A framework for the design of multichannel services

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Abstract
The objective of this paper is to identify the key strategic design decisions which make up a design specification for Multi-Channel Service Delivery Systems (MC SDSs). Our work extends Roth and Menor's (2003) seminal service design framework, based on a theory-building case study conducted in the context of MC retail banking services. We describe and classify a set of SDS design choices which are specific to MC services, and which provide a framework to assist future research addressing the classification and performance assessment of alternative MC SDS designs.

Keywords: service design, multichannel services, multichannel service delivery systems

Introduction
In recent years, we have witnessed a strong growth of services provided through multiple channels. This growth has been strongly linked to the proliferation of e-services which make service firms increasingly operate in Multi-Channel (MC) environments. Retail banks, in particular, have been pioneers in the adoption of virtual channels, such as the phone, the Internet and the new mobile communication technologies.

The adoption of new channels was initially driven by productivity goals, such as the reduction of the volume of customer interactions with service employees and the increase of service time availability. This driver was later complemented by customer satisfaction objectives, as research results evidenced that MC delivery systems can lead to enhanced customer perceptions regarding service portfolios (Wallace et al., 2004) and service quality (Montoya-Weiss et al., 2003). Subsequent findings have consistently supported the association between MC strategies and improvements in customer satisfaction, sales and customer retention (Pauwels and Neslin, 2006; Kumar and Venkatesan, 2005; Vishwanath and Mulvin, 2001).

As the developments in information and communication technologies expanded the diversity of channel options available for service providers, the definition of a specific MC model became a matter of strategic choice. Accordingly, service firms have been adopting very diverse MC delivery models in terms of the portfolio of channels involved, the variety of service activities supported by each channel and the extent of cross-channel service flows that are allowed.

The design of MC SDSs introduces a set of new decisions such as the choice of a channel mix, the definition of cross-channel service processes, the design of back-

offices to adequately support multiple channels and the design of systems to integrate multiple channels. However, there is still little research addressing the effective design of MC Service Delivery Systems (SDSs) that could provide guidance for the complex choices that need to be made. In many cases the channel structure of MC services has resulted from an ad hoc profusion of individual channels (Schoenbachler and Gordon, 2002; Coelho and Easingwood, 2003, 2004). We argue that MC design decisions are not adequately contemplated in the existing SDS design frameworks which, for the most part, have been developed with a single-channel mindset. Therefore, this study sets out to offer a first building block for a framework for MC SDS design, by modifying and extending Roth and Menor's (2003) seminal service design framework. Specifically, the objective of this study is to identify and describe the key strategic design choices that are specific to MC SDSs, making up a design specification for MC SDSs.

The study is based on a theory-building case study of a MC retail banking service. The empirical findings are triangulated with existing theory in service management and publicly available observations from other service industries to identify, describe and classify a set of SDS strategic design choices that are specific to MC services.

The structure of the paper is as follows. First, we review the literature on the definition of channels and the role that they play in MC service delivery. Second, we present the research framework supporting the case study and describe the employed methodology. Third, we present and discuss the main findings of the case study: the identification of MC SDS design decisions and the development of a framework for characterizing and classifying MC SDSs. Finally, we discuss the study's main contributions, limitations and leads for future research.

Service channels and multichannel services

Service delivery typically involves multiple interactions between customers and providers. Customers need to provide key inputs for service production such as material objects, immaterial objects (including information), or, in situations such as health or education services, the customer himself (Sampson and Froehle, 2006; Lovelock and Wirtz, 2001). Customers are also often asked for feedback during the service process. In some cases, as in self-service settings, customers are further involved in production as they perform some of the operations themselves (Sampson, 2000; Gadrey, 2000; Wemmerlov, 1990).

