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Ta-Tao Chuang  
*Gonzaga University*

Kazuo Nakatani

Duanning Zhou  
*Eastern Washington University*

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# THE IMPACT OF MANAGERIAL CHARACTERISTICS OF TOP MANAGEMENT TEAM ON THE EXTENT OF INFORMATION TECHNOLOGY ADOPTION: AN EXPLORATORY STUDY WITH THE UPPER ECHELON THEORY

**Ta-Tao Chuang**  
**Gonzaga University**  
chuang@jepson.gonzaga.edu

**Kazuo Nakatani**  
**Florida Gulf Coast University**  
knakatan@fgcu.edu

**Duanning Zhou**  
**Eastern Washington University**  
dzhou@ewu.edu

## ABSTRACT

*This article investigates the effect of compositions of managerial characteristics of top management team on the extent of information technology (IT) adoption. Adopting the upper echelon theory as theoretic foundation, the study formulated hypotheses relating compositions of top management team (TMT) characteristics to the extent of IT adoption in small businesses. Specifically, the TMT characteristics examined in the study are distribution of age, education level, gender and ethnicity of top managers. The major findings of the research are that the compositions of age, education, and gender are significant predictors of the extent of IT adoption. The research contributes to the body of knowledge in this area by (1) investigating the effect of TMT characteristics on the extent of IT adoption and (2) empirically testing the validity of the upper echelon theory in the field of IT.*

## Keywords

IT adoption, upper echelon theory, age composition, gender composition, education composition

## Introduction

As the ratio of performance/cost of computers continuously increases, computers have been widely employed in different areas of businesses. According to the 2006 National Survey of Small Business Finances (NSSBF), 90% of small businesses that responded to the survey used computer technologies for performing one task or another (The Federal Reserve Board, 2006). It is a 10% increase from the findings of a survey conducted in 1998. However, the extent to which information technologies (IT) were applied in an organization varies from one business to another. What drives the adoption of IT has been a traditional research stream in the field of information systems (IS). The MIS literature is not short of research in the adoption of IT. The majority of extant research focused on examining the effect of contextual factors (decision maker's and organizational characteristics) on the adoption of IT (Caldeira and Ward 2003; Eid and Trueman 2004; Harrison et al. 1997;

Levy and Powell 2003; Magal and Lewis 1995; Mirchandani and Motwani 2001; Riemenschneider et al. 2003; Thong 1999; Thong and Yap 1995).

In addition, extant research shows that the characteristics of senior managers have significant impact on the decision to employ IT (Harrison et al. 1997; Riemenschneider et al. 2003; Thong 1999; Thong and Yap 1995). Harrison et al. (1997) found that social psychological factors, such as attitude, social expectation, and perceived control were influential factors of the decision of IT adoption. The innovativeness tendency and IS knowledge level of chief executive officer (CEO) are important determinants of IT adoption decision (Thong 1999; Thong and Yap 1995). Furthermore, based on studies in organizational demography (Kanter 1977; Korac-Kakabadse et al. 1998), Chuang et al. (forthcoming) found that top managers' individual demographic characteristics affected the adoption of IT.

Although existing studies provide a glimpse of how executives affect the decision of IT adoption, extant research places emphasis on individual characteristics. The upper echelon theory suggests that organizational strategic choices are a function of organizational dominant coalition's background (Hambrick and Mason 1984). The composition of top managers' observable characteristics, such as gender and education, influence the performance of organizational outcomes via their strategic choices. The upper echelon theory has since stimulated a surge of research interest in top executives and has been widely adopted as a theoretic foundation for empirical studies (Carpenter et al. 2004; Norburn and Birley 1988; Chaganti and Sambharya 1987; Karake 1995). This study employs the upper echelon theory as an underlying foundation to examine the impact of distribution of executives' background characteristics on the extent of compute uses in businesses.

Furthermore, it is noteworthy that the object of IT adoption in existing research has mainly been a single particular technology, with a few exceptions (Thong 1999; Brown and Lockett 2004). Instead of the diffusion of a single technology, the present study focuses on the extent of IT adoption, which is defined as the breadth and depth of applying IT into different aspects of businesses.

