfulness, experienced responsibility, and knowledge of results (Efraty and Sirgy, 1990). When individuals perceive and sense the fulfillment of QWL, they achieve desired work outcomes, such as performance and satisfaction (Hackman and Oldham, 1976). Accordingly, substantive autonomy, clear role descriptions, teamwork, involvement in the solutions of work problems, and learning opportunities represent positive QWL (Nandan and Nandan, 1995).

QWL has been shown to influence organizational outcome variables such as job satisfaction (Danna and Griffin, 1999), organizational commitment (Mowday et al., 1982), and turnover rates (Coombs, 2009). In addition, work experience (e.g., autonomy, role descriptions and demands, team work, the amount of workload and work time, emotional stress), job involvement (e.g., involvement in the solutions of work problems), career expectation/development (e.g., learning opportunities), and demographic variables (e.g., gender, age, organizational and job tenure) are important antecedents affecting QWL (Bolhari et al., 2011; Igbaria et al., 1994; Lounsbury et al., 2007; Menaghan and Merves, 1984; Nandan and Nandan, 1995).

Despite these studies, very few studies have examined leadership as a key antecedent to employees' QWL (Mafini, 2015). The QWL in this study concerns IT personnel's psychological evaluation of their job and work-related conditions (Efraty and Sirgy 1990). We define it as the extent to which IT personnel perceive the fulfillment of their needs concerning job and work-related conditions: 1) experienced meaningfulness of their work/job as to how much their jobs are relevant and contribute to the organizations, 2) experienced responsibility over their job as to how much autonomy IT personnel have in solving business problems and making decisions, and 3) how promptly IT personnel see results from their works on the job (Efraty and Sirgy, 1990). IT personnel evaluate the fulfilment of these three needs through a cognitive process that may result in a subjective but comprehensive evaluation on QWL (Gonzalez and Wu 1999; Minch and Sanders 1986; Wu and Gonzalez 1999). This process can be understood as a sense-making process of social cues or information provided by IT leadership who actively communicate the values of the work and tasks with followers, empower followers to autonomously make decisions, and provide relevant feedback (Bass et al., 2003; Podsakoff et al., 1990).

2.3. IT Personnel's Requisite Soft Skills

IT personnel's main responsibilities have grown from centralized IT back-end support (e.g., functional maintenance, troubleshooting of network connectivity issues, etc.) to supporting the existing portfolio of IT applications in different business areas and developing in-house IT applications to aligning IT with business problems (e.g., maximizing the efficiency and integration of IT tools to business oper-

ations) (Carson, 2014). Specifically, IT personnel are often tasked to analyze business problems and IT solutions, align IT with business goals, integrate legacy systems (e.g., database systems) with new business applications, and utilize data to help businesses make better business decisions and capitalize on new business opportunities (Carson, 2014; Lee et al., 1995). Such variety of IT activities requires IT personnel to obtain accurate specification of clients' IT needs and business priorities and collaborate to properly incorporate users' requirements (Jiang et al., 2003; Lee et al., 1995; Luftman, 2007a). That is, IT personnel need to clearly understand their organization's goals, core capabilities, critical success factors, and market environment such as level of competition, constraints, etc. (Bassellier and Benbasat, 2004). In addition, IT personnel must also facilitate the transfer of IT and business knowledge across the organization (Pawlowski and Robey, 2004; Roepke et al., 2000). To do so, IT personnel should go above and beyond being technology domain knowledge experts; instead, they should possess overall skills that help in understanding business processes and operations to challenge the status quo, effectively translating and interpreting business problems in an objective fashion to stakeholders, and working with business partners and clients in harmony. IT personnel construct meaning of their work in such situations and recognize requisite soft skills to be effective and successful (Piccolo and Colquitt, 2006; Salancik and Pfeffer, 1978), not exclusively through objective job characteristics such as formal job requirements. Thus, these skills are developed later on because IT personnel, although possessing technical skills, should have many other skills to effectively work on business problems and deliver their solutions. And, our research suggests that these skills may only present themselves once IT personnel have seen them modeled by an IT manager.

Reflecting on the nature of today's IT work and IT personnel's idiosyncratic preferences of intrinsic motivators (Bassellier and Benbasat, 2004; Castellano, 2012; Choudhury et al., 2010; Eom and Lim, 2012; Ferratt et al., 2005), we focus on IT personnel's broad requisite soft skills, not specific to particular technical domains, requirements, and tasks. We define IT personnel's requisite soft skills as skills required by IT personnel to support and enable organizational business objectives. These soft skills not only enable IT personnel to be effective in their current jobs but help them progress further in their careers (Kappelman et al., 2016a). These soft skills encompass interaction, communication and collaboration. Interaction skills pertain to developing consciousness of others. For example, IT personnel should be friendly, compassionate, and respecting of others' opinions. Communication skills with business partners aid IT personnel to better understand the business problems. To effectively work with their business clients, partners, and stakeholders, IT personnel need to analyze problems within a big-picture framework and conceptualize how parts and functions fit together. Collaboration and management skills with business lines and management of cross-functional IT projects are indispensable for IT personnel to be able to cooperate and partner with business counterparts and stakeholders to champion organizational strategy and assure a timely completion of mission-critical IT projects (Bassellier and Benbasat, 2004; Carson, 2014; Choudhury et al., 2010; Eom and Lim, 2012; Jiang et al., 2003; Kappelman et al., 2016a; Luftman, 2007a). Thus, IT personnel should understand the overall goals and strategies of their organization, effectively collaborating with business partners and learning different nuances of an organization's dynamics (Eom and Lim, 2012). To our

knowledge, IT personnel's requisite soft skills have not been thoroughly investigated in a setting that leads IT personnel to recognize and attain requisite soft skills and how possession of such skills affects their turnover intentions.

2.4. IT Personnel's Intention to Stay

Intention to stay is defined as IT personnel's intention to remain with their jobs at their current organizations (Coombs, 2009; Tett and Meyer, 1993). Intention to stay is a widely-used proxy for an employee's job-related satisfaction and is mainly affected by an individual's attitudinal variables to an organization such as one's commitment, loyalty, job satisfaction, etc. (Tett and Meyer, 1993). It is also considered as a direct predictor of one's actual behavior/action (e.g., 'staying') (Tett and Meyer, 1993).

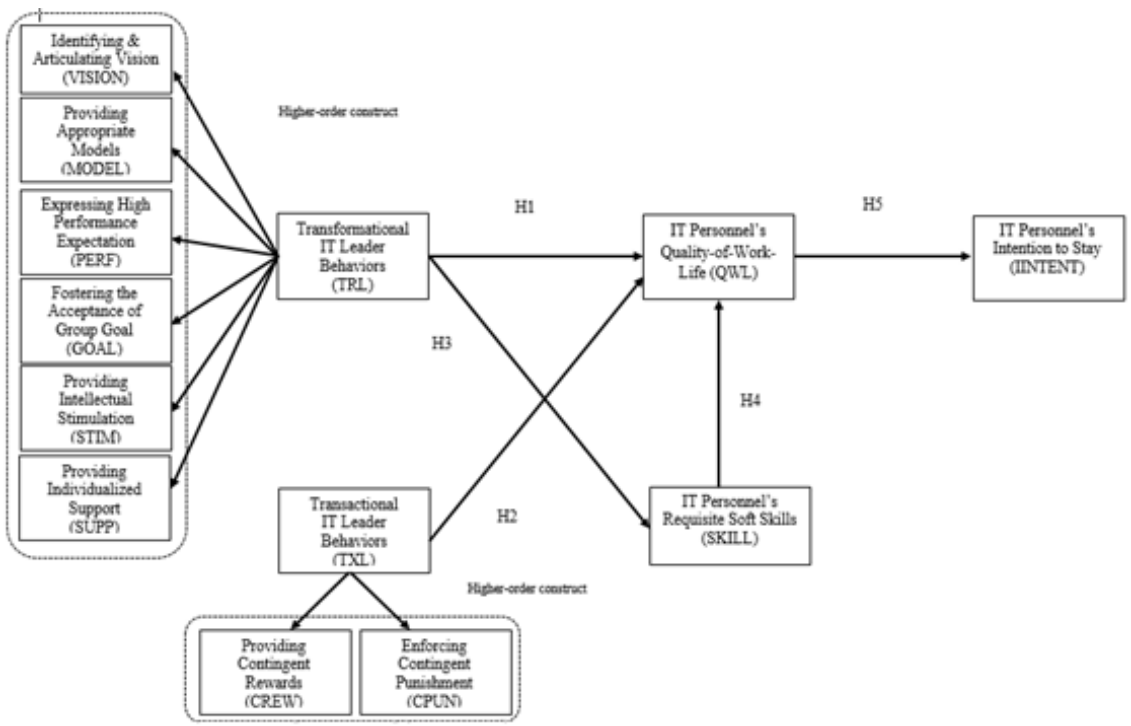
Prior studies, especially in management, found many common antecedents to intention to stay: IT personnel's level of education, willingness to perform given tasks, job satisfaction, loyalty and self-, social, and organizational identification as well as role stressors (e.g., role ambiguity and conflict) and work-related factors (e.g., amount of work, boundary of work, inequalities, salary, and promotion opportunities) (Agarwal and Ferratt, 2001; Igbaria and Greenhaus, 1992; Joseph et al., 2007).

