Service Systems Forum 2016

Smart Service Systems & Business Models in the Digital Era: Practice & Research

Conference Proceedings

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12th – 13th June 2016

WMG
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Abstracts: Session One

The Impact of Crypto Currencies on Service Models

Phil Godsiff, University of Surrey

Since its launch in 2009 Bitcoin has had a mixed reception, but 2015 saw an explosion of interest. Major financial institutions began to explore its use in next generation IT systems. The UK government commissioned a Cabinet level report into its applications. Cryptocurrencies such as Bitcoin are based on advanced mathematical and encryption techniques and are motivated in many instances by a liberal anarchic philosophy. The major conversation was around the underlying technology, rather than the currency; known in Bitcoin as the blockchain, but generalized to "distributed ledger technology" (DLT). There is a growing appreciation that DLT could be the technology to challenge mental models of organisations and enable faster and more efficient resource integration. DLT facilitates the "internet of transactions" a dynamic concept rather than the "internet of things" which is inherently static. There are likely to be significant numbers of micro-transactions of information, real time transfers of value and obligations, and actions based on algorithmic decision making arising from the growth of the IoT. Using a distributed peer-to-peer currency, rather than national currencies based on existing financial service providers, removes legacy financial services and costs from micropayments and micro-actions. It does this by being low cost, divisible, using real time gross settlement and removing the payment as a separate flow. There is a growing need to explore what governance models will emerge in this distributed real time dynamic environment and to discuss the impact on business models of this enhanced ability to make resource integration and "value" transfer possible in real time for traditional services.

A Conceptualisation of Service Modularity and its Effect on Service Performance Criteria with a Customer-Oriented Perspective

Sadaf Afzal, European University Viadrina

Modularity and modular structures are a well-established concept in engineering and industrial production. In the recent years, the same concept has been extended to service industries such as hospitality, financial, health care and logistics which has resulted in a number of new conceptual models and frameworks. Although the research on service modularity is still in its early stages, yet there has been a growing interest to study modularity in service context during the recent years. Conceptually modularity involves breaking an object into components so they can be recombined into customizable options, similarly, modularity in service process can allow recombination of service process elements which can allow greater flexibility and result in time and cost reduction. Some scholars assume that modular approach in service is beneficial as it can enable cost-efficient service operations and also manage increased heterogeneity in customer demands. Moreover, studies also suggest that modularity and service performance may have a positive relationship. Yet, specific research in service modularity with a customer centric approach is still limited. The current study provides an overview of the service modularity concept and discusses the impact of modular structures in service processes. Furthermore, it also explores how can modular services effect service performance criteria from the customer perspective.

Purpose/objective – The purpose of this research is two-fold; first to conceptualize service modularity as a means to create balance between customization and efficiently managing customer needs and requirements, and secondly to empirically study the role of service modularity in designing efficient services from the customer's perspective based on current literature, and to also formulate a framework which defines the link between modular processes and efficiency and enhanced performance.

Methodology/Approach – The methodology used for the research started with a comprehensive literature review of the main research area i.e. Modularity in general and service modularity in particular. The conceptual paper is developed by reviewing extant literature and multitudinous facets of the topic and coming up with propositions which take the current debate on service modularity further ahead.

Findings – This is a conceptual paper and provides propositions based on current literature review.

Two Strands of Servitization: A Thematic Analysis of Traditional and Customer Co-created Servitization and Future Research Directions

Maxwell H Green, Philip Davies & Irene C.L Ng, WMG, University of Warwick

Purpose – Servitization has seen a growing body of literature since the late 1980s. The basis for servitization is adding services to physical product offerings in order for a firm to increase its competitive advantage. Servitization therefore embodies a shift from the traditional mindset of value-in-exchange to value-in-use. However, since 2004, we argue that the literature has diverged in two directions; those adopting a goods- dominant logic (G-D logic) and those adopting a service-dominant logic (S-D logic). While both streams of literature have dealt extensively with servitization, it is still a challenge to understand where the streams both converge and diverge. The lack of an understanding of the convergences and divergences is counter productive and presents a challenge to future researchers in servitization and may even inhibit future research in this space. There is also a need to elucidate the language of disciplines in the study of the servitization phenomenon so that different terms can be clarified with regards to their conceptual nature. We review, analyze and extend the growing stream of literature in servitization by 1) clarifying the two servitization approaches through a thematic analysis; 2) discussing the divergences between the two approaches to servitization and put forward the conditions under which one approach may be more appropriate than the other; and 3) putting forward the future direction of servitization.

