ORGANIZATIONAL LEARNING AND RESOURCE ALLOCATION FOR ORGANIZATIONAL AMBIDEXTERITY

Fumie Ando
Graduate School of Business Administration, Nanzan University, Japan
fumiea@nanzan-u.ac.jp

ABSTRACT
For survival and success in the long term, organizations need to achieve exploitation and exploration simultaneously, i.e. earning profits out of existing enterprise and bringing about new innovations at the same time. Although the relationship between exploitation and exploration is considered as a trade-off, we can sometimes find “ambidextrous firms” which succeed to manage both activities. To investigate the mechanism of organizational learning and its resource allocation, we did questionnaire survey targeted at employees belonging to one of the ambidextrous firms in Shizuoka, Japan. Data analysis mainly shows three results. First, we could not explain the difference between innovations accompanied with profits (ambidextrous organizations) and the ones without profits, by the difference of quantity of resource allocation from organizations. Second, however, the kinds of resource allocation have close relationship with the results which the ambidextrous organization received. Concretely, while resource allocation at organizational level is useful to achieve high profitability, it has negative impacts on creating new ideas, new technologies and new domain as exploratory results. In contrast, resource allocation at individual level has positive impacts on generating exploratory results. That is, ambidextrous organizations mainly utilize organizational internal resources to acquire not exploratory results but exploitative results. Third, utilizing external resources has positive relation with exploratory results. We interpret that ambidextrous organizations tend to use external resources to cover shortfall of internal resources which they consume for getting high profitability. In another respect, utilizing external resources is effective for organizations to keep divergence needed for generating exploratory results.

Keyword: organizational ambidexterity, exploration, exploitation, organizational learning, resource allocation, innovation

INTRODUCTION
Since the publication of March’s (1991) seminal work, studies on the twin terms, “exploration” and “exploitation” of organizational learning processes, have flourished (Benner & Tushman, 2003; Gupta, Smith & Shalley, 2006). As Atuahene-Gima (2005) explains, exploitation refines and improves current knowledge and capabilities, attaining greater efficiency for organizations. On the other hand, exploration entails the development of new knowledge, recombination of current knowledge and experimentation to foster the variation needed for future success.

Needless to say, both exploitation and exploration are essential processes for organizations in creating a competitive advantage and trying to survive in the long term. Managing both processes simultaneously is the key. However, these processes are considered to conflict each other. According to March (1996), the mindsets and organizational routines required for exploration are fundamentally different from those demanded for exploitation. When an organization pursues the short-term profitability through exploitation, it tends to sacrifice exploratory activities which often associated with the risk of failure, and vice versa. As organizational resources are limited, such managerial tensions occur.

Whereas many studies on organizational learning repeatedly pointed out the difficulties of managing these exploitation-exploitation tensions (March, 1991; Levinthal & March, 1993), we could sometimes find “ambidextrous firms” which succeed to manage both processes simultaneously (Duncan, 1976; Lubatkin, Simsek, Ling & Veiga, 2006; Andriopoulos & Lewis, 2009). What organizational learning mechanisms enable such organizations to realize it? And what pattern of resource allocation does lead to their success?

Many studies on exploration and exploitation have been accumulated so far. Nevertheless, little is known about the mechanisms or about whether and how these organizations balance the two processes, which apparently seems to be contradictory. Especially, there is limited attention to resource allocation for enabling organizations to manage exploitation-exploration tensions.

This article has two objectives. First, we investigate the mechanisms and factors keeping an organization ambidextrous by statistically analyses of the questionnaire data, which targeted at employees of one of the ambidextrous organizations in Shizuoka, Japan. Second, we apply the multilevel approach, i.e., organization, group and individual, of Crossan, Lane & White (1999) with a small modification to better understand the resource allocation for organizational ambidexterity.

THEORY AND HYPOTHESES
Organizational Ambidexterity and Innovation

Organizational ambidexterity is defined as the organizational capability of managing both high profitability and new business or domain creation simultaneously (Andriopoulos & Lewis, 2009).

