Challenges to Deploy Service Design in Organizations: Analysis Through "Scaling Up" Workshops

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Abstract More and more companies are applying service design approaches to develop services and products. Not every project, however, has achieved its goals. In many cases, difficulties arise from organizational issues such as organization structure and evaluation system. In this research, we held workshops where success and failure factors of service design projects in organization are presented. By analyzing the results, we construct a model that explains the "difficulties of deploying the service design approach in organization." On the basis of the model, this paper discusses the challenges to the deployment of the service design approach in organizations.

1 Introduction

Our society has changed. In the 1970s and 1980s, the core value of products and services was functionality (e.g., refrigerating foods, washing clothes, and establishing tele-communication). Companies in the 1970–1980s mainly focused on what functions they could realize. As society matured, however, people became surrounded by a lot of products and services that provide a variety of functions. This means that society has become very competitive for companies. In this competitive environment, companies have to consider "what experience they can provide to users" or "how to realize products or services that are chosen and used by people for long term" rather than mere functions.

In this context, service design (SD) (e.g., [1–3]) is attracting much attention in many industries. SD is an approach to develop new services that are useful and desirable from the user perspective and efficient, effective, and different from the provider perspective [4]. The important point of SD is its strong emphasis on improving the user experience, the internal state of the users' mind during service use. In the SD approach, users' values are clarified in the early stage of the overall design process, and service is designed in order to fulfill the users' values.

More and more companies and organizations in Japan are starting to use the SD approach to develop innovation strategies, services, and products. Not every case (i.e., SD project), however, has achieved its goals or purpose. In many cases, it is difficult for companies to implement their ideas as commercial services. As a result, SD is not deployed to their organizations, namely, SD is not used as an approach for developing new services.

Our research answers two research questions:

- *Why is SD not deployed in organizations as an approach for developing new services? What are the difficulties encountered when implementing SD in organizations?*

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• *What challenges must be resolved to deploy SD in organizations? What actions resolve these challenges?*

2   Service Design

2.1   Service Design Research

Looking back over the academic history of SD, the origin of SD is found in the service marketing field [5–7]. At this initial stage of SD research, SD was thought as an approach for improving the quality of service delivery process.

The rapid growth of the service economy in developed countries strengthened research into "services." For example, service-dominant logic, which argues all markets are centered on the exchange of services, has been proposed as a new paradigm for marketing (e.g., [8]). Meanwhile, researches on service science (e.g., [9]) and service engineering (e.g., [10, 11]) have emerged as a scientific and engineering approach that can analyze, design, and evaluate services.

Following this trend, service is now recognized as the center of business in companies, and the scope of SD has become broader. SD is not limited to the design of the service delivery process but includes the design of people, infrastructure, communication, and material components used at the intersections of provider and users in service [12]. Also, SD is considered as a way to obtain competitiveness and realize service innovation [2].

2.2   Service Design Process

The SD process is iterative with the key phases being (1) exploration, (2) creation, (3) reflection, and (4) implementation (Fig. 1).

The exploration phase includes understanding the users and identifying the real problem from the users' viewpoint. Interviews and ethnographic approaches are often used in this phase. In th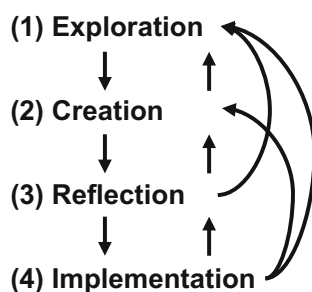e creation phase, service ideation is the main task. Brainstorming and multi-stakeholder involvement are useful here. During the reflection phase, the service design team makes visualized prototypes and tests them. Service ideas are improved or changed based on the reflection obtained in this phase. The implementation phase is about building an executable service and the change management that is necessary for people to effectively introduce the new service.

The SD process is similar to design thinking process, which includes phases to define problems, generate ideas, make prototypes, and test them in an iterative way [13]. Tools and methods used in design process (e.g., interviews, ethnographic approach, brainstorming, etc.) are also similar.

2.3   Service Design and New Service Development

SD is sometimes misunderstood as being a process to create new service ideas. However, the goal of SD is to develop new services, not to create ideas.

