

Creating Competitive Advantage for Vietnamese Manufacturing and Service Firms: The Role of Collaborative Culture and Innovation Capability

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Abstract

Collaborative culture and innovation are broadly recognized as the crucial antecedents of creating competitive advantage for firms. However, the research on how collaborative culture connects with innovation to enhance firm's competitive advantage is still sparse and limited. To clarify these relations, this study uses structural equations modeling (SEM) based on data collected from 265 manufacturing and service firms in Vietnam to explore the correlation between collaborative culture, innovation and competitive advantage. The result indicates that collaborative culture has significant effects on both innovation capability and competitive advantage. In addition, innovation capability acts as the mediator between collaborative culture and competitive advantage. The findings of this study provide useful guidelines for both scholars and practitioners in identifying the effective way to increase competitive advantage for firms.

Keywords: collaborative culture, innovation capability, competitive advantage, SEM

1. Introduction

Before the changing rapid and difficult to predict of business environment, improving innovation capability is considered as one of the most optimal solutions for firms to create competitive advantage and improving organizational performance in long term (Le & Lei, 2018; Yang et al., 2018; Le & Lei, 2019). Innovation brings firms a competitive advantage in many aspects such as: market performance, market share maintenance, production shortening, and accelerating new products development (Tidd et al., 2006), operational efficiency and service quality (Hsueh & Tu, 2004; Parasuraman, 2010), meeting customer's needs, developing new capabilities, performance or superior profitability (Calantone et al., 2002; Sadikoglu & Zehir, 2010) in comparison with those of the competitors. As a result, scholars and practitioners are looking for new and effective paths to improve firm's innovation capability for attaining and sustaining competitive advantage (Hogan & Coote, 2014; Yang et al., 2018). Previous studies pointed out that organizational culture has significant role in creating the openness, collaborative climate and trust which are the root of fostering employees sharing more ideas and knowledge for innovation and competitive advantage (Donate & Guadamillas, 2011; Lei et al., 2017; Yang et al., 2018). However, the research on the relationship between collaborative culture (CC) which is seen as the core values of organizational culture, innovation and competitive advantage is still limited (Lei et al., 2017; Yang et al., 2018). Thus, to provide more understanding on these relations, this paper will investigate the relationship between CC, innovation and competitive advantage in case of Vietnamese firms. The research issue is new, significant and necessary by following reasons.

First, how to improve firm's innovation capability is the hot topic of scholars and practitioners (Breznik & Hisrich, 2014; Leavy, 2015; Yang et al., 2018). To improve firm's innovation, Anderson et al. (2014) emphasized the necessity of identifying the antecedents of innovation by posing a question that: "What is the relationship between organizational resources and different types of organizational innovation?" Meanwhile, organizational culture and CC are viewed as the crucial organizational resources (Wang & Noe, 2010). Therefore, exploring how CC related to innovation capability is very necessary. So, the first research question arises: *RQ1. Does CC have positive impact on innovation capability?*

Second, although some recent works showed that CC has positive impacts on both innovation (Yang et al., 2018) and

competitive advantage (Lei et al., 2017). However, Lopez et al., (2004) supposed that CC do not constitute in itself a source of competitive advantage. Moreover, the role of organizational culture's values towards innovation is not clear by it could enhance or inhibit creativity and innovation (Glor, 1997; Tushman & O'Reilly, 1997). To clarify the correlation between CC and competitive advantage, the second research question needs to be addressed: *RQ2. Does CC have positive impact on competitive advantage?*

Finally, previous studies show the potential mediating role of innovation between CC and competitive advantage by indicating that CC is the sources of successful innovation (Barczak et al., 2010; Kucharska & Kowalczyk, 2016; Yang et al., 2018), which, in turn, has positive impacts on firm's competitive advantage (Lei et al., 2018; Le & Lei, 2018). However, the empirical research on the mediating role of innovation between CC and competitive advantage is still deficient and restricted. Consequently, the third research question needs to be answered: *RQ3. Does innovation capability mediate between CC and competitive advantage?*

To answer the above research questions, this study used structural equations modeling (SEM) to test the correlation between the constructs based on a survey of 265 directors/managers from 265 firms in some developed provinces of Vietnam. Our research is expected to provide both theoretical initiatives and practical implication on organizational culture, innovation, and firm's competitive advantage.

