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Abstract

The nature of services and service delivery has been changing rapidly since the 1980's when many seminal papers in services research were published. Services are increasingly digital, or have a digital component. Further, a large and heterogeneous literature, with competing and overlapping definitions, many of which are dated and inappropriate to contemporary digital services offerings is impeding progress in digital services research. In this conceptual paper, we offer a critical review of some existing conceptualizations of services and digital services. We argue that an inductive approach to understanding cognition about digital services is required to develop a taxonomy of digital services and a new vocabulary. We argue that this is a pre-requisite to theorizing about digital services, including understanding quality drivers, value propositions, and quality determinants for different digital service types. We propose a research approach for reconceptualising digital services and service quality, and outline methodological approaches and outcomes.

Keywords: Digital services, conceptualization, taxonomy, process, metaphor

1. INTRODUCTION

The nature of services themselves; service design, delivery and recovery; and service quality measurement has been changing rapidly in the last ten years and is increasingly digitalized It is necessary at the outset to clarify the scope of this discussion, as the concept of service is broad and has different meanings in different disciplines. This paper concentrates on the *human experience* of digital services, when developed and used to accomplish or co-create desired outcomes or experiences. We adopt a working definition of digital services as "The design, development, implementation, delivery, use, extension, facilitation, correction and ongoing management of digital assets that can be used alone or in combination with other resources and competencies to obtain valuable outcomes for stakeholders". Widely-used measures of information systems service quality are becoming increasingly divorced from the practice of digital service design and delivery, and are based on definitions and paradigms of service delivery from the 1980's. Since that time, the meaning of "service" in academia and practice has been changing, and is increasingly broad and unclear. This deficit flows through into many other aspects of services research. This means that *measures* of service quality based on dated definitions are not measuring the contemporary realities of service design and delivery. In the rest of this paper, we first outline existing conceptualizations, and describe their limitations and the motivation for change. We then outline a proposed methodological approach, and research questions, followed by a conclusion.

2. CRITICAL ANALYSIS OF CURRENT CONCEPTUALIZATIONS OF SERVICES

2.1. The definitions and vocabulary of digital services

The characteristics, definitions, and vocabulary of services research are heterogeneous and incommensurate. Further, there has been no concerted attempt to understand human cognition about digital services; the similarities and differences of different digital services types; and the value drivers of digital services. As services are increasingly digitized, it is appropriate that information systems researchers, with our experience in studying cognitions about information systems, should take a leading role in understanding the nature of digital services, rather than relying on services marketing as a reference discipline to resolve the issues. We briefly review some of the leading definitions of services from services marketing, and their applicability to digital services, in the following section.

- "Traditional" Services Marketing definitions: Historic definitions of services concentrated on the *differences* between services and products. Two leading definitions of service were the "IHIP" definitions (Zeithaml, Parasuraman, & Berry, 1985) and the "Nordic" definition (Grönroos, 1984). The "IHIP" definition concentrated on the *process* of service delivery. The characteristics of services were defined as Intangibility, Heterogeneity (or non-standardisation), Inseparability (of production and consumption), and Perishability (or exclusion from inventory). Of these characteristics, intangibility was often considered the most prominent, denoting services as activities and not physical objects. The "Nordic" model also included the process of service delivery, but added the "outcome" of the service to the conceptualization. The notion of service quality was enthusiastically adopted by information systems researchers, notably in IS-ServQual research, and the revision of the Delone and McLean IS-Sucess model (Delone & McLean, 2003). These distinguished between the information systems function in an organization (the people and premises) and the technical characteristics of information systems, attributing "service quality" only to the former. However, in subsequent research, "service quality" was appropriated to "self-service" and user's direct interactions with information systems. This accelerated with electronic commerce so that "*a technical core [of an e-commerce system] may come to represent the service itself*" (Alzola & Robaina, 2005, p. 48). However the "IHIP" definition is inappropriate for digital services, and they are typically standardised, not heterogeneous; tangible; developed independently of their consumption, and non-perishable (Tate & Evermann, 2010).

