服务创新顾问案中所采用的顾问方法整理与评估

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Service Innovation Consulting: Evaluation of Methods Employed

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Abstract: Many consulting firms and research institutions have started providing consultancy services for service innovations. However, academic research has not kept pace with rapidly changing developments in consulting businesses. This study evaluated all known methods currently used in service innovation consulting, and analyzed the actual practices of service innovation consulting to clarify trends in service innovation. Methods are evaluated by their strategy orientation and divergence orientation, and then classified according to a proposed general service innovation consulting framework. The findings of this study indicate that the current focus of service innovation consulting is: customer needs discovery. However, an integrated service innovation methodology covering customer needs discovery, market discovery, idea generation, strategy formulation, service engineering, and simulation/pilot is urgently needed.

Key words: service innovation; SSME

1 Introduction

As SSME initiative[1-4] has fueled academic research in service science and service innovation, industries are currently striving to increase corporate profits by leveraging service innovations[5]. Many consulting firms or research institutions have begun providing consultancy services for service innovations. However, their progress has not been matched by development of underlying theory.

Academic studies of service innovation have focused on: the economic or macro-level impact of service innovations[6,7], and the psychological or micro-level factors affecting the outcome of service innovations[8,9]. A complete methodology for service innovation consulting has not been developed. The Fraunhofer IAO Service Engineering[10] efforts are one attempt to shed light on the consulting methodology for service innovation (or simply new service development). About forty methods or analytical tools are listed in their framework for addressing various service innovation issues. The methods are further discussed in the next section.

Whether the research progress of SSME could provide deeper insights to service innovation consulting is yet conclusive. Notably, however, in a recent study by Pires et al.[5], service innovations are found to be not so different from product innovations. Many studies have analyzed service innovations via methods originally designed for product innovations. Examples include Service QFD[11] and TRIZ[12].

The actual experience of the authors in many service innovation consulting projects clearly indicates that many consulting firms are trying to apply product innovation

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methodology to service innovation and are actually gaining positive feedback. It is hoped that in this study a possible service innovation consulting methodology framework could be come up with through analysis of these successful consulting cases. The framework could then be used to provide feedback to academic researchers in order to obtain more stringent verification of its theoretical basis.

This paper is structured as follows: Section 2 describes and analyzes methods employed in service innovation consulting. Section 3 analyzes three service innovation consulting cases and the general framework of service innovation consulting. Evaluations of methods based on the proposed framework are presented in Section 4. Finally, Section 5 gives conclusions and future work.

2 Service Innovation Consulting Methods

In this section we attempt to list all the methods we know that are used in service innovation consulting. These methods are well known in management science and are described in detail elsewhere. Although some methods may be customized or enhanced by individual practitioners, the methods are identical to the original ones from the academic viewpoint. The service innovation consulting methods are grouped by the organization or company actually using them.

2.1 Service engineering from fraunhofer IAO

Service Engineering methodology[10] has been applied by Fraunhofer IAO based on the accumulated service-development consulting experiences of more than 20 years. The proposed methodology covers seven phases of service development including: idea management, conceptualization, requirement analysis, design, implementation, market launch and operations manage- ment. Over forty methods are actually used in these consulting projects, including requirements analysis, evaluation of empirical reports from customer contact, demand analysis, conjoint measurement, critical incident methods, FMEA method, Kano method, and so on (see Appendix I for a complete list).

2.2 IDEO methods

IDEO[13] is a well-known design company. Its unique product and space design expertise has been applied successfully to service innovations. The service innovation methods employed by the firm are collated and grouped into four categories: Learn, Look, Ask, and Try. The firm employs over fifty different analytical methods, including Activity analysis, Affinity diagrams, Anthropometric analysis, Cognitive task analysis, and so on (see Appendix II for a complete list).

2.3 IBM PIM methodology

The abbreviation PIM, which stands for Product Innovation Management[14], was a group of methods originally used in the field of product innovation. Nevertheless, according to practical experiences, it has been effectively applied in the field of service innovation. The four major areas of PIM include Research Management (RM), Emerging Business Opportunities (EBO), Market Planning (MP), and Integrated Product Development (IPD). The EBO is directly relevant to service innovation, since it addresses the issue of new business development, which often leads to service innovations as well.

