



Experience Design Board: A tool for visualizing and designing experience-centric service delivery processes

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ABSTRACT

Experience-centric service (ExS) is a type of service through which customers experience emotionally appealing events and activities that result in distinctive memory. The literature argues that ExS design should be a research priority in this experience economy, yet little is known on how to articulate ExSs in their design. This paper proposes a tool called Experience Design Board for visualizing an ExS delivery process as a basis for its analysis and design. The tool is a matrix-shaped board where the key factors of experience creation in ExS (namely, servicescape, frontstage employees, other customers, backstage employees, and technology support systems) are represented in rows, and the customer experience phases are placed in columns. The tool is useful in analyzing and designing how the key factors of ExS create customer experience. The tool integrates several work streams within the evolving ExS literature into its structure and is generic enough to accommodate various ExSs in physical and digital experience contexts. By visualizing an ExS delivery process from beginning to end, the designer can obtain a systematic understanding of the essential attributes of ExS and can use it for an effective design. This tool would serve as a basis for service design in this experience economy.

1. Introduction

We live in an “experience economy” where creating memorable experiences for customers matters most to companies (Pine and Gilmore, 2011; Stein and Ramaseshan, 2016). A key deliverable of this economy is experience-centric service (ExS) through which customers experience emotionally appealing events and activities that result in distinctive memory (Pullman and Gross, 2004; Voss et al., 2008). Examples include theme park, entertainment, party, tourism, nature experience services. Adopting the notion of ExS is an effective method for differentiation, opportunity identification, and premium pricing (Zomerdijk and Voss, 2010; Pine and Gilmore, 2011).

Service design is a multi-disciplinary area that helps innovate services through a design thinking approach (Candi and Saemundsson, 2008; Frost and Lyons, 2017), and has received research priority as a means to create actual customer value (Patrício et al., 2018). Service design for ExS can contribute to added-value creation in this experience economy (Zomerdijk and Voss, 2010). Although leveraging service design is a critical research topic, knowledge and tools for service design are limited (Kimbell, 2011; Ostrom et al., 2015; Lim et al., 2018c), especially as compared to what is known for product design (Cavalieri

and Pezzotta, 2012; Kim et al., 2012). This paper addresses the development of a visualization tool for service design in the context of ExS.

Visualization assists in representing, describing, and designing services (Bitner et al., 2008; Sampson, 2012). Visualization is the external realization of an object in terms of diagrams and text (Crapo et al., 2000). Since visualization substantially enhances our ability to represent, describe, analyze, and design complex objects, people have employed visualization in various areas. In addition, visualization is useful in facilitating focused communication among the people involved in the design (Lin et al., 2011). Thus, architects, product designers, and software developers have used blueprinting, CAD (computer-aided design), and UML (unified modeling language) (Booch, 1999) techniques in their works, respectively. In the service design area, Service Blueprint (Shostack, 1982; Bitner et al., 2008) exists as a tool for visualizing and designing a service delivery process with an emphasis on the employee actions both visible and invisible to customers. Other tools also exist for systematic service visualization and design, such as Information Service Blueprint (Lim and Kim, 2014), Extended Service Blueprint (Hara et al., 2009), Process Chain Network Analysis (Sampson, 2012), and System Map (van Halen et al., 2005).

Although ExS is a critical and timely research topic (Zomerdijk and

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Voss, 2010), our review of the literature revealed a lack of work directed at providing tools to help organizations visualize and design ExSs considering the unique nature of ExSs. This situation raises the following question: How can companies analyze an ExS systematically and achieve an effective design if they cannot clearly describe the essence of service in question? Although existing tools suggest certain viewpoints for visualizing and examining services, ExS visualization based on these tools is limited in reflecting the following three essential attributes that characterize the value-creation mechanism of ExSs. All these attributes also apply to other types of service, but the extent of their applicability and effect is typically high in ExSs (Zomerdiijk and Voss, 2010). First, crafting and using the physical environment is a key feature of ExS management, such as in theme park and leisure services (Rosenbaum and Massiah, 2011; Dong and Siu, 2013), because the environmental variables of service on customers influence their subsequent behaviors, emotions, and eventual experience (Bitner, 1992; Turley and Milliman, 2000; Torres et al., 2018). Second, managing the presence of other customers is critical to ExSs, such as in parties and virtual world game services (Brocato et al., 2012; Kim and Lee, 2012), because customers' experiences can be enhanced or damaged not only by their interaction with the service providers but also by the other customers through behavioral and emotional contagion (Martin and Pranter, 1989; Tombs and McColl-Kennedy, 2003). Third, the dramatic structure of events (e.g., the sequence, progression, and duration of events) is important in the analysis of ExSs, such as in entertainment and performance services (Zomerdiijk and Voss, 2010; Pine and Gilmore, 2011), because customers generally do not remember every single moment of an experience but recognize the trend and special moments, either positive or negative (Chase and Dasu, 2001; Cook et al., 2002; Verhoef et al., 2004).

We propose a structured tool called "Experience Design Board" for the effective visualization and design of ExS delivery processes. This tool is a matrix-shaped board where the key factors of experience creation in ExS (namely, servicescape, frontstage employees, other customers, backstage employees, and technology support systems) in relation to customer actions are represented in rows, and the customer experience phases are placed in columns. By visualizing an ExS using this tool, service designers can succinctly capture the core structure of ExS that creates value, giving full consideration to the three essential attributes of ExSs. In devising Experience Design Board, we consulted various existing ExS cases encompassing both physical and digital experiences (e.g., theme park and virtual reality game services) in addition to a review of a wide range of studies related to ExS (e.g., Pullman and Gross, 2004; Zomerdiijk and Voss, 2010; Pine and Gilmore, 2011) and service visualization (e.g., Bitner et al., 2008; Teixeira et al., 2012). As a result, the proposed tool was devised to be generic enough to accommodate, in simple form, various ExS delivery processes in both physical and digital experience contexts.

