

2017 Service Week Academic Conference

Bridging to “new” service technology



5-6 October 2017
IfM Cambridge

WELCOME

It gives us great pleasure to extend to you all a very warm welcome to the 2017 Service Week Academic Conference at the University of Cambridge.

Naturally, a thorough knowledge of “Bridging to New Service Technology” is of fundamental importance, both in the future development of our economy, our society and in the progression of Service Science.

We are aware of the large investment in funds as well as the scientific efforts by many profit and non-profit organizations and Western and Eastern research councils in “enabling a better society through bridging to New Service Technology”. We are keen to hear our prominent colleagues report on their recent research developments in the field of Services, particularly on the Bridge to New Customers Experiences, Service Growth in Product Companies, Smart Service and Service Analytics, Customer Journeys and Service Research at the Base of the Pyramid.

We hope that you will enjoy this Conference and that your interaction with other participants will stimulate a creative exchange of ideas and will be personally rewarding.

Yours sincerely,



Professor Andy Neely
Pro-Vice-Chancellor for Enterprise
and Business Relations, University
of Cambridge
Director, Cambridge Service Alliance



Dr Veronica Martinez
Senior Research Associate
Cambridge Service Alliance

ATTENDEES

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Ornella Benedettini

Politecnico di Bari

Manda Broekhuis

University of Groningen

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2017 Service Week Conference

5 and 6 October

Bridging to “new” service technology

Institute for Manufacturing, University of Cambridge

AGENDA

Seminar Room 2

DAY 1

09:00	Registration and Refreshments	
09:30	Welcome and Introduction	Veronica Martinez
10:00	The Bridge to New Customers Experiences	Bo Edvardsson
	<ul style="list-style-type: none">Value creation, service ecosystem and experienceUnderstanding co-recovery customer experienceThe music experience	Bo Edvardsson Thorsten Gruber Bård Tronvoll
11:00	Service Growth in Product Companies	Heiko Gebauer
	<ul style="list-style-type: none">Driver configurations for successful service infusion	Stephan C. Henneberg
12:00	Lunch	
13:00	Customer Journeys: How to Define, Understand and Measure the Concept	Anders Gustafsson
	<ul style="list-style-type: none">Capturing the customer journey – From emotions to behaviour	Anders Gutafsson, Poja Shams
14:00	Smart Service and Service Analytics	Jens Neuhüttler, Benjamin Lucas
	<ul style="list-style-type: none">Design of Smart Services: Reconsidering Concepts for Future Service BusinessSmart Services and Service Analytics: Broadening Perspectives	Jens Neuhüttler, Walter Ganz Benjamin Lucas
15:00	Refreshments	

15:30	Service Research at the Base of the Pyramid – Webinar	Javier Reynoso, Ana Valdes, Karla Cabrera
16:30	Writing Preparation Exercise: What do we know? and Where do we want to go?	Veronica Martinez
17:30	End	
19:00	Dinner at Gonville & Caius	Andy Neely

DAY 2 Exercises to shape journal outputs

08:30	Refreshments & Networking	
09:00	Introduction to the Group Activities	Veronica Martinez
09:15	The Future: What is needed/hoped for/critical success factors?	Bo Edvardsson
10:00	Group presentations (5 mins each)	
10:45	Refreshments	
11:00	What is the gap? And How to fill the gap?	Heiko Gebauer
11:45	Challenges, risks and mitigation	Anders Gustafsson
12:30	Lunch	
13:30	Group presentations (5 mins each)	
14:15	Key Messages and Structure of Groups' Papers	Veronica Martinez
15:15	Refreshments	
15:30	Group Presentations (5 mins each)	
16:00	Conclusions and Future Steps for Papers Submissions	Veronica Martinez
16:30	End	

ABSTRACTS - THE BRIDGE TO NEW CUSTOMERS EXPERIENCES

Value creation, service ecosystem and experience

Professor Bo Edvardsson

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According to SDL, value is always co-created and service is “the application of specialized competences (knowledge and skills), through deeds, processes, and performances for the benefit of another entity or the entity itself” (Lusch et al., 2007, p. 15). Chandler and Lusch (2015) argue that actors need to engage others and, in this respect, are only able to offer value propositions as invitations to co-create value, including experiences for themselves and others in service ecosystems. Thus, value is understood as co-created, experiential, idiosyncratic, contextual and meaning-laden (Lusch and Vargo, 2016).

Lusch and Vargo (2014) describe a service ecosystem as “a spontaneously sensing and responding spatial and temporal structure of largely loosely-coupled value-proposing social and economic actors interacting through institutions and technology, to: (1) co-produce service offerings, (2) exchange service offerings and (3) co-create value”.

Service ecosystems provide structures and coordinating mechanisms for the engaged actors’ resource integration and value co-creation in practice (Vargo and Akaka, 2012) and thus shape actors’ experiences. Service ecosystems are embedded in social systems consisting of social structures and forces that influence customers and other actors’ experiences. Social structures are manifested in social practices (Edvardsson et al., 2011); the “...sets of rules, procedures, and/or methods for meaning making and acting” (Lusch and Vargo, 2014, p. 137) that constitute actors’ agency. Hence, practices enable the engaged actors to coordinate their everyday resource integrating and value co-creating actions. Lusch and Vargo (2014) put forward representational, normalizing, and integrative practices. Representational practices are closely linked to language (the meaning of words is co-created), signs, and experiences for sensemaking and the facilitation of interactions between actors. Normalizing practices are guidelines, social norms, and rules that harmoniously coordinate actors. Finally, integrative practices relate to how actors integrate various available resources and co-create value, e.g. when going to work using public or private transportation, traffic laws and regulations, making phone calls, or listening to news or music. Practices shape actors’ roles, experiences and connect actors within service ecosystems (Akaka and Chandler, 2011).

Lusch and Nambisan (2015) emphasize when discussing service innovation the need to focus on the value experiences for different actors rather than on the output delivered. Experience is a key concept also in the service recovery literature, suggesting that a customer experiencing a service failure and receives a prompt, effective response might forget or forgive the bad experience (Edvardsson et. al., 2012). A bad experience provides an organization with the opportunity to demonstrate how valuable the customer is as well as learning how to make sure the service failure will not occur again (Edvardsson et. al., 2013).

Understanding Co-Recovery Customer Experience

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In their quest to establish successful long-term relationships, companies want to create favourable customer experiences. However, even the most customer oriented companies cannot avoid that sometimes service failures happen, which lead to unfavourable customer experiences. Companies then have to engage in service recovery activities to address the experienced service failures. Service recovery has traditionally been defined as “those activities in which a company engages to address a customer complaint regarding a perceived service failure” (Grönroos, 1990, p.7). Previous research has shown that successful recovery efforts can positively impact customer satisfaction (Spreng et al., 1995), customer loyalty (Maxham and Netemeyer, 2002), word-of-mouth intention (WOM) (Maxham, 2001) and repurchase intention (Grewal et al., 2008).

However, most service recovery studies concentrate on what companies should do to solve service failures (e.g. Tax and Brown, 1998) or focus on how customers perceive failures (e.g. Maxham, 2001) and what they expect from companies dealing with their complaints (e.g. Gruber et al., 2006). Only more recently, studies have emerged that introduce a concept called “co-recovery”, which Dong et al. (2008, p. 126) for example define as “the degree to which the customer is involved in taking actions to respond to a service failure”. Even though this definition gives customers a more active role than in previous conceptualizations, it still does not focus on the “joint” efforts of both customers and frontline employees during service recovery encounters. Existing concepts also do not pay sufficient attention to the social context in which service recovery encounters take place. This is surprising given the shown importance of social influences and norms (Edvardsson et al., 2011).

The current study therefore aims at developing a new conceptualization, which will be termed “co-recovery customer experience”. The concept focuses on how customers experience joint efforts to handle perceived service failures. By incorporating elements from the emerging customer experience literature (e.g. Lemon and Verhoef, 2016), the study will also present a new framework that both broadens and deepens our understanding of this important topic.

The music experience

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Experiences as a key construct has increased in the past decade from both scholars and practitioners, and thus experience has become a key research priority (Jaakkola, Helkkula, Aarikka-Stenroos, Jaakkola, & Aarikka-Stenroos, 2015; Ostrom, Parasuraman, Bowen, Patrício, & Voss, 2015). Psychological and behavioral studies emphasize three basic systems or dimensions of experience: sensation, cognition, and affect, each with its own structures, principles, and mutual interactions (Anderson, 2015; Goleman, 2006; Schmitt & Simonson, 1997). Service scholars define experience as “a service process that creates the customer’s cognitive, emotional, and behavioral responses, resulting in a mental mark, a memory” (Edvardsson, Enquist, & Johnston, 2005, p. 151), or “the internal and subjective response customers have to any contact (direct or indirect) with a company” (Meyer & Schwager, 2007). Experience is most often viewed as subjective, personal, and at least partially internal (Edvardsson et al., 2005; Meyer & Schwager, 2007). Individuals might exhibit emotional, cognitive, and sensory responses before, during, and after the interaction or activity.

In the past decade, technological development and digitalization have changed customers’ experiences in various ways. This is especially visible in the music industry through the extensive use of digital music streaming. In technologically advanced markets, music mostly is retrieved through mobile applications, such that users can stream unlimited amounts of songs, on demand. Listeners have more opportunities than ever before to integrate music into all their activities (Heye & Lamont, 2010; Sloboda, Lamont, & Greasley, 2009), so this technological progress has allowed listeners to change the very way they interact with, listen to, and experience music (Borja & Dieringer, 2016; Nill & Geipel, 2010; North, Hargreaves, & Hargreaves, 2004; Sloboda, 2002).

A listening experience begins with interactions between the music signified by artists and the listener. Listeners create unique experiences through their interactions with the music across different touchpoints. Therefore, experiences emerge through an “iterative circular process of individual and collective customer sense making,” such that the person’s reality is socially constructed (Helkkula, Kelleher, & Pihlström, 2012, p. 59). The value realized from such an experience is individually intrasubjective and socially intersubjective, determined by both social contexts and interactions (Edvardsson, Tronvoll, & Gruber, 2011).