2. Literature Review and Hypotheses Development

2.1 Collaborative Culture and Innovation Capability

Organizational culture that widely regarded as the key organizational resource has attracted the attention of many scholars for several decades (e.g., Schein, 1985; David & Fahey, 2000; López et al., 2004; Xiaoming & Junchen, 2012; Lei et al., 2017). Culture is typically defined as a model of basic assumption, values and beliefs, which are shared by members in organizations and providing norms of expected behaviors that employees might follow (Schein, 1992; Miron et al., 2004). These shared values constitute the foundation of communication and mutual understanding. Thereby it has impacts on employee behavior through its two main functions: internal integration and coordination (Hofstede, 1988; Martins & Terblanche, 2003). By reviewing literature, we have found that organizational culture has significant impacts on the organization's strategic outcomes. The current literature supports for significant and important role of organizational in creating a positive climate for firm to change and increase firm's innovation capability (Nacinovic et al., 2009; Škerlavaj et al., 2010) which refers to the adoption of a new idea or behavior relating to a system, policy, program, device, process, product or service (Hage, 1999). However, it seems to have a little paradox in the sense that specific aspects of organizational culture can enhance or inhibit creativity and innovation (Glor, 1997; Tushman and O'Reilly, 1997). To explore deeper the influences of specific values of organizational culture on innovation, our study will focus on examining the effects of collaborative culture-core values of organizational culture on firm's innovation capability.

Collaborative culture is characterized by long-term vision and advance management of the change, team-work, communication, risk assumption, respect and empowerment, and promoting the knowledge of individuals (Lopez et al., 2004; Yang et al., 2018). Basically collaborative culture is built based on the mutual respect, care and support each other (Bstieler & Hemmert, 2010; Lei et al., 2017). Collaborative culture is the origin of creating collective strength because it can mobilize the involvement of all members for common goals. Consequently it will greatly enhance the ability of organizations to innovate.

Many previous studies indicated the important role of values of organizational culture in innovation (Ahmed, 1998; Dobni, 2008; Higgins & Mcallaster, 2002; Jamrog et al., 2006; Lau & Ngo, 2004; Martins & Terblanche, 2003; Mumford, 2000). The main reason is that culture can stimulate innovation behavior among the members of an organization because it results in accepting innovation between members as a basic value of the organization and fosters commitment to innovation (Hartmann, 2006). Martin and Terblanche (2003) proved that behaviors and communications encouraging innovation in an organization included: mistake handling, idea generating, continuous learning culture, risk taking, competitiveness, support for change, conflict handling, open communication. DeCusatis (2008) also affirmed that collaboration itself had been found to lead to innovative and creative outcomes. More recently, Yang et al. (2018) indicated that collaborative culture has significant impacts on both product and process innovation in case of Chinese firms.

Above arguments supports the collaborative culture's positive effect on innovation capability, so the following hypothesis is posed:

H1: Collaborative culture has a positive impact on innovation capability

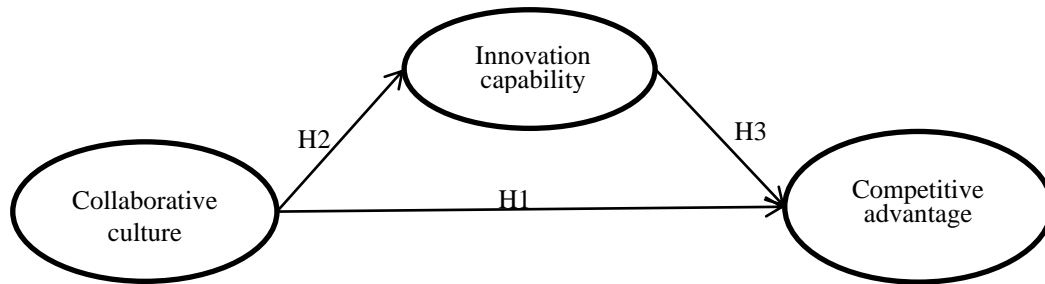


Figure 1. The research model

2.2 Collaborative Culture and Competitive Advantage

Prior researches have shown the positive relationship between organizational culture and competitive advantage. O'Reilly and Chatman (1996) proposed that the "strong cultures" was a series of norms and values which were shaped and widely shared throughout the entire organization and related to the high performance of a wide range of industries (Deal & Kennedy, 1982; Denison, 1990; Peters & Waterman, 1982) and one of the important reasons was that "strong cultures" improved organizational performance by facilitating internal behavioral consistency (Sørensen, 2002). Organizational culture is considered as a resource which directly or indirectly brings competitive advantages and organizational success (Rouse & Daellenbach, 1999). Organizational culture has been employed as an independent and suitable competition factor, especially at hyper-dynamic markets as was in the case of Hewlett-Packard, Nissan, Zappos (Kotter & Heskett, 1992).

In addition, resource-based view reported that firms will create competitive advantage based on having high operation efficiency and getting profits above the average if their resources and capabilities are valuable, scarce, inimitable and non-replaceable (Barney, 1991; Grant, 1991; Wu, 2010). Barney (1991) noted that, because resources were diversely distributed among firms, so only a firm's unique resources might lead to persistently superior performance and achieving competitive advantage. From a resource-based point of view, we've found that collaborative culture can be a kind of core competence and provide firms with competitive advantage because it is valuable, rare, inimitable and difficult to replace. Collaborative culture is valuable because it is an effective platform for progress within the organization (Carter, 1999; Wagner, 1998; Weiss, 1999). More specifically, collaborative culture is a valuable competence in creating better communications, stimulating information sharing and making greater co-operations (Calton & Lad, 1995; Larson & LaFasto, 1989; Littler et al., 1995; Strutton et al., 1993; Whitener et al., 1998), as an apparent result, it leads to greater creative efforts. Collaborative culture is also very difficult for competitors to imitate and to transfer because one of the most important characteristics of culture is tacit, intangible and with high complexity (Coyne, 1986). Simultaneously, because firms try to reduce organizational conflict and to work effectively across borders, the need to assess and to merge diverse, complementary skills that exist in different functions and across different organizations (Raghunathan, 1999; Sanders, 2007; Wang & Wei, 2007). With these realities, the scholars suggested that collaboration act as a valued dynamic capability (Agarwal & Selen, 2009; Ettlé & Pavlou, 2006); it makes a collaborative culture becoming a special resource and very difficult to replace. Similarly, collaborative culture is also rare because it is very difficult for firms to have a successful collaborative culture.

In sum, above arguments showed that collaborative culture is an organization's type of core resource, which is the root of creating competitive advantages. Furthermore Lei et al. (2017) reported that collaborative culture is significant related to firm's sustainable competitive advantage. Therefore, this study proposes the following hypothesis (see Fig.1):

H2: Collaborative culture is significant associated with firm's competitive advantage.

2.3 Innovation Capability and Competitive Advantage

Innovation capability has been recognized as an important factor for firms to create value and to have a great influence on competition (Mintzberg, 1994). Innovation can be a source of competitive advantage (Hinterhuber & Liozu, 2014). Innovation helps firms adapt well with the uncertainty of the external environment and become one of the most important factors leading to the success of the business in the long term, particularly in the dynamic markets (Vracking, 1990; Balkin et al., 2000; Baker & Sinkula, 2002). According to Wang and Wang (2012), innovation capability allows firms to make full use of existing resources to improve efficiency and potential value, and to bring

new intangible assets into organization. Innovation capability helps firms to attain a competitive advantage in several aspects: market performance, market share maintenance, production shortening and accelerating new products development (Tidd et al., 2006); operational efficiency and service quality (Hsueh & Tu, 2004; Parasuraman, 2010). Success in technology innovation enables firms to create and to maintain a competitive advantage (Martin-de Castro et al., 2013).

