

## The influence of functionality and innovativeness of smart service systems on customer's impulse buying behaviors

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**Abstract:** This research aims to analyze the effect of two external factors—the functionality and innovativeness of smart service systems (SSSs)—on customers' impulse purchasing behavior using the stimulus-organism-response (SOR) model. We collected data using a questionnaire survey, yielding 272 valid responses. The data was then analyzed using structural equation modeling (SEM). The study found that SSS functionality and innovativeness positively influenced experience value, which in turn significantly affected perceived pleasure and usefulness, promoting impulse buying behaviors. This study examines how external environmental stimuli in SSSs prompt impulse buying using the SOR framework, focusing on "experience value." The study found that SSS functionality enhances time-saving, usefulness, customer involvement, and business scale, leading to increased service use and positive customer experiences, ultimately promoting impulse buying behaviors. This study contributes to academic knowledge by integrating experience value into the S-O-R framework, demonstrating that SSS functionality and innovativeness significantly enhance customer experience value, perceived usefulness, and pleasure, thereby promoting impulse buying behaviors. The study shows smart meal-ordering systems enhance efficiency and customer satisfaction. Operators should optimize system value, expand payment options, improve service quality, and use visual and social marketing to boost customer engagement and impulse buying behaviors.

**Keywords:** *Experiential value, Impulse buying behaviors, Innovativeness, Functionality, Smart service systems, SOR, Perceived system pleasure.*

### 1. Introduction

With the advancement of technology in Taiwan and the change in consumption patterns, introducing smart service technology into the food service industry is gradually becoming a new operating model in Taiwan. It has been reported that the technology of non-contact mode is expected to be mainstream in 2021 and is predicted to triple the global growth of payment amounts with non-contact mode by 2024. The operating model of the food service industry is increasingly shifting to smart service systems (SSSs), which can effectively reduce investment costs and improve the quality of services through the operation of self-service technology. According to the results of the Market Intelligence & Consulting Institute analysis, 53.3% of people used SSSs during the outbreak period in the first half-year of 2020. The general public mainly stayed at home due to the outbreak of COVID-19 that impacted people worldwide, resulting in an explosive growth in mobile payments. The economic survey by Cathay Financial Holdings showed that people are changing their buying behaviors, which consume on the Internet due to the inconvenience of going out. Good experiential marketing brings customers positive experience value and helps them realize the product's value directly and build a sense of identity, preference, and satisfaction [1, 2]. Indeed, some scholars have argued that experience value is an important intermediary between service innovation

and customer response [3]. However, the influence of the innovativeness of SSSs on the experiential value provided by SSSs has not been consistently concluded.

Manganari, et al. [4] explored the behavioral responses of customers in a virtual environment by the S-O-R (stimulus-organism-response) model and stated that external stimuli in such an environment are constituted through various virtual cues. In other words, customers often feel different stimuli when they make the ordering decision for food, such as the functionality and innovativeness of SSSs, the experience value of personal cognitive, which combine to affect customers' internal states (cognition and emotions), and further generate the result of the response. However, little literature has clarified the relationship between the experiential stimuli customers experience and how they trigger the impulse to order in the virtual context of the smart and innovative service for ordering systems. Among consumer behavior theories, research on impulse buying has drawn much attention from scholars and experts since customers will simplify and eliminate the process of rational judgment and consideration during impulsive consumption [5-7]. In particular, more than half of customers have experienced impulse buying behaviors in the context of e-commerce. With the convenience and immediacy brought by the development of smart and innovative service systems, it has become a trend for customers to order food through intelligent service systems. According to the Market Intelligence & Consulting Institute (MIC) research, the e-commerce systems will move from rational to emotional competition, and the smart service systems will focus on how to induce customers to place valuable impulse orders.