Some designers and researchers have recently been critiqued for SD's weakness in terms of service implementation; their ideas stay on the drawing board [14]. Also, the service design research project in the UK [15] has suggested the need to conduct research into how SD projects can be better implemented, embedded, measured, or scaled up in real business field [16].

On the basis of our experience, it can be said that a lot of Japanese companies that have started to use the SD approach for service development feel the same problem. It is difficult for them to convert ideas into commercial services.

3   Methodology

3.1   Overview

Figure 2 illustrates the methodology used in this paper to clarify the research questions mentioned in Sect. 1.
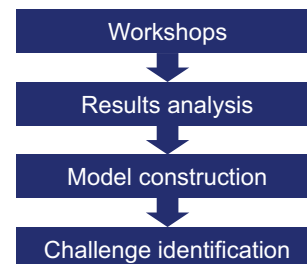

Fig. 1 A service design process (Proposed by Ref. [2])

Fig. 2 Methodology used in this paper

Table 1 The scaling up workshops

Place		Copenhagen	Tokyo
Data		September 2014	October 2014
Purpose		To share success and failure experiences of SD projects among participants	
Style		Presentation session style	
Number of Participants	Com.	4	11
	Des.	2	2
	Res.	4	1
Industries		Telecom, electronics, IT, medical equipment, system integrator, global communication, consulting	Telecom, system integrator, software, public service

Com Companies that are trying to introduce SD approach, *Des* Design consulting firm, *Res* Researcher (in universities)

First, we plan and organize workshops, which are called scaling up workshops, where participants present and share reports detailing the success or failure of SD projects in their organizations. After the workshops, we analyzed the workshop results. More concretely, we extracted the success and failure factors of SD projects from the participants' presentations and statements and categorized them. From the results, we developed a model that explains the "difficulties of deploying the SD approach in organizations." Finally, we discuss the challenges that must be resolved in order to deploy SD approach in organizations.

3.2 Scaling Up Workshop

Table 1 shows the basic information on the workshops. Their goal was to share success and failure experiences of SD projects among participants. We planned two workshops in two countries: the first workshop in Copenhagen, Denmark, and the second in Tokyo, Japan. Experiences were given as presentations; each presentation detailed their experiences and was followed by some discussion time. The participants consisted of three types: (1) companies trying to use SD approach in service development, (2) design consulting firm, and (3) researcher (in universities). Eighteen companies from various industries (such as telecom, electronics, system integrator, public service, medical equipment, etc.) participated in total.

4 Results

4.1 Workshop Results

Table 2 lists the number of success and failure factors presented in the workshops. In Copenhagen, eight success factors and nine failure factors were reported. The workshop in Tokyo yielded 30 success factors and 32 failure factors.

After the workshops, similar success factors were grouped yielding 18 categories; we found 23 categories in failure factors. Table 3 shows the labels of each category;

Table 2 Numbers of factors presented in the workshops

	Copenhagen	Tokyo	Total
Success factors	8	30	38
Failure factors	9	32	41
Total	17	62	79

column "n" in the table means the number of factors into each category (e.g., two factors were categorized as f1). "Subcategories" were also formed. (Here, the category is called "subcategory," since we made more abstract categories after this process. See Sect. 4.2..) As shown in Table 3, a broad range of topics were presented for both success and failure factors.

4.2 Mapping and Categorizing the Factors

The first purpose of this paper is to clarify the difficulties in implementing SD in organizations. We therefore focused on the failure factors. The 23 subcategories of failure factors were categorized again using the KJ Method.

Next, in order to understand the relevance of these categories, we mapped them to a plane having two axes: (1) the source of the factors and (2) the phase of the factors. It appears that there are two sources of failure factors: the SD team (core staffs responsible for SD process) and the organization. We also identified two phases: idea generation and execution.

Figure 3 shows the results of failure factor categorization and mapping. The 23 subcategories of failure factors were categorized to 13 abstract categories: (F1) to (F13). These categories were mapped on the two axes mentioned before. It is noteworthy that (F12) *Lack of understanding the importance of design activities* and (F13) *Lack of understanding the importance of design activities* actually lie outside of the map. These two categories could not be mapped to either the idea generation or execution phase, since they are related to the overall company system, and so not are limited to a specific phase.

