Entrepreneurship by circumstances and abilities: the mediating role of job satisfaction and moderating role of self-efficacy

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ENTREPRENEURSHIP BY CIRCUMSTANCES AND ABILITIES: THE MEDIATING ROLE OF JOB SATISFACTION AND MODERATING ROLE OF SELF-EFFICACY

ABSTRACT

Prior studies have found that job dissatisfaction and self-efficacy are significant factors influencing individuals' entrepreneurial propensity. Existing literature on entrepreneurship often regards job dissatisfaction as an entrepreneurial push factor and self-efficacy as an entrepreneurial pull factor. The argument is that individuals who are dissatisfied with their jobs are more likely to seek alternative mode of employment such as self-employment. In other words, poor job circumstances may push individuals to leave their paid employment to start their own businesses. On the other hand, personal abilities such as self-efficacy may pull individuals toward starting their own businesses in areas where they are confident and competent in. Despite the importance of job dissatisfaction and self-efficacy for new venture creation, few if any studies have examined the entrepreneurial phenomena from a holistic perspective. Utilizing concepts from the P-E fit and self-efficacy literatures, this paper argues that the path to entrepreneurship is a multi-faceted interactive process between individuals' personal attributes and their work environment. We specifically examined how IT professional's personal attributes such as innovation orientation and self-efficacy condition individuals for an entrepreneurial career in unsatisfactory work environments.

INTRODUCTION

The presence of technology-based firms has long been associated with a nation's economic growth and prosperity (Rothwell and Zegveld, 1982). Consequently, technical professionals who leave their organizations to start their own businesses have been identified as a key source of high-technology start-ups (Roberts, 1991; Romanelli and Schoonhoven, 2001). While past studies that examined the antecedents to high-technology start-ups have reported the influence of job dissatisfaction and self-efficacy, few if any studies have examined the entrepreneurial behavior of technical professionals from a holistic perspective. Using innovation environment in organizations and personal orientation of individuals as our contextual platform, we argue that the path to entrepreneurship is a multi-faceted interactive process between individuals' personal attributes and their work environments.

Applying the P-E fit and self-efficacy theories, we specifically examine how IT professionals' personal attributes such as innovation orientation and self-efficacy condition individuals for an entrepreneurial career in unsatisfactory work environments. We postulate that organizational environments with poor climate for innovation and little incentives for technical excellence are more likely to give rise to job dissatisfactions among individuals with high innovation orientations. The rationale is that there must be a good fit between individuals' personal orientations towards innovation and work environments in order to suppress the presence of job dissatisfaction. An unfavorable innovation environment may not necessarily lead to job dissatisfaction among technical professionals if they themselves do not possess the orientations for innovation. Similarly, for technical professionals who have low levels of innovation orientation, an innovation-focused environment may cause frustrations and eventually job dissatisfactions. The P-E fit theory elucidates that relationships between innovation

environments in organizations and innovation orientations of individuals are important triggers to job satisfaction/dissatisfaction.

While recognizing that job dissatisfaction is a significant organization push factor for entrepreneurship, we posit that a high level of dissatisfaction with the job itself may not be sufficient as a driver for entrepreneurial intention. Unlike employees in paid employment, the entrepreneurship arena is plague with more uncertainties and risks, and therefore to pull it off the ground, it demands considerably higher levels of individuals' capabilities. Given that self-efficacy is an essential requisite for the development and maintenance of intention to start a new venture, we propose that it moderates the relationship between job dissatisfaction and entrepreneurial intention. Among IT professionals with low levels of job satisfaction, higher levels of self-efficacy, defined in our study's context as the confidence in one's ability to perform a set of IT and non-IT related tasks, will be associated with greater likelihood of entrepreneurial intent.

LITERATURE REVIEW

Organizational innovations evolved from creative ideas and creative ideas in turn are derived from the contributions of technical employees. Therefore, it is imperative for organizations to understand the factors that could plausibly influence employees' motivation and ability to be creative. This is particularly important in the IT environment that is often characterized by rapidly evolving technology and volatile markets. In today's technology dominated world that is filled with constant renewal and regeneration of new ideas, the need to not only attract but retain competent IT employees is crucial for organizations to remain on the cutting edge of technology (McMurtrey et al., 2002). IT professionals are traditionally known to leave their organizations upon acquiring valuable skill-sets and experience to start their own ventures (Roberts, 1991) or to work for other organizations (Jiang and Klein, 1999).

Organizational Climate and Job Dissatisfaction

There is a vast literature on the factors that influence employees' turnover (see Tett and Meyer, 1993 for a meta-review) and among this literature, there is a subset of studies that focus on the factors affecting turnover of IT professionals (Guimaraes and Igbaria, 1992; Igbaria et al., 1991; Igbaria et al., 1994 and Igbaria and Wormley, 1992). A key tenet of these studies is that job satisfaction is inversely related to IT professionals' turnover intention (Igbaria and Baroudi, 1995; Igbaria and Guimaraes, 1999). Job satisfaction, a construct that is commonly understood as the extent to which employees like their work is widely researched in terms of its determinants and consequences (Curry et al., 1986; Judge and Larsen, 2001; Thomas et al., 2004; Williams and Hazer, 1986). A common thread that emerged from these studies is the significant impact of

organizational climate on employees' job satisfaction (Agho et al., 1993; Welsch and LaVan, 1981).

Organizational climate defined as the individual's perception of his or her work environment (Hellriegel and Slocus, 1974) has long been recognized as a source of influence on individuals' job satisfaction (Keenan and Newton, 1984; Schneider, 1975) and has been found to prevail across a range of occupations. Evidence of what constitutes organizational climate dates back several decades ago (Hellriegel and Slocum, 1974; James and Jones, 1974) but continues to remain influential in current studies (Martin et al., 2005; Patterson et al., 2005). Among the various areas of organizational climate, management support, peer support, and opportunities for innovation to name a few are often cited as typical aspects of an organizational climate (Niehoff et al., 1990; Yuki, 1989).

In the case of IT professionals, researchers found that strong supervisory support and encouragement often lead to increased job satisfaction (Igbaria and Greenhaus, 1992; Jiang and Klein, 1999). Trust and support from one's superior goes a long way in helping to alleviate potential job hazards such as stress, burnouts and emotional exhaustion, which are inherent in IT environments (Chilton et al., 2005; Longenecker et al., 1999). IT professionals, specifically those in the software development fields are constantly plaque with the pressures to innovate and develop novel ideas. Job stressors such as work overload, role conflicts and role ambiguity are frequently associated with the IT profession (Li and Sham, 1991; Moore, 2000; Sethi et al., 1999), resulting in a reportedly high burnout levels among IT professionals compared to other occupations such as nurses and police (Huarng, 2001). Evidence in the literature also indicates that IT employees who experienced work stress and job burnouts tend to be dissatisfied with their jobs (Goodhue and Thompson, 1995; Li and Sham, 1991). The adverse effects of job stress

and burnouts on employees' job satisfaction are probably more severe in an organizational climate that is non-supportive of innovation.