Service design, particularly ExS design, is a critical research topic in this experience economy, yet little knowledge is available for it (Zomerdiijk and Voss, 2010; Ostrom et al., 2015). The contribution of our work is to develop a tool, which visualizes difficult-to-articulate ExS delivery processes. Compared with existing service visualization tools, the proposed tool is specialized to represent and analyze the unique nature of ExSs. Users can obtain a systematic understanding of the value-creation mechanism of the ExS in question by visualizing the service using the proposed tool. This paper also discusses how the proposed tool could effectively aid practitioners in evaluating and designing ExSs. This study would serve as a valuable complement to the traditional mix of service visualization tools and as a basis for ExS design and improvement.

2. Literature review

This section provides theoretical and methodological foundations for our work. Section 2.1 discusses the power of visualization from the cognitive theoretical view, introduces a number of existing tools for

visualizing services, and discusses their limitation in visualizing and analyzing ExSs. Section 2.2 introduces a conceptual model that describes the essence of ExSs. The model shows several key points that should be considered in ExS analysis and design, and thus should be emphasized in ExS visualization.

2.1. Service visualization

Visualization is not simply about creating graphics or images; rather, it is a cognitive process that identifies the critical (which should be emphasized) and less significant (which should be minimized) aspects of the object (Alabastro et al., 1995; Massey and Wallace, 1996). A real ExS can be described with essentially infinite detail. Imagine, for example, describing all the aspects of a theme park service. Detail comes with complexity, which increases the cognitive burden. To manage cognitive complexity, we employ visualization that is abstract and encodes only the "essential" information about the service (Larkin and Simon, 1987; Crapo et al., 2000). This way, we can build and use our mental model of the ExS, and analyze it in a more straightforward manner.

Aside from the aforementioned power, visualization is an effective method for communicating an object to others (Norman, 1993; Crapo et al., 2000). When a group of people is tasked with analyzing a system or a phenomenon, each member will begin from a different perspective. Although everyone in the discussion has different and limited frames of reference, they can systematically share and integrate their thoughts based on the visible pictures. In other words, the pictures serve as a collective reference for people involved in the discussion, enabling them to cooperate efficiently.

In contrast with products, services are originally invisible, and thus difficult to articulate. This is a root cause of the difficulty of service analysis (Lim and Kim, 2014). As aforementioned, people can systematically develop thinking and analysis of the service in question based on its visualization. Attempts to visualize the concepts of services during their design can contribute to the improvement of the design outcomes. Thus, researchers and service designers have used visualization as a starting point of service analysis and design (e.g., Chuang, 2007; Lim et al., 2018a).

The key here is that visualizing a specific type of service should emphasize the essential aspects of that service for effective analysis and design. Thus, researchers have developed tools for service visualization to facilitate service analysis and design. Service Blueprint (Shostack, 1982; Bitner et al., 2008) facilitates the visualization of a service delivery process with an emphasis on the visible and invisible areas to customers. Process Chain Network Analysis (Sampson, 2012) is a tool for visualizing the network of interactive processes within a service. In addition to these tools, researchers have proposed various tools for visualizing service, with an emphasis on specific aspects of a service, such as System Map (which emphasizes the relational network of service elements) (van Halen et al., 2005), Service Experience Blueprint (multichannel nature of service) (Patrício et al., 2008), Information Service Blueprint (information exchange in service) (Lim and Kim, 2014), PSS Board (product and service integration), Extended Service Blueprint (product utilization in service) (Hara et al., 2009), and Customer Experience Modeling (customer requirements fulfillment mechanism) (Teixeira et al., 2012). These tools that facilitate service visualization can be classified into three categories according to the focus of visualization: the process of customers and companies experiencing and providing service, respectively (process visualization); the relational network of service stakeholders and components (network visualization); and others. Table 1 provides a review of existing service visualization tools.

Each tool suggests an essential viewpoint toward the service delivery process in question. However, none of the tools focus on the visualization of the essential aspects of ExS delivery processes, which will be presented in the next section. Specifically, the systematic

Table 1
A review of existing service visualization tools.