The quadrants of this map have features that are explained below:

Table 3 Subcategories of success/failure factors presented in the workshops

	Subcategories of success factors	n		Subcategories of failure factors	n
s1	Frequent checking on the progress of execution process	1	f1	Little knowledge on how to proceed the execution process effectively	2
s2	Clarification of the commitment of each member in execution process	1	f2	Difficulty on keeping motivation of service design team across the execution process	1
s3	Making a roadmap for execution	1	f3	Lack of skill to optimize resource allocation in the execution process	1
s4	Conducting trend researches in a broader context for idea generation	1	f4	Difficulty to dispel concerns about "new approach" to develop service (SD process is different from traditional process)	2
s5	Planning SD project with a motto of "small start, small success"	1	f5	Little knowledge on how to use personas in designing services	5
s6	Capturing the essential problem based on user researches	1	f6	Lack of skills on creating innovative service ideas from user perspective	1
s7	Collaboration with people outside the company in idea generation stage	2	f7	Difficulty to involve and utilize users effectively in idea generation stage	2
s8	Setting and sharing a common vision among team members	3	f8	Designers' lack of consideration for management/business viewpoints	1
s9	Building a team where each member is treated equally	1	f9	Lack of skills to consider marketing strategy and integrate it to ideas in idea generation stage	2
s10	Investigating and understanding the will of important internal stakeholders (e.g., managers, executives, etc.)	2	f10	Lack of skills to consider revenues in idea generation stage	1
s11	Accumulation of practical accomplishments to reveal the effectiveness of SD approach	3	f11	Difficulty on creating ideas that meet managers' will	4
s12	Involvement of executive officers in design process	3	f12	Difficulty to unearth and utilize technologies buried in company	1
s13	Conducting internal PR activities that promote cooperation of concerned employees in the company	4	f13	Difficulty to utilize diverse human resources to idea generation	1
s14	Building a service design team comprised of diverse employees who have a variety of skill and knowledge	4	f14	Lack of people who has execution skills in service design team	2
s15	Consolidating an in-company system to acquire diverse human resources	1	f15	Difficulty to involve employees who are responsible for execution (e.g., service development or operation division)	4
s16	Consolidating an in-company system for accelerating internal collaboration among different divisions	1	f16	Difficulty on communicating and cooperating with service development division	2
s17	Involvement of members who can be a key to proceed SD project including both idea generation and execution stages	7	f17	Difficulty on transition of organization structure and operation process when introducing new services	2
s18	Use of words and notations that are easy to understand for people in other divisions (most of the people in company does not know words and notations used in SD)	1	f18	Difficulty to proceed new development process in traditional organizational system	1
			f19	Difficulty to convince managers, especially to represent the value of ideas (ideas includes values that cannot be measured in numerical terms)	3
			f20	Effects of organizational problem such as personnel relocation	3
			f21	Limited role and responsibility of designers in company system	3
			f22	Managers' lack of understanding for the importance of design activities	1
			f23	Employees' lack of understanding for the importance of design activities	2

The first quadrant: Organization – Idea Execution

In this area, the factor source is "organization" and the phase is "idea execution." Therefore, categories mapped to this area mention "difficulties in managing or utilizing organizational powers or effects in idea execution."

The second quadrant: Design Team – Idea Execution

The factor source is "design team" and the phase is "idea execution." Categories mapped here mention "lack of skill, knowledge, or experience to conduct idea execution effectively."