The core of EBO is idea generation and strategy planning. The EBO uses over thirty methods, including Customer behavior analysis, Value chain analysis, Customer $APPEALS, STEEP, Cross-SWOT, and so on (see Appendix III for a complete list).

2.4 An evaluation of the three methodologies

Since listing all methods used by all consulting firms was impractical, the analysis included those methods applied in the three methodology categories, which were considered sufficiently broad to include most methods. Through interviews with seven service innovation consulting experts in IBM, Institute for Information Industry (III) and National Taiwan University (NTU), 126 methods were selected and classified as strategically divergent (SD), strategically convergent (SC), operationally divergent (OD), or operationally convergent (OC). These classifications and the number of methods included in the classification are given below.

SD: methods of discovering new service innovation strategies (fourteen).

SC: methods of eliminating unprofitable service innovation strategies (eight).

OD: methods of exploring new operational service ideas (seventy-three).

OC: methods of excluding infeasible operational

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service ideas (thirty-one).

A strategy orientation index for each methodology is calculated as the number of (SD+SC) methods divided by the number of all methods employed in the methodology. On the other hand, a divergence orientation index for each methodology is calculated as the number of (SD+OD) methods divided by the number of all methods employed in the methodology. Fig.1 shows 60% of the methods used by PIM-EBO were strategically oriented, indicating that PIM-EBO methodology is focused on providing strategic insights into service innovations. Fig.2 shows that IDEO methods were considered more divergent than others, meaning that most of the methods used by IDEO help innovators discover new ideas. For instances, the IDEO Shadowing technique helps discover hidden customer needs, and therefore inspires new ideas for service innovation. However, the Card Sorting technique prioritizes identified needs, which demonstrates a convergent thinking.

A good service innovation methodology includes both divergent thinking and convergent thinking, and includes both operational thinking and strategic thinking (see Fig.3); therefore creative ideas can be initially discovered and then realized by finding effective ways to implement them.

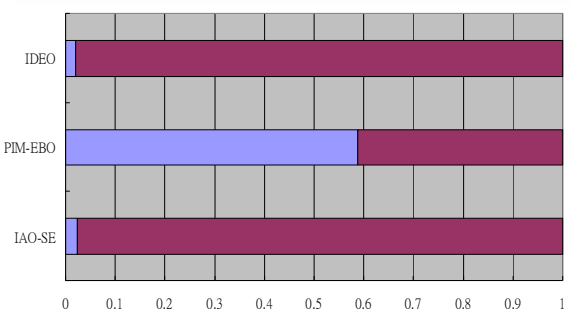

Fig.1　Strategy orientation index

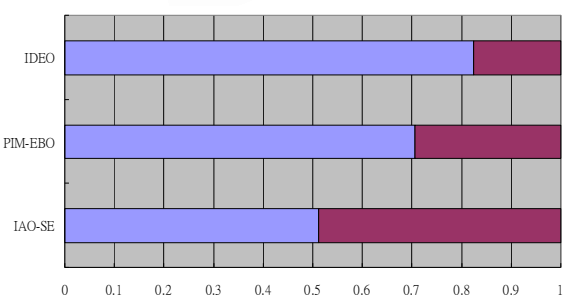

Fig.2　Divergence orientation index

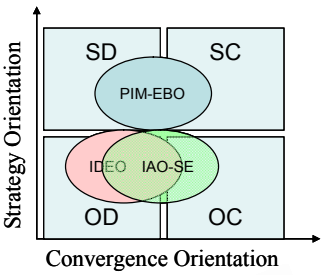

Fig.3　Domains of service innovation methodology

3　Case Studies and General Framework of Development of Service Innovation Consulting

This section analyzes actual service innovation consulting cases to identify the associated values created. A general service innovation consulting framework for the scope and components of a complete service innovation methodology is then proposed. To ensure confidentiality, some of the names of participating clients are not given.

