Typology of Service Innovation in the Food and Beverage Industry in Taiwan

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Abstract This study examined the typology of service innovation in the food and beverage industry. Several approaches, including secondary data collection and grounded-theory-based analysis, were used to analyze approximately 32 innovative cases of 16 enterprises in the industry in Taiwan. According to these results, service innovation was divided into two categories, namely service concepts and service regimes, comprising five subcategories. Moreover, value cocreation was identified because few enterprises promote customer participation in final consumption processes. The findings of this study can serve as valuable references for service innovation researchers and business owners.

Keywords New Product Development, Service Innovation, Tourism Innovation, Food and Beverage Industry, Hospitality Industry

1. Introduction

When business owners transition from a service economy to experience economy, they must provide higher values and favorable impressions to their customers through various services and products. Service providers can implement intangible services and tangible products to provide consumers with memorable personal experiences (Pine & Gilmore, [1]). Service providers continuously develop fresh experiences to customers to meet their changing needs. Hence, service innovation has become a new benchmark in the service industry. However, despite the increasing relevance of services, empirical studies regarding service innovation are still scant in the academic world (Hollenstein, [2]; Gadrey, Gallouj, & Weinstein, [3]; Drejer, [4]). Service innovation has recently become a new field of study in the service industry. In addition, studying the tourism industry, which is part of the service industry, is imperative. Currently, theories, concepts, and methodologies for studying service innovation and its application to the tourism industry are adequately structured (Hjalager, [5], [6]; Sundbo, Orfila-Sintes, & Sørensen, [7]) and have been developed for resolving problems that have attracted considerable attention (Peters & Pikkemaat, [8]). In tourism research, the most common studies have been conducted on the hospitality industry (Enz & Siguaw, [9]; Ottenbacher, [10]; López-Fernández, Serrano-Bedia, & Gómez-López, [11]), which includes the hotel industry. However, studies on the restaurant industry, such as examining the innovative skills of restaurant staff, are scant (Stierand & Lynch, [12]; Ottenbacher & Harrington, [13]).

The proposed service innovation typology provides a new perspective on theory development in the field of service innovation that moves away from the traditional goods-versus-services perspective to join current thinking on service-dominant logic (Paswan, D'Souza, Zolfagharian, [14]). In the current study, we examined several service innovations in the food and beverage industry to compensate for the limitations of previous studies, which have typically emphasized the service itself instead of innovations or design concepts. Studies that are based on a single model may face limitations in presenting a complete picture of an industry. Therefore, we used several approaches, including secondary data collection and grounded theory-based analysis, to analyze 32 cases of 16 enterprises in the food and beverage industry in Taiwan. Service innovation was thus divided into two categories, namely service concepts and service regime, comprising five subcategories, and value cocreation was identified because few enterprises promote customer participation in the final consumption processes. The findings of this study can serve as valuable references for service innovation researchers and business owners.

2. Literature Review

Studies on service innovation began emerging in the late 1980s. Numerous service innovation studies were based on a study of Barras [15], who argued that innovation in the
service industry should be separated from that in the manufacturing industry because the service industry has a unique reverse product cycle (RPC). Barras reported that the RPC of service innovations comprised three phases: the improved efficiency phase, improved quality phase, and new product phase. In the improved efficiency phase, the emphasis was placed on investing in new technologies to increase the delivery capability. In the improved quality phase, the main objective was improving service quality through effective technologies. In the new product phase, a new service emerged.

Pavitt [16] was the first to present an industrial typology based on the tracks of diversification activities. Pavitt argued that service activities were mainly executed by suppliers and then listed new information intensive patterns, including financial, retail, and publishing industries, to demonstrate the importance of information and communications technology (ICT) in innovation patterns. In Pavitt's theory, firms were divided into four categories, namely scale-intensive, specialized suppliers, science-based, and supplier-dominated, each of which demonstrated distinctive development tracks. The service industry, according to Pavitt, was supplier-dominated and included traditional manufacturing industries (e.g., textile, clothing, leather, publishing, and printing) and the modern service sector. However, the scale, capital, and development of the modern service sector may be extremely different from those of traditional industries. Soete and Miozzo [17] and Miozzo and Soete [18] have subsequently developed new service innovation models according to Pavitt's typology and extended the concept of supplier-dominated firms from a new aspect of interactive networks for incorporating the service sector.