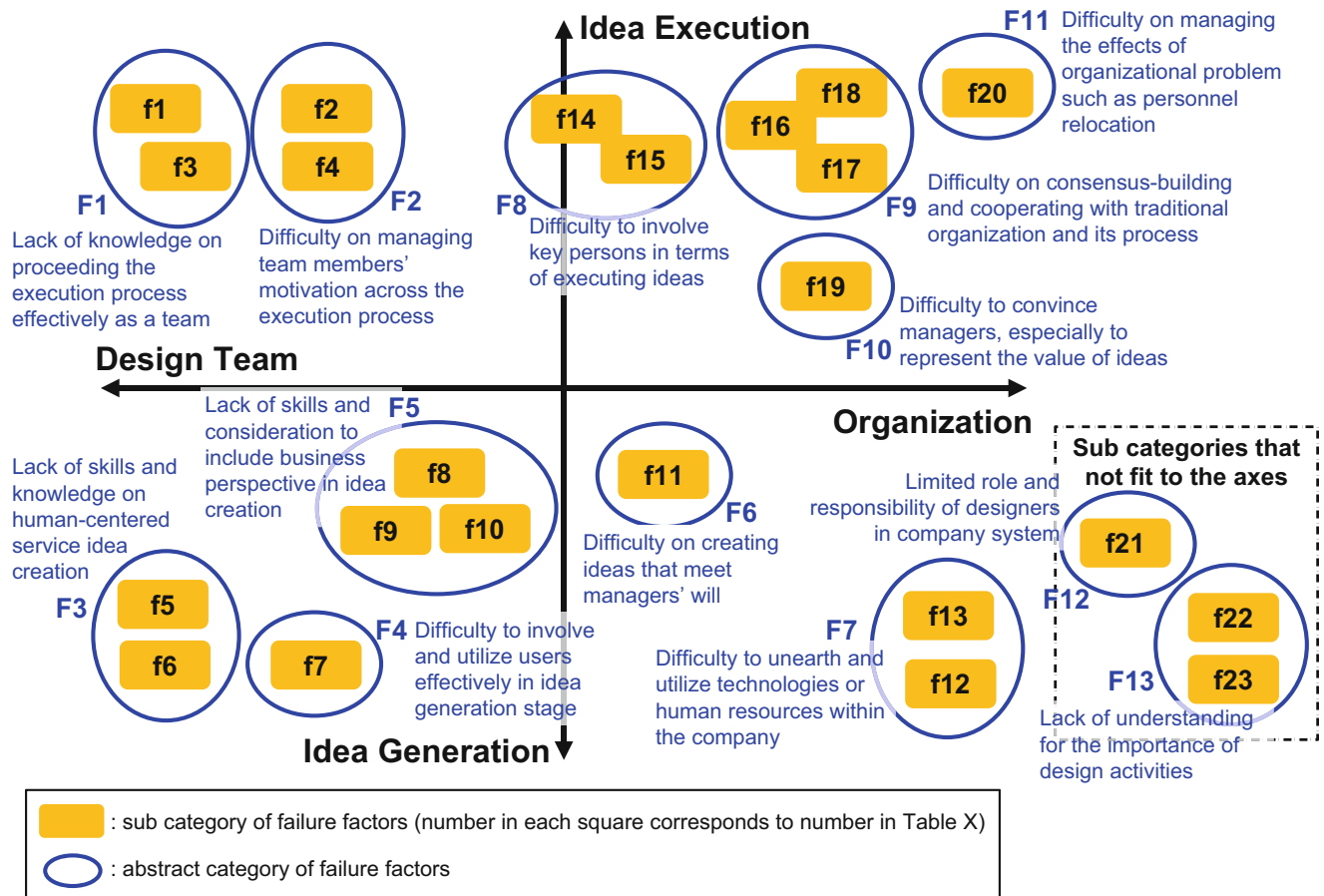*The third quadrant: Design Team – Idea Generation*

Fig. 3 Result of categorizing and mapping the failure factors of SD projects

The factor source is "design team" and the phase is "idea generation." Categories mapped here mention "lack of skill, knowledge, or experience to generate high-quality ideas."

The forth quadrant: Organization – Idea Generations

The factor source is "organization" and the phase is "idea generation." Categories mapped to this area mention "difficulties to manage or utilize the organizational effects or resources in idea generation stage."

5 Difficulties to Deploy Service Design in Organizations

5.1 Three Types of Difficulties in Implementing SD Approach in Organizations

On the basis of the quadrants in the map in Fig. 3, there seem to be three types of difficulties in implementing SD approach in organizations:

1. *Difficulties in idea generation*

   The first difficulty is about idea generation in SD. This corresponds to the lower area of the map illustrated in Fig. 3. As shown in the figure, F3, F4, F5, F6, and F7 are the types of difficulties.

