

A methodology for the design of multichannel service processes

*Rui Sousa (rsousa@porto.ucp.pt)
Catholic University of Portugal (Porto)*

*Marlene Amorim
University of Aveiro*

*Guida Marques Pinto
Catholic University of Portugal (Porto)*

*Ana Magalhães
Catholic University of Portugal (Porto)*

Abstract

This paper develops a methodology for the choice of the service channels that support the delivery to customers of the distinct stages of a service process. We build on the principles of Quality Function Deployment (QFD) to develop a stepwise procedure for: i) translating customer requirements into a service concept across distinct service stages; and ii) specifying the channels for customer interaction at each stage. An illustration of the application of the methodology for designing an urban gourmet grocery service is provided.

Keywords: service design, multichannel services, QFD.

Introduction

Multi-Channel (MC) service delivery is employed across most service industries. By making services available in several channels providers can enhance customer choice and service levels, and improve their ability to reach distinct customer segments (Sharma and Mehrotra, 2007).

In recent years, customers have become sophisticated MC users, combining virtual channels (e.g., internet and phone) and physical channels (e.g., stores) for their service interactions (Konus et al., 2008). Moreover, it is becoming common for customers to use different channels at different stages of their service processes (e.g., information search, order placement, fulfilment and after-sales). Customers often prefer virtual channels for the early stages of service delivery, which essentially involve the search for information, while physical channels are sometimes valued for the fulfilment stages (Danaher and Mattsson, 1994).

While multi-channelling provides rich opportunities for meeting customer service requirements, it also confronts firms with added complexity in the design of service processes. A key decision is the specification of the channels that will support customer interactions at the various stages of service delivery. Channels have distinct capabilities and, as a consequence, they differ in the ability to meet different customer requirements, as well as

to support the operational delivery of different types of service activities (Patricio et al., 2008). For example, considering customer requirements, whereas physical stores usually offer customers immediate order fulfilment (e.g., taking the purchased item home right after product choice), the internet offers superior capabilities for analysing information in the search stage (e.g. comparing retail items specifications and prices) (Berman and Thelen, 2004). Considering the operational delivery of services, the internet usually allows for the efficient delivery of simple services, while physical facilities may be more effective for the delivery of complex services. Thus, it is very important to ensure an adequate fit between channels and the several service stages that they will support.

Despite the importance of a suitable specification of the channels that will support distinct service delivery stages, prevalent design tools, such as service blueprinting and the service concept, were developed in the context of single channel delivery, and therefore do not provide specific guidelines for the choice of service channels (Simons and Bouwman, 2004). Evidence suggests that the design of MC services is still largely unstructured and often driven by ad-hoc approaches (Coelho and Easingwood, 2008).

In this study we develop a methodology for the choice of the service channels that support the delivery to customers of the distinct stages of a service process. We build on the principles of Quality Function Deployment (QFD), a key tool used in product design, to develop a stepwise procedure for: i) translating customer requirements into a corresponding service concept across service process stages; and ii) specify the channels to offer for customer interaction at different stages of service delivery. Based on the QFD logic, the methodology employs a number of matrices that display the way channel choices fit with the intended service concept, aligning “the voice of the customer” with the “voice of the provider”.

The structure of the article is as follows. First, we present the conceptual background for the methodology. Second, we describe in detail the several steps that comprise the methodology. We explain the methodology with an illustrative application to the design of an urban gourmet grocery service. We conclude with a discussion of the possible applications of the methodology and its limitations.

Conceptual Background

Service processes and service stages

Service delivery involves bi-directional exchanges and flows of inputs and outputs between the customer and the provider (Sampson and Froehle, 2006). In this context, customers need to engage in multiple interactions with the provider throughout service delivery, involving multiple “touch points” along the “customer journey” (Meyer and Schwager, 2007). In this paper, we view the customer journey as a front-office service process comprising a series of activities involving customer interaction (Sousa and Amorim, 2009).

The service management literature often describes the individual front-office service process activities as a set of sequential stages of service delivery, such as search, order placement, fulfilment and after-sales. While services do not necessarily involve the same stages, overall, the service delivery process can be broken down into distinct stages, associated with different types of encounters.

Service channels and multichannel service delivery systems

Service channels are means of communication which support customer interactions with the provider (Sousa and Voss, 2006). In a MC service delivery system, the provider offers customers the possibility of executing the different interactive activities in a service process

across different channels. In this study, we focus on a key decision in the design of individual service delivery processes, namely, the choice of the channels that will support each customer interaction with the provider throughout the different stages of the service process (Sousa and Amorim, 2009). This design decision is of paramount importance because channels have different abilities in meeting customer requirements for different service activities (customer perspective), as well as in operationally supporting the delivery of different service activities (provider's perspective).