To realize organizational ambidexterity, first of all, organizations need to create new ideas, domain and technology development, which is so-called “innovation.” On the other hand, the success of innovation is not equivalent to achieving ambidextrous organization. It is because that organization will face various kinds of problems to overcome by the time new ideas and technologies provide benefit. One of the typical examples is “valleys of death. (Auerswald & Branscomb, 2003)” When organizational resources run out halfway, organizations fail to commercialize new ideas and technologies. As a result, ambidextrous organization has not done.

When the new ideas and technologies are too innovative, organizations cannot also accept them because of organizational inertia and absorptive capacity (Cohen & Levinthal, 1990). Furthermore, as Lawrence, Mauw, Dyck & Kleyser (2005) pointed out, organizations never allocate its resources to the new ideas when it got beaten by politics in the organization, even if the new ideas and technologies are brilliant and revolutionary. Organizational resources will be allocated only to the new ideas and technologies which succeed to legitimize the resource mobilization from their organization (Takeishi, Aoshima & Karube, 2008).

In light of above previous studies, we assume that much more organizational resources are allocated to ambidextrous organizations than to the innovation without profits.

Hypothesis 1: Innovation with profitability (Ambidextrous organization) requires more organizational resources than innovation without profitability (just innovation).

Resource Allocation and Exploitation-Exploration Tension

The ambidextrous organizations need to manage exploitation-exploration tensions. How do they allocate organizational resources to two different processes, exploitative process and exploratory process, to balance them?

Based on the existed studies, only after the new ideas and technologies acquire the legitimization of resource mobilization, organizations will allocate enough resources to organizational learning activities, which lead to the high profitability as exploitative results. Then, we assume that organization needs to allocate the enough resources to exploitative process to achieve exploitative results.
Hypothesis 2a: *The more organizational resources are allocated to exploitative processes, the higher profitability organizations will create.*

While exploitative process is important to earn a big profit, many studies on organizational learning tend to show stronger interests in exploratory process. One of the reasons is the difficulty of generating exploratory results. In addition, the impacts and effects of exploratory results are much greater than the ones of exploitative results in the long term (Fiol & Lyles, 1985).

Various factors to facilitate exploratory results have been listed; the supportive environment for the voluntary research activities as in the case of 3M, “Ba (Nonaka & Takeuchi, 1990)” provided by organizations as “communities of practice (Wenger, McDermott & Snyder, 2002),” the encouragement of productive failure (Nevis, DiBella & Gould, 1995), and so on. These studies suggest that organizations need to consciously allocate organizational resources to exploratory process to generate innovation, i.e. new ideas and technologies.

Hypothesis 2b: *The more organizational resources are allocated to exploratory processes, the more organizations will generate new domains or new recombination.*

**Resource Allocation and Multilevel of Organization**

Although managing the exploitation-exploratory tensions is very important to realize ambidextrous organizations, Crossan et al. (1999) described that we also need to focus on the tensions of multilevel of organization. They suggested that the kinds of resource allocation have close relationship with the kinds of results achieved by ambidextrous organizations.

At organizational level, accumulated organizational capabilities are useful to achieve both high profitability and innovation (Nobeoka, 2007). Holding patents and improved equipment as organizational resources will be also effective (Suzuki, 2008; 2012). At group level, the ability to work as a team member and frequent interactions between departments, for example, development department and sales department, will be essential to make both exploitative results and exploratory results.

Hypothesis 3a: *The more organizational resources are allocated to organizational learning processes at organizational and group level, the higher profitability organizations will create.*
Hypothesis 3b: *The more organizational resources are allocated to organizational learning processes at organizational and group level, the more organizations will generate new domains or new recombination.*

How about the effect of resource allocation at individual level is? Individual learning is the first step of organizational learning. Without individual learning, organizational learning never occurs because intuition is a uniquely human attribute that organizations do not possess. Whether the organizational members successfully intuit depends on the individual experiences, accumulated individual capabilities, and the level of active learning (Ando, 2001). It means that organizations need to allocate resources at individual level to exploratory process to generate exploratory results.

