The correlation between organizational culture and knowledge conversion on corporate performance

Shu-Mei Tseng

Shu-Mei Tseng is an Assistant Professor in the Department of Information Management, I-Shou University, Dashu Township, Taiwan, Republic of China.

Abstract

Purpose – *Organizational culture can significantly promote or hinder the success of knowledge management initiatives. Therefore, this study seeks to develop and test empirically a conceptual framework to investigate the correlation between organizational culture and knowledge conversion on corporate performance.*

Design/methodology/approach – *Questionnaire and statistical analytical techniques were applied to gain best exploration on organizational culture, knowledge conversion and corporate performance.*

Findings – *The results of the questionnaire analyses indicate that an adhocracy culture enables knowledge conversion and enhances corporate performance more than clan and hierarchy cultures.*

Research limitations/implications – *The research investigates the correlation between organizational culture and knowledge conversion on corporate performance under a Chinese-centric set of societal, cultural and linguistic attitudes and behaviors. However, different countries have different cultures. Future research could extend this study to other regions of the world with a different set of attitudes and behaviors.*

Practical implications – *If the organization can nurture an adhocracy culture, it will be easy to create an environment where knowledge workers can learn, feel comfortable, and have the opportunity to be creative and innovative, improve corporate performance and increase the organization's value.*

Originality/value – *A lot of evidence shows that successful knowledge management initiatives can increase business innovation capacity. However, there is still a lack of empirical evidence regarding organizational culture, knowledge conversion, and corporate performance. Thus, a statistical analytical model for assessing the correlation between organizational culture and knowledge conversion on corporate performance with three cultural aspects and four knowledge conversion activities was developed in the study.*

Keywords *Organizational culture, Knowledge management, Business performance*

Paper type *Research paper*

1. Introduction

In recent years, the rapid development of information technology has led to an economic system with global, virtual, and dynamic industries (Harris, 2001; Ahn and Chang, 2004). In order to cope with radical changes in the business environment, enterprises have explored various management methods, such as total quality management (TQM), business process re-engineering (BPR), enterprise resource planning (ERP), supply chain management (SCM), customer relationship management (CRM), electronic commerce (EC), and knowledge management (KM) (Rahman and Bullock, 2005; Paper, 1998; Gattiker and Goodhue, 2004; Li *et al.*, 2005a, b; Ketchen and Hult, 2007; Basu and Muylle, 2003). Enterprises have come to emphasize learning, professional knowledge, best practices, rational context, communication, and organizational culture (Perez and Pablos, 2003).

Drucker (2001) suggested that ''knowledge'' would replace machinery, equipment, capital, raw material and labor to become the most important factor for the productive element in industry. In other words, the traditional bases of economic power are no longer the critical

Received 15 April 2009
Revised 16 July 2009
Accepted 29 July 2009

This work was supported by the National Science Council (Taiwan) under grant NSC 95-2416-H-214-012.

success factors for business; knowledge will become the core competence and intangible asset for achieving sustainable competitive advantage (Sherif *et al.*, 2006). Furthermore, KM increases the availability and accessibility of valuable knowledge at the right time to the right person and provides the knowledge for a business to quickly adapt to new market conditions. Many enterprises have implemented KM to increase organizational agility. Thus, it is important to develop a framework and process for identifying, capturing, and diffusing important knowledge in a structured way within an adaptable organizational culture (Huseby and Chou, 2003). However, there are few studies on the influence of organizational culture and knowledge conversion on corporate performance. Thus, this study applies organizational cultures as the antecedents and then investigates the influences of different organizational cultures on four knowledge conversion activities and corporate performance. The influence of knowledge conversion on corporate performance is also investigated.

2. Conceptual framework

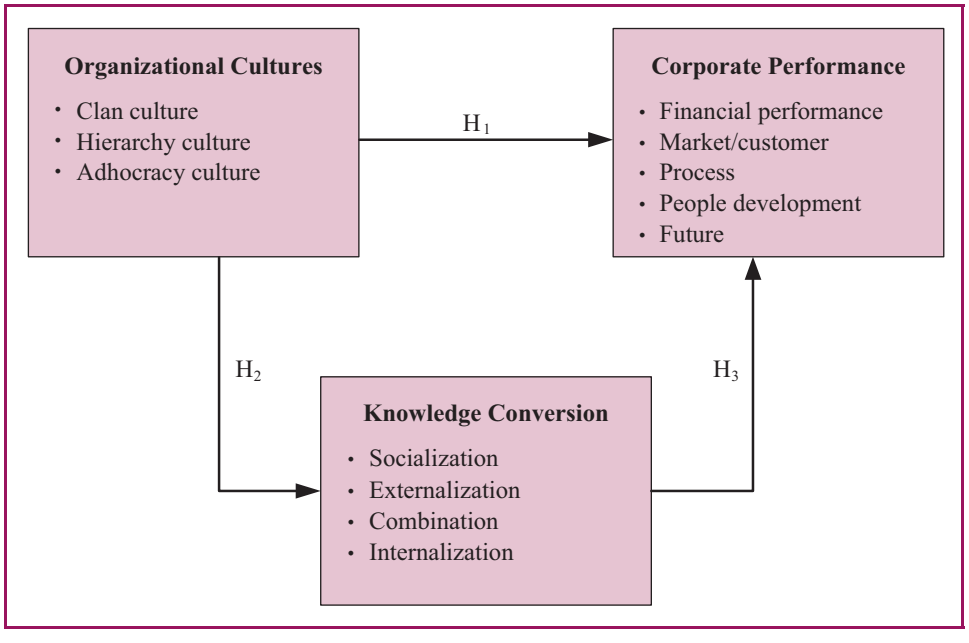
This study develops and empirically tests a conceptual framework to investigate the relationship among organizational culture, knowledge conversion, and corporate performance. The conceptual and theoretical structure is shown in Figure 1.