   Further, as explained in the previous section, this type can be divided into two subtypes from the viewpoint of the source of difficulties: difficulties caused by design team (F3, F4, and F5, the third quadrant in the map) and difficulties caused by organization (F6 and F7, the fourth quadrant in the map).

2. *Difficulties in idea execution*

   The second is about idea execution in SD. This corresponds to the upper area of the map in Fig. 3. Categories F1, F2, F8, F9, F10, and F11 are the types of difficulty.

   This type can also be divided into two subtypes in the same manner as difficulties in idea generation: difficulties caused by design team (F1 and F2, the second quadrant) and difficulties caused by organization (F8, F9, F10, and F11, the first quadrant in the map).

3. *Difficulties created by scant understanding of SD activities in company*

   The third is the company's limited understanding of SD activities. This type of difficulty is depicted as "outsider" in the map, namely, categories F12 and F13.

5.2 Difficulty of Deploying SD Approach in Organization

We use the three difficulties mentioned in Sect. 5.1 to construct a model that explains why SD is not deployed in organizations (the first research question of this research); Fig. 4 shows the model. This model clearly depicts the three difficulties (circles colored black) and the causal relationships among them (black arrows). Around the three main difficulties, we arranged the categories of failure factors, which correspond to (F1)–(F13) in Fig. 3.

This model argues that SD projects in companies are less than successful because of the difficulties mentioned in Sect. 5.1. The second important point of this model is the causal relationships among the three categories of difficulties. Focusing on the causal relationships, we can find significant negative spirals. For example, if an SD team cannot create high-quality ideas due to difficulties in idea generation, then such ideas will not be executed. Further, if few ideas are executed (i.e., realized as commercial services), then company staff (including managers) do not recognize the importance of SD activities, and internal collaboration or employee involvement in SD tasks will not be expanded. If there is limited understanding or cooperation with SD activities in the company, then the activities related to idea generation will be limited in the company. This makes it difficult to create high-quality ideas. Another negative spiral is as follows. If ideas are not realized, then managers in the company will not recognize the importance or effectiveness of SD activities. This may cause a situation where managers tend to reject the design ideas for illogical reasons such as the idea generation process is not traditional. Such an organizational environment makes it extremely difficult to conduct SD projects successfully. These negative spirals make it more difficult to deploy the SD approach in organizations.
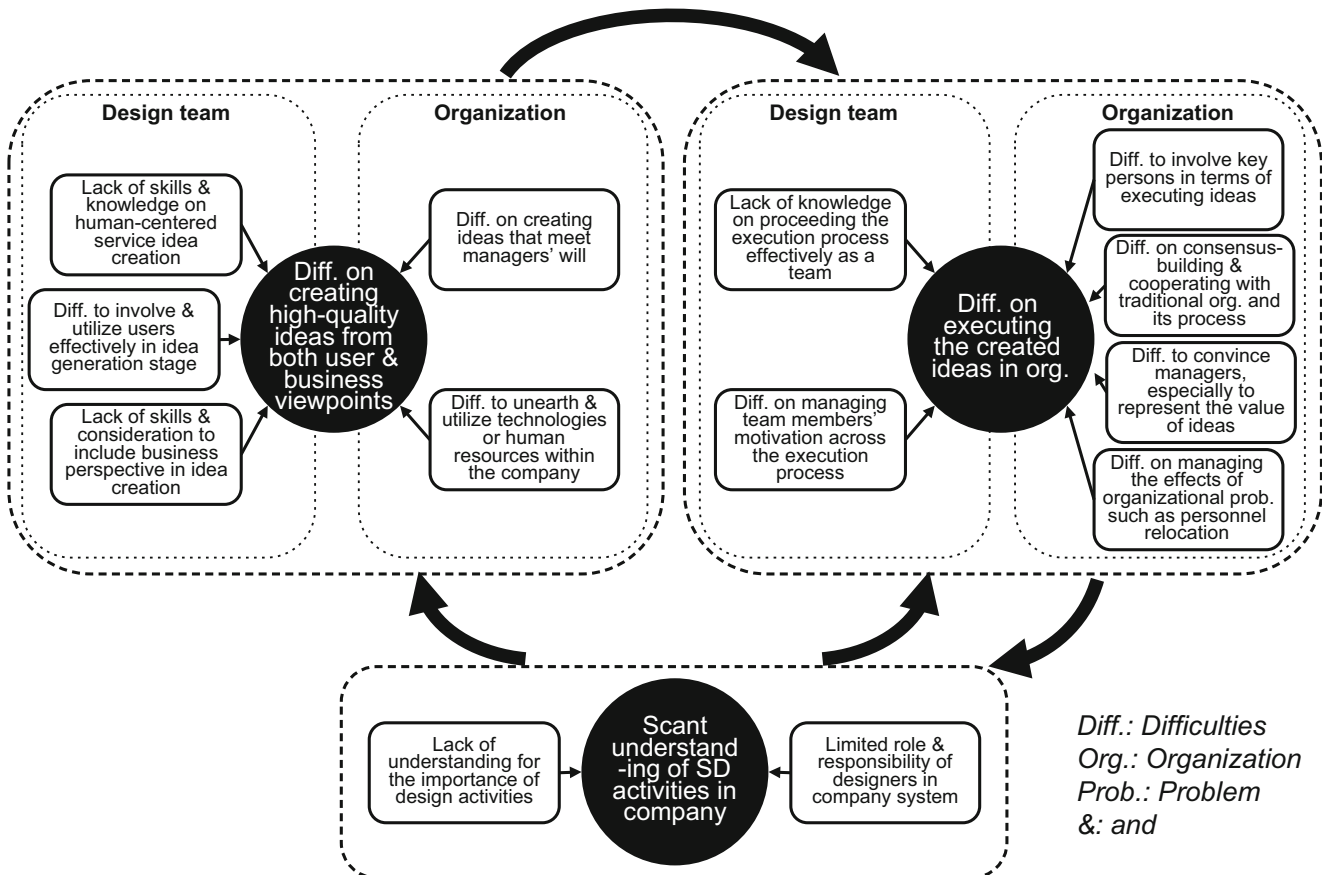