Hypothesis 3c: *The more organizational resources are allocated to organizational learning processes at individual level, the more organizations will generate new domains or new recombination.*

**External Resources and Multilevel of Organization**

Some studies on organizational learning insisted that both divergence and convergence are needed to realize an ambidextrous organization (Fang & Schilling, 2010). When organizations actively utilize not only internal resources but also external resources, the ideal condition appears. While using internal resources reinforces existed organizational values and routines, using external resources brings new values and routines in the organization. In other words, organization can keep divergence needed for generating exploratory results by using external resources as like university and research institute outside.

Hypothesis 4: *The more organizations utilize the external resources, the more organizations will generate new domains or new recombination.*

**METHOD**

**Sample**

To investigate above hypotheses, we chose Firm X, one of the ambidextrous firms in Shizuoka, Japan. Firm X has approximately 500 employees. Although the scale is not so big, they have the advantage of high research and development skill. Since its founding in 1959, Firm X has long achieved both profitability (exploitation) and repeatedly new business creation (exploration) simultaneously.
It started with a forage paste business by using waste marine resources, for example, fish offal, bones and fish stock. At that time, they were released as waste products and caused severe water pollution and evil smell. Firm X was established to solve such social problems. Soon after, a forage paste business provided a benefit to Firm X. At its peak, the total annual production reached about 1,000 tons.

In spite of steadily increase sales, Firm X undertook a new business project in the mid of 1970s. It was a natural seasoning business. Although the products were also made from wasted marine resources, its business domain was quite different from the forage one. The main customers of forage paste business were poultry and vegetable farms. On the other hand, the customers of natural seasoning business are large food companies which sell instant noodles, processed food, and so on.

At first, the natural seasoning products Firm X made was not sold at all. Several years later, the market of instant noodles dramatically grew up and natural seasoning became more popular than chemical seasoning. Although a forage paste business still gained enough money, Firm X switched from old business to new one relatively quickly. The decision by top management here led to great success.

About a decade later, Firm X reached another turning point. While natural seasoning business still made profits, Firm X challenged to create new business. The new business is functional food like glucosamine, collagen and so on. Just like the first case, mindsets, competencies and organizational routines needed for new business are quite different from the ones needed for existing business. Although the member of this project had a lot of trouble in generating new business, they finally succeeded it in 2000. Now, both natural seasoning business and functional food business become two core businesses for Firm X.

Firm X has realized both high profitability and repeatedly new business creation at the same time as above stated. Therefore we regard it as one of the ambidextrous organizations.

**Survey**

This survey has been done from June 2011 to September 2012. We applied two research methods to understand the mechanism for organizational ambidexterity of Firm X. The first method is the interview about the history of new business creation with several key persons of Firm X, including pre- and current President. We use the results as supplements.

The other is a questionnaire survey targeted at staffs in charge of R & D. Of the 42 questionnaires distributed to employees, 37 were returned: a response rate of
approximately 89 percent. We asked respondents to recall two different successful events when they answered the questionnaire. One is the event that R & D activity brought to increase sales and profits (dataset A). Second is the event R & D activity contributed to solution of technical issues and technological development but not so much for profit (dataset B). We prepared the same question items for both dataset A and B, which measured by 5-point Likert scales. We also asked number of questions for individual business approach, in which case measured with 4-point scales. The total of the question items are 173. The average work years of respondents is 13.5 years and more than half of respondents have work experiences in more than two different sections.

**Dependent Variables**

When analyzing the questionnaire data, two measures of performance are used as dependent variables: exploitative results and exploratory results.

*Exploitative results.* Three items assess profitability, sales and customer satisfaction as exploitative results. Respondents rated each items on a 5-point scale. One of the examples is “The R & D activity you chose as a successful example contributes to sales for a relatively long time”. High scores indicated that Firm X achieved high performance through exploitative activities. These items were formed into a single scale (alpha=0.95) by averaging them (mean=3.93, s.d.=0.97).

*Exploratory results.* Five items assess the potential of technological development and finding new topics of research as exploratory results by using a 5-point scale. The question items are as below: “The R & D activity you chose as a successful example contributes to discovery of new research topics,” “The R & D activity contributes to discovery of potential customers”, and so on. These items were also formed into a single scale (alpha=0.71) as the average (mean=3.40, s.d.=0.81).

