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WHAT IS A VIRTUAL SERVICE?
- BROADENING THE PERSPECTIVE ON
TECHNOLOGY-BASED SERVICES

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– broadening the perspective on technology-based services

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Abstract

This article expands the discussion of the impact of technology on services and contributes to a broader comprehension of the nature of virtual services. This is done by discovering dimensions that distinguish physical services from virtual services, i.e. services that are distributed by electronic means and where the customer has no direct human interaction with the service provider. Differences in the core characteristics of services, servicescape and service delivery are discussed. Moreover, dimensions that differentiate between virtual services are analysed. A classification scheme for virtual services is proposed, including the origin of the service, the element of the service offering, the customisation process, stage of the service process performed, and the degree of mobility of the service.

Introduction

The recent advancements in information technology have created new challenges for marketers. Electronic commerce has contributed to the emergence of new industries as well as the redefinement of existing businesses. Technology is used to develop totally new service concepts to the virtual marketspace (Zeithaml and Bitner, 2000) and to redesign existing services (Berry and Lampo, 2000; Grönroos *et al.*, 2000). As a result, it has been suggested (Bitner *et al.* 2000; Parasuraman and Grewal, 2000) that there is a call for a more in-depth research on services in a technology-based environment. As Bitner *et al.* (2000:147) formulate "it is important to determine if the same conceptual factors established in interpersonal service encounter research are relevant in a technology-based environment". Moreover, as argued by Heim and Sinha (2000:155), there has been little research to "discover dimensions that differentiate traditional

services from electronic services or that differentiate between electronic services." The increasing importance of research on the impact of technology on services has also been noted at academic conferences and in calls for papers.

Furthermore, there is a need to develop common terminology and concepts. Currently, there is a broad variety of different concepts and terms used in service marketing literature when referring to virtual services, such as cyberservice (Pitt, *et al.*, 1999; Watson *et al.*, 2000), electronic service (Brännback and Puhakainen, 1998; Heim and Sinha, 2000), Internet-related service (Angehrn, 1997), Internet offering (Grönroos *et al.*, 2000), on-line service (Hoffman and Novak, 1996), information -based service (Rayport and Sviokla, 1994) and self-service technologies (Meuter *et al.* 2000). Nevertheless, the problem is not only semantic; the terms also relate to different phenomena. While some authors limit their discussion to services on the Web or the Internet, other authors refer to all technology-enabled services such as ATM's and voice mail. Moreover, on-line retailing has dominated the discussion on virtual services in the literature and media and hence often used synonymously ignoring a wide range of other types of virtual services.

But what is a virtual service? In this study, the term virtual service is used to describe *all services that are distributed by electronic means and where the customer has no direct human interaction with the service provider*. In other words, the customer interacts directly with the system instead of the service employee. Examples of virtual services are different self-service machines (e.g. automatic teller machines and ticket booths), Internet services (such as on-line banking or stock exchange services), and telephone services with no human interaction (e.g. recorded timetables or weather reports). Physical services, on the other hand, are traditional services that involve direct or indirect human interaction. As we demonstrate in this article, a virtual service may purely consist of virtual interactions with various systems (e.g. on-line banking) or be a part of a goods-service bundle where the goods can be either physical or virtual (e.g. on-line retailing and downloading of software, respectively).

In the search for the nature of virtual services, this article aims to discover key dimensions that differentiate virtual services from physical services. The article begins by discussing the characteristics of services, both physical and virtual services.

Thereafter, the concepts of servicescape and service delivery are discussed and a comparison of these concepts in a physical and a virtual context is made.

Furthermore, the article aims at finding dimensions that differentiate between virtual services. This is done by introducing a scheme for classifying virtual services. The classification scheme proposed include 1) the origin of the service, i.e. whether the service has been redesigned from the physical environment or whether it has been designed directly to the virtual context, 2) the element of the service offering, i.e. whether the service is a core service, or a facilitating or a supporting service to a physical service, 3) the customisation process, i.e. the initiator and degree of the customisation, 4) stage of the service process performed, and 5) the degree of mobility of the service, i.e. the degree to which the service is fixed to a location or an interface.