For further explanation about the objective of this study, the conceptual framework is described below.

2.1 Organizational cultures

Ferraro (1998) defined organizational culture as everything that people have, think, and do as members of their society. It is the basic criteria of social behavior and integrated action. Organizational cultures represent the character of an organization, which directs its employees' day-to-day working relationships and guides them on how to behave and communicate within the organization, as well as guiding how the company hierarchy is built (Ribiere and Sitar, 2003). Every individual is unique and is equipped with different characteristics and behavioral styles. This is also true for business organizations, which have unique cultures that influence the organizational operations (Chang and Lee, 2007). Langfield-Smith (1995) showed that both old and new organizational features are crucial to

Figure 1 Research model



forming and articulating the organizational culture of an enterprise. Organizational structures, routines, command and control expectations, and operational norms also have a strong impact. Organizational culture comprises acknowledged practices, rules, and principles of conduct based on certain circumstances that are general rationales and beliefs (Bailey, 1995). Thus, organizational cultures closely intertwine a group of people who have been working in the same team for a certain period of time.

Quinn (1988) used two dimensions in a competing values framework to explore organizational cultures: one dimension reflects the extent to which an organization has a control orientation; the other reflects the extent to which an organization is focused on its internal or external functions. These two dimensions form four quadrants – clan, adhocracy, market, and hierarchy – to represent a distinct organizational culture:

1. *Clan* culture produces a warm and friendly workplace where people can freely share knowledge.
2. *Adhocracy* culture produces a dynamic, entrepreneurial, and creative workplace which encourages individual initiative and provides freedom for people who are willing to stick their necks out and to take risks.
3. *Market* culture produces a workplace with hard-driving competitiveness; a results-oriented organization led by tough and demanding leaders who are hard drivers, producers, and competitors.
4. *Hierarchy* culture produces a workplace with formalized and structured procedures which govern what people do.

These organizational cultures have different ways of dealing with their internal information (Martinsons and Davison, 2007). This study adopts the above concepts – clan, adhocracy, market, and hierarchy cultures – to explore the aspect of organizational cultures. In order to reduce the complexity of the analysis, adhocracy and market cultures are combined as adhocracy culture. Therefore, three main aspects of organizational cultures are formed, as follows:

1. clan culture;
2. adhocracy culture; and
3. hierarchy culture.

2.2 Knowledge conversion

Nonaka (1994) asserted that knowledge can be converted. He postulated four stages of knowledge conversion, called SECI (i.e. socialization, externalization, combination, internalization). Nonaka and Takeuchi (1995) postulated that the knowledge conversion process is a spiral that ranges between the transformation from tacit into explicit knowledge and the subsequent re-transformation from explicit into tacit knowledge. They showed that tacit knowledge is explicated or codified based on the end result of the knowledge conversion spiral, which is derived from the interactions between explicit and tacit knowledge. The four key modes of knowledge conversion are as follows:

1. *socialization* is the process of converting tacit knowledge into new tacit knowledge;
2. *externalization* is the process of articulating tacit knowledge into explicit knowledge;'
3. *combination* is the process of converting explicit knowledge into more complex and systematic sets of explicit knowledge; and
4. *internalization* is the process of embodying explicit knowledge into tacit knowledge.

An organization is able to generate new knowledge through the conversions between the personal, tacit knowledge of individuals who are capable of producing creative insights, and the shared explicit knowledge, which the organization requires to initiate new products and to innovate (Lemon and Sahota, 2004). The whole organization shares explicit knowledge created and converts it into tacit knowledge for individuals. This process can be described

as ''learning by doing''. The dynamism of knowledge conversion starts at the individual level and expands as it moves through communities of interaction, transcending sectional, departmental, divisional, or even organizational boundaries. Therefore, new spirals of knowledge creation can be triggered by expanding both horizontally and vertically across organizations, producing a continuous self-upgrading process. This study adopts the four activities – i.e. socialization, externalization, combination, and internalization – to explore the aspect of organizational conversion.

2.3 Corporate performance

Germain *et al.* (2001) stated that performance control can be of two types:

1. *internal performance*, which is related to issues such as costs, product quality, and profit levels; and
2. *benchmarked performance*, which is related to comparing costs, quality, customer satisfaction, and operations to a benchmark of the industry or its leaders.

Chakravarthy (1986) found that classic financial measures (such as ROE, ROC, and ROS) are incapable of distinguishing the differences in performance between firms. Kaplan and Norton (1996) asserted that traditional financial accounting measures (e.g. ROI, EPS) can give misleading signals about continuous improvement and innovation. Fliaster (2004) argued that the strong orientation of the executive culture towards short-term financial performance measures and its ignorance of people issues are supported by current remuneration systems. This implies that financial measures that are based on traditional accounting practices, with an emphasis on short-term indicators such as profit, turnover, cash flow and share prices, are not fully suitable for measuring corporate performance; non-financial measures such as customers, investors, and stakeholders have become increasingly important (Edvinsson, 1997; Lee *et al.*, 2005). Cotora (2007) indicated that it is not possible for a performance measurement system to measure corporate performance or to analyze the pattern of value creation without identifying the inter-relationships and the conversion process among situations, contexts, and intangible values such as knowledge, competencies, and partnerships. In order to consider both financial and non-financial measures, Maltz *et al.* (2003) proposed five performance indexes – i.e. financial performance, market/customer, process, people development, and future – to evaluate corporate performance. This study adopts the five performance indexes proposed by Maltz *et al.* (2003) to evaluate corporate performance.

