

Chapter 2

Critical Design Elements for Service Systems

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2.1 Introduction

Service design is increasingly being recognized as a competitive force in a global economy where technology is now a commodity. At the same time, as customers are becoming more and more sophisticated, the ability to provide outstanding service will allow companies to find a niche in even some of the most high-cost and low-margins industry. While the traditional focus in product design is important in building a successful enterprise, the more subtle service design is equally, if not more, critical in differentiating the excellent from the mediocre. Therefore, identifying the critical elements in service design will be highly valuable in guiding companies in innovating new services or improving the existing ones. In this chapter, we propose a set of such critical design elements, which if taken into consideration, will impact the success of services.

2.2 Service Design: Terms and Definitions

Traditionally, services and products have been compared in terms of how they are produced and consumed (Shostack 1977; Zeithaml et al. 1985; Fisk et al. 1993). Generally, products and services are distinguished in terms of their characteristics such as role of customers in the delivery, nontransferability, intangibility, heterogeneity, inseparability, and perishability. The problems of treating services as an extension of the body of goods-centric knowledge have been noted in terms of

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the distinguishing attributes, namely, inseparability of production and consumption, location of delivery of benefits, and the role of customer in the achievement of excellence in outcomes (Ng et al. 2011). An attempt to provide an integrated value-centric approach has been proposed by these authors by reconciling various streams of research.

Service design is a design specialism that helps to develop and deliver great services. Service design focus improves ease of use, satisfaction, loyalty, and efficiency right across areas such as environments, communications, and products—and not forgetting the people who deliver the service (Stickdorn and Schneider 2012). “When you have 2 coffee shops right next to each other, that each sell the exact same coffee at the exact same price; Service Design is what make you walk into the one and not the other” (Fonteijn 2008). Critical elements are defined as “an input of a process that is essential to the production of the final product at a satisfactory level of quality” in literature (Business Dictionary 2012). We define critical elements in service design as the important characteristics or attributes that a service should possess in order to be successful.

A survey for this research was designed based on literature review on product and service design as well as best practices observed in the service industry. A pilot study was done with three companies. Later professionals from eight service industries were surveyed. They included hospitality, health care, education, tourism, consulting, banking, aviation, and estate management.

2.3 Critical Elements in Current Literature

Our literature review resulted in a set of critical elements in product design which could be applied to service design. Therefore, these are not a comprehensive set of critical elements for product design but only those selected ones that apply to services. These critical elements are discussed below.

Quality and Performance Quality and performance is an important element in product design (Taguchi 1986). There are various definitions for quality and performance. It is defined as “conformance to specifications,” which means “how well a product or service meets the targets and tolerances determined by its designers” (Reid and Sanders 2007). It is also defined by Joseph M. Juran as fitness for use in terms of design, conformance, availability, safety, and field use (Battikha 2003).

Ergonomics Ergonomics involves the matching of a product to the target user’s capabilities to maximize safety, comfort, and efficiency of use. Ergonomics requirements would affect form such as weight, texture, and shape. Inadequate attention to ergonomics may result in consumer dissatisfaction (Bloch 1995).

Appeal Appeal refers to aesthetics, attractiveness, and beauty. The aesthetic appeal, the pleasure it creates and the satisfaction it brings to the customer may determine the success of a product in the marketplace (Khalid and Helander 2006).

Novelty Novelty is the degree to which a product is seen as different from a typical object. Novelty offers differentiating value to the users, which is part of the emotional value that a product could bring (Noble and Kumar 2010).

Product Personality Product personality is personality perceptions emanating solely from design elements and not from the broader brand. For example, a unique design of a toaster through the shape and color could “exude a sense of bubbly excitement” for a young person. A standard stainless steel toaster is “more sophisticated and classic” which would appeal to an older person. Design with more personality gives higher symbolic or self-expression value which enhances emotional value of the product (Noble and Kumar 2010).

2.3.1 *A Proposed Set of Critical Elements in Service Design*

In this section, we present the proposed set of relevant critical elements in service design. These were selected to be used in our study for gathering information from the companies. These are based on the set of critical elements in product design and existing literature on service design. Some elements are also synthesized from best practices in the service industry. The critical elements of service design are discussed below in this section.