Methodology/Approach – This paper conducts a thematic analysis of these two streams of servitization research in order to clarify and disseminate the conceptual differences stemming from the underlying assumptions of value creation. The selection of a thematic analysis is based upon the principle that it allows for the identification of patterns within the literature, with the themes that emerge becoming the category for analysis (Fereday & Muir-Cochrane, 2006). Furthermore, Patton (1990) highlights that a thematic analysis allows researchers to decipher the meanings and implications of the emergent themes and thus be able to provide clarity for the phenomenon under investigation.

Findings – Our thematic analysis identifies five points of departure between the two streams: conceptualisation of value-in-use; design of the servitized offering; value co-creation and co-production; contextual variety and complexity; and enactment of business models. Our findings suggest that the two types are conceptually distinct, but are not necessarily competing ideals. Rather, we argue that both approaches to the conceptualisation of servitization have merit, but that under certain circumstances one may be more appropriate than the other.

Originality/Value – We contribute in two ways. First, we add to the development of the servitization literature by providing clarity on the convergent and divergent themes within the literature. By clarifying the differences, we provide the research community with a clear understanding of the convergences and divergences between the two approaches to servitization, enabling future research to commence undeterred by confusion in the use and meaning of different terms. Second, we present conditions under which either approach may be more appropriate to adopt. In doing so, we not

only offer avenues for research under each approach, but we also provide practitioners with a cohesive outline for the adoption of each approach.

Dynamics of Unexpected Changes in Resource Integration Practices in Project Networks – A Professional Service Firm's Exploration

Ingo Husmann, University of Gloucestershire

Purpose – The purpose of the study is to empirically explore dynamics of resource integration and value proposition development of professional service firms (PSFs) in response to unexpected changes in resource integration in a project network.
The study explores:

- How do different PSFs in a project network develop their value propositions in response to unexpected changes in resource integration?
- What are the commonalities and differences of meaning making of the changes in resource integration across the different PSFs?

The conceptual framework can be summarized as follows:
The unexpected event of a change of resource integration leads to a value proposition development of the different PSFs of a project network. This value proposition development consists of a (re)configuration of new or existing resources (operant and operand) and new or existing practices. The value proposition development as well as the resource integration is shaped and driven by the organizational identities of the PSFs.

Design/methodology/approach – Based on an interpretive phenomenology methodology an embedded single-case approach was used to study the dynamics of resource integration and the value proposition development of four key PSFs in a project network. The aim of the project was a large IT solution for a German manufacturing company. Data was collected over a period of three years spanning three major changes in resource integration, using participant observation, in-depth interviews and group interviews / member checks.

Findings – The study is currently in the analysis stage. Final results are expected in summer 2016. Preliminary results indicate that changes of resource integration can be seen from a PSFs' point of view as a business model change, underscoring the impact of resource integration. Additionally, findings suggest a strong influence of organizational identity in value proposition development and may explain the significant differences in value proposition development between different PSFs.

Originality/value – The study applies SDL concepts of resource integration and value proposition development on project networks. Thus, the study provides empirical research for key concepts of SDL and contributes to a system view of project management.
As a contribution to practice the study aims to provide a better understanding of resource integration dynamics in project networks in general and for PSFs in particular.

Abstracts: Session Two

A New Marketing View to Improve Repurchase Intent

Simon Brook, WMG, University of Warwick

Purpose – Customer experience (CX) is the next opportunity for competitive advantage for companies. The academic focus has been on the customers' interaction with the firm, the channels, their products and services, their employees and consumers (Payne et al (2008), Gentile et al (2007), Schmitt (1999), Klaus and Maklan (2012)). However, the reported focus of CX has actually been on the interaction between the customer and a firm's touch points which the firm has choreographed and controls. The notion that CX has considered how the consumer interacts with the product away from the control of the firm is unfortunately elusive in literature. It is believed this is due to the notion that satisfaction drives repurchase, and this measure will do.

