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PERSON-TECHNOLOGY FIT AND WORK OUTCOMES: A STUDY AMONG IT PROFESSIONALS IN INDIA

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Type of paper: Complete Research

Abstract

The present study contributes to individual level information systems research by addressing an important and yet unanswered research question. The present study is a part of a large study conducted to explore and understand impact of technology allocation among Indian IT professionals. In the first part of the study we conducted a qualitative study based on grounded theory methodology. Our findings suggest that technology allocation might contribute in understanding the behaviour of IT professionals. We found that IT professionals evaluate the technology allocated to them on dimensions such as career consequences; however their evaluation is affected by individual level preferences. This evaluation, either positive or negative, influences their job outcomes. Further, we explored the factors that make a technology preferable to others and explicated relevant technology characteristics for IT professionals. Considering the relationship between individual preferences and technology characteristics, we have employed PE fit theory as an overarching theory to explore the phenomenon. Based on the findings of first part of the study and synthesis of literature we propose a new construct, "Person technology fit" which is hypothesized to affect career satisfaction and turnover intention. Polynomial regression analysis and response surface method is used for data analysis as they are suggested to be an appropriate tool for fit studies in extant literature. Based on data collected from 386 IT professionals working in Indian IT organizations, person technology fit was related to career satisfaction and turnover intent.

Keywords: Technology characteristics, PE fit theory, Person technology fit, IT professionals

1 Introduction

"ADG is biggest market player in web vertical... exposure to these kinds of technologies is perceived better for future career growth..."

"...People working in high demand technologies feel better about them and have greater sense of job security..."

"The technology I have worked in since last 2 years is widely getting acceptance in e-commerce market...this has raised my chances of getting a significant position in near future..."

-- Interviews with IT professionals

The primary motivation of the present study came from our observations of the real world followed by the conversations with IT professionals. We witnessed strong emotions and opinions revealed during these interviews. Some of these voices shared with us were of hopefulness, aspirations, sense of security, whereas some were of dissatisfaction, despair and frustration. The interesting reflection was that these expressions exhibited were somehow related to the technology they were working in. The inferences were interesting as the technology was observed to be an inherent part of the work life of an IT professional; hence, it is expected to affect their professional lives. A major part of an IT professional's work role consists of a complex process of software development that demands a high

level of technical proficiency and diligence.¹ We were seeking answers to the question such as, ‘what causes an IT professional to favorably accept a given technology? What technology characteristics are relevant to IT professionals? And what are the outcomes if an IT professional is bound to work in an unfavorable technology? Despite ample research in this area, unfortunately we found that the literature is grossly silent on the impact of technology on the work life of an IT professional. To address the issue, we designed the study in two phases. In the first phase, we used a grounded theory methodology to explore what technology means to an IT professional and its various aspects. A brief description of a relevant sub part of the study is provided in Annexure A. Following theoretical saturation and constant comparative method, we collected data from IT professionals and HR professionals. In-depth interviews with 42 respondents were conducted as prescribed in grounded theory approach. A brief summary of the findings of the study is provided below.

Technology allocation process is driven by the business requirements of the organization. The technology in which an IT professional will work is decided by the organization and she/he is trained in the allocated technology. Thus Individual preferences are not considered in the technology allocation process. There is no ‘good for all’ technology and evaluation of a given technology is influenced by individual preferences. An IT professional evaluates a technology allocated to her/him on different parameters or characteristics, primarily based on the impact of the technology on career consequences and professional preferences. We found that construct of fit can better capture the relationship between individual expectations and technology characteristics. We observed that perceived misfit with the technology was salient in our interview data. The above stated findings guided the second phase of our study. The objective of second study is to quantitatively validate the phenomenon of the impact of technology allocation on IT professionals. The present manuscript elaborates the second phase of the study.

We focused our study on Indian IT professionals for the following reasons. First, the phenomenon was primarily observed among Indian IT professionals. Second, since the advent of global software development (GSD), Indian IT industry is growing at a rapid rate, IT organizations (at the GSD sites) recruit a large number of IT professionals each year (NASSCOM, 2012). For example, Infosys, one of the leading Indian IT organizations employs one and half million IT professionals as compare to 97,000 professionals in Microsoft Corporation (Infosys, 2013; Microsoft, 2013). Given the large employee base, human resource issues posit a challenge for the organizations. One of the important yet neglected issues is the allocation of technology to the IT professionals in order to achieve better productivity. Indian IT industry thrives on outsourced projects. Thus their human resource planning depends on their project acquisitions. This operating scenario has given rise to “business requirement” based recruitment, ignoring the individual preferences of the IT professionals for a given technology. Our initial findings suggest that fulfillment of individual expectations regarding the allocation of a given technology induces positive work outcomes. In the present study we focus on career satisfaction and turnover intention. We focus on these two outcome variables because of following reasons. One, employee attrition is reported to be higher in IT industry compared to the other industries (Joseph et al., 2007). We have reasons to believe that technology allocation might contribute to understand attrition. Also career aspirations of an IT professional were found to be affected by given technology thus we propose that their career satisfaction might also get affected by the technology they were working in.