Overall, the positive relationship between innovation capability and competitive advantage is supported. To provide more evidence for this relationship, this study proposes the hypothesis as following (see Fig.1):

H3: Innovation capability significantly impacts on competitive advantage.

3. Research Methodology

3.1 Samples and Data Collection

This study employs survey method for data collection. We use the measurement items, which are adapted from existing scales in the literature for developing an initial list of items. After that, for revising the measurement items to align with Vietnam context, we carry out pilot tested before the process of formal data collection, in which, pretest by means of in-depth interviews with five outstanding academic scholars who have profound knowledge in strategic management in three universities, and six directors/managers from six different firms. Pilot test was conducted with 30 firms to determine the efficiency of the questionnaire. This study examined a sample of 265 firms in some of the most developed cities of Vietnam such as Hanoi, Haiphong and Hochiminh. We assessed non-response by following the method proposed by Armstrong and Overton (1977). *t-test* is used to compare the earlier 75 respondents and the last 75 respondents. The results showed no significant differences in the mean responses for all the variables measured in the questionnaire ($p > 0.05$).

3.2 Measures

All the items are measured via five-point Likert-type scales, ranging from “1” (strongly disagree) to “5” (strongly agree). The Appendix A, B and C present these scales in full detail. Collaborative culture is measured by eight items reflecting firm value which are traditionally attributed to collaborative culture: vision and prediction about changes in the long term, encouragement of dialogue between members in the firm, trust and respect of the personal views, teamwork, empowerment, ambiguity tolerance, risk assumption and encouragement for diversity. These scales derived from the research of Yang et al. (2018). To measure innovation capability, we used six scales derived from the study of Lin (2007) to reflect firm’s capabilities of creating new products, services and processes. Finally, to measure competitive advantage, this study use four items derived from the study of Su et al., (2009) to reflect firm’s ability in occupying some position and attaining the sustainable benefits from the successful strategy where the competitors cannot copy its successful strategy.

4. Result

4.1 Measurement Testing

We firstly carried out an exploratory factor analysis (EFA) to eliminate factors had factor loading lower than 0.5 to ensure the practicality of the research (Hair et al., 1998). We then performed confirmatory factor analysis (CFA) to evaluate the overall measurement model to evaluate the validity of measurement model. We assessed convergent validity by considering factor loading (which should exceed 0.5); composite reliabilities (CR) (which should exceed 0.6); and the average variance extracted (AVE) (which should be greater than 0.5 for all constructs (Fornell & Larcker, 1981). Besides, the internal reliability of scales are well if Cronbach’s alpha ($C\alpha$) is higher than 0.7 (Nunnly & Bernstein, 1994). Table 1 shows that the research model met the convergent validity criteria.

Table 1. Results of CFA and internal reliable testing

Construct	Mean	SD	Item	Loading	AVE	CR	Ca
Collaborative culture (CC)	3.50	0.43	CC1	0.64***	0.55	0.91	0.91
			CC2	0.76***			
			CC3	0.64***			
			CC4	0.73***			
			CC5	0.65***			
			CC6	0.82***			
			CC7	0.69***			
			CC8	0.82***			
Innovation capability (IC)	3.69	0.48	IC1	0.79***	0.59	0.90	0.90
			IC2	0.73***			
			IC3	0.78***			
			IC4	0.80***			
			IC5	0.71***			
			IC6	0.77***			
Competitive advantage (CA)	3.84	0.51	CA1	0.78***	0.66	0.88	0.88
			CA2	0.86***			
			CA3	0.86***			
			CA4	0.74***			

Notes: Ca ≥ 0.7 ; CR ≥ 0.7 ; AVE ≥ 0.5 ; *** $p < 0.001$.