Additionally, intention to stay is closely related to IT personnel's unique workplace needs: freedom to be creative, autonomy at work, intellectually challenging tasks and mission-critical projects, a work environment where they can create a professional reputation and meet competent colleagues, and the respect and appreciation of peers and top management (Igbaria and Greenhaus, 1992). In addition, IT personnel's current career stage, IT human resource (HR) management practices (e.g., variable and market-anchored compensation and benefits, employability training and development, promotion and non-monetary/monetary recognition, sense of community, and relaxed, flexible environment/working arrangements), and tactics focusing on empowering IT personnel have all been found to be effective in IT personnel retention (Agarwal and Ferratt, 2002; Agarwal et al., 2007; Roepke et al., 2000). However, previous studies have overlooked the role of IT leadership in IT personnel retention.

Ⅲ. Research Model and Hypotheses

In the following section, we present the research model with hypotheses developed from the social information processing perspective. Orlikowski et al. (1995) suggest two sets of actions in the area of technology use: meta-structuring actions which are taken by institutional elite and individual structuring actions which are done by individual users in an organization. Meta-structuring actions build the basis for the use of technology by manipulating organizational norms such as reward and sanctions and by promoting the use of technology. Then individual users oriented by the meta-structuring actions of top management find better ways of using the technology for their jobs. This idea of meta-structuring and individual structuring actions provides this study with a good rationale to explain how leadership behaviors affect individual intention to stay with an organization. In this study, 'meta-structuring actions' represent IT manager's leadership behaviors. IT manager's leadership behaviors influence IT personnel's understanding of their work requirements in terms of soft skills necessary to be relevant and valuable at work through their sense-making of leadership behaviors. 'Individual-structuring actions' are for IT

personnel to acquire the soft skills encompassing interaction, communication and collaboration skills, thereby keeping the IT unit a relevant and valuable contributor (Orlikowski et al., 1995). For example, an IT manager's transformational (leading by example, facilitating participative decision-making, empowering IT personnel with autonomy, informing/articulating organization's strategic directions/objectives in line with IT unit's plans and responsibilities) and transactional (rewards for meeting milestones and goals, taking corrective actions for mistakes) leadership behaviors (meta-structuring actions) are expected to influence IT personnel to recognize and harness the skills necessary to work with business partners. These leadership behaviors will also lead IT personnel to the perception that they do meaningful jobs and feel empowered in making decisions, etc. (Conger and Kanungo, 1998; Spreitzer, 1995; Srivastava et al., 2006; Thomas and Velthouse, 1990). In other words, IT managers tend to communicate with IT personnel to promote specific skills that make them relevant, efficient, and effective in their jobs. Based on these behaviors (meta-structuring actions), IT personnel try to recognize and acquire the desired skills to be efficient and effective in their jobs and evaluate their QWL (individual structuring actions). In particular, IT personnel perceive their QWL as high when they believe their work is meaningful; they have responsibility for their own work, and they have quick knowledge of results (Hackman and Oldham, 1976; Hackman and Oldham, 1980). <Figure 1> displays the research model of how an IT manager's transformational and transactional leadership behaviors influence IT personnel's QWL and their intention to stay.



<Figure 1> Research Model

3.1. IT Manager's Leadership Behaviors and IT Personnel's QWL

Both transformational and transactional leadership behaviors are appropriate to investigate IT personnel's work-related perceptions, due to the unique individual characteristics of IT personnel. IT personnel (e.g., IT programmers, systems analysts, database designers, network architects, etc.) are predominantly highly educated mostly in technology, intellectually curious, and creative (Bassellier and Benbasat, 2004). Such technology-centric IT human capital distinguishes IT personnel from others, and the cross-functional and boundary-spanning nature of today's IT tasks/work typically puts IT personnel working in environments with high ambiguity, high demand for change and learning, and constant interactions with business counterparts (Lounsbury et al., 2007). To operate beyond their conventional job requirements (Rousseau, 1995), IT personnel must learn more about business counterparts, develop and maintain business relationships, and attempt innovative IT solutions contributing to the overall organizational goal (Bassellier and Benbasat, 2004; Eom and Lim, 2012). Accordingly, IT personnel tend to prefer learning and training opportunities to stay constantly updated and challenged so as to improve their capacity to perform various tasks and solve business problems using IT-enabled innovation (Hunter et al., 2008; Roepke et al., 2000). Coupled with these, IT personnel value a high degree of professionalism with more responsibility and authority to make decisions, autonomy at work including design of their own work, artistry of their accomplishments, and recognition of their work among peers and the public that leads to career advancement (Reddon, 2014; Wynekoop and Walz, 1998). These salient features of IT personnel make QWL very important when they decide whether to stay with the organization in the future.

Previous research has indicated that both transformational and transactional leadership behaviors are effective in enhancing followers' and a group's performance as well as followers' turnover rate and job satisfaction (Bass et al., 2003; Lowe et al., 1996). However, in this study, we hypothesize the indirect relationship between leadership behaviors and employee turnover by introducing QWL as a moderator. Even further, when considering the characteristics of IT personnel, a transformational leader, who empowers followers and inspires them to create shared beliefs, is likely to be more effective than a transactional leader in enhancing employees' job-related outcomes such as job satisfaction, attitude, and commitment (Dewettinck and van Ameijde, 2011).

A transformational IT manager is likely to influence IT personnel's QWL in three ways. Firstly, a transformational IT manager articulates the IT vision, identifies new strategic opportunities for IT, and communicates the significance of IT personnel's work in the context of organizational performance. Through these actions, the leader sends signals about and increases the importance of IT personnel's work (Reddon, 2014). IT personnel then realize how they contribute to the overall performance of an organization, viewing their presence as strategically important, leading to satisfaction with their positions and tasks (Bartram and Casimir, 2007; Efraty and Sirgy, 1990). Secondly, a transformational IT manager provides an appropriate model for IT personnel to work with, encourages IT personnel to solve business problems with innovative methods, and incorporates business priorities while evaluating the organization's IT needs. With this model, IT personnel feel empowered in solving business problems and making alternative decisions (e.g., reflecting on changing business

requirements, adjusting the line of IT applications and/or services customized to customers' needs) (Zhang and Bartol, 2010). Thirdly, a transformational IT manager provides encouraging feedback to IT personnel, albeit not in the form of contingent rewards. An effective IT manager is cognizant of IT personnel's development, needs, and personal well-being (Reich and Kaarst-Brown, 2007). By acting as a coach or mentor, such an IT manager provides IT personnel with plenty of growth opportunities and prompt feedback on the work they perform (for example, through making key IT decisions, working with other business personnel and learning other business functions), and makes them realize that their careers are on the right track under her/his guidance (Larsen, 2014). Providing such a nurturing work environment and opportunity for career advancement will likely increase IT personnel's QWL. Thus, we propose the following hypothesis:

H1: Transformational IT leader behaviors will positively affect IT personnel's QWL.