## **Literature Review**

Many studies have been conducted on the topic of IT adoption in small- and medium-sized businesses. Those studies differ with regard to underlying theories and technologies under investigation. Theories employed by extant research include the innovation theory (Rogers 1983; Thong 1999; Thong and Yap 1995; Yao et al. 2003), theory of planned behavior (TPB) (Ajzen 1991; Harrison et al. 1997), technology acceptance model (TAM) (Davis et al. 1989; Riemenschneider et al. 2003), and resource-based theory (Barney 1991; Conner and Prahalad 1996; Caldeira and Ward 2003). Technologies examined in IT adoption research include database management systems (DBMS) (Grover and Teng 1992), business applications (Thong 1999; Thong and Yap 1995; Tye and Chau 1995; Caldeira and Ward 2002), e-commerce (Mirchandani and Motwani 2001), the Internet (Levy and Powell 2003), and Asynchronous Transfer Mode (ATM) broadband network (Yao et al. 2002-2003).

Based on TPB (Ajzen, 1991), Harrison et al. (1997) investigated executive decision processes of IT adoption. Their findings indicate that attitude, subjective norms, and perceived control are sufficient for explaining the IT adoption decisions. Furthermore, the firm size moderates the effect of the three.

Additionally, based on the TPB and TAM, Riemenschneider et al. (2003) developed three models, that represent progressively integrated models of TPB and TAM. They found that the more integrated TPB and TAM, the more explanatory they become.

Caldeira and Ward (2002, 2003) developed a four-dimension framework to analyze twelve Portuguese SMEs in the manufacturing industry and identified two determinant factors of different levels of IT adoption and use: management perspective and attitudes towards IS/IT adoption; and development of internal IS/IT competences. The attributes of these two have different values in most successful and less successful companies. Their findings are consistent with previous studies.

Levy and Powell (2003) investigated the adoption of the Internet in SMEs. They found that the owner's perception of business value of the Internet and attitude towards business growth were the major factors.

Thong and Yap (1995) examined the impact of three individual characteristics (innovativeness, attitude towards adoption of IT and IT knowledge) of the CEO and three organizational characteristics (business size, competitiveness of environment, and information intensity) on the adoption of IT. They found that individual characteristics were positively associated with the IT adoption. Also, their study shows that business size is the most important determinant for IT adoption in small businesses. The finding regarding firm size was supported by other research (Thong 1999; Yao et al. 2002 – 2003) and was valid for different technologies (Yao et al. 2002 – 2003).

Thong (1999) examined the impact of CEO characteristics and organizational factors in the likelihood of adoption and the extent of adoption, resulting in similar results. Thong found that the likelihood of adoption was significantly associated with

CEO characteristics, IS characteristics, and organizational characteristics. Also, he found that business size, employee's IS knowledge, and information intensity were associated with the extent of IT adoption. Part of Thong's findings, such as CEO's IT knowledge, was supported by other research (Mirchandani and Motwani, 2001). Mirchandani and Motwani (2001) found that the CEO's enthusiasm and employees' IT knowledge had significant impact on the decision to develop e-commerce.

Brown and Lockett (2004) investigated the adoption of the e-business in SMEs from provider perspectives. They found that perceived application complexity was crucial to SMEs and the substantial support from trusted third parties had a great impact on the adoption of the higher level complexity e-business applications by SMEs.

Grover and Teng (1992) examined how demographic characteristics and the maturity of organizational IS differentiate adopters from non-adopters of DBMS. They found that DBMS adoption is significantly associated with business size as well as industry.