Discriminated validity indicated that factors that are supposed to measure a specific construct do not predict conceptually unrelated criteria (Kline, 2010). According to Fornell and Larcker's (1981), to meet criteria, the square root of AVE for each construct must be higher than the square correlation between the construct and the other constructs in the model. Table 2 shows that the square root of AVE of the elements in diagonal is higher than correlations between constructs and the other construct. Therefore, the discriminated validity of the measurement in this study is acceptable.

Table 2. Descriptive statistics and construct correlations

Construct	CC	IC	CA
Collaborative culture (CC)	0.74		
Innovation capability (IC)	0.59	0.77	
Competitive advantage (CA)	0.61	0.69	0.81

Regarding the degree fit of the research model Table 3 reports that, all fit indices meet satisfactory levels.

Table 3. Overall fit index of the CFA model

Fit index	Scores	Recommended threshold value
Absolute fit measures		
CMIN/df	1.732	$\leq 2^a$; $\leq 5^b$
GFI	0.911	$\geq 0.90^a$; $\geq 0.80^b$
RMSEA	0.053	$\leq 0.8^a$; $\leq 0.10^b$
Incremental fit measures		
NFI	0.930	$\geq 0.90^a$;
AGFI	0.883	$\geq 0.90^a$; $\geq 0.80^b$
CFI	0.969	$\geq 0.90^a$;
Parsimonious fit measures		
PGFI	0.692	The higher the better
PNFI	0.790	The higher the better

a Acceptability: acceptable

b Acceptability: marginal

4.2 Structural Model

This section presents the main result of the hypothesis testing of the structural relationship among the latent variables (Table 4, Table 5 and Fig.2.)

Hypothesis H1 refers to the positive effect of collaborative culture on competitive advantage. The results in Table 5 and Fig.2 show that the effect of collaborative culture on competitive advantage is statistically significant and quite large ($\beta = 0.317$; $p < 0.001$), so it supports hypothesis H1.

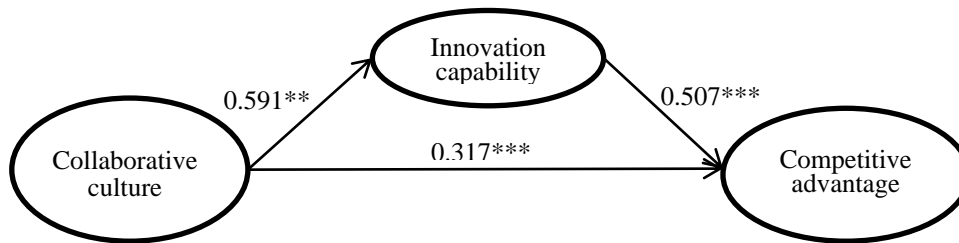


Figure 2. Path coefficients of the structural model

Table 4. Structure model results

Hypotheses	Proposal effect	Estimate	P	Results
H1: CC → CA	+	0.317***	<0.001	Supported
H2: CC → IC	+	0.591***	<0.001	Supported
H3: IC → CA	+	0.507***	<0.001	Supported

*** Significant at the 0,001 level

Hypothesis of H2 relating to the positive effect of collaborative culture on innovation capability. The results in Table 4 indicated that the effect of collaborative culture on innovation capability is also statistically significant ($\beta = 0.591$; $p < 0.001$) supported hypothesis H2.

Hypothesis of H3 relating to the positive effect of innovation capability on competitive advantage. The results in Table 4 indicated that innovation capability’s influence on competitive advantage is statistically significant ($\beta = 0.507$; $p < 0.001$). Hypothesis H3 is, therefore, also supported.

In addition, we performed the bootstrap confidence intervals method with 3,000 iterations to test the significance of indirect effects to show the evidence about the mediating role of innovation capability; direct and indirect effects, as well as total effects, are computed and listed in table 5. Table 5 firstly confirms that innovation capability acts as mediator between collaborative culture and competitive advantage.