Indeed, previous research has shown that management support and trust - an expression of organizational climate are critical factors for employees' productivity and performance (Kanter, 1983). IT professionals who function in innovative work environments would benefit from management who supports and encourages risk-taking and innovative efforts. Consistent with findings in other occupational areas, supervisory trust and support have been found to mitigate the impact of job stressors on job satisfaction (Firth et al., 2004; Moore, 2000). Other researchers (Ettlie et al., 1984; Niehoff et al., 1990) have also concluded that management commitment and support for creativity are critical to enhance employees' job satisfaction, particularly in an innovative organizational setting. An organizational climate supportive of innovation is additionally demonstrated in terms of the degree of innovative opportunities provided to its employees (Niehoff et al., 1990). The freedom and independence to experiment and find better ways of doing things facilitate the innovative process, and is an important aspect of organizational climate, which is strongly link to employees' job satisfaction (Bass, 1985).

While numerous studies have posited the importance of supervisory support for employees' job satisfaction, others have suggested that peer support is positively linked to higher levels of job satisfaction (Lee, 2004). The IT profession is arguably one of the most stressful and demanding occupations (Chilton et al., 2005), thus requiring stronger social support from both supervisors and work colleagues to buffer the impact of the occupational stress involved (Cummings, 1990; House, 1991; Jayaraine et al., 1988). In a study that examined the relationship between support and leaving intention among computer professionals, Lee (2004) identified that the presence of close work colleagues acts as a solace, mitigating the stressful effects of IT work

on job performance and satisfaction. Further corroborating evidence in the literature emphasized that those individuals who have close work relationships with their peers display improved psychological well-being and higher job satisfaction (Beehr et al., 1990; LaRocco et al., 1980). Conclusively, these studies signify that for employees who thrive at the front end of technology, case in point – IT professionals, an organizational climate that supports creativity and innovation would promote higher levels of job satisfaction.

Based on the above discussion, the following is hypothesized:

H1a: The less supportive the organizational climate for innovation, the higher will be the level of job dissatisfaction for IT professionals.

Incentives for Technical Excellence and Job Dissatisfaction

Along with a supportive organizational climate for innovation, adequate incentives for technical excellence in the form of rewards (Eisenberger and Rhoades, 2001), training (Huang, 2001), job enrichment (Hackman and Oldham, 1976), and resource support (Amabile, 1988) are important constituents of an innovative environment. Incentives provided by organizations act as signals to employees on the organizational goals and objectives, and help motivate them to behave in a certain manner. Commentators of the job satisfaction literature have long accepted that rewards are significant factors that influence employees' motivation and satisfaction (Eisenberger et al., 1997; Fasolo, 1995; Wiersma, 1992; Wiley, 1997). In a similar vein, researchers in the technology domain have observed the positive relationship between a supportive reward system and motivation of technologists in information technology companies (Sankar et al., 1991). Notable volumes of studies on employees' work performance including laboratory experiments and field interventions have shown that improvements in external

contingencies such as reward structures have resulted in subsequent rise in employees' job satisfaction and work performance (Hamner and Hamner, 1976; Komaki and Frederiksen, 1982). Other studies have also shown that organizational rewards are powerful factors impelling employees' job satisfaction and performance, notably in a creative and innovative environment (Eisenberger, 1992; Eisenberger et al., 1998; Eisenberger and Rhoades, 2001).

Another key source of incentive for technical excellence among IT professionals is training (Acton and Golden, 2003; Ranft and Lord, 2000). Research has established that organizational support and commitment for training help enhance employees' job competency, increase their sense of belonging to the organization, and ultimately improve levels of job satisfaction (Mak and Sockel, 1999). Given the rapid technological advancements and high rates of obsolescence in the information technology industry, IT professionals are constantly required to upgrade their skills and competencies. Indeed, past studies have reported that IT employees highly regard the opportunities provided by organizations for continued training, learning and development (Coff, 1997; Huselid, 1995; Mak and Sockel, 1999). Organizations that are unwilling or unable to provide these incentives to its members are likely to experience employees who are dissatisfied with their jobs. Apart from training, the availability of adequate resources such as equipment, facilities, and time has been accepted as one of the incentives for technical excellence (Amabile, 1988).

The amount of satisfaction employees derived from their work is also largely dependent upon the nature and characteristics of their job, popularly known as the job enrichment element (Loher and Noe, 1985; Ondrack and Evans, 1986). The concept of job enrichment, defined as the addition to a job of tasks that increase the amount of employee control or responsibility (Hackman and Oldham, 1976) has been identified as an effective method to increase employees'

satisfaction. The existence of incentives in one's job for personal growth and achievement would propel individuals toward greater participation and involvement in their work. The importance of job enrichment as a source of incentive for employees' excellence is best described by Moeller and Fitzgerald (1985) in their meta-analysis of the relation of job characteristics to job satisfaction –"Job enrichment seeks to improve both employee performance and satisfaction by building greater scope for personal achievement and recognition and greater opportunity for individual achievement and growth into employees' jobs" (pg. 280).

Based on the aforementioned points, it is evident that when organizations provide supports for harnessing IT professionals' competencies, these employees would feel more confident and competent to engage in creative pursuits for innovation thus attaining higher levels of job satisfaction. The lack of incentives for technical excellence, on the other hand, leaves IT professionals feeling incompetent and it dampens their motivation to pursue creative ideas. In a world where technologies change rapidly, an environment that provides little incentives for technical excellence would trap IT professionals in a downward spiral of technical competency, and ultimately lead to high levels of frustrations and job dissatisfaction.

Thus, we expect the following hypothesis:

H1b: The more unsatisfactory the incentives are for technical excellence, the higher will be the level of job dissatisfaction.

P-E fit and Entrepreneurial Intention

While work environment undeniably plays an important role in formulating employees' attitudes and behaviors toward their jobs (Blau, 1999; Griffin, 1991), individual characteristics might interact with environmental stimuli to produce differential responses. Indeed, the basic

tenet of the person-environmental (P-E) fit perspective prevalent in organizational studies in the last few decade postulates employees' attitudes and behavior at work as a function of individual characteristics and the environment they are working in (Thomas, et al., 2004). In this section of the literature review, we build our theoretical arguments that job dissatisfaction among IT professionals occurs as a result of a mismatch between their personal orientation towards innovation and the organization's climate for innovation as well as the incentives for technical excellence.