The interaction of consumers with products will impact their likelihood of repurchase, to this end it is essential that these interactions are understood and enhanced in this context. This research aims to understand the interactions and to develop an index as a lead indictor for repurchase intent.

Methodology/Approach – In order to develop an understanding of, and to contribute to the CX literature this research has turned to User Experience (UX) literature. UX was developed from the usability paradigm to aid designers when designing products. Yet the customer feedback UX collects has similar aspects consumers consider when making purchase decisions. Further, there are common UX dimensions used in CX measurement. To better understand the user experience of automobiles a semi-structured interview was used, with a small sample of car owners and drivers, to assess their habits, routines and experiences of car use.

Findings – Consumers have reported aspects associated with UX which are not associated with CX in the context of repurchase. Personal growth and rhetoric are two aspects which have been found and these are to be further researched in the context of the automobile during the course of this research program. A research agenda is presented to encourage further research of product use experience and the integration of UX with CX in this area and across other industries and sectors.

Originality/Value – From this research and analysis patterns have emerged which highlight that aspects of product use experience UX have a bearing on repurchase intent.

Multichannel Customer Journey as Service Eco-System: Radical Agility At Zalando

Julia Wolny, University of Southampton

Purpose – In order to facilitate decision-making in the ever-expanding digital universe, intermediaries and informediaries have become the backbone of contemporary marketplaces. Consumers themselves have also developed simplifying strategies adapting to the digitised environment, such as online opinion-sharing, show-rooming or group buying - thus servitising their own experiences. Servitisation has been recognised in SD logic literature as incorporating both the firm and customer's resources (Vargo&Lusch, 2008). However, in order to obtain help with consumption choices, consumers, more or less willingly, are ceding control of their data to intermediary actants within the digitised ecosystem. Those actants - both human and non-human (e.g. sensors) – are benefiting from the complexity of ecosystems consumers are exposed to. Our research aims to understand who those actants are and how the locus of control is shifting among the various eco-system actants.

Methodology/Approach – The research draws on digital transformation at Zalando – originally a German fashion retailer – who have embarked on a path to creating a technology-driven fashion ecosystem. Through the method of mapping the fashion customer journey (Wolny & Charoensuksai, 2014), we identify multi-channel influences across different stages during the fashion shopping process. We examine the ability and willingness of the firm, intermediaries and consumers themselves, as operant resources, to shape the multichannel experience at each stage– emphasizing the resultant locus of control.

Findings – Taking the desired customer journey as a starting point, Zalando combines their expertise in logistics and e-commerce operations with other service elements impacting the customer journey. This includes social commerce, personalisation and visual search. Our analysis goes beyond identifying the strategies and tools utilized in a shopping journey however. It highlights the facilitating roles within the ecosystem itself, thus drawing implications in light of the pillars of SD logic.

Originality/Value – Through inductive analysis, our research allows for realistic patterns to emerge of how different media, channels and devices are integrated in shopping journeys, and how actants are influencing control within those ecosystems. We recognize (1) actor-to-actor interaction as an integral aspect of socially-mediated shopping, (2) the interdependencies between products and services in constructing multichannel journeys and (3) the complexity of responsible design of multichannel shopping journeys as service systems.

In terms of practical contribution, the findings may be applicable across industries and contexts, beyond the fashion sector. We propose that a deeper understanding of digitised multi-channel experiences will help to build more responsible and sustainable firms and ecosystems.

Service Systems for Security and the Self-Reference of Value Creation

Albrecht Fritzsche, Friedrich-Alexander University Erlangen-Nürnberg

Purpose – The German government has recently established a research cluster on the IT-security of critical infrastructures, dealing with various issues in energy supply, traffic control, medical services and other systemic operations which play a fundamental role for society. Cases like the London Borough of Sutton have already shown how security can be assessed on the conceptual background of complex service systems. First insights from the German research cluster, however, show a large variety of different approaches and issues addressed in the single projects. This brings up the question whether it is possible to find a consistent notion of security as a service for all of them and, if not, whether this is an advantage or a disadvantage.

Methodology/Approach – This paper provides a hermeneutic analysis in the tradition of Schleiermacher (not Gadamer) to look at the foundations of the terms security and service and their usage in public discourse. It recapitulates the lines of development of the major views on security and service over the centuries and compares the major lines of argument used in this context. To reduce the scope of literature to be processed, the focus is set on what would today be addressed as socio-technical systems.