Service Quality and Performance This element is borrowed from the same critical element in product design, and has been recognized as an important design attribute in literature (Sousa et al. 2008). However, quality in service organizations is defined differently as that in manufacturing. This is because services can only be experienced, rather than seen or touched. Therefore, perceptions of service can be highly subjective (Reid and Sanders 2007). In designing quality and performance into services, it implies having design parameters at the design phase that would ultimately ensure service quality and performance. For example, to ensure that the haircut meets the clients’ requirement, it might be useful to have a photo record of the hair styles of repeat customers. In this way, if the repeat customer requests for the same previous hair style, the reference photo would clarify the customer requirement, and hence help to achieve better service quality. Service quality and performance are multidimensional, and encompasses several sub-elements.

Service Staff’s Attitude to Consumers It manifests in how courteous, friendly, and helpful the service personnel are. This is an important element in achieving a high service quality and customer satisfaction (Reid and Sanders 2007).

Privacy and Security The ability to protect the safety and confidentiality of customer information (Sousa et al. 2008). This element could be interpreted differently in different service industries. For example, online shopping websites such as *Amazon* would need to protect the customer’s credit card information. In health-care industry, it could include the confidentiality of the patient’s medical condition and

physical privacy which encompass the safekeeping of the medical record and a private clinic room for medical examination.

Comfort in Receiving the Service A sense of physical or psychological ease, often characterized as a lack of hardship. This is the equivalent of “ergonomics” in product design elements (Bloch 1995). For example, *Singapore Airlines’* economy class seats are ergonomically designed to provide comfort to customers. Other design considerations such as “KrisWorld” (an award-winning in-flight entertainment system which provides the latest selection of programs and games), in-seat laptop power supply, onboard amenities including individual toothbrush, toothpaste, knitted sock packs, etc. are also aimed at providing travelers more comfort during the flight (Singapore Airlines).

Timeliness and Promptness The ability to provide services quickly without having to make customers wait for prolonged period of time (Sousa et al. 2008). It includes the ability to respond to standardized or special customer requirements quickly.

Consistency The degree to which the service is the same each time (Sousa et al. 2008). However, it is worthwhile to notice that consistency would not be achieved if the service allows customization. Therefore, consistency should rather be interpreted as a high level of quality in terms of hospitality, security and privacy, comfort, timeliness and promptness, and hence overall customer satisfaction.

Pricing of Service Price is the amount consumer would be paying for the service. When there is uncertainty in the performance of the service, consumers are likely to use price as a cue in forming performance expectations (Dodds et al. 1991). Pricing is an important design element that has direct impact on how satisfied customers are with the service. Therefore, it is important to price the service at the right level, so that the consumers experience minimum price–expectation inconsistency (Voss et al. 1998).

However, it is important to note that pricing of service might not be the basis in forming service standard expectation when the service provider practices demand-oriented pricing which results in widely varying prices for the same service depending on the time that the service is booked and consumed. For example, air ticket is likely to be more expensive if it is booked a few days before the flight, compared to a few months ahead. However, consumers would still demand more from airlines that generally charge more (e.g., Singapore Airlines) compared to the rest which charge less.

Convenience and Usability of Services Convenience and usability of services refer to the ability of consumer to use the service with ease (Osterwalder et al. 2010). This element has been manifested in the design of services across various industries. For example, airlines and hotels design their booking systems in a way that is intuitive to understand, with as few clicks as possible to reach the final confirmation page (Zedlman 2001). Meanwhile, in its recent advisement, *Mercedes-Benz* focused heavily on its convenient services, featuring only after-sales services in the Straits Times (Mercedes-Benz 2012). The highlights are centralized servic-

ing booking system, 60-min express service and star collection, and return service. There are two sub-elements under convenience and usability of services.

Accessibility of Services The degree to which the service is available to as many people as possible. Accessibility can be viewed as the “ability to access” and benefit from some system or entity (Hwang 2011). For example, online shopping websites that offer various payment methods are making their services accessible to a larger group of consumers.

