Digital services: How are they different?

Joni Salminen
joni.salminen@utu.fi
Turku School of Economics

Abstract

This paper explores the concept of digital services through a comparison with the traditional view of services, particularly the IHIP model, and more modern services marketing literature. More specifically, the questions asked include: (1) How are digital services different from the dominating concept of service? (2) How do the basic properties of the IHIP model apply to digital services? Based on conceptual development, it is argued that digital services are offerings (i.e. products) combining several characteristics traditionally attributed to either goods or services (but rarely to both). These characteristics include: (1) intangibility, (2) high technology, (3) invariance, and (4) scalability (IHIS). Essentially, while these characteristics imply that in marketing of digital services it is possible to benefit from 'best of both worlds', they also raise a question of how digital services should be approached in the literature.

Keywords: *digital services, e-services, IHIP model*
Track: *Theory and Principle of Service Sciences*

1.   Introduction

"e-Services" can be defined as "the provision of service over electronic networks such as the Internet" (Rust & Kannan, 2002, p. 4). The view of "electronic networks" focuses on the medium as the differentiating factor in service provision. In contrast, by "digital services", this paper refers to services offered in digital environments, and argues that they may have some fundamental differences in regards to "analog" services that constitute the core of existing services marketing research.

In the services marketing domain, there has so far been a lack of interest in digital services, which relates on one hand to novelty of the topic, and on the other hand to the tradition of the domain to emphasize face-to-face interaction as oppose to "faceless" environments such as the Internet (see e.g. Grönroos, 2000; Lovelock & Gummesson, 2004, p. 21). Gummerus (2010, p. 426) notes, digital services "did not even exist when the field of services marketing first emerged". Already in 1994, Brown, Fisk, and Bitner (1994, p. 41) stressed that

> *The current services literature is implicitly mired in the paradigm of 'low tech and high touch'. The typical need for high levels of human interaction has even led some writers to downplay explicitly the potential contributions of technology to services marketing.*

However, there have been calls to study digital services more closely. For example, when asked about the future of services marketing, "nearly every panel member ["expert" of services marketing research] identified the theme of the interplay between services and information technology, particularly the Internet and the e-commerce that is has spawned." (Grove, Fisk, & John, 2003, p. 114).

This is a conceptual paper, developing on existing literature and concepts. The methodological approach is to explore the compatibility of the concept of "services" with the concept of "digital services" by finding exceptions and counter-examples for conceptualizing digital services

through services marketing concepts, particularly the traditional IHIP model. There has recently been some renewed interest in conceptual papers in the field of marketing, relating especially to discovery of new ideas (constructs), or synthesizing existing theories with novel phenomena (Yadav, 2010).

2. The IHIP model

The IHIP is a "legacy model" of services marketing listing the most critical characteristics of services in contrast to goods. For an excellent overview of the historical development of the IHIP characteristics and their roots in economics, refer to Lovelock and Gummesson (2004). According to the IHIP model, services are:

Intangible—services are activities (or deeds, processes) and not physical objects (cf. goods) (Edvardsson et al., 2005, p. 113). Thus, they are incapable of being perceived, "especially by the perception of touch" (Sampson, 2007, p. 13). Because services cannot be seen, felt, tasted or touched, purchasing them is risky.

Heterogeneous—Services are "unique products or unique processes" (Sampson, 2007, p. 13). Services cannot be standardized due to "inconsistency of behavior" (Zeithaml et al., 1985, p. 34). Because their quality varies from one service encounter to another, purchasing and producing services is risky.

Inseparable—Services are "consumed at the point of production" (Sampson, 2007, p. 13). As stated by (Zeithaml et al., 1985, p. 33): Unlike goods, which are first produced, then sold and consumed, "services are first sold, then produced and consumed simultaneously". This, again, leads to a higher risk "in terms of quality assurance and quality control [because] services cannot be provided in advance and checked before delivery." (Edvardsson et al., 2005, p. 114).

Perishable—Services are perishable in two senses: (1) as products, meaning that "the process output provides customer benefits for a limited duration", and perishable (2) by capacity, so that any "capacity without timely demand cannot be utilized to meet future demand" and leads to waste of resources (Sampson, 2007, p. 13). In contrast, goods are perishable in a sense they expire when stored; the problem for services is not "expiring" but the inability to stock them for future demand. Thus, "if demand exceeds capacity, it goes unfulfilled and business may be lost." (Lovelock & Gummesson, 2004, p. 114).

3. Digital services: Comparison to the IHIP model

The purpose of the following comparison is not to downplay the IHIP framework; this mission has already been accomplished by several authors in the past. In fact, there is a consensus in the current services marketing literature that IHIP is an "outmoded" framework (e.g. Lovelock & Gummesson, 2004). However, due to stickiness of the model in the literature and textbooks despite the academic attacks against it (which often fail to present a better alternative), the IHIP classification has been applied here to explore particular characteristics of digital services. In the following table, the four service characteristics are contrasted to digital services.