Service channels can be defined as the means which support the customer-provider interactions, and the bi-directional flows that they exchange throughout service production (Neslin et. al, 2006; Sousa and Voss, 2006). Channels have distinct characteristics regarding the type of interface they use and the nature of the interaction that they enable with the customers. Froehle and Roth (2004) put forward alternative archetypes for customer-provider interaction: face to face settings, in which customers interact directly with service employees; and face to screen touch points, where the interaction is conducted through a technology interface. In face to screen settings, the role of technology can either be the mediation of contact with a service employee or performing automated service delivery without human intervention. By the same token, Sousa and Voss (2006) distinguished between virtual and physical channels of service delivery. A virtual channel consists of a means of communication using "advanced telecommunications, information, and multimedia technologies". A physical channel consists of a means of communication with the customer employing a physical ("bricks-and-mortar") infrastructure. These authors also distinguished between physical and virtual components in services. Virtual service is defined as the pure information

component of a customer's service experience provided in an automated fashion (without human intervention) through a given virtual channel. Physical service is defined as the portion of a customer's service experience provided in a non-automated fashion, requiring some degree of human intervention, either through a virtual or a physical channel. Human intervention can take place in the front office, the back office or both. The concept of physical service is therefore broader than the interpersonal service, as it encompasses services without human interaction with the customer (e.g., a logistics service).

In MC services both physical and virtual components can be delivered to the customer through multiple channels (Sousa and Voss, 2006). MC service providers often enable full service delivery through alternative channels, or offer customers the possibility of combining different channels for obtaining a service. Recent research has documented an increase and diversification in MC customer behavior (Black et al, 2002; Burke, 2002).

Research framework

Case based research should be supported by an adequate conceptual framework explaining graphically or in narrative form the things that are to be studied – the key factors, constructs or variables - and the presumed relationships between them (Miles and Huberman, 1994). The focus of our study is on the identification of the main types of MC SDS strategic design decisions that need to be considered to support the delivery of the service bundle to a firm's target market. Our study is rooted on Roth and Menor's (2003) framework for service strategy and SDS design, developed for services in general (Figure 1). Roth and Menor (2003) classify strategic design choices in three categories:

Structural: decisions regarding the physical aspects of the delivery system, including facilities, technology and equipment, capacity and service product-process interfaces (e.g., the relative allocation of tasks to the front and back office, and the number and types of distribution channels).

Infrastructural: definition of programs, policies and behavioral aspects of service strategy.

Integration: issues of operations organization and coordination, service supply chains, integration technologies and learning and adaptive mechanisms.

In this paper, we address the structural decisions and the associated integration issues which are involved in the specification of a MC SDS to support the customer-provider interactions in service delivery.

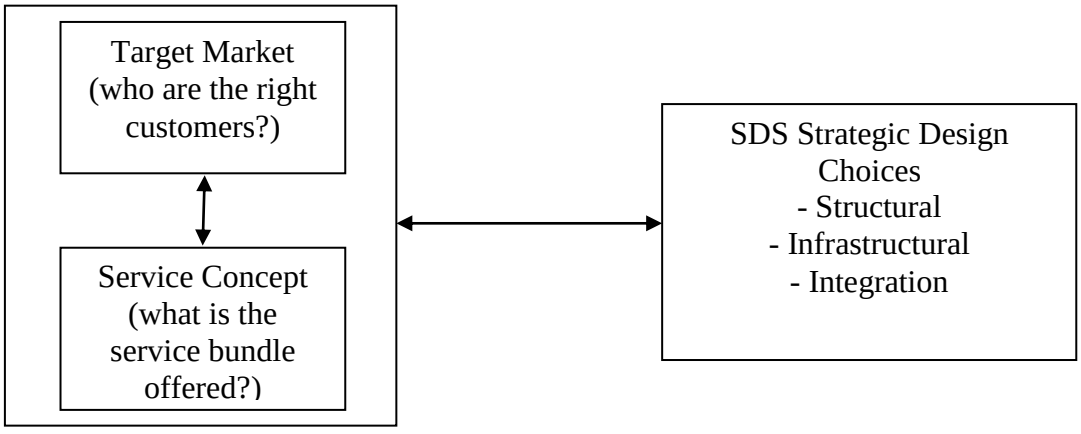

Figure 1 – Research framework.

