Towards Perceived Service Interaction Productivity: A Proposed Conceptual Model

Christofer F. Daiberl, Angela Roth & Kathrin M. Möslein
christofer.daiberl@fau.de, angela.roth@fau.de, kathrin.moeslein@fau.de
Friedrich-Alexander-Universität Erlangen-Nürnberg
Lehrstuhl für Wirtschaftsinformatik, insb. Innovation und Wertschöpfung

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Abstract

Understanding how to enhance service productivity is vital for advancing the service field and fostering economic growth. However, the concept of service productivity itself poses severe operational challenges as it is unclear how to operationalize inputs and outputs in a service setting. Despite this fuzziness, existing models often conceptualize service productivity based on formal productivtiy functions. Moreover, they neglect productivity related interactions within the overall service network as they either exclusively focus on the perspective of the service provider or just consider dyadic interactions (i.e. provider-customer). In order to overcome these limitations and provide operationally relevant insights for enhancing service productivity, this short paper proposes an early version of a conceptual model coined "perceived service interaction productivity". Inspired by practical challenges of managing a multi-sided service platform for e-mobility, this paper represents work in progress and shall provide a foundation for future research.

1 The Challenge of Enhancing Service Productivity

Recently, enhancing service productivity was identified as one of the top three research priorities in order to advance the service field (Ostrom, Parasuraman, Bowen, Patricio, & Voss, 2015). However, the concept of productivity itself, which is often understood as the ratio of output to the input required to produce it (Johnston & Jones, 2004; Tangen, 2005), poses severe challenges in a service context. Amongst others, it is unclear how to operationalize inputs and outputs

(Grönroos & Ojasalo, 2004; Yalley & Sekhon, 2014).[1] This study is inspired by the challenge to drive productivity in the context of the newly established, web-based platform eMobilisten.[2] Sponsored by the German Federal Ministry of Education and Research, the goal of eMobilisten is to foster long-term acceptance of e-mobility in society. For this purpose, eMobilisten offers distinct services for both organizations (e.g. online broadcasting of innovation challenges to benefit from external ideas) and the public (e.g. interactive community platform with online tutorials to learn about e-mobility). For effective and efficient service provision, the providers of eMobilisten are heavily dependent on the participation of various external actors (e.g. companies with innovation needs and community members as co-producers of knowledge and solutions). The goal of this study is to develop a first conceptual model, which shall inspire future empirical research and guide the design of scientifically sound and practice-oriented methods for enhancing the productivity in the context of multi-sided service settings such as eMobilisten. Next, a short overview of existing conceptual approaches for managing service productivity is presented. After this, based on identified challenges, a new conceptual model is introduced. Finally, a short discussion and an outlook for future research are presented.

2 Conceptual Foundations of Service Productivity

Throughout the last decades, scholars of different fields have explored the topic of service productivity (Lehmann, 2015).[3] In the context of business administration, Bartsch, Demmelmaier and Meyer (2011) identify four conceptual approaches for operationally managing service productivity. Initially, proponents of the *(1) industrial productivity approach* try to adapt existing concepts of industrial

[1] As discussed by Tangen (2005), the term productivity was used over two centuries ago in the context of agriculture. Since then multiple verbal as well as mathematical definitions for explanation and calculation have been elaborated.

[2] www.emobilisten.de

[3] In an extensive literature review, Lehmann (2015) identified eight scholary perspectives on service productivity: *(1) macroeconomic*, *(2) public management*, *(3) strategic*, *(4) organizational*, *(5) customer*, *(6) technological*, *(7) operations management* and *(8) operations research* perspective). This paper focuses on a business context, thus it does not consider the macroecnomic or public management perspective on service productivity.