## Theoretical Foundation: Upper Echelon Theory

The upper echelon theory developed by Hambrick and Mason (1984) suggests that organizational strategic outcomes and processes are a function of managerial characteristics of top managers as shown in Figure 1. The main notion of the upper echelon theory is that strategic choices, unlike operational decisions, are more of the outcome of behavioral factors than that of mechanic calculation for economic optimization. As a result, strategic choices generally own a great deal of behavioral components and somehow reflect decision makers' idiosyncrasies. Top managers' idiosyncrasies include their cognitive base (knowledge/assumption about future events, knowledge of alternatives, and knowledge of consequences of alternatives) and values (principles for ordering consequences or alternatives). These idiosyncrasies filter and frame the decision situation that executives face and eventually create their perceptions of the situation. The upper echelon theory suggests that because cognitive base, values and perception are unobservable, measurable managerial characteristics could be adequate surrogates for and provide reasonable indicators of those latent constructs (Carpenter et al. 2004). Hambrick and Mason (1984) suggested an unexhausted list of observable managerial characteristics, including age, functional tracks, career experiences, education, socioeconomic roots, financial position and group characteristics. Furthermore, they proposed 21 propositions relating those characteristics to strategic choices and the performance of organizational outcomes. Those propositions categorized into seven groups: age-related, functional track, other career experiences, formal education, socioeconomic background, financial position, and group heterogeneity.

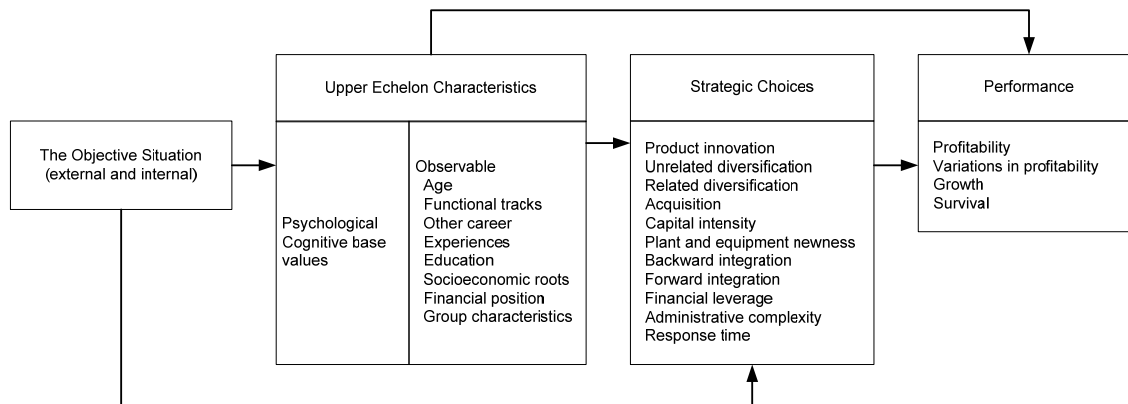


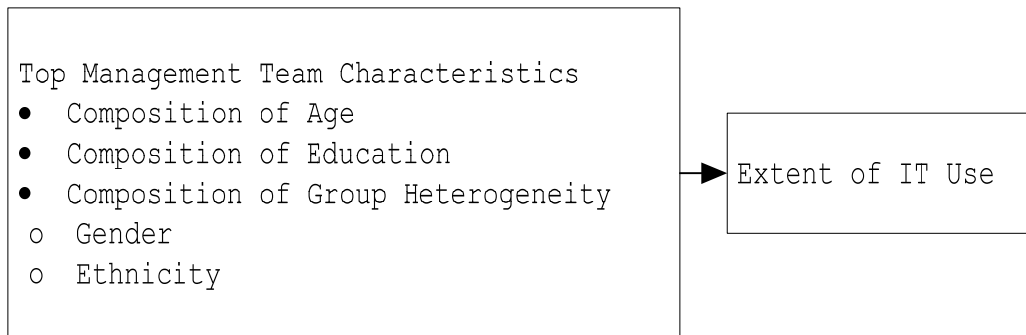
Figure 1. Upper Echelon Perspective of Organization (Source: Figure 2, Hambrick and Mason, 1984)

## Research Model and Hypotheses

In the application of the upper echelon theory to the present study, we are interested in examining the following research questions:

- How does the age composition of top management team affect the extent of computer use in businesses?
- How does the education composition of top management team affect the extent of computer use in businesses?
- How does the group heterogeneity of top management team affect the extent of computer use in businesses?