Researchers have adopted various approaches to operationalize service innovation constructs when examining typology. External relations and interactions play essential roles in service innovations. Hipp and Grupp [24] investigated 513 service companies in the Mannheim Innovation Panel of Germany and divided service innovations into four categories: knowledge-intensive, network-based, scale-intensive, and supplier-dominated innovations. De Jong and Marsili [25] examined small and medium-sized manufacturing/service businesses and determined that the firm scale influenced innovation practices and strategies; they developed typologies similar to Pavitt's but created a new category for resource-intensive firms (e.g., hotels and restaurants), which differ from scale-intensive firms. Camacho and Rodriguez [26] also identified five categories, which are similar to those of Soete and Miozzo [17]. All the mentioned service innovation typologies were based on firms. Few researchers have used the concepts and characteristics of services to develop typologies. Sundbo [27] categorized service innovation patterns into five groups according to customization characteristics: custom-made innovations, special service innovations, remade or structural innovations, differentiation or added innovations, and delivery or channelization.

In addition to implementing brand new services or products, service innovation entails modifying and enhancing existing products, services, and delivery systems. Service innovation refers to all activities, including implementing new inventions, creations, developments, applications, media, and targets, and is conducted to create new methods and media for adding values to an industry. In service innovations, a key to success is information technology, which can effectively provide solutions (Gadrey et al., [3]) while maintaining or even strengthening the image of a company. This service-innovation information technology adds values, attracts a high number of potential customers, and satisfies the need of firms to effectively face challenges from competitors (Daniel & Storey, [19]). Both den Hertog [20], who analyzed service innovation from four aspects, and Evangelista [21], who categorized service activities through factor analysis and cluster analysis methodologies based on the ISTAT-CNR innovation survey, have emphasized the relevance of ICT in the service sector.

Barras [15] proposed a technique that provided a vital contribution to service innovation theories; however, this technique was based on concepts that limited the applicability of ICT-based systems to service industry activities. Not all service innovations belong to the technical field. An innovation in the service sector may emerge from using a nontechnological method (Evangelista & Sirilli, [22]; Djellal & Galouj, [23]). Hollenstein [2] argued that nontechnological innovations only partially suit the service sector.

Regarding studies on service innovation typology in the tourism industry, Sengupta and Dev [30] examined the hotel industry by using a service named “7-I model” of Taj Holiday Village Goa, a hotel in India, as an example to explain how consumer complaint procedures, check-in time changes, dining room and kitchen rearrangements, and room preparation procedures can be improved to increase...
customer satisfaction and profits. They also explained the conceptual designs of these new services. Ling and Hsu [31] adopted the procedures of Van der Aa and Elfring [29] and case studies of chain supermarkets as bases and applied a fuzzy multilingual preference model to examine service innovation choices and assessments in diverse contextual combinations of various market statuses and supporting services. Tang, Tsai, and Wang [32] analyzed and compared various strategies and innovations of multiple cases and identified four innovation patterns in a logistic industry: service extension, flexibility, information system integration, and supply chain extension. Studies on innovation patterns are still scant. Moreover, some such studies have applied developed patterns as their bases. However, no such study has been conducted on innovation patterns in the food and beverage industry.

The various definitions of an “industry” and diverse sample sizes influence the establishment of a typology. A typology may encompass another typology, and a company may include multiple service innovation categories (Gallouj, [33]). In addition, suppliers are not the only drivers of services. A service may emerge from a technological application, cooperation, or external relations. Moreover, although the service industry is different from the manufacturing industry, the unique characteristic of the service sector can still be identified from the innovation typologies of the manufacturing industry.

3. Methodology

This study analyzed multiple cases by applying the theoretical sampling concept of grounded theory. The collected data were also inspected to determine whether they reached theoretical saturation (Glaser & Strauss, [34]). First, market surveys and assessments related to the food and beverage industry were used (e.g., “Excellent Restaurants of Taiwan” by the Ministry of Economic Affairs and “2013 Top 500 Service Companies in Taiwan” by Common Wealth Magazine). Second, restaurant case studies from professional academic organizations, including books, information, and films, were used as references until December 31, 2014. All cases were thoroughly studied, and redundant company listings were eliminated. Three items were considered when all service innovation cases were being identified: the source of ideas, the design concepts, and the resource arrangements of such innovations. These behaviors were described in detail in every case. All case contexts had to be mentioned and were transcribed to ensure their suitability for this study. Finally, 32 innovative cases by 16 enterprises were analyzed.

Multiple case studies were conducted to effectively validate the reproducibility of this study. Furthermore, the collected data were certified by professional researchers using a triangulation methodology. In this triangulation methodology, one investigator, two PhD students, and one master student (four people in total) jointly analyzed the data to identify any inconsistency in the analysis. In addition, related theories, such as the theory of Van der Aa and Elfring [29], were compared and interpreted in the triangulation method (Denzin, [35]; Patton, [36]).