Table 1   The IHIP model and digital services

Service characteristic	Applies to digital services
Intangibility	**Yes**
Heterogeneity	No
Inseparability	No
Perishability	No

Intangibility applies to digital services, since they are delivered as "pure services" in terms of the tangible/intangible continuum. Heterogeneity does not apply, because digital services can be made homogeneous, as mentioned by previous authors (Edvardsson et al., 2005). Inseparability does not apply either, because the digital service is developed (programmed) prior to consumption, much like goods are produced before selling, so the consumption process does not affect its content. Furthermore, perishability does not apply to digital services because they are produced "on-demand", or provided upon customer request. Therefore, the "synchronization problem" of matching (and planning) supply and demand prior to offering services (e.g. Zeithaml et al., 1985) is not present in modern digital services. However, the problem is not solved though storing as is the case for goods, but by automatic scaling of supply, a feature labeled as "on-demand service".

Then it is a question of semantics if we refer to "production" or "provision" in terms of distribution process – although there is no physical inventory for delivering the service, maintaining it involves physical elements such as data warehouses, servers, broadband connections, and such. However, their implications from a marketing perspective are not very relevant – much more important are the design and development processes of digital services, since they are closely associated with user experience. In the lack of human interaction, user interfaces and digital service usage flows are important for customer satisfaction. Simply put, it needs to be acknowledged that although we do not speak of "production" in relation to digital services, there are physical activities and facilities that take place prior to service provision.

4.   A new concept for digital services?

How to characterize the digital service? Based on the literature analyzed for this paper, a new conceptualization of digital services is proposed:

> *Digital services are offerings combining several characteristics that have been attributed to either goods or services. They are centered on four key dimensions: (1) intangibility, (2) high tech, (3) invariance, and (4) scalability ("IHIS model"). Essentially, these characteristics imply that in marketing digital services it is possible to benefit from the best of both worlds.*

The foundation for the digital services concept consists of four characteristics of the digital service, which are presented as follows. The list is of an exploratory nature; it is not argued to be exhaustive by any means, although it aims to capture the most essential dimensions.

(1) Intangibility—in their essence, digital services do not involve physical evidence of the unit of exchange. Now, there are several implications arising from this notion. First, although no concrete material evidence is present, environmental cues do play a role in customer quality perception even in the digital environment, similar to "tangibles" in the service quality concept (cf. Zeithaml, Parasuraman, & Barry, 1990). These can be called "digital tangibles" or "tangibilizers" (Edvardsson et al., 2005, p. 117) since they help the customer in formulating initial perception, attitude and intent towards the digital service. In a way, we can talk about "mental tangibility" (Edvardsson et al., 2005, p. 114) and servicescapes (Bitner, 1992) that represent the visual guidelines for customer perceptions that will form during the interaction with the service – whether or not the service provider pays attention to them.

The lack of tangibles touches websites only in the physical sense. In practical terms, the website itself creates an environment which gives clues and hints of the service quality as well as explicit demonstration (e.g. videos, pictures, slides) and descriptions of content and features of digital services. The "tangible" elements then are only constructs that shape the perceptions and attitudes of customers, corresponding to the substance of the original concept (creating a perception to the customer). Several "trust indicators" are used to decrease the *ex-ante* risk of

buying a digital service, such as security certificates, excerpts of customer feedback (testimonials), and guarantees.

(2) Invariance—digital services can be standardized by both quality and content, and the standardization is easier than for services that require a high human touch/effort to be provided. This is in direct contradiction with the traditional view of the service that asserts: "unlike tangible goods, 100 per cent quality cannot be engineered into a service, especially when even the definition of the service is in the eyes of the beholder." (Brown et al., 1994, p. 40) Several digital services are provided as standardized offerings with a high, invariable quality – in fact, many providers offer service-level agreements of up to 99.9% of availability for their service with full functionality (Google, 2011). When bringing in the subjective interpretation of the quality into the picture, it cannot of course be guaranteed that the personal experience of each customer is invariable (or heterogeneous) but, then again, the same applies for all goods and services alike – reaching a total control over individual perceptions is beyond the scope of any marketing activities. In the case of digital services, this may apply so that the customer is using the digital service ways unforeseen by the developers (of the service firm). This may cause confusion to both parties: to customer, because he does not understand why the service is not functioning in a desired manner and to developer who does not understand why the customer is not using the service as planned.

Finally, digital services can be "provided in advance and checked before delivery [for quality]", which is a possibility that should be impossible for services (Edvardsson et al., 2005, p. 117) but should result in a more consistent perception of quality by the end-customer.