This study attempts to reduce the gap in the literature by examining the linkages among the functionality and innovativeness of SSSs, experience value, customers' internal states (cognition and emotions), and their impulse buying behaviors. Key research questions that motivate our work are: What constitutes the functionality and innovativeness of SSSs, and what experiential value is provided by SSSs? How might such variables be measured? How are innovativeness and functionality of SSSs measured related to experience value in terms of epistemic, conditional, functional, emotional, and social value? What are the antecedents and consequences of customers' internal states (cognition and emotions)? This research examines how customers use visual prompts to drive their impulse buying behaviors in smart service systems. Based on the S-O-R model from Manganari, et al. [4] this study examines the functionality and innovativeness of SSSs' effect on the experiential value provided by SSSs and explores the subsequent effects on customers' internal states (cognition and emotions) and their impulse buying behaviors. Initially, the environmental stimulus cues (virtual cues) in recent literature regarding impulse buying behaviors on the internet are integrated as the experience provider. Next, it will move to environmental stimulation, which includes innovativeness and functionality of SSSs, experience value stimulation, and understanding customers' impulse buying behaviors through those that influence customers' state of cognition and emotions. Specifically, this study examines the innovativeness and functionality of SSSs, which the experiential value provided by SSSs impact, explores the impact of experience value on perceived system usefulness (i.e., cognition) and pleasure (i.e., emotions), and explores the effects of perceived system usefulness and pleasure on customers' impulse buying behaviors.

This study unfolds in the following manner: The subsequent section delves into the background literature, covering topics such as the relational view, S-O-R model, functionality, innovativeness of smart service systems, and experience value, while also formulating research hypotheses. Following this, an empirical study is presented to test these hypotheses. Finally, the last section deliberates on the findings and their theoretical and managerial implications.

## 2. Theoretical Foundation

### 2.1. S-O-R Model

Han, et al. [8] proposed the application of the S-O-R model, which explains how sudden changes in the environment can affect individuals' psychological and emotional stability, thereby further driving behavioral changes. The model was further extended by Reynolds and Wells [9] who, from a psychological perspective to explore consumer behavior, which includes the stimulus (S) that causes the consumer to respond, the organism (O) means that the impact on the consumer and the response (R)

shows that the results of the consumer's response to the stimulus. The S-O-R model has been widely applied to customers' buying patterns, and many studies have pointed out that the external environment stimulates their buying behaviors and influences the consumer's internal state to make purchase decisions, such as behavioral responses. [Bigne, et al. \[10\]](#) and [Cao and Sun \[11\]](#) defined stimulus as a factor of evoking individuals. Our research is based on the S-O-R model to explore smart service systems and impulse buying behaviors, which focuses on three technical characteristics, including the functionality of SSSs, innovativeness of SSSs, and experience value that are viewed as external stimuli. In addition, perceived system pleasure and usefulness are taken as internal individual states (Organism) and further influence customers' impulse buying as behavioral responses (Response). The research will argue that the functionality and innovativeness of SSSs are the most important factors for experience value. In contrast, the value will significantly affect perceived system pleasure and usefulness and customers' impulse buying behaviors.

### 2.2. Functionality of SSSs

[Henkens, et al. \[12\]](#) defined smart service systems while most customers currently pay in cash in the domestic food service industry. Therefore, this study defines smart service systems as self-service machines that require customers to complete orders themselves, including part interaction with service staff. Many catering owners in Taiwan have been gradually launching various SSSs. Some differences in type are broadly divided into push-button and touchscreen, as well as smart ordering tablets or mobile for online ordering and payment. Hence, the scope of this study is all types of SSSs.

Regarding the functionality of SSSs, [MacKenzie-Shalders, et al. \[13\]](#) indicated that the meal-ordering system includes making orders, viewing orders, order status and notifications, managing payment, menu and meal information, advertising and promotion, managing raw materials, and reporting based on its functions. In addition, the service function of direct interaction with customers includes ordering, viewing orders, order status and notifications, managing payments, menu and meal information, and advertising and promotion. In summary, this research classifies the functionality of SSSs into three main ordering systems: (1) Ordering management system: an ordering management system for self-service with a technical basis [\[14\]](#). Most service model in the country adopts highly face-to-face service, which requires customers to interact and approach staff and service facilities actively [\[15\]](#) (2) Payment management system: In the payment management system of the smart service systems, users can use not only cash payment but also mobile payment, including e-payment, e-ticket, third party payment, and mobile payment. Mobile payment is an applied payment technology that customers use on mobile devices or at the Point of Sale to purchase goods over the Internet. Thus, the payment instrument in this research defines a payment management system as a system that allows customers to choose a payment instrument and transaction amount on a food ordering system and (3) Push marketing system: As the front line of contact with customers, intelligent meal-ordering services not only need to provide fast and efficient service, but also need to inform customers about meal features, promote products and provide a unique experience, and even offer more special packages and marketing activities. This study defines a push marketing system as push advertising and a combination of promotional marketing and discounts that customers can see on the ordering system.