A number of studies of customer MC behavior suggest that customers do have different channel preferences for distinct service stages. Customer channel preferences for service stages have been linked to the traits of the associated activities, such as frequency, complexity and risk (Black et al., 2002), among others. By the same token, studies also support that operational requirements may differ across service stages, and that channels have different abilities in supporting those requirements. For example, in many services the early stages deal essentially with the exchange of information between the customer and the provider, whereas later stages often involve the exchange of physical items or processing the customer-self. While pure information exchanges can be operationally supported by both virtual and physical channels, materials- or people-processing activities (e.g. delivery of physical retail goods, health services, etc.) most often require the use of a physical channel (Sousa and Voss, 2006).

Approaches for supporting the service design process

The process of designing a new service offering comprises several stages, from idea generation to launch. The early stages involve a first effort of understanding the desired customer outcomes, including their expectations about how the service process shall take place through the various interactions and touch points. In subsequent steps, service design leads to detailed descriptions of service process characteristics. The process of service design needs to incorporate different functions within an organization, notably marketing and operations (Verma et al., 2001). A number of approaches have been developed to support the process of service design, with the purpose of: i) facilitating the communication and alignment of diverse functions in the firm; ii) providing an explicit support for describing the elements which will compose an intended service offering.

The service concept, for example, offers a useful approach to guide service design choices and it can work as a service prototype (Edvardsson and Olsson, 1996), assisting firms in aligning design decisions with customer needs. It is also the starting point for translating an intended service idea into specific components which support the operational delivery of the service (Roth and Menor, 2003). Roth and Menor's (2003) service strategy triad posits that the design of a service encounter (i.e. interaction) requires the strategic alignment of the service concept with two other elements: the target market and the specific service delivery design choices.

Service blueprinting is one of the most popular tools to assist providers in the description of service delivery processes. This approach employs a graphical representation to map the customer journey through the various stages in service delivery, involving both front-office and back-office service process activities (Kingman-Brundage et al., 1995). However, because service blueprinting was originally developed in single channel service contexts, it lacks an explicit and simple representation of channel alternatives for supporting customer interaction throughout service delivery stages.

Quality Function Deployment (QFD) is an approach for translating market requirements (the voice of the customers) to products' and services' technical specifications, process

specifications and operational variables (Akao and Mazur, 2003). This methodology is based on a number of matrices, the main one being the House of Quality, a matrix which helps companies establish strategic trade-offs between the voice of the customers and the voice of the provider. The “voice of the customers” is a list of priorities for the functionalities desired for the new offering and is obtained directly from customers. The “voice of the provider” consists in a set of technical specifications and design attributes to be incorporated into the services or products by the providers’ planning, development and manufacturing functions. This approach is particularly effective in fostering collaboration between multiple functions in the organization from the early stages of product/service design. Although originally developed for the design of products, QFD has been increasingly applied to the design of services. However, most often QFD has been applied in single-channel settings. There are only a few applications of QFD to the design of MC services, including the work of Simons and Bouwman (2006) which proposes an extended version of QFD that addresses design aspects related to the integration and coordination of service channels. Although this study shows how QFD can be useful to address design issues which are unique to MC services, it does not provide an explicit support to the choice of channels for customer interactions in service delivery. In fact, it is focused on the integration of a new channel with a set of prior existing channels, rather than addressing MC service design from scratch. Our methodology aims to explicitly consider multiple channels from the start of the design process.

Overall, the detailed design of service processes, viewed as a set of stages, has not received sufficient attention in the literature. Our methodology aims to incorporate customer requirements related to the several service delivery stages into the design process.

A methodology for the design of multichannel service processes

Overview of the methodology

We develop a stepwise methodology for the design of the MC front-office service processes that support the delivery of a new service. In the presentation of the methodology, we consider the common situation in new service design, in which the provider has in place a given set of service channels. The set of adopted channels is a reasonably stable platform that is used to support the portfolio of existing and new services of the provider. Later in the article, we discuss additional applications for the methodology. In this context, the methodology supports a set of key decisions in the design of the MC service processes, namely, the selection of the channels – among the considered a priori alternatives - that should support customer interaction at different stages of service delivery. The proposed methodology builds on former service design approaches, notably on QFD, the service concept and service blueprinting.