¹It is useful to understand what we mean by ‘technology’ in the context of the present study. We refer “technology they are working in” as the information technologies and tools employed to develop and maintain applications and software system. The IT professionals’ job requires them to gain proficiency and technical skills in particular technologies. As there is a very large set of these tools and technologies, it is very unlikely that an IT professional will be expert in all the technologies. However in the current practice, they are trained in a particular technology/tool allocated to them and then they are assigned projects related to their acquired skills.

2 Theoretical foundation

Literature has conceptualized technology as a differentiated entity having various aspects or characteristics rather than a single entity (Nelson, 1990). These characteristics affect individual's behavior in various ways. For instance technostress is defined as a stress observed by the individuals because of technology characteristics such as perceived complexity, invasion and uncertainty (Tarafdar et al., 2007; Ayyagari et al., 2011). However, perception of these characteristics varies based on individual attitudes. Orlikowski and colleagues (2001) explained that the understanding of technology for an individual is dependent on the perception of an individual towards a particular technology. Since individual differs in their need, same technology can be perceived in different ways by different individuals. In fact, Venkatesh and Speier (2002) stated that "...people have different expectations and needs. Individual characteristics can lead to different perceptions about a particular technology". This line of reasoning implies that same technology can be evaluated differently by different individuals and there are no "good for all" technologies, rather it is determined by individual expectations and preferences. To understand the outcome of technology allocation on the IT professionals, we build on the person environment (PE) fit theory. We focused on PE theory because the basic premise of the theory is that the work outcomes, perceptions, attitudes and behavior of individuals is not determined only by the person level factor or the environment factors independently but from the relationship between them. Literature suggests the existence of a fit between both the person and the environment matters in explaining the observed and experienced outcomes.

2.1 Person environment fit

The Person environment (PE) fit theory is widely explored and discussed in organization behaviour and psychology research. The 'environment' factors have been redefined in various theories to explain the fit of an individual with different aspects of his/her environment such as Person-Job fit and Person-Organization fit, explaining the fit of an individual with a job or an organization. The fundamental ground of relationship between person and environment has been explored in other theories as well, such as adjustment and job satisfaction (Dawis & Lofquist, 1984), work design (Kulik, Oldham, & Hackman, 1987), mental health (Furnham & Schaeffer, 2011) and work life conflict (Chen, Powell & Greenhaus, 2009). The PE fit approach has also been widely used in IS studies to explain phenomenon such as technology adoption (Venkatesh & Goyal, 2010) and task technology fit (Zigurs & Buckland, 1998). In fact, researchers have employed different approaches based on their conceptualization of PE fit.

2.2 Person technology fit

Technology is an inherent part of the work of IT professionals. It constitutes a significant part of their work settings and hence, technology is bound to impact IT professionals work behaviors. During our field study, we observed that each individual has different expectations regarding the technology they want to work in. For instance few shared their interest in working in high end programming languages such as Java whereas others expressed their interest in working in databases. Their work behavior was found to be influenced by the technologies they are working in. For instance ease of learning can be different for each technology and individuals can have their own pace and ability to learn. So in that way technology impact the way IT professionals work in their domain. It is also evident that technologies differs from each other (Nelson, 1990; Ayyagari, 2011) based on their characteristics. Literature has identified various technology characteristics such as radicalness (Aiman-Smith et al., 2012), ease of use, usefulness (Davis, 1989) and uncertainty (Pazy, 1994). Since both individual and technologies differs in multiple parameters we propose that the question of evaluation can be better an-

swered through the overarching theory of PE fit. Drawing from the theory of PE fit, we propose a new construct, i.e., “Person Technology fit”.

The person technology (PT) fit extends the phenomenon of PE fit similar to the other applications of the theory. We conceptualize PT fit as a collective construct which defines and measures the congruence or fit between individual and technology dimensions. The term person technology fit has been used in prior studies (Ayyagari, 2011) where it is used to explain “how specific technology characteristics induce stress in individuals”? Person technology fit is defined in IS literature as a fit or synergy between an individual and technology. However, the extant literature looked at the PT fit from the perspective of the users of technology. In the present study, we are extending the construct to the context of IT professionals rather than technology users and we define person technology fit as “the amount of fit or match perceived by an individual towards the technology she/he is working in and her/his individual expectations and preferences.”

In the absence of a specific theory to explain person technology fit we reviewed related literature. We found Technology Acceptance Model (Davis 1989) and technostress (Ayyagari, 2011) studies as supporting literatures. Both streams of literature identify technology as a differentiated entity and provide a better understanding of technology by segregating its characteristics. This reinforced our findings (phase 1) that technology has different dimensions and each dimension is perceived differently by the individuals. For instance, TAM suggests that perceived ease of use and usefulness determines the acceptance of technology. It also suggests that same technology can be perceived and evaluated differently by different individuals based on individual and personality level differences. We also propose that no single technology is a panacea and largely it is related to individual preferences and expectations. We also found evidences in literature which supports that the technology the IT professionals are working in is an important factor in determining their future career path and available opportunities (Thatcher et al., 2002; Chau, 1996). These studies have identified specific factors of technology which influence individual’s attitude towards a given technology; for instance, availability of jobs and perceived peer esteem. IT professional’s need of gaining job security, acquiring peer esteem and seeking meaningful work are well established. Thus, these facts and PE fit literature lead us to our belief that a perceived mismatch or lack of fit between the technology assigned and individual expectations with the technology will incubate negative work outcomes.