Broadly defined as the compatibility between an individual and work environment, the P-E fit has been studied in the context of person-vocation fit (e.g., Holland, 1985; Tranberg et al., 1993), person-job fit (e.g., Edwards and Harrison, 1993), person-organization fit (e.g., Chatman, 1991; O'Reilly et al., 1991) and more recently, person-group fit (e.g., Kristof-Brown and Stevens, 2001; Witt, 1998). In terms of conceptualization, fit has been considered from both supplementary and complementary perspectives (Cable and Edwards, 2004; Kristof-Brown et al., 2005). While supplementary fit occurs when "a person and an organization possess similar or matching characteristics", complementary fit exists when an organization offers the rewards that an individual desires (needs-supplies fit), or when an employee has a set of skills that an organization requires (demand-abilities fit) [(Cable and Edwards, 2004, pg. 822].

Overall, the empirical findings in the literature indicate a positive relationship between P-E fit and individuals' attitudes and behaviors, such as job satisfaction, organizational commitment, turnover intention, and task performance (e.g., Cable and DeRue, 2002). Studies have shown that the alignment of values between individuals and the organizations they work for would result in high levels of job satisfaction and intentions to stay (Cable and Edwards, 2004, pg. 822; Kristof-

Brown et al., 2002). Conversely, when there is a misfit between individuals' goal orientations and their job demands, dissatisfaction would emanate (Yperen and Janssen, 2002).

In the context of our study, the "environment" component of the P-E fit equation is represented by climate for innovation and incentives for technical excellence, the direct effects of which on job dissatisfaction of IT professionals have been elaborated in the previous section. Extending the preceding section, we now discuss the "person" element of the P-E fit equation by introducing innovation orientation as a proxy for individual differences among IT professionals. We regard innovation orientation as a form of work orientation that relates to IT employees' aptitudes and attitudes toward technology. IT professionals with high innovation orientation are presumably more innovative and creative, technically competent, and more inclined to take risks and challenges in job assignments.

In a study that integrates complementary and supplementary fits of the P-E fit paradigm, Cable and Edwards (2004) found that individuals with different orientations such as self-transcendence, self-enhancement, and openness to change possess different types of needs, and thus derive different levels of fit against varying organizational conditions. Similarly, in the context of our study, we argue that IT professionals' work orientations, particularly orientations toward innovation would interact with the innovative environment of the organization to create different levels of fit. Due to the P-E misfit phenomenon, we contend that in an organization with unfavorable innovative environment, individuals with high innovation orientation would experience higher levels of job dissatisfaction than individuals with lower innovation orientation. As indicated earlier, innovative-oriented employees are characterized by their penchant for creativity and preference for risk and challenge. These inspiring needs are best served and matched by a supportive organizational climate for technological achievements. In other words,

for congruence between employees and organizations to take place, there must be a fit between the needs and values of employees with those of the organizations. Likewise, a P-E misfit could also transpire when employees with low innovation orientation serve in an organization that emphasizes and promotes innovative excellence.

As stated previously, we conceptualize the innovative environment of an organization into two facets: climate for innovation, and incentives for technical excellence. The complementary fit perspective of the P-E fit paradigm is applied to analyze the congruence between these two facets and the innovation orientation of IT professionals. Specifically, we use the needs-supplies argument of the complementary fit perspective to examine the effects of P-E fit on IT professionals' job satisfaction. According to Cable and Edwards (2004, pg. 822), the needs-supplies view postulates that complementary fit occurs when the organization provides (supplies) the incentives and rewards that their employees requires (needs). Studies have confirmed that the needs-supplies premise has a strong predictive power on employees' attitudes and performance (Kristof-Brown et al., 2005). In their recent meta-analysis of the consequences of individuals' fit at work, the authors found that the needs-supplies fit has substantially higher predictive power than demands-abilities fit on employee job satisfaction (.61 vs .41) and intent to quit (-.50 vs -.23). Additionally, in one of the most comprehensive studies on P-E fit that involved respondents from 23 different occupations, Harrison and his colleagues (Caplan, et al., 1980; French et al., 1982; Harrison, 1976, 1978) found strong negative correlations between 'work role fit' and affective outcomes such as job dissatisfaction and workload dissatisfaction.

As discussed in our previous section, for IT professionals who thrive at the front end of technology, an organizational climate that supports creativity and innovation would generate higher levels of job satisfaction, while a restrictive organizational climate would dampen IT

professionals' creative motivations, leading to job dissatisfaction. However, not all IT professionals would consider innovative and creative work as their preferred career choice as some might favor managerial paths and are more 'techie' than others (Badawy, 1982; Loh et al., 1995). Hence, by simply assessing the impact of organizational climate and incentives on job dissatisfaction without taking into account differences in individual orientations would not yield an accurate account of the effects. In a study on university employees, Yperen and Janssen's (2002) found that people who are exposed to the same work environment do not necessarily have similar levels of job satisfaction. Depending on their goal orientation, employees who face high job demands could either experience job satisfaction or dissatisfaction. For example, for those who encounter high job demands but have with weak mastery orientation, they are likely to experience job dissatisfaction (Yperen and Janssen, 2002).

In a similar vein, the P-E fit theory suggests that the effects of an innovative organizational climate and incentives for technical excellence on the attitudes of IT professionals would vary with their needs for innovative and creative work. IT professionals with high innovation orientation would experience higher levels of job dissatisfaction in an organization that has poor innovation climate because these individuals require a work environment that supports and rewards innovative pursuits. Their needs for innovative challenges are best met by organizations that offer opportunities and incentives for these activities. On the flip side of it, IT professionals who are not innovatively inclined are likely to be insensitive towards an unsupportive climate for innovation and inadequate incentives for technical excellence. Hence, we propose that:

H2a: In an environment of restrictive work climate for innovation, IT professionals with higher innovation orientations are more likely to experience high levels of job dissatisfaction.

H2b: In an environment with inadequate incentives for technical excellence, IT professionals with higher innovation orientations are more likely to experience high levels of job dissatisfaction.

Job Dissatisfaction and Entrepreneurial Intention

There is a common agreement among researchers that employees who are dissatisfied with their jobs would either leave or continue working with the organizations (Farrell, 1983; Rusbult et al., 1988; Withey and Cooper, 1989). The four generic responses to job dissatisfaction such as exit, voice, loyalty, and neglect advocated by these authors reflect the dual demarcation of reactions to job dissatisfaction with exit representing the quitting option and the latter three representing the staying option. In this study, we focus on the exit option that employees would take when they are dissatisfied with their jobs. Our intention is driven, in part by the copious amount of evidence documenting the positive relationship between dissatisfaction and turnover (Brockhaus, 1980; Brockhaus, 1982; Shapero and Sokol, 1982). While recognizing that discontented employees could either leave for other organizations or leave to start their own businesses, we are interested in the latter i.e. effects of job dissatisfaction on self-employment. Studies have shown that job dissatisfaction is one of the most important factors that lead to new venture creation (Cromie, 1998).