2.4 Organizational culture and corporate performance

Organizational culture is tightly connected to a certain group of people who have been working together for a considerable period of time (Linn, 2008). It is the most critical factor that shapes behavior. Hooijberg and Petrock (1993) stated that culture contributes to improved performance and supports self-managing work teams. Robinson *et al.* (2005) indicated that learning culture and knowledge management strategies are crucial to enhancing corporate performance for an enterprise to keep being innovative in its processes, products, and technologies. Jones *et al.* (2006) showed that organizational culture can be considered as a knowledge resource because it allows the members to create, acquire, share, and manage knowledge within a context. The role of organizational culture is strongly associated with a firm's competitive performance. Many leaders are aware that performance comes from interdependent behavior like cooperation, knowledge sharing, and mutual assistance. Krefting and Frost (1985) proposed that organizational culture helps create a competitive advantage by determining the boundaries, which

"The role of organizational culture is strongly associated with a firm's competitive performance."

facilitates individual interaction, and/or by defining the scope of information processing to relevant levels. Hence, organizations must foster the underlying culture necessary to support knowledge sharing activities, knowledge workers' business needs, and collaborative needs. Since organizational culture is very influential, it is important to understand the relationship between organizational culture and corporate performance to develop a theory that improves corporate performance. Hence, the following assumption was made in this study:

H1. Cultural differences in an organization will significantly affect corporate performance.

2.5 Organizational cultures and knowledge conversion

Many studies which investigate KM initiatives fail to indicate that organizational culture is the main barrier to success (Gold *et al.*, 2001; Yang, 2007). For example, in the knowledge sharing process, the key factors for organizational cultures are as follows: trust, common cultures, vocabularies, frames of reference, meeting times and venues, broad ideas of productive work, status and rewards that do not go to knowledge owners, absorptive capacity in recipients, the belief that knowledge is not the privilege of particular groups, and tolerance for mistakes (Davenport and Prusak, 1998). Thus, organizations must foster the underlying culture necessary to support knowledge sharing activities. Davenport and Prusak (1998) assumed that there are many kinds of culture which might impede or even stop knowledge conversion, and possibly lead to some knowledge loss during the conversion. Organizational culture expresses employees' attitudes and behavior towards knowledge sharing because it reflects their attributes and takes their work, organizational policies, and practices into account (Shin, 2004). Thus, enterprises should reform their culture and reward systems so that employees are encouraged and willing to share their experiences and knowledge with others while continuing to accumulate knowledge as an organizational asset (Chua and Lam, 2005; Xu and Quaddus, 2005). If an organization does not have an appropriate culture, knowledge-sharing processes will be very difficult and very limited. Only people in an organization can actively provide knowledge; an organization can learn and reform constantly based on its employees (Zhou and Fink, 2003). Therefore, organizational culture plays an important role in knowledge conversion. It is important to understand the relationship between organizational culture and knowledge conversion; hence the following assumption was made in this study:

H2. Cultural differences in an organization will significantly affect knowledge conversion.

2.6 Knowledge conversion and corporate performance

Knowledge conversion is a social process where individuals with different knowledge interact and thereby create new knowledge which grows the quality and quantity of both tacit and explicit knowledge (Sánchez and Palacios, 2008). Recent emphasis by scholars and practitioners on knowledge management has revealed the important role that knowledge plays in corporate performance (Harrington and Guimaraes, 2005). Thus, companies strive to manage knowledge more effectively, the primary motivation being improved corporate performance. In this situation, professional knowledge such as skill, invention, and creativity, is considered as an important asset which can improve corporate performance (Moungnoi and Charoenngam, 2003).

Enterprises manage the organization's knowledge through the process of creating, structuring, disseminating, and applying it by concert, coordinate, and deliberate efforts to enhance corporate performance. Kalling (2003) argued that current research into KM fails to recognize or offer a detailed understanding about the role of knowledge management in improving corporate performance. Thus, many scholars have attempted to measure the contribution of KM using various methods (Jordan and Jones, 1997; Hansen *et al.*, 1999; Choi and Lee, 2002). Chang and Ahn (2005) asserted that knowledge management activities are effective in developing the capacity of personnel to conduct knowledge-based transactions and to generate creative ideas for innovation that significantly contribute to the

financial results of an enterprise. Sua *et al.* (2006) stated that elaborating on knowledge work can have innovative outcomes, such as the discovery of new technologies for the development of new products and new processes. They explained further that many types of knowledge directly contribute to competitive advantage and financial performance; for instance, product and customer knowledge. Lai and Lee (2007) indicated that the knowledge base of a company is increasingly seen as underlying its performance. In other words, it can be assumed that enterprises with good knowledge conversion and management ability will have successful corporate performance. Hence, there is a strong relationship between knowledge conversion and corporate performance. The following assumptions were made in this study:

H3.1. Knowledge socialization has a significant correlation with corporate performance.

H3.2. Knowledge externalization has a significant correlation with corporate performance.

H3.3. Knowledge combination has a significant correlation with corporate performance.

H3.4. Knowledge internalization has a significant correlation with corporate performance.

3. Methodology

3.1 Measurement

The questionnaire was designed and developed using the results of the literature review. Some measures were drawn from previous research, while others were created specifically for this study. The draft questionnaire was tested by scholars and experts, which led to minor modifications in the wording of some survey items. The final questionnaire comprises four parts. The first part is organizational culture, which includes the following measurement items:

- clan culture;
- hierarchy culture; and
- adhocracy.

The second part is knowledge conversion, including:

- knowledge socialization;
- knowledge externalization;
- knowledge combination; and
- knowledge internalization.

The third part is corporate performance, including:

- financial performance;
- market/customer;
- process;
- people development; and
- future.

The last part is the demographics of the sample, which includes industry, annual sales, number of employees, and organizational culture. The appendix contains all the measures, as well as their sources. Research constructs were operationalized by means of related studies and a pilot test. A seven-point Likert-type scale, ranging from 1 (strongly disagree) to 4 (neutral) to 7 (strongly agree), was used to measure the research variables.