Customization and Flexibility of Services The ability to tailor the service to the specific needs of an individual customer or customer segments (Osterwalder et al. 2010). It is also the ability to cater the service to the customer’s preferences (Bhandari and Snowdon 2012). Some examples are the ability to add an extra bed in the hotel room and the flexibility for consumers to choose their seats and meals during a flight.

Availability of Service-Related Information for Consumers Availability of service-related information is an important service design characteristic for two reasons. First, such information is a powerful marketing tool in informing consumers the usefulness, usability, and desirability of the service (Bhandari and Snowdon 2012).

Second, a readily available pool of service-related information also helps consumers in decision-making. For example, *AirAsia* online booking system provides flight prices 3 days before and after the customer’s chosen date, so that travelers, who are flexible with travelling dates, could compare the prices and make a best decision on when to travel (AirAsia 2013). A large number of service providers with physical locations inform customers their opening hours and getting-there directions on their websites. Such information on price and accessibility are important in helping customers make decisions and hence, enhancing overall customer satisfaction.

Ambience of Service Environment Ambience is the result of interaction between people (i.e., service providers and customers) and the physical environment (i.e., the servicescape; Heide et al. 2007). This entails ambience design or atmosphere design which affects people through the creation of a psychophysical entirety. In practice, this means emphasizing on experience and phenomenality (Koskinen). For example, *Starbucks Coffee* creates the experience of coffee-drinking through the use of light music, coffee aroma, free wi-fi, and comfortable chairs and sofas.

Prestige Perception by Consumers The perception of high prestige is often associated with wealth, status, and success (Osterwalder et al. 2010). If a service is able to create high prestige perception, it is likely to bring out more consumer satisfaction. Service designers could vary factors such as location, price, branding, exclusivity, and spokesperson to create high prestige perception. For example, *the Peninsula Hotel* in Hong Kong served its guests with Rolls-Royce automobiles since 1970, creating high-end prestige perception among consumers (Nunez 2006).

On the other hand, the perception of ordinariness is associated with affordability and ability to meet the basic needs of consumers. For example, *Best Value Inn* hotel chain in the USA gives consumers a perception of affordability and great value. This is also reflected through its pricing, marketing, and amenities provided (AmericasBestValueInn 2013).

Uniqueness of Services Uniqueness is the degree to which a service is seen as different from a typical service (Noble and Kumar 2010). This is based on “novelty” in the critical element of product design. Uniqueness could be achieved through new service concept or technology innovation. It ensures cost reduction (e.g., budget airline) or meets a new type of demands previously unknown to the consumers (e.g., destination dining offered by high-end resorts).

Two new aspects on uniqueness were added as a result of the interview process. The first is the sentiment in the airline and hospitality industry that uniqueness can be very expensive to achieve. Even if they have created something unique, others may copy it. Therefore, there is a need to constantly innovate to meet the needs of the consumers. A good way to innovate is to focus on the soft skills such as people, rather than the hardware which can be purchased and hence replicated by competitors. For example, Singapore Airlines has successfully used the “Singapore Girl” theme to make itself stand out among all airlines.

The second aspect is that the service providers would need to know if consumers actually care about the unique features they are providing. In other words, it is important to understand the needs of consumers very well. For example, Emirates provided shower services in their first class A380 suites which received great feedback because business traveler going to work right after a flight would appreciate a refreshed look (Fischer 2011). If the unique service features do not make a difference to the consumers, it would be a waste in innovation and marketing expenses.

2.4 Conclusion

This research is an initial step toward proposing a set of critical elements in service design and leverages on product design and industrial best practices. Eight service design elements are proposed based on literature review, industry best practices, and interviews with service professionals. The elements are: service quality and performance, pricing of service, convenience and usability of services, availability of service-related information for consumers, ambience of service environment, branding and reputation perception by consumers, uniqueness of services, and consideration of constraints in designing the services. The set of critical elements identified and validated through this research could be used as reference list or toolkit to help beginner service designers propose and justify design ideas. As a primary research in the area of critical element in service design, it lays the foundation for future research in identifying critical elements that would have an impact on the success of services during the design stage.