production to enhance productivity in a service context (e.g. Carlborg, Kindström, & Kowalkowski, 2013; Levitt, 1972; Murphy, 1999; Staats, Brunner, & Upton, 2011). In contrast, proponents of the *(2) service production approach* stress the particularities of the service delivery processes and aim to formalize specific drivers of service productivity. In this context, it is highlighted that productivity can be considered at different process stages (e.g. Corsten, 1994; Jones, 1988; Sigala, Jones, Lockwood, & Airey, 2005). Next, contributions falling under the *(3) customer integration approach* consider the management of customer involvement throughout service delivery as a key issue for service productivity. In doing so, it is emphasized that customers have their individual productivity perspective which may be different from the provider's one (e.g. Anitsal & Schumann, 2007; Johnston & Jones, 2004; Parasuraman, 2002; Weijters, Rangarajan, Falk, & Schillewaert, 2007). Finally, contributions from the *(4) service marketing approach* dismiss the constant quality assumption postulated in the industrial productivity approach and stress the interdependence of service productivity and quality (e.g. Chase & Haynes, 2000; Grönroos & Ojasalo, 2004; Rust & Huang, 2012; Vuorinen, Järvinen, & Lehtinen, 1998). A key contribution of this stream is the service productivity model of Grönroos and Ojasalo (2004) which different authors recognize as the most encompassing conceptual model of service productivity (Bartsch et al., 2011; Becker, Beverungen, Knackstedt, Rauer, & Sigge, 2014). Grönroos & Ojasalo (2004) formalize service productivity as a function of internal efficiency, external efficiency and capacity efficiency. However, the authors admit that it is unclear how to actually measure these efficiencies. As a remedy they suggest that productivity measures should be based on the ratio of revenues from a given service divided by the cost of producing this service.

Notwithstanding the theoretical contributions of existing conceptual approaches, from a managerial perspective, they pose severe challenges. First, it is argued that they are unsuited to measure the productivity of services which are based on interactive inputs and qualitative outputs such as knowledge and information (Biege, Lay, Zanker, & Schmall, 2013). Moreover, existing models do not take into consideration that service processes often consist of interactions among

multiple entities besides the formal service provider and the customer (Sampson, 2012). Finally, they neglect the importance of an entity's individual service objectives, expectations and learning for effectiveness and efficiency considerations.[4]

Next, a new model addressing these issues is introduced. As mentioned before, it is inspired by practical challenges of managing eMobilisten. However, the model will be described on a general level in order to demonstrate a broader range of possible applications.

3 A Model of Perceived Service Interaction Productivity (PSIP-Model)

The proposed model is inspired by an operational view of services as presented by the Unified Services Theory (Sampson & Froehle, 2006) and the related Process Chain Network framework (Sampson, 2012). Following this perspective, services can be understood as special types of production processes that are defined by extensive provider-customer interactions (Fließ & Kleinaltenkamp, 2004; Sampson & Froehle, 2006). As presented in Figure 1, at minimum, a service process integrates activities and/or resources of two entities: one formal provider and one customer (in the figure their interaction is presented by the solid line). However, various additional entities such as other customers or network partners may be involved at certain stages of the service process as well (Alter, 2012; Maglio, Vargo, Caswell, & Spohrer, 2009; Sampson, 2012). These network partners may be interacting with the service provider and/or with one or more customers (indicated by the dashed lines). Each of these process entities has certain objectives and expectations why it takes part in the service process. For some entities the process may meet specific needs (e.g. a company receiving user feedback for an innovation challenge), whereas other entities may receive a generic resource (i.e. a service provider receiving money for carrying out certain process activities) that can be used to engage in other service processes in the future (Sampson, 2012; Vargo & Lusch, 2004, 2008).

[4] A short overview of existing approaches and their managerial implications is portrayed in the attachment.

For fulfilling these objectives, entities engage in direct interactions (i.e. person to person) and/or surrogate interactions (i.e. where one entity interacts with non-human resources of another entity such as technology or information) (Sampson, 2012). Moreover, service processes are initiated and terminated by stages of independent processing. Furthermore, the degree of control of the entity under consideration can be depicted. It is the highest when an entity engages in independent processing as the respective entity is only working on its own resources. On the contrary, direct interactions are characterized by the lowest level of control. For example, there are various aspects of a personal interaction that cannot be controlled by management such as the mood of the customer or the level of sympathy between customers and front-line employees (Sampson, 2012).