2.3 Technology characteristics

2.3.1 Long term consequence of technology

Long term consequences of working in a technology is defined in literature as outcomes that payoffs in future (Thompson et al., 1991). The reward or payoffs associated with work is a significant source of motivation for work. Some established theories have supported this relationship such as the expectancy theory (Vroom, 1964). In IS literature, perceived consequences has been studied with respect to utilization of technology and also in adoption of technology (Thompson et al., 1991; Chau, 1996). Findings of these studies suggest that perceived consequences influence the outcomes related to technology acceptance, and usage. There are studies which have explored the consequences of working in a particular technology. For instance, literature suggests that motivation to work in a technology can be driven from future career prospects such as availability of good work opportunities, ease in finding alternate jobs and acquiring meaningful work. The perceived attractiveness of career consequences is driven by individual preferences. Individuals who are technically oriented seek satisfaction from peer esteem, competent colleagues and challenging tasks (Igarria et al., 1991). These consequences directly affect work outcomes such as the availability of alternate job options is believed to have a direct impact on turnover intention (Thatcher et al., 2002). Long term consequences are likely to have multiple dimensions such as increase in self esteem, better work opportunities both inside the organization and outside the organization.

2.3.2 Challenging technology

Individuals differ in terms of their source of motivation. There can be different sources which motivate or drive different set of individuals. The challenge of the task allocated has been identified as one of the significant motivators for an individual (Hackman & Oldham, 1975). The non challenging work is expected to induce negative psychological conditions among individuals (Hackman, Pearce, & Wolfe, 1978). There are studies in IS literature which categorize complexity, ease of learning and ease of use as significant technology characteristics which influence outcomes among individuals. However all these characteristics are perceptual in nature and are determined by individual attitude and belief. For instance a technology which is perceived highly challenging by an individual can be perceived as slightly (or not) challenging by another individual. Thus it is essential that technology fulfills the expectations of IT professionals. We extend this argument by saying that if an individual seek challenges in her/his allocated technology and her/his expectations are not fulfilled by the allocated technology, it might lead to a misfit causing negative work outcomes. Literature also presents similar evidences that perceived challenge in the work is an important predictor of IT professional's behavior at work place (Burn et al., 1994).

2.3.3 Technology Uncertainty

Literature has described Technology uncertainty (TU) as a construct which reflects the perceived speed of technological change in an organization or industry. Technology uncertainty reflects "the perceived speed of technological change..." (Geyskens et al, 2006). Based on our literature review, we define technology uncertainty as "*the degree of change in a technology which is difficult to predict with certainty and impact the processes in IT industry*". Technology uncertainty as a construct indicates the factor of risk. The risk can be of professional obsolescence, job insecurity or financial insecurity. However it also presents opportunity of learning new tools, technology and professional advancements. As discussed earlier, we argue that the appropriateness of technology for an IT professional is based on their own perceptions and preferences. For instance individuals with higher need of self updation and professional growth might prefer a continuously changing technology over an established tool or technology as this will allow them to build their technical proficiency and enhance their skill set. However the motivation to acquire advance technical skill set can be linked to other outcomes such as monetary growth or self esteem. The focus of the present study is not to measure the impact of TU on IT professionals work outcomes; rather, we are interested in understanding the work outcomes of IT professionals when there is a misfit between the perceived TU and their need to work in uncertain technologies (or vice versa).

3 Hypotheses development

3.1 Work outcomes: Career satisfaction

Considering high turnover and increased stress levels among IT professionals, it has become a challenge to keep these professionals motivated. Literature suggests that fulfillment of career expectation leads to many positive outcomes such as commitment and employee retention (Greenhaus et al., 1990). However managing career expectations of individuals can present another set of challenges, specifically among IT professionals. IT professionals include a diverse range of individuals with different set of skills, preferences and desires, which poses challenges for management of IT professionals. It is worthwhile to explore individual preferences and to provide the work settings which meet the

requirement of IT professionals. This is the reason that we chose PE fit theory to explore congruence between individual level expectations and the desired work settings. Career satisfaction depends on how well individual career desires are getting fulfilled by the current job (Jiang et al., 1999). Need-supply fit framework demonstrates the effect of PE fit on career satisfaction. This framework captures two important dimensions, first, needs of an individual and second, how the needs of an individual are fulfilled by the environment. Thus, the conceptualization of need-supply fit implies that discrepancy between the need of an individual and supply provided by the environment (in this case organization) will lead to reduced career satisfaction. If an individual's career needs fit her/his job, it will lead to increased career satisfaction (Cable & DeRue, 2002). Based on the importance of congruence, several studies in IS literature have employed PE fit theory in career satisfaction context (Greenhaus et al., 1990).

