THE EFFECT OF ORGANIZATIONAL CULTURE ON NEW PRODUCT DEVELOPMENT MANAGEMENT: A CONTINGENT APPROACH

Jidae Kim
School of Business, Chungbuk National University, South Korea
EMAIL: jidkim@chungbuk.ac.kr

ABSTRACT

This study focuses on examining the moderating effect of organizational culture (i.e., entrepreneurial vs. conservative) on new product development management. By employing questionnaire survey technique, we gathered firm-level data of 114 firms. It was found that when entrepreneurial organizations are developing very innovative new products, it is desirable for them to capitalize on more infrastructural development activities (e.g., team building, support from top management, and interdepartmental communication, etc.), while the reinforcing of more structural development activities (e.g., new product development process activities including idea screening, product design, process engineering, and testing, etc. conservative organizations should reinforce) for developing very innovative new products is effective for conservative organizations.

Keywords: Organizational Culture, New Product Development

INTRODUCTION

Many researchers in the field of new product development management agreed with this contingent approach that firms should manage new product development in a different way by considering the degree of innovativeness of the focal new product to be developed ([13] [19] [21]). However, they did not agree about how to manage the development of very innovative new products differently from that of less-innovative new products. Some researchers are arguing that employing more infrastructural development activities or Japanese advanced new product development management techniques, such as building cross-functional team, interdepartmental communication, autonomous project leader, etc., are needed to develop a very innovative new product in a successful way ([3] [9] [11] [13] [20]). In contrast, other researchers support this standpoint that reinforcing more structural development activities including idea screening, product design, process engineering, and testing, etc., should contribute to the successful development of very innovative new products ([4] [8] [15] [18]).

Recently, some studies reveal that there is no difference in new product outcomes between firms with having entrepreneurial and individual-oriented culture and those with conservative and systematic culture, but they are different from each other in terms of the way of managing new product development ([6] [10]). This result sheds some insight like this: organizational factors, particularly organizational culture, might have moderating effect on the relationships among new product innovativeness, new product development management, and new product performance.

Therefore, this study focuses on examining the moderating effect of organizational culture (i.e., entrepreneurial vs. conservative) on the relationships among the new product development management variables, and identifying which relationships between new product innovativeness and two types of new product development activities (infrastructural vs. structural) are desirable across organizational culture.

THEORY DEVELOPMENT

Miller and Friesen [10] have dichotomized organizational culture into two typologies: Entrepreneurial culture and conservative culture. Entrepreneurial culture represents fostering individual creativity, risk-taking, and exploration learning, while conservative culture standing for control by rules, risk-averting, and exploitation learning ([1] [2] [10] [14]). Although there are very few studies explicitly addressing the effect of organizational culture on new product development management, we can get some insights from extant literature in the other fields.
Literature on national culture suggests two types of national culture, i.e., (1) individualism (i.e., facilitating individual creativity and vision) and (2) collectivism (i.e., keeping organizational consistency) ([12]). And it asserts that interdepartmental integration plays a significant role to new product performance of innovative new products in the individualism nation culture, but in the collectivism national culture, this interdepartmental integration don’t have a positive effect on new product performance of innovative new products ([16] [17]). Since individualism corresponds to entrepreneurial culture, and collectivism to conservative culture, the author guesses that the effect of organizational culture on new product development management would have a similar pattern with that of national culture. Hence, the following hypothesis (H1) can be made: In the entrepreneurial culture, the emphasis on more infrastructural development activities for developing innovative new products leads to high new product performance.

Literature on operations strategy also provides for some useful insights. It argue that the role of each of the two operations activities, i.e., structural (e.g., capacity, facility layout, process, location, etc.) and infrastructural (e.g., training, empowerment, cross-functional teams, etc.), is contingency-based like this: Faced with dynamic environment, firms with high efficiency in terms of resource utilization have lack of slack resource enough to implement new operations strategy, and so they have to invest in more structural operations activities for shifting their operations strategy, while less-efficient firms don’t require any more investments but infrastructural activities for implementing new operations strategy ([5]). Since firms with conservative culture are likely to be more efficient in resource utilization than those with entrepreneurial culture, they would favor structural development activities in the development of innovative products. This conjecture leads to this second hypothesis (H2): In the conservative culture, the emphasis on more structural development activities for developing innovative new products leads to high new product performance.