The inquiry into the above questions can be summarized in the research model as shown in Figure 3 **Error! Reference source not found.** Here, the extent of IT use is defined as the extent to which the business uses IT in supporting its business operations. Business operations can be a single task within a functional area or a process consisting of a series of activities across functional boundary. Although IT has been widely applied in all possible functional areas, how widely IT is used in businesses might vary from one business to another. One business might use IT to improve clerical productivity in the form of office automation. Another business might use IT in all functional areas. In the study, we are interested in the effect of characteristics of top management team in the extent of IT use.



**Figure 2.** Research Model

According to the upper echelon theory, youthful managers seem to be more appealing to fresh and unique ideas and more willing to take risks than older managers do (Hambrick and Mason, 1984). The possible reasons are: First, older managers might not be able to grasp new ideas or don't have physical or mental strength as strong as younger managers. Second, Hambrick and Mason suggested that "older executives have greater psychological commitment to the organizational status quo." (1984, p. 198). Because of the commitment or inertia, older managers are more reluctant to attempt new ideas or take risks. Third, older managers have already established their social networks, lifestyles, and careers planning and generally have come to the point where financial security and career security are important to them. Consequently, they tend to avoid unnecessary risks. Based on the above reasoning, we develop the following hypothesis:

**H1:** The average age of top management team is negatively associated with the extent of IT use.

Prior research has consistently shown that the level of education that managers have received is positively related to their receptivity to innovation (Hambrick and Mason 1984). Thus, the importance of education to the adoption of IT cannot be overemphasized. The impact of formal education in IT adoption can be twofold. First, the more education top management team received, the more likely they had been exposed to a variety of IT, and more likely to better understand the value of IT. The understanding may be translated to the acceptance of IT into their business. Second, formal education may foster self-efficacy. That is, the more formal education top management team has received, the more confidence they develop that they are capable of mastering IT. Igbaria et al. (1998) found that education played an important role on the number of applications and the number of tasks. Nevertheless, the upper echelon theory proposes that the amount, not the type, of formal education of top management team has received is positively associated with innovation (Hambrick and Mason 1984). Based on the above discussion, we propose the following hypothesis:

**H2:** The average education of top management team received is positively related to the extent of IT adoption.

Prior research in organization sciences shows that when a group of decision makers with homogeneous background face a non-routine problem, it often brings on groupthink, which in turn might restrict the generation and assessment of alternatives and results in inferior decisions (Hambrick and Mason 1984). This implies that a heterogeneous group might be able to take advantage of diverse background, opinions, and knowledge that group members bring on to openly generate, evaluate, and assess alternatives. Thus, a top management team with diverse backgrounds (such as ethnicity) might be more receptive to innovation.

Furthermore, research in organizational demography (Kanter 1977; Korac-Kakabadse et al. 1998) indicates that the gender composition of top managers plays an important role in organizational internal processes, which might include decision on the IT adoption. This view is supported by the findings of recent surveys (Igbaria et al. 1998; Self-Employment and Computer Usage, 2003; Kundu and Rani 2004). Gender composition might affect the decision on IT adoption in two manners: One is the number and kinds of software applications that are adopted, and the other is the type of tasks that are supported with information. For example, Igbaria et al. (1998) found that males used more software packages than females did. Also, they found that females used more application packages than did males, while males used more productivity packages than females do. Since males and females may have different preferences over different IT, the gender

heterogeneity of top management team may facilitate broader adoption of IT in businesses. Thus, we develop the following hypotheses:

**H3:** The heterogeneity of top management team is positively associated with the extent of IT adoption.

**H3a:** The gender composition of top management team is positively associated with the extent of IT adoption.

**H3b:** The ethnicity composition of top management team is positively associated with the extent of IT adoption.

## Methodology

### Sample

The data in this study comes from the data set for the 2003 National Survey of Small Business Finances (NSSBF). The data set contains information of 21,200 observations of small businesses that were in operation as of December 2003 (National Opinion Research Center, 2005). The target population was for-profit, nongovernmental, nonfinancial, and nonagricultural businesses that had fewer than 500 employees and were in operation December 31, 2003. Each business was verified whether it met the target-population definition. Each business meeting the definition criteria was sent an advance work sheet to encourage the use of written records in responding to the subsequent computer assisted interviews conducted by the National Opinion Research Center.