As part of this development, listeners have extended their role beyond being a passive receiver of value, to the more important function of a co-creator of the music listening experience who also ‘co-owns’ the music. The listener co-creates the music experience together with the artists, making it come to life for himself or herself. Because the listener is always a co-creator of music value. The music constitutes listeners’ own experience, though they also might be important for music listening communities or environment. Digital music streaming gives rise to individual experiences in specific social contexts, resulting in value-in-context (Chandler & Vargo, 2011; Edvardsson et al., 2011).

Co-creating the Service Recovery Experience

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This paper is a paper in progress and builds upon the existing research on the customers' active role in service recovery encounters (Dong et al., 2008, Dong et al., 2016, Roggeveen et al., 2012). By observing service recovery as both a process and an outcome, and taking a customer perspective, we are referring to it as a customer experience. This enables us to conceptualize the phenomenon of co-recovery experience into a broader and deeper framework which enables operationalization.

The aim of this paper is to develop a quantitative measurement instrument that captures both process and outcome of co-recovery experience. To our best knowledge, such a measurement instrument does not yet exist. The instrument is partly based on earlier literature and partly on tested and validated variables which can explain the proposed relationships between the constructs. The findings have both theoretical as well as managerial implications.

The retail context was selected due to the frequent interaction between the customers and the frontline employees. The pre-study was paper based and conducted in two countries with a total of 143 respondents. The complete pre-test survey consisted of 67 questions. The questions were answered on a 7-point Likert scale, which was anchored appropriately depending on the kind of question asked.

Several modifications were made for the main data collection. The time-span for the qualification questions were shortened as it better captures the experienced emotions. Several questions with unsatisfactory factor loadings were removed. The main study consisted out of 53 items that define 10 constructs used to describe the phenomenon. The main study is conducted in two countries with a total N=1000.

ABSTRACTS - SERVICE GROWTH IN PRODUCT COMPANIES

Service Growth in Product Companies

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Motivation: There has been a sharp rise in academic contributions and publication rate on service growth in product companies. As an emerging research topic, the number of contributions has reached approximately 100 articles per year now. Managers have become advocates for services and solutions and have led their firms to strong growth in the service business. Service revenues and profits account for more than 50% of the total revenues and profits in many firms now.

From the intensity of this research effort and the strong management interest in the topic, one might surmise that there exists a common theoretical perspective and comprehensive empirical data. This is far from the case. The description of companies making a strategic reorientation into service growth remains open to a variety of conceptualizations and interpretations such as hybrid offerings, solution providers, transition from products to services, system suppliers, product-service systems, servitization, and service-oriented business models. While such variations have contributed to the richness of the service research in product companies, they could also constrain some progress on the theoretical front and prevent empirical work from cumulating. Empirical work has now overcome the initial bias towards anecdotal, mostly qualitative evidences. Various quantitative studies have now substantiated the service growth in product companies. Nevertheless, longitudinal studies highlighting the service growth over a longer period remain, for example, very rare. Most studies investigate successful practices, while the main argument is that the majority of firms struggle and even fail with their service growth.

Goal: The goal of the workshop is about sharing insights into current research activities, developing common research themes and questions, and identifying opportunities for collaboration. It will be an open and structured discussion, which inspires a future research agenda on service growth in product companies. This research agenda highlights promising theoretical and empirical gaps, which could serve as a guidance for future research activities.

Procedure: We will have a group discussion and interactive session among the participants.

Driver Configurations for Successful Service Infusion

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Manufacturers across many industries use service infusion to address the changing customer demands and improve their competitive position. However, understanding the drivers of successful service infusion is a complex process. Using business model and configuration theories, this study conceptualizes and analyzes the interplay of different driver domains for suppliers, customers, and their business relationships. In particular, we show how service offering, service pricing, service capabilities, and the service infusion process interact in affecting service infusion success and failure. 137 interviews relating to 25 business relationships are analyzed via configuration analysis, particularly fuzzy set qualitative comparative analysis (fsQCA).

Results show that different equifinal configurations exist (i.e. different ways to succeed with service infusion). We also find that "more is not always better". For example, service infusion success can be achieved without fully developed service capabilities. In addition, successful configurations are often very similar to those leading to failure. A dyadic analysis demonstrates that customer service capabilities are overall more important than those of suppliers. From these findings, we derive priorities for future research. In particular, our study points toward the need to better understand the interplay between service infusion drivers. Second, we advocate the augmentation of research perspectives in service infusion by taking into account supplier, customer and dyadic perspectives. Lastly, the importance of understanding drivers of service infusion failure is highlighted.

For managers, our study shows the importance of relational audits as a starting point to deciding on how to infuse services in a business relationship.

ABSTRACTS - CUSTOMER JOURNEYS: HOW TO DEFINE, UNDERSTAND AND MEASURE THE CONCEPT

Capturing the customer journey – From emotions to behavior

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Customer relationships with a service organization are formed over time through multiple service encounters. During these encounters customers are influenced by the "smells, sounds, sights, tastes and textures" of their experiences. These elements are known in research as experience clues. Marketing thought leaders have emphasized that all experience clues are embedded (more broadly) within a customer's journey towards a goal. Insight into experience clues are critical in order to capture customer experiences in customer journeys but very difficult to explore in a physical servicescape. Traditionally, a survey is administered to customers – asking them to report on scales how they feel. However, advances in neurosciences now allow to unveil consumer emotions by studying physiological changes i.e., reactions in the body.

Physiological changes are indeed what differentiates affect from cognition. Emotions are first physiologically experienced (e.g., heart rate acceleration, sweat secretion); as the mind perceives physiological changes, the

individual becomes aware of his/her emotion. Therefore, studying physiological changes can enable to detect emotions. Of particular relevance is electrodermal activity (EDA), a psychophysiological measurement of emotional arousal. The most readily available method of measuring this physiological change is to in a lab environment attach sensors to the parts of the body with highest concentration of sweat glands. The present work takes this further and uses state of the art equipment to move the lab into to wild and explore the emotional reactions of customers while they are making every day decisions and interactions with all the elements of the in-store environment.

A major challenge with the use of EDA measurement in marketing is that EDA indicates not only emotional arousal, but also attention and cognitive processing. Therefore, studies of emotional arousal must be designed in such a way as to control for these other processes. In the present work we have implemented eye-tracking into the research broaden the empirical platform and give deeper insight into the interplay between emotional arousal, attention and cognition.

However, the combination of the tools have shown to be a great challenge as both produce tremendous amount of data that can be analyzed at several different levels. Each eye-tracking recording for a customer journey consist of 30 minutes of recording with about 20-30 decision points and multiple social interactions. Each point can be explored in great detail and compared to EDA outcome to analyze the relationship between emotions and multitude of attention measures. The present work has only scratched on the surface of the potential that lies within the combination of EDA and eye-tracking. To track emotions simultaneously as the decision-making processing is ongoing and to pinpoint event and alternatives that trigger the onset of choice can be an interesting path for future research.

What we want to accomplish in this workshop is to explore ideas on how to move this research forward.

ABSTRACTS - SERVICE RESEARCH AT THE BASE OF THE PYRAMID (BOP)

Service Research at the Base of the Pyramid (BoP)

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About two thirds of the world's population still lives on less than 9 US Dollars per day, commonly described as "the Base of the Pyramid (BoP)". There is a great need to understand and learn from this huge segment of society, not only as passive aid recipients and consumers, but also as pro-active, entrepreneurial innovators who are constantly co-creating solutions to survive in their daily lives.

This situation presents a number of challenges at different levels of analysis. Individuals, groups, families, communities, organizations, and institutions all dynamically interact and participate in a very complex social and economic environment. However, there is a fundamental lack of service research at the base of the pyramid. Most existing contributions have come from developed countries. Both researchers and practitioners need to move from a traditional, passive position of selling services at the BoP toward proactive actions that involve low-income customers as active resources in the co-creation of new services to improve their daily lives.

This contribution introduces the emerging field of BoP service research. First, starting from deep-rooted BoP assumptions, this presentation broadly explores the BoP context and breaks existing myths on this largest socio-economic segment. Second, it summarizes current BoP research from different academic fields, including sustainable development, consumption in low-income markets, entrepreneurship, poverty alleviation, innovation and social entrepreneurship. Third, it identifies key intersections of BoP research with service research priorities reported in the literature. Fourth, it promotes service research agendas, to expand our knowledge on and to learn about services from, the Base of the Pyramid. Fifth, some examples of empirical and conceptual research conducted in this emerging field are presented and discussed to illustrate this framework. Sixth, initial steps taken in different parts of the world are briefly commented, resulting after this global research initiative was launched in 2014.

ABSTRACTS - SMART SERVICE AND SERVICE ANALYTICS

Design of Smart Services: Reconsidering Concepts for Future Service Business

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Smart Services hold manifold potentials for the service business of manufacturers as well as for companies across many other industries. By using data collected in the Internet of Things, providers can configure need-driven and highly individualized service bundles (digital and physically delivered) that improve quality and productivity of their services. Despite these potentials, practical experiences show that many Smart Services are not accepted and implemented by all users and customers to the same extent. One reason therefore is seen in varying perceptions and requirements for different types of smart services, customer groups and country markets. Moreover, Smart Services are often not designed to exploit the full potential of data-based solutions. In this context, our presentation will display the need for reconsidering existing service concepts and methods for a successful design of Smart Services. In addition to that, we will outline future research questions and tasks with a special focus on acceptance and internationalisation of Smart Services.

Smart Services and Service Analytics: Broadening Perspectives

Dr Benjamin Lucas
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The smart services encompasses cutting-edge digital services informed by deep understanding of end users and data. In this presentation, researchers from Maastricht University introduce their broadened perspective on service science, including developments in smart cities, wearable technology and text and picture mining. Also introduced are important contemporary service analytics issues, such as the "we can, but should we?" question in scaled digital experimentation and data mining.