In the present study, we are proposing that person technology fit (PT fit) will influence career satisfaction. Although the impact of PT fit on IT professionals is not studied in the literature, there are many studies which highlight the importance of technology in determining career outcomes of IT professionals (Thompson et al., 1991; Chau, 1996; Igbaria et al., 1991; Speier & Venkatesh, 2002). Previous studies have found that there is a strong correlation between working in a particular technology and the career consequences such as ability to change jobs or opportunity to get more meaningful work (Beatty & Gordon, 1988; Thompson et al., 1991). As individual differs in their needs and expectations, their career preferences also differ significantly for instance, a set of individual can assign greater valence to meaningful work. As technology is an inherent part of their (IT professional) work, the complexity of the technology will influence their perceived challenge while working in a given technology. These individuals, if assigned a technology which demand execution of simple routine tasks, are more likely to experience lower career satisfaction (Beatty & Gordon, 1988). Advancement and enrichment of skill set is one of the critical factors in determining career satisfaction (Greenhaus et al., 1990). Speier and Venkatesh (2002) in their study discusses that a given technology can act both as a competence enhancing or a competence destroying technology. Competence enhancing technology will enable the IT professionals to enhance their skill set while competence destroying technologies can induce the fear of professional obsolescence. Similarly technology uncertainty also induces fear of professional obsolescence (Pazy, 1994). Pace of change of technology also tend to create necessity to learn new technologies. Thus, we can infer that a technology can influence the acquisition of new skills thus influencing career satisfaction of IT professionals (Greenhaus, 1990). Based on the literature we argue that the fit between the technology allocated to a IT professional and her/ his career preferences will impact career satisfaction.

Hypothesis 1(a)

The fit between IT professional's preferred technology having long term consequences and perceived long term consequence of the technology s/he is working in is positively related to career satisfaction.

Hypothesis 1(b)

The fit between IT professional's preference for working in a challenging technology and perceived challenge in the technology s/he is working in is positively related to career satisfaction.

Hypothesis 1(c)

The fit between IT professional's preference for working in an uncertain technology and perceived uncertainty of the technology s/he is working in is positively related to career satisfaction.

3.2 Turnover intention

Turnover intention is a persistent problem for the management of IT professionals. Studies suggest that as compared to other professionals, turnover intention among IT professionals is higher (Joseph, 2007). In recent years different research models to explain turnover intention has added useful insights in understanding the phenomenon. The Moore model (Moore, 2000) associated work exhaus-

tion to turnover intention, similarly job and career satisfaction and organizational commitment (Thatcher et al., 2002; Igarria et al., 1991) are also identified as antecedents of turnover intention.

Person technology fit has also been studied with respect to turnover intention although the study restricted to technology users. Speier and Venkatesh (2002) in their work suggest that if a technology is not considered relevant to the expectations (PT fit is not positive) of an individual she/he will intent to leave the organization. They recommended that individual perception of technology and technology characteristics will influence various subjective and objective outcomes including turnover intention. We reviewed the extant literature to find relationship between technology characteristics defined in present study and turnover intention. The availability of alternate job options is believed to have a direct impact on turnover intention (Thatcher et al., 2002). Studies also suggest that the perception about the growth opportunities available at work plays an important role in their decisions to leave or stay with the organization (Hsu et al., 2003). Based on this argument we hypothesized that long term consequences of technology such as job opportunities available outside the organization affects turnover intention.

Ferratt and Short (1986) conducted a study to determine that whether IT professionals differ from other occupational group with respect to work motivators. They found that need to do meaningful work was rated as most important motivating factor by IT professionals. However how they define meaningful work depends on individual perspectives. Opportunity provided by a certain technology to accomplish meaningful work might influence the perception of an IT professional about that technology. A negative attitude or orientation associated with the current technology (Braverman, 1974, in his study illustrated a negative perception of deskilling which is the perception that she/he is losing skill sets as demanded by job market) can induce voluntary turnover. Based on these arguments we hypothesize that if individuals desire to work in a technology which is challenging and meaningful is not fulfilled by the allocated technology they might intend to leave the organization. Another important dimension of technology that is supposed to impact turnover intention is technology uncertainty. Technology uncertainty indicates the pace of change of a technology and is often identified with introduction of new technologies or technological updates for existing technologies. These changes lead to increased pressure to acquire new skills, demanding more time and effort from IT professionals. Increased work demands cause work exhaustion and turnover intention (Moore, 2000).

Hypothesis 2(a)

The fit between IT professional's preferred technology having long term consequences and perceived long term consequences of the technology s/he is working in is negatively related to turnover intention.

Hypothesis 2(b)

The fit between IT professional's preference for working in challenging technology and perceived challenge in the technology s/he is working in is negatively related to turnover intention.

Hypothesis 2(c)

The fit between IT professional's preference for working in an uncertain technology and the perceived uncertainty of the technology s/he is working in is negatively related to turnover intention.

3.3 Analytical Representation of the Hypotheses

In the present study we are employing polynomial regression analysis along with the response surface method to test the proposed hypotheses. In this section we represent our hypotheses as statistical equation in accordance with Edward and Parry (1993).

The general equation to relate work outcome (career satisfaction, turnover intention) and PT fit is

$$WO = b_0 + b_1P + b_2T + b_3P^2 + b_4PT + b_5T^2 + e$$

Where WO represent work outcomes such as career satisfaction and turnover intention, P represent individual expectations from given technology and T represents perception regarding present technology.

Edwards and Parry (1993) illustrates the usage of response surface method to test hypotheses along with polynomial regression analysis. Using response surface method three dimensional graphs are generated which depicts the position of all constructs in a three dimension frame. Using specific coordinates response surface method suggests some additional tests to validate hypotheses testing process. Description of relevant tests to our study is discussed in the following text.

