Issues Involving Corporate R&D Platform Management and Their Solutions
企業R&Dにおけるプラットフォーム・マネジメントの課題と解決策

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The previous paper discussed the attempt to use Platforms as a management method at the scheme model stage in corporate R&D. This method suggests the ability to invigorate corporate R&D organizations. However, we found that there are issues in operating platforms. For example, “Platform causes busyness”, “Difficulty of evaluation”. This paper looked at these issues and proposed solutions to these problems. The point we are making is that managers should be taught the importance of Platform Management activities so that they will know how to encourage their subordinates to participate in such activities. It is also important to create a team of dedicated staff to support Pf activities.

Keywords: platform, scheme model, corporate R&D, innovation

1. Introduction

Japan’s economy has been gradually improving in 2014, according to the Monthly Economic Report released by the Cabinet Office. Various policy measures, including monetary easing, were probably behind the economic upturn. The government should ensure that the recovery will take hold by putting its growth strategy into actual practice. The operative word here is innovation. The government’s Comprehensive Strategy on Science and Technology Innovation argues that innovation is essentially people-driven calls for individuals who can create, spread, and apply knowledge, as well as those who can strengthen and renovate existing industries or create new businesses. In other words, innovation cannot be achieved through technology alone. The government further states that innovation can result when the results of basic research are applied in the marketplace. Thus, it is important to connect various individuals and create a network encompassing everything from basic research to application.

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Platform management (hereafter, PfM) is an effective means of doing so, as we argued in an earlier paper\cite{4}. PfM, implemented at a research center of Kewpie Corporation (hereafter, “K Corp.”), was effective in enhancing communication. PfM also invigorates organizations as a whole. However, implementing PfM also poses challenges. This paper will identify these challenges and offer solutions. The authors hope that PfM will be put into practical use more frequently as a result of this study.

2. Effectiveness of PfM in Corporate R&D Activities

According to Ohara, the major purpose of PfM is to find out how to create innovations and why innovations often fail to produce effective results\cite{5}. Ohara also argues that human interaction can encourage creativity and prompt innovative ideas. Furthermore, he says, the creation of a platform (hereafter, Pf) can be an important means of enhancing intellectual productivity as it promotes interaction and collaboration among members\cite{6}. Here, he defines a Pf as a community of workers specifically set up to collaborate in obtaining information related to the fields of the humanities, information science, and the arts, as well as facilitating communication and obtaining knowledge\cite{7}.

A recent paper (2012) reported on the effectiveness of PfM implemented at a research center belonging to K Corp\cite{4}. In this case, PfM was implemented with respect to the creation of development themes and technology development. The platform for the creation of development themes (hereafter, development Pf) was centered on the development and planning department. Employees in the sales, R&D, production, quality control, patent, and other departments involved in the creation of development themes gathered and shared their strategies, information, and ideas. The goal was to cooperate and jointly come up with new development themes. Prior to the Pf implementation, the development and planning department would conduct customer research and add input from the sales department to create a development theme. The development theme was then handed over to the development department in the research center, which proceeded to develop the technology and design the product. Then, the product went through quality and patent checks before production began. Production proceeded according to specifications. This linear process running from the creation of a development theme to mass-production may appear to be efficient at first glance. However, problems are sometimes discovered at different stages of the process, and can even necessitate a return to the beginning, where the development theme has to be reviewed. That can be inefficient. At the same time, this process could sometimes weaken the morale of research center and production personnel, who may have felt that a development theme was imposed on them without their input. Similar problems occurred for the technology development. The research center would design a product and hand it over to the quality control, patent, and production areas. Sometimes design flaws would be discovered at each of these stages and the design would have to be reviewed as a result. This process can also be inefficient, and people’s morale could suffer.