Co-recovery Customer Experience

- Service recovery and customer experience
- Empathy in service recovery
- Mystery shopping



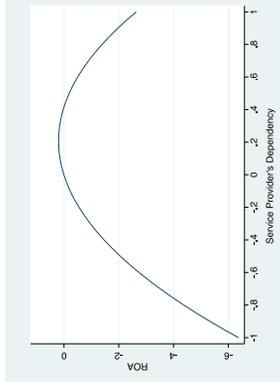
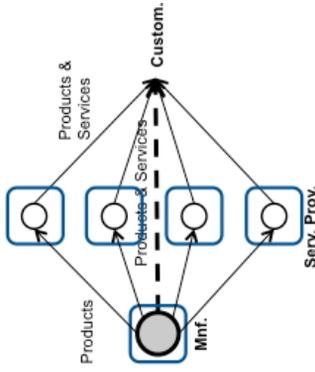
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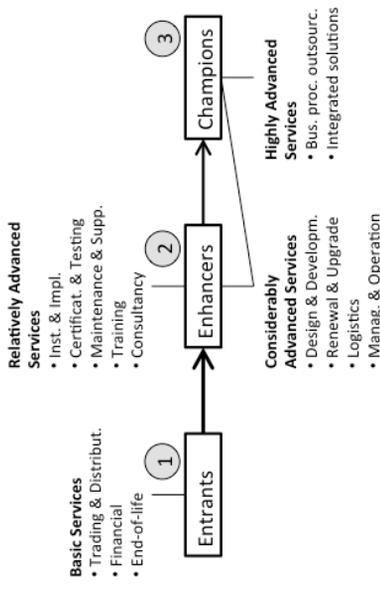
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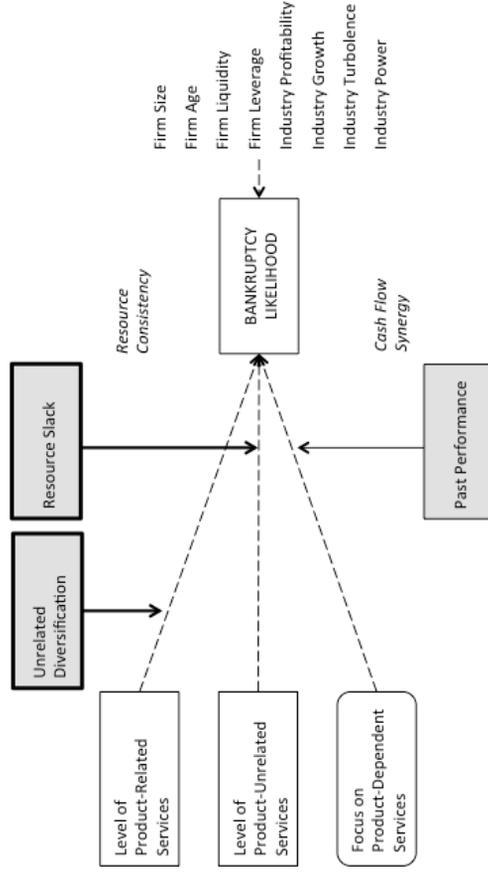
Impact of service providers' dependency on manufacturers' financial performance (Social Capital Theory)



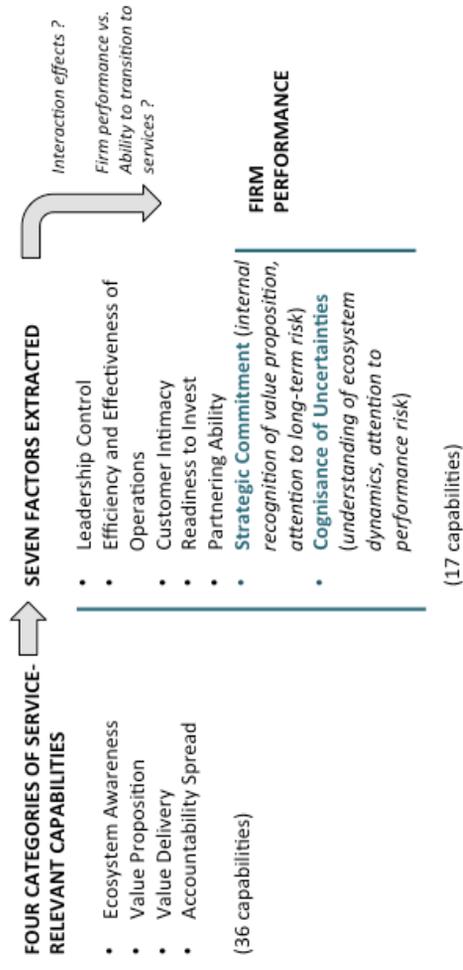
Empirical evaluation of the revised 'service transition' concept



Impact of resource consistency and cash-flow synergy on manufacturers' bankruptcy likelihood (Portfolio Theory)

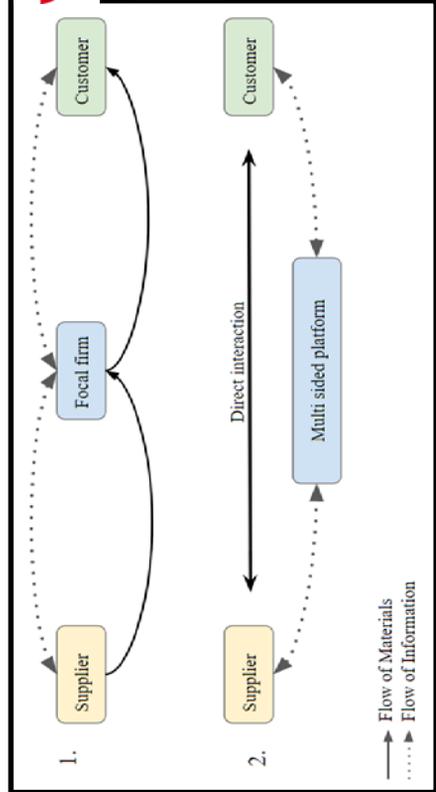


Link between servitization capabilities and firm performance





Coordination in (digital) service supply chains and service triads



Emergent and planned practices to manage supply in an e-commerce company

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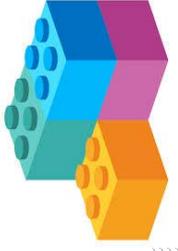
Eeke Jan Roodbergen (e.j.roodbergen@rug.nl), University of Groningen, The Netherlands

- Managing service triads
- Interplay informal and formal structures
- Cooptition
- Professional autonomy and accountability
- Transformation and change
- Service modules

Public services (health)
 Profit MSP's, Service triads
 Professional services



Single Customer View



Service modules and platforms

What professionals consider when designing a modular service architecture?

Manda Broekhuis
 Department of Operations, University of Groningen, Groningen, The Netherlands, and
 Marjolijn van Offenbeek and Monique Eijssens-van der Laan
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JOPPM 37,6

748

Received: 15 May 2015
 Revised: 16 November 2015
 Accepted: 10 Feb 2016
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The current issue and full text archive of this journal is available on Emerald Insight at: www.emeraldinsight.com/0144-3577.htm

The influence of buyer-supplier contractual arrangements on customer experiences in a service triad context

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 Kerstin Scholten, University of Groningen, The Netherlands



Dr. Manda Broekhuis
 Department of Operations
 University of Groningen (The Netherlands)

Understanding and Managing the Customer Experience



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Carrefour

Research Topics

- Customer Experience (Management)
- Personalization & Customization
- Service Failure/Recovery
- Multichannel Services
- Technology Infusion

Application

- Retail
- Hospitality
- Health

Arne De Keyser, PhD

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<https://www.edhec.edu/en/corps-professoral-et-chercheurs/de-keyser-arne-phd>



Abstract
Multichannel customer engagement is a key strategic focus for many organizations. This article examines the impact of the after-sales channel on customer engagement. The study uses a sample of 1,000 customers and finds that the after-sales channel has a positive impact on customer engagement. The study also finds that the after-sales channel has a positive impact on customer loyalty. The study concludes that organizations should focus on improving their after-sales channel to improve customer engagement and loyalty.



Abstract
Customer engagement is a key strategic focus for many organizations. This article examines the impact of personalization and customization on customer engagement. The study uses a sample of 1,000 customers and finds that personalization and customization have a positive impact on customer engagement. The study also finds that personalization and customization have a positive impact on customer loyalty. The study concludes that organizations should focus on personalization and customization to improve customer engagement and loyalty.



Abstract
Customer experience is a key strategic focus for many organizations. This article examines the impact of customer experience on customer engagement and loyalty. The study uses a sample of 1,000 customers and finds that customer experience has a positive impact on customer engagement and loyalty. The study concludes that organizations should focus on improving their customer experience to improve customer engagement and loyalty.



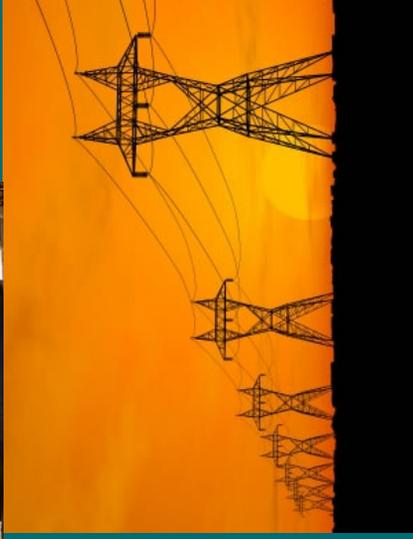
Abstract
Service encounters are a key strategic focus for many organizations. This article examines the impact of technology, employees, and customers on service encounters. The study uses a sample of 1,000 service encounters and finds that technology, employees, and customers have a positive impact on service encounters. The study concludes that organizations should focus on technology, employees, and customers to improve service encounters.

Service research frontiers.....