Category	Framework	Description
Process visualization	Service Blueprint (Shostack, 1982; Bitner et al., 2008)	Supports the visualization of the organizational process of service against customer actions. Includes employee actions in onstage (visible to customers) and backstage (invisible), and support process. Highlights the different roles of onstage/backstage employees and physical evidences to support the customer.
	Service Experience Blueprint (Patrício et al., 2008)	Points out that a service process has a multi-interface nature (e.g., offline banking service, ATM service, and Internet banking service in a banking service), and argues that describing a service process requires developing multiple blueprints for multiple contexts. Suggests several notations to create multiple blueprints based on the grammar of Service Blueprint, highlighting the importance of the technology-enabled aspects in the service process.
	A conceptual framework for co-creation of value (Payne et al., 2008)	Is a process-based conceptual framework for understanding and improving value co-creation in which integrates several streams of work within the evolving service dominant logic literature. Supports the visualization of customer, encounter, and supplier processes, highlighting their value co-creation mechanism.
	Extended Service Blueprint (Hara et al., 2009)	Modifies Service Blueprint applying Business Process Modeling Notation to highlight the product features of service. Supports the visualization of customer actions, service activities, product behaviors, and their relations. Highlights the roles of human and product processes to provide intended functions.
	PSS Board (Lim et al., 2012)	Supports the visualization of how the customer and the product-related service provider collaborate in getting the customer's job done. Highlights the four key components of product-related service, namely, product, service, infrastructure, and provider network, in relation to the customer process to get a job done.
	Information Service Blueprint (Lim and Kim, 2014)	Supports the visualization of how the customer and the information-intensive service provider co-process the customer goal accomplishment based on information exchanges. Highlights the four key components of information-intensive service, namely, information, information production system, information delivery system, and provider network, in relation to customer actions.
Network visualization	System Map (van Halen et al., 2005)	Supports the visualization of stakeholders of service, and facilitates material, information, and financial flow among them. Visualizes the importance of flow. Codifies a graphic library for the visualization. Highlights which stakeholders are involved and how they interact to support a specific action of a stakeholder.
	Service Triangle Model (Kim and Lee, 2009)	Supports the visualization of tangible resources (e.g., computer), intangible resources (e.g., social network) and stakeholders of the service. Forms several triangles with these components of service as nodes. Visualizes the created values from the triangles on faces. Highlights how elements of a product-service system are networked in a specific value creation.
	Relation-based Model (Kang et al., 2011)	Supports visualize service elements, product elements and stakeholders of service business ecosystem, and their interdependent relationship for value creation. Highlights the roles of the stakeholders and how they interact to provide specific products and services.
	Service Delivery Network (Tax et al., 2013)	Is a conceptual framework to visualize, describe, and analyze the network (a network of customers, main service provider, partners, and other stakeholders) involved in the customer experience and journey creation. Highlights that two or more organizations, in the eyes of the customer, are responsible for the provision of an overall service experience.
Others	A customer experience portraying scheme (Tseng et al., 1999)	Is a scheme to visualize the customer experience based on IDEF3 technique. Decomposes customer behaviors into multiple customer behavior units (the unit can be decomposed into subunits).
	A service design representation technique (Ma et al., 2002)	Is a UML-based technique for service design representation. Provides a generic model of service products to support the representation. The model describes a service based on ten elements (customer, customer process flow, customer activity, execution transition, activity input, activity outcome, inanimate physical evidence, event, contact employee, and fellow customer environment).
	Customer Experience Modeling (Teixeira et al., 2012)	Is a method for capturing the rich and complex elements that shape an experience, integrating several multidisciplinary studies such as human activity modeling and customer experience requirements Supports the visualization of customer experience requirements, customer activities, customers, and contexts (context includes artifacts, technology-enabled systems, and other actors).
	Process Chain Network Analysis (Sampson, 2012)	Supports the visualization of service operation, which refers to a network of service processes. Considers the nature of interaction in the service process, visualizes customer's independent processing, and accommodates a network representation of service processes.

consideration of (1) the structure of servicescape, (2) the presence of other customers, and (3) the dramatic structure of events is not effective with existing tools although these considerations are key points in describing and analyzing ExS. Possibly, the physical evidence row in Service Blueprint (Shostack, 1982; Bitner et al., 2008) can be expanded to consider the point (1); however, points (2) and (3) are still difficult to analyze with the conventional Service Blueprint. Information Service Blueprint (Lim and Kim, 2014) may be used to visualize point (3) in ExS delivery in case the customer experience creation is relevant to the customer's problem solving with specific information suggested by the service provider; however, considering points (1) and (2) with the conventional Information Service Blueprint remains to be impossible. The network visualization tools and others in Table 1 are not generally

appropriate to focus on the delivery process of an ExS that involves all the three points.

2.2. Conceptual model of ExS

As mentioned, service visualization should emphasize the essential aspects of the service in question. Thus, our study was initiated by searching for a conceptual model that describes the essence of ExSs. Fig. 1 presents an adapted version of the “theater” model for viewing ExSs, defined by Zomerdijk and Voss (2010). In this section, we complement the original model with a literature review, as it is the pivot of Experience Design Board. The model consists of three areas: 1) auditorium, where the focal customer and other customers interact; 2)

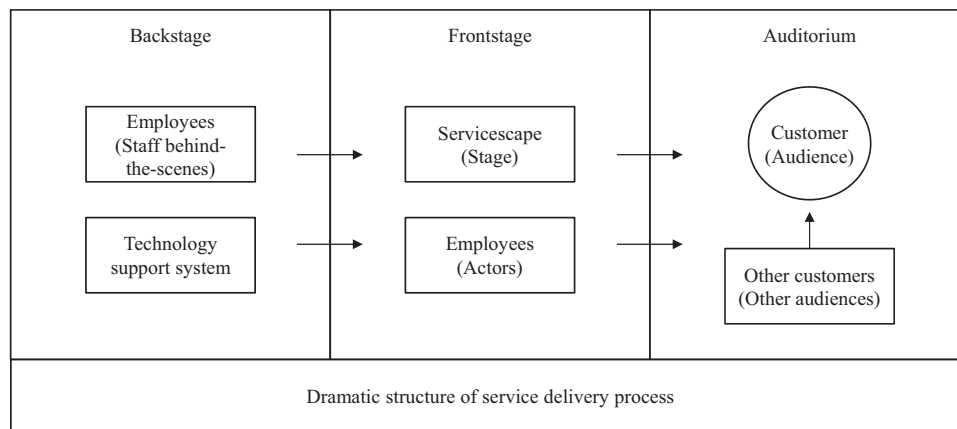


Fig. 1. The theater model for viewing ExSs.

frontstage, where employees interact with customers surrounded by servicescape elements; and 3) backstage, where employees and technology systems support functions and actions in the frontstage. The interactions among the three areas occur according to the dramatic structure of the service delivery process. The theater model shows the key points that should be considered in the ExS analysis and design, and thus should be emphasized in the ExS visualization. Experience Design Board in the next section improves on the traditional service visualization methods from the theater model perspective. The following paragraphs provide more details on the model.

Servicescape refers to the physical surroundings that affect customers and employees (Bitner, 1992). Servicescape stimuli are further classified into ambient conditions (e.g., temperature and music), space and function (e.g., layout and equipment), and others (e.g., signs, symbols, and artifacts) (Rosenbaum and Massiah, 2011; Kwon et al., 2015). Customers sense these stimuli using their five senses, and combine them as “cues” to create experience, regardless of whether they are consciously aware of them or not (Zomerdijk and Voss, 2010; Mari and Poggesi, 2013; Kumar and Kim, 2014). In this respect, the notion of servicescape has been utilized in service design frequently (e.g., Lee, 2011; Kwon et al., 2015). ExS management should motivate customers to explore servicescape actively and be absorbed in the related activities (Pine and Gilmore, 2011; Stein and Ramaseshan, 2016). Typical ExSs in which servicescape is the foremost factor include theme park (for storytelling) and leisure sports (for physical activities) services.