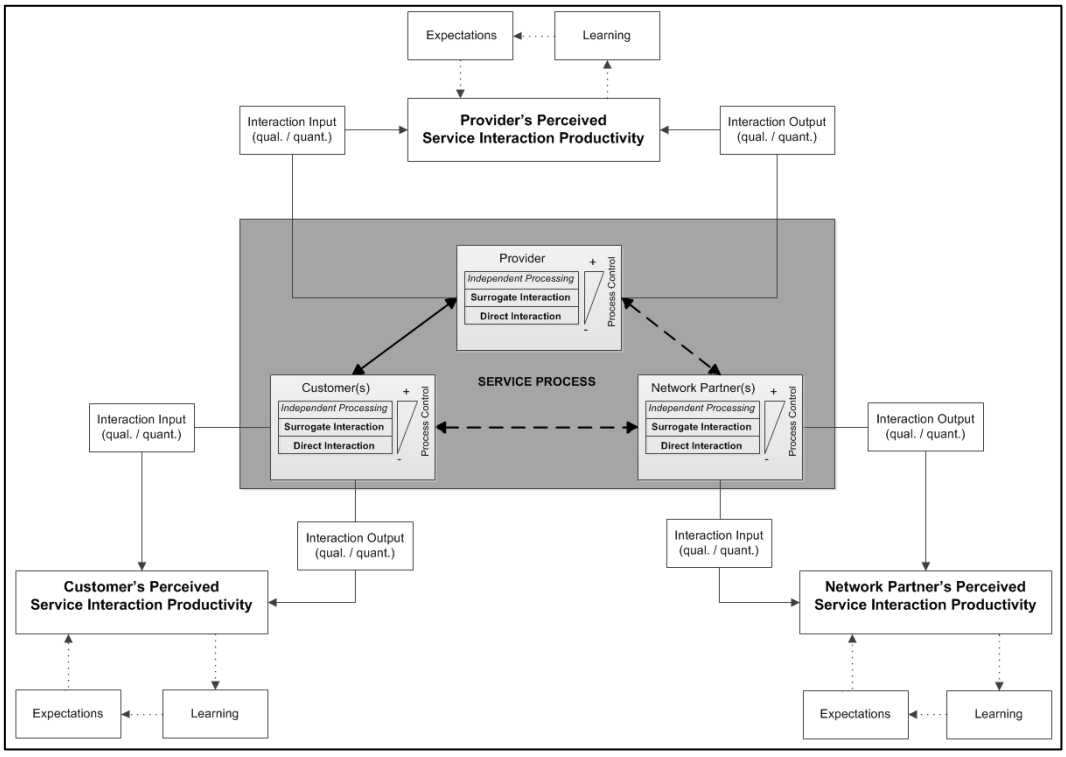

Figure 1
A conceptual model of perceived service interaction productivity (PSIP-Model).
Source: Own illustration. Service process depicted based on Sampson (2012).

Throughout the service process, each of the process entities provides certain qualitative and/or quantitative inputs and receives certain qualitative and/or quantitative outputs (Vuorinen et al., 1998). Particularly qualitative service

outputs are subject to individual assessments (Frey, Bayon, & Totzek, 2013; Grönroos, 1984; Zeithaml, Berry, & Parasuraman, 1993). Additionally, expectations may influence role behavior and satisfaction (Oliver, 1980; Solomon, Surprenant, Czepiel, & Gutman, 1985). Thus, the perceived productivity of interactions is far from being objective and stable. In fact, it is of dynamic nature and dependent on the expectations of the process entity under consideration. Furthermore, productivity perceptions are based on a mutual learning experience among the entities involved. Over time, entities can familiarize with each other and the service process which may lead to a better awareness about what to expect and how to interact in order to improve outcomes (Grönroos & Ojasalo, 2004).

All in all, perceived service interaction productivity shall be conceptualized as an entity's individually perceived efficiency and effectiveness of interaction stages making up the total service process. In doing so, it is in line with the general trend to dismiss service productivtiy as a mere efficiency concept (Maroto-Sánchez, 2012). Also, in line with ideas of the proponents of the customer integration approach, productivity can be considered from different entities' points of view.