**Independent Variables**

We prepared five kinds of measures regarding resource allocation as independent variables.

*Enough resource allocation (enough RA).* Respondents were asked whether resource allocation throughout R & D activities was enough or not. This is a single item on a 5-point scale. High score means that full resources were allocated to the activity. On the contrary, low score means respondents perceived the lack of resource allocation during development period (mean=3.31, s.d.=1.22).
Resource allocation at organizational level. To evaluate resource allocation at organizational level, we generated three items that describe the extent to accumulated organizational know-how, knowledge and skills. For example, “Know-how and skill that our company has accumulated in the long term were useful,” “The research and development system of our company was useful”, and so on. These items are also formed into a single scale (alpha=0.81) which is named “accumulated organizational capability (accumulated OC)” (mean=2.87, s.d.=1.01). In addition, two other items for assessing the extent to resource allocation at organizational level were also prepared: Improved equipment and experimental tools (Improved equipment), and patents that the company holds (patents). These are single items (mean=3.08, 2.25, s.d.=1.34, 1.27, respectively).

Resource allocation at group level. Two items are prepared to measure resource allocation at group level. The question items are “Teamwork contributed to success of our project (teamwork)” and “Interactions with the sales department and customers were useful (interactions)”. Both are assessed on a 5-point scale (mean=3.33, 3.28, s.d.=1.12, 1.32, respectively).

Resource allocation at individual level. Two three-items measured the extent to resource allocation at individual level. One is “accumulated individual’s capability (accumulated IC)” indicated individual efforts, individual learning through trial and error, and approaching a problem from various aspects. Three items were formed to one scale (alpha=0.89, mean=3.69, s.d.=0.87). The other is “Index of active learning by individual (Index of LI)” developed by Ando (2001), which converted three items into a single scale (alpha=0.77, mean=3.00, s.d.=0.65). Only this scale was measured by 4-point.

External resources. To assess the status of utilization of external resources, we generate two single-items. One is “Cutting-edge technology in industry was useful (technology outside)” (mean=2.81, s.d.=1.117) and the other is “Information and idea from external research institution and universities was useful (information outside)” (mean=1.94, s.d.=1.07). Both items are measured on a 5-point scale.

RESULTS

Data characteristics

First of all, we need to verify the characteristics of the datasets. As above stated, respondents were required to answer the question, recalling two different R & D events they have experienced before. One is the R & D activity brought to increase sales and
profits (dataset A). The other is the R & D activity contributed to solution of technical issues and technological development (dataset B).

To investigate the differences between these two datasets, the average score of two independent variables of each dataset were calculated. Figure 1 shows the plots of these results. Although exploitative results of the dataset A show much higher score than ones of the dataset B, exploratory results of both datasets are almost same. Just in case, using the paired t-test to compare exploitative results of the dataset A with the one of the dataset B, we find that the difference is significant at the .01 level ($t(29)=3.762$). In contrast, there is no statistically difference of exploratory results between the dataset A and B ($t(29)=-0.548$, n.s.).

From these results, we consider that the dataset A can be regarded as the data about ambidextrous organization, because it shows both high profitability and exploratory results simultaneously. On the other hand, the dataset B is considered as the data on just innovation which does not lead profit at least in the short term. The dataset B showed the same level of exploratory results as the one of the dataset A, although its exploitative results are quite low. When we used the paired t-test about the relationship between the difference of results and resource allocation, we could not find significant results statistically ($t(29)=0.782$, n.s.). It means that the hypothesis 1 is not supported.
In the following analyses, we use dataset A to figure out the mechanism of organizational learning in terms of resource allocation, because it is regarded as the data on the ambidextrous organization.

Tests of hypotheses

Spearman’s rank correlation matrix for all variables was presented in Table 1. We can easily find that enough resource allocation has a positive correlation with exploitative results ($r=0.415$, $p<0.01$), but that it has no relation with exploratory results ($r=-0.214$, n.s.). It means that hypothesis 2a is supported but hypothesis 2b is not supported.