For the purpose of the study, a sample of 97 observations from the SBBF data set was drawn. Those cases were chosen based on the following criteria:

- Limited to a single industry: Even though the upper echelon theory might be valid across industries, Hambrick and Mason (1984) alerted that because of important effects of industry characteristics, the propositions they proposed should be tested and interpreted within an industry.
- Limited to small businesses in the wholesale trade industry: Prior research has repeatedly found that the firm size is heavily associated with adoption of IT. To reduce the effect of firm size, we decided to limit the sample to the category of small businesses. The U.S. Small Business Administration (SBA, 2007) indicates that “[T]here is an SBA small business size standard for every private sector industry in the U.S. Economy,” and the SBA’s size standards suggest that companies with 100 or less employees in the wholesale trade industry are considered small businesses. We believe that limiting the sample to small businesses could reduce the effect of confounding factors.
- Limited to companies with three or more owners: The upper echelon theory suggests that the unit of analysis should be top management teams. Also, another advantage of using management teams as the unit of analysis is to examine the effect of group heterogeneity on strategic choices (Hambrick and Mason, 1984; Carpenter, Geletkanycz, and Sanders, 2004).
- Limited to those companies in urban areas: In order to reduce the effect of surroundings, only companies located in urban areas are included.
- Limited to those companies using computers: The interest of the study is to examine the effect of upper echelon composition on the extent of computer use. Thus, the population is limited to those currently using computers in at least one business area.

## Measurement Instruments

### Extent of the IT Adoption:

We developed a composite measure of the extent of IT adoption that is composed of eight items used in the NSSBF. Each of the eight items in the NSSBF asked whether the respondent business used computers to perform one particular task in its business operations. Those eight items are listed in **Error! Reference source not found.** Following the convention used by Thong (1999), we developed the composite measure by summing up the “yes” answers to come up with a number ranging from 1 to 8, with one being the least extent of adoption and eight being the strongest level of adoption.

**Independent Variables (managerial characteristics of top management team):**

Independent variables of interest are the average age, education, gender composition, ethnicity composition of top management team.

The averages of those characteristics are calculated with weights of ownership share in order to account for the impact of ownership. The formula is as follows (NSSBF, 2006):

$$\text{Percentage of firm owned by individuals with characteristic Y} = \frac{\{[(\text{Owner \#1's characteristic} * \text{Owner \#1's share}) + (\text{Owner \#2's characteristic} * \text{Owner \#2's share}) + (\text{Owner \#3's characteristic} * \text{Owner \#3's share})]\}}{[\text{owner \#1's share} + \text{Owner \#2's share} + \text{Owner \#3's share}] * 100}$$

All weighted percentages are rounded to the nearest percentage point.

**Table 1.** Items in the NSSBN

Applications
Uses Computers to Do Online Banking
Uses Computers for an E-Mail or Internet Connection
Uses Computers to Purchase Business Products and Services
Uses Computers to Sell Business Products and Services
Uses Computers to Apply For Loans or Other Forms of Credit
Uses Computers to Manage Inventory
Uses Computers for Administrative Functions Such as Word Processing
Uses Computers to Manage the Firm's Accounts/Bookkeeping

**Table 2. Managerial characteristics of top management team**

Independents	Definitions
Age	Weighted Average Age of Owners
Education	Weighted Average Education of Owners
Gender	Weighted Average of Female Proportion in Top Management Team
Ethnic composition	Weighted Average of Minority Proportion in Top Management Team

**Data Analysis and Results**

The descriptive statistics and correlation of the variables are listed in Table 3 and Table 4, respectively.

Multiple regression analysis was employed to examine the hypotheses regarding the extent to which the compositions of managerial characteristics of top management team influenced extent of IT adoption. The regression model is as follows:

$$\text{Ext of IT Adoption} = \alpha + \beta_1 \text{Age} + \beta_2 \text{Edu} + \beta_3 \text{Gender} + \beta_4 \text{Ethnicity} + \epsilon$$

The regression module of SPSS was used to fit the model with the enter method. The result of the regression analysis is shown in Table 5.