References

- AirAsia (2013) AirAsia home page. <http://www.airasia.com/sg/en/home.page>. Accessed 7 March 2013
- AmericasBestValueInn (2013) Home page. <http://www.americasbestvalueinn.com/>. Accessed 30 March 2013
- Battikha MG (2003) Quality management practice in highway construction. *Int J Qual Reliab Manage* 20(4/5):532–550
- Bhandari G, Snowdon A (2012) Design of a patient-centric, service-oriented health care navigation system for a local health integration network. *Behav Inf Technol* 31(3):275–285
- Bloch PH (1995) Seeking the ideal form: product design and consumer response. *J Mark* 59(3):16–16
- Business Dictionary Critical element. <http://www.businessdictionary.com/definition/critical-element.html>. Accessed 13 Dec 2012
- Dodds WB, Monroe KB, Grewal D (1991) Effects of price, brand, and store information on buyers' product evaluations. *J Mark Res* 28(3):307–307
- Fischer G (2011) First class on the emirates a380, featuring a shower at 37,000 feet (trip report). <http://crankyflier.com/2011/04/20/first-class-on-the-emirates-a380-featuring-a-shower-at-37000-feet-trip-report/>. Accessed 21 March 2013
- Fisk RP, Brown SW, Bittner MJ (1993) Tracking the evolution of the services marketing literature. *J Retail* 69(1):61–103
- Fonteyjn M (2008) One line of service design. <http://www.31v.nl/2008/03/one-line-of-service-design/>. Accessed 8 Dec 2012
- Heide M, Lærdal K, Grønhaug K (2007) The design and management of ambience—implications for hotel architecture and service. *Tour Manage* 28(5):1315–1325. doi:10.1016/j.tourman.2007.01.011
- Hwang YC (2011) A study on healthcare support e-service design for senior citizens. *J Comput* 6(3):397–403
- Khalid HM, Helander MG (2006) Customer emotional needs in product design. *Concurr Eng* 14(3):197–206. doi:10.1177/1063293 × 06068387
- Koskinen J (2009) Ambience Design Notes. https://www.tlu.ee/UserFiles/Eesti%20Tuleviku-uuringute%20Instituut/Service_Design_Research.pdf. Accessed 30 March 2013
- Mercedes-Benz (2012) At Mercedes-Benz, aftersales is not an afterthought. *The Straits Times*
- Ng I, Parry G, Wild P, McFarlane D, Tasker P (2011) Towards a core integrative framework for complex engineering service systems, complex engineering service systems: concepts and research, series: decision engineering, 1st edn. Springer, London
- Noble CH, Kumar M (2010) Exploring the appeal of product design: a grounded, value-based model of key design elements and relationships. *J Prod Innov Manage* 27(5):640–657
- Nunez A (2006) Largest order ever of Roll Royce phantoms delivered. <http://www.autoblog.com/2006/12/14/largest-order-ever-of-rolls-royce-phantoms-delivered/>. Accessed 30 March 2013
- Osterwalder A, Pigneur Y, Clark T (2010) Business model generation: a handbook for visionaries, game changers, and challengers. Wiley, The Netherlands
- Reid RD, Sanders NR (2007) Total quality management operations management. <http://www.wiley.com/college/sc/reid/chap5.pdf>. Accessed 30 March 2013
- Shostack GL (1977) Breaking free from product marketing. *J Mark* 41(2):73–80
- Sousa R, Andy CLY, Cheng TCE (2008) Customer heterogeneity in operational e-service design attributes. *Int J Oper Prod Manage* 28(7):592–614
- Stickdorn M, Schneider J (2012) This is service design thinking: basics, tools, cases. BIS Publisher, The Netherlands
- Taguchi GI (1986) Introduction to quality engineering: designing quality into products and processes. Quality Resources, Tokyo

- Voss GB, Parasuraman A, Grewal D (1998) The roles of price, performance, and expectations in determining satisfaction in service exchanges. *J Mark* 62(4):46–61
- Zedlman J (2001) Taking your talent to the web: making the transition from graphic design to web design. Waite Group Press, Indiana
- Zeithaml VA, Parasuraman A, Berry LL (1985) Problems and strategies in services marketing. *J Mark* 49(2):33–46