Service characteristics

Services marketing approach emerged in the late 1970's as several researchers (e.g. Regan, 1963; Rathmell, 1966; Shostack, 1976; Eiglier *et al.*, 1977; Gummesson 1977; Grönroos 1978) started to question the strong goods orientation of the prevailing marketing approach and its suitability to marketing of services[1]. The marketing mix concept introduced by Borden (1964) in the 1950's, later deduced to the four P's by McCarthy (1960), was criticised of being too narrow (Lovelock, 1981; Booms and Bitner, 1981), simplistic and production-oriented (Grönroos, 1994).

Traditionally, research in service marketing has been characterised by a s*ervice-product dichotomy*. The research aimed at a comprehension of the nature of services by examining the differences between services and products. Early service researchers found that in comparison to products, services are characterised by intangibility, inseparability of production and consumption, heterogeneity and perishability, as synthesised by Zeithaml, Parasuraman and Berry (1985). For long, it was argued that the most profound difference between products and services is the characteristic of intangibility and that intangibility determines whether or not an offering is a service or a product (Zeithaml and Bitner, 2000).

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[1] For an extensive review on the development of services marketing thought see Fisk, Brown and Bitner (1993) and Brown, Fisk and Bitner (1994).

However, this line of thinking has been challenged and instead the process nature of services is emphasised (Gummesson 1991; Grönroos, 1998, 2000a,b). As already observed by Rathmell (1974) in the mid 1970's, the consumption and production of services cannot be separated. Therefore, services are processes and thus characterised by process consumption, as the customer perceives the production process as a part of the service consumption (Grönroos, 1998). Admittedly, some parts of the service may be prepared prior to the point that the customer joins the process, but the most crucial part for perceived service quality occurs within the service encounter along with interactions with the customer. There is strong customer involvement and participation in the service process. Often, service encounters equal to the actual service as perceived by the customer (Bitner, 1990). Hence, as argued by Grönroos (1998), intangibility and heterogeneity are not truly specific characteristics for services and inseparability of production and consumption and perishability of services actually result from the process nature of services.

Despite the critique that the earlier discussion of service characteristics has received, the majority of the little research that has been published on virtual services follows this line of thinking. Researchers have mainly been preoccupied with reasoning whether virtual services share the same characteristics with physical services regarding intangibility, inseparability of production and consumption, heterogeneity and perishability, rather than with trying to simply describe the nature of virtual services.

Accordingly, Heim and Sinha (2000) state that virtual services share many of the characteristics of traditional services. The service transactions and experiences are delivered via electronic channels and are thus intangible. Differences in provider technologies, employee techniques and delivery expectations result in service heterogeneity. Moreover, differences in customer needs, expectations, self-service capabilities, willingness to interact and customer perceptions foster heterogeneity, which may also result from system-to-system performance of technology that connects the customer to the service delivery system. Virtual services are also characterised by inseparability of production and consumption as they can be produced, delivered and consumed simultaneously.

On the other hand, it has also been argued that the four characteristics of services do not describe the nature of virtual services (Brännback and Puhakainen, 1998; Pitt *et al.*,

1999; Watson *et al.*, 2000). Pitt, Berthon and Watson (1999) and Watson, Berthon, Pitt and Zinkham (2000) state that all of these service characteristics can be managed one way or the other, e.g. by providing tangible cues about the service, facilitating customer participation, standardising the service delivery, controlling the factors, i.e. time, location and cost etc. that limit the service delivery.

The process consumption view on virtual services is brought forward by Grönroos, Heinonen, Isoniemi and Lindholm (2000) as they suggest that all virtual offerings, products and goods, are characterised by process consumption. Virtual services are by our definition services produced independently by the customer without direct service employee involvement. Consequently, virtual services rely heavily on customer participation in service production. Therefore, the significance of process consumption perspective is emphasised when studying virtual services. Nevertheless, although there has been a lot of debate as to whether the four service characteristics are appropriate to characterise virtual services and whether a process consumption view is more suitable, the true nature of virtual services remains unexplored.

Service environment

According to Lovelock (1983), the nature of the service act can be determined by studying at whom the act is directed and if the act is tangible or intangible in nature. The nature of the service determines if the customer needs to be present, physically or mentally, or if he can participate for example trough mail or electronic channels.