The influence of dissatisfaction with previous employment on the decision to start a business is well established in the "push" theory of entrepreneurship. Proponents of the "push" literature argue that individuals are driven into entrepreneurship by negative situational factors such as dissatisfaction with one's job (Brockhaus, 1980; Brockhaus, 1982; Shaver and Scott, 1991; Watson et al., 1998). These authors found that dissatisfaction with previous employment is

a major source of push motivation for entrepreneurship. Similarly, Noorderhaven et al. (2004, p.451) cited several other Dutch studies reporting that frustrations with previous wage employment are the most frequently cited motive for self-employment. This argument is also supported by Eisenhauer (1995), who concluded that individuals would be motivated to be self-employed if the satisfaction accrued from wage employment is lower than the perceived satisfaction possibly derived from self-employment.

The basic premise of the "push" effects on entrepreneurial decisions is relevant for IT personnel because studies have shown that IT professionals are more motivated by challenge and have higher needs for achievement as compared to other occupational holders (Couger, 1986; Couger, 1988). The entrepreneurial route, which promises exceptional risk and challenge, offers excellent opportunities for these individuals to realize their aspirations for greater achievement, autonomy and independence. Essentially, there is ample evidence in the literature to suggest that employees who are disgruntled with paid employment are likely to perceive self-employment or entrepreneurship as the next best alternative career, and this phenomenon is generally more conceivable among IT professionals given their strong inclination for achievement and independence.

Therefore, we expect the following hypothesis:

H3: The higher the level of job dissatisfaction, the greater the likelihood of entrepreneurial intention.

Interactive Effects of Job Dissatisfaction and Self-Efficacy

Taking this argument a step forward, we reason that job dissatisfaction is a necessary but not sufficient condition for IT professionals to leave their paid employment to start their own

businesses. The rationale is that job dissatisfaction is a fundamental factor that motivates IT employees to consider self-employment but on its own would not necessarily push individuals to take the entrepreneurial plunge. The entrepreneurial career choice is not determined by push factors alone such as job dissatisfaction, but also depends on the ability factors, widely known as the self-efficacy element (Bandura, 1986). Self-efficacy is defined as a person's judgment of ability to execute an action, and is found to be a reliable predictor of a wide variety of goal-directed behaviors (Bandura, 1986). It plays a major role in the entrepreneurial career choice of IT professionals because the motivation to act is based in part on whether they perceive being an entrepreneur is possible in terms of their ability to execute the relevant tasks. Also termed as perceived "know-how" (Davidsson, 1996), self-efficacy is accepted as a key variable that determines both the strength of entrepreneurial intentions and the chances that those intentions would be converted into actions (Boyd and Vozikis 1994; Krueger, 1993). Consistent with this reasoning, Krueger and Dickson (1994) found that high levels of self-efficacy are associated with strategic risk taking while Krueger et al. (2000) reported that self-efficacy is positively related to entrepreneurial intent. Generally, the extant literature indicates that individuals with high self-efficacy have stronger intrinsic interests in entrepreneurial tasks, and likely to perceive a business start-up as feasible (Krueger et al., 2000; Kolvereid, 1996).

In our study, we define self-efficacy from a task-based perspective, which is essentially a specific, narrow, and microanalytic explication of the construct (Bandura, 1986). Researchers like Bandura (1986) and Pajares (1996) argued that it is important to operationalize the self-efficacy construct in a specific and narrow way so that it corresponds closely to the behavior that is predicted. They asserted that self-efficacy has better predictive power of a particular behavior if it is defined in an accurate and refine way to reflect the domain-specific aspect of the behavior.

In the case of the IT profession, the ability and confidence to perform a set of IT and non-IT related tasks reflect the individual's level of self-efficacy in the IT domain. The task-based approach in defining self-efficacy stresses the value of characterizing the construct so that it represents as accurately as possible the skills associated with a profession or occupation. Based on this view, self-efficacy of IT professionals is defined as their perceived competency and know-how of a set of IT and non-IT skills, which according to the literature are important for entrepreneurial intent. Given these considerations, we hypothesize that self-efficacy would provide the additional incentive for IT professionals who are dissatisfied with their wage jobs to start their own businesses. Although job dissatisfaction provides the trigger for them to consider self-employment, the ultimate likelihood of them creating new ventures is dependent upon their self-efficacy.

H4: Among IT professionals with low levels of job satisfaction, higher levels of self-efficacy will be associated with greater entrepreneurial intent.

The scope of our literature review and study's hypothesized relationships are summarized in Figure 1. As illustrated, the path to entrepreneurship is a multi-faceted interactive process that involves individuals' personal attributes and the work environment. IT professional's personal attributes such as innovation orientation and self-efficacy condition individuals for an entrepreneurial career in unsatisfactory work environments.

Insert Figure 1 about here

METHOD

Data Source

Data for this study was obtained from the 1995 Singapore National Computer Board survey of IT professionals.[1] A sampling frame of organizations employing IT professionals in Singapore was developed from Infocomm Development Authority (IDA) Singapore. The frame was stratified by sectors such as vendors, end-users and government. Invitations to participate in the survey were mailed to 9,527 IT professionals from these sectors and a final sample of 4,192 usable questionnaires (1 299 from vendor firms, 1 326 from IT user firms and 1 567 from government organizations) was returned, yielding a response rate of 44%.

The respondents' work experience in IT related areas averaged 5 years while the average age of respondents is between 35-39 years old. 53% were males and 47% were females and the majority of the respondents had an income between S$45K to < S$60K. In terms of the highest qualification attained, 42% of respondents held undergraduate degrees, 20% had postgraduate degrees, 33% had diploma or technical qualifications, and 5% had below diploma or technical qualifications.

Measures

Table 1 presents the wordings and scale points of key variables used in this study. Unless otherwise indicated, all the constructs used a five-point Likert scale response that ranged from strongly disagree (1) to strongly agree (5). A summary of the measures used is outlined below.

Insert Table 1 about here

[1] Apart from a report that was submitted to the government agency that commissioned the survey, this study represents one of the first attempts to analyze the survey data for a research purpose.

Entrepreneurial intention. Entrepreneurial intention was measured with a two-item scale i.e. "I have always wanted to work for myself (i.e. be self-employed)" and "If I have the opportunity, I would start my own IT company" (α = 0.720).

Incentives for technical excellence. We developed a 7-item scale to measure incentives for technical excellence. When necessary, we reverse-scored the items so that higher scores reflected greater incentives. Examples of items are "My organization has limited budget for IT skills development" (reverse-coded) and "Where I work, we are rewarded for technical competence" (α = 0.803).

Climate for innovation. We used a 6-item scale to measure climate for innovation. Similar to incentives for technical excellence, we reverse-coded some items. Examples of items used are "My supervisor rarely solicits ideas from me to solve technical problems" (reverse-coded) and "Based on their experience, my peers often suggest new approaches to solving technical problems" (α = 0.826).

Job dissatisfaction. Three items adapted from the Michigan Organizational Assessment Questionnaire (Seashore et al., 1982) were averaged to create a measure of job dissatisfaction (α = 0.845).