PfM is designed to solve such problems. Development Pf aims to facilitate communication among
people involved in a project in order to create a development theme based on a clear concept acceptable to everyone involved. This process may prevent entire reviews of the development theme as a result of flaws being discovered at a late stage of development. The technology development platform (hereafter, technology Pf) is centered on R&D people. Those involved in basic technology research, product quality, production, and patents participate in Pf activities and contribute their technologies, information, and ideas to the development of a new technology. The goal is to develop a higher level of technology more quickly. This process may prevent the discovery of flaws at the stage when production is about to begin. Moreover, Pf, whether it be development Pf or technology Pf, enhances communication among people and boosts their morale since their input has been incorporated into the process.

Staffs at K Corp.'s research center were surveyed twice, in 2011 and 2012, about the effectiveness of these two types of Pf. The results are shown in Figures 1 and 2.
Figure 1 shows that in both 2011 and 2012 about 40% of employees at K Corp.'s research center of K Corp. had experience with development Pf. Asked if communications improved, 38% responded affirmatively in 2012, compared with 23% in 2011. A total of 26% of the respondents in 2012 said that the process helped them clarify the concept of the development theme, up from 16% in 2011. In 2012 those who agreed that the speed of deciding development themes improved increased to 12%, from 6% in 2011, but those who disagreed or somewhat disagreed with this statement also increased, to 22% from 18%. These results show that development Pf, which involves interaction and discussion among participants, helped improve communication and clarify the development theme. However, the development process slowed down because of time spent on discussion.

According to Figure 2, about 40% of the employees of the research center at K Corp. participated in technology Pf in both 2011 and 2012. The questions included whether communication improved, the speed with which they solved technical problems increased, they were able to solve more difficult technical issues, and they were able to handle issues they could not handle before. The percentage of those who agreed with the statements, "Communication improved," "The speed of solving technical problems improved," "I was able to solve more difficult technical issues," and "I was able to handle issues I could not handle before," rose in 2012. In particular, 40% of the respondents in 2012 agreed that communication improved and that they were able to handle themes they could not handle before. The survey suggests the effectiveness of Pf in these areas.

3. Challenges of PfM

PfM, such as Development Pf and Technology Pf, have demonstrated effectiveness in several areas. However, there are some challenges.
The 2012 survey had a section where respondents were allowed to write in their own answers in addition to the options that had already been provided. The purpose of allowing respondents to provide their own answers was to elicit issues involved in the implementation of PfM. Write-in responses were obtained from 154 people: 34 managers, 37 senior employees, and 35 junior employees. These answers were correlated using the KJ method. The results are shown in Figure 3. Meanwhile, Figure 4 shows these write-in responses classified by rank of employee in percentage terms. K Corp. has four ranks for ordinary employees – G1 to G4. Employees begin at G4 when they join the company, then are promoted to G3, G2, and G1, after which they may be promoted to managerial positions. Different employees are promoted at different ages. However, employees remain at G4 or G3 during their first 10 years, after which they may advance to G1 or G2. Thus, this paper refers to those ranked G1 and G2 as senior employees and those ranked G3 and G4 as junior employees.

A total of 11.4% of junior employees, 8.8% of managers, and 5.4% of senior employees said they became busier because their workload increased. These people became busier probably because they became involved in Pf projects outside of their own. A total of 10.8% of senior employees said the definition of “Pf” was unclear, indicating that these workers have a high awareness of issues, while 11.4% of junior workers said Pf was insular, perhaps because they did not know how to become involved. At the same time, 5.9% of managers and 11.4% of junior employees said that Pf had limitations. These managers and junior employees chose the same answer probably for different reasons. The managers arrived at this conclusion from a broad perspective based on their years of experience, while junior employees spoke from their young, unsusceptible viewpoint (Fig. 4).
4 Solutions to PfM problems

Figure 3 shows that each answer points to the need for management in the operation of Pf. Table 1 summarizes the measures that should be taken concerning the management of Pf in response to issues raised in each section of the survey and in the respondents’ write-in answers.