3.1 Case study of iMove service innovation

The iMove website[15] is used as a case study of innovation in an integrated car-travel online service. Due to the slow growth in automobile sales, Yulon Group refocused their core business on automobile-related services such as rentals, travel services, automobile magazine publishing, and automobile insurance. An integrated online website and service was developed by redefining customer relationships and optimizing corporate resources. This initiative was a major change in the core business of Yulon Group, and was classified as a case of both service innovation and experience innovation [16].

Interviews with Yulon managers and consultants revealed that the greatest benefit of the consultation was identifying the hidden markets. During the project, consultants used several analytical tools from IDEO method cards, including behavior archaeology, social network mapping, draw the experience, card sort, error analysis, scenario testing, and “a day in the life”. These methods reveal hidden needs, which are then verified by conducting a questionnaire-based survey. A consultant said: “it (the methods) help us discover hidden markets,

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so that innovative services can be well designed around these markets with potential."

3.2 Case study of Web 2.0 service innovations

The Ministry of Economic Affairs in Taiwan sponsored a service innovation project for Web 2.0[17], which encourages entrepreneurship in Web 2.0. Business plan competitions are held annually, and winners are given service innovation consulting services. Atlaspost[18] and Citiport[19] are two success stories. To guide the teams in developing high-quality service innovations, the Service Engineering methodology of Fraunhofer IAO was introduced.

Faculty from several Taiwan universities participated in a team formed by Institute for Information Industry to provide service innovation consulting and produced first-hand observation reports. Many of the reports agreed that Service Engineering is beneficial for verifying the completeness and soundness of the designed service blueprints. While Service QFD helps to ensure the completeness of service blueprints, FMEA analysis helps to avoid critical service failures and therefore increases overall soundness. However, the reports also suggested that Service Engineering should be further tailored to enhance its capability in modeling web-based services.

3.3 Case study of film treatment service innovation

The core capability of Company A was expertise in very thin film treatment. It allows the company to provide film treatment services to products such as LCD color filters. The coating and sputtering process associated with this service require substantial expertise and expensive machinery. However, the declining LCD market has prompted firms like company A to explore new business opportunities. Thus, PIM-EBO methodology was identified as a potential service innovation tool for discovering emerging business opportunities.

According to the consultants involved in this project, the client innovation team successfully generated more than 500 ideas for new services and business. These ideas were grouped and assessed according to their business attractiveness and risks. Nine candidates of innovative service passed the EBO viability assessment, and business strategies were defined for the two candidates with highest viability scores.

EBO are more strategy-oriented than the other methodologies. While idea generation methods helps clients discover new ideas, strategy formulation methods guides them in developing winning strategies for new business plans.

3.4 General framework for service innovation consulting

Based on feedback obtained in actual consulting cases, the values created by service innovation consulting were grouped into the following seven categories: *customer needs discovery, market discovery, service idea generation, business idea generation, strategy formulation, service engineering and simulation or pilots. Each is described in detail below.*

Customer needs discovery and Market discovery. Markets evolve as customer behavior changes. Deep insight into customer behavior and needs can help identify emerging markets. Changes in customer behavior are not easily identified, and most market surveys fail to do so because they ask the wrong questions. For this reason, many innovation tools or methods attempt to identify hidden customer needs before a typical questionnaire survey is performed. A new market is discovered when a hidden need is verified by the survey. Customer needs discovery and market discovery are important activities in service innovation. Nevertheless, as Fig. 4 shows, they occur at different levels. While customer needs discovery is an operational activity, market discovery is considered a strategic activity.

Service/Business idea generation. Idea generation methods are important for reviewing many ideas before entering the idea realization stage. The benefits of idea generation can be huge if brainstorming yields a very good idea. Given a discovered market, idea generation methods help produce a set of feasible ideas for capturing market oppotunities. However, the ideas explored by a front-end line manager tend to be service-specific while those of a top manager tend to be business-oriented and strategic. Several service ideas may be grouped into a few business ideas for leveraging optimized resources and a consistent brand image.

Strategy formulation. Apparently, not every new service ideas or business ideas can be successfully implemented without considering current capabilities and business competition. Strategy formulation methods can

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reveal important insights into the best strategy for enhancing competitiveness. Failing to select the right strategy could result in a total loss of the new business or services developed.