Findings – The analysis exposes various dichotomies in the discourse on security and service. While one side focuses on the expert, master or political leader as controlling institution, the other focuses on the general public, clients or users as executive organs. In the first case, security or service provision is grated by institutional power; in the second case, it is granted by operative excellence and utility. Both views are complementary to each other inasmuch as assumptions made about executive organs justify the conceptual development of controlling institutions and vice versa. Idealist studies of socio-technical development (e.g. Hegel) address this complementariness in the notion of a dialectic process by which experience with the respective opposite allows the actors to gain further insight and improve their common activities.
Early treatments of technology and technical progress (in particular Kapp) have taken up this notion to explain the importance of instrumental action in human life. Critical approaches (usually associated with Heidegger) point out that these treatments are self-reflective in the explanation of humanity and technology. This is addressed by another notion of security which does not relate to the avoidance of harm, but rather to general orientation as a prerequisite of action. Systems can in this sense be understood not to provide value in terms of the operations that proceed within them, but rather by constituting an environment in which it is possible to address value creation in whatever way it is needed. This orientation function can be considered to dominate the current research projects on security. Diversity between the projects is in this sense a major advantage and should be encouraged.

Originality/Value – Most contributions of this paper to security research can be generalized to service research as a whole. The current discourse in the field is connected to a larger research tradition and critically reflected.

Formation of Service Ecosystems: A Service Science Concept to Categorize Starting Points and Emergence Patterns

David Sorhammer, Julia Jonas, Gerhard Satzger, Juliana Hsuan*

Purpose – Recently, researchers in several different academic disciplines (such as marketing, information systems, and organization) have focused on investigating service and business ecosystems (e.g. Lusch and Nambisan, 2015; Gawer and Cusumano, 2014; Kude et al. 2012). We reviewed 69 papers in service science, operations management, marketing, and organization journals. The majority of these papers focus on describing established service ecosystems, often on a more abstract "meso-level" (Akaka et al., 2015). Key notions are "…self-contained, self-adjusting system[s] of resource integrating actors connected by shared institutional arrangements and mutual value creation" (Vargo & Lusch, 2015) or "value co-creation configurations of people, technology, value propositions … and shared information" (Maglio & Spohrer, 2008). Little is known, though, of how service ecosystems emerge and become established – i.e. the "birth phase" (Moore, 2009) of a service ecosystem. This paper, therefore, aims to explore how the somewhat "magic" processes of service ecosystem formation that are being taken for granted actually occur.

Findings – Building on a review of core elements in the definitions of service ecosystems, this paper proposes a conceptual model of service ecosystem initiation based on three components: actors, resources, and value propositions. We explain and illustrate how each of these three fundamental components may function as the initiator of a service ecosystem: An actor (e.g., an organization or individual) may start to collaborate with others and thereby draw on resources in order to create a joint value proposition; a resource (e.g., in the form of a new technology or an outdated patent) may emerge as a platform on which several actors can develop a new value proposition; a value proposition (e.g., a business opportunity or a business idea) may form the starting point for actors to collaborate and integrate resources in order realize the value proposition. The initiator of a service ecosystem could for example be an actor (Mark Zuckerberg), resources (website for Harvard students) or value proposition (share messages, photos, videos, etc. with friends). Processes of configuring actors, resources, and value propositions are influenced by the structural embeddedness of the service ecosystem (e.g., regional infrastructure, existing networks of actors, or resource availability) as well as guided by the actors' own and shared institutions (e.g., rules, norms, and beliefs). We contextualize each starting point with illustrative cases and analyse the service ecosystem configuration process: "Siemens IoT Cloud" and "Axoon/Trumpf" (initiated by resources), "JOSEPHS – the service manufactory" (initiated by a value proposition), "iphone apps" (initiated by Apple as an actor).

Originality/Value – The contribution of this paper is a deeper understanding of the emergence of service ecosystems – as an addition to service system theory, providing hints for catalyzing service ecosystems in practice as well as establishing an agenda for further research. Future research questions that emerge from the discussion are for instance "what governance is adequate?", "are there certain criteria for expanding an ecosystem?" and "what role do platforms have in the growth of an ecosystem?".