- Service as general perspective on business: Since the early 2000's conceptualizations of service have undergone a major change. Service has been redefined as a broad and general perspective on business and commerce. Issues with the lack of specificity have been acknowledged: "*At a general level, the service definition is as a perspective. On lower abstraction levels a general service definition does not exist...because...services are as different from each other, and from products, as products are from each other*" (Edvardsson, Gustafsson, & Roos, 2005, p. 119). The changes in the conceptualization of service have been so great, that it has been suggested that services scholars now have three options for moving forward, which are: "*(a)...abandon the field of services marketing and integrate it with general marketing and management, or (b) discard services as a general category and recommend that scholars focus on specific service categories, or (c)...search for a new and more defensible characteristic of service*".(C. Lovelock & E Gummesson, 2004, pp. 30-31*)* This poses challenges for research on "digital services" as there is no longer a clear definition of "services" in a reference discipline. We suggest that Information systems researchers are uniquely placed to theorize about "*new and more defensible characteristics*" of digital services.

- Service as Process and Outcome: Historically, service was often defined as a function or process. It is defined as a "*deed, act, or performance* (Berry, 1980). However, the process definition was criticized in marketing literature for failing to consider the outcome of the service. Grönroos (2006) add to the definition of service the notion of *solutions* to customer problems; a value-generating service provides a solution to customer problems, irrespective of whether this solution is based on a physical product or not. Outcome quality is *"what the customer is left with after the production process is finished"* (Grönroos, 1984, quoted in Brady and Cronin, 2001, p.40). This presages the SDL perspective, of services being offered for '*the benefit of another entity...*' (Lusch & Vargo, 2006). However, the "process plus outcome" definition from marketing is at odds with influential models of quality and success in information systems research. These typically take a "process only" view of services, while "outcomes" such as perceived benefits, success, or customer satisfaction are conceptualised as separate and consequent to the "service" components (for example, Delone and Mclean (2003)).

- Service as Temporary ownership: Another perspective on service is provided by Lovelock and Gummesson (2004), who present services as offering benefits through access or temporary possession rather than ownership, with payments taking the form of rentals or access fees. This conceptualisation has not been widely taken up (as yet) in academic services marketing literature. However, it is illuminating for new models of digital services such as Cloud Computing. The National Institute of Standards and Technology (NIST) defines cloud computing as a "model for enabling convenient, on-demand [i.e. temporary] network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" (Mell & Grance, 2009).

- Hybrid and bundled services: The nature and scope of digital services as a phenomenon "in the world" is increasingly complex and difficult to differentiate. The role of technology in service delivery has been well recognized, as has the management service delivery using multi-channels, but increasingly a human-human interactions and human-technology interactions may be present simultaneously at every stage of the service value chain (e.g. banking, telecommunication services, etc.). This category has been referred to as hybrid services (Nasr, Eshghi, & Ganguli, 2012). Bundled services where a large number of goods[1] are bundled together and sold for a fixed price (Bakos & Brynjolfsson, 1999) are also increasingly common, especially for digital and information service providers such as tele-communication companies and mobile phone providers.

- Co-created services: A key principle of the service-dominant logic of business is value co-creation, which posits that organizations cannot "create value" in isolation but only offer value propositions. Customer value is co-created when the customer interacts actively with the organization, or its products, services or brands (Vargo, Maglio, & Akakaa, 2008). The customer, or other stakeholder, contributes their own resource systems (including time and knowledge) to jointly

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[1] or services, depending on the definition adopted for "services".

creating the service (Vargo et al., 2008). Co-creation is particularly relevant to digital services based on Web 2.0 and social media components, which depend on user-generated content.