An IT manager's leadership behaviors as meta-structuring actions are also at the core of transactional leadership behaviors which induce followers to deliver outcomes by engaging in exchange-based interactions, including clarification of given tasks, expected performance goals as well as prompt feedback in the form of subsequent rewards or punishments (Anonymous, 2002; Hayley, 1989). While a transactional IT manager would not directly affect how IT personnel see the significance of their work or offer autonomy, s/he will provide IT personnel with prompt feedback on the adequacy of the completed work (e.g., network operating at all times, database managing accurate and real-time data, the number of user complaints, etc.). Meeting or deviating from the expected outcomes results in IT personnel receiving monetary or promotional rewards or punishment (MacKenzie et al., 2001). We theorize that transactional IT leadership behaviors, which result in providing thorough, prompt, and fair feedback, are expected to contribute to IT personnel's perceptions of QWL. Thus, we provide the following hypothesis:

H2: Transactional IT leader behaviors will positively affect IT personnel's QWL.

3.2. IT Manager's Leadership Behaviors and IT Personnel's Requisite Soft Skills

Transformational IT leadership behaviors as the meta-structuring actions are expected to affect IT personnel's individual sense-making of the importance of a set of required skills on tasks and jobs. Such a leader may influence IT personnel by articulating the significance of their work for the organizational strategic goals, tying their vision with the organizational vision, and transcending IT personnel's perception of users as valued customers. In so doing, IT personnel will see what their positions and tasks entail so that they can improve their skills (Zhao and Rashid, 2010).

A transformational IT leader encourages IT personnel to heed customers' insights and suggestions for improvements. In so doing, IT managers can better educate IT personnel on how to serve their in and outside clients (e.g., how to communicate with customers, how to ask and understand whether IT can offer the product/service wanted, which IT product/service offering they would like to see, etc.). These actions motivate IT personnel to focus more on people-skills (Bass, 1998) and help them become more personable, approachable, and responsive to users in ways that correspond more with users' busi-

ness problems and IT needs. For instance, IT personnel with people-oriented skills will devote more time and effort to understanding users' anxieties about IT so as to think creatively and attentively or empathetically while delivering solutions to business problems (e.g., changing the line of product/services customized to customers' needs).

H3: Transformational IT leader behaviors will positively affect IT personnel's requisite soft skills.

Transformational, not transactional, leader behaviors are better aligned with IT personnel's preference for intrinsic rewards (motivating factors), and are more effective in influencing IT personnel to exert extra effort in performing tasks and responsibilities by acquiring skills they recognize as needed and important. Transformational leadership behaviors also augment the effect of transactional leadership behaviors by incorporating some core features of transactional behaviors (e.g., articulating vision, providing appropriate model, support, etc.) and eliminate the impact of transactional behaviors on organizational factors when such behaviors affect IT personnel's perceptual factors leading to their work-related decisions (Corrigan et al., 2002; Hater and Bass, 1988; Hetland and Sandal, 2003; Hetland et al., 2007).

3.3. IT Personnel's Requisite Soft Skills and Their QWL

Today's IT task and environment require IT personnel to possess soft skills, in addition to technical skills (Kappelman et al., 2016a). These requisite soft skills not only make it more likely that IT personnel will succeed in their job, but also make them feel that they contributed to the overall goal of their IT units and organizations. IT personnel with requisite soft skills will develop a collaborative network to help them locate and access proper information to be more competent in business (Bassellier and Benbasat, 2004) leading them to feel more confident, be more active, and seek innovative, persuasive ways to work with others (Jiang and Klein, 1999; Jiang and Klein, 2000). As they become capable of pro-actively seeking innovative IT solutions to business problems and making key decisions for business improvements, IT personnel feel empowered and position themselves as leaders (Roepke et al., 2000). In so doing, IT personnel can assess their career stage (e.g., productivity, compensations, security, etc.) and recognize and acquire requisite soft skills that are meaningful for an organization's performance as well as bring them joy, empowerment, accolades and career advancement (Agarwal and Ferratt, 2002; Igbaria and Greenhaus, 1992; Kappelman et al., 2016a). Such perceptions of their own requisite soft skills as important and valuable are likely to positively influence IT personnel's QWL. Hence, the following hypothesis is proposed:

H4: IT personnel's requisite soft skills will positively affect their QWL.

3.4. IT Personnel's QWL and Their Intention to Stay

We theorize that IT personnel's beliefs about their QWL directly affect their intention to stay (Venkatesh et al., 2003). As IT personnel feel that their work-related needs are met, their satisfaction increases leading to their longer stay with the organization (Hackman and Oldham, 1976). Enhancement of IT personnel's perceptions of experienced meaningfulness, experienced responsibility, and knowledge of results will empower IT personnel as a strategic partner transforming their relationship with bigger enti-

ties/causes (Roepke et al., 2000) and giving them a sense of business ownership, commitment, and responsibility for organizational performance that is beyond the direct impact of their specific area of work (Bassellier and Benbasat, 2004). Such psychological empowerment creates an environment in IT that favors proactive participation, promotes good ties with the rest of the business, and improves retention (Roepke et al., 2000). Hence, the following hypothesis is proposed:

H5: IT personnel's QWL will positively affect their intention to stay.

3.5. Mediation Hypothesis

Transformational IT leadership behaviors affect IT personnel's intention to stay only by their influence on IT personnel's QWL. This argument is quite straight forward when considering the relationship between meta-structuring actions and individual structuring actions. For the leadership behaviors as meta-structuring actions to affect individual intention to stay requires individual structuring actions of QWL and requisite soft skills to be the funnel for the intention to stay. A transformational IT manager who can articulate the vision of the IT unit's role in fulfilling an organization's objectives, who acts as a good role model, develops team-oriented goals, creates a stimulating environment, and expects the best performance is highly likely to influence IT personnel's view of their job importance and their overall QWL (Bass et al., 2003; Coombs, 2009; Hetland and Sandal, 2003; MacKenzie et al., 2001). When IT personnel feel that their work is important and they are empowered to make significant contributions to the organizational goals, which means QWL is high, they are more likely to stay with their organizations (Jiang and Klein, 1999; Jiang and Klein, 2000). Thus, we propose the following hypothesis regarding a mediation effect:

H6: IT personnel's QWL mediates the relationship between an IT manager's transformational leadership behaviors and IT personnel's intention to stay.

Ⅳ. Research Method

4.1. Procedure

We used survey method to collect data. To administer the survey, we compiled a list of IT professionals currently working in the northwestern part of the United States in collaboration with northwest chapters of the SIM. We emailed all participating IT leaders (members of northwest chapters of the SIM) the survey invitation with the link to our web survey prepared on a secure network and asked them to solicit the survey invitation to their IT personnel. Accordingly, all participants were provided with full autonomy to participate or decline to participate as well as the informed consent approved by the Institutional Review Board (IRB). In total, 205 of 931 IT professionals responded and participated in the survey (a response rate of about 22%), which is higher than a typical 10% response rate of web survey. <Table 2> provides the descriptive statistics of survey respondents and the composition of their corresponding organizations. Respondents' demographic information (gender, level of education, tenure on their current position and organization) and size of their organizations (number of total employees and total sales) were also collected for the control purpose. *Note* that participants' current position titles were not asked to ensure anonymity. <Appendix A>

provides all items used in our research survey.