(3) High tech (low touch)—Whereas the reigning service marketing focus is on services provided face-to-face (as argued earlier), entailing resource constraints, the case of digital services is different. More specifically, the customer interaction within digital services takes place with the application interface; human touch has mainly a supportive role (cf. "self-services"). This "human distance" (Lovelock & Gummesson, 2004, p. 33) leads to anonym exchange between the service provider and the customer. As oppose to "high touch" services, the distant and anonym nature of the digital service commands consideration to increasing trust, and perhaps include more human interaction through the digital medium. In particular, there are ways to increase human touch, such as implementing a live-chat component. The desired results are then better customer service, a higher degree of trust, and providing information to questions customers may have.

On the flipside of the coin, separation between service provider and customer means that services can be offered (and taken) regardless of location, rendering digital service provision essentially location independent (Evanschitzky & Iyer, 2007). Further, the crucial role of technology in service provision leads to benefits of scaling, since the firm is able to service virtually unlimited number of customers at any point in time. Acknowledging this characteristic takes us one step farther from the process-centric view of the service, and perhaps one step back to "industrialized" services, a concept once appreciated but nowadays mostly forgotten (Levitt, 1972; Chase, 1981; Meuter, Ostrom, Roundtree, & Bitner, 2000).

(4) Scalability—meaning that economies of digital services are considerably different from traditional services, for which scaling, defined as increasing supply to match increased demand, is typically more expensive, considerably slower and requires greater focus on human resource management issues, such as recruitment and management of labor. Digital services are characterized by "unlimited seats", meaning that they scale perfectly according to the actual demand.

For example, when ten customers begin to use the product today and one hundred tomorrow, the increase does not require additional action from the service provider – in a scalable service

system, there is no need to plan productive capacity once the system has been configured. In contrast, in a physical setting an employee can typically handle only one customer interaction at a time. The benefits of scalability can be demonstrated through the customer contact model by Chase and Tansik (1983). The model holds that "a service system's potential operating efficiency is a function of the degree to which the) customer is in direct contact with the service facility relative to a total service creation time for the customer" (p. 1039), so that

$$\text{potential operating efficiency} = f\left(1 - \frac{\text{customer contact time}}{\text{service creation time}}\right)$$

For digital services, these economies seem highly feasible. By trading-off customer contact time (measured by human touch, or work hours by service staff) to service creation time (measured in computer-mediated events in the website, or "transactions"), firms are able to elicit efficiency gains. Of course, the externalities of having more customers apply equally to digital services, so that having more customers is likely to increase requests for customer service as well (e.g. questions, support tickets and so on). However, these can be dealt with by digital means, such as FAQ sections, knowledge bases, discussion forums and other forms of peer-to-peer support, to some extent.

Additionally, scaling does not remove the risk of technology failure. Even some of the big Internet brands, such as Twitter are known to have outages (Twitter, 2010). Therefore, it is necessary that when scaling up the digital service, the incremental number of customer requests remains relatively low, or otherwise the firm risks either poor customer service (and potential dissatisfaction) or increasing costs due to pressures to increase human touch (labor resources). As emphasized earlier, development and design processes, including major efforts in testing, are important for ensuring customer satisfaction, and consistency of low human touch.

5.   Conclusions and discussion

In conclusion, it seems digital services in fact combine characteristics that have been traditionally seen proprietary to either goods (e.g. high quality invariance) or services (e.g. intangibility). Further, it can be stated that the four IHIP characteristics are not well applicable to digital services, except intangibility. The perspective through which digital services are viewed in this paper is that of intangible products. However, due to inconsistencies in definition of services as well as some authors' position of not seeing services as products (cf. Grönroos, 2000), it is questionable whether digital services should be called services at all, or perhaps something else. It should be clarified if digital services differ from "traditional" services as much as these traditional services differed in their time in regards to goods. If this is the case, digital services would warrant a research stream of their own, apart from the current services paradigms, as services marketing did in its own époque (Shostack, 1977).

Indeed, it is not quintessential to call digital services "services" to begin with. For example, startup founders (of Internet companies) typically refer to their offerings as "products" instead of "services", even though their offerings are entirely intangible and do not include transfer of ownership, for example (Salminen, 2011). Respectively, developing the offering is called product development – these would in service marketing be called services and service design, although the analogy is not watertight, as this paper shows.

6.   Future research suggestions

Edvardsson et al. (2005, p. 117) suggest: "Perhaps we should focus on co-production, co-creation, and the fact that the dynamic nature of services as activities, deeds, performances, and experiences requires simultaneous production and consumption." Regarding digital services,

this paper suggests abandoning their route. Since digital services can be consumed (used) separately form their production (provision), it is more relevant to focus on the customer experience in their own context. In other words, how to match the enormous variety of customers with different skills, experiences and expectations with a single digital service?