Test 1: One of the significant coordinate in three dimensional graphs is the stationary point (X_0, Y_0) where the slope of surface is zero in all direction. The equation for stationary point can be represented as,

$$X_0 = (b_2b_4) - (2 b_1b_5) / (4 b_3b_5) - b_4^2$$

$$Y_0 = (b_1b_4) - (2 b_2b_3) / (4 b_3b_5) - b_4^2$$

The variables (b_1, b_2, \dots, b_5) are used to generate equation for the first and second principal axis. These values are derived from the result of polynomial regression analysis and represent the regression coefficient for P, T, PXT, P^2 , T^2 . Equations can be written as,

$$Y = p_{10} + p_{11} X_0 \dots\dots\dots (1)$$

Where, $p_{11} = (b_5 - b_3 + \sqrt{(b_3 - b_5)^2 + b_4^2}) / b_4$ and $p_{10} = Y_0 - p_{11} X_0$

As adapted from Khuri and Cornell (1987)

$$Y = p_{20} + p_{21} X_0 \dots\dots\dots (2)$$

Where, $p_{21} = (b_5 - b_3 - \sqrt{(b_3 - b_5)^2 + b_4^2}) / b_4$ and $p_{20} = Y_0 - p_{21} X_0$

We will analyze slope of three dimension graphs at various coordinate to test our hypotheses. H1 (a, b, c) and H2 (a, b, c) state that both fit and misfit impacts turnover intention and career satisfaction. This implies that slope of graph will be positive when there is a congruence between individual preferences and given technology. Therefore, hypotheses 1 and 2 will be supported if

Test 1: The value of p_{21} , which represents the slope of the response surface, is significant (refer equation 2);

Test 2: The value of p_{21} is not significantly different from 1. We also propose that maximum value of career satisfaction and minimum value of turnover intention will be observed when users experience a good fit.

Test 3: The value of p_{11} (refer equation 1); which represents the slope of the response surface curve, is not significantly different from 1 (career satisfaction), -1 (turnover intention).

4 Method

Data were collected from 386 IT professionals with work experience ranging from 6 months to 6 years. Data were collected through the online mode in English language. About 58 percent of the respondents were in the age range of 24-28 years, 35 percent in the age range of 28-32 years and rest above 32 years. About 73 percent of the respondents were male and rest 27 percent were female IT professionals. The mean and median work experience was 42 and 36 months respectively. The mean

and median experience in working on the current technology was 34 and 24 months respectively. About 66 percent were married and about 10 percent were married with children.

We measured and controlled IT professionals previous work experience, previous experience in the current technology, age, gender, marital status, promotability, and negative affectivity for their potential spurious effects (Igarria et al., 1992; Greenhaus et al., 1990). All the studied variables were captured by using valid scales. Long term consequences of working in a technology was measured by adapting the scale developed by Chau (1996) to capture long term consequence of working in a particular software development methodology. The challenging technology scale was adapted from the Job diagnostic survey developed by Hackman & Oldham (1976). The three item scale captured the perceived challenge in technology by asking the respondents that whether they like their work to be simple or repetitive and whether they prefer using their personal judgment while performing task. Technology uncertainty was captured by the 5-item scale adapted from Jawroski and Kohli (1993). All the scales were adapted to capture individual preference for given technology and actual characteristics of given technology. All scales showed acceptable values of reliability coefficient (see table 1). Career satisfaction was captured by the 5-item scale developed by Greenhaus et al. (1990). Turn-over intention was measured by a 3-item scale developed Cammann et al. (1979). All the items were captured by a 7 point scale.

Aguinis and Vandenberg (2014) in their work suggested a validation process which ensures validity of construct especially in the case where measurement scales are used in different context. According to his prescription, we requested five doctoral students and faculty members (in Organizational Behavior area and Information Systems area) to review the appropriateness of the scale items as per the definition of the constructs. We discussed the items in a face to face conversation and collected their feedback. All of them agreed to the appropriateness of the scale items in measuring the defined constructs. Before collecting the data we conducted a pilot study among 68 IT professionals (outside our studied population). We followed Edwards et al (2006), and captured the person dimension (P) as the need of an individual to work in a desired technology. While capturing the technology dimension (T), we recorded the characteristics of the present technology assigned to the respondents. We operationalized our construct to assess both the P and the T dimensions on commensurate measures (Edwards et al., 2006). We captured the subjective measure of fit as it is argued to be more relevant and pertinent than the objective measures (Cooper et al., 2001). Further, subjective measures are more proximal indicators of individual perception and attitudes than are objective measures (Cable & DeRue, 2002).

5 Results

Table 1 (See Annexure B) displays the means, standard deviations, and correlation coefficients among the variables of this study. Following Edwards (1994), we tested all sets of hypotheses using polynomial regression analysis (PRA). In both psychology and management literature, polynomial regression analysis is accepted to be an efficient method to resolve the difference score issue (Edwards et al., 1993; Edwards, 1994; Klein et al., 2009). For every technology dimension, five terms were entered into regression, P, T, P \times T, P², T²; P represents captured individual need and preferences for a given technology while T captured perception regarding their present technology on common measurement dimensions. As suggested by Edwards and Parry (1993), a significant interaction term (P \times T) indicates that relationship of person dimension with the work outcome will depend upon the value of technology dimension. The significant squared term indicated that the relationship between the dependent and the independent variable is non-linear. We regressed the work outcomes with the corresponding values of P, T, P \times T, P², and T² of all three technology characteristics along with the control variables. Control variables were entered simultaneously in the regression equation as directed by recent studies (Aguinis & Vandenberg, 2014). Table 2 (See Annexure C) shows results of the regression analysis. All hypotheses were supported through PRA (Adjusted squared R ranging from 0.13-0.38).

