



THE ROLE OF ORGANISATIONAL CULTURE ON INNOVATION CAPABILITY: AN EMPIRICAL STUDY

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ABSTRACT

Creating and sustaining competitive advantages is the number one priority of any organisation. Companies are trying to be competitive through continuously building their innovative capability and creating innovative product and services. Literature has identified several factors affecting the innovation capability of the firms. Organisational culture is argued to be one of them and has implication for innovation capability. This study takes organisational culture and explores its effect on innovation capability. Research hypotheses are developed from the related literatures and tested through the data collected from managers of the firms in Turkey. Data was analysed via Smart PLS program. The results reveal that adhocracy culture is positively related to innovation capability. The results provide evidence regarding the implications of organisational culture as well as enabling factors behind innovativeness of the firms.

Key Words: Organisational Culture, Innovation and Innovation Capability

1. INTRODUCTION

Lawson and Samson (2001:380) argued that compared to 1980s and 1990s, “today’s organisations face an additional challenge- the requirement to innovate, not just occasionally but often, quickly and with a solid success rate”. This requirement puts pressure on organisations to look for new ways for being creative and innovative. Thus, that motivates and enables innovation in organisations have become an important question that every organisation is

seeking to answer to survive in today’s business world. One of the most important sources that organisations paying attention is organisational culture that can create and support environment in which innovation can flourish.

Several researcher have pointed out the importance of culture-innovation relationship and lack of studies. For instance, based on the literature review, McLean (2005:241) concluded that “the existing literature exploring the relationship between organizational culture/climate and creativity/innovation is



relatively limited and the literature on organizational culture and creativity and innovation is not extensive". Vincent *et al.*, (2004:20) looked at the role of organisational and environmental factors on innovation and pointed out that "there are only a handful of studies that attempt to understand the role of culture and strategic orientation on innovation". Valencia *et al.*, (2010) also suggested further studies to explore organisational culture and innovation by using organisational culture model of Cameron and Quinn (1999). Therefore, an empirical research investigating the link between organisational culture and innovation capability would be a great contribution to both organisational culture and innovation literatures. The fact that this research is carried out in a developing country context is expected to bring new insights into better understanding the concept of organisational culture and innovation.

Several individual, organisational and environmental factors are shown to affect innovation capabilities of the organisations. One of the most important organisational factor, organisational culture is less studied in the area of innovation as pointed out earlier and thus is selected as the subject of this study. It is defined and classified in various ways and has been the subject of many studies in the literature. Organisational culture is an important construct that affects both individual and organisational related process and outcomes (Ahmed, 1998; Cameron and Quinn, 2006; Martins and Martins, 2002; McLean, 2005; Peters and Waterman, 1982; Zain *et al.*, 2009). Several factors (e.g., leadership, sector, and technology) also affect organisational culture (Abu-Jarad *et al.*, 2010).

This study aims to investigate the role of organisational culture on innovation capability of the firms. The hypotheses related to the proposed relationship are drawn from the literature and tested through data collected from

fifty four firms in Gaziantep in Turkey. As stated before, this study is expected to provide further evidences for the implications of organisational culture as well as enabling factors behind innovativeness of the firms. Bringing insights from a developing country context into the topics under study is likely to contribute to the organisational culture and innovation literatures.

2. THEORETICAL BACKGROUND

2.1. Organisational Culture

Organisational culture is an important construct that affects both individual and organisational related process and outcomes. There seems to be no agreed upon definition of culture in the literature (Abu-Jarad *et al.*, 2010). It is defined from different perspectives. Organizational culture is defined as "the shared, basic assumptions that an organization learns while coping with the environment and solving problems of external adaptation and internal integration that are taught to new members as the correct way to solve those problems" (Park *et al.*, 2004). Schein (1990:111) defined organizational culture as "a pattern of basic assumptions that a group has invented, discovered or developed in learning to cope with its problems of external adaptation and internal integration, and that have worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems". Ball and Quinn (2001) defined organizational culture as "an organization's values, beliefs, practices, rites, rituals, and stories—all of which combine to make an organization unique". Corporate culture is the sum of beliefs, expectations, norms and values shared by most employees in a company (Cerović *et al.*, 2011). Abu-Jarad *et al.*, (2010:34) provide a definition that most authors would agree. According to



these researchers, organisational culture refers to “something that is holistic, historically determined (by founders or leaders), related to things anthropologists study (like rituals and symbols), socially constructed (created and preserved by the group of people who together form the organization), soft, and difficult to change”.