Service engineering. The term "engineering" implies the application of scientific or mathematical principles to the work at hand. When a service innovation project undergoes an engineering process, the new services are assumedly based on a logical and rigorous analysis and design, which enhance the quality and feasibility of a new service.

Simulations or pilots. A simulation is usually a powerful tool for testing a service before it is actually launched. However, simulations are expensive and often difficult. Therefore, companies often bypass simulations of services and proceed directly into pilots. In the cases studied so far, no companies performed simulations of their planned service innovation projects. However, simulations are essential when services are extremely complex. Note that in Fraunhofer IAO, service simulations are conducted via virtual reality technologies in ServLab[20].

Fig.4 shows the general service innovation consulting framework. The major contribution of this framework is to enhance value of a service innovation by converting it to a strategic innovation. Past research in service innovation tends to ignore strategy formulation aspects, which are important for reducing risk of failure. This framework also helps to clarify the differences between needs and markets, service ideas and business ideas. This clarification is important when managing a service innovation consulting project, since a confused definition of needs or services could result in lengthy and unproductive discussion between strategy teams and operation teams.

4 Evaluation Results and Implications

Based on the framework proposed above, service innovation consulting experts were asked to evaluate the value provided by each of the 126 methods and categorize the methods. Fig. 5 and Fig. 6 show the results of categorization (from ND, MD, SI, BI, SF, SE, to SP,corresponding to the seven categories in frame- work), which indicate that: 1) IDEO methods tend to focus on the category of customer needs discovery, 2) PIM-EBO methods are superior for idea generation and strategy formulation, 3) IAO Service Engineering methods are strong in customer needs discovery and have an unique position in service engineering, of which IAO defines the "what" and "how".

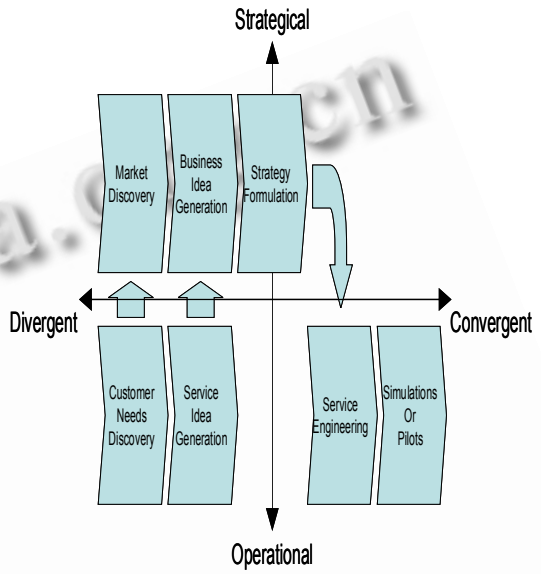

Fig.4　General service innovation consulting framework

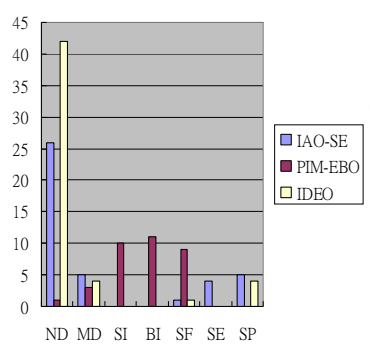

Fig.5　Methods distribution in the proposed framework

Due to the lack of finance data about worldwide service innovation consulting projects, it is hard to conclude which methods are widely adopted in real practices. However, the richness of methods used for customer needs discovery suggests that customer needs are still central to the problem of service innovation. As service systems in the modern world grow in complexity due to new technologies, an integrated methodology covering all seven categories of service innovation would

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provide needed support to service innovations and is therefore worth researching.

