Consumer-Centric Information Systems: Avenues for further Research

Consumer-Centric Information Systems: A Literature Review and Avenues for Further Research

Research-in-Progress

Benjamin Spottke

University of St.Gallen **Institute of Information Management** St.Gallen, Switzerland benjamin.spottke@unisg.ch

Jochen Wulf

University of St.Gallen **Institute of Information Management** St.Gallen, Switzerland jochen.wulf@unisg.ch

Walter Brenner

University of St.Gallen **Institute of Information Management** St.Gallen. Switzerland walter.brenner@unisg.ch

Abstract

While consumer centricity has been extensively discussed as a concept of organizational transformation in the marketing domain, there is little research on its operationalization as a characteristic of information systems and associated antecedents.

We review the marketing literature to understand generic organizational objectives of consumer centricity which are then generalized as characteristics of consumer-centric information systems. In a second step, we draw on socio-technical theory to conceptualize antecedents of consumer centricity as capabilities to align social and technical system components.

Our research contributes to the body of knowledge by theoretically deriving an operationalization and antecedents of consumer centricity in IS research. This paper lays the foundation for a structured review of IS literature to theorize on component alignment capabilities as antecedents of consumer centricity. It further is the basis for case study research to construct a nomological network for consumer-centric information systems.

Keywords: Human-computer interaction, Information systems, IS models, IS research, IS research agenda, IS theory, Socio-technical approach

Introduction

The increasing adoption of consumer technology and the proliferation of ubiquitous systems is transforming the interaction between organizations and consumers. As consumers seek personalized experiences (Prahalad and Ramaswamy 2004), interaction is increasingly considered as the locus of value creation (Vargo and Lusch 2004). Without doubt, consumer interactions are strongly facilitated by information systems and technology (Jayachandran et al. 2005; Saarijärvi et al. 2013).

Consumer-facing systems pose novel organizational challenges with regard to system development and provisioning. For example, Gartner (2012) distinguishes information systems by their degree of consumer engagement (low to high) and associated pace of change (low to high) and deduce different so-called "pace-layered" application management strategies. A focus on intra-organizational IS users does not cover consumers, who design their individual information systems for their various purposes (Baskerville 2011) and within their specific contexts (Lamb and Kling 2003). IS researchers and practitioners have developed an extensive body of knowledge on intra-organizational systems, e.g., regarding development (e.g., waterfall model, scrum) and IT service management (ITIL). The transferability of such practices to the management of systems with a high consumer engagement, however, is only limited (Liang and Tanniru 2006).

The concept of customer centricity has been developed in the marketing literature and applies to the marketing function itself (Kumar 2015; Sheth et al. 2000) or to organizations as a whole (Shah et al. 2006). Customer centricity is often understood as a set of transformational activities (e.g., organizational alignment or cultural change (Shah et al. 2006)) or as organizational objectives (e.g., customer need orientation (Lamberti 2013) or intensifying customer relationships (Kumar 2015)).

Within the IS literature customer centricity mostly refers to commercial relationships between private customers and suppliers (Alter 2008; Pan and Pan 2006). IS research views consumer-centric information systems (CCIS) as organizational IS which "link a company to its customers." (Reich and Benbasat 1990). Such a perspective does not cover the emergence of systems which are owned and operated by consumers for non-commercial purposes (Baskerville 2011). To include such systems into our analysis of consumer centricity, we adopt a broader definition and consider consumers as private users of information systems, which may or may not engage with a commercial organization through IS.1

Advancements in consumer technologies are considered as an enabler for increased customer centricity (Kumar 2015). Alter (2008) associates customer centricity with an ability to "respond to customer needs" and notes that the "idea of customer-centricity has become commonplace, but is often vague". Prior literature on CCIS discusses characteristics of information systems associated with consumer centricity (Huang and Rust 2013; Liang and Tanniru 2006; Pan and Pan 2006; Reich and Benbasat 1990; Tuunanen et al. 2008; Tuunanen et al. 2010). This literature, however, provides little theory on antecedents of consumer centricity and their relation to IS characteristics.

The IS research literature acknowledges the importance to analyze the individual consumer and her active role in defining and using an information system around her needs. Baskerville (2011), for example, speaks of "centricity of the business-enterprise" and is questioning if IS research has "failed to notice the individuation of IS" which are "certainly socially constructed". Alter (2008) also emphasizes the need to evaluate and adjust elements of work systems to "attain the right degree of customer-centricity" and calls for further research in this area.

To address this call, we pose the following research questions: 1) How can consumer centricity be operationalized as characteristics of information systems? 2) Which antecedents lead to consumer centricity of information systems? The first research question seeks to understand consumer centricity and its meaning in the context of information systems. The second research question aims at the derivation of the internal capabilities a CCIS must possess.

¹ We regularly use the term customer centricity to comply with the original terms used by cited authors. Since we imply the transferability of customer centricity concepts to the concept of consumer centricity, we use the term customer as a synonym for consumer unless stated otherwise.