Organizational culture is classified in different ways. Cameron and Quinn’s (1999) developed the competing values framework model and has been used in many empirical studies on organizational culture (e.g., Obenchain and Johnson, 2004; Stock *et al.*, 2007; Valencia *et al.*, 2010) and is also used in this study. Cameron and Quinn (1999) define four types of organizational cultures; adhocracy, clan, market and hierarchy. These dimensions are explained later on.

Organisational culture affect various outcomes related to the employees and organisations. Organisational culture affect employee behaviour, learning and development (Bollinger and Smith, 2001; Saeed and Hassan, 2000), creativity and innovation (Ahmed, 1998; Martins and Terblache, 2003; Martins and Martins, 2002; Mclean, 2005; Vincent *et al.*, 2004), knowledge management (McDermott and O’Dell, 2001; Tseng, 2010), performance (Han *et al.*, 1998; Kim *et al.*, 2004; Oparanna, 2010; Saeed and Hassan, 2000; Tseng, 2010; Zain *et al.*, 2009). The studies related to the effect of organisational culture on different outcomes are quite extensive, yet, the role of organisational culture on innovation is relatively limited (McLean, 2005; Vincent *et al.*, 2004) and thus it is chosen as the subject of this study. In this current study, it is argued that organisational culture affects innovation capability of the firms.

2.2. Innovation Capability

Innovation is defined “as the development and implementation of new ideas by people who over time engage in transactions with others within an institutional order” (Van De Ven, 1986:590). Amabalie (1996:1) defined innovation as “the successful implementation of creative ideas within an organisation”. Innovation involves various activities aimed at providing value to customers and a satisfactory return to the organisations (Ahmed, 1998). Drucker (1954) sees innovation as one of two important business function. Business organisations view innovation as a means toward achieving and sustaining strategic competitive advantages (Martins and Terblanche, 2003; Marques and Ferreira, 2009; Özgenc, 2006; Salaman and Storey, 2002; Terziovski, 2007; Unsworth and Parker, 2003).

Innovation capability is defined “as comprehensive set of characteristics of an organization that support and facilitate innovation strategies” (Burgelman *et al.*, 2004). The innovation capability consists of abilities to create and carry new technological possibilities through to economic practice. The term covers a range of activities from “capability to invent to capability to innovate and to capability to improve existing technology beyond the original design parameters” (Kim, 1997:9).

Innovation capability influence organisational performance in several ways. Capabilities that firm possess in general are crucial in obtaining and sustaining competitive advantage (Akman and Yılmaz, 2008). In particular, innovation capability is associated with several strategic advantages. For instance, Shan and Zhang (2009) noted that sustained competitive advantage can be achieved by raising independent innovation capability continually in the firms. Innovation capability is also associated with the organizational potential to



convert new ideas into commercial and community value (Terziowski, 2007).

Innovation capability is related to a variety of factors and thus is affected by different internal and external factors (Bullinger *et al.* 2007; Egbetokun *et al.* 2007). While innovation is a complex concept, research identifies five key areas that influence the ability of organisation to innovate. These influences relate to leadership; opportunistic behaviour; culture and change; learning; and networking and relationship building. Our study suggests that organisational culture as an important organisational factor affecting innovation capability of the firms.

3. HYPOTHESES DEVELOPMENT

3.1. Organisational Culture and Innovation Capability

Organisational culture is associated with several individual and organisational outcomes and in this study is argued to have implication for the innovative capabilities of the firms.

Theoretical arguments suggest that the effect of organisational culture on organisations is enormous with different implications. Saeed and Hassan (2000) argued that understanding corporate culture is essential since it influences the thoughts, feelings, interactions and performance in an organisation. Similarly understanding corporate culture is required to improve organisational performance (Zain *et al.*, 2009). Corporate culture influence the behavior of employees who through the adopted systems of values and norms of behavior keep the tradition, transmit it to new employees and contribute to the achievement of organisational goals (Cerović *et al.*, 2011). A strong, positive organizational culture is critical to learning, development and sharing (skills, resources, and knowledge) (Bollinger and Smith,

2001). Martins and Martins (2002) argued that organisational cultural issues are becoming increasingly important in obtaining competitive advantages for firms. Oparanma (2010) contend that organisational culture stimulates or engenders several important activities and initiatives, leading to the success of the firms.