Bitner (1992) suggests that the service environment, or the servicescape, affects the notion of the service. Physical surroundings are generally important as interactions between the customers and employees occur in the firm's locations. Physical evidence also facilitates performance or communication of the service (Zeithaml and Bitner, 2000). According to Bitner (1992) there are three kinds of servicescapes. Firstly, *self-services* encompass high customer participation. Consequently the customer performs almost all of the activities and few employees, if any, are involved, e.g. ATMs or online Internet services. Secondly, there are *interpersonal services* where both the customer and the employee must be present in the servicescape. For these services, the servicescape affects the nature and quality of social interactions between and among customers and employees. Thirdly, *remote services* require little or no customer

involvement in the service environment. These are services that can be delivered without the customer even seeing the service facility. Some examples are telecommunication, mail-order services, and financial consultants. Virtual services encompass self-services (e.g. on-line banking) and remote services (e.g. voice mail).

If interaction with the service organisation is possible at arm's length, the customer does not need to see the service facility or the personnel. According to Lovelock (1983), the outcome of the service act is important in situations where the customer does not visit the service facilities but the process of service delivery is less significant. Direct service, on the other hand, involves bringing the service to the customer instead of bringing the customer to the service and reduces the amount of back office processes (Berry and Lampo, 2000), as the customer is required to interact directly with the service employee. Consequently the service delivery can vary.

For virtual services that require high customer involvement and participation without any or only little employee assistance support functions for the service activities are essential. Grönroos, Heinonen, Isoniemi and Lindholm (2000) suggest that a user interface that consists of every computerised interaction is an important support to the service activities. Hence, the customer interacts with a process instead of personnel. It is also critical to provide sufficient information concerning the service characteristics and delivery. Thus, the user interface in combination with sufficient information enables the customer to perform the service.

Rayport and Sviokla (1995) distinguish between the physical marketplace and the virtual marketspace, defined as a "virtual realm where products and services exist as digital information and can be delivered through information-based channels". In the traditional marketplace, interaction occurs between a physical seller and a physical buyer. In the marketspace, however, the content of transaction, the context in which it occurs and the enabling infrastructure is different (Rayport and Sviokla, 1994). The information about the products replaces the products themselves. The customer of an on-line bookstore finds information about books instead of hardcopies and paperbacks. Moreover, the face-to-face context is replaced by an electronic context and the infrastructure relies on computer networks and other electronic means. The shopping context is no longer the physical store with shop attendants and other customers but a virtual store on the screen.

Service delivery

Developments in information technology change dramatically the delivery of services (Kasper, 1997). In many occasions, a service that does not require the customer's presence is now more conveniently delivered at arm's length by using information technology. Previously, customers had to visit their banks to pay their bills, now they can do it from home by using electronic banking services. Likewise, services that are directed to people's minds such as education and consulting can be delivered across physical distances. Videoconferences replace meetings, lectures can be held at distance and people can consult their physicians via picture phone. As Regan (1963) anticipated in the 1960's, the application of technology to the service delivery may have similar effect on services that technology had on mass production.

The interaction between a customer and the service organisation takes place during a service encounter. Zeithaml and Bitner (2000) divide service encounters to *remote encounters*, *phone encounter* and *face-to-face encounters*. Remote encounters occur without any direct human contact, e.g. when a customer interacts with a bank through the ATM system or via the Internet. Zeithaml and Bitner (2000) argue that in remote encounters the tangible evidence of the service and the feature of the technical process and systems become the primary basis for judging quality. We argue that this division of the encounters could be revised. A phone encounter is specific while the remote encounters include direct interactions with the system and indirect contacts with the personnel. We would, thus, suggest a division of the encounters into direct human interaction (face-to-face and phone encounters), indirect human interaction (mail, fax, e-mail) and system interaction (ATMs, Internet).

Electronic channels are the only service distributors that do not require direct human interaction. The more a service relies on technology or equipment for service production and the less it relies on face-to-face contact with service providers, the less the service is characterised by inseparability and non-standardisation. Hence, electronic channels overcome some of the problems associated with service inseparability and allow a form of standardisation not previously possible in most services. (Zeithaml and Bitner, 2000)

Another aspect of service delivery that should be considered is the number of service outlets available (Lovelock, 1983). A service organisation may have just one single

outlet or multiple. The least convenient combination is a single outlet that the customer is required to visit and the most convenient are multiple outlets at arm's length. When using the Internet, services can be delivered either real-time, through point-to-point or multi-point connections, or asynchronously (downloading) (Angehrn, 1997).