Innovation orientation. Innovation orientation was measured with a 6-item scale. Examples of items used are "I often take risks in unfamiliar assignments", "Where possible, I take on technically difficult and challenging job assignments", and "I am technically up-to-date" (α 0.807).

Self-efficacy. Respondents were asked to rate their skills in a number of IT related areas such as software development, database design/administration, and development of multimedia applications along scales where 1 = None, 2 = Basic, 3 = Competent, 4 = Advanced, 5 = Expert (α = 0.883).

Control variables

Six control variables were employed in this study. They were gender, highest education attained, experience in IT related work, age, opportunity cost (operationalised as current income), and opportunity exposure (operationalised as two dichotomous variables i.e. IT sales &

marketing job function and IT research and development job function). Highest education attained was operationalised as four qualification categories; postgraduate degree, undergraduate degree, diploma and technical degree, and below diploma and technical degree (reference category). Actual age of the respondents was used while income was measured with ordinal categories [<S$30K, S$30-<S$60K, S$60K-S$100K, S$100K and more (reference category)]

Data Analysis

Both structural equation modelling (SEM) and hierarchical regressions were employed to evaluate the theoretical relationships in the conceptual model of entrepreneurship presented in Figure 1. The Linear Structural Relationships (LISREL 8.7) program was used to evaluate and test hypotheses 1a, 1b and 3 and hierarchical regression was used to test the moderating effects of self-efficacy and innovation orientation in hypotheses 2a, 2b and 4. Given the recognized difficulty in handling interaction terms in the modelling process (Ping, 1995; Hayduk, 1996), normal regression was used as an alternative method of analysis of the interaction effects in the model. It was also not appropriate to use a multi-sample approach in the SEM analysis as both the interacting variables are non-categorical (Rigdon et al., 1998). Furthermore, given that the moderating variable, self-efficacy consists of 38 items/indicators, it was not practical to include all possible multiplication pairs in the modelling process.

Measurement assessment procedures for SEM

To assess the unidimensionality of the indicators (i.e., each set of items for an indicator has only one underlying construct in common), the 62 items that composed the variables of interest were subjected to a confirmatory factor analysis (CFA). In the CFA model, each item is

restricted to load on its pre-specified factor. The CFA resulted in a good fit to the data [χ^2 (674) = 2983.45, $\rho < .000$]. No items cross-loaded on factors they were not intended to measure. We also assessed additional fit indices and parsimony indicators (i.e., CFI, IFI, RMSEA, NFI, and PNFI) to determine whether or not model fit was acceptable. The CFI provides the best approximation of the population value for a single model (Bentler, 1990) The IFI is used to judge the relative fit of competing models to the data in relation to the structural null model (Bollen, 1989). The root mean square error of approximation (RMSEA) assessed fit and incorporates a penalty for lack of parsimony (Steiger, 1980). The NFI is suitable for comparing models and reflects the proportion of total information accounted for by a model (Bentler and Bonnett, 1980) and the PNFI is useful because it combines both parsimony and goodness-of-fit into one indicator (Muliak et al., 1989). Results from the analysis showed that the model fit was acceptable (CFI = .94, IFI = .93, RMSEA = 0.06, NFI = .95, PNFI = .90) and all the standardized path loadings were significant and strong, ranging from a high of .61 to low of .11. These findings suggest that unidimensionality was demonstrated i.e. the final set of items uniquely represented the variables of interest.

In the next step, we examined the convergent and discriminant validity of the indicators. Convergent validity was assessed by examining each indicator's path loading on its underlying factor. Given that all the standardised path loadings (.11 - .61) in the present sample were greater than twice their standard error (Anderson and Gerbing, 1988) and all the estimates for the average variance extracted (AVE) were higher than .50 (Bagozzi and Yi, 1988), convergent validity of the scales was supported. The test for discriminant validity was also supportive. No confidence intervals of the correlations for the constructs (φ values) included 1.0 ($\rho < .05$) (Anderson and Gerbing, 1988), and the square of the intercorrelations between two constructs,

φ^2, was less than the AVE estimates of the two constructs for all pairs of constructs (Fornell and Larcker, 1981).

RESULTS

Correlations

Table 2 presents the summary statistics and zero order correlations. The bivariate relationships indicate that all the independent variables were significantly related to entrepreneurial intention. As observed, the variable most highly related to entrepreneurial intention was job dissatisfaction ($r = 0.22$, $p < 0.001$), and while entrepreneurial intention was also correlated with other control variables, the associations were much weaker. In addition, all the five independent variables were not highly and statistically correlated with each other.

Insert Table 2 about here

Structural model estimation

The conceptual model of Figure 1 is simultaneously estimated in a structural equation model using WLS estimation procedures. The structural model contains six latent variables and 62 observable indicators. The fit indices (CFI = .94, IFI = .93, RMSEA = 0.06, NFI = .95, PNFI = .90) reveal that the final structural model is fairly good as it reproduces the population covariance structure, and that there is an acceptable discrepancy between the observed and predicted covariance matrices. Table 3 contains the WLS direct, indirect and total effects parameter estimates for the structural form of this model.

"Insert Table 3 about here"

The results in Table 3 indicate that the organization's climate for innovation has a highly significant negative direct impact on job dissatisfaction (γ = - 0.54, $\rho < 0.001$), providing support for hypothesis 1a. Similarly, as predicted by H1b, the standardized estimates showed that the organization's incentives for technical excellence is inversely related to job dissatisfaction i.e. the more unsatisfactory the incentives are for technical excellence, the higher will be the level of job dissatisfaction (γ = - 0.61, $\rho < 0.001$). We also found support for hypothesis 3 that job dissatisfaction mediates the relationship between climate for innovation and incentives for technical excellence and entrepreneurial intention. The findings showed that job dissatisfaction has a significant positive direct impact on entrepreneurial intention (γ = 0.55, $\rho < 0.001$). Additionally, the results revealed that both indicators of the organization's innovative environment i.e. climate for innovation and incentives for technical excellence have a significant negative indirect impact (via job dissatisfaction) on entrepreneurial intention. The indirect effects of both climate for innovation and incentives for technical excellence on entrepreneurial intention are statistically more significant ($\rho < 0.001$) than the direct effects ($\rho < 0.05$).

Apart from confirming hypotheses 1a, 1b, and 3, the results in table 3 illustrate that most of the unhypothesized relationships among the latent variables in the model are statistically non-significant. Organization's climate for innovation and incentives for technical excellence have no significant impact on the other two exogenous variables i.e. innovation orientation and self-efficacy. In a similar vein, innovation orientation and self-efficacy are not significantly related to entrepreneurial intention. In sum, while the SEM results found support for hypotheses 1a, 1b, and 3, none of the unhypothesized relationships were statistically significant. The summary results for the hypothesized and unhypothesized relationships are illustrated in Figure 2.