Empirical studies also provide evidence of link between organisational culture and organisation related performance outcomes. Kim *et al.*, (2004) reported that culture was found to impact a variety of organizational processes and performance. The strength of cultural values was found to be correlated with the organizational performance of firms in a few cases. For example, it was correlated with return on assets in manufacturing firms, growth in annual premiums and sum assured in insurance firms. There were no significant correlations with hospitals. Marcoulides and Heck (1993) found that organizational culture has a strong direct effect on organizational performance. Oparanma (2010) found that organisational culture is an important variable to be considered when organizational performance in consideration. The results from the study of Zain *et al.*, (2009) indicate that that corporate culture motivates the employees to be committed to their organisation. Tseng (2010) found that adhocracy culture improve firm performance more than clan and hierarchy cultures.

Organisational culture also affect organisational innovation capability and innovation. Edwards *et al.*, (2002) reflected that the organisation culture with values, norms and beliefs is an invaluable enabler of innovation. Martins and Terblanche (2003) argued that organisational culture appear to have an influence on the degree to which creativity and innovation are stimulated in an organisation. Values, beliefs and norm affect innovation positively or negatively depending on how they affect



employees and groups in an organisations. Vincent *et al.*, (2004) argued that role of environmental, organizational capabilities, organizational demographics, and organizational structure variables affect innovation in organisations. In particular, organizational capabilities and structure account for the greatest level of unique variance on innovation. Martins and Martins (2002) argued that many researchers agree that organisational culture is a contributing factor to the degree to which creative and innovative behaviour is found among employees in an organisation. Han *et al.*, (1998) argued that in recent years, a market-oriented corporate culture increasingly has been considered a key element of superior corporate performance. They found that market orientation facilitates an organization's innovativeness. Ahmed (1998) argued that culture is a primary determinant of innovation and possession of positive cultural characteristics provides the organisation with necessary ingredients to innovate.

Several characteristics of culture can serve to enhance or inhibit the tendency to innovate in organisations (Ahmed 1998; McLean, 2005). McLean (2005) discussed that organizational culture related characteristic and organizational climate dimensions are related to the supports of or impediments to creativity and innovation. While, organizational encouragement, supervisory encouragement, work group encouragement, freedom/autonomy, and resources support the ability to innovate, the control reduces creative and innovative ability of the organisations. The way different dimension of culture and related characteristics affect innovation capability and innovation in the firms seem to be inconclusive. March-Chorda and Moser (2008) noted that there is no agreement regarding what type of organisational culture foster innovations. Thye argued that characteristics of innovating firms such as open-minded thinking and a relaxed, open and rule-

free environment were not present in their study. Instead, characteristics that is assumed to negatively affect innovation were found to be present in innovating organisations. Several organisational characteristics associated with different dimensions of organisational culture affected innovation. Supporting this, Ahmed (1998) argued that identifying and proposing one type of culture for innovation in organisations can be misleading. A conclusion from these studies is that proposing certain organisational cultural dimensions and characteristics as panacea for innovation can not reflect the reality experienced with the organisations. Rather all the characteristics related to different dimensions of organisational culture with varying degrees may affect innovation capability of the firms.

Looking deeply into the different characteristic of each organisational culture dimension support our argument because most characteristics associated with each dimension can be argued to influence innovation capability of the firms. Explanations of these characteristics give clear picture regarding the characteristics and their association with innovativeness in the firms. There four organisational cultural dimensions used in this study; clan, adhocracy, market and hierarchy. Cameron (2004) views clan culture as a friendly place with an extended family working together. The clan culture is characterised with loyalty, morale, commitment, tradition, collaboration, teamwork, participation, and consensus, individual development (Cameron, 2004; Cameron and Quinn, 2006; Tseng, 2010). Adhocracy culture is characterized as a dynamic, entrepreneurial, innovative and creative workplace (Cameron, 2004; Cameron and Quinn, 2006; Tseng, 2010). It emphasizes new product and service development, growth, change, and experimentation (Cameron, 2004; Cameron and Quinn, 2006; Tseng, 2010). A market culture is regarded as a results-oriented workplace with



emphasis on winning, outpacing the competition, escalating share price, and market leadership (Cameron, 2004; Cameron and Quinn, 2006). A formalized and structured place along with procedures, well-defined processes and a smooth-running organization are the main characteristics of hierarchy culture (Cameron, 2004). The long-term concern of this type of culture is the stability, predictability, and efficiency (Cameron, 2004; Tseng, 2010). These characteristics except some can be argued to influence innovation capability of the firms. Therefore, a logical and reasonable hypotheses derived from these theoretical and empirical studies would be as follow;