2.2. Limitations and motivation for change

Associated with these competing and overlapping definitions are literally millions of academic studies in multiple disciplines include the term "service". This has many negative consequences. There are a plethora of studies that are not commensurate with each other. Reviewing them all is unrealistic and likely unproductive, and there is a lack of appropriate categorizations, vocabulary and keyword systems to enable researchers to identify those studies that are specifically relevant. There is an unfortunate tendency for researchers to conflate more than one definition, for example, by combining measures from two studies that both measure "service quality", even though on close examination, their definitions and operationalizations are different; or by mis-appropriating measures developed for one definition to another type of service. There is also a danger that overly generalized definitions and models will be developed in an attempt to capture the broad scope of the concept. This runs the risk of: repeating the pitfalls of TAM stream of research, that is, of failing to provide specific, actionable insights for practitioners (Benbasat & Barki, 2007); and obscuring differences that are practically important (for example, the trade-offs that customers are prepared to make between personalization and empathy, and consistency and price when using automated booking systems). This research area requires a fresh, grounded and inductive approach and the development of a taxonomy.

3. AN INDUCTIVE APPROACH TO RECONCEPTUALIZING AND THEORIZING ABOUT DIGITAL SERVICES

To clarify the confusion of definitions of service, clearly distinguish differences that are meaningful in the way people think about the different characteristics of different types of digital service, and develop rigorous theories, taxonomy development is required. Taxonomies can organize and structure the body of knowledge as a pre-requisite for advancement of knowledge (Glass & Vessey, 1995). This pre-supposes some initially consistent basis for beginning the task of conceptualizing and categorizing service types. Despite the importance of classifications, methodological guidance in IS domain is limited (Parsons & Wand, 2008). Nickerson et al. (2012) explores this further through a systematic literature review of IS taxonomy building efforts, and concludes that IS research reflects diverse, informal methods only. Their findings highlight that many of the studies used intuitive methods, without empirical, theoretical or conceptual foundations to classify objects of interest. They advocate the need for developing a methodology for building taxonomies in the IS field and propose a high level process model. Nickerson et al. (2012) suggested two approaches towards building a taxonomy: conceptual/deductive [starting with conceptual or theoretical foundations (Bailey, 1994)] and empirical/inductive [deriving classification from objects (Bailey, 1994)]. We propose a grounded and inductive approach seems preferable. There are a number of possible methodologies, which could be used independently, or in concert. These include metaphor analysis, repertory grid technique, and grounded literature analysis techniques.

- Metaphor analysis: Moving beyond multiple, competing definitions, and developing a grounded understanding of the way people think about and understand digital services; and developing a new and intuitive vocabulary for different service types requires innovative techniques. *"The use of metaphor implies a way of thinking and a way of seeing that pervade how we understand our world generally….this kind of thinking has relevance for understanding organizations and management. For organizations are complex and paradoxical phenomena that can be understood in many different ways. Many of our taken-for-granted ideas about organizations are metaphorical, even though we may not recognize them as such" (Morgan, 1998, p. 4)*. If we consider existing metaphors of service delivery, we will see that they are both pervasive, and inappropriate for digital services. The metaphor of service delivery as theatre has been widely used. This views the resource systems of the organization as the "back stage" where actors prepare and rehearse performances, support staff provide the necessary infrastructure, and the activities of

planning, organising, staffing, directing and controlling the performance occur out of sight of the customer "audience" In sight of the customer, above the "line of visibility", the organization's agents (actors) perform a set of activities. The success of the service delivery is dependent on "sustaining a believable performance" (Grove & Fisk, 1992). The metaphor of a stage is so pervasive in business customer service contexts that it is in normal use without being obviously identified as a metaphor; it has become a "taken for granted" idea. By contrast, many self-service offerings allow customers to access organizational systems and competencies which have previously been considered "below the line of visibility". The line of visibility is "*in danger of disappearing altogether*" as customers are increasingly able to interact directly with the digital resource systems of the organization (M. Tate & Johnstone, 2011).