The methodology comprises five steps for addressing the choice of the channels to offer for customer interactions at distinct service stages (Figure 1). Building on the approach proposed by QFD, in Step 1 – Target Customer Requirements the provider identifies the target customer segments and their key requirements for the service in question (e.g., for a goods retail service, one important Customer Requirement (CR) could be “the need to buy products frequently”). In Step 2 - Deployed Service Concept, the customer service requirements are translated into a Deployed Service Concept: a specification of a list of Service Delivery Enablers (SDEs), i.e., attributes that the delivery process should possess in its different service stages in order to meet CRs. For example, the CR “the need to buy products frequently” would need to be supported by an SDE called “allow frequent fulfilment” which is primarily associated with the interactions that take place in the “order

placement” and “goods delivery” service stages. Thus, we take the customer journey perspective of service blueprinting by considering each service stage individually. The next two steps analyse the ability of each of the considered channels to support the Deployed Service Concept. Thus, the service concept acts as a bridge between the “what” and the “how” of a new service, driving delivery system design choices (Roth and Menor, 2003) (the “how” being the way in which channels will support the service concept to be deployed). The subsequent analysis includes the ability of each channel to support each SDE, both from the target customers’ perspective (Step 3 - Customer Analysis) and the provider’s perspective (Step 4 – Provider Analysis). The Customer Analysis is primarily a Marketing analysis, while the Provider Analysis is primarily an Operations analysis, considering the provider’s main productive resources. Finally, the methodology integrates the customer (i.e. marketing) and the provider (i.e. operations) perspectives to evaluate MC delivery model alternatives (Step 5 – Multichannel Delivery Model). Following the QFD approach, each step in the methodology is associated with a matrix where the information is combined and the successive decisions are summarized.

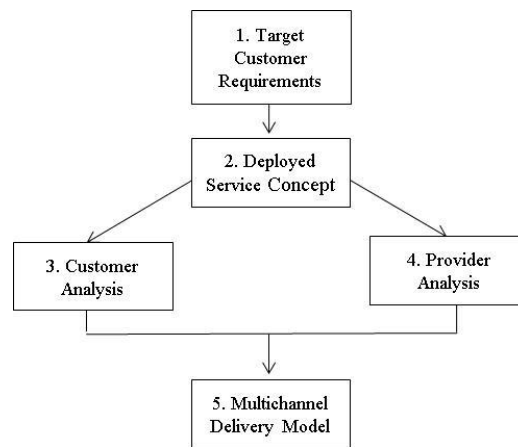


Figure 1: Overview of the Methodology.

Description of the methodology and illustration

We describe the individual steps of the methodology in detail, by applying it to the design of a new (hypothetical) retail service: an urban gourmet grocery service shop selling a relatively exclusive selection of up-market goods. In our illustration, we consider that the grocery service provider considers employing four channels: i) a bricks-and-mortar store, located in an upper class neighbourhood, open daily from 8 a.m. to 9 p.m.; ii) a phone landline managed by store staff; iii) an e-commerce website; iv) a logistic channel, i.e. an outsourced delivery service that can pick goods from the store and deliver them to customers’ homes. To describe the service process, we consider a customer journey with five stages: search (S), order placement (O), goods delivery (GD), queries (Q) and returns (R). The search stage aggregates customer interactions related to information search and evaluation of alternatives. Because these two types of interactions are mainly information-based they can typically be supported by the same type of channels. Order placement includes the interactions related to the indication of the goods to be ordered and payment. Goods delivery includes the interactions that are associated with the customer receiving the goods that were ordered. The post-purchase stage is divided into queries (Q) and returns (R) because the flows originated by customer returns can involve physical items which can’t be supported by the same type of channels as customer queries.

The first step in our methodology involves the collection of information about target customers' service requirements (CRs) and their relative importance (the voices of the customers). This step is supported by Matrix 1 (Figure 2).

MATRIX 1 - Importance of customer requirements for different customer segments

Customer Requirements (CR)	Customer Segments		Aggregate Importance
	Seniors	Young Professionals	
CR 1. Need to buy good frequently	3	1	2
CR 2. Need to acquire an unique good	3	3	3
CR 3. Need to buy good on impulse	1	1	1
CR 4. Need to have good immediately	3	3	3

Figure 2: Target Customer Requirements.