We use the literature review method (Rowe 2014) to deduce consumer centricity characteristics from the marketing literature. We then base our argumentation on socio-technical theory (Bostrom and Heinen 1977; Hester 2014; Leavitt 1964; Lyytinen and Newman 2008; Orlikowski 2000) to regard capabilities for system component adjustments as antecedents of consumer centricity.

Foundational theory

Information systems are socio-technical systems and consist of a technical as well as a social subsystem (Alter 2008; Bostrom and Heinen 1977). The technical subsystem includes a technology component, i.e. all hardware and software used for information processing, and a tasks component, which represents the goals of a system as well as the way information processing is carried out (Hester 2014). The social subsystem encompasses a structure component and the actors. Structure describes the values and norms as well as general patterns of behavior, which govern the application of information systems (Hester 2014). Actors include all participants within the information system which "carry out or influence the work" (Hester 2014). The individual components are closely interrelated as, for example, task design has an impact on the working relationships and interpersonal behavior of actors (Bostrom and Heinen 1977). Figure 1 summarizes the components and interrelationships of socio-technical systems.

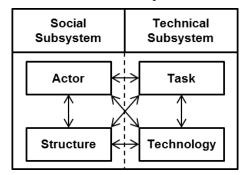


Figure 1: Components and interrelationships of socio-technical systems (Bostrom and Heinen 1977)

Structuration theory emphasizes the duality of structure in social systems: "Structure is both medium and outcome of reproduction of practices. Structure enters simultaneously into the constitution of the agent and social practices, and 'exists' in the generating moments of this constitution." (Giddens 1979) Orlikowski (2000) applies this thought to the interactions of social and technical subsystems. The interactions between social entities and technology are inherently recursive, as "users shape the technology structure that shapes their use" (Orlikowski 2000). The neglecting of these recursive interrelationships and the focus on the technical subsystem, in system development, is a major source of failures in information system design (Bostrom and Heinen 1977). As a consequence, the knowledge of how to mutually align the components of socio-technical systems is an important precondition for information systems success.

Lyytinen and Newman (2008) further develop the notion of component alignment in socio-technical systems to analyze change in organizational information systems. Misalignments between socio-technical components introduce gaps into a system which are defined as situations that will deteriorate or threaten the system's performance (Lyytinen and Newman 2008). Components of the socio-technical system become incompatible through so called critical incidents, such as changing user behavior and requirements, which CCIS are continuously exposed to (Moore 2011). A system's state of "alignment" or "equilibrium" is predominantly characterized through the absence of gaps and misalignments. However, components of the socio-technical system must be aligned towards a goal or purpose in order to valuate the system's "performance".

Prior research on CCIS mainly focusses on describing system characteristics. Exemplary characteristics include co-creation enablement (Huang and Rust 2013), "focusing on customers" (Pan and Pan 2006), "link a company to its customers" (Reich and Benbasat 1990), and "provide consumers with services" (Tuunanen et al. 2008). Tuunanen et al. (2010) identify three consumer value drivers: consumer participation, service process experience, and goals and outcomes. Consumer participation refers to the

integration of consumers to enable value co-creation. Service process experience is associated with providing a high degree of customer engagement. A focus on customer goals and outcomes highlight the importance to regard different types of consumer utility. The notion of component alignment capability as an antecedent for consumer centricity has been scarcely addressed by literature on CCIS. As an exception, Liang and Tanniru (2006) define a customer-centric IS as "one that is able to configure four major components - customer, process, technology, and product/service - to satisfy a customer need." Configuration, according to Liang and Tanniru (2006), includes the capturing of customer needs, an ondemand configuration of service processes, and the customization of services. However, it remains unanswered how these configuration capabilities contribute to customer centricity.

It is the goal of this article to theoretically derive hypotheses on antecedents of CCIS. We draw on the model of Lyytinen and Newman (2008) and combine several ideas: (1) Applying the idea of sociotechnical system component (mis)alignment towards a goal, which is consumer centricity in our case. (2) Transferring the idea of alignment to the context of CCIS. (3) Utilizing the established vocabulary and descriptive elements (components, properties and gaps) of Lyytinen and Newman.

Research methodology

The present paper investigates how the notion of customer centricity, i.e. a concept for organizational transformation in marketing research, can be built upon to operationalize consumer centricity in IS research. In terms of Rowe's (2014) typology for literature reviews we strive to generate a deeper understanding of the concept of customer centricity by deducing its core objectives. This review therefore focuses on articles that define customer centricity in marketing research with the goal to understand the "phenomenon as a whole, its meaning and its relationships" (Rowe 2014). The guiding question is: Which organizational objectives are associated with the concept of customer centricity within the marketing literature? The identified organizational objectives are later generalized as characteristics of CCIS, on the basis of which antecedents of consumer centricity are proposed.