Frontstage (contact) employees in ExSs engage deeply with customers at a personal and emotional level to promote their positive experiences (Gremler and Gwinner, 2000; Pine and Gilmore, 2011). Studies on service quality argue that the ability and attitude of frontstage employees are key factors that influence customer experience of the service, which consequently leads to satisfaction, loyalty, and word-of-mouth recommendation (Parasuraman et al., 1988; Bettencourt and Gwinner, 1996; Pullman and Gross, 2004; Lemke et al., 2011; Stein and Ramaseshan, 2016; Terblanche, 2018). Typical ExSs in which the interactions between frontstage employees and customers are essential include luxury hotel (as a server) and counseling (as an advisor) services.

A customer’s experience is influenced by his/her interactions with contextual elements, such as servicescape elements and service employees, as well as by the presence and behaviors of other customers (McAlexander et al., 2002; Zomerdijk and Voss, 2010; Kwon et al., 2015). Researchers have investigated the effect of other customers to the focal customer’s service experience (e.g., Tombs and McColl-Kennedy, 2003; Brocato et al., 2012; Kim and Lee, 2012). Typical ExSs in which customer perception of other customers is essential include party and online virtual world game services. In the former, perceptions of gender, attire, and appearances are involved; in the latter, perceptions of skills and suitable behaviors are involved.

Whereas these auditorium and onstage factors directly interact with customers, the backstage factors also affect customer experience indirectly by facilitating the interactions. The backstage factors of service are typically characterized by the dichotomized relationship between (non-contact) employees and technology support systems (Patrício et al., 2008; Glushko, 2010). The major function of technology in service is to achieve effective information production and efficient information exchange between customers and providers (Karmarkar and Apte, 2007; Glushko and Nomorosa, 2013).

Finally, the dramatic structure of the service delivery process is another key point of ExS management. Any service experience, regardless of the case involved, can be characterized as a process that comprises beginning, middle, and ending phases that cover the events in the service experience (Helkkula, 2011). Depending on the case, some phases are more critical than others, while each represents a functional step to create distinctive memory for customers (Bettencourt and Ulwick, 2008). The design of the sequence, progression, and duration of phases is essential in the ExS management just as it is in novels, plays, and movies (Zomerdijk and Voss, 2010). Typical ExSs in which such dramatic structure of service delivery process is essential include entertainment and performance services.

3. Experience Design Board

This section proposes Experience Design Board. Section 3.1 explains its structure. Section 3.2 visualizes a theme park service and an online virtual world game service, illustrates the advantages of the proposed tool over existing ones, and compares the two visualized services using the proposed Experience Design Board.

3.1. Structure of Experience Design Board

The basic structure of Experience Design Board consists of eight rows, case-sensitive columns, and intersections of rows and columns. Fig. 2 shows the structure by comparing the conventional Service Blueprint in left and the proposed Experience Design Board in right. Figs. 3 and 4 in Section 3.2 illustrate its use. The eight rows consist of Customer actions; Behaviors of other customers; Frontstage employee actions; Servicescape: Visual elements; Servicescape: Auditory elements; Servicescape: Olfactory, palate, and tactile elements; Backstage employee actions; Technology support system. The set of rows allows a comprehensive yet simple representation of the key points of ExS explained. From the perspective of the theater model for viewing ExSs (Fig. 1 in Section 2.2), the top and second rows show the auditorium factors, while the third to sixth rows show the frontstage factors. The remainder shows the backstage factors.

The Customer actions row shows the roles of customers in creating experience from the service. The Behaviors of other customers row

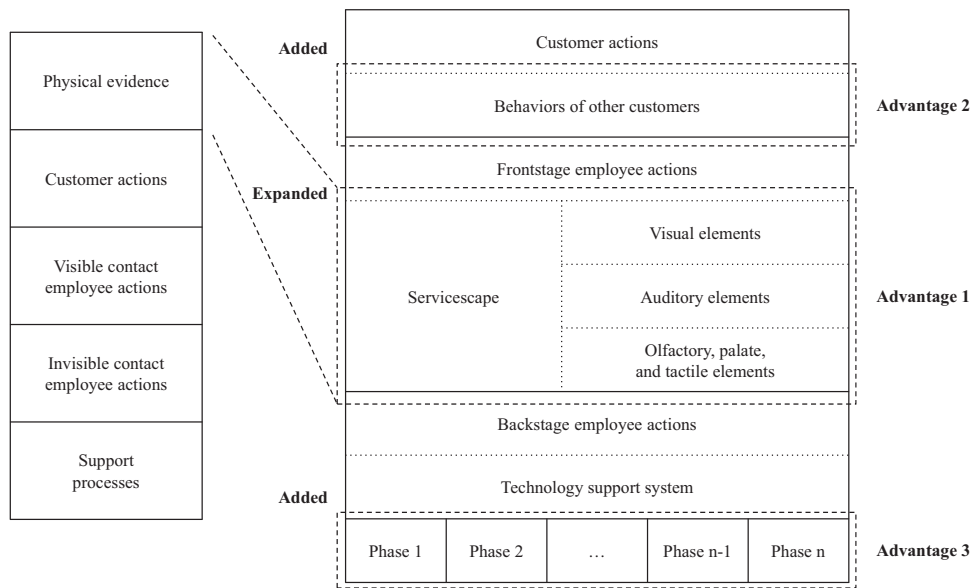


Fig. 2. Structure of Experience Service Blueprint and its comparison with Service Blueprint.