In MC SDSs, customers receive the service bundle by using the different channels to interact with service processes. According to Roth and Menor (2003), the service bundle is comprised of a portfolio of core and peripheral service elements. The core service comprises five elements: i) the supporting facilities (the physical and structural resources that need to be in place for the service to be delivered); ii) the facilitating goods (the materials, supplies and merchandise that are used or consumed in the service delivery process); iii) the facilitating information that supports or enhances the execution of the explicit services; iv) the explicit services that represent the customer's experiential or sensual benefits; and v) the implicit services which are characterized by the psychological benefits or more tacit aspects of the service that customers may sense only vaguely. In the context of MC SDSs, we address channels as the "supporting facilities" element that support the interactions through which customers receive the remainder of the service bundle. For example, in MC banking customers interact with service delivery processes via physical branches, the internet and the phone to receive the several core service elements: explicit services (e.g., subscription of financial products), implicit services (e.g., feelings of trust), facilitating information (e.g., fees structure, financial advice) and facilitating goods (e.g., ATM cards, checkbooks). Figure 2 summarizes the main elements of a MC SDS.

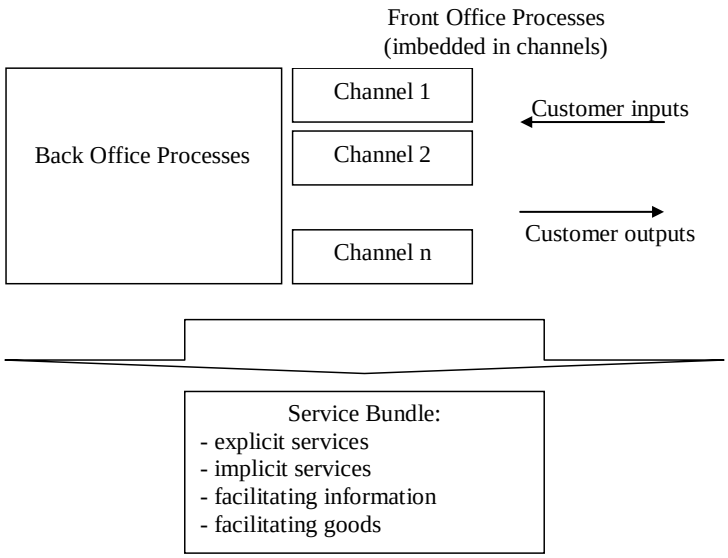

Figure 2 - Main elements of a MC SDS.

Methodology

The study is based on a theory-building case study of a major MC retail banking service. The choice of the banking sector was motivated by the intangible nature of the process flows involved in the customer-provider interactions. Being an information-based business, retail banking holds a large potential for diversity in what regards the possible MC delivery models, because most process flows can be supported by information technologies.

We chose a bank which had implemented both physical and virtual channels for some time. At the time of the study, the main channels of service delivery in the bank were as follows: virtual channels: internet, phone, ATM, mobile phone; physical channels: physical branch and a logistics infrastructure (used to deliver facilitating goods to customers, such as ATM cards, checkbooks, etc.). The bank, located in Portugal, had about 1.9 million customers and about 9.500 employees at the time of the

study and is considered a "best practice" service, being ISO9001 certified and having won, among other awards, the "Best Consumer Internet Bank 2003" country award by the Global Finance magazine.

Consistent with our research framework, we developed a case study protocol addressing the following areas: i) contextual business conditions; ii) the description of the target market and the service bundle; iii) the understanding of the antecedents and drivers of the adoption of a MC strategy; iv) the identification and description of the main strategic design decisions, including the channel architecture and the allocation of service operations to channels. In this process, we focused our analyses on the bank's set of core services.

Data collection involved multiple data sources: i) a series of tape recorded in-depth interviews with managers from several departments involved in design decisions with MC implications. These included the departments of General Management, Marketing, Quality Management and Direct Channels (Web and Phone channels); ii) collection and analysis of archival data, such as product/service brochures, internal documents on the allocation of these services to channels (process flow maps across channels) and the information available at the institutional web site; iii) direct experience of the MC service as a customer on the part of one of the researchers, having conducted interactions with the bank through its branches, internet and phone.