### 2.3. Innovativeness of SSSs

[Lee, et al. \[16\]](#); [Peng and Li \[17\]](#) and [Tajeddini, et al. \[18\]](#) defined service innovation as a new process or service offering implemented by an organization and adopted by one or more participants in Internet services that create value. With the advancement of technology, [Franklin, et al. \[19\]](#) pointed out that information technology (IT) plays a crucial role in service innovation. In the meantime, innovation is also about integrating and reorganizing resources across departments rather than simply adopting new technologies and creating radical innovations. [Martin, et al. \[20\]](#) stated that service innovation is possible by involving new service development and new or improved delivery processes. Hence, this research adopts the concept of service innovation and defines the Innovativeness of SSSs, which is to improve the

smart service systems that can respond to the diversified needs of customers, resulting in creating more potential functions in information systems to support meal-ordering from customers.

According to [Hertog \[21\]](#) our research on the innovativeness of SSSs can be subdivided into four categories as follows: (1) New service concept: it is formed by smart service systems with a new type of service, and the key is that provide customers with a new service process and offer customers an experience with a new service model. (2) New client interface: It emphasizes the interaction and connection between the firm and its clients by SSSs. It provides close-knit links for existing and potential clients to form an intensive connection network and offers a wide range of services through customized services. (3) New service delivery system: This involves the internal arrangement of the firm, which requires a new organizational structure, providing professional training to develop the service into a more professional one. Besides, building smart service systems between the service provider and the customer allows both to communicate and share experiences through such systems. (4) Technological options: SSSs are necessary for service innovation and service innovation that is closely related to technology.

The concepts about new services are applied to SSSs in the food service industry, and they are supposed to be stimulated after owners in the food service industry understand their service characteristics and the advantages of their competitors. In addition, when the new client interface is combined with the firm's market information, it will help design an appropriate service interface once the firm understands the capabilities and needs of existing and potential customers. Moreover, assuming the new service system links to the firm's human resources, the firm needs to be equipped with the knowledge to implement innovative services to enhance the performance of SSSs. This study is based on the concept of the four dimensions of service innovation from [Hertog \[21\]](#) to develop indicators and measurements for the innovativeness of SSSs.

#### 2.4. Experience Value

[Yrjölä, et al. \[2\]](#) argued that experience value is key in forming customer touchpoints for suppliers to enhance the customer experience. [Hwang and Seo \[22\]](#) stated that the experience value of the customer is a holistic structure comprising multiple stages, which can be divided into pre- and post-experience, with different feelings and evaluations arising from the service or interactive experience. In this study, experience value is defined as the experience that a customer engages in during SSSs and how it can leave an unforgettable experience in the consumer's mind and create a good impression for the company. According to [Sheth, et al. \[23\]](#) our study on the experiential value provided by SSSs can be subdivided into four categories: (1) Functional value: it refers to the performance obtained from functions of SSSs, utility or external attributes of a product/service. (2) Social value: The benefits of SSSs are that they can offer connections with customers and other social groups. (3) Emotional value: This refers to the fact that the application of SSSs usually changes the thoughts and feelings of the customer due to emotional factors. (4) Epistemic value: when the SSSs create a sense of novelty or curiosity in customers, thus satisfying the desire for knowledge. In other words, customers generate a desire to use SSSs if they are unique and novel. (5) Conditional value refers to the value or utility of SSSs that increase in certain circumstances. [Mathwick, et al. \[24\]](#) developed types of experience value based on the vertical axis of the intrinsic, extrinsic, and horizontal axis of active and passive value. According to the above literature review, many scholars believe that experience value is an evaluation of the overall feeling of a service or product and can also be measured in terms of internal and external values. This research is based on the framework from [Sheth, et al. \[23\]](#) as a measure of experience value to examine the experience value of customers who have used SSSs through five dimensions: functional value, social value, emotional value, novelty value, and conditional value.