**Table 3. Descriptive statistics of variables**

Descriptive Statistics						
	N	Minimum	Maximum	Mean	S.D.	
ITEXT	97	1	8	5.3505	2.00542	
AGE	97	24	72	49.9897	11.15935	
EDUCATION	97	2	7	4.5361	1.60768	
GENDER	97	0	100	17.1443	31.7014	
ETHNICITY	97	0	100	2.4124	14.64564	

**Table 4. Pearson correlation of variables**

		Correlations				
		ITEXT	AGE	EDU	GENDER	ETHNICITY
ITEXT	Pearson	1				
	Sig. (2-tailed)					
AGE	Pearson	-0.393(**)	1			
	Sig. (2-tailed)	0.000				
EDUCATION	Pearson	0.487(**)	0.050	1		
	Sig. (2-tailed)	0.000	0.625			
GENDER	Pearson	0.213(*)	0.181	0.134	1	
	Sig. (2-tailed)	0.036	0.076	0.191		
ETHNICITY	Pearson	-0.230(*)	0.074	0.167	0.134	1
	Sig. (2-tailed)	0.024	0.468	0.103	0.190	

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

Overall, the model explained a relatively large portion of the variance in the extent of IT adoption ( $R^2 = .561$ ,  $p < .01$ ). The three factors (age composition, education composition, and group heterogeneity composition) together explained about 56.1% of the variation of the extent of IT adoption. This seems to support the upper echelon theory that the characteristics of top management team have impact on organizational strategic choices, in general, and on how widely a business might apply IT, in particular.

The correlations and the coefficients of regression analysis showed that there were mixed results regarding hypotheses H1, H2, H3a and H3b. Since the extent of IT adoption and the age composition are negatively and significantly correlated at the level of 0.001, the H1 hypothesis is supported. In other words, the higher the average age of top management team, the less likely the business will widely apply IT to all aspects of the business. The standardized coefficient of average age ( $\beta = -0.4430$ ) indicates that the impact of age composition is slightly less than that ( $\beta = 0.5270$ ) of the education composition of top management team.

The hypothesis (H2) that the average education of top management team has received is positively related to the extent of IT adoption is supported at the significant level of 0.001. This suggests that the more education the top management team has received, the more business operations the firm will employ IT. Furthermore, compared to others, the standardized coefficient of the education composition ( $\beta = 0.5270$ ) shows that the education composition affects the extent of IT adoption the most.

Since the correlation between the gender composition of top management team and the extent of IT adoption is positive and significant at the level of 0.05, the hypothesis (H3a) that the gender composition of top management team is positively associated with the extent of IT adoption is supported. It seems that the top management team with more females will employ IT more. Also, the standardized coefficient of the female composition ( $\beta = 0.2660$ ) shows that the gender composition affects the extent of IT adoption about half the education composition.

Nevertheless, the hypothesis (H3b) that the ethnicity composition of top management team is positively associated with the extent of IT adoption is not supported since the correlation is negative and significant at the level of 0.05. It seems that the ethnicity composition of top management team has negative impact on the extent of IT adoption. Additionally, the



standardized coefficient of the ethnicity composition ( $\beta = -0.3200$ ) shows that the ethnicity composition has slightly more impact on the extent of IT adoption than the gender composition. Consequently, the hypothesis that the group heterogeneity of top management team is positively related to the extent of IT adoption is partially supported only.

**Table 5. Result of regression analysis**

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.749(a)	0.561	0.542	1.35708		
a Predictors: (Constant), ETHNICITY, AGE, EDUC, GENDER						
ANOVA(b)						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	216.65	4	54.162	29.41	.000(a)
	Residual	169.433	92	1.842		
	Total	386.082	96			
a Predictors: (Constant), ETHNICITY, AGE, EDUC, GENDER						
b Dependent Variable: ITEXT						
Coefficients(a)						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.1690	0.7390		8.3450	0
	AGE	-0.0797	0.0130	-0.4430	-6.3050	0
	EDUC	0.6580	0.0880	0.5270	7.4760	0
	GENDER	0.0168	0.0050	0.2660	3.7320	0
	ETHNICITY	-0.0439	0.0100	-0.3200	-4.5380	0
a Dependent Variable: ITEXT						

## Discussion and Implications

Using the upper echelon theory as theoretical foundation, the study is intended to examine the impact of managerial characteristics of top management team on the extent of IT adoption in small enterprises. The major finding is that overall, the three characteristics (age composition, education composition, and group heterogeneity) explain a significant amount of the variation of the extent of IT adoption. The result of the study appears to support the main thesis of the upper echelon theory: managerial characteristics of top management team in small enterprises significantly affect organizational strategic choices.