The next point to look is the relationship between two kinds of results and multilevel of resource allocation. At the organizational and group level, of five independent variables, only accumulated organizational capability has significant correlation with exploitative results ($r=0.353$, $p<0.01$). Hypothesis 3a is thus partly supported. In contrast, accumulated organizational capability does not show strong correlation with exploratory results. Actually, its shows weakly negative relation ($r=-0.214$, n.s.). Only improved equipment has a weak relationship with exploratory results, which is negative ($r=-0.320$, $p<0.1$). Considered these results, hypothesis 3b is not supported.

The only variable which has clear positive relation with exploratory results is the accumulated individual capability ($r=0.387$, $p<0.01$). Therefore, hypothesis 3c is supported. Of the two variables about external resources, cutting-edge technology in industry also has a positive correlation with exploratory results ($r=0.460$, $p<0.001$). However, there is no significant correlation between cutting-edge technology and exploitative results. As a result, hypothesis 4 is supported.

Table 1 Spearman’s rank correlations

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. exploitative results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. exploratory results</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. enough RA</td>
<td>0.415*</td>
<td>-0.214</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. accumulated CC</td>
<td>0.353*</td>
<td>-0.192</td>
<td>0.408*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. improved equipment</td>
<td>-0.210</td>
<td>-0.320+</td>
<td>0.171</td>
<td>0.250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. patents</td>
<td>-0.005</td>
<td>0.233</td>
<td>0.680</td>
<td>0.174</td>
<td>0.089</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. teamwork</td>
<td>-0.034</td>
<td>-0.054</td>
<td>0.228</td>
<td>0.008</td>
<td>0.644***</td>
<td>0.451***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. interactions</td>
<td>0.061</td>
<td>0.145</td>
<td>0.140</td>
<td>0.164</td>
<td>0.222</td>
<td>0.054</td>
<td>0.332+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. accumulated IC</td>
<td>0.168</td>
<td>0.387**</td>
<td>-0.126</td>
<td>0.056</td>
<td>-0.320+</td>
<td>0.015</td>
<td>-0.252</td>
<td>0.101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Index of LI</td>
<td>0.139</td>
<td>0.281</td>
<td>-0.110</td>
<td>0.192</td>
<td>-0.152</td>
<td>0.084</td>
<td>-0.187</td>
<td>-0.006</td>
<td>0.044</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. technology outside</td>
<td>0.020</td>
<td>0.460**</td>
<td>0.316</td>
<td>0.018</td>
<td>-0.110</td>
<td>0.313+</td>
<td>0.207</td>
<td>-0.037</td>
<td>0.111</td>
<td>0.038</td>
<td>0.319</td>
</tr>
<tr>
<td>12. Information outside</td>
<td>0.022</td>
<td>0.193</td>
<td>-0.057</td>
<td>0.275</td>
<td>0.317+</td>
<td>0.057</td>
<td>0.782***</td>
<td>0.299+</td>
<td>0.010</td>
<td>0.161</td>
<td>0.111</td>
</tr>
</tbody>
</table>

N=36, ***p<0.001, **p<0.01, *p<0.05, +p<0.1
Table 2 Regression Analyses for exploitative and exploratory results

<table>
<thead>
<tr>
<th>Variable</th>
<th>exploitative results</th>
<th>exploratory results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td>enough RA</td>
<td>0.408*</td>
<td>-0.017</td>
</tr>
<tr>
<td>accumulated OC</td>
<td>0.453*</td>
<td>0.447*</td>
</tr>
<tr>
<td>improved equipment</td>
<td>-0.339</td>
<td>-0.451</td>
</tr>
<tr>
<td>patents</td>
<td>0.208</td>
<td>0.226</td>
</tr>
<tr>
<td>teamwork</td>
<td>0.302</td>
<td>0.333</td>
</tr>
<tr>
<td>interactions</td>
<td>-0.114</td>
<td>-0.093</td>
</tr>
<tr>
<td>accumulated IC</td>
<td>0.143</td>
<td>0.115</td>
</tr>
<tr>
<td>Index of LI</td>
<td>0.011</td>
<td></td>
</tr>
<tr>
<td>technology outside</td>
<td>0.311</td>
<td></td>
</tr>
<tr>
<td>information outside</td>
<td>0.281</td>
<td></td>
</tr>
</tbody>
</table>