#### 2.5. Impulse Buying Behaviors

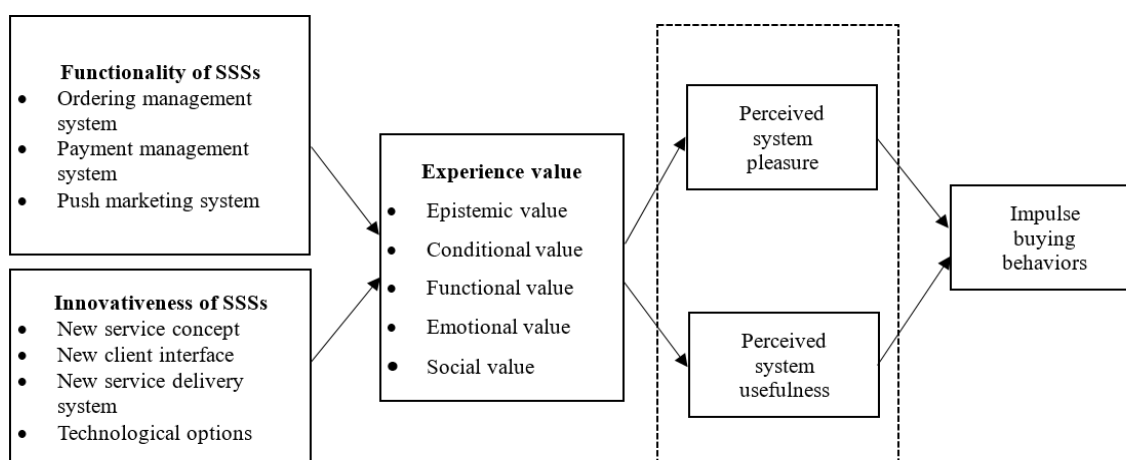
[Zhang, et al. \[25\]](#) believe that impulse buying behaviors are a psychological state of desire, which is a spontaneous, sudden, and unplanned buying behavior. [Setyani, et al. \[26\]](#) defined impulse buying as unplanned buying behavior characterized by quick purchase decisions and a preference for subjective and

immediate access to products. Jeffrey and Hodge [27] argued that customers respond immediately after being stimulated. Online impulsive buying is sudden and immediate customers' buying behaviors without prior purchase intention [28]. According to the definition of impulsive buying by many scholars mentioned above, the characteristics of impulse buying behaviors are often shown by a strong desire to buy spontaneously, immediately, and unplanned. At the same time, customers involve their own cognitive and emotional reactions during the process and are also increasingly valued. The concept of the urge to buy impulsively, which is impulse buying behavior, occurs as customers feel an urge to buy. The relationship between impulse buying behaviors and the individual state has been tested, finding that the more positive the emotional state, the more positively it affects customers to buy impulsively [29]. In summary, this study defines impulse buying behaviors as customers experiencing spontaneous and unplanned strong buying impulses that involve cognitive considerations and emotional dictates that lead to immediate ordering behavior.

### 3. Research Hypotheses

#### 3.1. Research Model

According to the past literature review, experience value is the ultimate behavior of customers that is influenced by cognitive and emotional state changes, and customers seek to experience the value of their overall consumer behavior [30]. In research on impulsive buying on online SSSs, many scholars have explored the factors that contribute to the impulse to buy from different perspectives [26, 31, 32]. Thus, this study is based on the S-O-R model and aims to examine the variation of the S-O-R model as a stimulus, which explores how it changes consumer sentiment and ultimately influences consumer behavior. The final phase in S-O-R is a behavioral response. Bigne also argued that it is the outcome of an individual's decision-making process and may influence whether a customer stays in the environment or chooses to leave it. Specifically, this study adopts the S-O-R theory to examine customers' relevance to using SSSs for impulse buying behaviors. The functionality of SSSs, Innovativeness of SSSs, and experience value are used as external stimuli. The cognition state (i.e., perceived system usefulness) and emotions state (i.e., perceived system pleasure) generated by the user after receiving the external stimuli are used as internal personal states, and the impulsive buying of customers, which is triggered is viewed as a response. This research discusses how the functionality and innovativeness of SSSs and the experience value provided by SSSs affect customers' internal perceptions and emotional states, which in turn influence impulse buying behaviors. The research framework is shown in Figure 1.