Fig. 4 Difficulty of deploying SD approach in organizations

6   Challenges to Deploy Service Design in Organizations

The model in Fig. 4 reveals three main difficulties in deploying SD approach in organizations. To introduce the SD approach, they should be resolved gradually.

In the scaling up workshop, the participants also shared the success factors of SD projects, which are shown in the left side of Table 3. On the basis of the success factors presented in the workshops, we identified 11 challenges that an SD team should tackle to deploy SD successfully in organizations. Table 4 shows the challenges (the sentence underlined in each cell) for each difficulty and more concrete actions that SD team can take (see the bullet points in each cell). This table also shows what success factors are related to each challenge (see "related category" in each cell; numbers here correspond to the numbers in Table 3).

While there are a lot of challenges (11 in total), SD teams can begin to tackle some specific challenges considering their team's strength/weakness and the project features. The priorities of challenges might change depending on companies or projects.

7   Discussion

7.1   Relation with Existing Researches

In the area of SD research, discussion has mainly been focused on the idea generation phase. More concretely, research targeted "how to create innovative (i.e., something new and interesting) ideas" (e.g., [2]). In contrast, a finding of this research is that companies starting to introduce the SD approach will encounter difficulties not only in the idea generation phase but also in the idea execution phase, i.e., implementing a new service as a commercial product. Few studies have, however, focused on the idea execution phase. Therefore, researches that contribute to solving problems in the idea execution phase are needed in order to implement the SD approach in companies (i.e., the real field of business).

7.2   Comparison Between Danish and Japanese Companies

Figure 5 compares the results of the two workshops (Tokyo and Copenhagen). Figure 5a visualizes the number of failure factors presented by Danish companies; Fig. 5b visualizes that by Japanese companies. F1–F13 in the charts correspond to the number of categories shown in Fig. 3.