shows the contribution of other customers in creating the experience of the focal customer. The Frontstage employee actions row shows the roles of frontstage employee actions in creating the customers' experience. The three rows of Servicescape elements show the servicescape elements that affect the customers' experience. The emphasis of the two rows of visual and auditory servicescape elements is oriented by the ExS cases investigated for the development of Experience Design Board that

mostly craft visual and auditory surroundings (e.g., Kumar and Kim, 2014; Kwon et al., 2015; Stein and Ramaseshan, 2016). Nevertheless, the Olfactory, palate, and tactile servicescape elements row also has a significant function in customer experience creation. The Backstage employee actions row shows the roles of backstage employee actions in creating the customers' experience. The Technology support system row shows the technological factors in backstage that enable the service

Customer actions	Plan a trip to the park; purchase ticket	Go to the theme park	Enter the theme park	Explore the theme park; enjoy events	Ride the rides	Take a break in a rest area	Ride other rides	Leave	
Behaviors of other customers	Write reviews in Webpage	Park; be with family	Queue up	Ride the rides; look happy	Queue up; Ride the rides; Experience different emotions (crying, laughing)	Eat	Queue up; Ride the rides; Experience different emotions	Stay	
Frontstage employee actions	Support ticketing	Guide parking and entrance	Make announcements	Organize events; dress in theme costumes	Guide the rides	Serve customers	Guide the rides	Say "See you again"	
Servicescape	Visual elements	User interface of Webpage	Visual design of parking space	Entrance design and costume characters	Building design, costume characters, and rides	Handle and safety of rides; other rides	Exhibitions, park bench, and restaurants	Handle and safety of rides; other rides	Exit design and costume characters
	Auditory elements	Music setting and sound effects of Webpage	Background music related to the theme			Sound effects of ride	Background music of rest areas	Sound effects of ride	Background music related to the theme
	Olfactory, palate, and tactile elements				Food, snacks, streets and friends	Handle and safety of rides; friends and atmosphere	Food and park bench	Handle and safety of rides; friends and atmosphere	
Backstage employee actions	Manage Webpage and FAQ	Manage parking spaces	Operate and maintain rides; monitor safety; supply consumables				Manage parking spaces		
Technology support systems	Information systems for Webpage and ticketing	CCTV system for parking spaces	Information system for ticket check	CCTV system for theme park; rides operations systems				CCTV system for parking spaces	
	Beginning	Exploration			Climax	Maintenance		Ending	

Fig. 3. A theme park service visualized on Experience Design Board.

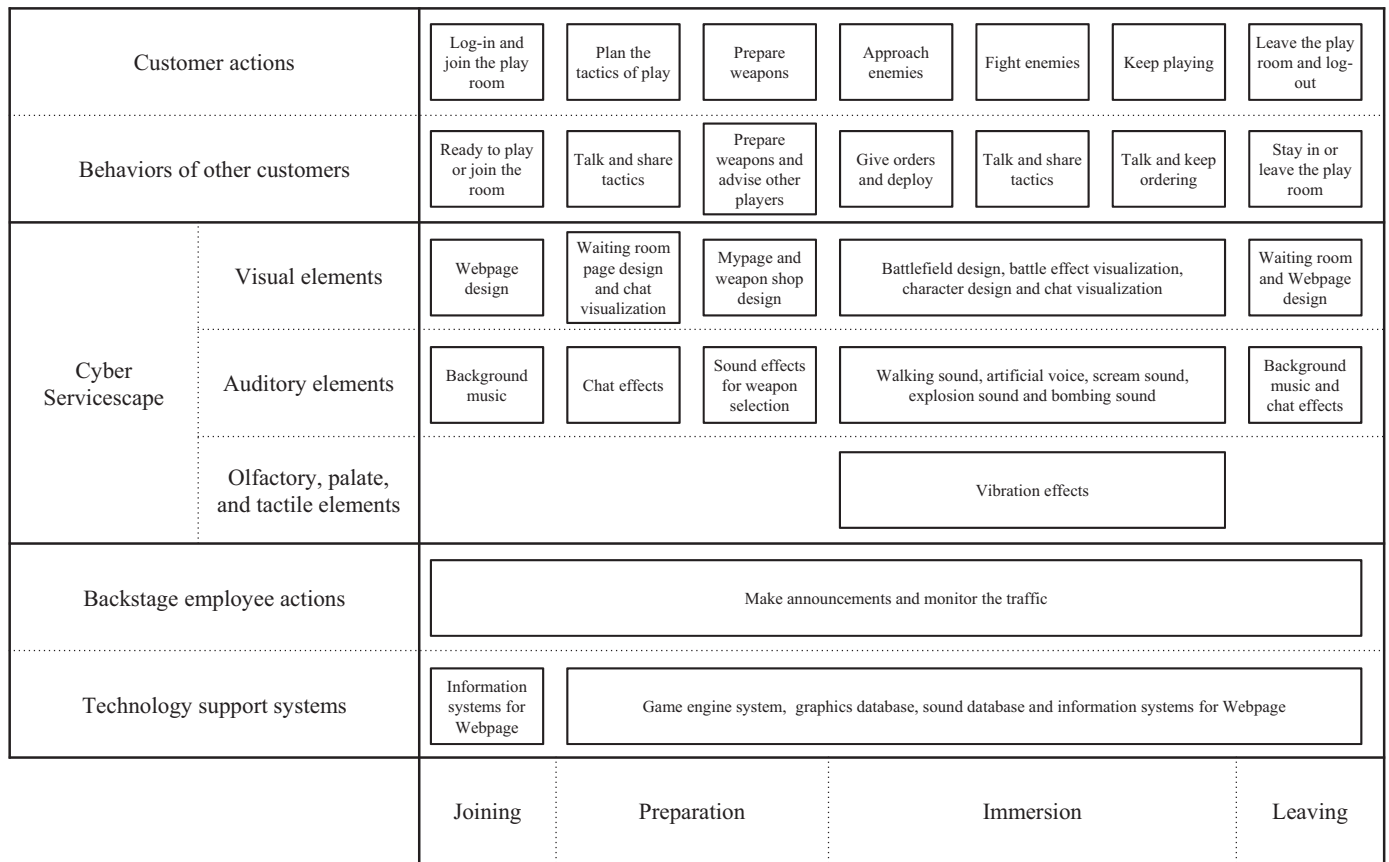


Fig. 4. An online virtual world game service visualized on Experience Service Blueprint.