Table 1 Ways to Deal with Problems of PfM Indicated in Write-in Responses

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<th>Points of Write-in Answers</th>
<th>The measures that should be taken concerning the management of Pf</th>
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| **Pf operation management is needed.** | • Create a staff position to support Pf activities as a whole.  
• Support plans  
• Information sharing through IT utilization  
• Information sharing through announcements  
• Creation of a conducive environment  
• Improvement of employee performance evaluation  
• Cooperation among managers |
| **Pf made me busy.** | • Incorporate Pf activities into employees' regular work schedules so that Pf does not become extra work.  
• Teach managers the importance of Pf activities and how to help their subordinates join Pf groups.  
• Provide a meeting place and IT tools for Pf activities. |
| **It is difficult to evaluate job performance across departments.** | • Incorporate Pf activities into employees’ R&D plans and make these activities a part of employees’ performance evaluations.  
• Incorporate an employee's contribution to the R&D activities of another research group into the performance evaluation of the employees who made the contribution.  
• Create a mechanism to evaluate employees' job performance so that Pf activities can be properly assessed not only by the employee’s immediate supervisor but also by managers of other departments.  
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| **The definition of development** | • Broaden understanding that the advantage of Pf is that it allows employees to freely engage in the activities of their choice.  
• Broaden awareness of Pf activities for the benefit of employees who do not participate in Pf because they feel that it is unappealing and unusual. |
| **Pf is unclear.** | • Establish a venue where Pf participants announce their activities  
• Broaden awareness of Pf activities for the benefit of employees who do not participate in Pf because they feel that it is unappealing and unusual. |
| **Pf’s Limitations** | • In response to comments that Pf activities are not reviewed, announce the results of Pf activities at the end of each fiscal year so that they can be subject to evaluation.  
• In response to comments about a lack of ideas, use creative thinking to come up with more ideas.  
• In response to comments about a flood of information creating confusion, train employees so that they can learn how to sift through a mountain of data and obtain information they need.  
• In response to comments that Pf activities are inadequate, promote the advantages of Pf and encourage wider participation.  
• In response to comments that the next steps are unclear, implement PDCA (plan-do-check-act) method. |

Some respondents said that Pf had made them busy, meaning that Pf created more work for them on top of the performance goals they had created at the beginning of the year. This situation can be resolved by revising the employee’s goals to incorporate Pf activities as part of their annual performance objectives. These changes could be made anytime throughout the year. That way, Pf activities would not become additional work on top of their regular duties. Since revising employees’ individual performance goals requires approval of their supervisor, managers should be taught the importance of Pf activities. They should also learn how to provide necessary support for their subordinates as they take part in Pf activities. At the same time, a place where Pf activities are held should be provided, as well as IT tools for sharing information. The lack of a meeting place or of IT tools is inconvenient and leads to a waste of time.

The response, “It is difficult to evaluate job performance across departments,” means that an
employee’s immediate supervisor does not have information about the employee’s Pf activities and therefore cannot conduct a proper performance evaluation. At the same time, any contribution an employee makes to another researcher through Pf activities is not reflected in the performance evaluation of the worker who made the contribution. If Pf activities are incorporated in this worker’s own work plan, these activities would also become subject to performance evaluation. Even if Pf activities do not result in enhanced performance on the part of the worker, he or she would still receive credit for helping to improve the performance of another employee. Whether an employee’s contribution has led to an improvement in someone else’s performance is difficult to determine. Thus, a mechanism should be created so that managers of different departments can participate in assessing such activities. K Corp. has such a job performance evaluation mechanism called ikusei kaigi, (employee cultivation meetings) with the participation of several managers. These meetings are held among the division manager and all the section chiefs of a particular division, or among the head of the research center and all its division managers. This mechanism enables proper evaluation of an employee’s Pf activities that helped the R&D work of another staff member.