In polynomial regression analysis the value of fit or congruence is not measured through the difference score but from the correspondence between both components. Thus it is suggested to supplement PRA with the response surface method (Khuri & Cornell, 1987). We plotted coefficients of all the components in accordance to the response surface method. Figure 1 (a, b, c) and 2 (a, b, c) depict the plotted curve for Hypotheses 1 (a, b, c) and Hypotheses 2 (a, b, c) respectively (See Annexure E). Table 4 (See Annexure D) presents stationary point and slopes along lines of interest (p_{21} , p_{11}). We have conducted test 1, 2, 3 to test the hypotheses and we found sufficient support for the hypotheses however hypotheses 1(a) and 2(b) were weakly supported. All the plots are indicative of a clear relationship between fit and the outcome however the slope and shape of the plot explains the relationship more descriptively. For instance figure 2(c) illustrates that fit between desired technology uncertainty and perceived technology uncertainty will lead to increased turnover intention. The slope of the curve indicates decreasing amount of turnover intention with increasing amount of fit between the P and T component showed as X and Y axis of the graph.

6 Discussion

The study explores the effect of technology allocation on work outcomes of IT professionals. Our findings highlights the importance of different technological characteristics and argues that the misfit between what an employee desires and the technology s/he is allocated to work in leads to negative outcomes in terms of turnover intention and reduced career satisfaction.

The present study contributes to IS literature by enriching the understanding of technology as an artefact. In the present study we have explored three distinct technology characteristics i.e. long term consequences of technology, challenging technology and technology uncertainty. All the three characteristics of technology are found to place an impact on IT professional's work outcomes when there is a misfit between what the technology they prefer to work and the technology they are allocated to work in. Though IS literature has highlighted the importance of technology on the attitudes and behaviours of IT users, surprisingly it is silent on the impact of technology allocation on IT professionals work outcomes. The present study tried to contribute by highlighting the importance of technology allocation on IT professionals' career satisfaction and turnover intention. Further, the present paper contributes to the literature of PE fit by establishing PT fit as an important phenomenon to address an important yet neglected issue in IS literature. Apart from theoretical contribution, our work has a significant methodological contribution. The literature has expressed the need of these methodological innovation in the field of IS research. The difference score method employed to address congruence based research questions is criticized in IS literature and elsewhere (Edwards & Parry, 1994; Klein et al., 2009). Through our study we have demonstrated the application of polynomial regression analysis and response surface method. Literature has suggested that employing PRA and response surface method will yield more significant results as it allows broader interpretation of theory and avoids restrictive assumptions (Klein et al., 1995).

Our findings also provide implications for employee training and retention. We suggest that employees preferences and expectation can be managed by providing them support in accommodating to a given technology. Since a given technology influences individuals' evaluation of their work settings, support can also be provided to the IT professionals regarding opting a technology which fits with their career expectations and skill set.

The study has significant implications to practitioners, as employee attrition is very high in IT industry. Even if there are numerous studies on attrition, still research has unable to explore all the important antecedents of turnover intention. Our study argued and demonstrated that by adopting a suitable technology allocation process, employee attrition can be minimised. Further, it argues that the career satisfaction of IT professionals is related to the given technology. Career satisfaction is important as most of the IT professionals are very young in terms of their age and are at the early stage of their career. Organizations can leverage if it takes care of its employees careers expectations. The

findings have implications for organizations in terms of managing congruence between internal and external career expectations of IT professionals which results in positive work outcomes (Igarria, 1991). Our findings have implications on human resource allocation in software firms which has been identified as an important challenge (Niederman et al., 1991). If given technology is more suitable to the individuals expectations a better fit with the assigned technology can be achieved. This person-technology fit is expected to influence work outcomes like career satisfaction and turnover intentions.

7 Limitations and Future research

The present study has certain limitations that should be acknowledged. First, due to its cross-sectional design, the present study does not provide an unequivocal proof of causal direction. Thus, while reciprocal effects are possible, our proposed model is consistent with current theories and evidences. Second, we used self-report methodology. Therefore common method variance may have inflated the studied relationships in this study. We addressed this limitation in several ways (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). First, we collected the responses directly from the respondents in their natural setting and assured them of confidentiality of the data. Second, we used multi-item constructs in the survey questionnaire as response biases are argued to be more problematic at the item level than at the construct level (Harrison et al., 1996). Still replicating the study by using sources other than self-report would increase confidence in the validity of the findings. The study has following directions for future research. First, the present study focuses on two outcome variables such as career satisfaction and turnover intention. Future studies might explore other outcome variables that are critical in IT profession. The present study assumes that because the technology allocation is not considering individual desires, the misfit between what an individual prefers and what she/he gets leads to deleterious outcomes. However, management literatures argued that when employees do a particular work over a time period they adapt themselves to the work. Future studies may explore how employees adapt to the incongruence between what they desire and what technology they are allocated in due course of time.