** University Erlangen-Nuremberg*

Abstracts: Session Three

Toward a Personal Resource Planning Schema in Big Data and the Internet of Things: Data Contextualization through the Hub-of-all-Things (HAT)

Jennifer D. Chandler, Ilias Danatzis, Carolin Wernicke, Melissa Archpru Akaka, David Reynolds**, Irene C.L Ng*

Purpose – Big Data, along with the Internet of Things (IoT), permeates almost all organizational, social, and economic dimensions in today's society. However, the growth of IoT has also complicated how database developers involve end-users in database schema and architecture. Furthermore, attempts to capture end-user data are limited by increasing data privacy concerns and personal contexts that are continually changing (Scoble and Israel 2013).

One area of research for addressing these issues is that of Enterprise Resource Planning (ERP)(Schlichter and Kraemmergaard 2010). Traditional ERP database design focuses on the needs of organizations, however, database design in Big Data and IoT requires a more comprehensive approach that includes more fully the needs, and perspectives of end-users. Consequently, little research examines – from an IS perspective – how end-users capture, organize and synthesize their own data, and how this involvement can influence organizational database design. Based on these issues, the purpose of this paper is to propose a Personal Resource Planning (PRP) approach to database design and schema in Big Data and IoT settings.

Methodology/Approach – We conduct an extended case study on a research project, the Hub-of-all-Things (HAT). The HAT is the first-ever personal data platform specifically created to exchange individuals' own data for services in a structured manner (Hub-of-all-Things 2015). In this context, we examine end-user privacy and data security issues facing developers who design databases for Big Data and IoT settings.

Findings – Our findings suggest that database developers mitigate vulnerabilities and potentialities related to end-user data by taking a PRP approach to database design. Rather than assuming passive end-users according to the traditional ERP approach, the PRP approach encourages active end-user participation in data configuration through data contextualization.

Originality/Value – Data contextualization occurs when end-users insert their uniquely defined contextual parameters into the database architecture and cluster data points according to events and situations in their personal lives. These "contextual" parameters are based on end-user defined events (e.g., heart rate of a triathlete while running on a hot day). Data contextualization inherent in the PRP approach contrasts the traditional "acontextual" approach in which millions of isolated data points are extracted from the end-user contexts; the acontextual approach precipitates data analysis solely of specific persons, objects or traits (e.g., heart rate only). We find that enabling end-user participation in this way can generate fruitful database queries and mitigate end-user

privacy issues by cultivating peer-to-peer data exchange possibilities and extend traditional database schema beyond strict organization-to-end-user interactions.

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A Modest Proposal for Cosmetic Product Selection as Collective Activity

Helen Oliver, Computer Laboratory, University of Cambridge

This presentation demonstrates one of many opportunities for developing software applications for value co-creation using an IoT sensing device, the Automagic Box of Beauty, in the context of the HAT multi-sided market platform for personal data.

The box contains a barcode reader and weight sensor to measure the rate of depletion of the products inside. The barcodes can be used to look up product data, which in turn can be used for predictive replenishment services based on the individual's actual usage patterns. Alternative products could be discovered according to the user's individual preferences by comparing – among other possibilities – ingredient lists.

Ideally, the sensing would be done through RFID tags with detailed and standardized product data available on lookup, but that solution is only feasible on an industrial scale. At this time, the product data needed to complete the application is publicly available, but inconsistently accessible: held in proprietary systems; or open systems that are incompletely populated and/or difficult to query programmatically; or in commercial systems with terms of use that forbid comparison with other companies' data. The need for complementary data provision is evident.

In the immediate term, there is space for collective activity which, by mere extension of the activities of well-established Internet communities, could be the answer to providing that data. MyFitnessPal is an example of an application in another domain, that relies on users' inputting product data, with 'verified' product information being flagged as more accurate. Inaccuracy of user-input data can be handled by restricting the selection to the International Nomenclature of Cosmetic Ingredients (INCI).

MyFitnessPal's business model relies on a combination of advertising and premium subscription. The HAT's data exchange model could supplement or even replace this model in the proposed application, which in turn could incentivize companies to provide more easily accessible product data.