A grounded theory was used to identify meaningful concepts from the collected data to develop an appropriate theory. In this approach, the interpretation process involves identifying the correlation between collected data and theories (Riley, [37]). This method is widely used in fields of study lacking sufficient literature because it enables researchers to develop a well-structured theory according to their understandings when no clear concepts are defined before the initiation of the research (Daengbuppaha et al., [38]).

Table 1 shows the coding and data analysis procedures. The first coding procedure involved dividing the interview transcription into several sections, then summarizing every section and assigning a code (e.g., F1-Q1-P1-L1~2, which represents firm 1, question 1, page 1, and line 1-2). A coded data section is considered an analysis unit.

<table>
<thead>
<tr>
<th>Text</th>
<th>Coding</th>
<th>Meaning units</th>
<th>Open coding</th>
<th>Axis coding</th>
<th>Selective coding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation in apps, integrating various customer needs into one single page to increase the willingness of customers to use and query such systems by using mobile devices, thus attracting more users</td>
<td>F9-Q1-P1-L7~8</td>
<td>To integrate various functions and needs</td>
<td>Service integration</td>
<td>Integration</td>
<td>Innovation principle</td>
</tr>
<tr>
<td>Innovations in mobile apps</td>
<td>App development</td>
<td>Technology application</td>
<td>Innovation regime</td>
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</table>
The objective of open coding is to identify the discrete concepts or the building blocks of the data, with a focus on the nouns and verbs used to describe a specific conceptual world (Bakir & Baxter, [39]; Daengbuppa et al., [38]). After the context of the cases was determined, the field notes were analyzed and open-coded before proceeding to the next interview (Bakir & Baxter, [39]). The feature of analysis can be a sentence, paragraph, or episode (Daengbuppa et al., [38]). This stage comprised 11 concepts regarding “service innovation” (Table 2, first column). In the second coding procedure, at the axial coding stage, the interconnected open codes were grouped to generate tentative statements of relationships among phenomena (Daengbuppa et al., [38]), and five subcategories emerged. Finally, selective coding was used to integrate and develop the theoretical concepts in this study, and these concepts were later regrouped into two categories, namely service concepts and service regime (Table 2).

<table>
<thead>
<tr>
<th>Concept Subcategory</th>
<th>Category</th>
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<tbody>
<tr>
<td>Integrate various separated services</td>
<td>Integration</td>
</tr>
<tr>
<td>Resources concentration</td>
<td></td>
</tr>
<tr>
<td>Simplified procedures</td>
<td></td>
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<tr>
<td>Enter into new service areas</td>
<td>Expandability</td>
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<tr>
<td>Fitness for service</td>
<td></td>
</tr>
<tr>
<td>Carefulness</td>
<td>Details</td>
</tr>
<tr>
<td>More considerate</td>
<td></td>
</tr>
<tr>
<td>Software Development</td>
<td>ICT</td>
</tr>
<tr>
<td>Purchase ICT system</td>
<td></td>
</tr>
<tr>
<td>Human touch</td>
<td>Non-ICT</td>
</tr>
<tr>
<td>More flexibility</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2. Main category and concept of service innovation

4. Results

After analysis, two main categories were established: innovation principle and innovation regime (for detailed subcategories and concepts, please refer to Table 2). A service innovation enables an organization to improve its services to effectively meet various customer needs with higher product and service values (Jan & Christian, [40]). Service innovation in new services is aimed at changing the characteristics and risks of new products (Djellal & Gallouj, [23]). Innovation principle refers to the concept of new service designs, including integration, expandability, and details. The integration concept involves integrating various separated services to effectively manage resources and simplify services to enable customers to easily understand a service process; an example of the integration concept is a POS system, which can integrate ordering, preparation, serving, and payment processes into a single system, such as a single menu provided in a restaurant. The expandability concept involves expanding products into other service areas. However, the compatibility of expanding services and existing services should be thoroughly evaluated. For example, a chocolate company also provides free coffee and tea to customers. In addition, to ensure the provision of high-standard services, employees should focus on the details of customers and endeavor to be highly considerate of customers. For example, a restaurant can record customers’ birthdays and send notifications and invitations to them before their birthdays. Therefore, this service innovation concept makes customers feel valued.

The innovation regime (Chang, Linton, & Chen, [41]) involves identifying ICT in service innovations. Some service innovation cases require appropriate technologies to achieve new designs (Sirilli & Evangelista, [42]; Van der Aa & Elfring, [29]; Bygstad & Lanestedt, [43]; Añón Hígón & Stoneman, [44]). For most new service concepts, new technologies are necessary for achieving high effectiveness and quality to increase customers’ interaction and involvement with products (den Hertog, [20]). However, one major characteristic of technological innovation in service enterprises is difficulty in providing funds for research and development activities, though only few enterprises undertake such activities. Mostly, enterprises tend to purchase technological products and services; few enterprises have departments or units dedicated to developing software and equipment. Nevertheless, not every innovation requires them. Non-technological innovations are unique in service innovations and play essential roles in the service sector (Hollenstein, [2]). For example, staff members (den Hertog, [20]) can efficiently convey service concepts and company cultures to customers with a more personal touch by using appropriate introduction and communication strategies. With this concept, services have more flexibility to effectively satisfy diverse needs and customers, which is similar to performing magic tricks for children in a restaurant.