As in QFD, the voices of the customers can be estimated by a number of methods. In our example, we assume that the target market for the grocery service includes two customer segments. One segment is made up of affluent seniors, highly educated, health conscious and with significant free time available. The other segment is made up of middle-class young professionals, similarly highly educated and health conscious, with a busy lifestyle. In our hypothetical example, we consider the following four CRs, drawn from the literature on the classification of consumer buying habits (e.g. convenience, shopping and specialty goods (Bucklin, 1963)): the need to buy a good frequently, the need to acquire a unique good, the need to buy good on impulse and the need to have the good immediately. For each identified CR, we assign an importance rating for each segment of customers, using the scale 1= Low, 2=Medium, 3= High importance. In our example, the assigned importance ratings are based on a subjective judgment of the voices of the customers. For example, concerning CR1 "Need to buy good frequently" we assume that young professionals buy less frequently than seniors, since they have less time available and tend to batch their purchases. Thus the importance of such requirement is rated as 1 for young professionals and as 3 for seniors. The ratings of the different segments can be used to estimate an aggregate importance rating for the market as a whole. In our example, the aggregate rating was computed using a simple average of the two segments; however, more sophisticated approaches can be used.

In the following steps we adopted an analogous reasoning for completing the matrices associated to each step of the methodology, notably, collecting information and rating information about customer-related and operations related aspects which are relevant for the specification of service channels.

Step 2 involves the translation of the identified CRs into a service concept deployed across the five service stages: search (S), order placement (O), goods delivery (GD), queries (Q) and returns (R). This step is supported by Matrix 2 (Figure 3), which is built from: i) translating the CRs into a set of associated service delivery enablers (SDEs); ii) deciding on the importance ratings (1-3) to be attributed to each SDE, considering the CRs in Matrix 1; iii) for each SDE with significant importance (rating of 2 or 3), reflect the importance ratings of the stages in the service delivery process that contribute significantly to the SDE. The ratings arrived at in iii) define the service concept to be deployed.

Next, in Steps 3 and 4, we proceed with: i) an analysis of the target customers' channel preferences for the different service stages, and ii) an analysis of the ability of each channel to meet the deployed service concept at each service stage from the providers' perspective

(given the existing operational infrastructure). The results of these steps, for the gourmet grocery service example, are summarized in Figures 4 and 5, respectively.

Matrix 3 shows the ability of each channel to meet the deployed service concept at each service stage, from the target customers' perspective. The channel ability ratings inscribed in the matrix range from "unable" (represented by a diagonal line) to 3 (highly able). In this example, the store is ranked as the best channel to provide a good customer experience in the search stage, the internet would be preferred for order placement and the logistics channel would be more suited for the delivery and return of goods. Some channels are unable to offer certain service stages to customers; for example, customers cannot have physical goods delivered through the internet channel. This analysis needs to consider two factors: i) customers' intrinsic channel preferences, associated with the specific traits of the target customers; and ii) the intrinsic ability of each channel (given their distinctive characteristics) to support the activity in question, from the perspective of customers at large.

Matrix 4 reflects the fact that the operational requirements for service delivery may differ across service stages, and channels differ in their ability to operationally support different types of service activities (Patricio et al., 2008). Following the reasoning adopted in Matrix 3, in Matrix 4 the channel ability ratings can range from "unable" (diagonal line) to 3 (highly able). For instance, in the gourmet grocery service example, the store is ranked as the best channel to support the goods delivery stage (which is associated with SDEs frequent fulfilment and immediate delivery), followed by the logistic channel. The internet and the phone are unable to operationally support the delivery of physical goods. This analysis needs to consider two factors: i) the operational ability of each channel to support the activity in question, given the provider's existing operations ; and ii) the operational ability of each channel to support the activity in question, considering the intrinsic characteristics of each channel, but abstracting from the provider's operations.

In the final step, we bring together the perspectives of the customer and the provider to assess the ability of each channel to support to deployed service concept. The decision makers analyze matrices 3 and 4 and fill in their aggregate judgments in Matrix 5 (Figure 6). Matrix 5 then serves as the basis for selecting the MC delivery model to be employed.

Going back to our grocery service example, for the service stage "Order Placement" the customer and provider perspectives are in agreement, with the Internet being the most able channel to support the Service Concept (rating of 3), followed by the Phone and Store (ratings of 2). Thus, the aggregate judgment appearing in Matrix 5 mirrors these ratings. On the other hand, for the "Search" stage, the customer and provider perspectives are not aligned. From the customer perspective (Matrix 3), the Store would be the best channel (rating of 3), followed by the Internet (2) and Phone (2). From the provider's perspective (Matrix 4), the ranking is Internet first (3), followed by the Store (2) and Phone (1). In situations of misalignment, managerial discussion should take place to arrive at an aggregate judgment, considering an implicit weighing of the customer and provider's perspectives. For instance, in the grocery service example, in aggregate terms, the Internet has been rated as 3, the Store as 2 and the Phone as 1.