3.2 Questionnaire collection and data analysis

Samples were restricted to a list of the largest Taiwanese corporations, compiled by the China Credit Information Service (2006), from which 650 corporations were selected. Managers for knowledge management supervisors, senior human resource managers, and senior R&D managers were asked to fill out the questionnaire since they tend to play key roles in organizational activities (Stoner *et al.*, 1995). The questionnaires were sent out to the companies at the beginning of March 2008. In total, 139 questionnaires were returned by June 2008. Of the returned questionnaires, 131 were valid. The other eight were incomplete or unclear and therefore discarded. The effective response rate was 20.15 percent. Table I shows the demographics of the sample, which includes organizational culture, industry, annual sales, and number of employees.

Table II outlines the results of the reliability and validity tests performed on the survey items. Internal consistency measures (Cronbach's α) were obtained in order to assess the reliability of the measurement instruments. The item-to-total correlation, which was calculated between each individual item and the sum of the remaining items, was used to determine the convergent validity. When the item-to-total correlation score was lower than 0.4, the case was eliminated from further analysis. The reliability is more than acceptable, with a minimum alpha of 0.70. The content validity of the instruments was established by adopting the

Table I Demographic characteristics of the responding firms ($n = 131$)

	Percentage of firms
Organizational cultures	
Clan culture	31.3
Hierarchy culture	41.2
Adhocracy culture	27.5
Annual sales (NTD)	
Less than 50 million	6.9
50 million to 500 million	10.0
500 million to 3 billion	7.6
3 billion to 15 billion	37.4
15 billion to 50 billion	9.9
50 billion to 100 billion	13.7
100 billion and above	14.5
Industries	
Manufacturing companies	55.0
Non-manufacturing companies	7.7
Government enterprises	16.0
Banking and financial institutions	13.7
Others	7.6
Number of employees	
Fewer than 300	15.3
301 to 1,000	21.4
1,001 to 2,000	14.5
2,001 to 3,000	5.3
3,001 to 4,000	6.1
4,001 to 5,000	6.1
Over 5,001	31.3

Table II The reliability results for each variable

Construct	*Items*	*Reliability (Cronbach's α)*	*Convergent validity (correlation of item with total score-item)*
Knowledge conversion	7	0.829	0.432; 0.694; 0.586; 0.549; 0.690; 0.549; 0.507
Corporate performance	5	0.913	0.744; 0.828; 0.798; 0.756; 0.762

constructs that have already been validated by other researchers. From the analyses mentioned above, it was found that the survey items on each construct, which were derived from a review of the literature, are all effective.

4. Result verification

The statistics software SPSS 12.0 for Windows was utilized to establish data analysis. One-way ANOVA, Pearson correlation, and multiple regression analysis were used for organizational cultures, knowledge conversion, and corporate performance.

4.1 Relationship between organizational culture and corporate performance

According to the literature review, an organizational culture can significantly promote or hinder the success of knowledge management activities (Tuggle and Shaw, 2000; Rooney, 2005). This study conducts one-way ANOVA to explore the relationship between organizational culture and corporate performance. From Tables III and IV, organizational culture ($p = 0.017$) shows significance. Hence, *H1* is proven valid. This means that cultural differences in an organization will significantly affect corporate performance.

The results of Scheffe's multiple comparison show that there is a significant difference between clan and adhocracy cultures. This shows that an adhocracy culture has better corporate performance than that of clan culture.

4.2 Relationship between organizational culture and knowledge conversion

According to the literature review, if an organization does not have an appropriate culture, knowledge-sharing processes will be very difficult and very limited (Simonin, 1999). Hence, this study conducts one-way ANOVA to explore the relationship between organizational culture and knowledge conversion. From Tables V and VI, organizational culture ($p = 0.042$)

Table III One-way ANOVA for organizational culture to corporate performance

Source	*df*	*Sum of squares*	*Mean square*	F *value*	p-*value*
Model (culture)	2	7.940	3.970	4.224	0.017*
Residual (error)	128	120.312	0.940		
Total	130				

Note: *$p < 0.05$

Table IV Scheffe's multiple comparison procedure

	Versus	*Difference*	p-*value*
Clan	Hierarchy	−0.2145	0.567
	Adhocracy culture	−0.6318*	0.019
Hierarchy	Adhocracy culture	−0.4204	0.135

Note: *The mean difference is significant at the 0.05 level

Table V One-way ANOVA for organizational cultures to knowledge conversion

Source	*df*	*Sum of squares*	*Mean square*	F *value*	p-*value*
Model (culture)	2	5.604	2.802	3.240	0.042*
Residual (error)	128	110.676	0.865		
Total	130				

Note: *$p < 0.05$

Table VI Scheffe's multiple comparison procedure

	Versus	*Difference*	p-*value*
Clan	Hierarchy	0.3040	0.291
	Adhocracy culture	−0.1907	0.669
Hierarchy	Adhocracy culture	−0.4947*	0.050

Note: *The mean difference is significant at the 0.05 level

shows significance. Hence, *H2* is proven valid. This means that cultural differences in an organization will significantly affect knowledge conversion.

The results of Scheffe's multiple comparison show that there is a significant difference between hierarchy and adhocracy cultures. This shows that adhocracy culture has better knowledge conversion than that of hierarchy culture.

4.3 Relationship between knowledge conversion and corporate performance

The purpose of enterprises implementing KM is to improve and enhance corporate performance (Gottschalk, 2007). Through knowledge conversion, the whole organization can share the explicit knowledge created and convert it into tacit knowledge for individuals. From Table VII, knowledge conversion shows significance on corporate performance, including knowledge externalization ($p = 0.000$), knowledge combination ($p = 0.000$), and knowledge internalization ($p = 0.000$). Hence, *H3.2-H3.4* are proven valid. This means that knowledge externalization, knowledge combination, and knowledge internalization will significantly affect corporate performance. Knowledge socialization will not significantly affect corporate performance.