Insert Figure 2 about here

Hierarchical regressions

We tested hypotheses 2a, 2b and 4 using moderated hierarchical regression analysis. The variance inflation factor (VIF) for each of the regression coefficients ranged from a low of 1.153 to a high of 2.235, well below the cut-off point of 10 (Neter et al., 1985), indicating that there are no multicollinearity problems. As Tables 4 and 5 show, we estimated regressions models to examine the contribution of the main effects toward the explanation of the dependent variable i.e. job dissatisfaction in table 4 and entrepreneurial intention in table 5. We found that for job dissatisfaction, the interaction effects of innovation orientation and climate for innovation and incentives for technical excellence were statistically significant (β = -3.88, $\rho < 0.001$; β -3.49, $\rho < 0.001$). This finding supported our hypothesis that in an environment of restrictive work climate for innovation and inadequate incentives for technical excellence, IT professionals with higher innovation orientations are more likely to experience high levels of job dissatisfaction. The control variables of age, postgraduate degree, income of <$30k and $60k-$100k were statistically significant at the 5% level. Overall, the regression in model 4 of Table 4 appears to be reasonably defined with significant F-statistics and adjusted R-squared value of 28%.

Insert Tables 4 and 5 about here

Similarly, the regression results reported in Table 5 provided support for hypothesis 4 that among IT professionals with low levels of job satisfaction, higher levels of self-efficacy will be associated with greater entrepreneurial intent. The interaction effect of job dissatisfaction and self-efficacy were statistically significant (β = 3.47, $\rho < 0.001$). The results also confirmed the significant relationships between the control variables (e.g. gender, IT experience, undergraduate

degree = $\rho < 0.01$) and entrepreneurial intention. The full model in Table 5 explains about 29% (F- 9.402; $p < 0.001$) of the variance in entrepreneurial intention.

DISCUSSION

In this study, we proposed and tested a model in which organizational climate for innovation, incentives for technical excellence, individuals' innovation orientation, and self-efficacy were hypothesized to effect entrepreneurial intention directly and indirectly through job dissatisfaction. Consistent with the P-E fit conceptual framework, we found that although the organization's innovative environment in terms of its climate and incentives for technical excellence were significantly related to job dissatisfaction, these contextual factors interact with individual differences such as innovation orientation to influence job dissatisfaction. While dissatisfaction with one's job was identified as a significant source of influence on entrepreneurial intention, the motivational push factor of job dissatisfaction was found to be an insufficient condition that might lead to new venture creation. Our findings showed that job dissatisfaction has a stronger positive relationship with entrepreneurial intention when self-efficacy is high. The results of our study suggest that self-efficacy, defined as the confidence in one's ability to execute a set of IT and non-IT related tasks provides the additional stimulus that draws dissatisfied IT professionals into starting their own businesses.

The framework of our research indicates that the path leading to entrepreneurial intent is indeed a multi-faceted process. From a holistic view of the antecedents to entrepreneurship, we established that job dissatisfaction significantly mediates the relationship between both climate for innovation and incentives for technical excellence and entrepreneurial intention. However, in the context of IT professionals who are in wage employment, an unsatisfactory work

environment would not necessarily push them into self-employment. Differences in individual characteristics such as their orientation towards innovation and perception of self-efficacy have significant moderating influence on IT professionals' intent to become entrepreneurs. Evidence from our study illustrate that IT professionals could be unhappy with a non-supportive environment for innovation and thus experience job dissatisfaction but not all would respond to a restrictive environment in a similar way. Their inclination towards innovation would determine whether they view a restrictive environment satisfactorily or not. By the same token, not all IT professionals would consider switching from paid employment to self employment when they experience job dissatisfaction. Their confidence in their competence in relation to the different aspects of the job would be a key driver that inspires them to be their own boss.

The present study provides implications for both managers and policy makers. From a managerial perspective, congruence between IT professionals' innovative needs and organizations' supplies of a conducive climate and incentives for innovation is important for employees' job satisfaction. For organizations that emphasize innovation and risk-taking, they could recruit individuals who desire challenge and creativity in their work, while less innovative organizations could seek individuals of similar needs. Although this finding is not particularly new in the literature, it provides additional rationale to the influx of high-tech businesses whose founders originate mostly from existing IT organizations. For policy makers who are concerned about raising the number of individuals who are entrepreneurs, they could as past studies have ascertained focus on enhancing individuals' self-efficacy through various educational and training programs at the work place itself. One possible approach is to focus on discontented IT employees because they represent a potential source of entrepreneurs who would consider an alternative career in self-employment. We are not advocating that policy makers should blatantly

lure IT professionals into becoming entrepreneurs but given that in most organizations, some employees tend to be dissatisfied with their jobs due to poor P-E fit, this phenomenon is in a way not detrimental to the economy. With the confidence and self-belief in their competencies, these unhappy employees could be encouraged to start their own businesses.

These implications notwithstanding, there are a couple of areas that future research should consider. First, it would be interesting to replicate this study's model in other work contexts to see if the hypothesized relationships among the variables hold true. Given that we have focused only on IT professionals, future studies could extend the breath of coverage to include other technology or non-technology driven professions. In addition, longitudinal studies that track respondents as they follow through their entrepreneurial intentions to create new ventures are needed to determine the mediating and moderating effects of job dissatisfaction and self-efficacy respectively on both individuals' entrepreneurial intent and actual start-up.

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Table 1. Measure Items and Response Format

Construct and response format	Measurements
Entrepreneurial Intention (α = .720)	
To what extent do you agree or disagree with following statements?	I have always wanted to work for myself (i.e. be self-employed)
	If I have the opportunity, I would start my own IT company
Incentives for Technical Excellence (α = .803)	
To what extent do you agree or disagree with following statements?	In-house training provided by my organization has been useful.
	My supervisor matches my professional needs with opportunities to attend courses and technical meetings.
	Where I work, we are rewarded for technical competence.
	Management does not view IT professional development as important. ®
	My organization has limited budget for IT skills development. ®
	I often participate in decisions relevant to my assignments.
	I am seldom assigned work in my areas of interest. ®
Climate for Innovation (α = .826)	
To what extent do you agree or disagree with following statements?	People I work with are not interested in IT skills development. ®
	Based on their experience, my peers often suggest new approaches to solving technical problems.
	Management maintains up-to-date technical library.
	I am encouraged to explore new ideas and to try new ways of doing things.
	I do not get opportunities to be independent and innovative. ®
	My supervisor rarely solicits ideas from me to solve technical problems. ®
Innovation Orientation (α = 0.807)	
To what extent do you agree or disagree with following statements?	I often take risks in unfamiliar assignments.
	I am technically up-to-date.
	My peers and I often use innovative solutions to solve technical problems.
	Where possible, I take on technically difficult and challenging job assignments.
	I am recognised as a "technical expert" by my peers and associates.
	I do not regularly read articles in technical journals. ®
Self-Efficacy (α = 0.883) * 38 items were used	
Respondents were asked to rate their skill level in software development / maintenance of operating systems, computer languages for software development, systems development methodology, database design/administration, network administration, software development in several areas, use of development tools, development of multimedia applications and hardware design/development along scales where 1 = None, 2 = Basic, 3 = Competent, 4 = Advanced, 5 = Expert	
Job Dissatisfaction (α = 0.845)	
To what extent do you agree or disagree with the following statements?	Overall, I am satisfied with my current job. ®
	I look forward to going in to work every morning. ®
	I often think of quitting my job. ®