Table 2
References for customer experience phase identification.

Phase	Description	Related verbs
Beginning	Customers begin the service experience. They define the goals related to the service experience, and make required plans in this phase.	Define, Plan, Reserve, Join
Progress	Actions in the progress phase build up the climax. Customers and the service provider prepare items and information required to achieve the goal of service experience in this phase.	Explore, Participate, Prepare
Climax	Customers accomplish the main goal of the service experience. They experience the emotional peak in this phase. This phase is the turning point, which marks a change in the customer's affairs.	Be absorbed in, Immersion, Execute, Perform
Maintenance	The emotion of customer is maintained. Customers often repeat the prior actions in the progress and climax phases in this phase.	Monitor, Change, Update
Ending	Customers conclude the experience process after their goal accomplishment, and prepare the post-experience actions.	Conclude, Leave, Finish

provision. Examples include information systems, databases, algorithms, mechanical systems, and electronic systems.

While the customer actions and provider's supports are visualized on the rows, users need to identify the phases that categorize the customer experience. Figs. 3 and 4 in Section 3.2 show the examples of customer experience phases. Identifying such phases in the visualization promotes analysis with regard to the dramatic structure of the ExS delivery process. Furthermore, the identification ensures that no key information is disregarded in the visualization because each phase indicates a significant point in the service delivery process. In order to facilitate the phase identification job, we provide references for customer experience phase identification (Table 2). The table is a generalization of phases of various ExS delivery processes based on the five phases of dramatic structure, namely, exposition, rising action, climax, falling action, and denouement (Egri, 1960). In the generalization work, we reviewed the studies on generalizing service delivery phases from the customer perspective (e.g., Ives and Mason, 1990; Vandermerwe, 2000; Bettencourt and Ulwick, 2008; Lim et al., 2017), as well as analyzed existing ExS cases. The third column in the table,

which is a reference for understanding the five phases, shows the verbs related to each phase used in the studied literature and cases.

Interactions exist among the diagrams. All interactions can be visualized through arrows that demonstrate the links or relationships between the corresponding elements. However, Experience Design Board is designed to require a minimum number of arrows. In fact, even without the arrows, the interactions can be understood in a clear and straightforward manner because the matrix-shaped board implies these interactions. The set of rows is arranged to represent the intrinsic interactions among the key factors of experience creation in ExS and customer actions. The set of columns indicates the contextual relationships of customer actions and the factors. Having too many arrows appearing on the visualized ExS delivery process would make it look unnecessarily cluttered and complicated.

Fig. 2 pinpoints the differences between the proposed tool and Service Blueprint (Shostack, 1982; Bitner et al., 2008). In short, Experience Design Board is advantageous for visualizing and describing the "theater-oriented nature" of the ExS delivery processes. Specifically, the proposed tool is useful for considering (1) the servicescape elements

in detail, (2) the presence of other customers, and (3) the dramatic structure of the service delivery process. The next section illustrates the use of Experience Design Board and explains its utilities in detail.

3.2. Illustration of Experience Design Board

The theme park and online virtual world game services were chosen for the illustration of the use and advantage of Experience Design Board because the former service represents the physical experience service, whereas the latter represents the digital experience service. The former service has been studied as a representative ExS case in the literature (e.g., Torres et al., 2018). Currently, many people experience digital world frequently. As such, the analysis and design of attractive digital ExS have become a critical research topic (Ijsselsteijn et al., 2007; Staelens et al., 2010). Online virtual world game services have been studied as a representative digital ExS case in the literature (e.g., Ijsselsteijn et al., 2007; Yang et al., 2009).

Fig. 3 presents the visualization of a theme park service delivery process on Experience Design Board. The figure focuses on visualizing the ride experience in the theme park, while another focus (e.g., toyland or safari experience) is also possible. The lines separating the columns are only partially presented in the figure for clean visualization. Fig. 3 shows that the theme park service delivery process can be categorized into a series of phases, namely, Beginning, Exploration, Climax, Maintenance, and Ending. Table 2 in Section 3.1 was used for the customer experience phase identification.

Fig. 3 shows that the proposed Experience Design Board is useful for visualizing and describing the structure of servicescape because it uses the three rows of Servicescape elements. In the theme park service, the servicescape design mostly characterizes theme park services, such as rides, employees dressed as characters, and background music that are suited to the theme. Such information should be systematically shown in its visualization, and Experience Design Board is useful for achieving this goal. As shown in Fig. 2 in Section 3.1, the set of three rows is an expanded version of the Physical evidence row of Service Blueprint. This expansion promotes a concrete understanding and analysis of the servicescape structure of the ExSs. Controlling the servicescape elements is very important to create the desired customer experience of the ExSs, and Experience Design Board is a useful tool for this work.

The proposed Experience Design Board enables the intuitive identification of the presence and roles of other customers by introducing the Behaviors of other customers row. In the theme park service, customers tend to want to experience the popular ride, which has a long queue of other customers. The theme park service provider should attempt to use this social effect to create a desired experience. The Behaviors of other customers row encourages thinking about the complementary relationship between the focal customer and other customers in the ExS delivery process, which is difficult with Service Blueprint. This row is not only useful for considering the behaviors of other customers that positively affect the focal customer, but also the behaviors that may have a negative effect. Such consideration is essential in the analysis of the ExS delivery processes because most ExSs involve “co-experience” and value co-creation among customers.

The column structure of Experience Design Board supports the deliberate visualization and analysis of the ExS. The categorization of the service delivery process into several phases is useful for reviewing the visualization and for thinking with regard to the dramatic structure of the service delivery process. As a result, some of the identified phases serve as keywords of the service, and the keywords are useful for understanding the identity and story of the service. For example, a key phase of the theme park service is the theme exploration phase.