E Experience rooms



C Service innovation



C Co-recovery customer experience



Service-Dominant Logic



Resource integration

Service ecosystem





R. Elena Franco
Maastricht University

- Wearable technology
- Data from Devices (DfD)
- New Service Development
- Creativity in B2B teams
- Dynamic network analysis
- Machine learning

The Sociometric Badge

- Microphones
- 1 cm receiver
- Bluetooth
- Accelerometer

The Protractor

- Bluetooth
- Accelerometer

UNIVERSITY OF CAMBRIDGE
Faculty of Graduate Studies and Technology

Ditzel, J., Franco, R.E., Lucas, B. (2017). Employee Individuation with Wearable Technology

- Using MIT Sociometric Badges to identify employees
- Multi-class classification approach with WEKA
- Forward-feature selection for model building
- Up to 88.20% accuracy with good class precision scores

Trainee	Architect	Innovation Manager	Researcher	Head of Innovation	General Manager	Senior Coach	Project Officer
182	51	14	55	8	4	3	2
49	222	17	11	10	8	1	1
23	36	135	28	34	34	28	21
0	5	18	195	27	17	25	4
0	0	2	0	59	1	10	4
0	6	18	16	0	213	46	20
0	2	9	1	2	39	292	14
0	3	6	1	1	17	11	280

Developing new devices for academic data collection

Sensing Non-verbal Behavior with Wearable Light Tags

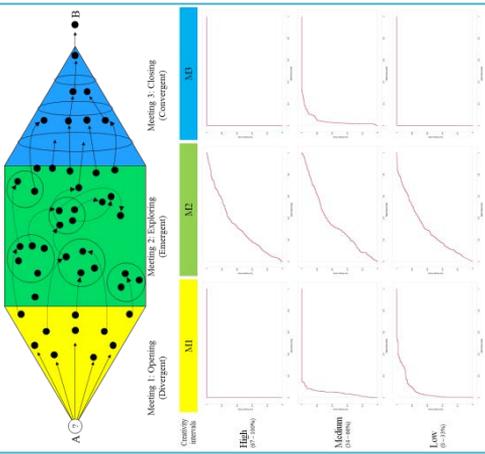
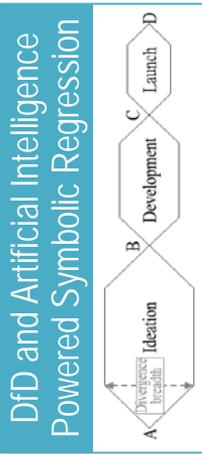
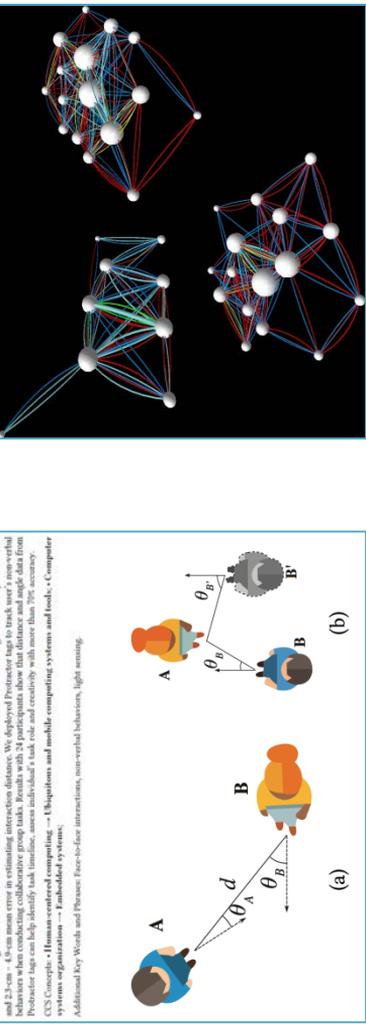
ALESSANDRO MONTANARI, Computer Laboratory, University of Cambridge
 ZHAO TIAN, Department of Computer Science, Dartmouth College
 ELENA FRANCO, School of Business and Economics, Maastricht University
 BENJAMIN LUCAS, School of Business and Economics, Maastricht University
 XIA ZHOU, School of Computer Science, University of Cambridge
 CECILIA MASCOLO, Computer Laboratory, University of Cambridge

Non-verbal characteristics of social interactions (e.g. body distance, relative orientation) influence many aspects of everyday life: from patients' reaction to interaction with physicians, success in job interviews, to effective teamwork. Traditionally, non-verbal behavior has been studied via questionnaires and participant observations, imposing high burden on both low reliability and precision, and often lacking technology for detecting unperceived behavior cues with fine granularity. Protractor employs a near-infrared light to monitor both the distance and relative body orientation of interacting users. We leverage the characteristics of near-infrared light (i.e. line of sight propagation is accurately and reliably identify interactions; non-visibility to the human eye; low power consumption) to design a light tag that can be used in a wide range of social interaction scenarios. A novel block of the light board (i.e. by the user's hand or hidden by adaptive smart fabric) allows that spatial temporal awareness to observe the absence of light tracking results.

We fabricated Protractor tags and conducted real-world experiments. Results show its accuracy in tracking body distance and relative orientation between two users. We also conducted a series of experiments to evaluate the accuracy of Protractor when conducting collaborative group tasks. Results with 24 participants show that distance and angle data from Protractor tags can help identify task timeline, assess individual's task role and creativity with more than 70% accuracy.

CCS Concepts • Human-centered computing. • Ubiquitous and mobile computing systems and tools. • Computer systems organization. • Ubiquitous computing.

Additional Key Words and Phrases: Face-to-face interactions; non-verbal behaviors; light sensing.



Phase 1: Openings (Divergent)

Phase 2: Experiments (Emergent)

Phase 3: Closure (Convergent)

Quantity of Ideas

High (0-100)

Medium (0-100)

Low (0-100)

Red: CEO_1, Yellow: Designers_1, Dark Blue: CEO_2, Light Blue: Operational_Staff_2

Services in product companies

Heiko Gebauer

- Territorial servitization: Longitudinal study on the (European) wind turbine industry
- Technology leaps: Single case study on shifting from diesel, hybrid, and electric engines
- Services in emerging and low-income markets: Selling a service, instead of equipment
- M&As and service growth
- Services in utilities



The Telegraph

Renewable energy
Rohr-Rope is talks with Siemens over sale of gas turbine business
German giant set to pay \$1.5bn for Rohr's business but will retain 40% stake
after French firm's board picks US bid

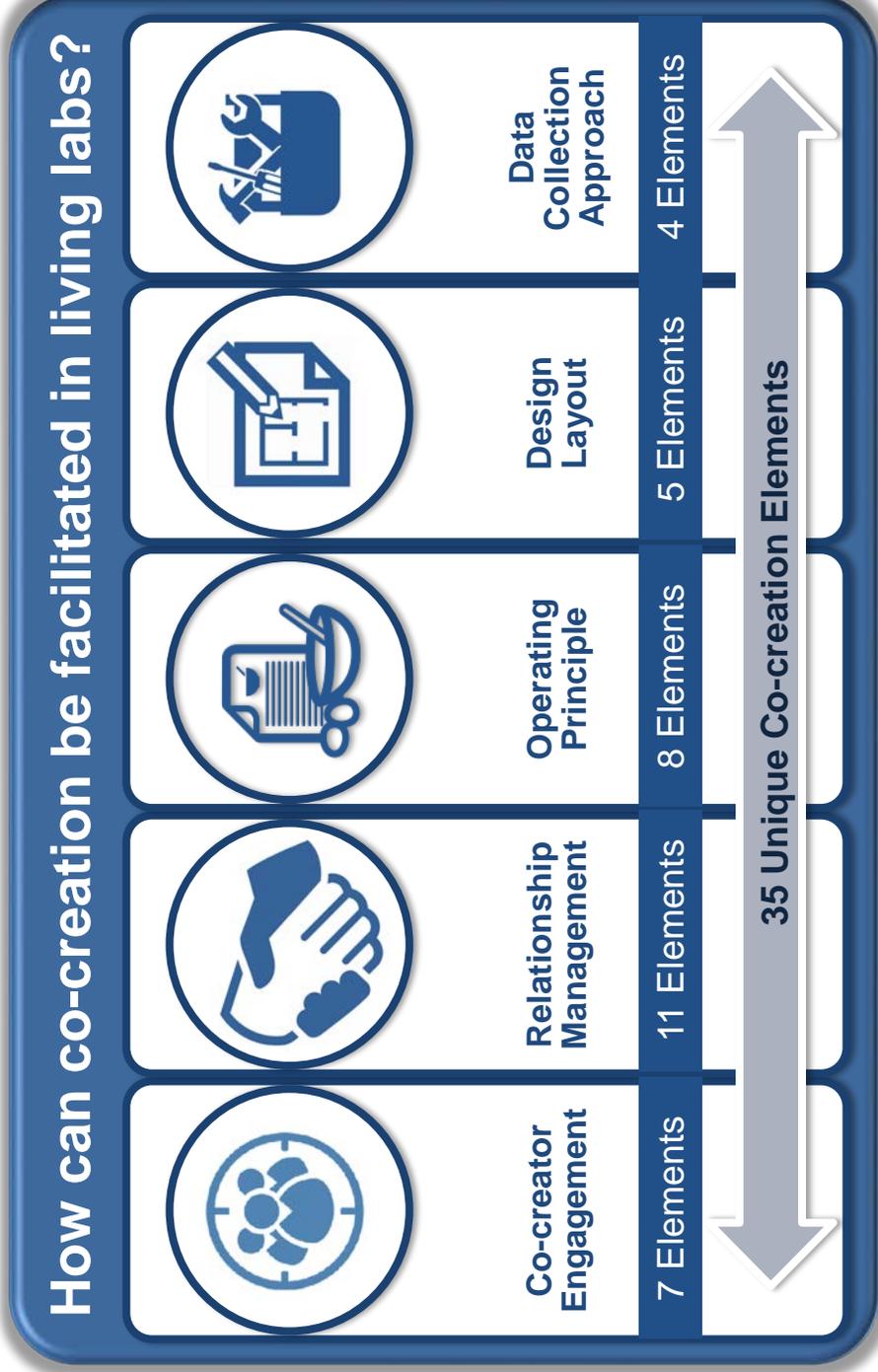


Co-creation in Living Labs

Cambridge Service Alliance



Katharina Greve
www.katharinagreve.com



UNIVERSITY OF CAMBRIDGE
 Cambridge Service Alliance

Katharina Greve | kg403@cam.ac.uk | @Katharina_Greve

Brave New Service Worlds Centre for Service Management (CSM)