4.4. Multiple-regression analysis between knowledge conversion and corporate performance

Because knowledge externalization, knowledge combination, and knowledge internalization will significantly affect corporate performance, as indicated in Table VII, this study uses multiple-regression analysis to understand the linear relationship among knowledge externalization, knowledge combination, knowledge internalization, and corporate performance. The multiple-regression analysis used in this research is shown in Table VIII. As indicated Table VIII, the β value, Beta value, *t*-value and all other values achieved the

Table VII *t*-test for knowledge conversion to corporate performance

	Corporate performance	
Knowledge conversion	*Pearson correlation*	p-*value*
Knowledge socialization	0.125	0.156
Knowledge externalization	0.381	0.000*
Knowledge combination	0.373	0.000*
Knowledge internalization	0.576	0.000*

Note: *Correlation is significant at the 0.01 level (two-tailed)

Table VIII The multiple-regression analysis for the knowledge conversion on corporate performance

		Model		
Variable	β	*SE*	*Beta*	t-*value*
Knowledge externalization	0.111	0.077	0.137	1.432
Knowledge combination	0.029	0.095	0.030	0.306
Knowledge internalization	0.372	0.063	0.499	5.914
Adjusted *R*	0.579			

positive level. The Beta values in Table VIII were 0.137, 0.030 and 0.499, respectively. The model was $\hat{y} = 0.111x_1 + 0.029x_2 + 0.372x_3 + \varepsilon$, (where x_1 is knowledge externalization, x_2 is knowledge combination, and x_3 is knowledge internalization). All showed a positive relationship. The adjusted R is 0.579 and the explainability for all variables is pretty good. Therefore, there is a correlation between knowledge conversion and corporate performance.

5. Discussion

Based on the questionnaire analysis above, this study found that cultural differences in an organization will significantly affect knowledge conversion and corporate performance. According to the result of Scheffe's multiple comparison procedure (Tables III and IV), the average scores of corporate performance in descending order are as follows: adhocracy culture, hierarchy culture, and clan culture. There is a significant difference between adhocracy and clan cultures. This means that if a company is able to nurture adhocracy culture, it can significantly enhance corporate performance. In contrast, clan culture does not significantly enhance the development of performance. The result of Scheffe's multiple comparison (Tables V and VI) shows that the average scores of knowledge conversion in descending order are as follows: adhocracy culture, clan, and hierarchy cultures. There is a significant difference between adhocracy and hierarchy cultures. This shows that adhocracy culture has better knowledge conversion than that of hierarchy culture.

Further investigation shows that adhocracy culture emphasizes entrepreneurship, creativity, adaptability, goal achievement, productivity, and efficiency. It is reflecting its external orientation. For companies with higher external orientation, it will be easier for knowledge to move among the individual, group, and organizational levels. Hence, adhocracy culture will have better acquisition of explicit knowledge, which involves interaction with the external environment. Thus, it has better developed knowledge conversion and corporate performance. Hierarchy culture stresses order, uniformity, efficiency, and control, reflecting internally oriented and formalized values. It tends to force a form of localized information usage on the organization and is less likely to develop person-to person systems. Thus, it is not easy to build harmonious, credible working environments that encourage staff to share their tacit knowledge. In other words, hierarchy culture is not appropriate to develop knowledge conversion because formalization will have negative effects on information utilization. Conversely, clan culture emphasizes participation, teamwork, and cohesiveness, reflecting internally oriented and value for informal governance systems. It has high in trust and low in conflict, thus it has more well-developed tacit knowledge and allows staff to share knowledge. Within such a working environment, individuals collaborate directly, teach each other, and share experiences. Therefore, clan culture is more suitable for facilitating knowledge conversion. Furthermore, more formalized companies usually possess formalized controls and processes, thus, they have better developed corporate performance because of its effective management. Therefore, compared to a hierarchy culture, clan culture does not lead to stronger corporate performance. Even though clan culture has more well-developed knowledge conversion, it has lower corporate performance than that of hierarchy culture.

"Organizations must foster the underlying culture necessary to support knowledge sharing activities, knowledge workers' business needs, and collaborative needs."

6. Conclusion

Wong and Aspinwall (2006) argued that although there are many ways in which KM can be practiced, the suitable method depends on the criteria of the organization, such as its business object, nature of products and services, organizational culture, company size, and availability of resources. These act as moderating factors that affect how KM should be implemented. However, there is not enough knowledge about the relationship among organizational culture, knowledge conversion, and corporate performance. Thus, a statistical analytical model for assessing the correlation between organizational culture and knowledge conversion on corporate performance with three cultural aspects and four knowledge conversion activities was developed in this study.

The results indicate that the organizational culture and knowledge conversion have a positive effect on corporate performance. Adhocracy culture has the best development of knowledge conversion and corporate performance. A hierarchy culture, with its emphasis on stability and control, is most likely to result in resistance to change and fewer interactions with external environment (Fiol and Lyles, 1985); thus it did not score well in knowledge conversion (Quinn and Spreitzer, 1991). Clan culture emphasizes the long-term benefit of human resources development with high cohesion and morale, but it is also prudent and conservative; thus, it does not have the best corporate performance. Therefore, to survive, enterprises must have effective and efficient internal and external knowledge conversions to obtain competitive knowledge. Hence, in order to enhance corporate performance, an organization should cultivate a culture that encourages and provides opportunities for communicating ideas, knowledge, and experiences. If organizations can nurture adhocracy culture, it will be easy for them to create an environment where knowledge workers can learn, feel comfortable, and have the opportunity to be creative and innovative, improving corporate performance and increasing the organization's value (Chen and Hsiang, 2007).