The first stage in data analysis involved the organization and coding of the data from the several sources, following the usual guidelines for qualitative research (Miles and Huberman, 1994). The second stage used the outcome of this codification to construct tabular displays to manage and present qualitative data, structured according to our research framework (Figure 1). This resulted in: i) the examination of the links between target markets and SDS design decisions; ii) the examination of the links between the service bundle and SDS design decisions; and iii) the identification of the different types of structural and integration MC SDS design decisions. These results are presented and discussed next.

Results and discussion

Links between the MC SDS and target markets

The interviews revealed a consistent perception across the bank managers of channels as means of communication and interaction with customers ("channels are what enable us to reach customers and customers to reach us"). There was a generalized awareness of the existence of different channel utilization profiles across customers. For example, managers referred to the lower rate of MC utilization by older customers, for whom the utilization of virtual channels was typically low. Conversely, for specific segments such as emigrants, virtual channels played a strategic role for customer retention, by enabling remote service interactions. The perceived differences in channel utilization were found to influence strategic design decisions ("we permanently look at how customers will be using the channels in the future in order to inform strategic MC decisions"). These results validate the influence of target market characteristics on MC SDS design decisions.

Links between the MC SDS and the service bundle

The bank offered different types of services, which were classified internally using a typology of customer needs: current account transactions, savings and investments, loans, mortgages, and insurances. Most of these services involved a contract, and had a set of associated transactional services. For example, when contracting a savings

deposit, the bank enables customers to perform transactions with those assets (transfers, payments, etc.).

Most of the process flows associated with these services have an intangible nature, therefore making it theoretically feasible for the different service operations to be conducted both through physical and virtual channels. However, we found differences in the MC SDS choices across the various services in the bank's portfolio. Typically, for the more complex services – such as investment products – or contracts involving higher financial commitment for the bank or the customer, the bank adopted less flexible MC SDSs, where customers had some limitations regarding channel choice for the various interactions involved in the specific core service. In addition, managers reported differences in the channels privileged by the bank for supporting different stages in service delivery. In what regards the service delivery stages as defined by Neslin et al. (2006) - problem recognition, search, purchase and after sales – we found that, in general, the bank had more restricted MC alternatives for the purchasing (or contracting) stages. The bank was providing significantly more channel alternatives to customers for the information search and after sales services.

Accordingly, the case study supports the important influence of the attributes of the service bundle on MC SDS design decisions.

SDS strategic design choices

We found that the several MC SDS design decisions could be framed in terms of four hierarchical levels: 1) Overall channel strategy; 2) Allocation of service activities to channels; 3) Definition of cross channel process flows; 4) Integration decisions. In the context of our research framework, decision areas 1), 2) and 3) may be seen as "Structural", while decision area 3) may be seen as "Structural Integration". We discuss these in turn.

1) Overall Channel Strategy. The interviews with the bank managers revealed the existence of an overarching dimension of MC strategy which involved decisions regarding: i) the breadth of channel choice; ii) the types of channels to adopt and relative importance of each in service delivery. The decisions regarding the adoption of particular channels of service delivery are typically long-term and require substantial investments in facilities, technologies and organizational structures. These are overarching decisions which place strong restrictions on subsequent, more detailed, SDS design choices. These decisions are taken so as to match the broad profile of the service bundle and target market and seem to reflect a strategic positioning of the provider. Therefore, they need to be relatively independent of the detailed changes that may occur in the service bundle and target market over the short run.

The studied bank positioned itself as a high channel breadth provider, with an extensive range of physical branches, as well as two other main channels of service delivery (internet and phone) through which it attempted to offer most services - to the extent to which legal, technological, commercial or other restrictions allowed. This was clear from statements such as: "the overall objective of MC management is to provide customers with a consistent response no matter which interaction channel customers choose" and "the priority today is not to guide customers to specific channels but rather to provide them with the possibility to choose for themselves". That is, the three main channels were used as a platform to deliver the service bundle, without an a priori explicit focus on any given channel. Channels were organized around a common goal, "the customer is a Bank customer and all channels collaborate and don't compete for that customer". In particular, there were projects under way to extend the range of services and service interactions that could be supported by the virtual channels by

means of investments in technology and changes in service processes. For example, as the bank increasingly used the phone channel to promote new services to customers - such as small loans or investment alternatives - it gradually invested in technology and supporting back-office processes to facilitate the contracting of those services by the phone; the goal was to enable this channel to be perceived as a full service alternative by customers.