Loughborough
University

Centre for Service
Management



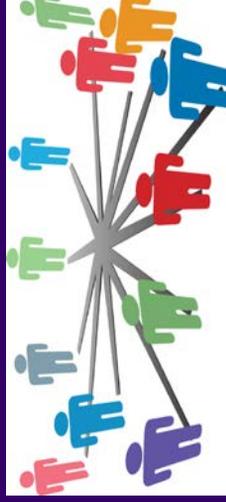
Prof Thorsten Gruber
<http://www.lboro.ac.uk/departments/sbe/staff/thorsten-gruber>



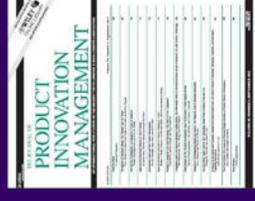
Social Service Robots



Value Co-Creation in (B2B) Service
Networks

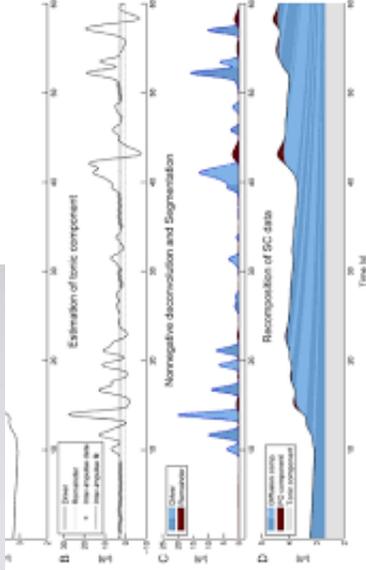
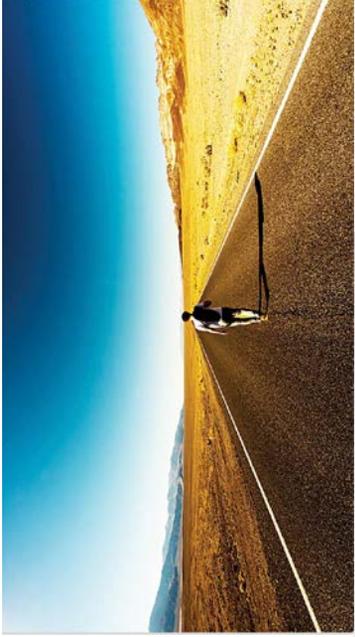


Co-Recovery Customer Experiences



Capturing the Customer Journey

How do you capture an experience?



Emotions matter and drive behavior



SERVICE RESEARCH CENTER
CTF | CENTRUM FÖR TJÄNSTEFORSKNING

Anders Gustafsson and Poja Shams

Platform and Disruptive Tech

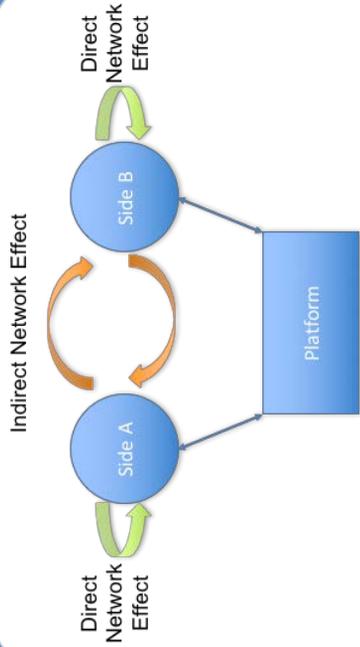
Cambridge Service Alliance



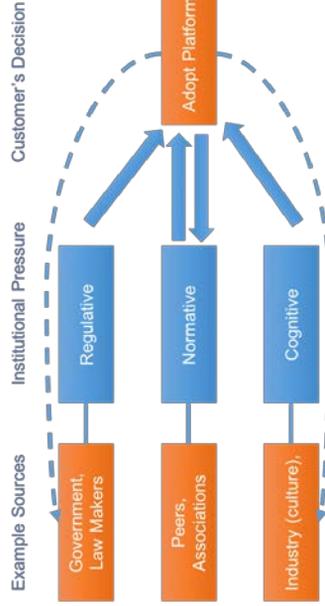
Xia Han <http://www.ifm.eng.cam.ac.uk/people/xh268/>

Academic Interests

Platform Ecosystem

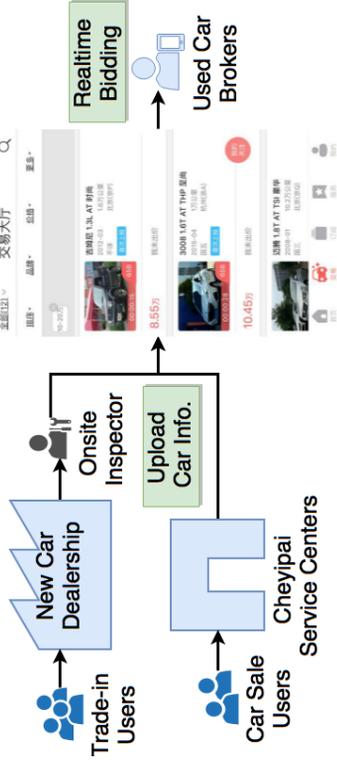


Institutional Theory



Industry Focus

Chinese used car Industry



Car inspection and upload 40 mins

Bidding 15 mins

Blockchain Applications

Fintech Supply Chain Defense Research



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CAMBRIDGE
Cambridge Service Alliance

Recent Research

- Service infusion and service defusion
- Service infusion as business model reconfiguration
- Service infusion network structures

Recent Publications

- Forkmann, Henneberg, Witell, Kindstroem (2017),
Journal of Service Research
- Forkmann, Ramos, Henneberg, Naude (2017),
Industrial Marketing Management

Ongoing Research

- Portfolio perspective on service infusion
- Understanding customer value from service infusion
- Understanding bright/dark side effects of service infusion (dual process model)
- Selling service infusion (hazard model)
- Dynamics of service infusion relationships (hidden Markov chain model)
- Digitisation and service infusion (Fraunhofer Institut research project)
- Service infusion implementation structures

Academic research partners

- University of Alabama
- University of Paderborn
- Aston Business School
- Leeds Business School
- University of Karlstad (CTF)
- University of Bamberg

Industry research partners

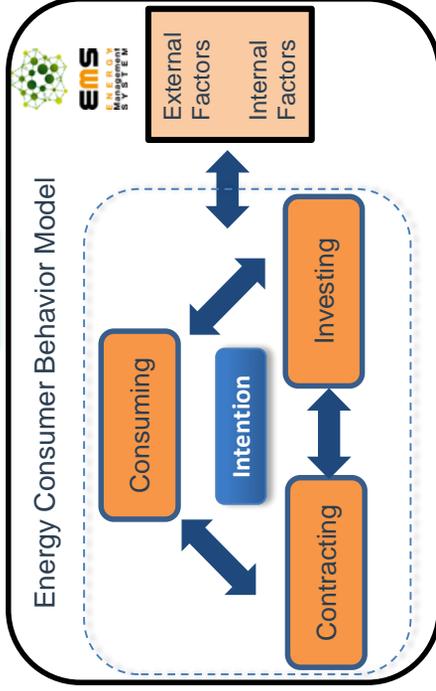


DIEBOLD
NIXDORF

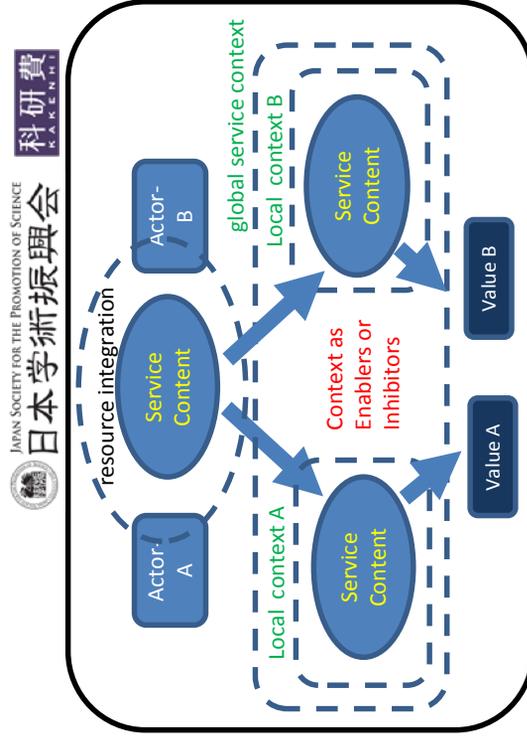


Energy Demand Science & Service System Research

- Find the underlying logic of Service System -



Smart Meter, Disaggregation, Energy Management System, Renewable Energy, Big Data, Analytics, Behavior Science



Research on Service System, Value co-creation, SDL

<http://www.hidaka-lab.mot.titech.ac.jp/members/%E6%97%A5%E9%AB%98%E4%B8%80%E7%BE%A9/>

Dr. Kazuyoshi Hidaka
Professor, School of Environment and Society
Tokyo Institute of Technology

Related Recent International Conference

- “Insights from Japanese Government Research Program for Service Science”, AHFE, 2017
- “Service Content-Service Context Framework for Value Creation”, Frontiers in Service Conference, 2017
- “A Matrix for Determining Servitized Value Proposition Based on Product Features”, Spring Servitization Conference, 2017
- “Toward a value metrics: A service-dominant logic view”, AHFE, 2016
- “Consumer Behavior Model for Distributed Energy Management System”, JST-NSF-DFG-RCN Workshop on Distributed Energy Management System, 2016.
- “Information Impact on Consumer Behavior Change”, Behavior Energy and Climate Change Conference, 2015