Rowe (2014) suggests to define breadth and systematicity for literature reviews that seek general understanding as well as the identification of gaps and future research directions. With regard to breadth, we draw a "purposive sample" that ensures "good coverage of topic" (Rowe 2014) but do not aim for an exhaustive review of the marketing discipline (Vom Brocke et al. 2009). We initially searched in high ranked marketing journals that conceptualize and explain the fundamental objectives and organizational activities of customer centricity, as proposed by (Webster and Watson 2002). In a systematic process, marketing journals have been searched full text for "customer centricity", "consumer centricity", "customer orientation" and "consumer orientation" which resulted in four relevant articles. Publications which either only enumerate or mention consumer/customer centricity as a term amongst others, often without context or relation to the publication itself, have been excluded from further review. This applies also to articles that did neither conceptualize, nor define the term consumer/customer centricity. Furthermore forward and backward searches have been conducted on the articles as indicated in Table 1. Articles identified in this stage did not have to be published in high ranked marketing journals but needed to meet inclusion and exclusion criteria. This process has led to a total of 21 relevant articles which are included in the review.

Conceptual components of customer centricity have been extracted from the sample literature through open coding (Glaser and Strauss 1967; Strauss and Corbin 1990). This led to a first set of codes such as 'leadership commitment', 'organizational re-alignment' or 'consumer need'. An aggregation of these codes resulted in five superordinate categories (axial coding). Three of them were considered as organizational objectives (consumer need orientation, value co-creation and relationship orientation) and two as transformational activities which enable customer centricity within an organization (usage of consumer knowledge and the alignment of the organization). In a third step, we used these five categories to code the selected literature in a second iteration (selective coding). The codes were independently allocated by a second researcher with an inter-coder reliability of kappa=.84, which according to Viera and Garrett (2005) corresponds to an almost perfect agreement.

Outlet	Hits	Relevant	References
J. of Marketing	7	1	(Kumar 2015)
J. of Consumer Research	1	0	n/a
J.of Marketing Research	1	0	n/a
J. of the Academy of Marketing Science	8	3	(Etgar 2008; Gummesson 2008b;
, , ,			Payne et al. 2008)
J. of Service Research	2	1	(Shah et al. 2006)
J. of Product Innovation Management	7	0	n/a
Marketing Science, J. of Applied	0	0	n/a
Psychology, International J. of Research			
in Marketing, J. of Retailing			
1st search iteration total	26	5	All above
Forward search on the identified articles	n/a	5	(Kumar et al. 2008; Lamberti 2013; Lee
in Google Scholar and Web of Science			et al. 2014; Tax et al. 2013; Verhoef and
			Lemon 2013)
Backward search on all identified articles	n/a	11	(Boulding et al. 2005; Day 2003,
			Gummesson 2008a, 2008b;
			Jayachandran et al. 2005; Payne et al.
			2008; Peppers et al. 1999; Prahalad and
			Ramaswamy 2004; Sheth et al. 2000;
			Vargo and Lusch 2004; Womack and
			Jones 2005)
Total sample	n/a	21	All above

Table 1: Results of literature search

The identified organizational objectives can be considered as generic characteristics of customer centricity, regardless of whether they describe an organization or an information system. Transformational activities, in contrast, directly refer to organizational design and cannot be transferred to the information systems context.

Organizational objectives of customer centricity

The identified marketing literature conceptualizes customer centricity as activities of organizational change and as organizational objectives related to its customer relationships. Exemplary organizational change activities are introducing leadership commitment and a culture of sharing information (Shah et al. 2006), supply chain integration (Lamberti 2013) and business unit alignment (Lee et al. 2014). These activities are specific for organizational change and not transferrable to a general IS context. Lee et al. (2014) exclusively focuses on activities of organizational change, therefore no codes for organizational objectives could be assigned. A structural analysis of the organizational objectives mentioned in the analyzed articles resulted in three overarching objectives (see Table 2). In the following, the main themes are synthesized and contextualized within general marketing research.

An organizational objective often mentioned is the satisfaction of *customer needs*. While the literature on consumer centricity revolves around the core idea of adjusting value propositions to consumer needs (Shah et al. 2006; Sheth et al. 2000), the concept of experiential marketing underlines that consumers are human beings who want to fulfill not only functional needs, but also pursue pleasurable experiences (Brakus et al. 2009; Hirschman and Holbrook 1982, 1986; Schmitt 1999). Consequently, need fulfillment is experienced not only in cognitive, rational terms, but within a complex, interrelated system of thoughts, emotions, activities and value which are highly subjective and idiosyncratic dimensions (Hirschman and Holbrook 1986). Firms which take on a customer-centric perspective focus on how products and services address these multidimensional customer's needs. A product-centric view, in contrast, focusses on product profitability and market share (Kumar 2015). Several authors emphasize that needs must be addressed on a small segment or even individual level. For example, this means that product benefits are presented to meet individual needs (Shah et al. 2006; Sheth et al. 2000), or that products and services are customized to increase the likelihood of customer loyalty (Johnson and Bharadwaj 2005; Peppers et al.

1999; Prahalad and Ramaswamy 2004). This paradigm demands firms to understand the need of individual customers and the ability to activate resources and develop solutions to satisfy those needs (Lamberti 2013), while allowing the customers to define the what, when and where value is provided (Gummesson 2008a; Womack and Jones 2005).