**Figure 1.**  
Research model.



### 3.2. Factors Affecting Experience Value

The smart service systems provide multi-functional services (e.g., ordering management systems, payment management systems, and push marketing systems), allowing customers to experience different experience values. In a previous study by Scherer, et al. [33] which examined consumer acceptance of self-service technology with the Technology Acceptance Model, it was shown that the promotion of discount marketing on SSSs increased the willingness of customers to share their experiences with others. In terms of the willingness to accept and the experience value of self-service ordering function in the food service industry, it was found that there is a significant influence on the degree of customers' experience value depending on different management systems of self-service ordering systems. For instance, the SSSs can collect order records and provide services that match customers' preferences with more precise information on their systems. In a study of self-service systems, Yan, et al. [34] learned that payment management systems and push marketing systems positively influence customer experience value. In contrast, the function of complexity has a negative impact on attitudes towards usage. Yrjölä, et al. [2] employed a questionnaire to investigate customers' experience value of the system by providing suggestions on the product portfolio to them, which can receive positive feedback from customers. To explore the functionality of SSSs and their influence on the experience value of customers who use SSSs. The dimensions of innovativeness of SSSs in this study include ordering management systems, payment management systems, and push marketing systems.

*H<sub>1</sub>: The functionality of SSSs is positively related to consumer experience value.*

Research by Lee, et al. [16] shows that service innovation significantly impacts customer experience value. Verma and Jayasimha [35] indicated that service innovation enables service providers to meet customer needs and enable customers to experience system functions' completeness. In the research on the correlation between service quality and customer value on e-commerce websites, Rintamäki and Saarijärvi [36] found that new service delivery systems have a remarkable positive impact on customer value, especially its new service concept and technological options are even more evident. The firms adopt service innovation with advanced technologies that can provide new value to customers [37]. This study argues that customers also demonstrate the value of products and services through the innovativeness of SSSs and by connecting systems with customers while using a smart meal-ordering system. The dimensions of innovativeness of SSSs in this study include new service concepts, new client interfaces, new service delivery, and technological options.

*H<sub>2</sub>: The innovativeness of SSSs is positively related to customers' experience value.*

### 3.3. Outcomes of Customers' Experience Value

Hwang and Seo [22] claimed that experience contains a value, which means experience value, and that experience can create extraordinary value depending on the satisfaction of people's psychological needs. The experience value is the perceived value of a service or product due to self-perception and measurement, which leads to a preference for the service or product, and the resulting feeling state and cognitive state affect purchase intentions [24]. According to Nigam [38] experience value is a feeling that involves using products and services in a process that customers perceive and interact with. During the buying process using SSSs, the more positive the consumer's emotional response, the more perceived system pleasure is generated. Moreover, Parboteeah, et al. [39] suggested task-relevant messages and mood-relevant cues as external stimuli to influence their emotional state (perceived system pleasure) through system information of customers' perception. Grierson, et al. [40] indicated that system operators provide task-relevant information to create consumer awareness and problem-solving experiences, which enables customers to raise their cognitive evaluation of the online store. In smart service systems, creating customers immersed in positive emotional reactions and a good ordering atmosphere can positively affect the emotional state of the customers (i.e., perceived system pleasure), which in turn motivates customers to purchase. When customers use smart service systems, they can feel that customers who receive good services will have an emotional state (i.e., perceived system pleasure).