**METHODOLOGY**

By employing questionnaire survey technique, we gathered firm-level data of 114 firms concerning organizational culture and project-level data concerning new product development activities and new product outcomes of two representative new product projects (radical and incremental projects) each firm had carried out. Therefore, we could analyze a total of 228 new product development projects. Most responding firms belong to electronics industry (62.3%). The breakdown of the rest of the sample is as follows: software industry consists of 11.4%, auto parts industry 8.8%, chemical industry 7.0%, mechanical industry 7.0%, etc.

The degree of conservative culture each responding firm has was measured by using 4 measurement items, and 4 items were used for measuring entrepreneurial culture. These items are chosen from extant literature ([7] [14]). By reviewing extant literature on new product development management, this study also used 4 measurement items for structural development activities; 4 for infrastructural development activities; and 4 for new product performance. As for measuring new product innovativeness, if a new product project is focused on reducing cost or enhancing functionality of existing product, the focal project has to be put “1” value; a next generation new product project is valued “2”; and the first new product in the world has “3” value.

**ANALYSIS RESULTS**

Dividing entrepreneurial culture measure by conservative culture measure, this study extracted a culture ratio for each responding firm, and classified two groups by using that ratio, i.e., conservative and entrepreneurial organizations. The conservative organizations (n=34) have relatively high ratio of conservative culture measures compared to entrepreneurial culture measures, and vice versa in the entrepreneurial organizations (n=30). As each respondent provided for information on two types of new product projects (radical and incremental), 68 new product projects of the conservative organizations and 60 projects of the entrepreneurial organizations were analyzed.

Table 1 shows regression results by each of the two organization groups. As shown in Table 1, in the regression equation of the entrepreneurial organizations, the interaction term between new product innovativeness and infrastructural development activities has a positive effect on new product performance ($\beta = 0.229, p < 0.05$). This analysis result supports H1 (In the entrepreneurial culture, the emphasis on more infrastructural activities for developing innovative new products leads to high new product performance). In contrast, the regression analysis result in the conservative organizations shows that the interaction between new product innovativeness and infrastructural development activities has a negative effect on new product performance ($\beta = -0.297, p < 0.05$), while the interaction between new product innovativeness and structural development activities having a positive effect on new product performance ($\beta = 0.193, p < 0.1$). This result supports H2 (In the conservative culture, the emphasis on more structural
activities for developing innovative new products leads to high new product performance.

Table 1. Regression results

<table>
<thead>
<tr>
<th>Variables entered</th>
<th>New product projects of entrepreneurial organizations</th>
<th>New product projects of conservative organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>3.339 (0.194)****</td>
<td>3.784 (0.189)****</td>
</tr>
<tr>
<td>Structural development activities</td>
<td>0.345 (0.183)*</td>
<td>-0.079 (0.167)</td>
</tr>
<tr>
<td>Infrastructural development activities</td>
<td>-0.121 (0.147)</td>
<td>0.617 (0.208)**</td>
</tr>
<tr>
<td>New product innovativeness</td>
<td>-0.011 (0.121)</td>
<td>0.054 (0.107)</td>
</tr>
<tr>
<td>New product innovativeness × Structural activities</td>
<td>-0.055 (0.115)</td>
<td>0.193 (0.105)*</td>
</tr>
<tr>
<td>New product innovativeness × Infrastructural activities</td>
<td>0.229 (0.090)**</td>
<td>-0.297 (0.137)**</td>
</tr>
<tr>
<td>$F^2$ for the regression</td>
<td>6.707****</td>
<td>6.068****</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.397</td>
<td>0.351</td>
</tr>
</tbody>
</table>

(1) Dependent variable is new product performance.
(2) Main table contains betas and standard error. The value in parenthesis is standard error.
(3) The numbers of new product projects of entrepreneurial and conservative organizations are 60 and 68, respectively.

* $p < 0.1$
** $p < 0.05$
*** $p < 0.01$
**** $p < 0.001$

CONCLUSION

This results have the following implication: as organizational culture has moderating effect on the new product development management, firms should implement different development activities appropriate to their cultural characteristics on a contingent basis. When entrepreneurial organizations are to develop very innovative new product, it is more desirable for them to capitalize on infrastructural development activities more than structural ones. In the meanwhile, organizations with conservative organizational culture had better reinforce more structural development activities for the development of very innovative product.

REFERENCES