The response, “The definition of Pf is unclear,” indicates that people are not sure which activities fall under the category of Pf activities. At K Corp., meetings and discussions took place across different divisions before the concept of Pf was introduced, so it was not immediately clear how these meetings differed from Pf activities. The fact of the matter is that these activities are also part of Pf, and thus, there is no need to make such a distinction. What is important is that employees know there is such a thing as Pf and that they engage actively in the pursuit of knowledge. It should not matter how these meetings take place. Employees should gather on their own accord and to pursue knowledge. Thus, those who believe that the definition of Pf is unclear should be taught its meaning.

The response, “Pf is insular,” indicates that these respondents do not know how to get involved or that they are not familiar with activities of Pf groups in which they do not participate. It is important to share information about Pf activities by posting it on the research center database or creating an opportunity for researchers to announce the results of their work. Those who do not have much Pf experience tend to be critical. Employees must be taught that Pf activities are beneficial and should be encouraged. Those who are critical about Pf would then change their mind.

Various issues have been raised about Pf’s limitations. The response about a lack of review means that the results of Pf activities are not evaluated. Thus, it is important to create an opportunity for employees to announce the results of their activities at the end of each fiscal year. The response about insufficient theme creation means that the creation of new research themes is inadequate even though efforts to solve various problems are being pursued. Development Pf would allow for the creation of a research theme with a clear concept and a theme acceptable to everyone involved. However, the creation of new themes requires creative thinking. This should be the topic of a separate study. The response that a flood of information is causing confusion means that the emergence of so many Pf activities has led to chaos.

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as Pf groups struggle to sort through reams of data collected through these activities. The existence of information is not a problem in and of itself. The problem is the inability to sort out necessary information from a mountain of data. Therefore, it is necessary to train workers in techniques for sorting through data to find important information. The response that says Pf is not happening means that the respondent has not participated in any Pf activities. These respondents need to be taught the benefits of Pf activities and encouraged to join such groups. The response, “Technology is not creating value for customers,” means that a product will not necessarily enjoy the support of consumers in the marketplace even if a development theme is created and a good product is produced through technology Pf activities. Just creating superior products is not enough. Marketing activities are also important and should be strengthened. The response, “The next steps are unclear,” means that a Pf activity, even if it takes place, does not lead to any tangible results. Each Pf activity should be reviewed and used as a springboard for something greater. In other words, an initiative known as PDCA (plan-do-check-and act) should be carried out.

Solving these problems and carrying out Pf activities smoothly requires management of Pf operations. This necessitates the establishment of a team dedicated to support Pf activities. The following five points are important in this respect:

1. Information sharing through IT utilization
   A common database should be created so that Pf activities can be shared.

2. Information sharing through announcements
   An opportunity to announce the results of Pf activities should be created so that information can be shared.

3. Creation of a conducive environment
   Provide a venue and IT tools to facilitate Pf activities.

4. Improvement of employee performance evaluation
   Create a mechanism whereby several managers evaluate the job performance of an employee to prevent any personal biases of an immediate supervisor.

5. Cooperation among managers
   Managers should be taught the importance of Pf. They should learn how to provide support to their subordinates as they engage in Pf activities. The goal is to prevent supervisors from discouraging their immediate subordinates from taking part in Pf activities that go beyond their respective departments. Managers should encourage workers to participate in Pf.

5. Conclusion
   This paper analyzed employee surveys conducted at K Corp. concerning the implementation of PfM activities. Various issues were raised by employees in their write-in responses. This paper looked at these issues and proposed solutions to these problems. The point we are making is that managers should
be taught the importance of PfM activities so that they will know how to encourage their subordinates to participate in such activities. It is also important to create a team of dedicated staff to support Pf activities. This paper does not claim to provide all the solutions to every conceivable problem associated with PfM. However, the authors would be grateful if the paper is of some help to companies as they implement PfM. We hope that PfM will help invigorate corporate R&D activities and create innovations that contribute to society.

Literature Cited