By comparing these two charts, two facts can be found. First, Japanese companies tend to face more difficulties in the idea execution phase than Danish companies. Second, participants from Japanese companies think that most of the difficulties with SD projects are caused by organizational factors, unlike Danish companies.

These facts indicate that the organizational system of Japanese company (such as organizational structure, rules, or evaluation system) sometimes becomes a barrier to idea execution of new or innovative services. It must be noted that we are NOT claiming that the Japanese organizational system is unsuitable for innovative service design. We can say conclusions such as the following: (1) most SD teams in Japanese companies have not found an effective way to manage the idea execution process in their organization, and (2) the current SD methods, which were originally developed in Western countries, do not fit to the culture of Japanese companies. Japanese companies should establish methods or processes for new service development that suit their structures.

7.3   Future Research Topics

As discussed above, a perspective such as "how to foster the idea execution phase in organizations" is a key for Japanese companies. With this perspective, the following research topics are suggested.

### *Integration of Business Perspectives in Idea Generation*
To realize ideas in organization, the first hurdle is to pass approval meetings. Here, the most important thing is to convince managers or executive officers. For this purpose, it is essential that the SD team build robust business plans regarding the ideas created. However, in many cases in Japan, SD teams tend to focus only on the novelty or freshness of ideas without considering business logic. Further, creating high-quality business plans normally takes a lot of experience and skill in actual business fields. To solve these problems, methods or tools to support business model planning in the idea generation phase are needed.

### *Management of Uncertainties in Idea Execution Process*
Ideas created in the SD process often include a lot of uncertainties. Actually, no one can accurately judge if an idea will become successful or not as a business before it is launched. These uncertainties have negative effects on motivating members and carrying the SD process smoothly forward in organizations. It is therefore essential to reduce uncertainties as much as possible in the idea execution process. Govindarajan investigated companies that realize innovations in the USA and found that utilization of hypothetical thinking (i.e., hypothesis verification) is critical to reduce uncertainties in new service/product development [17]. Therefore, we should discuss the development of