Although it is clear that the correlation between three cultural aspects and four knowledge conversion activities on corporate performance. There are a number of research limitations in this study that give rise to future research opportunities. This research investigates the correlation between organizational culture and knowledge conversion on corporate performance under a Chinese-centric set of societal, cultural and linguistic attitudes and behaviors. However, different countries have different cultures. Future research could be extended this study to other regions of the world with a different set of attitudes and behaviors and examine how these three cultural aspects and four knowledge conversion activities interact within the firm to enhance corporate performance.

References

Ahn, J.H. and Chang, S.G. (2004), ''Assessing the contribution of knowledge to business performance: the KP3 methodology'', *Decision Support Systems*, Vol. 36 No. 4, pp. 403-16.

Bailey, W.G. (1995), *The Encyclopedia of Police Science*, 2nd ed., Garland Publishing, New York, NY.

Basu, A. and Muylle, S. (2003), ''Online support for commerce processes by web retailers'', *Decision Support Systems*, Vol. 34 No. 4, pp. 379-95.

Chakravarthy, B.S. (1986), ''Measuring strategic performance'', *Strategic Management*, Vol. 7 No. 5, pp. 437-58.

Chang, S. and Ahn, J. (2005), ''Product and process knowledge in the performance-oriented knowledge management approach'', *Journal of Knowledge Management*, Vol. 9 No. 4, pp. 114-32.

Chang, S.C. and Lee, M.S. (2007), ''A study on relationship among leadership, organizational culture, the operation of learning organization and employees' job satisfaction'', *The Learning Organization*, Vol. 14 No. 2, pp. 155-85.

Chen, R.S. and Hsiang, C.H. (2007), ''A study on the critical success factors for corporations embarking on knowledge-community-based e-learning'', *Information Sciences*, Vol. 177 No. 2, pp. 570-86.

Choi, B. and Lee, H. (2002), ''Knowledge management strategy and its link to knowledge creation process'', *Expert Systems with Applications*, Vol. 23 No. 3, pp. 173-87.

Chua, A. and Lam, W. (2005), ''Why KM projects fail: a multi-case analysis'', *Journal of Knowledge Management*, Vol. 9 No. 3, pp. 6-17.

Cotora, L. (2007), ''Managing and measuring the intangibles to tangibles value flows and conversion process: Romanian Space Agency case study'', *Measuring Business Excellence*, Vol. 11 No. 1, pp. 53-60.

Davenport, T. and Prusak, L. (1998), *Working Knowledge: How Organizations Manage What They Know*, Harvard Business School Press, Boston, MA.

Drucker, P. (2001), ''The next society: a survey of the near future'', *The Economist*, Vol. 3 No. 1, pp. 2-20.

Edvinsson, L. (1997), ''Developing intellectual capital at Skandia'', *Long Range Planning*, Vol. 30 No. 3, pp. 366-73.

Ferraro, G.P. (1998), *The Cultural Dimensions of International Business*, Prentice-Hall, Englewood Clifffs, NJ.

Fiol, C.M. and Lyles, M.A. (1985), ''Organizational learning'', *Academy of Management Review*, Vol. 10 No. 4, pp. 803-13.

Fliaster, A. (2004), ''Cross-hierarchical interconnectivity: forms, mechanisms and transformation of leadership culture'', *Knowledge Management Research & Practice*, Vol. 2 No. 1, pp. 48-57.

Gattiker, T.F. and Goodhue, D.L. (2004), ''Understanding the local-level costs and benefits of ERP through organizational information processing theory'', *Information & Management*, Vol. 41 No. 4, pp. 431-43.

Germain, R., Dröge, C. and Christensen, W. (2001), ''The mediating role of operations knowledge in the relationship of context with performance'', *Journal of Operations Management*, Vol. 19 No. 4, pp. 453-69.

Gold, A., Malhotra, A. and Segars, A. (2001), ''Knowledge management: an organizational capabilities perspective'', *Journal of Management Information Systems*, Vol. 18 No. 1, pp. 185-214.

Gottschalk, P. (2007), ''Predictors of police investigation performance: an empirical study of Norwegian police as value shop'', *International Journal of Information Management*, Vol. 27 No. 1, pp. 36-48.

Hansen, M., Nohria, N. and Tierney, T. (1999), ''What is your strategy for managing knowledge?'', *Harvard Business Review*, Vol. 77 No. 2, pp. 106-16.

Harrington, S.J. and Guimaraes, T. (2005), ''Corporate culture, absorptive capacity and IT success'', *Information and Organization*, Vol. 15 No. 1, pp. 39-63.

Harris, R.B. (2001), ''The knowledge-based economy: intellectual origins and new economic perspectives'', *International Journal of Management Reviews*, Vol. 3 No. 1, pp. 21-40.

Hooijberg, R. and Petrock, F. (1993), ''On cultural change: using the competing values framework to help leaders execute a transformational strategy'', *Human Resource Management*, Vol. 32 No. 1, pp. 29-50.

Huseby, T. and Chou, S.T. (2003), ''Applying a knowledge-focused management philosophy to immature economies'', *Industrial Management & Data Systems*, Vol. 103 No. 2, pp. 126-32.

Jones, M.C., Cline, M. and Ryan, S. (2006), ''Exploring knowledge sharing in ERP implementation: an organizational culture framework'', *Decision Support Systems*, Vol. 41, p. 434.

Jordan, J. and Jones, P. (1997), ''Assessing your company's knowledge management style'', *Long Range Planning*, Vol. 30 No. 3, pp. 392-8.