Classifications of virtual services

Since the early days of marketing, different classification schemes have been developed to help managers understand and develop different types of marketing strategies. The early classifications focused on categorising goods. Copeland (1929 in Bucklin) divided goods into convenience, shopping and speciality goods, which helped retailers to understand customer behaviour and distribution systems. Later, Bucklin (1963) redefined the categories to shopping and non-shopping goods. A classification scheme for services was synthesised by Lovelock (1983) using previous research. Prior to that, services had been classified according to an industry categorisation. It was believed that different service industries had little in common and that managerial knowledge obtained in one industry could not be transferred to another. For example, a bank manager was not believed to benefit from service knowledge gained in the airline industry. Lovelock (1983) argued that combined classification schemes might result in better marketing insights than using one variable at a time to compare service companies.

> *"Recognising that the products of service organisations previously considered as different actually face similar problems or share certain characteristics in common can yield valuable managerial insights. Innovation in marketing, after all, often reflects a manager's ability to seek out and learn from analogous situations in other contexts." (Lovelock 1983)*

Similar hindsight that the early service research suffered from shadows the research on virtual services. Different service industries were treated as mutually exclusive, and likewise, services in the virtual marketspace are often put in one big category, mainly on-line retailing. Treating all virtual services similarly does not provide managers with any better marketing insights nor does it have any strategic value. For example, not all virtual services suffer from distribution problems associated with on-line retailing. Meuter et al. (2000) on the other hand, categorise virtual services as self-service technologies (SST), that allow customers to perform services themselves. These are technology interfaces separated according to their underlying technology, e.g. Internet,

ATMs, telephone and video technology. This classification scheme suffers from the same limitation as the industry classification of services. Firstly, as with the industry development, the technologies change continuously. Secondly and more importantly, we propose that technology is not the factor that best distinguishes different virtual services from each other. Instead, we suggest that the differences between virtual services are best distinguished by comparing various other characteristics and elements of the service offering.

The following section presents a suggestion of five different ways of classifying virtual services. The classification scheme attempts to answer following questions:

1. What is the origin of the service? Has the service been transformed from the physical context or has it been designed to the virtual context?
2. What element of the service offering is the service? Is it the core service or a facilitating service or a supporting service to a physical service?
3. What degree of standardisation does the service convey? Or does it allow customisation?
4. What stage of the service process is performed virtually? Is the virtual service a pre-service, service or a post-service?
5. What is the degree of mobility of the service? How fixed to a location or an interface is the service?

The origin of the service

One way to differentiate between virtual services is by focusing on the origin of the service. The Economist (2000) divides companies trading on-line into two categories: *legacy businesses* that are offspring from business on the physical marketplace (e.g. Charles Schwab's eSchwab) and *pure plays*, i.e. web upstarts (e.g. Amazon.com, E*Trade). However, this categorisation of company origins is not concerned with whether the company is selling goods or services. Furthermore, we argue that it is more interesting to look at the origin of the provided virtual offerings than at the roots of the company. Virtual offerings may consist of virtual services or virtual products, i.e. goods that can be distributed in digital form. We argue that virtual offerings, i.e. virtual

products or services, may have originated from either physical products or services, as illustrated in Figure 1.

	product	service
service	Aerobic class to Aerobic video	Banking to On-line banking
product	Board games to Computer games	Answering machine to Voice mail

From physical (rows: service, product)

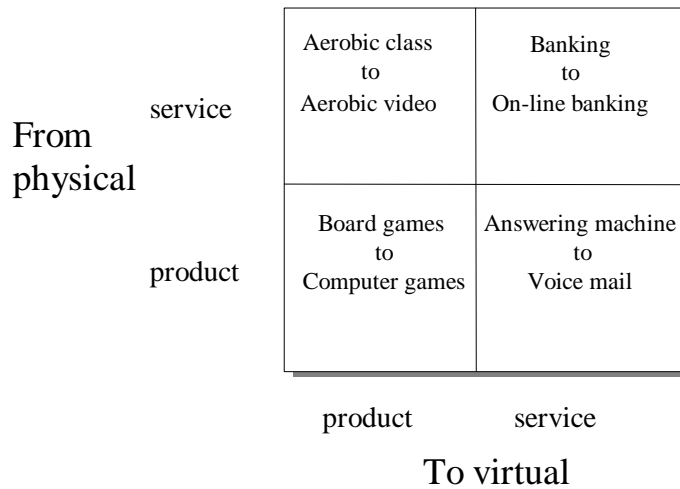**To virtual** (columns: product, service)

Figure 1: The origin of virtual offerings

For example, a physical product such as telephone catalogues or board games can be transformed into *virtual products* such as telephone CD-ROMs and computer games, respectively. In Shapiro and Varian's (1998a,b) terms these are called *information-based goods*, defined as goods capable of being distributed in digital form.[2] Correspondingly, some physical services may be redesigned to virtual products. A service such as an aerobics class can be converted into a virtual product by capturing the lesson in an electronic format.