There are several interesting openings in this area, examining e.g. the role of personalization/customization in online customer experience. However, they are currently out of the scope of what is labeled as services marketing research. More specifically, the consumption (or use) of services is increasingly taking place without interaction with a human provider, whereas the focus of services marketing research is still heavily on face-to-face interactions (Lovelock & Gummesson, 2004).

As such, we may ask: is the current paradigm of services marketing able to offer enough contribution to motivate any substantial application of its theories to digital products? Regardless of a certain ignorance of digital services, there has been research on "low contact" services and self-service, differing so that in the former no customer participation is required for the service to take place (Lovelock & Gummesson, 2004). Exploring this "forgotten" research tradition may help us to shed new light into the service concept and bring it a step closer to the digital world, where the exchange between firms and customers are more and more migrating to.

References

Bitner, M. J. (1992). Servicescapes: The Impact of Physical Surroundings on Customers and Employees. *The Journal of Marketing*, *56*(2), 57-71. doi:10.2307/1252042

Brown, S. W., Fisk, R. P., & Bitner, M. J. (1994). The Development and Emergence of Services Marketing Thought. *International Journal of Service Industry Management*, *5*(1), 21-48. doi:10.1108/09564239410051894

Chase, R. B. (1981). The Customer Contact Approach to Services: Theoretical Bases and Practical Extensions. *Operations Research*, *29*(4), 698-706.

Chase, R. B., & Tansik, D. A. (1983). The Customer Contact Model for Organization Design. *Management Science*, *29*(9), 1037 -1050. doi:10.1287/mnsc.29.9.1037

Dow, S. C. (2002). *Economic Methodology: An Inquiry*. Oxford University Press, USA.

Edvardsson, Gustafsson, A., & Roos, I. (2005). Service portraits in service research: a critical review. *International Journal of Service Industry Management*, *16*(1), 107-121. doi:10.1108/09564230510587177

Evanschitzky, H., & Iyer, G. R. (2007). *E-services: opportunities and threats*. DUV.

Fassnacht. (2006). Quality of Electronic Services: Conceptualizing and Testing a Hierarchical Model. *Journal of Service Research*, *9*(1), 19-37. doi:10.1177/1094670506289531

Google (2011) Service-level agreements. <http://www.google.com/apps/intl/en/terms/sla.html>, accessed 23rd October, 2011.

Grove, S. J., Fisk, R. P., & John, J. (2003). The future of services marketing: forecasts from ten services experts. *Journal of Services Marketing*, *17*(2), 107-121. doi:10.1108/08876040310467899

Gummerus, J. (2010). E-services as resources in customer value creation: A service logic approach. *Managing Service Quality*, *20*(5), 425-439. doi:10.1108/09604521011073722

Lovelock, C., & Gummesson, E. (2004). Whither Services Marketing? *Journal of Service Research*, *7*(1), 20 -41. doi:10.1177/1094670504266131

Meuter, M. L., Ostrom, A. L., Roundtree, R. I., & Bitner, M. J. (2000). Self-Service Technologies: Understanding Customer Satisfaction with Technology-Based Service Encounters. *Journal of Marketing*, *64*(3), 50-64. doi:10.1509/jmkg.64.3.50.18024

Ngai, E. W. T., & Wat, F. K. T. (2002). A literature review and classification of electronic commerce research. *Inf. Manage.*, *39*(5), 415–429. doi:10.1016/S0378-7206(01)00107-0

Rust, R. T., & Kannan, P. K. (2002). *E-Service: new directions in theory and practice*. M.E. Sharpe.

Salminen, J. (2011) Startup perceptions of the product and market. Working paper.

Shostack, G. L. (1977). Breaking Free from Product Marketing. *The Journal of Marketing*, *41*(2), 73-80. doi:10.2307/1250637

Stiakakis, E., & Georgiadis, C. (2009). E-service quality: comparing the perceptions of providers and customers. *Managing Service Quality*, *19*(4), 410-430.

Twitter (2010) Working on site outage. <http://status.twitter.com/post/288586541/working-on-site-outage>, accessed 23rd October, 2011.

Yadav, M. (2010). The Decline of Conceptual Articles and Implications for Knowledge Development. *Journal of Marketing*, *74*, 1-19.

Zeithaml, V. A., Parasuraman, A., & Barry, L. L. (1990). *Delivering Quality Service: Balancing Customer Perceptions and Expectations* (illustrated edition.). The Free Press.

Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1985). Problems and Strategies in Services Marketing. *The Journal of Marketing*, *49*(2), 33-46. doi:10.2307/1251563