Kalling, T. (2003), ''Knowledge management and the occasional links with performance'', *Journal of Knowledge Management*, Vol. 7 No. 3, pp. 67-81.

Kaplan, R.S. and Norton, D.P. (1996), *The Balanced Scorecard*, Harvard Business School Press, Boston, MA.

Ketchen, D.J. and Hult, G.T.M. (2007), ''Bridging organization theory and supply chain management: the case of best value supply chains'', *Journal of Operations Management*, Vol. 25 No. 2, pp. 573-80.

Krefting, L.A. and Frost, P.J. (1985), ''Untangling webs, surfing waves, and wildcatting: a multiple-metaphor perspective on managing culture'', in Frost, P.J., Moore, L.F., Louis, M.R., Lundberg, C.C. and Martin, J. (Eds), *Organizational Culture*, Sage Publications, Beverly Hills, CA.

Lai, M.F. and Lee, G.G. (2007), ''Relationships of organizational culture toward knowledge activities'', *Business Process Management Journal*, Vol. 13 No. 2, pp. 306-22.

Langfield-Smith, K. (1995), ''Organisational culture and control'', in Berry, A., Broadbent, J. and Otley, D. (Eds), *Management Control: Theories, Issues and Practices*, Macmillan, London.

Lee, K.C., Lee, S. and Kang, I.W. (2005), ''KMPI: measuring knowledge management performance'', *Information & Management*, Vol. 42 No. 3, pp. 469-82.

Lemon, M. and Sahota, P.S. (2004), ''Organizational culture as a knowledge repository for increased innovative capacity'', *Technovation*, Vol. 24, pp. 483-98.

Li, C., Xu, Y. and Li, H. (2005), ''An empirical study of dynamic customer relationship management'', *Journal of Retailing and Consumer Services*, Vol. 12 No. 6, pp. 431-41.

Li, S., Rao, S.S., Ragu-Nathan, T.S. and Bhanu, R.N. (2005), ''Development and validation of a measurement instrument for studying supply chain management practices'', *Journal of Operation Management*, Vol. 23 No. 6, pp. 618-41.

Linn, M. (2008), ''Organizational culture: an important factor to consider'', *The Bottom Line: Managing library finances*, Vol. 21 No. 3, pp. 88-93.

Maltz, A.C., Shenhar, A.J. and Reilly, R.R. (2003), ''Beyond the balanced scorecard: refining the search for organizational success measures'', *Long Range Planning*, Vol. 36 No. 2, pp. 187-204.

Martinsons, M.G. and Davison, R.M. (2007), ''Strategic decision making and support systems: comparing American, Japanese and Chinese management'', *Decision Support Systems*, Vol. 43 No. 1, pp. 284-300.

Moungnoi, W. and Charoenngam, C. (2003), ''Operational delay factors at multi-stages in Thai building construction'', *The International Journal of Construction Management*, Vol. 3 No. 1, pp. 15-30.

Nonaka, I. (1994), ''A dynamic theory of organizational knowledge creation'', *Organization Science*, Vol. 5 No. 1, pp. 14-37.

Nonaka, I. and Takeuchi, H. (1995), *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*, Oxford University Press, Oxford.

Nonaka, I., Toyama, R. and Konno, N. (2000), ''SECI, ba and leadership: a unified model of dynamic knowledge creation'', *Long Range Planning*, Vol. 33 No. 1, pp. 5-34.

Paper, D. (1998), ''BPR: creating the conditions for success'', *Long Range Planning*, Vol. 31 No. 3, pp. 426-35.

Perez, J.R. and Pablos, P.O. (2003), ''Knowledge managemant and organizational competitveness: a framework for human capital analysis'', *Journal of Knowledge Management*, Vol. 7 No. 3, pp. 82-91.

Quinn, R.E. (1988), *Beyond Rational Management: Mastering the Paradoxes and Competing Demands of High Performance*, Jossey-Bass, San Francisco, CA.

Quinn, R.E. and Spreitzer, G.M. (1991), ''The psychometrics of the competing values culture instrument'', in Woodman, R.W. and Pasmore, W.A. (Eds), *Research in Organizational Change and Development*, Vol. 5, JAI Press, Greenwich, CT, pp. 115-42.

Rahman, S. and Bullock, P. (2005), ''Soft TQM, hard TQM and organisational performance relationships: an empirical investigation'', *Omega*, Vol. 33 No. 1, pp. 73-83.

Ribiere, V.M. and Sitar, A.S. (2003), ''Critical role of leadership in nurturing a knowledge-supporting culture'', *Knowledge Management Research & Practice*, Vol. 1 No. 1, pp. 39-48.

Robinson, H.S., Carrillo, P.M., Anumba, C.J. and Al-Ghassani, A.M. (2005), ''Review and implementation of performance management models in construction engineering organizations'', *Construction Innovation*, Vol. 5, pp. 203-17.

Rooney, D. (2005), ''Knowledge, economy, technology and society: the politics of discourse'', *Telematics and Informatics*, Vol. 22 No. 4, pp. 405-22.

Sánchez, M.P.S. and Palacios, M.Á. (2008), ''Knowledge-based manufacturing enterprises: evidence from a case study'', *Journal of Manufacturing Technology Management*, Vol. 19 No. 4, pp. 447-68.

Sherif, K., Hoffman, J. and Thomas, B. (2006), ''Can technology build organizational social capital? The case of a global IT consulting firm'', *Information & Management*, Vol. 43 No. 7, pp. 795-804.

Shin, M. (2004), ''A framework for evaluating economics of knowledge management systems'', *Information & Management*, Vol. 42, pp. 179-96.

Simonin, B. (1999), ''Transfer of marketing know-how in international strategic alliances: an empirical investigation of the role and antecedents of knowledge ambiguity'', *Journal of International Business Studies*, Vol. 30 No. 3, pp. 463-90.