Based on the proposed Experience Design Board, users can systematically describe the theater-oriented nature of theme park service as follows. In Fig. 3, the customers of the theme park initiate the process by planning a trip to the park, and then purchase tickets (Beginning phase). After entrance, they participate in events they are interested in

and choose rides (Exploration phase). When the focal customer explores the theme park, he/she observes the behaviors of other customers that spark his/her interest (Exploration phase). The focal customer may want to use a ride if numerous other customers queue up for the ride. The frontstage employees organize events for customers (Exploration phase). Employees who are responsible for rides guide the rides (Climax phase). Customers encounter a visual design of the parking space, entrance design, building design, theme characters, and the rides in the park (Exploration phase). The background music related to the theme and sound effects of the ride also affect customers (Climax phase). The theme park service’s olfactory, palatal, and tactile stimulations of customers include the smell of food, taste of snacks, and friends (Exploration phase); handle and safety of rides; and the smell of the atmosphere (Climax and Maintenance phases). The roles of backstage employees include operating and maintaining rides; monitoring safety; and supplying consumables (Exploration phase to Maintenance phase). The theme park service provider requires information systems for webpage administration and ticketing (Beginning phase), as well as a CCTV system for monitoring the theme park and ride operation systems (Exploration and Climax phases).

These advantages are similarly present in the comparison with the other existing service visualization tools because they have been developed with other objectives. Service visualization should emphasize the key aspects of the target service to facilitate effective analysis and design. “The theater-oriented nature” should be focused on in order to systematically understand the value-creation mechanism of the ExS delivery process, and the proposed Experience Design Board is a useful tool to achieve this goal. Nonetheless, our argument does not negate the importance of perspectives emphasized by existing works. Users can employ other tools if the purpose of visualization is to observe visible/invisible employee actions or interactions within the network of customer, service provider, and partners. Service Blueprint (Shostack, 1982; Bitner et al., 2008) is effective for the former case, and Process Chain Network Analysis (Sampson, 2012) is useful for the latter.

The utility of row structure of Experience Design Board is not restricted to the creation and enhancement of physical experience. Fig. 4 visualizes an online virtual world game service (a tactical first-person shooter video game) and shows the utility of Experience Design Board in analyzing and improving digital experience in cyber servicescape. Today, people play such online virtual world games to experience a “second life.” The visualized service delivery process is as follows. First, customers log-in and join the play room (Joining phase). After the ready to play the game, customers in the same team plan their tactic of play and share it. In the meantime, they prepare weapons (Preparation phase). Once the game starts, an expert customer gives orders and customers are deployed to fight with enemies. After the battle, the winning team is determined (Immersion phase). After that, the customers leave the game or stay in the room (Leaving phase).

Whereas the servicescape elements of the theme park service in Fig. 3 are real, in the virtual world game service in Fig. 4 they are artificial. Whereas the servicescape elements for the former service create a “physical experience,” the latter service creates a “digital experience.” In this regard, the Servicescape row is re-labeled Cyber servicescape in Fig. 4. The virtual world game service requires cyber servicescape elements, such as battlefield designs, battle effects visualization, character designs, artificial voices, and vibration effects. To create the desired digital experience, a game engine system and a database for graphics and sound effects are required as the technology support system for this service. Compared to Fig. 3, the Frontstage employee actions row is deleted in Fig. 4 because no frontstage employee action is involved in this visualization scope. The backstage employee actions in the game service are also simple: the backstage employees only need to make announcements and monitor the traffic.

From the comparison between Figs. 3 and 4, we can see that the technology in the theme park service “supports” the employee actions and servicescape functions, whereas in the game service it “replaces”

them. Although ExSs generally share basic attributes that distinguish them from other types of service, differences also exist among ExSs in terms of designing and combining the key factors. The use of the proposed Experience Design Board is an effective method for describing and understanding the variety of ExSs. While virtual and augmented technologies are receiving great attention these days (Digi-Capital, 2016; Poushneh and Vasquez-Parraga, 2017), we believe Experience Design Board will contribute to the service analysis and design in the context of traditional physical ExS design (e.g., use of Fig. 3 in theme park service design) as well as in the context of emerging and upcoming cyber ExS design (e.g., use of Fig. 4 in virtual game service design).

4. Discussion

4.1. Customization of Experience Design Board

As shown in Fig. 4, users can customize the structure of the proposed tool in several ways, depending on their purpose. The rows and columns of Experience Design Board can be modified through deletion, revision, division, consolidation, or extension. The Olfactory, palate, and tactile elements row can be extended to emphasize the role of olfactory, palatal, and tactile stimulations. This emphasis is required when visualizing the ExS delivery process in which these stimulations are essential, such as in a beer museum, a forest experience, and native food experience services.

A customer action in any ExS delivery process can be broken down into further detailed process as needed. For example, the reservation action of Fig. 3 might have to be examined in detail. Webpage servicescape design and employee actions that support the reservation should be further examined in this case. Such a breakdown would allow the inclusion of exceptional practices that are not covered by the higher-level visualization. On the other hand, the scope of visualization can be extended to cover the multiple experiences of customers regarding the process. In addition, the user can note the estimated duration or other attributes of each phase to better represent the dramatic structure of the service delivery process. Finally, the user may add arrows to indicate the explicit interactions between the rows and columns.

4.2. Experience Design Board for ExS evaluation, improvement, and design

Service blueprinting (service delivery process visualization) has been used in service evaluation, improvement, and design (Chuang, 2007; Fitzsimmons and Fitzsimmons, 2010; Kim et al., 2013) because this technique is simple yet provides comprehensive insights into the essential aspects of service provision (Bitner et al., 2008). In this regard, Experience Design Board can be employed as an effective basis for ExS evaluation, improvement, and design.