Organizational objectives	Boulding et al. 2005	Day 2003	Gummesson 2008a	Gummesson 2008b	Jayachandran et al. 2005	Johnson & Bharadwaj, 2005	Kumar 2015	Kumar et al. 2008	Lamberti 2013	Lee et al. 2014	Payne and Frow 2005	Payne et al. 2008	Peppers et al. 1999	Prahalad and Ramaswamy 2004	Saarijärvi et al. 2013	Shah et al. 2006	Sheth et al. 2000	Tax et al. 2013	Vargo and Lusch 2004	Verhoef and Lemon 2013	Womack and Jones 2005	TOTAL
Customer Need Orientation			X		X	X	X	X	X				X	X		X	X		X		X	12
Value Co-Creation	X		X	X				X	X		X	X		X		X		X	X	X	X	13
Relationship Orientation	X	X			X	X	X		X		X	X	X	X	X	X	X	X				14

Table 2: Organizational objectives of consumer centricity

The second objective of customer centricity is the notion of **value co-creation** (Boulding et al. 2005. Gummesson 2008a, 2008b; Shah et al. 2006). Value co-creation is the foundation of the service dominant logic (Vargo and Lusch 2004, 2008), a concept which has received significant attention in marketing and service science over the last decade. The core assumption of value co-creation is that different entities (e.g., firms, consumers, societies) jointly integrate their operant resources (e.g., knowledge, skills and technology) within a collaborative process (e.g., within a service offering) to generate value (Grönroos 2008; Vargo and Lusch 2004, 2008). Value co-creation may equally take place within service/product production (co-production), and during service usage, i.e. the phase in which consumers perceive and ultimatively determine the value in-use within their specific context (Etgar 2008; Vargo and Lusch 2008). In this sense value determination is experiential, i.e. not entirely "rationalistic" (Schmitt 1999; Vargo and Lusch 2008) and includes humanistic objectives like pleasure, joy or esthetics (Grönroos 2008; Holbrook and Hirschman 1982).

The identified literature on consumer centricity builds on this fundamental idea and emphasizes the involvement of customers in value generation and points to the practices of interaction and exchange within customer supplier encounters (Payne et al. 2008; Payne and Frow 2005; Tax et al. 2013). From a marketing function perspective this entails an involvement of customers in marketing and innovation processes, e.g., new product development or marketing decision making (Lamberti 2013; Sheth et al. 2000). More generally, co-creation is characterized through a collaborative dialogue that creates personalized experiences in which the customer is allowed to co-construct the experience according to his context (Prahalad and Ramaswamy 2004), Co-creation of value does not necessarily happen between a customer and a firm, but might occur within a service delivery network, i.e., multiple service providers cocreate value with a customer along his journey (Tax et al. 2013). Through the recognition and fulfilment of customer needs, value is simultaneously created for the customer and the provider (Boulding et al. 2005; Kumar et al. 2008; Vargo and Lusch 2004; Verhoef and Lemon 2013). If a product or service is appreciated by the customer, it is (usually) reflected in his willingness to pay (Boulding et al. 2005; Prahalad and Ramaswamy 2004).

The third organizational objective of customer centricity is the emphasis on **relationship orientation**. Relationship orientation is addressed in relationship marketing theory which aims at establishing, developing and maintaining long-term relationships between customers and firms (Berry 1995; Morgan and Hunt 1994). Trust is considered as prerequisite and foundation of relationships and it is built upon shared values, associated behavioral norms, through social bonds between partners as well as successful

past interactions (Bendapudi and Berry 1997; Berry 1995; Day 2000; Morgan and Hunt 1994; Sheth and Parvatlyar 1995). Developed relationships significantly increase consumers' willingness for cooperation (Bendapudi and Berry 1997; Morgan and Hunt 1994), their loyalty and retention (Hennig-Thurau et al. 2002; Verhoef 2003; Wulf et al. 2001) and the chance of 'word-of-mouth' referrals (Hennig-Thurau et al. 2002). Consumers on the other hand may enjoy more convenience and reduced risk, as well as social benefits (e.g., feeling of familiarity) or special treatments (e.g., faster service, discounts) (Hennig-Thurau et al. 2002).

With regard to consumer centricity relationship orientation manifests in the processes and practices of interaction and exchange within the customer supplier relationship which enable to identify and create further opportunities for co-creating value (Payne et al. 2008; Payne and Frow 2005) as well as to further developing and sustaining the relationship itself (Boulding et al. 2005; Day 2003). Lamberti (2013) remarks that relationships need to be "mutually satisfactory" for both parties. This comes along with a focus on relationship development, rather than individual transactions (Kumar 2015; Shah et al. 2006). The underlying assumption is that well developed relationships between firms and customers correlate with increased loyalty which in turn is associated with greater profitability (Johnson and Bharadwaj 2005, Shah et al. 2006, 2006; Sheth et al. 2000). The relations and interactions between customer and firm are the locus of value creation and subject to the creation of a personalized consumer experience (Peppers et al. 1999; Prahalad and Ramaswamy 2004).