Nonetheless, some physical products can be redesigned to *virtual services* when offered on the virtual marketplace, for example, voice mail can replace physical answering machines. Likewise, some physical services can be transferred into virtual services. For example on-line trading, booking of tickets and banking all have physical antecedents. According to Rayport and Sviokla (1994) when buyer-seller transactions occur in an information-defined arena, the information about a product or service can be separated from the product or service itself. Sometimes, the information can become as critical as the actual service, for example the possibility of tracking the movement of a parcel via the website of FedEx can be almost as valuable to the customer as the actual transport itself.

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[2] See Shapiro and Varian (1998a,b) for an interesting discussion about the new economics of information-based goods.

Strategic implications

What is the strategic value of this classification? First of all, it is valuable to recognise whether the virtual offering is a virtual product or a virtual service simply in order to withdraw from the extensive knowledge on marketing of goods vs. marketing of services available. Secondly, the origin of the virtual offering affects the strategic decisions about how to provide the offering on the virtual marketspace. The offering cannot be directly transferred to the virtual environment without being redesigned. Sometimes the value of the offering may differ as customers needs and wants vary. Products can be turned into virtual services and services can be redesigned to virtual products. Thus, the market decisions concerning the offering must change.

Element of service offering

When examining traditional services, researchers have developed concepts that differentiate services according to various elements of the service offering (*service package* Lehtinen, 1982 and Normann, 1983; *service offering* Grönroos, 1990; *service offer* Palmer, 1994). Eiglier *et al.* (1977) demonstrate the multiplicity of services as the service includes a core service as well as peripheral services. The core element of a service offering (*core service*) is central in the service process (Normann, 1983), i.e. the reason for being on the market (Grönroos, 1990). Peripheral services include facilitating services and supporting services. Facilitating elements of a service offering (*facilitating service*) are mandatory and enable the service delivery. Supporting elements of a service offering (*supporting service*) add value to the service but are not obligatory. The boundaries between facilitating and supporting services are not easily determined. Sometimes the importance of the supporting service increases over time and the service is redefined to a facilitating service. Furthermore, supporting services can be divided into three groups according to their value for the customer and be placed on the supporting service ladder introduced by Grönroos, Heinonen, Isoniemi and Lindholm (2000).

Even though only a few services can be totally delivered through arm's length transactions, it may be possible to detach particular components of the service from the core product and manage them separately. Lovelock (1983) suggests that services can be categorised according to whether transactions such as acquiring information or

making reservations and payments can be separated from the delivery of the core service.

This paper suggests that virtual services can be divided according to their role in the total service offering. It is emphasised that not all virtual services are core services (virtual search engines such as Yahoo and AltaVista are examples of virtual core services). For example, a customer buying an airline ticket is actually purchasing transportation, not the opportunity to make a reservation. Hence, many widely used examples of virtual services are actually facilitating (e.g. Amazon.com on-line ordering) or supporting services (FedEx on-line parcel tracking). Angehrn (1997) proposes that Internet can be used as a distribution channel for non-physical services (text-, voice- or video-based consulting and training) or auxiliary services associated with traditional services or products.

Strategic implications

We argue that it is as important to identify whether the virtual offering is a core service or a facilitating or a supporting service as when dealing with physical services. Too many companies put their resources on building virtual supporting services and forget to nourish their core services. For example, constant redesigning of a website does not help a movie theatre with a bad picture quality. Customer dissatisfaction is often caused by a malfunctioning core service. If an on-line retailer cannot assure quick distribution and high quality goods, it cannot keep its customers happy by upgrading the navigation system on its website. Moreover, when offering a service in the virtual environment it is necessary to understand that the core service in the physical environment may be transformed to a facilitating or a supporting service when offered virtually. Thus, despite many warnings in the literature, the virtual service may not necessary compete with or cannibalise the physical service when transforming the offering to the virtual environment (e.g. Thurow 1999).