F | 6.730* | 1.260 | 1.023 | 1.287 | 3.652** | 3.576** |
R^2 | 0.165 | 0.240 | 0.261 | 0.030 | 0.477 | 0.553 |
Adjusted R^2 | 0.141 | 0.049 | 0.008 | 0.008 | 0.347 | 0.398 |

N=36, ***p<0.001, **p<0.01, *p<0.05, +p<0.1

Table 2 shows the results of regression analysis for exploitative results and exploratory results, respectively. In this article, three models for each are presented. At Model 1, we entered the variables about enough resource allocation. As shown in Table 2, enough resource allocation has a significant relationship with exploitative results, but no relationship with exploratory results. Although the former relation is positive, the latter is negative. We can get the same results as Spearman’s rank correlation matrix, that is, hypothesis 2a is supported, but hypothesis 2b is not supported.

Model 2 for exploitative results and exploratory results focuses on effects the multilevel of resource allocation on dependent variables. Of three factors at organizational level, only accumulated organizational capability has a positive significant relation with exploitative results. Rather, the others at organizational level have a negative impact on exploitative results. On the other hand, exploratory results have significant correlation with two individual variables and accumulated organizational capability: former has a positive and latter has a negative effect. From these results, while hypothesis 3a and hypothesis 3c are supported, hypothesis 3b is not supported. Rather, we get an opposite results of our hypothesis.

Model 3 examined the effects of utilizing external resources on exploitative and exploratory results. We can find a positive relation only between cutting-edge
technology in industry and exploratory results. That is, hypothesis 4 is supported. Figure 2 shows all these results.

**DISCUSSION AND CONCLUSION**

Recently, the interest in organizational ambidexterity grows up. For survival and success in the long term, organizations need to balance two contradictory processes and manage the exploitation-exploration tension. However, little is known about how and what kinds of resource allocation enable organizations to realize the ideal condition.

In order to investigate the mechanisms, we did questionnaire survey targeted at employees belonging to one of the ambidextrous firms, and analyzed the data statistically.

At first, we assumed that ambidextrous organization required much more resource allocation than innovation without profitability, because some previous studies explained that organizations allocated the most of its resources to the innovation which had been legitimized. In fact, however, there is no significant difference between them.

Secondly, we examined the relationship between the quantity of resource allocation and two kinds of results, exploitative results and exploratory results, by using the dataset on organizational ambidexterity. The conclusion is that the more organizational resources are allocated to exploitative processes, the more organizations achieve high profitability. However, there is no significant relation between the quantity of resource allocation and exploratory results.
When we apply the multilevel approach of Crossan et al. (1999), we get more interesting findings. While resource allocation at organizational level, i.e. accumulated organizational capability, organizational know-how and the patents that organizations hold, is useful to achieve high profitability, it has negative impacts on exploratory results as like creating new idea and new domain. Instead, resource allocation at individual level, i.e. accumulated individual capability and active learning by individual, has positive impacts on exploratory results. In a narrow sense, accumulated individual capability and active individual learning should not be included with organizational resources. In that case, there is the possibility that ambidextrous organizations are realized when organizational resources are mainly allocated to not exploratory process but exploitative process of organizational learning. We consider that such resource allocation enables ambidextrous organizations to manage the exploitation-exploration tensions.

Finally, we can find that utilizing external resources has positive relationship with exploratory results. The external resources, such as cutting-edge technology in industry, play an important role to cover the shortfall of internal resources allocated to exploratory process. At the same time, they also play a role to keep divergence needed for generating exploratory results. When the organization continues to depend on only internal resources, diversity will decrease gradually. As a result, to generate new idea and innovation will be difficult.

In this article, we picked up only one company as a target of investigation. The number of respondents of our survey is quite small. Therefore, the findings we showed here are very limited. In order to obtain a robust answer, we need to continue and accumulate similar researches in the future.

REFERENCES


Japanese Companies Create the Dynamics of Innovation, Oxford: Oxford University Press.