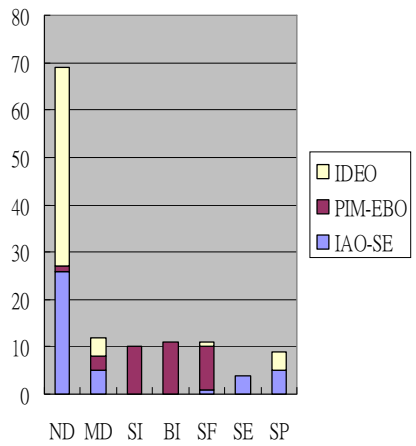

Fig.6 Methods distribution combined

5 Conclusions and Future Work

This study evaluated 126 service innovation consulting methods and analyzed actual cases of service innovation. A general service innovation consulting framework is proposed to suggest the scope and components of a complete service innovation methodology. The evaluation reveals that the current focus of service innovation is on customer needs discovery, which is an operational rather than a strategic focus. A suggestion for future research is to devise an integrated service innovation methodology for the seven method categories identified.

Other suggestions for future work are: 1) performing a global survey of service innovation projects to analyze the precise adoption rate of each method and to confirm the benefits received and 2) devising an integrated service innovation methodology that can accommodate the complexity of future technology-intensive and knowledge-intensive service innovations.

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Appendix I

1 Requirement analysis
2 Evaluation of empiric reports from the customer contact
3 Evaluation of customer survey
4 Evaluation of customer complaint (complaint management)
5 Demand analysis
6 Conjoint measurement
7 Critical incident method
8 Customer care center
9 Feedback of losing customer
10 FMEA for service
11 Focus group
12 Frequency relevance analysis
13 Kano method
14 Concept test
15 Customer questionnaire
16 Customer observation (behavior analysis)
17 Customer clubs
18 Customer events
19 Customer forum
20 Customer value analysis
21 Customer panel
22 Customer workshop
23 Customer satisfaction analysis
24 Lead user analyses
25 Market research (market analysis)
26 Means-end-chain (MEC)
27 Employee exchange between company and customer
28 Personal conversation
29 Prototyping (service test)
30 Sequential outcome method
31 Service blueprinting
32 Service QFD
33 Service simulation
34 Service SWOT analysis
35 Service test
36 SERVQUAL (rater)
37 Silent shopper
38 Scenario technology
39 Transaction analysis
40 Trend analysis
41 User group

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Appendix II

42 Activity analysis
43 Affinity diagrams
44 Anthropometric analysis
45 Character profiles
46 Cognitive task analysis
47 Competitive product survey
48 Cross-cultural comparisons
49 Error analysis
50 Flow analysis
51 Historical analysis
52 Long-range forecast
53 Secondary research
54 A day in the life
55 Behavioral archaeology
56 Behavioral mapping
57 Fly on the wall
58 Guided tours
59 Personal inventory
60 Rapid ethnography
61 Shadowing
62 Social network mapping
63 Still-photo survey
64 Time-lapse video
65 Camera journal
66 Card sort
67 Cognitive maps
68 Collage
69 Conceptual landscape
70 Cultural probes
71 Draw the experience
72 Extreme user interview
73 Five whys
74 Foreign correspondents
75 Narration
76 Survey & questionnaires
77 Word-concept association
78 Unfocus group
79 Behavior sampling
80 Be your customer
81 Bodystorming
82 Empathy tools
83 Experience prototype
84 Informance
85 Paper prototyping
86 Predict next year's headline
87 Quick-and-dirty prototyping
88 Role-playing
89 Scale modeling
90 Scenarios
91 Scenario testing
92 Try it yourself

Appendix III

93 Customer behaviour analysis
94 Value chain analysis
95 Competitor & company
96 Customer $appeals
97 STEEP
98 Cross-SWOT
99 Business domains
100 Strategic position analysis (SPAN)
101 Six forces
102 Crazy brainstorming
103 SCAMPER
104 Osborn method
105 Assumption smashing
106 Search and reapply
107 Cross-applications of strateges
108 Affinity diagram
109 Cross method
110 Brain writing
111 Six hats
112 Attribute analysis
113 Attribute listing
114 Ansoff matrix
115 Business viability assessment
116 Idea prioritization
117 Business concept design
118 SPAN & financial analysis (FAN)
119 Market segmentation
120 Segment viability analysis
121 Offering list design
122 Value propositions
123 Portfolio analysis
124 Profit models
125 Strategic control points
126 Marketing mix

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