4.2. Measures

4.2.1. IT Manager's Transformational and Transactional Leadership Behaviors

Podsakoff et al. (1990)'s Transformational Leadership Behavior Inventory (TLI) was used to assess the manager behaviors measured in the study. Previous research (e.g., MacKenzie et al., 2001) showed strong evidence supporting the hypothesized factor structure, internal consistency reliability, and concurrent and discriminant validity of the scale. IT personnel responded to all items using a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). For an IT manager's transactional leadership behaviors, we used three-item contingent reward behavior and three-item contingent punishment behavior scales from the same TLI (MacKenzie et al., 2001). Although both transactional and transformational IT leadership are conceptualized as a collection of several first-order constructs, we operationalized each of them as single higher-order factors because, according to prior studies, all sub-dimensions showed high correlations (<Table 5>) and generally had no strong differential relationships with leadership outcome variables. Thus, using a single factor is highly recommended as the best conceptualization of both leadership behaviors (Bycio et al., 1995; Howell and Avolio, 1993). In our study, all the second-order constructs used first-order constructs as reflective indicators, and similarly, all the first-order constructs used reflective indicators for measurement purposes.

4.2.2. IT Personnel's QWL

To assess IT personnel's QWL, we used a valid 4-item questionnaire with a 7-point Likert scale (1 = strongly disagree and 7 = strongly agree) drawn from Efraty and Sirgy (1990). These items were reflective in nature and represented three key areas of experienced meaningfulness, experienced responsibility, and knowledge of results that IT personnel use to evaluate how their work-related needs are met.

4.2.3. IT Personnel's Requisite Soft Skills

We used seven key items encompassing collaboration, interaction and collaboration skills from the existing IT skills set developed by previous studies (Eom and Lim, 2012; Mykytyn et al., 1994) to be consistent with our conceptualization of IT personnel's requisite soft skills (see <Appendix A>). We also used prior studies accentuating the increasing need for IT personnel to possess skills in communication, interaction with business-side and business problem-solving outside of traditional skills in the technical domain (Choudhury et al., 2010; Eom and Lim, 2012; Ferratt et al., 2005; Jiang et al., 2003; Kappelman et al., 2016a; Luftman, 2007a). These items were reflective in nature and encompassed three areas of communication skills pertaining to problem-understanding, interaction skills pertaining to developing consciousness/deriving consensus, and collaboration and IT project management and were validated by IT practitioners before being administered. Respondents used a 7-point Likert scale (1 = very unimportant to 7 = very important) to reflect their level of agreement.

4.2.4. IT Personnel's Intention to Stay

IT personnel's intention to stay was measured using a 3-item instrument developed by Weiss et al.

(1967). The instrument measures respondents' intention to stay with the positions at their current organizations. Intention to stay was measured with respondents' degree of agreement on a 7-point scale and all the items were reflective indicators.

Ⅴ. Data Analysis

5.1. Descriptive Statistics

<Table 2> shows all key descriptive statistics on the data samples. A total of 205 IT professionals (IT personnel) responded. Respondents were at the average age of 45 and largely male (67.8%) with a higher education background (89.3% with junior college, college or graduate degrees). Most had held their current IT positions at the time of completing the survey for 2 years or more (89.3%; mean = 3 years) at their current organizations (92.2%; mean = 3.4 years). The participants represented a wide variety of industries: financial services, manufacturing, transportation, technology, healthcare, and government. The industry types included pub-

<Table 2> Descriptive Statistics on IT Personnel

IT Personnel (N = 205)			
Category	Items	Number of Respondents	Percentage of Respondents
Gender	Male	139	67.8%
	Female	59	28.8%
	No Responses	7	3.4%
Age	Under 25	1	0.5%
	25-35	29	14.1%
	36-45	70	34.1%
	Over 46	90	43.9%
	No Responses	15	7.3%
	Average Age (missing = 16)	*Mean = 45.45*	
Education	High School	14	6.8%
	Junior College- College	107	52.2%
	Graduate- Post Graduate	76	37.1%
	Other	8	3.9%
Tenure at Position	Less than 1 year	20	9.8%
	1 -5 years	103	50.2%
	More than 5 years	78	38.0%
	No Responses	4	2.0%
	Average Age (missing = 4)	*Mean = 3.05*	
Tenure at Organization	Less than 1 year	12	5.9%
	1 -5 years	64	31.2%
	More than 5 years	125	61.0%
	No Responses	3	1.5%
	Average Age (missing = 3)	*Mean = 3.41*	

<Table 3> Descriptive Statistics on Industry Represented

Organization			
Category	Items	Number of Respondents	Percentage of Respondents
Type	Publicly-traded	91	44.4%
	Privately-owned	54	26.3%
	Government or state-	45	22.0%
	Other	15	7.3%
Industry	Financial services	10	4.9%
	Manufacturing	26	12.7%
	Transportation	74	36.1%
	Education	3	1.5%
	Technology	21	10.2%
	Food	4	2.0%
	Healthcare	21	10.2%
	Government	30	14.6%
	Other	16	7.8%
Annual Sales ($ million)	< = 100	16	7.8%
	101 - 500	24	11.7%
	501 - 1,000	13	6.3%
	> 1,000	46	22.4%
	No Responses	106	51.7%
Number of Employees	< 20	21	10.2%
	21 - 50	33	16.1%
	51 - 100	33	16.1%
	101 - 500	40	19.5%
	501 - 1,000	32	15.6%
	> 1,000	25	12.2%
	No Responses	21	10.2%

licly-traded, privately-owned, and government organizations (see <Table 3>). 103 of all IT leaders (to whom respondents, IT personnel, report) being evaluated by IT personnel were IT managers (50%) followed by 30 CIOs (15%), 29 IT directors (14%), 21 Vice Presidents of IT (10%), and 22 others (e.g., Senior Manager, Deputy CIO, etc.) (11%).

5.2. Data Analysis

The dataset contained 1.9% missing values. Little's Missing Completely At Random (MCAR) test indicated that missing data was completely at random (Little and Rubin, 1987). We used SPSS version 22 to impute the missing values using maximum-likelihood based EM algorithm, thus retaining all 205 cases. Analysis of Q-Q plots and results of

<Table 4> Reliability Assessment of the Measurement Model

Variable	AVE	Composite Reliability
GOAL	0.78	0.93
INTENT	0.75	0.90
MODEL	0.87	0.95
QWL	0.54	0.82
PERF	0.80	0.93
CPUN	0.77	0.91
CREW	0.86	0.95
STIM	0.74	0.92
SKILL	0.51	0.88
SUPP	0.68	0.89
TXL	0.55	0.88
TRL	0.58	0.97
VISION	0.65	0.90

Kolmogorov-Smirnov statistical tests showed that individual measures exhibited departures from normality. Since we used Partial Least Squares based Structural Equations Modeling (PLS-SEM) to test the model, it was not required for PLS-SEM data to be normal. To check for common method bias, we used Harman's one-factor test. Exploratory factor analysis using all the measures of our study did not result in a single factor that accounted for the majority of covariance among constructs. Factor 1 accounted for only 6.4% of total variance, which suggests that common method bias is not a serious issue with present research (Podsakoff et al., 2003). In addition, we performed common latent factor analysis, and the results suggest that there is no significant common method bias as the calculated common variance (22%) is below the threshold of 50% (Eichhorn, 2014). Further, we took proactive measures to counter common method bias such as designing the questionnaire to protect subject anonymity and randomizing the question order (Eichhorn, 2014). Using G*Power 3.1.2 software (Faul et al., 2009), the power of our model with 4 predictors, 0.01 significance level (α) and the effect size (ES) of 0.15 is 99.92%.

We used PLS-SEM to test our research model. The software tool used for this purpose was SmartPLS version 2. Use of PLS-SEM is justified in this context because, (1) this work aims to develop theory, (2) PLS-SEM is robust when missing values are below a reasonable level (less than 2% in our case), and (3) data is non-normal. We used a bootstrapping procedure with 205 cases and 500 samples and PLS algorithm in SmartPLS to obtain our results.