Table 2. Correlations and Descriptive Statistics (N = 4,192)

Dependent variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Entrepreneurial intention	1																		
Control variables																			
2. Gender (Male = 1)	0.13*	1																	
3. Age	0.08^{+}	0.06	1																
4. IT experience	0.09^{+}	0.08	0.25**	1															
5. IT Sales & Marketing function	0.15*	0.08	0.09	0.02	1														
6. IT R&D function	0.17*	0.12†	0.07	0.03	-0.19*	1													
7. Postgraduate degree	0.09^{+}	0.05	0.13†	0.10^{+}	0.04	0.05	1												
8. Undergraduate degree	0.07^{+}	0.09	0.10†	0.11^{+}	0.04	0.03	-0.13*	1											
9. Diploma & technical degree	0.04	0.11†	0.08	0.07	0.03	0.03	-0.15*	-0.11	1										
10. Below diploma & technical degree	-0.20*	0.03	0.05	0.06	0.06	-0.15*	-0.20*	-0.16*	-0.12*	1									
11. <S$30K	0.09	0.04	0.06	0.05	0.02	0.05	-0.03	0.04	0.13*	0.05	1								
12. S$30K – <S$60K	0.05†	0.06	0.09	0.04	0.03	0.02	0.07^{+}	0.06^{+}	0.05	0.04	-0.20**	1							
13. S$60K – <S$100K	-0.06†	0.15*	0.15*	0.17*	0.08†	0.07	0.10*	0.07^{+}	0.06	-0.09^{+}	-0.23**	-0.24**	1						
14. S$100k and more	-0.13*	0.05	0.14*	0.15*	0.05	0.06	0.11*	0.08^{+}	0.08^{+}	-0.11^{+}	0.24**	-0.21**	-0.22*	1					
Independent variables																			
15. Climate for innovation	-0.19*	0.04	0.03	0.05	0.01	0.02	0.05	0.05	0.01	0.02	0.04	0.05	0.02	0.03	1				
16. Incentives for technical excellence	-0.16*	0.07	0.05	0.06	0.03	0.04	0.04	0.03	0.03	0.03	0.07	0.02	0.06	0.05	0.09*	1			
17. Innovation orientation	0.14^{+}	0.05	0.07	0.11*	0.05	0.05	0.03	0.04	0.04	0.03	0.03	0.03	0.10†	0.10†	0.06†	0.09^{+}	1		
18. Self-efficacy	0.17*	0.09	0.11*	0.10*	0.04	0.06	0.02	0.04	0.01	0.05	0.05	0.04	0.09†	0.11†	0.05	0.06^{+}	0.13^{+}	1	
19. Job dissatisfaction	0.27**	0.05	0.09	0.06	0.03	0.04	0.05	0.06	0.02	0.07	0.03	0.05	0.05	0.04	0.05	0.05^{+}	0.08†	0.09†	1
Mean	3.39	0.64	36.00	9.00	0.13	0.10	0.11	0.38	0.35	0.16	0.19	0.44	0.26	0.11	3.34	3.54	3.51	3.22	3.27
Std. deviation	0.55	0.43	0.89	0.75	0.22	0.27	0.22	0.28	0.22	0.25	0.38	0.32	0.39	0.36	0.62	0.52	0.58	0.61	0.43

$^{\dagger}p < 0.10$; $^{+}p < 0.05$; $^{*}p < 0.01$; $^{**}p < 0.001$

Table 3. Effects of Exogenous and Prior Endogenous Constructs

	ξ3, Innovation orientation			ξ4, Self-Efficacy			η1, Job Dissatisfaction			η2, Entrepreneurial Intention		
Effect of/on	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
ξ1, Climate for Innovation	0.28		0.28	0.11		0.11	-0.54***		-0.54***	-0.12*	-0.36***	0.48**
	6.03		6.03	3.66		3.66	15.66		15.66	3.70	7.92	15.19
	[+]*(UR)*			*(UR)*			*(H1a)*			*(UR)*		
ξ2, Incentives for Technical Excellence	0.22		0.22	0.19		0.19	-0.61***		-0.61***	-0.13*	-0.33***	0.46**
	5.81		5.81	3.73		3.73	16.28		16.28	3.73	7.81	15.07
	(UR)			*(UR)*			*(H1b)*			*(UR)*		
ξ3, Innovation orientation										0.23		0.23
										5.64		5.64
										(UR)		*(UR)*
ξ4, Self-Efficacy										0.15		0.15
										4.08		4.08
										(UR)		*(UR)*
η1, Job Dissatisfaction										0.55***		0.55***
										15.70		15.70
										(H3)		

[+] UR – Unhypothesized relationships among variables

Notes: Values in upper rows are standardized estimates; values in lower rows are *t*-values; ρ*<0.05; ρ**< 0.01; ρ***<0.001 (one-tailed test).

Table 4. Results of Hierarchical Regression Predicting Job Dissatisfaction

Variables	Model 1		Model 2		Model 3		Model 4	
	b	t value	*b*	t value	*b*	t value	*b*	t value
Constant	9.82	66.05***	9.99	68.33***	11.39	73.39***	10.83	70.83***
Control variables								
Gender(Male = 1)	0.94	6.30	0.96	6.32	1.12	6.40	1.02	6.36
Age	-4.67	33.01*	-4.21	32.19*	-4.89	35.59*	-4.83	35.53*
IT experience	0.86	5.80	0.84	5.79	0.87	5.80	0.75	5.04
<$30k	0.85	5.79*	0.97	6.32*	0.94	6.30*	0.81	5.67*
$30k - < $60k	1.12	7.53†	1.03	7.39†	1.15	7.55^{+}	1.34	7.80†
$60k - <$100k	-0.77	5.18*	-0.80	5.22*	-0.73	5.03*	-0.78	5.18*
Sales/Marketing dummy	0.57	3.83	0.59	3.84	0.64	4.31	0.66	4.33
Research and development dummy	0.60	3.84	0.62	4.29	0.59	3.84	0.64	4.31
Postgraduate degree	-2.44	15.51*	-2.56	16.11*	-2.33	14.88*	-2.41	15.44*
Undergraduate degree	0.77	5.20	0.86	5.78	0.83	5.76	0.82	5.74
Diploma & technical degree	0.70	5.13	0.79	5.72	0.80	5.72	0.85	5.75
Main effects								
Climate for innovation			-3.54	24.08***	-3.45	25.02***	-3.59	25.74***
Incentives for technical excellence			-3.78	26.22***	-3.68	26.21***	3.71	26.59***
Innovation orientation			1.72	10.32^{+}	1.66	10.09^{+}	1.79	10.38^{+}
Interaction effects								
Climate x innovation orientation					-3.66	24.27***	-3.88	27.05***
Incentives x innovation orientation							-3.49	25.05***
R^2	0.216		0.234		0.251		0.284	
F-model	6.558***		6.883***		7.032***		9.294***	
Δ*R2*	-		0.018		0.017		0.033	
ΔF-model	-		30.493***		13.861***		11.583***	