The actual selection of the MC delivery model to be employed should be taken through multi-functional managerial discussions considering primarily Matrix 5, but also the overview of the 5 steps. This means that the provider has substantial leeway in choosing a MC delivery model covering the shaded area in Matrix 5 (Figure 6). The identification of the set of adequate options is a valuable output of the methodology. The final choice will depend on a number of factors, including managerial discretion (i.e., recognizing that a number of

positionings are adequate), the analysis of competing service offerings, cross-stage and cross-channel analyses and fit with the overall business strategy.

MATRIX 2 – Deployment of the key service delivery enablers across delivery stages

Customer Requirements				Service Delivery Enabler (SDE)	SDE Deployment	Service Process Stages				
CR1	CR2	CR3	CR4			Search	Order Placement	Goods Delivery	Queries	Returns
2				SDE 1. Allow frequent fulfillment	2		2	2		
	3			SDE 2. Allow ease of search and rich product evaluation	3	3				
	3			SDE 3. Allow customer assistance and returns	3				3	3
		1		SDE 4. Allow ease of order placement	-----	-----	-----	-----	-----	-----
			3	SDE 5. Allow immediate delivery	3			3		

Figure 3: Deployed Service Concept.

MATRIX 3 – Ability of each channel to meet the deployed service concept from the target customers’ perspective

Available Channels	Service Process Stages				
	Search	Order Placement	Goods Delivered	Queries	Returns
Store	3	2	2	2	2
Phone	2	2	/	3	/
Internet	2	3	/	2	/
Logistics	/	/	3	/	3

Figure 4 - Customer Analysis.

MATRIX 4 – Ability of each channel to meet the deployed service concept from the provider’s perspective

Available Channels	Service Process Stages				
	Search	Order Placement	Goods Delivery	Queries	Returns
Store	2	2	3	2	3
Phone	1	2	/	2	/
Internet	3	3	/	2	/
Logistics	/	/	2	/	1

Figure 5 – Provider Analysis.

MATRIX 5 – Multichannel Delivery Model

Available Channels	Service Process Stages				
	Search	Order Placement	Goods Delivery	Queries	Returns
Store	3	2	3	2	2
Phone	1	2		2	
Internet	2	3		2	
Logistics			2		2

Figure 6 – Multichannel Delivery Model.

Conclusions

This study develops a methodology for assisting service providers in the choice of the service channels to employ to support the delivery of the several stages of front-office service processes (from information search to after-sales). We make a number of contributions to research and practice.

Research wise, the methodology makes a number of contributions to the literature on new service design. First, there are few tools that explicitly consider the design of a service taking a process view and addressing the detailed level of individual stages. Our methodology adopts an explicit focus on service process stages, building on the notion of “customer journey”. This is important because customers’ perceived service experience results from the cumulative assessments of the various customer-provider encounters throughout delivery (Sousa and Voss, 2006). Our methodology puts forward a relatively simple, yet sufficiently detailed, mapping of service processes into a limited number of service stages that can be used in a diverse range of service industries.

Second, the methodology explicitly considers an important design decision that has not been sufficiently addressed to date, namely, the specification of the MC delivery model to be employed. It provides a structured, stepwise approach to the process of design, a much needed contribution given the often ad-hoc approaches that are employed by providers. It provides a framework for fostering the collaboration among different functions in the organization, as it entails the joint examination of both Marketing and Operations perspectives, answering calls for the alignment of these perspectives in the design of service systems (Kwortnik and Thompson, 2009).

The methodology also makes a number of contributions for practice. The most straightforward application of the methodology is to support the process of designing a new service, assuming that the provider has already in place a given set of channels and corresponding delivery system. In this case, the methodology works at a tactical level, assisting the choice of the channels that will support the delivery of each stage of the new service. A variation of this is the application of the methodology to the re-design or re-engineering of an existing service process and the corresponding MC delivery model. Going through the 5 steps works as a “service audit” which can provide valuable suggestions for improvement. The methodology can be used to analyze the implications of the addition of a new channel to an already existing MC delivery system as well. The provider will need to decide which activities will be supported by the new channel and whether the addition of the new channel should lead to changes in the way the other channels support the service.

As with any approach, the methodology has a number of limitations. First, its goal is confined to the design of the MC delivery model; this analysis should be considered alongside other service design considerations. Second, the focus is on the matching between channels and service stages. Although broader issues such as the integration of the various service

delivery channels or joint consideration of several services in the provider's portfolio can easily be discussed and incorporated in the design decisions, the methodology does not offer specific decision-making support for such aspects.

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