- Using metaphor as a research tool (Lakoff & Johnson, 1980): an approach for eliciting and analysing metaphors in interview transcripts (or other texts, such as marketing collateral) is offered by Schmidt (2005). This involves scanning the texts to identify words, phrases and images that can be understood beyond the literal meaning in the context. For example, a digital diary might be described as a personal assistant. The literal meaning stems from a "source area" (traditional workplace roles as personal assistant); and is transferred to a second "target" area, the digital service. Following this, a process of clustering concepts with common targets/sources will be carried out. This follows the principles of Lakoff and Johnson (1980), who in turn built on earlier theories of cognition and linguistics; that individual metaphors typically do not occur in isolation, but can be traced back to a small number of common concepts (for example metaphors for digital services might form clusters such as "the assistant", "the weapon", or "the tool")

- Repertory Grid Technique: Structured qualitative techniques such as repertory grid technique have been shown to be effective for eliciting understanding of cognition about information systems phenomena (Tan & Hunter, 2002). This could be used in conjunction with metaphor analysis, or independently, to elucidate the similarities, and differences in the way people think about different digital services offerings. Repertory grid technique is based on personal construct theory (Kelly, 1955). Kelly argues that individuals use their own "personal constructs" to understand and interpret events that occur around them. These are personally organized systems of understanding and interpretation based on each person's specific experiences. These ways of seeing and thinking about digital services are what we argue that we need to elicit. Personal construct systems serve to interpret the world, and anticipate future behaviours and events. Although they are personal, there are often considerable degrees of communality between people's personal construct systems (Kelly, 1955). Eliciting these similarities can form the basis for a classification system. Personal constructs are posited to be bi-polar in nature, forming the basis for repertory grid analysis. For instance, people may organize mobile phone apps into "useful" or "a waste of time"; or "fun" and "not fun". Understanding of these interpretations may be gained by eliciting contrasts resulting in bi-polar labels. Further analysis can reveal the research participant's interpretations of the similarities and differences between them (Tan & Hunter, 2002).

- Grounded Literature Analysis Techniques: Sense-making from existing research literature when the corpus is so large, heterogeneous and incommensurate is extremely challenging. However, a number of methodological approaches exist which offer potential for progress in this endeavour. Literature analysis and "literature as data" techniques (for example, Sylvester, Tate, & Johnstone, 2011; Wolfswinkel, Furtmueller, & Wilderom, 2011) can be used to harmonize heterogeneous literature from multi-disciplines and to identify under-researched areas. The literature review method outlined by Wolfswinkel et al. (2013) draws on grounded theory to analyze and code research literature. This could be applied to leading, highly cited (but incommensurate) conceptual articles and definitions of services and service quality. This approach starts with a literature search where clear criteria are identified (e.g. seminal, widely cited articles in service research in multi-disciplines). Following the identification of articles, content-analysis is carried out on the concepts and definitions included in the articles. Using open coding, excerpts from the articles are annotated and documented in a concept matrix. Through an inductive approach using axial coding, a categorization of types of services could be developed. This could also be further refined using panels of experts.

4. IMPLICATIONS AND NEW RESEARCH QUESTIONS

Expectations are rising steadily especially in top-tier journals, about the quality of conceptualization and theorizing prior to developing models or survey instruments. A number of guidelines have been published (for example Gable & Sedera, 2009; MacKenzie, Podsakoff, & Podsakoff, 2011). These emphasize the critical importance of clear conceptual definitions as a pre-requisite to specifying models and engaging in scale and index development (MacKenzie et al., 2011). This research will make a number of contributions, described briefly in this section.

4.1. Better digital service quality measures and instrumentation

Traditional conceptualization of service quality is almost always based on a comparative, "expectation disconfirmation" definition of quality (Oliver, 1980). Service quality is defined as *"the discrepancy between consumers' perceptions of services offered by a particular firm and their expectations about firms offering such services"* (Parasuraman, Zeithaml, & Berry, 1988). The gap between customer expectations and customer perceptions is posited to be the result of discrepancies between: the service as designed by the organization and the way it is actually delivered by staff, the way the organization markets and communicates the service and the way it is actually delivered. Fully understanding the quality characteristics of different types of services has an inherent dependency on defining the properties of those services in the first place, so a service taxonomy is a logical pre-requisite to a deep understanding digital service quality. However, some preliminary suggestions can be made showing how improved understanding of digital service types can improve quality measurement.

- <u>Understanding the customer role in co-creation of digital service quality:</u> Face-to-face services are much more variable than many digital services and cast the customer as a recipient or consumer of the service, with the variability attributed to the merchant. The idea that the quality of service received could be determined primarily by the customer themselves – based on (for example) their efficacy in using an online system, or their level of contribution to a community, is not captured.