Related Recent papers

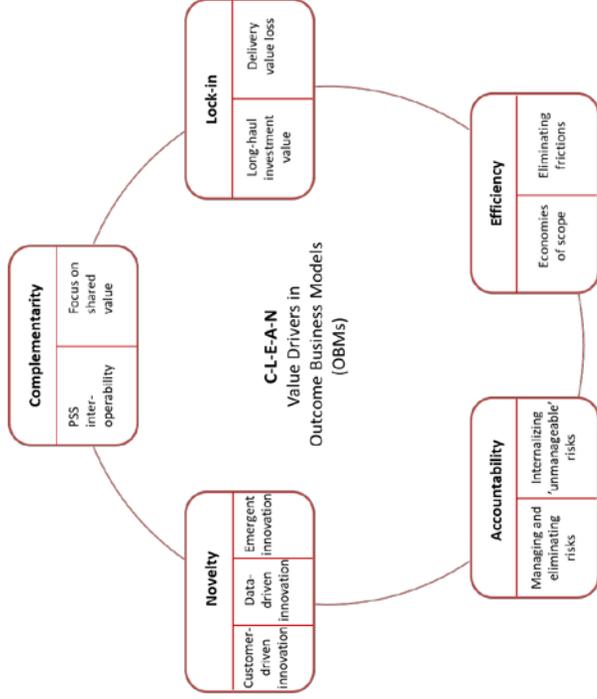
- “Establishment of Energy Demand Science-Energy Demand Research for Energy Management, Energy and Resources, Vol.38, No.5
- “Wisdom Service Systems: Harmonious Interactions Between People and Machine”, Proceedings of International Conference on The Human Side of Service Engineering, Springer, July 2017
- “Toward a Value Metrics—A Service-Dominant Logic View”, Advances in The Human Side of Service Engineering, Advances in Intelligent Systems and Computing 494, Springer 2017
- “Geoscience and Energy Demand Science for EMS”, Journal of the Society of Instrument and Control Engineers, 2016
- “Management Service for Air Conditioner Users by Utilizing Remote Monitoring System”, Proceedings of the Spring Servitization Conference, 2016



Tokyo Institute of Technology

Navigating Manufacturing Firms to Service-led Business Models

Research focus:
 Outcome Business Models
 Managing Dual (Product-Service) Business Models
 Service Capability Base Development
 Servitization in SMEs



Case studies:



Marin Jovanovic

is a Visiting Researcher at the Cambridge Service Alliance and a double-degree PhD candidate at the KTH Royal Institute of Technology and the Universidad Politécnica de Madrid.

<http://www.ifm.eng.cam.ac.uk/people/mj414>



Visnjic, I., Jovanovic, M, Neely, A. & Engwall, M. (2017) What Brings the Value to Outcome-Based Contract Providers? Value Drivers in Outcome Business Models. *International Journal of Production Economics*, 192, pp. 169-181.

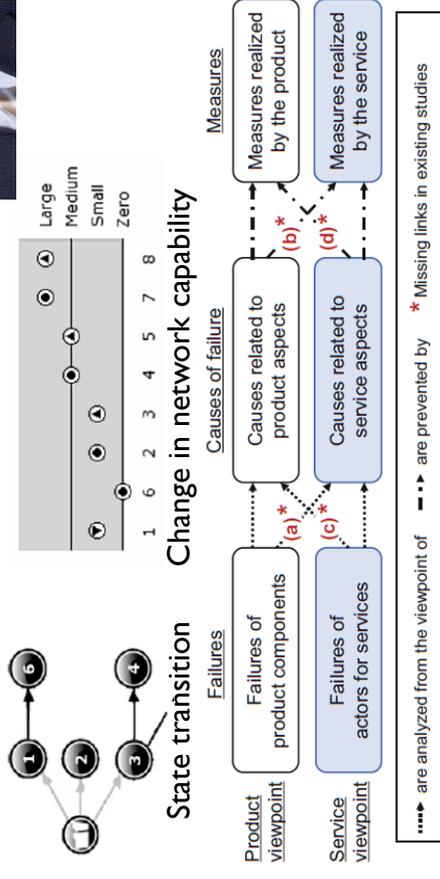


Jovanovic, M, Engwall, M. & Jerbrant, A. (2016). Matching Service Offerings and Product Operations: A Key to Servitization Success. *Research-Technology Management*, 59 (4), pp. 29-36.

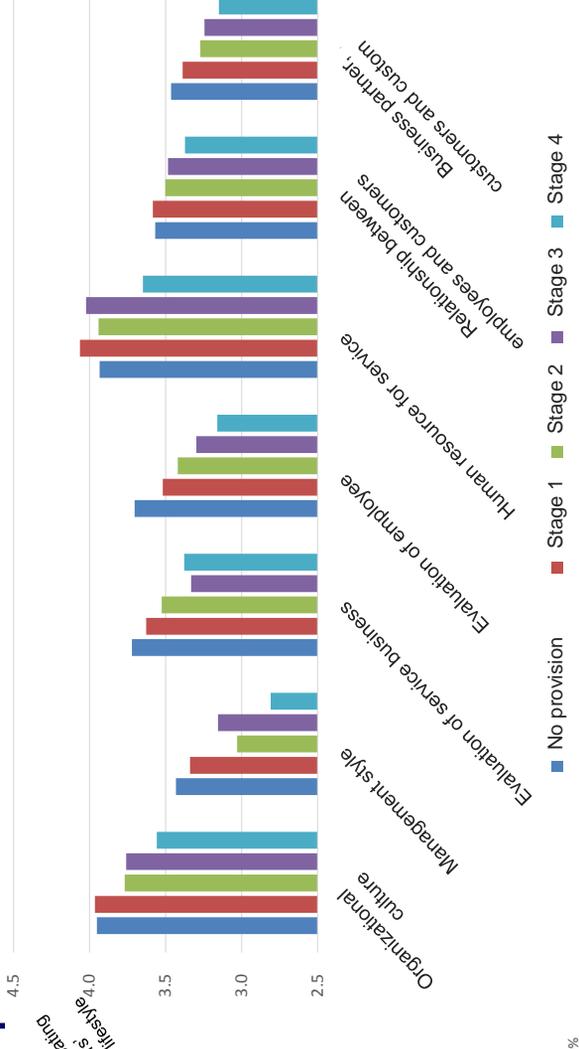
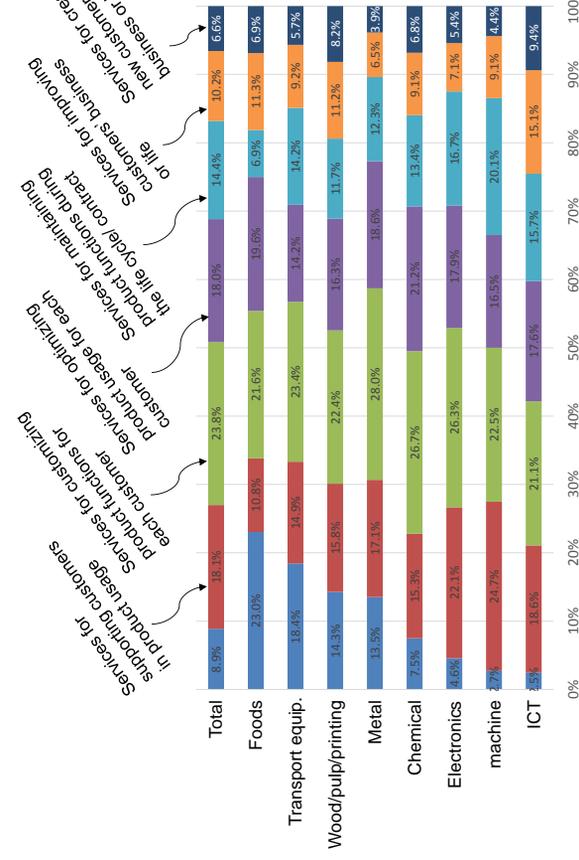


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- ▶ **Product-Service Systems Design**
- ▶ Simulation of network capability
- ▶ Failure analysis in PSS design
- ▶ PSS Modular design
- ▶ PSS design guide

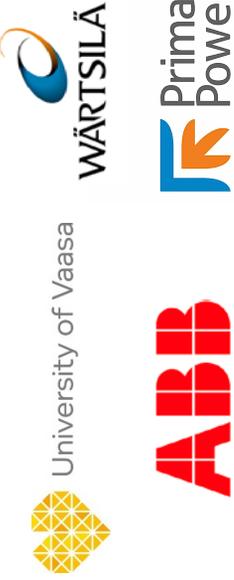
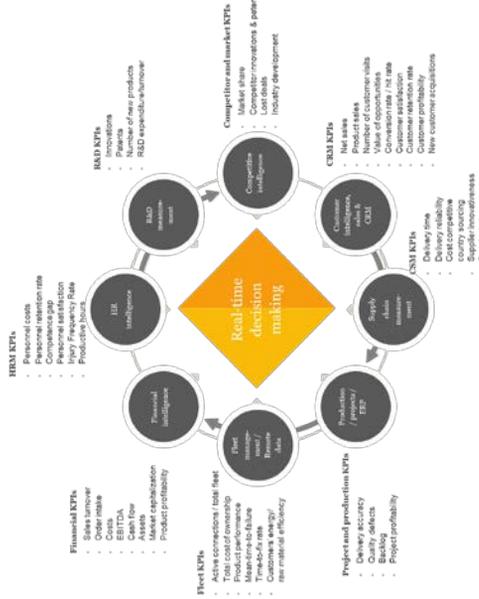


Servitization Barriers in Japanese Manufacturers





Marko Kohtamäki
 Professor
mtko@uwasa.fi
 University of Vaasa, Finland



Strategy map of servitization

Rodrigo Kubert^{1,2*}, Marko Kohtamäki¹, Heiko Gebauer³

¹Department of Production Economics, University of Vaasa, Finland; ²Department of Business Administration, University of Jyväskylä, Finland; ³Department of Production Economics, University of Applied Sciences, Finland

ARTICLE INFO

ABSTRACT
 By expanding the activities of their leading competitors in a digital field, the multiple ways in which servitization is changing the nature of production economics. This study aims to explore the underlying activities of servitization in production economics. The study aims to explore the underlying activities of servitization in production economics. The study aims to explore the underlying activities of servitization in production economics.