† ρ < .10; * ρ < .05; ** ρ < .01; *** ρ < .001 (one-tailed test)

Table 5. Results of Hierarchical Regression Predicting Entrepreneurial Intention

Variables	Model 1		Model 2		Model 3		Model 4	
	b	t value	*b*	t value	*b*	t value	*b*	t value
Constant	13.32	75.75***	9.99	68.33***	11.39	73.39***	10.83	70.83***
Control variables								
Gender(Male = 1)	2.54	16.10**	2.56	16.10**	2.62	16.21**	2.60	16.16**
Age	3.48	25.05*	3.69	26.21*	3.54	24.08*	3.78	26.22*
IT experience	2.66	19.74***	2.60	19.18***	2.39	19.42**	2.55	19.12**
<$30k	2.50	15.88*	2.47	15.53	2.53	19.10*	2.57	19.14*
$30k - < $60k	1.89	11.03*	1.90	10.99†	1.93	12.19^{+}	1.84	10.37†
$60k - <$100k	-2.21	14.04*	-2.46	15.53*	-2.56	16.11*	-2.67	26.22*
Sales/Marketing dummy	2.02	13.84*	2.11	13.99*	2.20	14.03*	2.26	14.19*
Research and development dummy	2.17	14.01*	2.15	13.97*	2.17	14.01*	2.13	13.74*
Postgraduate degree	1.93	12.20*	1.98	12.34*	1.93	12.20*	1.95	12.24*
Undergraduate degree	2.07	13.93**	2.14	14.15**	2.58	16.14**	2.59	16.18**
Diploma & technical degree	1.86	10.49	1.94	12.20	1.93	12.19	1.74	10.34
Main effects								
Self-efficacy			2.98	19.349*	2.89	18.938*	2.93	19.233*
Job dissatisfaction					2.71	16.995**	2.78	17.038**
Interaction effects								
Self-efficacy x job dissatisfaction							3.47	24.99***
R^2	0.263		0.271		0.277		0.291	
F-model	7.919***		8.295***		8.883***		9.402***	
Δ*R2*	-							
ΔF-model	-		28.845***		15.002***		13.492***	

† ρ < .10; * ρ < .05; ** ρ < .01; *** ρ < .001 (one-tailed test)

Figure 1. Proposed model of relationships among key constructs of study

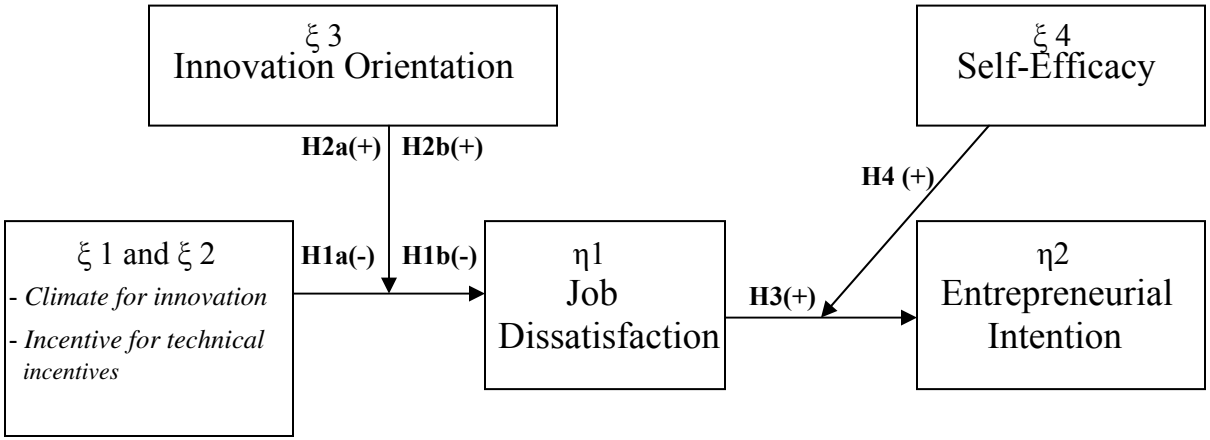
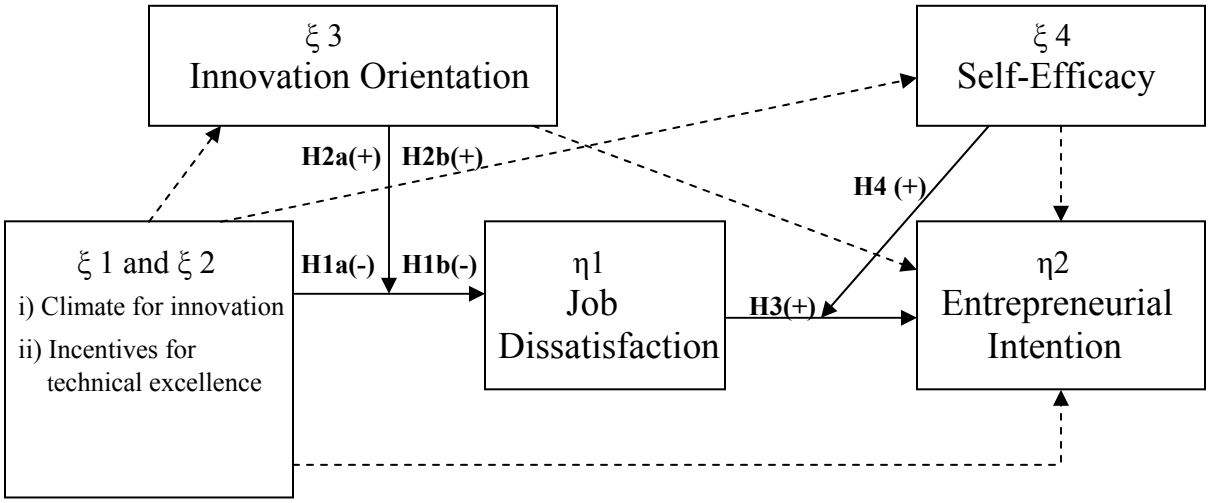


Figure 2. Final model of hypothesized and unhypothesized relationships among key constructs of study



* Solid paths represent hypothesized relationships while dotted paths represent unhypothesized relationships