- <u>Understanding the role of cognitive dissonance in perceived digital service quality:</u> Research in face-to-face services marketing (carried out in the hotel sector) suggests that over time, for services that we consumer frequently, the service we expect comes to resemble closely what we believe we will receive; that is, over time, the gap between future expectations and past experience tends to close (Boulding, Ajay, Staelin, & Zeithaml, 1993). This is attributed to the cognitive dissonance arising from continually expecting something that is unlikely to be delivered. Rather than experience this, users moderate their expectations. In a customer compliance model, the expectation-perception gap is therefore likely to be negligible for an experienced user, as the software embeds processes that behave consistently and predictably. In a co-created environment, the quality of service a customer receives may be improved by improving their own contribution, through increased knowledge or effort, rather than by any action on the part of the service provider.

- <u>Understanding the role of self-efficacy in perceived digital service quality :</u> Many digital services (for example, office software) require a learning curve to achieve optimal effectiveness and the quality of service received is affected by the users self-efficacy. Theories from information systems relating to the formation of attitudes and behavioural intentions towards technology use, for example the TAM stream of research (Davis, Bagozzi, & Warshaw, 1989) or research into the role of self-efficacy in technology adoption (Compeau & Higgins, 1995), are likely to provide insights into quality perceptions of digital services (Tate & Evermann, 2009).

- <u>Understanding the role of community engagement and the network effect in perceived digital service quality:</u> Improving the quality of community-based and crowd-sourced services depends on the network effect, the service improves in proportion to the number of contributors (e.g. review and recommendation services). In this case, the service is likely to be improved by encouraging community membership, engagement and participation.

- <u>Understanding the role of habit in perceived digital service quality:</u> Many digital services require some initial cognitive effort, and people reduce that effort by developing habitual behaviours for digital services they use frequently (Gefen, 2003). Their perceptions of quality may be determined

by their familiarity with the service, rather than any superiority in features, price, or other characteristics.

- Understanding quality perceptions in bundled and customer compliant services: The notion of a gap between expectations and perceptions makes little sense when the customer has agreed in advance to comply, yet it is possible that some competitor may offer a less onerous set of compliance conditions. The exact scope of quality evaluation in the case of bundled services may be difficult to determine. Individual services within the bundle may not be perceived by users as the "best of breed", yet they may still prefer one service bundle over another.

4.2. Better understanding of the life-cycle of value creation for stakeholders

Service value creation is frequently conceptualized as a value-chain or life-cycle. The phases include strategy, design, transition (from design to operation), operation and continuous improvement. From a customer perspective, deriving value from the consumption of services is also modelled as life-cycle (Nasr et al., 2012), starting with initial contact (e.g., via a shopping website), followed by actual service delivery (e.g., online payment and receiving the product), and finally, service problem recovery in the event of a service failure. New forms of digital services may have different life-cycles and value drivers. All of these offer opportunities for re-evaluating the service value-chain. These include:

- The importance of up-front strategic service design: the increasing use of automation places a great deal of on the strategic design of a range of compelling service value propositions that occurs *before* initial customer contact; when the bundle of services, or the service menu is developed (for example, a voice response system or online booking system). Once this is implemented, every stage of service consumption, from initial contact, through delivery and recovery may be fully automated and will typically be very consistent.

- A service inventory rather than single-service approach: Differentiation in services can be achieved through the creation of a "service inventory" (Chopra & Lariviere, 2005). A service inventory is a bundle of information and pre-performed process steps that reduce the amount of work required to respond to a customer request appropriately. The demand for service attributes of quality, variety, speed and price is taken into account prior to the design and development of the service inventory. The inventory can also act as a form of "smogasbrod" where a range of digital and self-service options and prices may be presented to the customer, who selects the service level they require. In this context, the notions of service "delivery" and "failure" change, as a lower-than-usual service level may have been selected by the customer in advance.