*H<sub>3</sub>: Customers' experience value is positively related to perceived system pleasure.*

A customer's experience value is a cognitive state that encompasses various experiences and arises from a service or interactive experience. When using a smart meal-ordering system, customers browse the system and generate a cognitive state such as perceived system usefulness. The store on the system can provide virtual information related to experiential value, such as the ambiance of the system [41] the system context [1] and the feeling when interacting or browsing the website Parboteeah, et al. [39]. Verhagen and van Dolen [28] pointed out that the degree of fit-to-task is one of the most important factors influencing cognitive states, websites with recommendation features, and ease-of-learning websites [42]. Studies on impulsive buying on the Internet also mentioned the relationship between the related experience and the cognitive state of the individual; for instance, Parboteeah, et al. [39] pointed out that a website with personalized settings can boost customers' perceptions of the online store, and Dawson and Kim [42] indicated that online stores hold events which gain a chance to participate in a contest or sweepstakes once purchased or offer customer favorite category pages and member discounts that can generate links to viewers themselves and social community as well as arise the perceived system usefulness. By shaping customers' sense of presence and social presence in smart service systems, customers' perceived system usefulness is affected by the cognitive evaluation of online stores.

*H<sub>4</sub>: Customers' experience value is positively related to perceived system usefulness.*

In studies on impulse buying behaviors, Sofi and Najjar [29] tested the relationship between individual state and impulse buying behaviors, which states that the more positive the emotional state is, the more positively it affects the impulsive buying of customers. In addition, Parboteeah, et al. [39] also indicated that it is necessary to maximize the emotional response of customers if it is to enhance the occurrence of impulse buying behaviors. Lee, et al. [43] also demonstrated that the more positive (e.g., perceived system pleasure) the emotional response of the viewer is in the process of online impulsive buying, the more likely it is that the viewer is willing to stay in the online store and positively influence the impulsive buying through increased exposure to stimuli. However, impulsive buying is an emotionally driven buying behavior [44] in the cognitive state of an individual that affects the impulse buying behaviors indirectly through the emotional state rather than directly impacting impulse buying behaviors [39].

*H<sub>5</sub>: The perceived system pleasure of customers is positively related to their impulse buying behaviors.*

Impulse buying behaviors are that customers feel an immediate desire to buy [27, 45] and customers need to be aware of messages that allow them to purchase products immediately, such as task-relevant messages provided by SSSs as environmental stimuli, which are virtual cues that influence consumer perception. Customers who interact with a food ordering system generate cognitive evaluations through these virtual messages, influencing their emotional responses. Parboteeah, et al. [39] stated that the evaluation of consumer perception states (i.e., perceived system usefulness) can boost their buying decisions on impulse [45]. Conversely, if customers perceived the SSSs negatively, such as the website being difficult to navigate or use, leading to customers perceiving system usefulness negatively and discouraging buying behaviors.

*H<sub>6</sub>: The perceived system usefulness of customers is positively related to their impulse buying behaviors.*

## 4. Methodology

### 4.1. Measurement of the Variables

Based on literature on smart ordering, this article explores the functionality and innovativeness of SSSs in the food service industry through on-site interviews and content analysis. The smart system's functionality, measured as a second-order construct, includes three formative first-order dimensions: ordering management, payment management, and push marketing systems [14]. The innovativeness of SSSs, also a second-order construct, includes four formative first-order dimensions: new service concept, new client interface, new service delivery system, and technological options [21]. Experience value, adapted from Sheth, et al. [23]; Mathwick, et al. [24] and Nigam [38] measures consumer involvement in smart meal-ordering behaviors as a second-order construct with five formative first-order dimensions: epistemic, conditional, functional, emotional, and social values. Perceived system pleasure and perceived system usefulness were assessed using three-item instruments adapted from Eroglu, et al. [46] and

Parboteeah, et al. [39]. Impulse buying was evaluated using scales from Beatty and Ferrell [45] and Verhagen and van Dolen [28].

#### 4.2. Research Participants and Data Collection

This study's questions for unstructured interviews with senior managers in the Taiwanese food service industry were developed based on theoretical literature. The interview results helped refine the questionnaire items, also based on prior research. Senior managers then completed the questionnaire to ensure its validity and feasibility.

We distributed 490 questionnaires via email and postal services, including a cover letter and a self-addressed stamped envelope. Initially, we received 89 responses. After follow-up phone calls, we obtained 185 responses, achieving a final response rate of 55.9%. Three incomplete questionnaires were excluded, leaving 272 valid responses.