4 Discussion & Future Research

As mentioned before, this paper presents an early version of a conceptual model for service interaction productivity. In contrast to previous conceptual approaches of service productivity, it highlights the importance of looking beyond a singular (i.e. provider) or dyadic (i.e. provider-customer) perspective and takes the larger service network into account. Moreover, it stresses the idiosyncrasy of productivity assessments and the importance of expectation and interaction management. From a provider's point of view, it is essential to gain in-depth understanding concerning interaction demands and develop measurable productivity objectives that balance and orchestrate the individually perceived productivities of all interaction partners involved.

A potential starting point for developing indicators for measuring the subjective effectiveness of service interactions is provided by literature from the field of organizational psychology (Pritchard, Harrell, DiazGranados, & Guzman, 2008;

Pritchard, Weaver, & Ashwood, 2012). Future work should analyze how such measures could be developed taking the perspective of external interaction partners into account. In order to enhance efficiency, the application of lean principles throughout the different interaction stages could be a promising endeavor. In doing so, actions that are not perceived as valuable by the respective interaction partners may be reduced (Carlborg et al., 2013; Staats et al., 2011; Staats & Upton, 2011).

In the future, in-depth empirical insights are required in order to explore perceived service interaction productivity. For this, case study research will be conducted to evaluate if empirical observations are in line with the model's claims (Yin, 2009). As a pilot case, *JOSEPHS®-the Service Manufactory* will be analyzed. This case is chosen as it represents a highly interactive, multi-sided service setting which is likely to yield rich data. After this, eMobilisten and other cases from different fields will be analyzed in order to repeatedly (dis-)confirm and extend previous findings (Eisenhardt & Graebner, 2007).

Moreover, service scholars and practitioners should evaluate if the proposed model is (1) exhaustive, (2) understandable and (3) does not have unnecessary categories (Gregor, 2006). Based on these insights, the model will be adapted accordingly. By doing so, it shall present a theoretically sound foundation for conducting action design research (Sein, Henfridsson, Rossi, & Lindgren, 2011) in order to elaborate a practice-oriented method to enhance perceived service interaction productivity.

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Attachment: Table 1

	Conceptual Approach				
	Industrial productivity	**Service production**	**Customer integration**	**Service marketing**	**Network interaction**
Main rationale	Managing service productivity with the help of "lessons learned" from industry.	Managing service productivity based on a detailed analysis of the service delivery process.	For managing service productivity it is critical to consider both, provider and customer productivity.	For managing service productivity, the quality dimension needs to be considered.	For managing productivity it is important to consider an entity's individually perceived efficiency and effectiveness of multientity interactions.
Productivity perspective	Service provider (total productivity)	Service provider (total productivity)	Service provider & customer (individual productivities)	Service provider & customer (total productivity)	Service network entities (individual productivities)
Key managerial implications for productivity management	Factory-like thinking is beneficial in a service setting. Management should invest in standardization, technology, automation etc..	Productivity should be analyzed and enhanced at different, service specific stages (e.g. capacity management and customer integration).	Management should look beyond internally-focused productivity measures. Positive changes in provider's productivity may have negative results for customer's productivity. Enable customers to improve their individual service productivity.	Management should seek an optimal balance between quantitative and qualitative inputs and outputs. Customers need to be enabled to improve general service productivity.	Key levers for productivity management include an entity's goals, expectations, perceptions, activities and processes throughout different interaction stages. Measurement of inputs / outputs needs to be based on contextual factors (e.g. interaction goals). Management should strive to enhance interaction partners' perceived service productivity.
Exemplary contributions	• Levitt (1972) • Murphy (1999) • Staats, Brunner, & Upton (2011).	• Jones (1988) • Corsten (1994) •	• Fitzsimmons (1985) • Parasuraman (2002) • Johnston & Jones (2004) • Anitsal & Schumann, (2007).	• Vuorinen, Järvinen, & Lehtinen, (1998). • Grönroos & Ojasalo (2004).	• *This paper*