2) Allocation of Service Activities to Channels. Despite the overall strategic orientation of providing channels with similar functionality, we observed that the roles played by channels in service delivery were often different for different services in the bank's service bundle. The physical channel was the only one which enabled full service delivery for the overall portfolio of the bank, and was the channel with the highest sales performance. On the contrary, the phone channel for example, was labeled by the bank managers as having a key "counseling" role in the overall relationship with customers.

Based on the differences found, we suggest a classification regarding a channel's ability to deliver a given core service in the bundle: *full-service channel*, a channel which supports all the interactions associated with the service; *complementary channel*, a channel which supports only some of the interactions associated with the service. For example, in the studied bank the internet and the phone were each complementary for the service "subscription of financial products", because not all the interactions associated with financial products could be performed through these channels; specifically, in several cases (e.g., for higher value contracts), the contracting stage could only be performed at a branch.

Similarly, it is possible to classify the channels according to their role in the delivery of the complete bundle of core services of a given service provider: a *super channel*, which performs the role of "full-service" channel for most services in the bundle (the case of the physical branches in the studied bank); a *core channel*, which performs the role of a "full-service channel" for at least one of the core services in the portfolio; a *supplementary channel*, which does not perform the role of "full-service channel" for any core service. In the studied bank, the mobile phone and the logistics infrastructure played the role of supplementary channels. While customers could in many instances use a mobile phone for the pre-contract and post-contract stages, they were not allowed to contract/acquire products over these devices.

3) Definition of Cross Channel Process Flows. The former decisions regarding the scope of service activities that are supported by each channel in the SDS configure a MC architecture which will support specific process flows, using one channel or a combination of channels for completing the service delivery. The definition of the process flows supported by the SDS requires another level of MC design decisions. Providers need to specify, for each core service, which channel combination alternatives will the SDS offer to customers. For example, it may allow for all possible sequences (i.e., customers can freely choose, for each service process interaction, through which available channel they will conduct it through) or it may place more stringent restrictions (for example, if a customer begins his/her interaction on the internet, he/she may have to carry out some of the subsequent activities through this channel, even though these activities may also be available through other channels).

The resulting MC architectures can therefore be characterized in terms of the variety of channels employed (*MC variety*), the extent to which service interactions are made available in the different channels (*MC redundancy*), and the extent to which customers are allowed to combine different channels along the sequence of interactions associated with the service (*MC flexibility*). Because these three attributes are

interrelated, the MC SDS adopted to deliver a given core service can be classified along a continuum of MC architectures based on an aggregation of these three dimensions. The observations in the studied bank allow us to suggest what might be three basic anchor points along this continuum:

- *Generalist MC SDS*: the core service is delivered by several full-service channels (high variety); most service interactions are available through most channels (high redundancy); customers are offered a high degree of channel choice and channel combinations to conduct each of the service process interactions (high flexibility). In the studied case, most of the interactions associated with the core service "current account" were offered simultaneously through physical branches, the internet and the phone, and customers had close to total freedom for composing any cross-channel interaction sequence.

- *Centralized MC SDS*: the core service is delivered by one full-service channel (medium variety); additional channels may be employed for some (but not all) process interactions (medium redundancy); and customers have limited choice as to cross-channel flows (medium flexibility). In the studied case, the core service "mortgages" was fully supported by physical branches, the internet could be employed for some of the pre-contract (e.g., simulation) and post-contract (e.g., statement of installments) interactions, but not for the contractual stages.

- *Specialized MC SDS*: each channel specializes in a given type of interaction and no full-service channel exists. Thus, different channels need to be combined to deliver the service (low variety); each process interaction is available in only one or a few channels (low redundancy); and the options for cross-channel flows are very restricted (there may even be a single compulsory sequence). In the studied bank, we observed that the request of a credit card could be performed through a branch, the phone or the web, but the physical delivery of the card necessarily takes place through the logistics infrastructure channel.