Characteristics and antecedents of CCIS

In the following section, the organizational objectives of customer centricity in marketing are generalized as characteristics of CCIS. The socio-technical system model is built upon to derive hypotheses on the role of alignment capabilities as antecedents of consumer centricity (Figure 2).

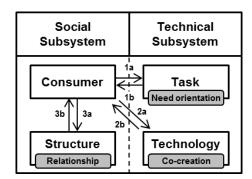


Figure 2: Characteristics and antecedents of CCIS

Need orientation

A CCIS is need oriented when its purpose and goals (task) are aligned with the needs of (individual) consumers. This requires consumers to skillfully apply the system to fulfill their needs by executing tasks and conversely it requires ensuring that the CCIS defines tasks which fulfill needs. We therefore propose H1a and H1b:

H1a (consumer-task): Enabling consumers to execute tasks and to understand their underlying value propositions increases the consumer centricity of an IS.

Consumers need to be enabled to understand how specific tasks contribute to the fulfilment of their needs. They further need to be capable of executing the task itself (Lee et al. 1995). For example, training tutorials can help consumers to learn how tasks are performed while at the same time indicating how the result of the task is linked towards their goals.

H1b (task-consumer): Specifying tasks that aim to support the fulfilment of consumer needs increases the consumer centricity of an IS.

The specification of tasks within CCIS refer to the definition of what a system does and how it fulfills consumer needs (Hester 2014). The socio-technical perspective allows to focus on instrumental and humanistic objectives (Sarker et al. 2013) which is in line with the introduced multidimensional and holistic lens on consumer needs provided by experiential marketing (Hirschman and Holbrook 1986). As a consequence, the alignment between consumers and tasks requires elicitation of needs and their translation into actionable tasks, CCIS require interaction mechanisms through, e.g., social media to constantly monitor consumer needs and specify tasks accordingly (Tuunanen et al. 2008).

Value Co-creation

Value co-creation is regularly facilitated by technology and therefore closely linked to the alignment of the CCIS components consumer and technology. From a socio-technical system perspective technology refers to the tools within an information system (Hester 2014). From a value co-creation perspective, technology represents operant resources that different entities (consumers, firms) integrate into the value co-creation process (Grönroos 2008; Vargo and Lusch 2004, 2008). If consumers cannot integrate their value foundation (e.g., technology), value co-creation becomes impossible (Grönroos 2008). Indeed, consumers (and potentially providers) integrate technology to perform operations that fulfill their individual needs. This can occur as contribution to the development of an IS (co-production of an offering) or within the actual usage of an IS (Lempinen and Rajala 2014). We therefore propose H2a and H2b:

H2a (consumer-technology): Enabling consumers to integrate technology to actively co-create value increases the consumer centricity of an IS.

Consumers must be enabled to integrate their technology resources into the CCIS in order to contribute to the joint value creation process. This also requires consumers to understand, operate and accept the consumer technology and potentially other consumer facing technology (Lyytinen and Newman 2008) relevant for value co-creation at encounter processes. For example, a consumer must be capable to establish a secure connection with his smartphone and use a mobile banking app to interact with his bank (Siau et al. 2001).

H2b (technology-consumer): Ensuring adaptability to and compatibility with the technological environment of the consumer increases the consumer centricity of an IS.

While adaptability refers to an IS' capability to adjust an installed technological base to new or emerging technologies, compatibility ensures that different technological combinations work together (Hanseth and Lyytinen 2010). The technology component as enabler for dual value creation requires that the technology component is adaptable to and compatible with the consumers' technological environment which might change over time. A lack of such alignment capabilities may result in unreliable, inefficient or functionally limited technologies, inadequate to support the required processes (Lyytinen and Newman 2008). For example, the provisioning of a smartphone messaging application on a specific mobile operating system, e.g., Apple's iOS, will prevent Google's Android users from value co-creation (exchange of messages) within the CCIS (Joorabchi et al. 2013).

Relationship orientation

The literature on consumer centricity has characterized relationship orientation by sustainability, mutual satisfaction, loyalty and co-creation of opportunities in the long term. Relationships constitute the "social" foundation in which consumers engage and which enable collaborative creation and exchange of value. While values refer to shared beliefs and ideals, norms specify the associated behavioral practices. These shared values and norms are the antecedents for successful relationship orientation as they foster trust and consumers' willingness for cooperation (Bendapudi and Berry 1997; Berry 1995; Morgan and Hunt 1994; Sheth and Parvatlyar 1995). Through the socio-technical lens values and norms are represented by structure, which defines the principles of behavior that consumers act upon and influence in the interaction with or through a CCIS. Structure refers to the systems of communication, authority and workflow (Lyytinen and Newman 2008) and is an important element in the development of relationships. The objective of relationship orientation within a CCIS can be addressed through the alignment of consumers and structure. We therefore propose H3a and H3b:

H3a (consumer-structure): Ensuring consumers' identification with the values and norms of a system increases the consumer centricity of an IS.