Three innovative cases indicate the concept of “Cocreation.” Service innovation concepts should be transformed from traditional goods-dominant logic to service-dominant logic (Lusch & Vargo, [45]; Vargo & Lusch, [46]). All service innovations demonstrate cocreation contexts and meanings. From the aspect of products, value cocreation is superior to value coproduction (Ramirez, [47]), and corporations are higher than mere suppliers. Involving customers in production processes may become a mainstream strategy because customers can express their needs and demands to producers, enabling producers to satisfy these requirements (Toivonen & Tuominen, [48]). Therefore, companies can invite customers to create partnerships to achieve optimal service innovations. In value creation processes, in addition to coproducing, consumers can be invited by service providers to produce, regulate, and plan products to help service providers design, develop, and produce goods that effectively meet customer requirements; a win-win situation is thus created (Lusch, Vargo, & Tanniru, [49]; Vargo & Lusch, [50]; Chen, Tsou, & Ching, [51]). However, in the
food and beverage industry, few enterprises promote customer participation in final consumption processes, such as self-seating, meals, and meal collection; this type of service innovation can reduce labor costs and product prices. Enterprises and customers both create value from service innovation, leading to value cocreation effects.

In particular, regarding value cocreation, service-dominant logic emphasizes information and technology supports from service providers to customers to be further involved in the purchasing activities of customers, and eventually affects their preferences.

5. Conclusions

This study applied grounded theory (Goulding, [52]) and determined service innovation patterns in the food and beverage industry from the aspect of design concepts. Unlike previous studies that have focused on innovation patterns (Hjalager, [6]; Chang, Linton, & Chen, [41]) or typologies (Pavitt, [16]; Soete & Miozzo, [17]; Miozzo & Soete, [18]; van der Aa & Elfring, [29]), this study examined two categories, namely innovation principle and innovation regime, involving five subcategories and explained service development in the food and beverage industry. This study initially proposed only three service principles. In particular, determining an effective method for configuring resources is imperative. Therefore, in the future, the service principles demonstrating optimal performance will be explored.

Service innovations in the process dimension may lead to new service delivery systems. Although such systems are expensive, their primary purposes are to enhance service efficiency, provide customers with service value, encourage communication and exchange between service providers and customers, establish customer relationships, acquire information, and enable the implementation of innovations that are closer to customer demands. New service delivery systems must be integrated with enterprises’ internal personnel planning, skill training, and organizational management strategies (Avlonitis et.al, [28]). However, in most service innovation cases, non-ICT based systems are adopted; such systems deliver intangible products and services to customers through simple process refinement, actual employee contact, and service interaction with customers. These types of service innovations also increase the probability of the innovations being accepted and used.

Value cocreation was also identified in this study. Some service innovation cases support only customers’ participation in actual service processes and do not support their full participation in service cocreation activities. In the food and beverage industry, cocreation activities require customer investments in terms of skills, time, money, and psychological efforts; customers compare the potential benefits and costs of cocreation activities. Moreover, the effects of these activities on firm outcomes are still unclear, and customers’ assessment of their own input influences their assessment of their overall satisfaction with the service company (Bendapudi & Leone, [53]). However, empirical evidence of cocreation research in the tourism industry is scarce and several research questions are still unanswered. In addition, additional studies should be devoted to the drivers of cocreation activities in terms of firm actions and processes (van Doorn et al., [54]). Therefore, the current study is a follow-up on calls for further research on customer cocreation and theoretically and empirically investigated a model of antecedents and consequences of customer cocreation in tourism services.

Regarding managerial implications, this study can guide food and beverage owners to understand service innovation patterns, existing resources in their companies, and the status quo of services, thus helping them determine next innovation potentials and opportunities. Regarding future studies, this study presents quantitative variables and items to that can be used to extensively examine service innovations and the general concept of service innovation in Taiwan food and beverage enterprises. Furthermore, with slight modifications, the procedures of this study can be extended to the hotel or tourism industry to develop a complete structure for service innovations in the tourism industry. Finally, how measures the performance of innovation is an interesting issue, this study suggests integrating the SERVQUAL service quality model were collapsed into five factors -reliability, assurance, tangibles, empathy and responsiveness to explore the relationship with innovation and service quality.

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tourism. Tourism Management, 31(1), 1-12.