Data collection used questionnaires, and analysis employed Structural Equation Modeling (SEM) with the SmartPLS Partial Least Squares (PLS) methodology. SEM tests and estimates causal relationships among variables, while PLS is a specific SEM approach suitable for exploring complex relationships, especially with smaller sample sizes or non-normal data distributions.

## 5. Analysis and Results

This study utilized Structural Equation Modeling (SEM) with SmartPLS Partial Least Squares (PLS), a flexible method for representing formative and reflective latent constructs with minimal assumptions on measurement scale, sample size, and distribution. Confirmatory Factor Analysis (CFA) assessed the measurement model, followed by the development of a structural model for hypothesis testing.

The analysis included standardized loadings, reliability, validity measures, and other metrics. All construct items in the measurement model showed factor loadings between 0.586 and 0.965, confirming their suitability for further analysis. Reliability assessments exceeded the recommended threshold of 0.70 [47] and Average Variance Extracted (AVE) values met the satisfactory threshold of 0.50 [47] for all constructs. Discriminant validity was confirmed, as each construct's square root of AVE exceeded its correlations with other constructs, in line with Fornell and Larcker [48] criteria (Table 1).

**Table 1.**  
Discriminant validity.

Variables	1	2	3	4	5	6	7	8	9
1. Functionality of SSSs	0.752								
2. Innovativeness of SSSs	0.423	0.756							
3. Experience value	0.365	0.485	0.815						
4. Perceived system pleasure	0.410	0.335	0.475	0.785					
5. Perceived system usefulness	0.341	0.385	0.388	0.410	0.791				
6. Impulse buying behaviors	0.268	0.341	0.371	0.289	0.423	0.795			

**Note:** The diagonals represent the square root of the average variance extracted, while the other matrix entries represent the correlations.

The data analysis employed PLS with bootstrap resampling. The structural model revealed  $R^2$  values, indicating the variance explained by independent variables and coefficients depicting causal relationships between constructs. SSS functionality ( $\beta = 0.321$ ,  $t = 3.125$ ) positively influenced Experience value, supporting H1. Similarly, the Innovativeness of SSSs ( $\beta = 0.195$ ,  $t = 2.825$ ) positively affected the Experience value, supporting H2. Experience value significantly influenced perceived system pleasure ( $\beta = 0.451$ ,  $t = 5.952$ ) and perceived system usefulness ( $\beta = 0.536$ ,  $t = 6.952$ ), confirming H3 and H4. Furthermore, perceived pleasure ( $\beta = 0.165$ ,  $t = 2.123$ ) and system usefulness ( $\beta = 0.135$ ,  $t = 1.952$ ) promoted impulse buying behaviors, supporting H5 and H6.



## 6. Discussion

In studies regarding impulse buying behavior in the context of SSSs, various external environmental stimuli prompts are explored using the Stimulus-Organism-Response (SOR) empirical research framework, confirming associations between various stimulus prompts and the generation of impulse buying responses through the individual's perceived system pleasure and perceived system usefulness. This study, from the perspective of "experience value" and the SOR theory, examines through an experience grid what experiential mediators lead to impulse buying on the internet and utilizes relevant research findings on internet impulse buying as experiential mediators provided by online stores. Additionally, using an experiential marketing module, it scrutinizes whether the experiential context offered by online stores is sufficient to evoke impulse buying on smart service systems.

Using SSSs has a positive impact on customers in terms of time-saving, usefulness, customer involvement, and business scale, which is consistent with the findings of this study. Therefore, it can be inferred that by utilizing SSSs with diverse functionalities and convenient services, customers are provided with multiple new channels for service or transactions. Such enhancements in service delivery facilitate this gradual increase in the use of innovative service systems and the subsequent evaluation and experience of customers after using SSSs.

Past research has shown that service innovation by adopting advanced technologies can provide new value to customers. Many studies indicate that environmental networks play a crucial role in the success of service innovation [49] which is consistent with the findings of this study. Therefore, it can be inferred that businesses adopting innovative services can enhance service professionalism, promote innovation in service equipment, and maintain diverse interactions and connections with customers through new service processes. Consequently, this can attract customers to experience the value of using SSSs.