Identification is defined as the "perception of similarity of values, membership and loyalty" (Kankanhalli et al. 2005). The communication and acceptance of shared values is significantly increasing the alignment of consumer and structure within a socio-technical system (Hester 2014). An example for communicating shared values and developing a consumer relationship is Google's value statement "don't be evil". As a second example, the usage of consumer data might not be accepted due to privacy concerns if consumers do not identify with the values embodied in a system. A potential alignment activity could be to create transparency on the usage of consumer data as well as its benefits that are valuable for the consumer (Li and Unger 2012).

H3b (structure-consumer): Embedding values and norms in a system that consumers identify with increases the consumer centricity of an IS.

The normative and behavioral dimension of structure must be aligned with the values and norms of consumers (Venkatesh et al. 2003). Systems of communication, workflow and authority, together with norms, values and behavioral patterns (e.g., duties, roles expectations) regulate collaboration and exchange which are the basis for developing long term relationships. As an example, instant messaging groups on smart phones can be created ad-hoc and allow consumers to reflect their social norms such a group openness.

Conclusion and further research

While consumer centricity has been extensively discussed as a concept of organizational transformation in the marketing domain, there is little research on its operationalization as a characteristic of information systems and associated antecedents. We reviewed the marketing literature to understand generic organizational objectives of consumer centricity which were generalized as characteristics of CCIS. In a second step, we draw on socio-technical theory to conceptualize antecedents of consumer centricity as capabilities to align social and technical system components.

Alter (2008) calls for further research with regard to the "dimensions of customer-centricity to respond to customer needs". Our research contributes to the body of knowledge by theoretically deriving an operationalization and antecedents of consumer centricity in IS research.

Due to its preliminarily, this research has two limitations which we will address in our further research: IS literature on consumer centricity needs to be included in more detail and the theoretically derived hypotheses need to be empirically validated. We plan to carry out an in-depth review of further IS literature to theorize on component alignment capabilities as antecedents of consumer centricity. For example, technology acceptance literature (such as Lee et al. (1995)) potentially provides implications on how to align consumers and tasks (H1a) through training and education. As a second example, agile systems development literature (Abrahamsson et al. 2009; Dingsøyr et al. 2012) might explain the alignment of tasks to consumer needs (H1b).

We further plan to apply case study research and include different organizational and individual information systems in a cross-case analysis (Yin 2013). The overall objective is to validate the hypotheses on antecedents of CCIS and to construct a nomological network for CCIS.

References

- Abrahamsson, P., Conboy, K., and Wang, X. 2009. "Lots done, more to do': the current state of agile systems development research," *European Journal of Information Systems* (18:4), pp. 281–284.
- Alter, S. 2008. "Defining information systems as work systems: implications for the IS field," *European Journal of Information Systems* (17:5), pp. 448–469.
- Baskerville, R. 2011. "Individual information systems as a research arena," *European Journal of Information Systems* (20:3), pp. 251–254.
- Bendapudi, N., and Berry, L. L. 1997. "Customers' motivations for maintaining relationships with service providers," *Journal of Retailing* (73:1), pp. 15–37.
- Berry, L. L. 1995. "Relationship marketing of services—growing interest, emerging perspectives," *Journal of the Academy of Marketing Science* (23:4), pp. 236–245.
- Bostrom, R. P., and Heinen, J. S. 1977. "MIS problems and failures: a socio-technical perspective, part I: the causes," *MIS Quarterly* (1:3), pp. 17–32.
- Boulding, W., Staelin, R., Ehret, M., and Johnston, W. J. 2005. "A customer relationship management roadmap: What is known, potential pitfalls, and where to go," *Journal of Marketing* (69:4), pp. 155–166
- Brakus, J. J., Schmitt, B. H., and Zarantonello, L. 2009. "Brand Experience: What is it? How is it Measured? Does it Affect Loyalty?" *Journal of Marketing* (73:3), pp. 52–68.
- Day, G. S. 2000. "Managing Market Relationships," *Journal of the Academy of Marketing Science* (28:1), pp. 24–30.
- Day, G. S. 2003. "Creating a Superior Customer-Relating Capability," *MIT Sloan management review* (44:3), pp. 77–82.
- Dingsøyr, T., Nerur, S., Balijepally, V., and Moe, N. B. 2012. "A decade of agile methodologies: Towards explaining agile software development," *Journal of Systems and Software* (85:6), pp. 1213–1221.
- Etgar, M. 2008. "A descriptive model of the consumer co-production process," *Journal of the Academy of Marketing Science* (36:1), pp. 97–108.
- Giddens, A. 1979. Central problems in social theory: Action, structure, and contradiction in social analysis, Berkeley: University of California Press.
- Glaser, B. G., and Strauss, A. L. 1967. "The discovery of grounded theory: Strategies for qualitative research," (86).
- Grönroos, C. 2008. "Service logic revisited: who creates value? And who co-creates?" *European Business Review* (20:4), pp. 298–314.
- Gummesson, E. 2008a. "Customer centricity: reality or a wild goose chase?" *European Business Review* (20:4), pp. 315–330.
- Gummesson, E. 2008b. "Extending the service-dominant logic: from customer centricity to balanced centricity," *Journal of the Academy of Marketing Science* (36:1), pp. 15–17.
- Hanseth, O., and Lyytinen, K. 2010. "Design theory for dynamic complexity in information infrastructures: the case of building internet," *Journal of Information Technology* (25:1), pp. 1–19.
- Hennig-Thurau, T., Gwinner, K. P., and Gremler, D. D. 2002. "Understanding Relationship Marketing Outcomes: An Integration of Relational Benefits and Relationship Quality," *Journal of Service Research* (4:3), pp. 230–247.
- Hester, A. J. 2014. "Socio-technical systems theory as a diagnostic tool for examining underutilization of wiki technology," *The Learning Organization* (21:1), pp. 48–68.
- Hirschman, E. C., and Holbrook, M. B. 1982. "Hedonic consumption: emerging concepts, methods and propositions," *The Journal of Marketing*, pp. 92–101.
- Hirschman, E. C., and Holbrook, M. B. 1986. "Expanding the ontology and methodology of research on the consumption experience," in *Perspectives on methodology in consumer research*: Springer, pp. 213–251.
- Holbrook, M. B., and Hirschman, E. C. 1982. "The experiential aspects of consumption: Consumer fantasies, feelings, and fun," *Journal of consumer research*, pp. 132–140.
- Huang, M.-H., and Rust, R. T. 2013. "IT-Related Service A Multidisciplinary Perspective," *Journal of Service Research* (16:3), pp. 251–258.
- Jayachandran, S., Sharma, S., Kaufman, P., and Raman, P. 2005. "The role of relational information processes and technology use in customer relationship management," *Journal of Marketing* (69:4), pp. 177–192.

