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Procedia Computer Science 83 (2016) 212 – 220

Procedia Computer Science

The 7th International Conference on Ambient Systems, Networks and Technologies (ANT 2016)

Service Systems and Service Innovation: two pillars of Service Science

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Abstract

Service science is perceived as a multidisciplinary approach with the service system as its most important element. The services we use are provided through a certain service system, whereas service system has a specific structure and creates value through defined interactions between its entities, as well as through interactions with external service systems. On a large scale, economy as a whole may be interpreted as one huge service system, containing a variety of entities and interrelated sub-systems. Thus, we provide in our work an analysis of how service science deals with the interaction within and between service systems creating value. And, as one goal of service science and service systems is to provide a basis for service innovation, through which cost efficiency and value creation is enabled, we discuss how service innovation explores means of securing knowledge leadership, which is crucial for further growth of the service sector.

Peer-review under responsibility of the Conference Program Chairs

Keywords: Service; Service Science; Service System; Value Co-Creation; Service Innovation;

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Peer-review under responsibility of the Conference Program Chairs
doi:10.1016/j.procs.2016.04.118

1. Introduction

The rapid growth of the service sector and its dominance in highly developed economies became evident during the last decades. According to the US Bureau of Labor Statistics, the service sector comprises lot of industries, as for example finance, communication, wholesale and retail, trade, education, insurance, transportation, real estate, healthcare, logistics, postal operations, and other public utilities, etc. The size of the service sector in the national economies speaks for its importance. For example, 80% of the US GDP in 2007 was generated from the service sector, at the same time when the growing service sector in China constituted about 35% of its economy[1]. Services contributed with 70% to OECD GDP in 2011, with wholesale and retail und business services among the top four value added contributors[2].

The fast service development requires also high-speed advancement of research and knowledge base. Many authors exploring the service science field criticize the lack of unified definitions of "services", "service science", "service productivity", "service innovation" etc.[3,4]. That, at the same time, gives the opportunity for exploring different research approaches and combining (interdisciplinary) viewpoints.

Service science has gained importance as an interesting research arena due to the high-speed development of service industry[5,6,7]. It involves several research areas and disciplines, and integrates various concepts[27]. Although there are different approaches in defining service science, most of them recognize the importance of the service system as its basic research unit. Service science deals with the interaction within and between service systems, which in turn creates value. Service science and with it the service system constitutes a solid basis for service innovation, through which cost efficiency, value creation and sustainability are enabled[5,8].

This paper discusses service science and its closely related concepts, and aims at (1) attaining a general understanding of the field, (2) providing insight on how the service sector can be analyzed, and (3) substantiating the importance of service innovation. Accordingly, the organization of the paper is as follows. Section 2 displays service science together with its theory. It explores alternative views on service science, its drivers and related concepts. Section 3 focuses on the service system, its definition and structure, as well as the value creation potential. Furthermore, the paper discussed the driving force of service science - the service innovation through its definition and drivers. The concluding part holds the summarizing view on the presented concepts.

2. Service Science and its Theory

2.1. Service Definition and Characteristics

Diverse approaches for defining and categorizing services have been developed, depending of the context it is used. Explanations on services, on how they may be categorized, together with some examples and shortcomings are given below[9]:

- Acts-based definitions: service means an access to the producer's performance (e.g., theatre, show); is performance for transformation of certain customer goods (haircut, massage); is an act and ownership transfer of (non-)physical goods to the client (e.g., architectural plans, customized jewelry);
- Ownership-based definitions: recognizing the acts-based definitions excluding the ones stating ownership transfer of physical goods; still excluding sales of physical goods, but additionally including sales of non-physical (e.g. patents), insurance, licensing of (non-)physical goods (e.g., cars, patents);
- Other definitions comprise work from[10], who define by exclusion – service is when the service output is not a product of construction; Kotler et al.[11] uses a limiting definition - "is any act or performance one party can offer to another that is essentially intangible and does not result in the ownership of anything";
- Characteristics-based approach: when it has some or all of the well-known unique service characteristics: intangibility, heterogeneity, inseparability, and perishability.

In [12, 13] service is defined as "the application of competences (knowledge and skills) by one entity for the benefit of another"[14]. With it, they point out the collaboration and interaction aspects; therefore service can be interpreted as a system of relations. It involves an exchange between provider and client who receives the service as a certain action or performance in his benefit for a defined value. The most characteristic feature of a service is that it is not only handed to the client, as most of the goods, but mostly - depending on the level of customization and