The present research believes that organizations play a central role in most people's lives. Hence, contextual differences may explain their work behaviors. Given the technology IT professionals work is a significant aspect of their work life, organizations need to explore ways to factor in the preferences of professional hires while allocating technology to them.

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ANNEXURE A

Study 1: Interviews

One of the two authors has conducted each interview. Each interview lasted for 45-60 minutes. There were multiple interviews conducted with a few respondents. The interviews tried to capture different dimensions of human resource allocation process in IT industry. Our guiding questions² aimed at understanding the recruitment and the technology allocation process. We asked factual questions such as how did you get your first job or what technology you were trained. To understand their views and thoughts about the processes, we also asked opinion oriented questions such as what do you think about the technology allocation process and the recruitment process in your organization. We were also interested in knowing how technology was influencing their current work settings; so we enquired about their comfort level with the current technology and different aspects of their work while working in the present technology. (e.g., Do you like working in Java? What are the advantages/disadvantages of working in Java? In past few months have you encountered any challenge while working in your technology?). All these responses helped us to observe and understand their feelings, expectations, views and grievances.

We took prior appointment by email correspondence and through telephonic interactions to confirm our meetings with the respondents. We also ensure the anonymity of the respondents. They were told that the interviews are voluntary and they can chose not to answer any question if they wish to. However we did not experience such an instance.

Data Analysis

All the interviews were transcribed verbatim before data analysis. All interviews were transcribed within twenty four hours of conducting an interview. The transcriptions were then shared by both the researchers for coding. We started coding data after we conducted ten interviews. Data was analyzed back and forth to generate as many emerging categories. The first level categories were created by abstracting statements and views of respondents (provisional themes), which represent their perspectives. These themes were combined and generalized by comparing responses and putting them in common categories. These categories were revised continuously with new set of responses so that the emerging theory becomes richer. We employed an iterative process for fitting data into categories and verifying it with data again to modify or abandon categories. Further, we analyzed the theoretical categories to identify underlying dimensions and aggregated the categories on the basis of emerging similarity in theoretical dimensions.

Findings

The major findings after the data analysis are summarized as bullet points given below:

Observation 1: The process of technology allocation in large service based Indian IT organization is driven by business requirements. Individual preferences and suitability is not considered while allocating a specific technology.

Observation 2: A given technology impacts the personal and professional life of an IT professional.

Observation 3: Technology characteristics such as “extent of challenge”, “uncertainty” and “career consequences” impacts the way an individual evaluate and perceive a given technology

Observation 4: The evaluation of a given technology whether positive or negative influence work outcomes such as possibility of leaving organization or increased stress levels.

² Our guiding questions were framed to understand their views and opinion regarding different aspects of technology they were working in; Understanding various characteristics of technology based on previously answered questions such as What kind of technology you are working in? How confident you are in your current technology?; regarding various aspects of their work life such as time spend at work places, technologies their colleagues working in, their opinion about other technologies; Regarding personal preferences and expectation; regarding impact of technology such as advantages of working in a certain technology.

ANNEXURE B

Table 1: Descriptive statistics and Correlations

Variables	Mean	s.d.	1	2	3	4	5	6	7	8
1. Technology Uncertainty (Person)	4.86	1.01	(0.71)							
2. Technology Uncertainty (technology)	5.1	1.03	0.46**	(0.94)						
3. Challenging technology (Person)	5.39	1.11	0.36*	0.32**	(0.76)					
4. Challenging technology (Technology)	4.97	1.35	0.10	0.44**	0.31**	(0.78)				
5. Long term consequence (Person)	5.97	0.92	0.27*	0.40**	0.55**	0.27*	(0.85)			
6. Long term consequence (Technology)	5.06	1.32	0.16	0.44**	0.29*	0.80**	0.28*	(0.86)		
7. Career Satisfaction	4.07	1.49	0.16	0.29*	0.19	0.52**	0.12	0.59*	(0.90)	
8. Turnover Intention	4.49	1.21	0.18	0.18	0.13	0.07	0.27*	0.10	0.08	(0.78)

Note

N = 386

* $p < .05$; ** $p < .01$

Numbers in the bracket represents the Cronbach alpha values of the respective measures.

ANNEXURE C

Table 2: Result of polynomial regression analysis

Fit on Technology	Technology Uncertainty		Challenging technology		Long term consequence	
	CS	TI	CS	TI	CS	TI
<i>P</i>	.11	.08	.02	.09	-.027	.04
<i>T</i>	.37**	.10	.52**	.03	.59**	.10
<i>P X T</i>	.18**	-.13**	-.02	.03	.019	-.03
<i>P²</i>	-.10	.05	-.01	-.08*	-.01	-.01
<i>T²</i>	-.05	.04	-.01	.03	-.03	.01
<i>Control variables</i>						
Location	--	-.17	--	-.15	--	-.18
Promotability	--	.12**	--	.12**	--	.11**
Negative affectivity	-.42**	.40**	-.29**	.42**	.22**	.41**
Age	.01	.05	.03	.10	.10	.07
Gender	.03	.11	.04	.13	.01	.14
Marital status	.41*	.14	.21	.15	.12	.11
Previous experience	0	.01	0	.02	0	.02
Previous experience in current technology	.1	0	.4	0	.11	0
<i>Adjusted R Squared</i>	0.16*	0.14*	0.30*	0.14*	0.37*	0.13*
<i>R-Squared</i>	0.18*	0.16*	0.31*	0.12*	0.38*	0.15*