- Johnson, D. S., and Bharadwaj, S. 2005. "Digitization of selling activity and sales force performance: An empirical investigation," Journal of the Academy of Marketing Science (33:1), pp. 3–18.
- Joorabchi, M. E., Mesbah, A., and Kruchten, P. 2013. "Real Challenges in Mobile App Development," in 2013 ACM/IEEE International Symposium on Empirical Software Engineering and Measurement (ESEM), Baltimore, Maryland, pp. 15–24.
- Kankanhalli, A., Tan, B. C. Y., and Wei, K.-K. 2005. "Contributing knowledge to electronic knowledge repositories: an empirical investigation," MIS Quarterly, pp. 113–143.
- Kumar, V., Venkatesan, R., and Reinartz, W. 2008. "Performance implications of adopting a customerfocused sales campaign," Journal of Marketing (72:5), pp. 50–68.
- Kumar, V. 2015. "Evolution of Marketing as a Discipline: What Has Happened and What to Look Out For," *Journal of Marketing* (79:1), pp. 1–9.
- Lamb, R., and Kling, R. 2003. "Reconceptualizing users as social actors in information systems research," MIS Quarterly, pp. 197–236.
- Lamberti, L. 2013. "Customer centricity: the construct and the operational antecedents," Journal of Strategic Marketing (21:7), pp. 588-612.
- Leavitt, H. J. 1964. "Applied organization change in industry: structural, technical and human approaches," New Perspectives in Organizational Research, pp. 55-71.
- Lee, J.-Y., Sridhar, S., Henderson, C. M., and Palmatier, R. W. 2014. "Effect of customer-centric structure on long-term financial performance," Marketing Science (34:2), pp. 250–268.
- Lee, S. M., Kim, Y. R., and Lee, J. 1995. "An Empirical Study of the Relationships among End-User Information Systems Acceptance, Training, and Effectiveness," Journal of Management Information Systems (12:2), pp. 189–202.
- Lempinen, H., and Rajala, R. 2014. "Exploring multi-actor value creation in IT service processes," Journal of Information Technology (29:2), pp. 170-185.
- Li, T., and Unger, T. 2012. "Willing to pay for quality personalization? Trade-off between quality and privacy." European Journal of Information Systems (21:6), pp. 621–642.
- Liang, T.-P., and Tanniru, M. 2006. "Special Section: Customer-Centric Information Systems," Journal of Management Information Systems (23:3), pp. 9–15.
- Lyytinen, K., and Newman, M. 2008. "Explaining information systems change: a punctuated sociotechnical change model," European Journal of Information Systems (17:6), pp. 589–613.
- Mesaglio, M., and Hotle, M. 2012. Pace-Layered Application Strategy and IT Organizational Design: How to Structure the Application Team for Success. Gartner Research Note.
- Moore, G. 2011. "Systems of engagement and the future of enterprise IT-a sea change in enterprise it," AIIM, Silver Spring, Maryland.
- Morgan, R. M., and Hunt, S. D. 1994. "The Commitment-Trust Theory of Relationship Marketing," Journal of Marketing (58:3), p. 20.
- Orlikowski, W. J. 2000. "Using technology and constituting structures: A practice lens for studying technology in organizations," *Organization science* (11:4), pp. 404–428.
- Pan. S. L., and Pan. G. 2006. "Customer-centric IS application development; lessons from a case of developing an online auction site," Communications of the Association for Information Systems (18:1), p. 18.
- Payne, A., and Frow, P. 2005. "A Strategic Framework for Customer Relationship Management," Journal of Marketing (69:4), pp. 167–176.
- Payne, A. F., Storbacka, K., and Frow, P. 2008. "Managing the co-creation of value," Journal of the Academy of Marketing Science (36:1), pp. 83–96.
- Peppers, D., Rogers, M., and Dorf, B. 1999. "Is your company ready for one-to-one marketing," Harvard Business Review (77:1), pp. 151–160.
- Prahalad, C. K., and Ramaswamy, V. 2004. "Co-creation experiences: The next practice in value creation," Journal of Interactive Marketing (18:3), pp. 5–14.
- Reich, B. H., and Benbasat, I. 1990. "An empirical investigation of factors influencing the success of customer-oriented strategic systems," Information Systems Research (1:3), pp. 325-347.
- Rowe, F. 2014. "What literature review is not: diversity, boundaries and recommendations." European Journal of Information Systems (23:3), pp. 241–255.
- Saarijärvi, H., Karjaluoto, H., and Kuusela, H. 2013. "Extending customer relationship management: from empowering firms to empowering customers," Journal of Systems and Information Technology (15:2), pp. 140–158.