The first step toward concrete ExS evaluation is to clearly understand and describe the key factors and their relationship that affect customer value creation in the complex ExS system in question. The proposed tool effectively achieves this function. In addition, the visualized picture defines the process scope and thus helps to outline the evaluation scope and specify the objects to be evaluated. We can use the picture to dissect and comb the service delivery process. In this work, we can easily associate the picture with customer experience quality evaluation criteria (e.g., Lemke et al., 2011; “Phil” Klaus and Maklan, 2012; Bustamante and Rubio, 2017) to diagnose potential failure points (or sources of poor quality) in the current process.

Once the gap is understood, the evaluator needs to formulate ideas to improve the ExS process. The comparison of different ExS processes on Experience Design Board can trigger various ideas as regards further improvement. For instance, the customers of the theme park service introduced in Fig. 3 would want to explore the theme park in an efficient way (Exploration phase). Taking the online virtual world game service in Fig. 4 as the benchmark, the theme park service can create a

mobile application that involves the cyber servicescape of the theme park to assist the customers while they are traveling and waiting in the park. This application would contribute to the seamless experience of the customers as well as to enable the collection of customer behavior data (Lim et al., 2018a; Kim et al., 2018).

From the perspective of new service design, Experience Design Board is a canvas for drawing alternative or new ExSs. The rows pinpoint the key design areas and thereby provide lenses for brainstorming ideas. The dramatic structure of the service delivery process can be reflected in the columns. As such, each intersected cell represents a design point. The proposed tool is also an effective basis for the designing of ExS delivery processes based on the six principles for ExS design (Zomerdijsk and Voss, 2010). First, the use of the Customer actions row together with the other rows is an effective method to consider the customer journey concept and its associated touchpoints. Second, the set of three rows of Servicescape elements is a template for conducting sensory design. Third, the Frontstage employee actions row is useful to devise ideas to make frontstage employees engage more effectively with customers. Fourth, the column structure helps the blueprint users pay attention to the dramatic structure of events. Fifth, the Behaviors of other customers row is an effective basis to manage the presence of other customers. Finally, the combination of the four Frontstage rows and the Backstage employee actions row is useful for closely linking backstage employees and frontstage experiences.

The organizational utility of Experience Design Board is in its ability to address the interdisciplinary nature of service design. Service design is, by nature, a “soft” task that combines human activities (Lin et al., 2011; Kim and Lee, 2012; Lim et al., 2018b). As in any project, service design projects require a cross-functional team with members from various functional units, including planning, design, engineering, IT, and marketing. Experience Design Board would be useful in such an interdisciplinary environment to ensure an integrative design of complex ExSs. Experience Design Board will contribute to synthesizing expertise from different fields from the perspective of its eight rows, allowing integrated design of ExS idea, concept, and delivery process. Experience Design Board will also contribute to enhancing the dialogue between project participants because it can support the development of collective reference points about the ExSs in question and shared language to achieve joint understanding and create team-wide understanding across the entire ExS design project. This function significantly improves communication, thereby ensuring effective and efficient ExS design.

5. Concluding remarks

The markets for fun, care, peace of mind, and identity, where the focus is on the creation of a memorable experience for the customer, are growing substantively (Jensen, 1999; Pine and Gilmore, 2011). Experience-centric service (ExS) is a main value proposition in such markets. Research on ExS will continue to flourish, yet little is known on how to articulate ExSs. This research contributes to the service design research field by proposing a practical tool for visualizing ExS delivery processes, in which users can articulate their services.

The rows of Experience Design Board represent the resource dimension for creating a memorable experience. They describe the theater-oriented nature of ExS (i.e., the focal customer and other customers in the auditorium; employees and servicescape elements in the frontstage; and employees and the technology support system in the backstage). Literature argues that these are key factors that should be considered in the analysis and design of ExSs. This research is the first to show how the key factors in an ExS delivery process are systematically visualized, conceptualized, and used for ExS analysis. The column structure represents the time dimension for creating the experience. The columns consist of several phases that customers follow in their experience. This research generalizes the ExS delivery process to five phases, namely, Beginning, Progress, Climax, Maintenance, and

Ending. This generalization is based on an ExS case analysis and research on the dramatic structure and customer goal accomplishment in the service experience.

In short, this research integrates several work streams within the evolving ExS literature into the rows and columns of Experience Design Board. With these two dimensions, Experience Design Board enables the intuitive representation and understanding of how customers experience the theater-oriented nature of an ExS and how the service creates value. The examples in this paper show the utility of Experience Design Board in creating or enhancing both physical and digital experience in physical and cyber servicescape. This tool would serve as a basis for evaluating current ExS delivery processes and designing alternative processes in both contexts of traditional ExSs (e.g., theme park service design) as well as emerging ExSs (e.g., virtual game service design).

The proposal of Experience Design Board suggests the value of broadening the viewpoint to see and analyze service delivery processes. The visualized service should show the essential aspects of the service process in question because the picture serves as a basis for analyzing and improving the service. Meanwhile, each type of service has a different nature. Thus, the aspects that should be focused on in service visualization differ according to service type. By examining the utility of existing service visualization tools from this perspective, we can observe that each tool is useful in visualizing a specific type of service, but it is limited in visualizing other types. This is because one tool covers only certain aspects of the service. This limitation has prompted researchers to develop new service visualization tools, and to broaden the viewpoint to see and analyze services. Likewise, this research improves the traditional service visualization tools by proposing Experience Design Board, which provides a viewpoint to see and analyze the theater-oriented nature of ExSs.

Several research issues exist to improve and apply Experience Design Board. First, more applications of the proposed tool are needed. The proposed tool will become more reliable and effective with more applications. Second, visualizing various ExS cases using the proposed tool would be effective for extracting insights from the case. The extracted insights serve as bases for the analysis and design of ExS delivery processes. Finally, implementing the proposed tool in a user-friendly software system can be helpful to practitioners.

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