First, the measurement model is assessed for internal consistency reliability. Results from <Table 3> indicate that the composite reliability scores of measures ranged from 0.82 to 0.97, which exceed the recommended value of 0.70 (Nunnally Jr., 1978). In addition, the Average Variance Extracted (AVE) values for each construct exceed the recommended threshold of 0.5 (Fornell and Larcker, 1981).

To check for discriminant validity of measures, we used Fornell-Larcker criterion (Fornell and Larcker, 1981). This criterion suggests that the square

<Table 5> Inter-construct Correlations

	GOAL	INTENT	MODEL	QWL	PERF	CPUN	CREW	STIM	SKILL	SUPP	TXL	TRL	VISION
GOAL	1.00												
INTENT	0.27	1.00											
MODEL	0.78	0.21	1.00										
QWL	0.44	0.38	0.43	1.00									
PERF	0.69	0.18	0.66	0.35	1.00								
CPUN	0.44	0.14	0.36	0.22	0.60	1.00							
CREW	0.66	0.23	0.66	0.41	0.50	0.36	1.00						
STIM	0.73	0.24	0.67	0.42	0.71	0.50	0.54	1.00					
SKILL	0.16	-0.02	0.18	0.18	0.14	0.17	0.13	0.18	1.00				
SUPP	0.64	0.21	0.71	0.48	0.39	0.20	0.64	0.50	0.13	1.00			
TXL	0.68	0.23	0.64	0.39	0.66	0.78	0.86	0.63	0.18	0.54	1.00		
TRL	0.90	0.27	0.90	0.49	0.82	0.50	0.69	0.86	0.17	0.70	0.73	1.00	
VISION	0.78	0.29	0.83	0.48	0.76	0.44	0.60	0.76	0.13	0.60	0.64	0.93	1.00

<Table 6> Inter-correlations and AVE among First-order Factors

	GOAL	INTENT	MODEL	QWL	PERF	CPUN	CREW	STIM	SKILL	SUPP	VISION
GOAL	**0.88**										
INTENT	0.27	**0.86**									
MODEL	0.78	0.21	**0.96**								
QWL	0.44	0.38	0.43	**0.73**							
PERF	0.69	0.18	0.66	0.35	**0.90**						
CPUN	0.44	0.14	0.36	0.22	0.60	**0.88**					
CREW	0.66	0.23	0.66	0.41	0.50	0.36	**0.93**				
STIM	0.73	0.24	0.67	0.42	0.71	0.50	0.54	**0.86**			
SKILL	0.16	-0.02	0.18	0.18	0.14	0.17	0.13	0.18	**0.72**		
SUPP	0.64	0.21	0.71	0.48	0.39	0.20	0.64	0.50	0.13	**0.82**	
VISION	0.78	0.29	0.83	0.48	0.76	0.44	0.60	0.76	0.13	0.60	**0.81**

Note: Diagonal values represent square root of AVE

root of average variance extracted for each construct should be greater than its highest correlation with any other construct. <Table 5> shows inter-construct correlations for all variables. <Table 6> shows inter-construct correlations of first-order constructs with diagonal values representing the square root of average variance extracted. <Table 7> shows inter-construct correlations of structural model constructs with diagonal values representing the square root of average variance extracted. Analysis from <Table 6> and <Table 7> indicates that the square root of AVE for every variable is higher than its

<Table 7> Inter-correlations and AVE among Structural Model Factors

	INTENT	QWL	SKILL	TXL	TRL
INTENT	**0.86**				
QWL	0.38	**0.73**			
SKILL	-0.02	0.18	**0.72**		
TXL	0.23	0.39	0.18	**0.74**	
TRL	0.27	0.49	0.17	0.73	**0.76**

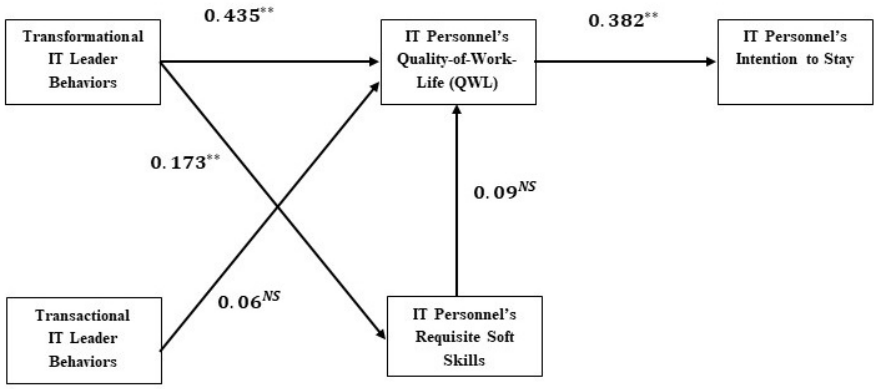
Note: Diagonal values represent square root of AVE

highest correlation with any other construct. In addition, from <Table 5>, high correlations among first-order constructs making up TRL and TXL support their higher-order conceptualization.

We checked convergent validity by examining the factor loadings of all indicator items on their respective constructs. First, the items loaded highly on their respective constructs as opposed to the other constructs. Second, all factor loadings were highly significant ($p < 0.01$). Third, a vast majority of items satisfied the threshold for meeting the convergent validity requirement of a loading greater than 0.7 (Yoo and Alavi, 2001). Only a few indicators showed factor loadings of less than 0.70. Hair et al. (2013) recommend that items with loadings between 0.4-0.7 could be retained on the basis of their contribution to content validity. Based on this recommendation, we retained a few items whose factor loadings are less than 0.7 but greater than 0.5 based on their contribution to content validity. <Appendix B> shows factor loadings on latent variables in addition to providing means and standard deviation. We assessed if independent variables are highly correlated by checking multicollinearity. Using latent variable scores, the dependent variable Intention is regressed using QWL, Skills, TRL, and TXL. The resultant variance inflation factors ranged from 1.04 to 5.59, which are lower than the threshold of 10 suggested by Kunter and his colleagues (Kunter et al., 2004). This analysis suggests that multicollinearity is not an issue.

5.3. Results

<Figure 2>, <Figure 3> and <Table 8> present the results of our structural model test and several measures for its evaluation. Hypothesis 1, suggesting that a positive relationship exists between transformational IT leader behaviors and IT personnel's QWL, is supported ($\beta = 0.44$, $p < 0.01$). Hypothesis 2 suggests that a positive relationship exists between transactional IT leader behaviors and IT personnel's QWL. Our results do not support this hypothesis ($\beta = 0.06$, $p > 0.05$). Hypothesis 3 suggests that a positive relationship exists between transformational IT leader behaviors and IT personnel's requisite soft skills. Our results lend support for this hypothesis ($\beta = 0.173$, $p < 0.01$). Hypothesis 4 suggests a positive relationship between IT personnel's requisite soft skills and IT personnel's QWL. Our results do not support this hypothesis ($\beta = 0.09$, $p > 0.05$). Hypothesis 5 suggests a positive relationship between IT personnel's QWL and IT personnel's intention to stay. Our results support this hypothesis ($\beta = 0.382$, $p < 0.01$). Finally, PLS analysis was used to examine the hypothesis 6 that IT personnel's QWL mediates the relationship