## 7. Conclusion

### 7.1. Theoretical Implications

From the perspective of academic contribution, although these findings refer to the S-O-R structure, this research still indicates replacing environmental stimulus prompts with experience value modules. This study provides a different classification method and separate environmental stimulus prompts based on the attributes of experience value modules. The investigation of belonging has shown that it is an approach with the same inner mental function that interprets the effects of individual cognition and emotions. As for the relevant environmental stimulus tips for impulse buying behaviors, research takes advantage of the S-O-R model, including experience value. One of the significant outcomes is that our study establishes the S-O-R framework in the context of SSSs. Our results support the framework's expectation that SSSs play a critical role in customer experience value and enhance impulse buying behaviors. The empirical findings will demonstrate that the functionality and innovativeness of SSSs significantly affect customers' experience value, which benefits in improving their internal states. The antecedent role of the functionality of SSSs and the innovativeness of SSSs in the experience value has yet to be theoretically addressed. However, the results prove that value provision is knowledge in action. This work contributes to existing knowledge by showing the superiority of a research model where the innovativeness and functionality of SSSs affect the experience value. Taken together, these discoveries recommend a role for customers' experience value in promoting their perceived system usefulness and pleasure, which affects their resulting impulse buying behaviors.

### 7.2. Managerial Implications

The results of this investigation show that the smart meal-ordering system and its functional system assist customers in finding menu types efficiently. This study provides a comprehensive recommendation that operators should optimize the value and effectiveness of meal-ordering systems, not just establish a workable ordering system. In terms of service equipment and process, this study proves that adapting is a key component to enhance the SSSs quality to boost customers to share it with other customers for further use. In terms of payment function systems, this research recommends that SSSs operators

cooperate with more payment systems partners, which can increase customer payment channels and the value of the SSSs. Through customers' service channels and the feedback they receive, they are gathered to improve the service of meal-ordering systems by utilizing analyzed information to meet customer needs and even exceed their expectations.

The service industry can make good use of advertising functions, such as launching product promotions or reducing shipping fees for the purpose of increasing system usage. Also, the current data highlights the importance of the merchandise photos. Well-designed photos help customers understand the content of the product when choosing a dining spot. The visual display of promotional content should add related links with business location and advance in the improvement of the catering business exposure rate, product click rate, and sharing rate. Consequently, this study recommends that operators of SSSs emphasize the visual display, which makes customers understand goods information through attractive advertisements, such as discounts and notifications. To promote the catering types and corresponding marketing content to customers, operators of SSSs are recommended to utilize a registration function to connect with customers, which allows customers to view previous order records and service channels by phone. Generally, the food service industry will investigate current consumer requirements and market trends to adjust products regarding consumer positioning and sales. Increasing customers' acceptance of customized needs and providing more convenient services will affect customers' impulse buying behaviors.

This study will identify that after using SSSs, many customers can find this system convenient and practical during the experience; likewise, most customers will share their experience with friends or life circles. With the spread of SSSs, the transmission of information will lead to a significant word-of-mouth effect on community users. Hence, operators of SSSs should grasp social marketing skills and boost consumer connections, which will improve the influence of the system and win the hearts of customers. One of the methods is that the operators can use social links to strengthen the connection with customers through preferential activities and discounts. More attention should be paid to the customer's experience to understand customers' needs and ideas and increase purchase intentions.

### 7.3. Limitations and Future Research

The research limitations and suggestions for future research directions of this study. There is limited literature exploring impulse buying in SSSs from the perspective of experience value. Although this study discusses experiential mediators regarding functionality and innovativeness, it does not rule out other experiential mediators that could create a positive experience and lead to impulse buying. This study is based on the hypothesis development background of impulse buying behavior research, and the possible associations between the experiential model and individual perception are not exhaustive. Additionally, there are contextual limitations in the citation of conceptual frameworks.

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### Institutional Review Board Statement:

The Ethical Committee of the China Medical University & Hospital, Vietnam has granted approval for this study on 16 April 2020 (Ref. No. 1090416133).

### Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

### Competing Interests:

The authors declare that they have no competing interests.

### Authors' Contributions:

All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

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