H1: Clan culture dimension of organisational culture is positively related to innovation capability of the firms

H2: Adhocracy culture dimension of organisational culture positively influences innovation capability of the firms

H3: Market culture dimension of organisational culture positively affects innovation capability of the firms

H4: Hierarchy culture dimension of organisational culture has positive association with innovation capability of the firms

4. METHODOLOGY

4.1. Sample and Data Collection Instrument

The participants consisted of managers from fiftyfour firms. The firms are located in Gaziantep city of Turkey. There are approximately 1000 firms and maybe more registered at Chamber of Commerce of Gaziantep. We were able to reach the contact information of around 300 firms and sent them questionnaire via mail or personal contact. Fifty

four usable questionnaires were returned with a 18% response rate.

The firms surveyed in this study operate in textile sector (%47), food sector (%33), and service sector (%13) and others (%7). The firms participated in this study tend to be SMEs with employees less than 250. According to the descriptive statistics, %83.3 of the participants are male and % 16.7 are female. This result supports the notion that managerial positions are still dominated by males in Turkey. The ages of the respondents vary between 20-25 (%14.8), 26-30 (%31.5), 31-35 (% 29.6), 40 and more (%7.4). The participant managers seem to be young. Educational level distribution is as follows; high school (%29.6), associate degree (%22.4), bachelor degree (%29.6), and post graduate degree (%18.4). The work tenure of the respondent: 1 and 5 years (%45), 6-10 years (%35.2), 10 and more years (%19.8). Respondents tend to be experienced in their respective sector.

1.1. Measures

The questionnaire items were derived mainly from previous studies and modified to fit to the nature of this study. Organisational culture items were adapted from Cameron and Quinn (2006) and translated into Turkish. Six innovation capability items were taken from the study of Calantone *et al.*, (2002) and Lin (2007). A likert type scale with five response options ranging from strongly disagree to strongly agree was used for measuring organisational culture and innovation capability items.

4.2. Data Analysis

All analyses were performed based on the data collected through a survey by using PLS-Graph (build 1126), a Partial Least Squares



(PLS) Structural Equation Modelling (SEM) tool (Ringle *et al.* 2005).

5. RESULTS

The conceptual model indicating the research hypotheses H1, H2 and H4 depicted in Figure 1. Smart PLS 2.0, a Partial Least Squares (PL) Structural Equation Modeling (SEM) tool was used to test the model. Smart PLS simultaneously assesses the psychometric properties of the measurement model and estimates the parameters of the structural model. Reliability testing results are shown in Table 1. The results indicate that the measures are robust in terms of their internal consistency reliabilities as indexed by their composite reliabilities. The composite reliabilities of different measures in the model range from 0.80 to 0.85, which

matrix diagonals, representing the square roots of the AVEs, are greater in all cases than the off-diagonal elements in their corresponding row and column. This result supports the discriminant validity of the scales.

exceeds the recommended threshold value of 0.70 (Nunnally, 1978). The average variance extracted (AVE) for each measure is higher than 0.50, consistent with recommendation of Fornell and Larcker (1981). Table 1 also shows the test results regarding discriminant validity of the measure scales. The bolded elements in the



Table 1. Reliability Assessment of the Measurement Model

	AVE	Composite Reliability	R Square	Cronbach's Alpha	Clan	Adhocracy	Hierarchy	InnoCapa
Clan	0,5779	0,8448	0,0000	0,7807	0,7590			
Adhocracy	0,5522	0,8587	0,0000	0,7952	0,7126	0,7431		
Hierarchy	0,6706	0,8028	0,0000	0,6096	0,6578	0,5890	0,8189	
InnoCapa	0,5971	0,8015	0,2443	0,7534	0,4222	0,4810	0,3128	0,7727

Convergent validity is tested with Smart PLS by extracting the factor loadings and cross loadings of all indicator items to their respective latent construct. The results are shown in Table 2. As seen in the table, all of the items were loaded (the bolded factor loadings) on their respective construct from lower bound of 0.59 to an upper bound of 0.86 and more highly on their respective construct than on any other construct (the non-bolded factor loadings in any one row). The fact that all items load more highly on their market culture. Some of the items were also deleted from the model due to their insignificant factor loading or reflect high loading on the more than one factor.