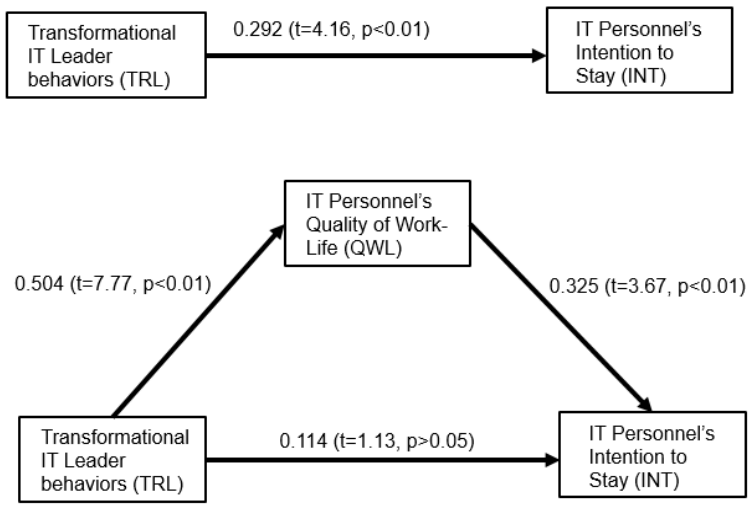


<Figure 2> Results of Research Model

<Table 8> Evaluation of Structural Model

Relationship	Path Coefficient	*t*-values	Significant?
TRL to QWL	0.44	3.95	Yes, Significant at α = 0.01
TRL to SKILL	0.17	2.60	Yes, Significant at α = 0.01
TXL to QWL	0.06	0.57	No
SKILL to QWL	0.09	1.09	No
QWL to INTENT	0.38	6.21	Yes, Significant at α = 0.01
	R^2 values	**Q^2 values**	
SKILL	0.03	0.02	
QWL	0.26	0.13	
INTENT	0.15	0.10	
f^2 Effect Sizes	**Value**	**Effect**	
Effect size for QWL	0.07	Between small and medium	
Effect size for SKILL	0.002	None	
Effect size for TRL	0.002	None	
Effect size for TXL	0.002	None	
q^2 Effect Sizes	**Value**	**Effect**	
QWL to INTENT	0.057	Between small and medium	
TRL to QWL	0.044	Between small and medium	

between transformational IT leader behaviors and IT personnel's intention to stay (<Figure 3>). Prior to including the mediator, there is a significant positive relationship between TRL and INT (β = 0.292, p < 0.01). After including the mediator, the analysis showed that transformational IT leader behaviors were a significant predictor of IT personnel's QWL (β = 0.50, p < 0.01) and IT personnel's QWL successfully predicted IT personnel's intention to stay (β = 0.325, p < 0.01). After including IT personnel's



<Figure 3> Mediation Analysis

QWL, transformational IT leader behaviors no longer successfully predicted IT personnel's intention to stay suggesting a full mediation (β = 0.108, $p > 0.05$) (MacKinnon et al., 2007). The indirect effect was tested using a bootstrap estimation approach with 1000 samples (Hair Jr et al., 2013). The results showed that the indirect was significant (t = 3.24, $p < 0.01$). In addition, we tested a mediation link involving IT personnel's requisite soft skills. IT personnel's requisite soft skills did not mediate the relationship between transformational IT leader behaviors and IT personnel's QWL. The analysis showed that transformational IT leader behaviors were a significant predictor of IT personnel's requisite soft skills (β = 0.183, $p < 0.05$), but IT personnel's requisite soft skills did not predict IT personnel's QWL successfully (β = 0.11, $p > 0.05$). After including IT personnel's requisite soft skills, transformational IT leader behaviors still successfully predicted IT personnel's QWL indicating no evidence for mediation (β = 0.477, $p < 0.01$) (MacKinnon et al., 2007).

Further, we included a number of control variables in the model such as gender, age, level of education, tenure at the current position and tenure with the current organization of the respondent, size of company in terms of number of employees and sales revenue, and industry. None of the control variables were statistically significant. With respect to industry, because 36% of data came from transportation industry, we created a dummy variable (transportation = 1, other industries = 0) and used it as a predictor for intention to stay. The result showed that industry is not significant (β = 0.024, $p > 0.05$).

Our analysis of the structural model includes evaluating R^2 values, Cohen (1988)'s f^2 effect sizes, Stone (1974)'s and Geisser (1974)'s cross-validated redundancy measure (Q^2), and q^2 effect sizes (Chin, 1998). The coefficient of determination (R^2 for IT personnel's intention to stay is 0.15, and IT personnel QWL is 0.26.

The f^2 effect sizes are used to assess an independent variable's contribution to an endogenous latent variable's R^2 value. The IT personnel's QWL exhibits a moderate effect on IT personnel's intention to stay (f^2 effect size = 0.07). The effect sizes for other variables are not of significance. Q^2 values of greater

than 0 indicate that exogenous variables have predictive relevance for a specific endogenous construct (Hair Jr et al., 2013). IT personnel's skills, IT personnel's QWL, and IT personnel's intention to stay all have Q^2 values of greater than zero. Use of Q^2 values allows for calculating q^2 effect sizes, which can be used as relative measures of predictive relevance. The q^2 effect sizes for IT personnel's QWL in predicting IT personnel's intention to stay is 0.06, and Transformational IT leader behaviors to IT personnel's QWL is 0.04. These q^2 effect sizes are small to medium (small q^2 effect size is 0.02, medium is 0.15) in their predictive relevance (Hair Jr et al., 2013). Overall, this analysis on effect sizes indicates that transformational IT leader behaviors and IT personnel's QWL have exhibited good predictive validity with regard to IT personnel's Intention to Stay.

We also performed a mediation analysis to check if IT personnel's QWL mediates the relationship between a transformational IT leader behavior and IT personnel's intention to stay (consult <Figure 3>). We believe that transformational IT leadership behaviors directly influence the environment in which IT personnel find greater meaning in their work. For instance, when a transformational IT manager creates a vision of how the IT unit is supposed to respond to the needs of the company, fosters the group goals of being team players, intellectually challenges them and supports them in their work, and showcases herself as the role model, such an environment clearly highlights the contribution of IT personnel to the overall goals of the organization. QWL, thus experienced by IT personnel through the realization of the importance of their work and the associated meaningfulness of their roles, positively influences their intention to stay in their organizations.

Following the procedure by Hair et al. (2013), the results indicate that IT personnel's QWL partially mediates the relationship between a transformational IT leader behavior and IT personnel's intention to stay. Before considering IT personnel's QWL, the relationship between a transformational IT leader behavior and IT personnel's intention to stay was statistically significant. However, when adding IT personnel's QWL to the model as a mediator, the impact of transformational IT leader behavior on IT personnel's intention to stay becomes non-significant. This result supports the idea that transformational IT leader behavior as a meta-structuring action shapes individual structuring actions such as IT personnel's QWL which affects the intention to stay (Purvis et al., 2001).

Ⅵ. Discussion of Findings and Limitations

Overall, our main contribution is to show that transformational IT leadership can influence IT personnel to recognize and develop requisite soft skills and increase IT personnel's QWL in order to retain them. Retaining competent IT personnel through transcending their perception of an organizational work environment and motivating them to recognize and develop requisite soft skills (individual structuring actions) is the key characteristic of transformational leadership behavior as the meta-structuring action. Once IT managers articulate their IT vision in line with an organization's overall strategy, IT personnel can relate themselves with the organization and realize the value of their contribution to the organization's overall objectives. Lastly, a transformational IT manager as a mentor and a coach should ensure IT personnel's well-being and ambition both at work and for the development of their careers by providing autonomy and opportunities to learn

valuable skills. IT personnel will value their work and plan for future career development.

We found no support for the relationship between transactional leadership behaviors and IT personnel's QWL. A possible reason for this result can be the unique characteristics of IT personnel that prefer intrinsic rewards (non-monetary rewards such as getting recognition among peers or in public) to explicit rewards/punishment. These are affective components which tend to have a much stronger relation with transformational leader behaviors while normative components may present a closer relation with transactional leader behaviors (Bycio et al., 1995). Exchange components of transactional IT leadership behaviors may slightly affect IT personnel's QWL by allowing them to promptly know the results of their performance; such an effect may be outweighed by the remaining two aspects of QWL, perceived value and perceived autonomy at work, to which exchange-based leader behaviors have minimum influence. Another possible explanation could be that IT personnel may come to expect the punishment and reward behaviors as normal leadership behaviors (de facto) and such de facto behaviors may do little to alter their QWL.