4) Integration Decisions. The previously discussed structural design decisions set the hardware that supports customer interactions with the service provider through several channels. Because these interactions may take place across different channels they require explicit integration efforts, which correspond to specific design decisions. We uncovered two main areas where explicit integration efforts related to the MC nature of the service delivery were present: a) Consistency of the interactions: b) Management of cross-channel flows.

In what regards the consistency of interactions, the bank had made explicit design decisions concerning content consistency - the consistency between the information exchanged with the customer through different channels, including both outgoing and incoming information (Sousa and Voss, 2006). Specifically, the bank had developed a common back-office to support all channels, comprising a Customer Relationship Management system and databases, both shared across channels. This ensured that the outgoing communications drew on common information, regardless of the channel of service provision. It also increased the consistency of incoming information by offering a "single view of the customer" taking into account the interactions occurring through all channels.

As for the management of cross-channel flows, we found that the studied bank had systems in place to manage and influence cross-channel customer flows in order to achieve specific objectives related to the desirable (from the provider's perspective) match between interactions and channels. For example, the bank tried to influence customers to conduct low value added interactions through the virtual channels with the aim of reducing transactional costs, while at the same time not disengaging customers

completely from the branches through which more complex/high value adding interactions can be performed, such as the cross-selling of additional products or services. This was performed without actually changing the structural MC architectures. The systems in place to manage these interactions were CRM-type systems that kept track of the preferred cross-channel interactions of each customer, and used this information to target customized marketing communication, complemented by explicit managerial incentive policies for steering customer behavior (e.g., definition of fee structures, communication messages with customers, etc.). By allowing changes in incentives along time, these systems could be used to dynamically implement different policies of influencing customer channel behavior within the restrictions placed by the previously discussed higher level design decisions. They also informed the devising of strategies for managing and responding to customer utilization of the MC SDS.

Conclusions

This study has developed a framework for MC SDS design, by modifying and extending Roth and Menor's (2003) seminal service design framework. Specifically, the study has identified and described a set of hierarchic strategic design choices (structural and integration) that are specific to MC SDSs: i) overall channel strategy, consisting of long run decisions such as the definition of a channel portfolio and the importance attributed to different channels in service delivery; ii) the allocation of service activities to channels, which defines the roles played by channels in delivering the several core services; iii) the definition of cross-channel process flows, consisting of the definition of the possible channel combinations and the resulting process flows offered for customer choice; and iv) integration decisions (consistency of interactions and management of cross-channel flows), required for ensuring the coherence of the system and the monitoring and control of MC customer utilization.

In this process, we have put forward a classification for the roles played by channels in the delivery of a core service (full-service or complementary channel) and in the delivery of the overall service bundle (super, core or supplementary channel). We have also identified and defined three key operational attributes of MC architectures employed in service delivery: MC variety, redundancy and flexibility. Based on these attributes, we have suggested three basic MC architectures that can be employed for delivering a core service: generalist, centralized and specialized.

Our study is important for several reasons. First, it has highlighted the complexity of designing MC SDSs and the lack of a comprehensive body of knowledge in this area. Second, it has stressed the fact that there may be substantial diversity in the employed configurations of MC SDSs. Research to date has merely distinguished between multichannel and single channel services, not delving into the complexity and diversity of possible MC delivery models. Third, our study provides increased structure and identifies key decision areas for managers involved in the design of MC SDSs. This will hopefully contribute to avoiding the ad hoc design of MC services that has often taken place (e.g., driven internally by the profusion of individual channels) (Schoenbachler and Gordon, 2002; Coelho and Easingwood, 2003, 2004). Finally, the study is a preliminary step for the characterization of alternative MC models.

Future research should test and validate the basic MC delivery models put forward by our study, by conducting replication case studies in other information intensive MC services as well in other types of MC services. Future work should also investigate the factors that influence the identified MC SDS design decisions (including the choice of different MC architectures) as well as assess the performance impacts of different MC delivery architectures.

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