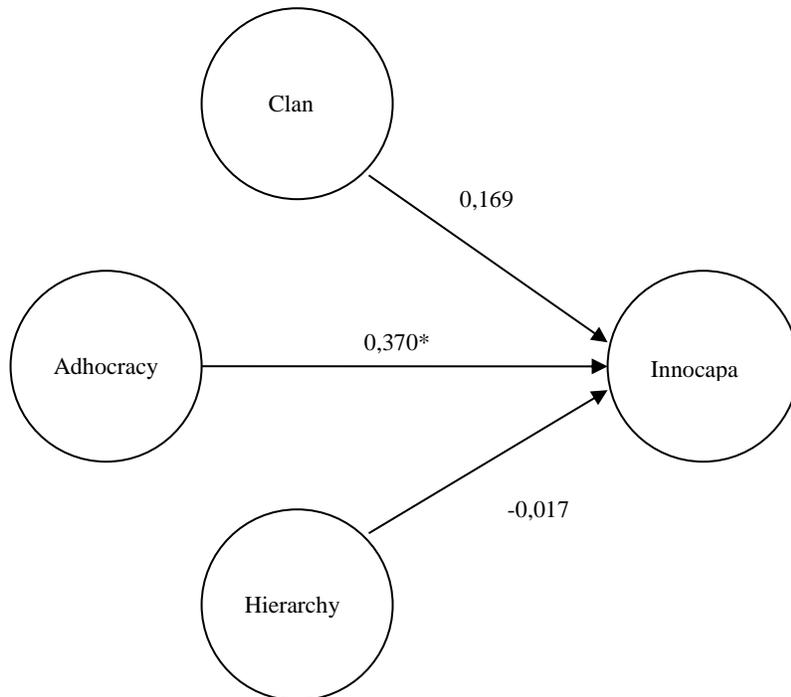
respective construct than the other construct ensured the convergent validity. Most of the items loaded above the threshold level of 0.50 (Havarila, 2010). In addition, each item's factor loading on its respective construct was highly significant ($P < 0.01$). The loadings shown in Table 2 confirm that the convergent validity of measures for the latent constructs is present. It should be noted that market culture dimension of organisational culture has been dropped from the model due to insignificant items loaded on



Table 2. Factor Loadings and Cross Loadings

	Clan	Adhocracy	Hierarchy	InnoCapa
Clan Item 1	0,5926	0,2664	0,2411	0,2125
Clan Item 2	0,7756	0,3936	0,5301	0,2921
Clan Item 3	0,6919	0,5072	0,4620	0,3339
Clan Item 4	0,7602	0,4559	0,5144	0,2448
Clan Item 5	0,7602	0,4559	0,5144	0,2448
Clan Item 6	0,6521	0,4906	0,4806	0,2850
Adhocracy Item 1	0,5866	0,8221	0,5543	0,3305
Adhocracy Item 2	0,5631	0,8236	0,5594	0,4533
Adhocracy Item 3	0,4744	0,6208	0,2677	0,2894
Adhocracy Item 4	0,4406	0,6440	0,4362	0,2522
Adhocracy Item 5	0,5695	0,7789	0,3534	0,4059
Hierarchy Item 6	0,6323	0,4080	0,8356	0,2666
Hierarchy Item 7	0,4377	0,5639	0,8019	0,2451
Innocapa Item 1	0,3262	0,4037	0,1281	0,8602
Innocapa Item 2	0,3478	0,4550	0,2667	0,8169
Innocapa Item 3	0,4161	0,4880	0,3348	0,8048
Innocapa Item 4	0,2906	0,3013	0,2985	0,6425
Innocapa Item 5	0,2506	0,2059	0,1921	0,7465
Innocapa Item 6	0,2506	0,2059	0,1921	0,7465

Figure 1. The Structural Model with Path Coefficients



Note: Path coefficient: ** Significant at $p < 0.01$, * Significant at $p < 0,05$

The results of the structural model are shown in Figure 1, in which the beta values of path coefficient indicate the direct influences of predictor upon the predicted latent constructs. According to the results, only adhocracy culture dimension of organisational culture is positively related to innovation capability of the firms. This result confirm hypothesis 2, which suggested the positive link between adhocracy culture and innovation capability. Although other cultural dimensions (clan and hierarchy) were also expected to have positive effect on innovation capability, they did not reflect any significant effect on innovation capability. Thus, H1 and H4 are not confirmed in this study. Dropping the market culture dimension in the analysis has resulted in no test of H3.