A significant correlation of the age composition of top management team to the extent of IT adoption supports a proposition that the youthful managers are more receptive to innovation as suggested by the upper echelon theory. For practitioners, the confirmation of the hypothesis implies that the firm might benefit from promoting younger managers into top management team.

Based on a previous finding that the education is positively related to receptiveness toward innovation (Kimberly and Evanisko, 1981), it is not surprising that the hypothesis regarding the positive relationship between the education composition and the extent of IT adoption is supported. Several possible explanations are in order. First, receiving more education might increase managers' cognitive capability, which would enable them to recognize the intricacy of the impact of IT on business operations. Second, managers who have received more education are likely to be exposed to IT-related subjects. The exposure to IT-related topics presumably will help managers understand the benefits and limitations of IT better. Finally, a

higher level of education might develop the dispositional construct of open-mindedness, which would encourage managers to try new solutions, such as IT, to problems.

The hypothesis that group heterogeneity of top management team is positively associated with the extent of IT adoption is partially supported. The portion of the gender composition is supported. This confirms prior research in organizational demography (Pfeffer, 1985) that demographic factors, such as gender, affect organizational innovative processes. Prior research (Igbaria et al. 1998, Self-Employment and Computer Usage, 2003) shows that there is difference in the use and preference of IT between male and female. A top management team consisting of both genders might increase the possibility of incorporating different preferences and perspectives and consequently will be more likely to apply IT to more business operations. On the other hand, the hypothesis that the ethnicity composition is positively associated with the extent of IT adoption is not supported. One possible explanation for the result is that even though members of top management team have different ethnicities, they might share similar corporate cultures through their career ladders.

For researchers, the results of the study provide support to propositions in the upper echelon theory that managerial characteristics of top management team affect organizational strategic choices. Also, the findings of the study supplement the findings of prior research. For example, research by Thong (1999) suggests that the characteristics of CEO influence the extent of IT adoption. The findings of our research increase our understanding of not only how managers' characteristics, but also the composition of managerial characteristics affect the extent of IT adoption. For practitioners, businesses should incorporate younger managers with greater education into their top management teams who are more perceptive to innovation.

## **Research Limitations**

Several limitations regarding the study are in order. First, following the suggestion from the upper echelon theory, the study chose one single industry, the wholesale trading industry. This might limit the generalizability of the findings. One possible way to improve the generalizability validity is to conduct similar research with different industries. Second, the study didn't differentiate owners from managers in data analysis. We acknowledge that even though the owners/managers are the organization, managers might be different from owners. In the future study, it deem necessary to examine the characteristics of owners who are truly in charge of operational responsibilities. Third, although the study confirms that three managerial characteristics contribute a significant amount to the extent of IT adoption, there are a number of other managerial characteristics remain to be examined. One possible characteristic suggested by the upper echelon theory is functional tracks managers experienced. Functional tracks could be important because managers might experience the benefit of IT more in certain functional areas. The future study can incorporate more managerial characteristics based on the upper echelon theory.

## **Conclusion**

The topic of IT adoption has long attracted interests of researchers in the field of IS. Studies based on several different theories have been conducted to examine the causes of IT adoption. The upper echelon theory proposes that managerial characteristics exercise influences on strategic choices; however, the theory has not been employed to investigate how characteristics affect IT adoption. Based on the upper echelon theory, the study examined the impact of compositions of age, education and group heterogeneity of top management team on the extent of IT adoption. The results of the study indicate that the compositions of age, education, and gender have a significant influence on the extent of IT adoption in small firms. However, the ethnicity composition of top management team seems to be not an important factor influencing the extent of IT adoption.

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