

Situation of Innovation in the Linkage between Culture and Performance: A Mediation Analysis of Asian Food Production Industry

Hashem Salarzadeh Jenatabadi¹

Applied Statistics Department, University of Malaya
Kuala Lumpur, Malaysia

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Abstract

The purpose of this research article is to give a conceptual model of innovation management in food production industry in east of Asia. The researchers create and propose a conceptual model rooted in past research on innovation management, performance and organization culture (OC). The data for the research were obtained by surveys given to 168 Chinese, Taiwanese and Malaysian companies. Structural equation modeling (SEM) methodology was used in this study. The results of the study show that in food production firms OC and organizational innovation (OI) have positively direct impacts on organizational performance (OP). These results have useful implications for the companies specially those involved in food production which tries to win competitions and also positively respond to the environmental changes through successful applications of innovation. Findings also stress that systems used and applied to stimulate and boost an organizational innovative culture would most probably make the processes of introducing, adopting, and diffusing innovation simpler which would by itself read to higher OP.

Keywords: Mediation Analysis, Organizational Culture, Organizational Innovation, Organizational Performance

¹ Corresponding author

1. Introduction

Being successfully innovative in food manufacture relies on the efforts and the amount of investment of the company in management by creating links between the innovative initiatives to the current market and obtaining competitive superiority. Food production industry has experienced a highly rapid growth in recent years which has led to a greatly competitive production. In such a competitive context, food manufacturers are likely to introduce innovative products to win the competition and earn value. Introducing innovative products in this competitive market is in fact a strategy which is very effective to gain lower expenses, more improved performance, higher productivity and of course growth. Yet, any organization's growth and performance depend on how well innovation of 'best practice' has been managed [1]. Recent studies on the issue of innovation emphasize that OI has a strong effect on both competitiveness and OP [2, 3]. It could also be inferred from the existing literature that OC would strongly influence on OI [4] or performance [5] in companies and organizations. However, there are not many studies which have particularly provided models or empirically investigated the interrelationship among OC, OI, and OP [6]. Despite the fact that the relevance and importance of these three have been generally agreed on, there has been little research concerning the relationship among them; this lack of research can be even more observed in terms of empirical investigations in general and in Asian settings in particular. As such, the aim of this research is to fill the existing gap in the literature through studying the relations among OC, OP and OI in Asian food production industry. The setting for investigating such mentioned relationships was chosen to be a developing economy and this decision was taken for some reason: According to Kelly and Kumar [7] innovation and organization performance are essential features which would lead a developing economy to growth and competitiveness. Understanding and contributing to the success of developing economies could prove to be important because if they grow and develop, there would be great benefits for the global market in the industrial food ear in terms of stability and engagement. There have been some other studies which were conducted in developing countries trying to investigate the systems which foster their business orientations and also innovation [8].

2. Literature review and hypotheses

2.1 Relationship between OC and OI

In the literature of management it has been considered that for innovation to take place there is a need for an organizational culture in which creativity and innovative behavior are stimulated and fostered in the workers [9]. Besides that, from a resource-based point of view the relationship between organizational culture and organizational innovation has been acknowledged[10]. Empirical research, on the other hand, has proved that there is a positive relationship between innovation and the culture of the organization [11, 12]. Therefore, we can describe the first research hypothesis as follows:

H₁: OC has positive significant impact on OI

2.2 Relationship between OC and OP

There are studies in the literature which have investigated the relationship between OC and OP [13]. And interestingly, most of these studies have found a positive relationship concerning the impact of OC on OP [14]. Ngo and Loi [13] mention that an adaptive culture has got a positive influence on performance related to the market; also Chan, Shaffer [15] presented evidence claiming that OC is related to the performance of the organization. As a result of this discussion we can determine the following hypotheses:

H₂: OC has positive significant impact on OP

2.3 Relationship between OI and OP

Various studies have acknowledged that innovation positively affects an organization's performance [16, 17]. For example, Chen, Tsou [18] propose that in service providing firms innovation would strongly influence the company's performance. Hua and Wemmerlöv [19] also showed a positive link between the ratio of introducing new products (innovation) and OP. Other researchers have also shown that innovative organizations have greater benefits and progress [20]. Some other research works have also shown that in different segments of the industry, innovation would significantly enhance organization performance and competitive advantage [21]. Therefore, we can define the third hypothesis as follows:

H₃: OI has positive significant impact on OP

2.4 Relationship among OC, OI, and OP

Organizational culture concentrates on changes in the global marketplace, critical competitiveness, and reevaluation of the classic management policies and practices. It stimulates and encourages innovative behavior among the workers of the company leading them to accept innovation as a fundamental value of the company [22]. Organizational culture empowers innovativeness through dealing with the employees, customers and clients, suppliers and other related people via a specific number of norms [23]. As a result, those organizations which have powerful cultures would inevitably have great management which would lead them to perform well in the market. Hence, there have been studies which have investigated the mediating role of innovation in the relation between OP and OC [24], or organization performance and the orientation in the market [25]. For instance, the latter Agarwal, Erramilli [25] found out that in a firm's culture market orientation would stimulate innovation leading to higher and better performance. Tseng, Kuo [24] proposed that OC would have an effect on innovation in an organization leading to improved and enhanced organizational performance. As such, we would suggest that innovation does in fact have a mediating role when it comes to the relation between OP and OC. Therefore, we have:

H₄: OI is significant mediator in the relationship between OC and OP.

3. Method

ANOVA [26-28] and regression [29, 30] are the most familiar methodologies which have been used in so many studies related to operations research areas. SEM is used for purposes like multiple regression which serves in a stronger and more influential manner by taking into account the nonlinearities. This methodology recently been employed widely in different fields including Education [31], Engineering [32, 33], Management [34, 35], and Computer Science [36, 37]. The proposed hypotheses in this research were investigated and examined by using a quantitative survey research method. Data collection lasted five months, from Oct. 2012 until Feb. 2013. 650 senior managers, directors or CEOs who were randomly selected from food production companies in China, Taiwan and Malaysia received the constructed questionnaire and 168 of them (making a response rate of 26%) returned questionnaires which were complete and suitable enough to be considered in the study.

The current research measures the OI construct based on [38] study which is determined two main dimensions which are administrative (OI1) and technical (OI2) innovation. OC measured by four dimensions which are effectiveness, consistency, innovativeness, and cooperativeness based on Chang and Lin [39] study. Three dimensions of OP were applied based on Emden, Yaprak [40] research. These are financial (OP1), marketing (OP2), and partnership (OP3) performance.

4. Results

Table 1 illustrates the parameter estimates and goodness of fit indicators for the structural model. The results support that this structure suits the data well, namely, $\chi^2(22, n = 168) = 73.610$, $p < 0.01$, GFI=0.912, CFI = 0.962, TLI= 0.941, IFI= 0.963, NFI= 0.947, RMSEA = 0.017. Furthermore, the conclusions as illustrated in Table 1 provide adequate support for the first proposed hypothesis in this paper; hence, OC is significantly and positively related to OI, $\beta = 0.34$, C.R. = 4.21, $p < 0.01$. Furthermore, results in Table 1 provided support for hypothesis 2 and 3. OC is significantly and positively related to OP, $\gamma = 0.14$, C.R. = 2.245, $p < 0.05$. OI is significantly and positively related to OP, $\eta = 0.91$, C.R. = 10.529, $p < 0.01$. Nonetheless, Table 2 provides sufficient evidence for path analysis illustrating the direct, indirect, and total effect of each construct. The analysis contributes to evidence of existence of significant and direct effect of OC on OP, which is $\gamma = 0.14$ and indirect effect $\beta \times \eta = 0.31$. As displayed in Table 2 indirect effect is larger than direct effect. Therefore, it can be concluded that the relationship between OC and OP is mediated by OI, a finding which supports the proposed hypothesis, H₄.

As a conclusion, it can be said that after path analysis, organizational performance will be affected by organizational culture through organizational innovation.

Therefore, OI is an essential mediator that bridges the gap and strengthens the relationship between OC and OP via linking the weaknesses. The model proposed in this paper is totally new in comparison to the former studies done on such models. Therefore, it can be concluded that considering the vital role of OC as an essential input, implementation of OI by organizations will definitely enhance their OP.

Table 1. Parameter estimated and goodness of fit indices

Hypotheses	Path	Standardized coefficient	C. R.	p-value	Result
H ₁	OC → OI	0.34	4.210	<0.01	Supported
H ₂	OC → OP	0.14	2.450	<0.05	Supported
H ₃	OI → OP	0.91	10.529	<0.01	Supported
		$\lambda^2(22) = 73.61$	CFI=.962	TLI=.941	GFI=.912
		RMSEA=.017	IFI=.963	NFI=.947	

Table 2. Direct, indirect, and total effects of the research model.