6. DISCUSSIONS AND CONCLUSION

Based on the research model developed from the related literatures, this study intended to demonstrate the impact of the organisational culture dimensions on innovation capability of the firms.

The results reveal that adhocracy culture dimension positively affects innovation capability of the firms, confirming H1. This result supports the theoretical arguments (Ahmed, 1998; Barlow, 1999; Edwards *et al.*, 2002; Martins and Martins, 2002; Vincent *et al.*, 2004) along with empirical studies that found positive effect of organisational culture on performance (Kotter and Heskett, 1992; Marcoulides and Heck, 1993; Oparanma, 2010; Tseng, 2010), innovation capability (e.g., Dasayanaka, 2009; Han *et al.*, 1998; Yeşil *et al.*, 2012) and product innovation (e.g., Valencia *et al.*, 2010). The fact that only adhocracy culture affect innovation capability provides evidence for the prominent role of adhocracy culture on innovation capability found in a study conducted by Yeşil *et al.*, (2012). In this study, researchers also looked at the role of adhocracy culture but not other dimensions on innovation capability of the firms and found that adhocracy culture is positively related to innovation capability. Dasayanaka (2009) also reported that adhocracy culture is related to innovativeness of the firms. This result implies that firms need to pay attention to adhocracy culture related characteristics and try to support them.

The other cultural dimensions, namely clan and hierarchy were not related to innovation capability of the firms and thus, H2 and H4 were rejected. This findings contradict with the theoretical arguments (Ahmed, 1998; Edwards *et al.*, 2002; Han *et al.*, 1998; Martins and Martins, 2002) and previous empirical studies

(e.g., March-Chorda and Moser, 2008; Vincent *et al.*, 2004). In a study conducted by March-Chorda and Moser, (2008) found that different characteristics associated with different cultural dimensions were correlated with innovation. Based on meta analysis, Vincent *et al.*, (2004) found the positive effect of clan culture and formalization on innovation. Lack of relationship between these two cultural dimensions and innovation capability could be attributed to the organisational culture measurement and relatively small sample size. In our study, managers were assessed the organisational culture and this has been criticized (Abu-Jarad *et al.*, 2010). Involving all the levels of organisational members in measuring organisational culture (e.g., Ashkanasy, 2000) along with organisational practices rather than values were recommended in the literature (Abu-Jarad *et al.*, 2010).

H3 reflecting the link between market culture and innovation capability was also rejected because of low significance level of items that constitute the market culture. Although previous studies showed the prominent effect of market culture on performance and innovativeness (e.g., Han *et al.*, 1998; Gallagher and Brown, 2007), this study failed to show significance of the construct in the analysis. Thus, this hypothesis was not tested.

The overall result indicate that some characteristics associated with organisational culture has more prominent effect than other dimensions. Organisational culture that places great emphasis on entrepreneurial, innovative and creative workplace along new product and service development, growth, change, and experimentation are likely to create environment where innovation and innovation capability can be developed (Valencia *et al.*, 2010). Although our study show the importance of adhocracy



culture for innovation capability, it does not claim that other cultural dimensions are not related to innovation (Ahmed, 1998; Valencia et al., 2010). Instead, we argue that various characteristics associated with different cultural dimensions can be beneficial to the innovativeness of the firms as has been discussed in other studies (e.g., Ahmed, 1998; March-Chorda and Moser, 2008). Therefore, these dimension require further attention from academics to better position their relation with innovation.

This study also can not escape from the limitations. One limitation is that participated firms in this study comes from only one city with relatively small sample size. This limits our ability to generalise the findings to the other context. This may have resulted in lack of significant relationship between organisational culture dimensions and innovation capability. It is therefore recommended that further studies may involve big sample size and maybe firms spanning across the country. Future studies may further investigate the impact of organisational culture dimensions on innovation in firms with different measurement including all the organisational members. Some other elements (e.g., organisational climate) can be explored to be able to identify the most significant factor that plays the most important role in determining innovativeness of the firms. Following Podsakoff *et al.*, (2003), researchers ensured the respondents with information in the front page of the questionnaire regarding the confidentiality of their individual responses. In order to reduce respondents' concern about being evaluated, we also assured the participants that there were no right or wrong answers to questions in the questionnaire.

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