Note: * $p < .05$; ** $p < .01$

-- Variables not included in regression

ANNEXURE D

Table 3: Stationary points and slopes along lines of interest

Hypotheses	Stationary point		P_{21}	P_{11}	Hypotheses	Stationary point		P_{21}	P_{11}
	X_0	Y_0				X_0	Y_0		
Hypotheses 1(a)	3.89	10.89	-4.24	0.24	Hypotheses 2(a)	2.92	-0.62	0.54	-1.87
Hypotheses 1(b)	-81.83	-83.33	1.10	-0.90	Hypotheses 2(b)	0.43	-0.71	0.20	4.87
Hypotheses 1(c)	-6.34	-7.71	-0.76	1.03	Hypotheses 2(c)	2.18	2.29	1.08	-0.93

ANNEXURE E

Figure 1(a): Fit of Long term consequences 1(b): Challenging technology 1(c): Technology uncertainty on career satisfaction

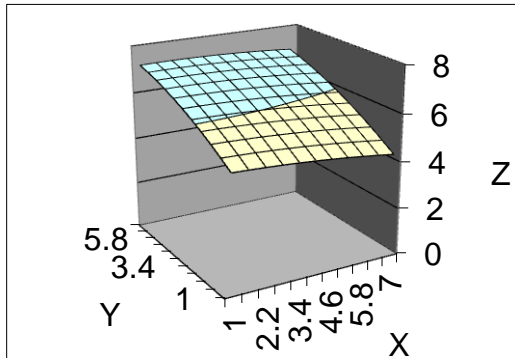


Fig 1 (a)

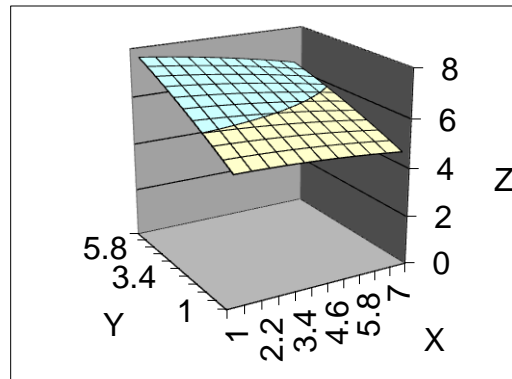


Fig 1 (b)

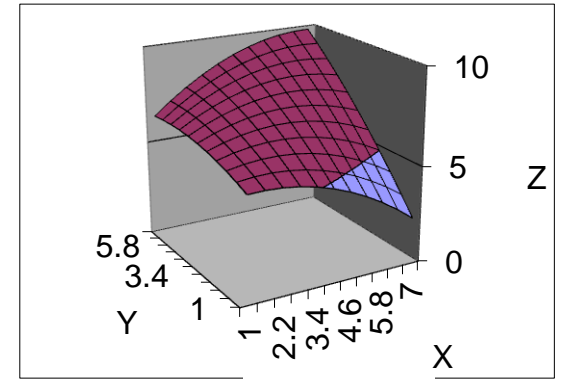


Fig 1 (c)

Figure 2(a): Fit of Long term consequences 2(b): Challenging technology 2(c): Technology uncertainty on turnover intention

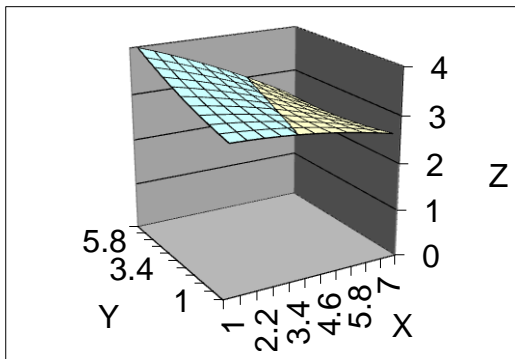


Fig 2 (a)

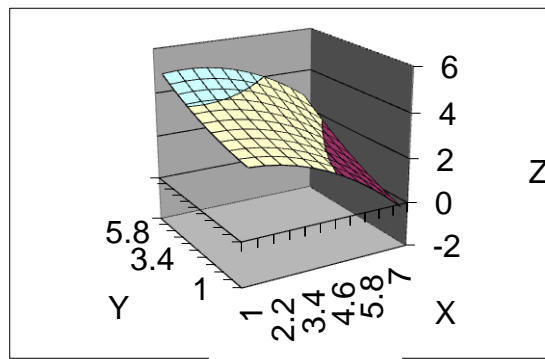


Fig 2 (b)

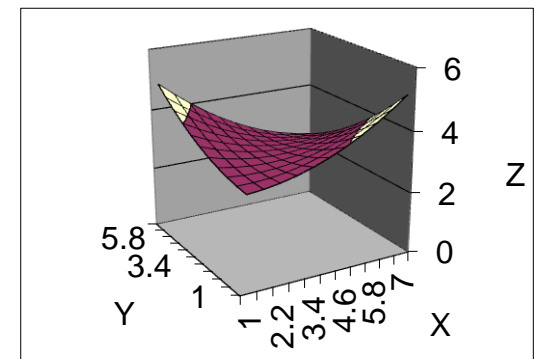


Fig 2 (c)