Outcome		Standardized estimates		
		Direct	Indirect	Total
Organizational Innovation				
(R ² = 0.12)	Organizational Culture	0.34	-	0.34
Organizational Performance				
(R ² = 0.93)	Organizational Culture	0.14	0.31	0.45
	Organizational Innovation	0.91	-	0.91

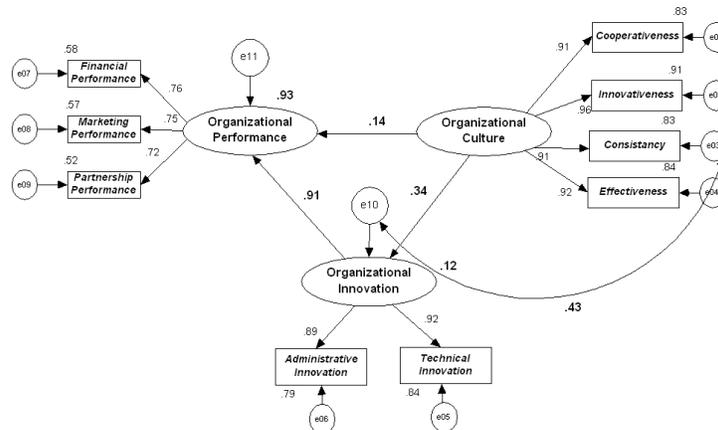


Figure 2. Graphical model results

5. Discussion

Having been identified as a major factor in the organization’s growth the, need for innovation as a change in today’s business in undeniable. Innovation is the stage

which can thoroughly and strongly revolutionize organizations. However, it has turned out to be a complicated phenomenon for organizations; to make it successful and leading to desirable performance, organizations need to concentrate on some concerns and issues which have been generally neglected. If such ignorance is not dealt with duly and persists for long, barriers to innovation would form consequently. As such, organizations have to move along with technological advances; and it can be tangibly seen that a lot of them are nowadays well equipped and updated with regards to the necessary technology and the essential tools. On the other hand it has been observed that cultural differentiation could act as a barrier influencing the innovation and leading to a lower performance. Generally speaking, organizational culture is vital for a successful innovation management. It can make managers in the service or product management sectors more proactive and therefore improve performance. Last but not least, in order to reach strategic and long-term objectives and a competitive advantage, organizations need to understand ways of utilizing innovation as a catalyst.

This research's findings provide organizations, especially those in the food manufacturing business, with insights and recommendations to be competitive and adaptive to the environmental variations through an informative introduction and utilization of innovation. As we know food production sector has encountered various regulatory and environmental changes especially in the past few years. Since food manufacturing business operates in a tightly competitive market, food organizations have to turn to innovation as a tool for being adaptable and immediately responsive to competitive campaigns. Food manufacturing has traditionally concentrated more on technology and quantitative considerations than others and that is why organizational culture has not been a highly considered priority. However, our results acknowledge that organizations in general and food manufacturing organizations in particular could take advantage of an organizational culture which is open and supports innovation and risk.

Having collected and utilized data from an Asian setting, this research was able to have a unique understanding of the significant characteristics of organization environments in Asia. Malaysia, Taiwan and China all possess corporate climates which are constantly and dynamically changing and improving and it is evidently known to all of them that in order to grow in a global market they have to be able to compete globally. That is probably why innovation has been encouraged and promoted as a top priority both by the government and the private sector in these countries. It is also worth mentioning that business has been historically and culturally been done collectively and in groups in these nations and they have always favored decisions which is best for the group.

Nations with a high uncertainty avoidance score have shown not to cope well with situations which are uncertain and as result try to avoid contexts where new ideas, uncertainties, risks, and changes take place or are adopted. On the other hand in cultures that high power distance exists among the people empowering the employees, being open and sharing the ideas are not accepted norms. Having said

so, in Asian culture, for instance Chinese, persons would naturally feel uncomfortable with innovation and the existing social distance in the hierarchy from supervisors would lead them to think and act collectively. Therefore, Asian managers would find it quite challenging to create innovative environments and mechanisms to increase performance.

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Received: February 27, 2014