However, transformational IT managers can lead IT personnel in their individual structuring action of recognizing and developing requisite soft skills, which can be used to seek innovative IT solutions to business problems. Such managers invest more in education and training for IT personnel, which is in line with today's business practice of refining hiring/managing practices for IT (meta-structuring action) (Larsen, 2014). Thus, IT personnel are better equipped with relevant skills and provided autonomy in key decision-making which, overall, help retention (Kappelman et al., 2013).

IT personnel's requisite soft skills, however, did not affect their QWL. One possible explanation is that this study did not measure skills pertaining to improvement in technology domain knowledge. It is possible that when IT personnel develop their technical competencies in addition to the softer skills measured in this study, they may prove to be more efficient at work, which might improve their perceptions of QWL. In addition, according to Piccolo and Colquitt (2006) and Hackman and Oldham (1975), there are 5 important job characteristics that positively affect employees' job attitude: variety (number of skills and talents required), identity (one's ability to complete the whole work from start to finish), significance (impact on others), autonomy, and feedback. Requisite soft skills are one important factor, but there are four more (i.e., identity, significance, autonomy, and feedback) that employees may consider, especially in their sense-making process. These skills may affect experienced meaningfulness, but an IT employee needs to have four other aspects of job characteristics fulfilled to meet his/her experienced responsibility and/or knowledge of result.

As for theoretical contributions of this work, ours is the first study in an Information Systems (IS) setting to conceptualize the effects of transformational and transactional IT leaders, to examine IT personnel's intention to stay, and to investigate the whole process using the social information processing framework with meta-structuring actions of an IT manager (transformational leadership behaviors) and individual structuring actions (QWL and requisite soft skills) on the part of IT personnel. That is, we theorized and empirically tested that transformational IT leader behaviors do not directly influence IT personnel's intention to stay, but do influence IT personnel's QWL and requisite soft skills in a way to affect intention to stay.

Although this study provided a number of valuable insights, it is not free from limitations. First, we

relied on participants' self-reported measures for intention to stay. Adding objective measures such as retention rate and turnover ratio of IT personnel from participating organizations would have helped the study strengthen its findings. In addition, we did not have a timestamp for survey responses and, hence, could not conduct a non-response bias test. Second, this study evaluated all IT positions across the industry based on the strategic orientation of today's IT work and for generalizability of its findings. We did not capture the position titles of all respondents in order to ensure confidentiality and anonymity. This inability limited our ability in performing analysis based on specific job roles. Third, we did not control such variables as salary level, industry type, and routineness of IT tasks. Future studies could investigate how different industries use salary structures or autonomy levels to affect IT personnel's intention to stay. Fourth, the two first order constructs of transformational IT behaviors (Model and Vision) did not meet conditions of discriminant validity. However, we re-ran our analysis by merging Model and Vision and the results of the analysis were consistent with our original results. Therefore, we do not believe this limitation is a serious threat to our findings. Finally, we used only two variables to explain IT personnel's intention to stay which leaves scope for future researchers to study the phenomenon by theorizing other relevant variables.

Ⅶ. Conclusion

Many organizations expect the IT unit and its personnel to be equipped with a relevant set of skills to fully leverage IT investments in achieving organizational goals. In that regard, this study aims to shed light on the important role of IT leaders in enhancing the IT units' performance by encouraging IT personnel to recognize and acquire requisite soft skills and by improving their QWL, and eventually affecting their intention to stay to ensure the continuity and consistency in the performance of an entire IT unit.

Our research model makes an important contribution and sets the foundation for future research on IT leadership studies by adding a new, specific social information processing model to include effective leadership behaviors on the part of IT practitioners to develop, nurture, and retain a competent IT workforce. This study was the first attempt to present and empirically test a nomological model for IT managers' leadership behaviors as meta-structuring actions. From these actions, IT personnel's own individual structuration shapes the meaning of their works (QWL), and helps them to identify/realize relevant skills (requisite soft skills) and their corresponding actions (e.g., IT personnel's decisions to remain or leave). Specifically, the transformational leadership of an IT manager (i.e., core of meta-structuring action) affects IT personnel's perception and interpretation of their situation (i.e., core of individual structuration), which, in turn, influences IT personnel's intention to stay.

For managerial implications, in order for an IT manager to articulate their IT vision, they may want to use tools such as a strategic map or an IT performance evaluation matrix that visually display how IT personnel can link with an organization's overall strategies and business needs. Additionally, using the results of successful prior IT projects can help IT personnel clarify their roles within the organization and instill a sense of pride and accomplishment in their work, which improves retention.

In addition, an IT manager should model effective communication with business counterparts and clients. They can achieve this by instituting various

interaction venues including gathering cross-functional teams with IT personnel and representatives from various business functions, holding IT/business workshops, placing IT personnel as liaisons or customer relationship agents in other business functions, or rotating and training IT personnel within other key business functions upon hiring. To best serve businesses, IT personnel must ask the right questions and understand business problems within an IT context (e.g., how to communicate with customers with a list of questions to ask). These learning opportunities will aid IT personnel in becoming competent in business and relevant in overall business strategy serving as growth opportunities for career advancement, building loyalty toward their organizations, and eliminating complacency among IT personnel (Carson, 2014). In addition, since the nature of most IT positions today entails tacit knowledge and the IT market offers increasing job portability, IT managers should take measures to improve the skill set of IT personnel by offering training and development opportunities, providing fitting investments and resources, and building a unique culture that promotes learning (Kappelman et al., 2013).

The IT manager should also encourage IT personnel to use their creativity and critical thinking abilities in solving business problems (e.g., changing the line of product/services customized to customers' needs) and provide them with autonomy in making timely key decisions. While doing all these, the leader should foster the IT initiatives and goals that tie in with the organization's overall strategy through showing his/her conviction to such initiatives and continuously working with business clients. Thus, IT personnel can realize that working towards a higher goal in collaboration with business partners/clients will help them be better prepared for their career development and advancement.

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<Appendix A> Scales used in the Study

Transformational IT Manager's Leadership Behaviors (TRL)	**Identifying and Articulating a Vision (VISION)** L1 Has a clear understanding of where we are going. L2 Is able to get others committed to his or her dream. L3 Inspires others with his or her plans for the future. L4 Is always seeking new opportunities for the organization. L5 Paints an interesting picture of the future for our group. **Providing Appropriate Model (MODEL)** L6 Provides a good model for me to follow. L7 Leads by "doing" rather than simply by "telling". L8 Leads by example. **Fostering the Acceptance of Group Goal (GOAL)** L9 Encourages employees to be "team players". L10 Develops a team attitude and spirit among employees. L11 Fosters collaboration among work groups. L12 Gets the group to work together for the same goal. **High Performance Expectations (PERF)** L13 Insists on only the best performance. L14 Shows us that he or she expects a lot from us. L15 Will not settle for second best. **Intellectual Stimulation (STIM)** L16 Challenges me to think about old problems in new ways. L17 Has ideas that have challenged me to reexamine some of my basic assumptions about my work. L18 Asks questions that prompt me to think about the way I do things. L19 Has stimulated me to rethink the way I do some things. **Supportive Leader Behavior/Individualized Support (SUPP)** L20R Acts without considering my feelings (R). L21 Behaves in a manner thoughtful of my personal needs. L22 Shows respect for my personal feelings. L23R Treats me without considering my personal feelings (R).
Transactional IT Manager's Leadership Behaviors (TXL)	**Contingent Reward Behavior (CREW)** L24 Always gives me positive feedback when I perform well. L25 Personally compliments me when I do outstanding work. L26 Gives me special recognition when my work is very good. **Contingent Punishment Behavior (CPUN)** L27 Lets me know about it when I perform poorly. L28 Points it out to me when my productivity is not up to par. L29 Would indicate his or her disapproval if I performed at a lower level.
IT Personnel's Requisite Soft Skills (SKILL)	**Communication Skills Pertaining to Problem-Understanding (COMM)** S1. Paying attention to and concentrating on what is said, and asking questions that refine points about which one is uncertain. S2. Drawing inferences or conclusions from known or assumed facts. S3. Understanding, after the event, of what should have been done; the ability to draw upon and apply past experience. **Interaction Skills Pertaining to Developing Consciousness of Others (INTS)** S4. Being able to understand how others feel; accurately determining what someone else thinks about an issue.