Stoner, J.A.F., Freeman, R.E. and Gilbert, D.R. (1995), *Management*, 6th ed., Prentice-Hall, Englewood Cliffs, NJ.

Sua, C.T., Chen, Y.H. and Shab, D.Y. (2006), ''Linking innovative product development with customer knowledge: a data-mining approach'', *Technovation*, Vol. 26, pp. 784-95.

Tuggle, F.D. and Shaw, N.C. (2000), ''The effect of organizational culture on the implementation of knowledge management'', *Proceedings of the Florida Artificial Intelligence Research Symposium (FLAIRS), American Association for Artificial Intelligence, Menlo Park, CA*.

von Krogh, G., Nonaka, I. and Aben, M. (2001), ''Making the most of your company's knowledge: a strategic framework'', *Long Range Planning*, Vol. 34 No. 4, pp. 421-39.

Wong, K.Y. and Aspinwall, E. (2006), ''Development of a knowledge management initiative and system: a case study'', *Expert Systems with Applications*, Vol. 30 No. 4, pp. 633-41.

Xu, J. and Quaddus, M. (2005), ''Adoption and diffusion of knowledge management systems: an Australian survey'', *Journal of Management Development*, Vol. 24 No. 4, pp. 335-61.

Yang, J.T. (2007), ''Knowledge sharing: investigating appropriate leadership roles and collaborative culture'', *Tourism Management*, Vol. 28 No. 5, pp. 530-43.

Zhou, A.Z. and Fink, D. (2003), ''Knowledge management and intellectual capital: an empirical examination of current practice in Australia'', *Knowledge Management Research & Practice*, Vol. 1 No. 2, pp. 86-94.

Further reading

Bierly, P.E. III, Gallagher, S. and Spender, J.C. (2008), ''Innovation and learning in high-reliability organizations: a case study of United States and Russian nuclear attack submarines, 1970-2000'', *IEEE Transactions on Engineering Management*, Vol. 55 No. 3, pp. 393-408.

Bock, G.W., Sabherwal, R. and Qian, Z. (2008), ''The effect of social context on the success of knowledge repository systems'', *IEEE Transactions on Engineering Management*, Vol. 55 No. 4, pp. 536-51.

Kanter, R.M. (1996), ''When a thousand flowers bloom: structural, collective, and social conditions for innovation in organizations'', in Myers, P.S. (Ed.), *Knowledge Management and Organizational Design*, Butterworth-Heinemann, Boston, MA, pp. 93-131.

Kowtha, N.R. (2008), ''Engineering the engineers: socialization tactics and new engineer adjustment in organizations'', *IEEE Transactions on Engineering Management*, Vol. 55 No. 1, pp. 67-81.

Appendix

Table AI Theoretical constructs and relevant problems

Theoretical constructs	*Relevant problems*	*Remark*
Organizational culture	Your current position in the company: _____ Based on the following four organizational cultures, please choose the most fitting one for your current division. – The company provides a good place to share things with others like a family, as well as respects every worker's participation and team spirit. Thus, to a certain extent, the working environment is open and harmonious, as the workers highly support and believe in one another. Comparatively, the working attitude is more conservative and averse to undertaking risks and revolutions. – The company is extremely formalized and structurized, and manages its workers' tasks based on certain procedures. Hence, the conduct is more cautious, stable, and mature. Usually it is also unwilling to undertake high risks and revolution. – The company values each worker's creativity and challenges as well as respects each worker's uniqueness. Moreover, the company focuses on the cost and controlling the performance and end results. Hence, the division possesses a high level of support and trust, tolerates risks and mistakes. Simultaneously, owing to its extremely open working environment, it dares to take high risks and accepts huge revolutions	Quinn (1988), Park *et al.* (2004)
Knowledge conversion	1. Workers are willing to share their personal emotions, feelings, and experiences with others 2. Workers can learn others' skills non-verbally, such as through observation, imitation, and practice 3. Workers are willing to express their personal knowledge through spoken or written language 4. Workers can express their incommunicable knowledge through analogies or examples 5. Workers can communicate, exchange, and combine knowledge through documents, telephones, or computerized network communication 6. Workers can reclassify and recombine the existing information in order to create new knowledge 7. Knowledge is communicable to the workers verbally or through stories 8. Knowledge is gathered and arranged into a manual to provide excellent training in order to cultivate workers' knowledge	Nonaka *et al.* (2000), von Krogh *et al.* (2001)
Corporate performance	1. An integral improvement in the finance and performance (e.g. sales, profits, or return on investment, etc.) 2. An integral improvement in the relationship between an organization and its customers (e.g. market share, customer retention rates, customer satisfaction, etc.) 3. An integral improvement in organizational effectiveness and efficiency (e.g. timing of launching new products or services, quality control or project management procedure for developing new products, etc.) 4. An integral improvement in human resources development (e.g. employee skills, commitment to technological leadership, personnel development, etc.) 5. An integral improvement in preparing for the future (e.g. quality/depth of strategic planning, indicators of partnerships and alliances, anticipating and preparing for changes in the environment, etc.)	Maltz *et al.* (2003), Germain *et al.* (2001), Chakravarthy (1986), Kaplan and Norton (1996), Fliaster, 2004

About the author

Shu-Mei Tseng is an Assistant Professor in the Department of Information Management at I-Shou University, Taiwan, Republic of China. She received her PhD from the Department of Industrial and Information Management at National Cheng Kung University, Taiwan, Republic of China. Her works have been published in *International Journal of Information Management*, *Expert Systems with Applications*, *Industrial Management & Data Systems*, *Management Research News*, and *Journal of Knowledge Management*. Her current research interests include knowledge management, information technology management, and service quality management. Shu-Mei Tseng can be contacted at: y97576@isu.edu.tw