Table 5. Direct, indirect and total effects analysis

Path	Direct effects	Indirect effects	Total effects	Bias-corrected confidence intervals	
				Lower confidence level	Upper confidence level
CC→IC→CA	0.317***	0.300***	0.617***	0.207	0.432

*** Significant at the 0,001 level

5. Discussions, Implications and Conclusions

This study contributes to the literature in following ways. First of all, many scholars proposed that organizational culture in firms have relationships not only with innovation but also with competitive advantages, and innovation have relationships with competitive advantages. However, up to now research links collaborative culture, innovation and competitive advantage in a model holistically is still lacking. So, this study contributes to fill this theoretical gap by proposing the research model to investigate the effects of collaborative culture on innovation, which, in turn, leads

to firm's competitive advantages in a model. Secondly, for the question whether organizational culture can enhance or inhibit creativity and innovation (Glor, 1997; Tushman & O'Reilly, 1997), the finding provides the evidence that collaborative culture with the core values of organizational culture has positive impacts on innovation capability. Thirdly, contrary to the López et al.'s (2004) findings of not supporting for the direct effect of collaborative culture on competitive advantage in the industrial and service sector of Spain, this result shows the empirical evidence that collaborative culture will create in itself a source of competitive advantage for both manufacturing and service firms in Vietnam. Finally, by investigating the mediating role of innovation capability between collaborative culture and competitive advantage, the study provides the evidence that collaborative culture directly or indirectly influence on competitive advantages through the mediating role of innovation capability.

Besides the significant contributions to the literature, this study also has some limitations. First, it only covered the definition, dimensions and consequences of collaborative culture in general. Further researches should explore more deeply by dividing collaborative culture into internal and external collaborative culture. Future research should also explore deeper the correlation between the constructs in the proposal research model by accessing three levels of collaboration including level of business unit, level of immediate superior, and level of co-workers in a workgroup (Sveiby & Simons 2002; Tschannen-Moran, 2001). Second, this study uses cross-sectional data, therefore it may appear ability that causal relationships may change or even not reflect the positive relationship among constructs. For this reason, a longitudinal study is necessary to help overcome this limitation and consolidate the result. Third, this study did not consider the role of moderating or control variables when investigating the relationship between the latent variables. As a result, future researches may provide more useful understanding by exploring deeper the relationship between latent variables in the research model by adding moderator or control variables such as, firm size, firm age and type of service industry.

Nevertheless, this study has provided empirical evidence to prove the hypothesis that both collaborative culture and innovation significant contribute to firm's competitive advantage. The findings highlight the important role of building and promoting a collaborative climate to enhance firms' innovation capability which serves as mediator between collaborative culture and competitive advantage.

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Appendix A: Collaborative culture

- CC1. The company considers changes to be natural and necessary.
- CC2. The company considers individuals as an asset and tries to appreciate them continuously.
- CC3. Individuals who experiment and take reasonable risks are well-considered even if they should be mistaken.
- CC4. The preservation of different points of view is encouraged.
- CC5. Everybody's opinions and contributions are respected.
- CC6. Problems are discussed openly, to avoid finding culprits.
- CC7. Collaboration and co-operation among the different duties and departments are encouraged.
- CC8. All team members are aware of instructor expectations

Appendix B: Innovation capability

- IC1. Our company frequently tries out new ideas
- IC2. Our company seeks new ways of doing things
- IC3. Our company is creative in its operating methods
- IC4. Our company is frequently the first to market new products and services
- IC5. Innovation is perceived as too risky in our company and is resisted (reversed coded)
- IC6. Our new product introduction has increased during the last five years

Appendix C: Competitive advantage

- CA1. Whether the firm has the competitive advantage of low-cost compared to other competitors.
- CA2. Whether the firm has better managerial capability than other competitors.
- CA3. Whether the firm's profitability is better than other competitors.
- CA4. Whether the firm is the first mover in some important fields and occupies the important position.