The customisation process

Traditionally, consumer goods have been highly standardised and designed to meet the demands of mass markets. Recently, however, the concept of mass customisation has gained great interest as a response to the increasingly fragmented markets. In the service

sector, contrary to the goods market, customisation is less demanding due to the nature of services. As services are created when they are consumed, and because of customer participation in the production process, there are far more possibilities to customise the service to meet the needs of individual customers. In fact, customers expect and demand customisation in service encounters (Bettencourt and Gwinner, 1996). According to Lovelock (1983) customisation can proceed along at least two dimensions. Firstly, the service characteristics themselves enable customisation. Public transportation and movie theatres, for example, are standardised because of pre-determined timetables. Secondly, the extent to which contact personnel determine the nature of the service received by individual customers affects the degree of customisation. For example, doctors and attorneys are required to exercise judgement in how to meet the individual needs of the customers.

Previously, successful customisation has depended on the frontline employees ability to adapt the service according to the specific customer demands. In the virtual marketspace, services can be customised either by the customer himself or by the service system, as illustrated in Figure 2. For example, a customer may choose to receive news relating to sports and fashion in his newspaper. Similarly, the service system can learn from the behaviour of the customer and can customise the service accordingly without the customer necessarily knowing it. The Amazon.com on-line bookshop can recommend books to the customer based on his previous purchases. However, the degree of customisation varies between different virtual services. Whereas automatic teller machines have a limited customisation capability – they recognise the customer's preferred language from the bankcard – services, such as Hotmail, allow the customer to tailor his e-mail account according to detailed preferences. Services like the Real Player radio – despite the high customer involvement – allow little customisation and instead offer possibilities to choose from a pre-determined and standardised collection of music.

	RealPlayer radio	Hotmail
high		
Customer involvement in customisation		
low	ATM's	Amazon.com

	low	high

Possibility to customise

Figure 2 Customisation matrix of virtual services

Strategic implications

It has been stated that the ability to customise the service offering is a major determinant leading to customer satisfaction (Meuter *et al*. 2000). The value of the service will increase as the customer gets more freedom to customise the service offering according to his needs. Another strategy is to customise without the customer actively being aware of it. Following the behaviour of the customer, customisation can occur smoothly bringing the customer delight and positive surprise. A company can also carry out both ways of customisation simultaneously. The customer is allowed to customise the service according to his preferences, but the company alters the service according to the observed behaviour.

Stage of service process

As previously explained, service offerings can be divided into sub-elements according to their importance, i.e. into core, facilitating and supporting services. In addition, the service offering can also be separated into three stages of the service process, namely pre-service, service and post-service or as suggested by Lehtinen (1982, 1985) to the joining, intensive and the detaching phase of the service process. Pre-services, such as check-in or transport to a conference, are front-end processes that necessitate the customer's participation before he receives the core service and are unwanted chores that the customer must bear with (Berry and Lampo, 2000). Optimally, pre-services enable the customer to reach quickly and smoothly the more valuable part of the service encounter. The actual service is the value-adding part of the total service offering, thus the most important, e.g. conference attendance. Post-services, such as delivery of

conference proceedings or ability to check flight mileage bonus points, occur after the core service.

Information technology can separate front-end processes from the service delivery. Virtual pre-services may increase customer convenience as the customers can perform front-end tasks in advance, for example reserve cinema tickets or book hotels on-line. Such services are normally fast and easy. They may require registration the first time they are used but henceforth to activate the service delivery only the login name and password need to be typed in. As customers receive more control over pre-services, they adopt new roles in the service process. Charles Schwab customers can act as brokers, American Airlines passengers can act as travel agents and concert fans can act as ticket agents.

When the actual service occurs in the physical marketplace, technology can be used to provide a window to the service process. For example, FedEx customers had previously little contact to the actual service process. Today, it is possible to locate a shipment by entering a tracking number on FedEx website.

Strategic implications

Identifying the stage of the service process that the virtual offering represents can help companies to plan their marketing communication strategies. When advertising virtual pre-services, for example, the convenience and time-saving associated with the offering can be emphasised. Moreover, virtual services can be used to make the service process more visible to reduce the feeling of risk and hence add customer comfort. The window to the service process may reduce customer anxiety and stress by increasing customer participation, and hence, enhance the added value of the service. Increased customer control and participation also reduce costs in the service delivery.