- The freemium model: Many digital services utilise a "freemium" model, where basic services are provided free of charge (e.g. skype VOPI services, drop-box cloud storages and file sharing services). The notion of responsibility for service recovery as part of the service life-cycle is questionable when the service is provided free of charge.

- The customer compliance model (CCBM): a "take it or leave it" approach aimed at cutting costs while still delivering compelling service offerings (Kasabov, 2010). *"Customers are expected to comply with a company's systems….In return for compliance with company systems — such as following a company's automated procedure for ordering via its Web site or interacting with voice recognition software during a phone call — customers are rewarded with low prices and good service. What's more, many customers appear to have become "compliant" and understand CCBM systems well."*(Kasabov, 2010, p. 19) This form of service aims to prevent failure by strictly controlling the nature of the interactions.

- Self-correcting services: Sometimes digital service systems are self-correcting, and will attempt, with varying degrees of success, to diagnose and correct breakdowns in the process as they occur rather than after completion. This changes the nature of service "delivery" and "recovery".

- Hybrid services: Digital services may be offered on a "hybrid" basis, with the option to switch channels or use multiple channels in a single interaction. Service offerings of this nature are (on the organization side) more bundled, interconnected, and networked than before, while on the customer side, the notions of "delivery" and "recovery" are changing when the customer has an increasingly large role in selecting their own service level followed by "compliant" self-service.

- Dynamic and adaptive services: The nature of the service itself is difficult to define when it regularly changes. For example, a bundle of location-based services on a mobile device may vary depending on the device, the user's preferences, the services available, and the proximity of friends, merchants, or other service users. The process of designing and managing these services may be adaptive, not standardized as the services are continually interacting with their environments. Overall, different types of digital services will likely have different value propositions, value drivers, and quality determinants.
- Other types of services, such as co-created, community mediated, and crowd-sourced services will likely have different value-drivers again. For example, participants in consumer review sites may be simultaneously receiving a service and offering service to other community members.

4. RECOMMENDATIONS AND PROPOSED APPROACH

To understand the salient characteristics of different types of digital services from a human perspective, we propose the following research approach.
- Resolve the confusion of terminology and definitions: by creating a taxonomy[2] of digital service types, with clear definitions and attributes. This should be accompanied by a new vocabulary of terms to provide improved meta-data for classifying, searching, and combining academic studies. This should include understanding the relationship between digital services and the broader service content in a multi-channel and hybrid environment; and understanding the characteristics and properties of (for example) automated, adaptive, self-correcting, co-created, crowd-sourced, and customer compliance based services. We propose a grounded and inductive approach, using structured qualitative techniques aimed at eliciting insights about human cognition, for example metaphor analysis or repertory grid technique. Grounded and "soft" approaches to analysis of seminal research articles might also yield insights.
- Use the taxonomy to theorize about the quality and value drivers of digital services and develop improved measures and instrumentation. Research agendas include: 1) Developing new models of the value creation and value drivers (from a user perspective) for new digital services types, such as bundled, hybrid, automated, adaptive, community-based and crowd-sourced services. 2) Developing new measures and operationalizations for service quality beyond the expectation dis-confirmation model of service quality. For example, the contribution of the "quality" of other components of the service experience beyond those embedded in the digital asset itself could be investigated. The "quality" of the user of the service, the community of users, or the bundling of services could be investigated. Given the increasing expectations of users contribution to learning how to use digital services, the role of cognitive dissonance, cognitive load and habitual behaviours could be investigated.

5. CONCLUSION

Many of the "taken for granted" ways that we conceptualize services, and the associated measures are dated and inadequate for the task. Services marketing scholars have argued for a broadening of our conception of service to encompass a general perspective on business, while at a lower level, there is no agreed set of definitions. There is an urgent need for a taxonomy of digital service types, based on people's cognitions about digital service types, that can drive new lines of enquiry about the nature, characteristics, life-cycle, and quality drivers for each type. Given the scope, breadth and complexity of the phenomenon, and the size of the research literature, this is a non-trivial task. Innovative approaches to re-conceptualizing and theorizing are required.

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[2] Or perhaps more than one taxonomy. Different theoretical lenses and methodological approaches to taxonomy development might result in different results.

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