1. Introduction

Manufacturers have added value from their products for customers in a variety of ways: higher revenue and additional growth opportunities. This study aims to explore the underlying activities of servitization in production economics. The study aims to explore the underlying activities of servitization in production economics.

2. Mapping the servitization strategy

This section and various methods of servitization are explored. This section and various methods of servitization are explored. This section and various methods of servitization are explored.



Critical meta-analysis of servitization research: Constructing a model-narrative to reveal paradigmatic assumptions

Seppo Laito¹, Sara A. Box², Marko Kohtamäki^{3*}

¹University of Jyväskylä, Finland; ²University of Vaasa, Finland; ³University of Vaasa, Finland

ABSTRACT

The literature on servitization in the manufacturing sector has grown rapidly. This study is the first systematic review of servitization research in the manufacturing sector. This study is the first systematic review of servitization research in the manufacturing sector.

1. Introduction

Existing meta-analyses summarize the empirical research on servitization in the manufacturing sector. This study is the first systematic review of servitization research in the manufacturing sector. This study is the first systematic review of servitization research in the manufacturing sector.



Co-creating value from knowledge-intensive business services in manufacturing firms: The moderating role of relationship learning in supplier-customer interactions

Marko Kohtamäki^{1,2,*}, Jukka Partanen³

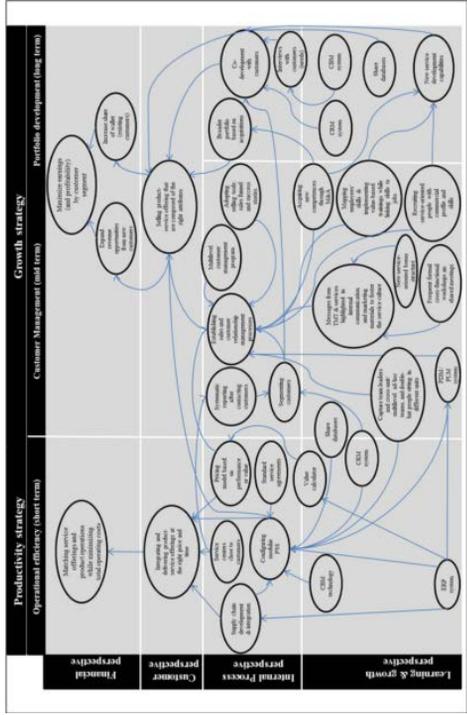
¹University of Vaasa, Finland; ²University of Jyväskylä, Finland; ³University of Jyväskylä, Finland

ABSTRACT

This study examines the moderating role of relationship learning in supplier-customer interactions. This study examines the moderating role of relationship learning in supplier-customer interactions.

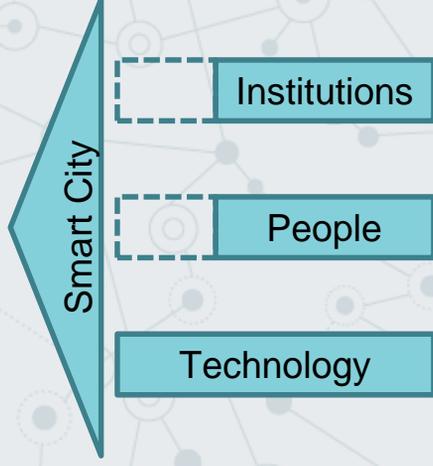
1. Introduction

Existing research on relationship learning in manufacturing firms. This study examines the moderating role of relationship learning in supplier-customer interactions. This study examines the moderating role of relationship learning in supplier-customer interactions.



Smart city – It is only smart if there is an audience

What is the goal of a smart city? Achieve the highest possible quality of urban life



Currently we are heavily focused on technology innovations and IT infrastructure

→ Technology alone will not get us to the goal!

→ There is clear need for **citizen-centric approach** to smart cities

Well-functioning and widely accepted smart city concept is only possible **bottom-up**



Private sector and research institutes need to claim a larger stake in the development of smart city concepts and initiatives



“Smart citizenship as a service”



Gemeente Heerlen

Audience:

As a Source:
Citizens dialogue
Best practice cases
Research
Municipality
Social Media
GPS/phone
CBS

As a User:
Citizens
Municipality
Private sector
App/Web developers
Event management
Province

Benjamin Lucas

Assistant Professor, Maastricht University.



Study at Cambridge

About the University

Research

Cambridge Service Alliance / News / MSI Award for Customer Attrition Prevention with

MSI Award for Customer Attrition Prevention with Artificial Intelligence

last modified Jul 11, 2017 11:43 AM

A new award from the Marketing Science Institute for a project on customer attrition prevention with artificial intelligence, by Dr Mohamed Zaki and Dr. Benjamin Lucas



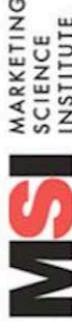
Mohamed Zaki (Deputy Director of the Cambridge Service Alliance) and Benjamin Lucas (Assistant Professor at Maastricht University) have been awarded a research grant by the Marketing Science Institute (MSI) for their project titled **"DeepKeep: Customer Attrition Prevention with Artificial Intelligence"**. The grant was awarded as part of the MSI Research Initiative on the Digitized Customer, with the initiative task force co-chaired by Cait Lambertson (University of Pittsburgh), and Andrew Stephen (University of Oxford), and involving collaboration with companies including UPS, AbbVie, Vanguard, IHG, Colgate, and Adobe.

The project involves working at the intersection of marketing analytics and machine learning to develop a tool for predicting customer attrition and churn risk from textual data sources such as social media. This means leveraging the intelligent data abstraction capabilities of deep learning, but also improving the training of such models with psycholinguistic theory and practitioner experience.

Filed under: [Analytics](#) [Mohamed Zaki](#) [Big Data](#)

last modified Aug 22, 2016 03:53 PM

Award made to Mohamed Zaki and Ben Lucas from the Marketing Science Institute for customer experience analytics.



Mohamed Zaki and Ben Lucas awarded a fund from the Marketing Science Institute in response to a Customer Experience Initiative call 'CX Analytics: A Data-Driven Measurement System for Customer Experience and Emotional Complexity'. The project proposes a flexible approach to measuring customer experience factors and emotional complexity for customer experience analytics. We aim to:

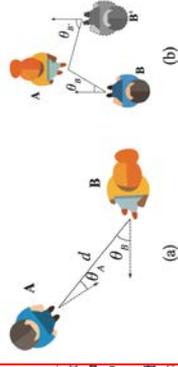
Sensing Non-verbal Behavior with Wearable Light Tags

ALESSANDRO MONTANARI, Computer Laboratory, University of Cambridge
ZHAO TIAN, Department of Computer Science, Dartmouth College
ELENA FRANCU, School of Business and Economics, Maastricht University
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BRIAN JONES, Computer Laboratory, University of Cambridge
XIA ZHOU, Department of Computer Science, Dartmouth College
CECILIA MASCOLO, Computer Laboratory, University of Cambridge

Non-verbal characteristics of social interactions (e.g., body distance, relative orientation everyday life: from patients' reaction to interaction with physicians, successes in job interviews). Traditionally, non-verbal behavior has been studied via questionnaires and participant observations, low scalability and precision, and often biases.

In this paper we present *Protractor*, a novel wearable technology for detecting non-verbal behavior. *Protractor* employs near-infrared light to monitor both the distance and relative body orientation. It leverages the characteristics of near-infrared light (i.e., line of sight propagation) to accurately measure the distance and relative body orientation of a pair of collocated photodiodes and the inference of relative interaction angle and distance. We achieve robustness against temporary blockage of the light channel (e.g. by the user's hand or clothes) by designing sensor fusion algorithms that exploit inertial sensors to obviate the absence of light tracking results.

We fabricated *Protractor* tags and conducted real-world experiments. Results show its accuracy in tracking body distances and relative angles. The framework achieves less than 6° error 95% of the time for measuring relative body orientation



Digital and Smart Services

Cambridge Service Alliance



Dr Veronica Martinez
<http://www.ifm.eng.cam.ac.uk/people/vm338/>



TECHNOLOGY

Digital Twins



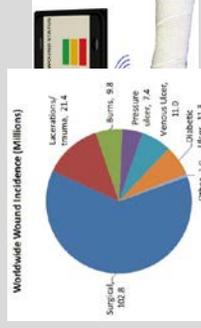
Blockchain



APPLICATION

Digital Service Business Models

- Health
- Smart cities
- Smart industries




UNIVERSITY OF CAMBRIDGE
 Cambridge Service Alliance

Janet R. McColl-Kennedy

Professor of Marketing

UQ Business School

The University of Queensland, Brisbane, Australia
Visiting Professor The University of Cambridge

<https://www.business.uq.edu.au/staff/janet-mccoll-kennedy>
<https://scholar.google.com.au/citations?user=VLX4hYgAAAJ&hl=en>



Key Projects

- * customer experience management using data analytics
- * health care customer journey
- * co-creating customer experiences
- * cocreative customer practices: effects on well-being
- * patient well-being
- * ecosystem well-being

Smart Services at Fraunhofer IAO

Research Overview



Walter Ganz, M.A.
Director



Jens Neuhüttler, M.Sc.
Senior Researcher

Latest research fields:

- Quality of Smart Services
- Service Testing
- Data-based Service Design
- Internationalization of Smart Services
- Business Models for complex Service Systems

Application / Expertise:



Smart Cities

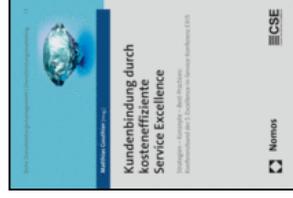
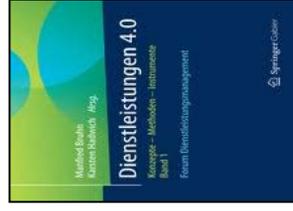


Manufacturing



Senior Care

Latest publications:



Industry Partners:



BOSCH



WIR MACHEN DIE LUFT REIN.