Table 4 Challenges to deploy SD in organizations

For the difficulties in idea generation	For the difficulties in idea execution	For the difficulties created by scant understanding of SD in company
Improving the quality of human-centered design activities [Related categories: s4, s6, s7]	**Conducting more precise project management in idea execution [Related categories: s1, s2, s3]**	**Enhancement of internal PR activities to promote SD activities [Related categories: s11, s13]**
Conducting trend researches in a broader context for idea generation	Making a roadmap for execution	Conducting internal PR activities that promote cooperation of concerned employees in the company
Capturing the essential problem based on user researches	Clarification of the commitment of each member in execution process	Accumulation of practical accomplishments to reveal the effectiveness of SD approach
Collaboration with people outside the company in idea generation stage	Frequent checking on the progress of execution process	
Making consideration of marketing strategy and business model in the early stage of idea generation	Managing uncertainties in idea execution	
Building a design team comprised of diverse members [Related categories: s8, s9, s14]	**Reinforcement of the consensus building with other decision and its process [Related category: s18]**	**Involvement of managers and executive offices in design process [Related category: s12]**
Building a service design team comprised of diverse members who have a variety of skill and knowledge	Use of words that are easy to understand for employee in other division	Involvement of executive officers in design process
Building a team where each member is treated equally	Use of format of document that are easy to understand employee in other division	Reporting progress or situation of SD project frequently to managers or executive officers
Setting and sharing a common vision among team members	**Building a design team considering idea execution phase [Related categories: s8, s17]**	**Consolidating an in-company system for internal collaboration [Related categories: s15, s16]**
Deeper understanding of internal stakeholders [Related category: s10]	Involvement of members who can be a key to proceed SD project in execution stages	Consolidating an in-company system to acquire diverse human resources
Investigating and understanding the will of important internal stakeholders (e.g., managers, executives, etc.)	Setting and sharing a common vision among team members	Consolidating an in-company system for accelerating internal collaboration among different divisions
Understanding the constraints in service design	**Building a plan that attach importance of putting ideas out into the market [Related category: s5]**	Consolidating an in-company system to evaluate and educate service designers
	Planning a small but effective project	
	Planning SD project with a motto of "small start, small success"	
	Conducting activities to have managers understand the value of design [Related category: s13]	
	Reporting the results of user research to managers (who do not know the real users)	
	Representing the value of design in quantified manner as much as possible	
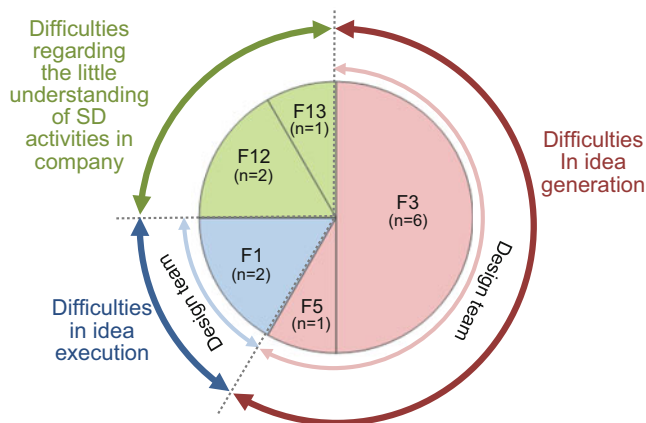
(a) Failure factors presented by Danish companies
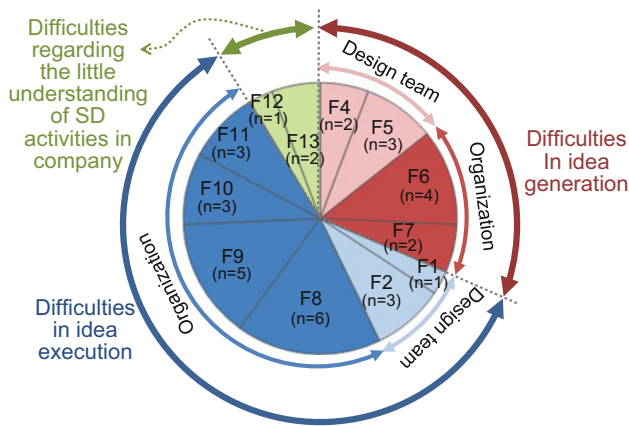
(b) Failure factors presented by Japanese companies

Fig. 5 Comparison of the workshop results

methods or tools that support hypothetical thinking in the idea execution process.

7.4 Limitation of This Research

Although this model was based on the actual experiences of SD projects in Danish and Japanese companies, rigorous model verification has not been fully completed. Future works will include the verification by conducting further interviews of companies.

8 Conclusion

SD appears to be an attractive approach for new service development and service innovation. However, it is a fact that companies encounter many difficulties to implement SD in the *real* business fields. In this study, we therefore tried to clarify two research questions:

- *Why is SD not deployed in organizations as an approach for developing new services*? *What are the difficulties encountered when implementing SD in organizations*?
- *What challenges must be resolved to deploy SD in organizations*? *What actions resolve these challenges*?

For this purpose, we held workshops where participants presented and shared their success and failure experiences of SD projects. On the basis of the results, a model that explains the difficulties of deploying SD approach in organizations was constructed. This model is an answer of this research to the first research question. The model argues that we should overcome three difficulties to deploy SD approach in organizations. The three difficulties are (1) difficulties in idea generation, (2) difficulties in idea execution, and (3) difficulties created by scant understanding of SD activities in company. This paper also noted some of the challenges that the SD team should tackle to successfully deploy SD in organizations. Eleven challenges and more concrete actions were elucidated, see Table 4. This proposal is our answer to the second research question.

Furthermore, we compared companies who participated in the workshops, Japanese versus Danish companies. The results of this comparison showed that Japanese companies face relatively more difficulties in managing organizational factors in the idea execution phase. On the basis of this analysis, the paper discussed research topics such as (1) integration of business perspectives in idea generation and (2) management of uncertainties in idea execution process as important for Japanese companies.

In order to accelerate SD activities and realize innovation in Japan, we are planning to push forward research on the topics mentioned above. Ultimately, we would like to establish SD methods or tools better suited for Japanese companies.

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