<Appendix A> Scales used in the Study (Cont.)

IT Personnel's Requisite Soft Skills (SKILL)	**Collaboration/IT Project Management Skills (COLL)** S5. Presenting your ideas in a manner easily understood by the expert(s), both in group meetings and person-to-person. S6. Working with others productively; resolving conflict in an effective manner. S7. Having a broad view of company goals and operations; knowing the orientation of senior management.
IT Personnel Quality of Work-Life (QWL)	**Experienced Meaningfulness (MEAN)** Q1 My overall quality of work life in this company is very high. Q2 I feel my job is very important. **Experienced Responsibility (RESP)** Q3 I have the right level of autonomy in making my decision. **Knowledge of Results (RESU)** Q4 I know the results of my job quickly.
IT Personnel's Intention to Stay (INTENT)	I1 I plan to work at my present job for a long time. I2 I will probably spend the rest of my career at my present job. I3 Overall I intend to stay on the job I have in this company.

Note: R indicates reversely-coded item.

<Appendix B> Loadings and Cross-loadings, Means, and Standard Deviation of Measure

SECOND ORDER-CONSTRCT			TRANSFORMATIONAL ITLEADERSHIP (TRL)						TRANSACTIONAL IT LEADERSHIP (TXL)				
FIRSTORDER-CONSTRCT	MEAN	SD	VISION	MODEL	GOAL	PERFORM	STIMU	SUPPORT	REWARD	PUNISH	SKILLS	QWL	INTENT
I1	5.54	1.75	0.32	0.24	0.29	0.23	0.24	0.26	0.22	0.14	0.03	0.39	0.91
I2	4.26	2.22	0.1	0.03	0.09	0.01	0.08	0.03	0.08	0.02	-0.03	0.2	0.78
I3	4.97	2.08	0.28	0.21	0.27	0.16	0.25	0.2	0.25	0.16	-0.06	0.35	0.89
L1	5.81	1.11	0.72	0.6	0.47	0.46	0.43	0.36	0.39	0.28	0.16	0.3	0.25
L2	4.96	1.39	0.86	0.73	0.72	0.68	0.63	0.54	0.5	0.43	0.06	0.4	0.24
L3	4.79	1.46	0.86	0.8	0.74	0.63	0.67	0.61	0.58	0.36	0.06	0.4	0.22
L4	5.35	1.56	0.77	0.59	0.54	0.62	0.64	0.44	0.46	0.32	0.19	0.44	0.2
L5	5.45	1.59	0.83	0.6	0.63	0.67	0.69	0.46	0.48	0.37	0.07	0.4	0.28
L6	5.47	1.5	0.8	0.91	0.73	0.59	0.64	0.67	0.62	0.3	0.18	0.43	0.24
L7	5.03	1.65	0.71	0.93	0.68	0.59	0.57	0.64	0.62	0.31	0.16	0.37	0.1
L8	4.79	1.46	0.8	0.96	0.78	0.67	0.66	0.67	0.62	0.38	0.16	0.4	0.23
L9	5.79	1.33	0.54	0.55	0.82	0.47	0.56	0.49	0.51	0.34	0.14	0.3	0.14
L10	5.03	1.65	0.74	0.73	0.9	0.59	0.65	0.61	0.63	0.37	0.09	0.4	0.24
L11	5.24	1.43	0.71	0.7	0.89	0.65	0.66	0.56	0.6	0.39	0.13	0.39	0.28
L12	4.94	1.56	0.73	0.76	0.91	0.69	0.69	0.6	0.58	0.43	0.21	0.44	0.27
L13	4.98	1.73	0.69	0.62	0.65	0.92	0.62	0.41	0.5	0.56	0.15	0.36	0.16
L14	5.38	1.32	0.68	0.58	0.63	0.88	0.67	0.32	0.43	0.55	0.07	0.29	0.12
L15	5.47	1.26	0.68	0.59	0.56	0.89	0.62	0.32	0.42	0.51	0.16	0.29	0.19
L16	5.31	1.49	0.6	0.54	0.65	0.54	0.81	0.37	0.42	0.46	0.15	0.28	0.22
L17	4.94	1.36	0.61	0.48	0.53	0.57	0.82	0.32	0.4	0.47	0.18	0.31	0.17
L18	5.79	1.33	0.68	0.61	0.69	0.67	0.9	0.52	0.56	0.4	0.14	0.42	0.22
L19	5.06	1.44	0.72	0.65	0.63	0.67	0.89	0.48	0.48	0.39	0.14	0.42	0.2
L20R	4.99	1.73	0.38	0.42	0.41	0.29	0.34	0.67	0.38	0.21	0.2	0.39	0.24
L21	5.56	1.38	0.6	0.67	0.62	0.38	0.49	0.92	0.59	0.18	0.06	0.43	0.15
L22	5.61	1.44	0.58	0.73	0.63	0.37	0.48	0.92	0.63	0.17	0.13	0.43	0.16
L23R	5.31	1.49	0.36	0.44	0.39	0.21	0.27	0.75	0.46	0.09	0.06	0.3	0.19
L24	5.41	1.35	0.58	0.61	0.63	0.51	0.52	0.58	0.92	0.35	0.13	0.39	0.18
L25	5.45	1.59	0.55	0.64	0.62	0.44	0.48	0.64	0.95	0.31	0.1	0.38	0.2
L26	5.12	1.51	0.55	0.59	0.6	0.45	0.51	0.55	0.91	0.33	0.13	0.37	0.26
L27	5.01	1.51	0.39	0.33	0.44	0.49	0.43	0.22	0.38	0.87	0.2	0.19	0.18
L28	5.12	1.51	0.43	0.35	0.37	0.58	0.44	0.2	0.28	0.89	0.1	0.26	0.13
L29	5.14	1.33	0.33	0.24	0.33	0.51	0.43	0.1	0.27	0.86	0.14	0.14	0.05
S1	6.39	0.88	0.03	0.06	0.08	0.05	0.04	0.02	0.01	0.08	0.67	-0.01	-0.09
S2	5.76	1.11	0.05	0.15	0.13	0.05	0.12	0.15	0.11	0.1	0.73	0.24	0.03
S3	6.34	0.86	0.08	0.1	0.1	0.09	0.08	0.03	0.03	0.09	0.74	0.1	-0.05
S4	5.74	1.07	0.1	0.15	0.1	0.15	0.14	0.07	0.13	0.13	0.7	0.06	-0.04
S5	6.33	0.96	0.1	0.11	0.12	0.12	0.12	0.1	0.05	0.12	0.74	0.06	-0.03
S6	6.26	1	0.05	0.08	0.1	0.01	0.1	0.12	0.06	0.11	0.66	0.02	-0.01
S7	5.91	1.1	0.16	0.17	0.14	0.16	0.19	0.09	0.14	0.19	0.77	0.17	0
Q1	5.29	1.41	0.41	0.38	0.35	0.24	0.36	0.39	0.33	0.17	0.12	0.8	0.3
Q2	5.8	1.26	0.41	0.3	0.36	0.41	0.39	0.33	0.3	0.2	0.17	0.79	0.35
Q3	5.35	1.4	0.3	0.33	0.36	0.15	0.27	0.42	0.34	0.14	0.14	0.77	0.3
Q4	5.58	1.21	0.27	0.25	0.17	0.2	0.16	0.24	0.23	0.14	0.08	0.55	0.14

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