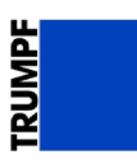


KOMATSU | Forestry Quality™

FESTO



DAIMLER



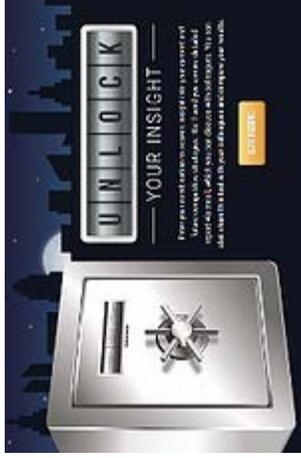


Professor Tim Baines



The Advanced Services Group is a centre of excellence at Aston Business School, Aston University in the UK. We provide education, training, research and a global network of like-minded professionals around advanced services and servitization. We help global manufacturers and technology innovators to develop services-led strategies. Research focuses on Servitization and Advanced Services, specifically, organisation change and business model innovation, performance measurement, value network & business ecosystem.

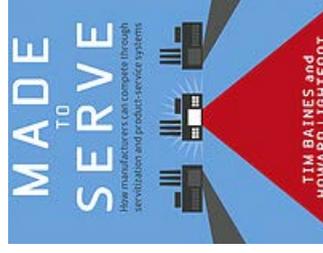
Games & Gamification



Keynotes & Industrial Presentations



Latest Research & White Papers



Advisory & Executive Education



Small Business Partnership



Large Business Partnership



Spring Servitization Conference

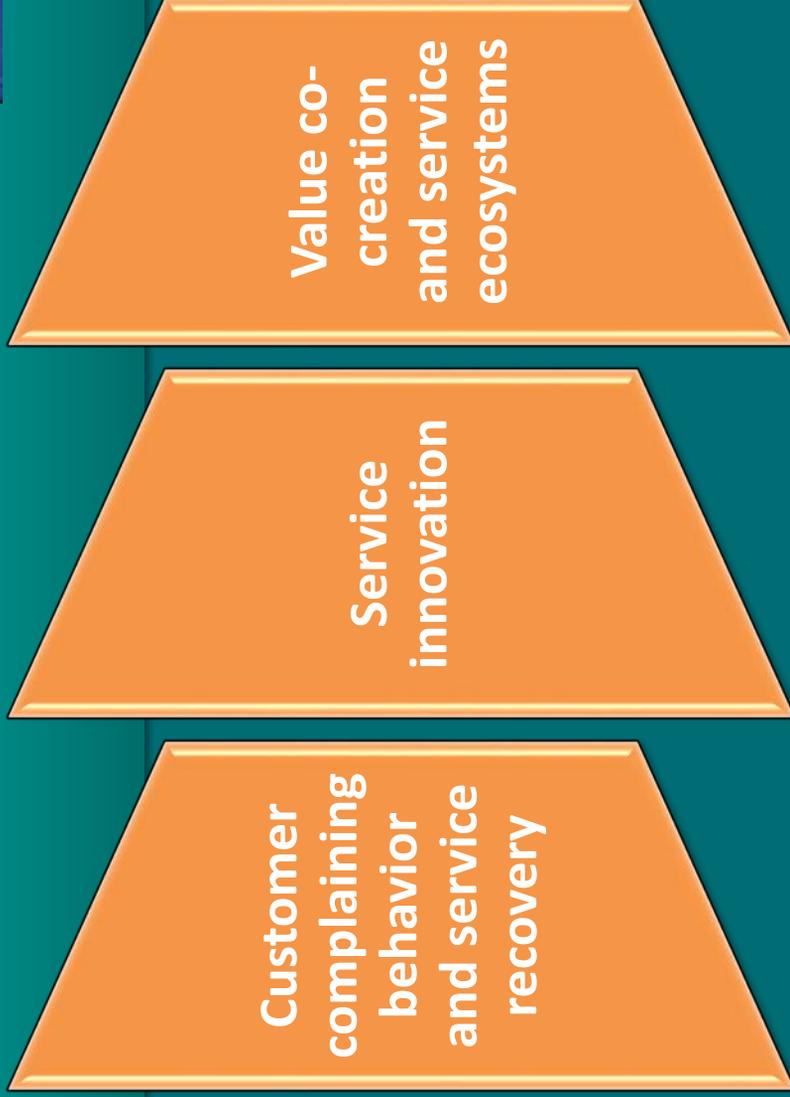


Service research

ABB

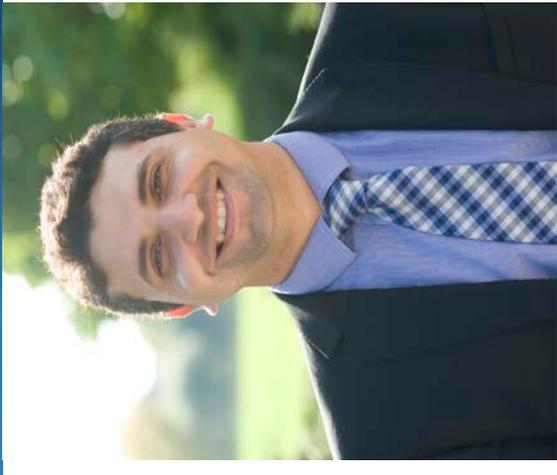


Dr. Bård Tronvoll
Professor of Marketing



Digital and Smart Services

Cambridge Service Alliance



Dr Mohamed Zaki, Deputy Director Cambridge Service Alliance

My research interests lie in the field of Machine Learning and its application on Digital Manufacturing and services.

My research develops novel data science methods using machine learning to measure customer experience, develop loyalty predictive model, analyse sensor data to classify product and service failures in manufacturing.

My recent publication are published in *Journal of Service Research*, *International Journal of Operations and Production Management*, *Journal of Service Marketing*, *PLoS ONE* and *Production Planning and Control*

<https://cambridgeservicealliance.eng.cam.ac.uk/About/directory/MohamedZaki>



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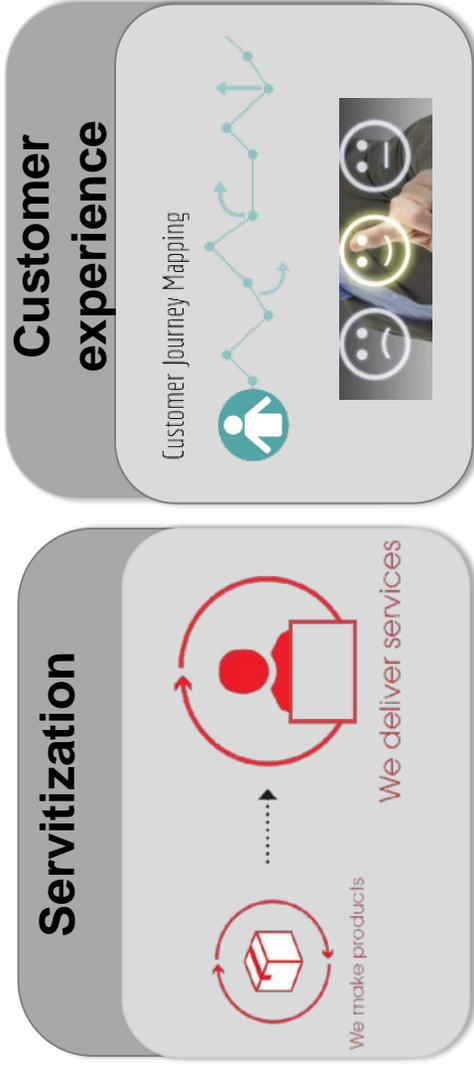
Servitization, customer experience and performance

Cambridge Service Alliance



Thayla Zomer
ttdsz2@cam.ac.uk

PhD Research (2017)



Application

Customer experience in B2B services

- Design
- Management



Previous research

Exploring the Business outcomes of the servitization of manufacturing: A literature analysis
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper explores the business outcomes of the servitization of manufacturing. It analyzes the literature on this topic and identifies the key factors that influence the success of servitization. The findings suggest that servitization can lead to improved customer loyalty, reduced costs, and increased revenue. However, it also requires significant investments in technology and talent. The paper concludes that servitization is a complex process that requires careful planning and execution.

Enabling the integration of sustainable product service design (SPSD) in integrated design and analysis for manufacturability (IDAM)
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper explores the integration of sustainable product service design (SPSD) in integrated design and analysis for manufacturability (IDAM). It discusses the challenges of integrating sustainability into the design process and the benefits of doing so. The paper concludes that integrating sustainability into IDAM can lead to more sustainable and cost-effective products.

A QFD-based approach to support sustainable product-service system conceptual design
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper presents a QFD-based approach to support sustainable product-service system conceptual design. It describes the methodology and the results of a case study. The findings show that the approach can help designers to identify and address sustainability requirements early in the design process.

Total Quality Management & Business Excellence
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper explores the relationship between Total Quality Management (TQM) and Business Excellence. It discusses the challenges of implementing TQM and the benefits of doing so. The paper concludes that TQM is a key factor in achieving business excellence.

Exploring business model innovation for sustainability: an investigation of two product-service systems
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper explores business model innovation for sustainability. It investigates two product-service systems and the challenges of implementing sustainable business models. The findings suggest that business model innovation is essential for achieving sustainability in the manufacturing industry.

Enabling the integration of sustainable product service design (SPSD) in integrated design and analysis for manufacturability (IDAM)
 Authors: Thayla Zomer, Peter C. Schmitt, University of Cambridge
 Abstract: This paper explores the integration of sustainable product service design (SPSD) in integrated design and analysis for manufacturability (IDAM). It discusses the challenges of integrating sustainability into the design process and the benefits of doing so. The paper concludes that integrating sustainability into IDAM can lead to more sustainable and cost-effective products.



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- Create and develop industrially applicable tools and techniques that deliver competitive advantage.
- Provide an unparalleled network of academics and industrialists that share experience, knowledge and insight in how better to design and deploy high-performance complex service systems.
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Developing new understanding and approaches to complex service systems

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