Degree of mobility

The nature of the service is affected by the number of service outlets available and the need of customer visiting the service facility in person (Lovelock, 1983). A service may be reached trough one single outlet or multiple, in person or at arm's length.. The advancements in technology add a new dimension to the service delivery discussion,

namely the mobility aspect of the service. Mobility refers to the ability of the consumer to consume the service without any restrictions to place. Self-service machines must be visited in person and some of them are very location specific. Self-service check-in takes place only at the airport while the automatic teller machines accepting a Visa card can be found from the most peculiar places round the world. Internet services, on the other hand, can be reached through multiple outlets at arm's length, in fact the number of outlets is nearly indefinite, but still they tie the customer to a fixed terminal. Although an on-line banking service is characterised by multi-point delivery, i.e. the service can be delivered through any terminal connected to the Internet, access to a terminal is required. The most recently developed category encompass services that are not tied to any fixed terminals at all, but are truly mobile in nature. Examples of such services are all services reached by a mobile phone, such as mobile banking and information on stock exchange sent in text format to the phone.

Aside from the characteristic of freedom of location, a number of other aspects highlight the differences between mobile services and other virtual services. First of all, mobility affects the *usage situation* and hence the types of services demanded. The services used in mobile situations are normally related to quick information gathering, such as checking the bus timetable or the nearest restaurant, or to entertainment. Many consumers use their mobile phones to play games when they are in a situation where they need tasks to kill time.

Moreover, the *payment culture* is different when comparing Internet services and mobile services. Consumers are used to the original, non-commercial culture of Internet and expect free services. The payment culture associated with mobile services is, on the other hand, more commercial. Customers have always paid for using their telephone and there is less resistance for non-complimentary services.

As mentioned, mobile services are reached by mobile phones that follow the customers conveniently in their pockets. The small size of the mobile phones enable the mobility, but it also affects the *service experience*. Mobile phones have a tiny user interface, lower bandwidth and a limited power capacity. Consequently, careful attention should be paid when designing services for mobile settings. While big pictures and fancy colours might work for an on-line retailer, a mobile service provider might want to keep the service as simple as possible.

Strategic implications

When designing a virtual service, it is important to consider the delivery of services and the interfaces through which the customer interacts with the service system. Mobile services should be designed in such manner that they are easy to use through a small interface and low bandwidth. The mobile needs are also different than fixed-line service needs as mobile needs more often are a result of spontaneity or haste, e.g. a need for timetables of telephone numbers. This should be remembered when designing new mobile services. The ability to reach customers more conveniently as with mobile and often also Internet service delivery increases the convenience of the service process. Mobility also adds value to the customer because of the possibility to continuously be on-line. This in turn can also be a downside to the mobility effect.

Conclusions and future research

Little research has focused on giving the concept of services in a technology-based environment a general meaning. Instead the focus has been on analysing whether various characteristics of services are valid in a technology-based environment. Moreover, the terminology and concepts used for virtual services in the marketing literature are widespread. This article proposes, as an answer to the question posed by the title, a broader understanding of the nature of virtual services by discovering dimensions that distinguish physical services from virtual services related to the service environment and service delivery. The term virtual service encompasses all services that are distributed by electronic means and where the customer has no direct human interaction with the service provider. The article suggests a number dimensions that differentiate between virtual services. 1) the origin of the service, 2) the element of the service offering, 3) the customisation process, 4) stage of the service process performed, and 5) the degree of mobility of the service.

The strategic implications of the classifications concern market decisions about the virtual offering and decisions about which part of the service offering to support the most, as well as marketing communication strategies that can be better managed and planned. One important implication of the proposed classification scheme is the recognition of whether the virtual offering is a virtual product or a virtual service simply in order to withdraw from the extensive literature on marketing of goods vs. marketing

of services available. Furthermore, when the offering is transformed to the virtual environment, it will not necessarily compete with or cannibalise the physical service, and also value of the service will change depending on the higher degree of customisation available on the virtual marketspace. There is also a difference in the degree of mobility, which affects the characteristics of the service offering.

To sum, the concept of virtual services is multifaceted and still need much research. Beyond the necessary analysis of virtual services on a broader scale, important questions that are still unanswered concern e.g. the development of virtual service offerings, the balance between physical and virtual offerings of a service provider and market strategies for virtual offerings.

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