- Sarker, S., Chatterjee, S., and Xiao, X. 2013. "How "sociotechnical" is our IS research? An assessment and possible ways forward," in 2013 Thirty Fourth International Conference on Information Systems,
- Schmitt, B. 1999. "Experiential Marketing," Journal of Marketing Management (15:1-3), pp. 53-67. Shah, D., Rust, R. T., Parasuraman, A., Staelin, R., and Day, G. S. 2006. "The path to customer centricity," Journal of Service Research (9:2), pp. 113–124.
- Sheth, J. N., and Parvatlyar, A. 1995. "Relationship Marketing in Consumer Markets: Antecedents and Consequences," Journal of the Academy of Marketing Science (23:4), pp. 255–271.
- Sheth, J. N., Sisodia, R. S., and Sharma, A. 2000. "The antecedents and consequences of customer-centric marketing," Journal of the Academy of Marketing Science (28:1), pp. 55-66.
- Siau, K., Lim, E.-P., and Shen, Z. 2001. "Mobile commerce: Promises, challenges and research agenda," Journal of Database Management (JDM) (12:3), pp. 4–13.
- Strauss, A., and Corbin, J. M. 1990. Basics of qualitative research: Grounded theory procedures and techniques: Sage Publications, Inc.
- Tax, S. S., McCutcheon, D., and Wilkinson, I. F. 2013. "The service delivery network (SDN) a customercentric perspective of the customer journey," *Journal of Service Research* (16:4), pp. 454–470. Tuunanen, T., Myers, M., and Cassab, H. 2010. "A conceptual framework for consumer information
- systems development," Pacific Asia Journal of the Association for Information Systems (2:1), p. 5.
- Tuunanen, T., Myers, M. D., and Cassab, H. 2008. "Challenges of consumer information systems development: The case of interactive television services." in Advances in information systems research, education and practice: Springer, pp. 89–100.
- Vargo, S. L., and Lusch, R. F. 2004. "Evolving to a New Dominant Logic for Marketing," Journal of Marketing (68:1), pp. 1–17.
- Vargo, S. L., and Lusch, R. F. 2008. "Service-dominant logic: continuing the evolution," Journal of the Academy of Marketing Science (36:1), pp. 1–10.
- Venkatesh, V., Morris, M. G., Gordon B. Davis, and Davis, F. D. 2003. "User Acceptance of Information Technology: Toward a Unified View," MIS Quarterly (27:3), pp. 425–478.
- Verhoef, P. C. 2003. "Understanding the Effect of Customer Relationship Management Efforts on Customer Retention and Customer Share Development," Journal of Marketing (67:4), pp. 30-45.
- Verhoef, P. C., and Lemon, K. N. 2013. "Successful customer value management: Key lessons and emerging trends," European Management Journal (31:1), pp. 1–15.
- Viera, A. J., and Garrett, J. M. 2005. "Understanding interobserver agreement: the kappa statistic," Fam Med (37:5), pp. 360–363.
- Webster, J., and Watson, R. T. 2002. "Analyzing the past to prepare for the future: Writing a literature review," Management Information Systems Quarterly (26:2), p. 3.
- Womack, J. P., and Jones, D. T. 2005. "Lean consumption," *Harvard Business Review* (83:3), p. 5868.
- Wulf, K. D., Odekerken-Schröder, G., and Iacobucci, D. 2001. "Investments in Consumer Relationships: A Cross-Country and Cross-Industry Exploration," Journal of Marketing (65:4), pp. 33–50.
- Yin, R. K. 2013. Case study research: Design and methods. Sage publications.