4-1-2017

Measuring Service Utilities in Service Value Networks

Jinluan Ren
Communication University of China

Liping Zhao
University of Manchester

Bo Li
Communication University of China

Lihua Liu
Communication University of China

Ruben Xing
Montclair State University, xingr@mail.montclair.edu

International Journal of Information Systems in the Service Sector
Volume 9 • Issue 2 • April-June 2017

Measuring Service Utilities in Service Value Networks

Jinluan Ren, School of Economics and Management, Communication University of China, Beijing, China

Liping Zhao, School of Computer Science, University of Manchester, Manchester, UK

Bo Li, School of Science, Communication University of China, Beijing, China

Lihua Liu, School of Economics and Management, Communication University of China, Beijing, China

Ruben Xing, Department of Information Management & Business Analytics, School of Business, Montclair State University, NJ, USA

ABSTRACT

In spite of the importance of service value networks (SVNs) in today's service sectors, academic studies of SVNs, in terms of their formalisms, models and value creation processes, are still lacking, with only sporadic publications available. This paper intends to make a contribution to the formal studies of SVNs with a threefold aim: (1) to provide an overview of existing work on value creation processes in SVNs and SVN models, (2) through this exposition, to propose a formalism for measuring service utility for SVNs, and (3) to illustrate this formalism through a real world SVN scenario based on China's mobile services market. The proposed formalism consists of a formal definition of service utilities for both primitive and complex services and a systematic approach with repeatable processes for measuring these utilities. Among several potential practical uses, this formalism can be embedded into a software system as a decision tool for service selection, composition and pricing. In addition, it can also serve as a business services analysis tool during the early stages of developing software intensive service systems, where business service abstractions can be represented as SVNs.

KEYWORDS

Cross-Organizational Business Processes, Extended Business Collaboration Model, Multiparty Service Engagements, Value Chain

INTRODUCTION

One of the defining characteristics of today's industries is that they collaborate in a business network to co-produce or exchange goods and services, thereby co-creating value (Amit & Zott, 2001; Brandenburger & Nalebuff, 1997; Christensen, 2003; Vargo & Lusch, 2004; Lusch & Vargo, 2006; Vargo et al., 2008). Such a network has been called a "value network" (Allee, 2000; Bovet & Martha, 2000; Lusch et al., 2010; Stabell & Fjeldstad, 1998). In the context of service industries, such a network is also called "service value network" (SVN) (Basole & Rouse, 2008; Blau et al., 2009; Chan & Hsu 2012).

In contrast to traditional value chains (Porter, 1985; Porter, 2013) and supply chains where resources flow in dyadic relationships from raw material providers to manufacturers to suppliers to customers, SVNs encompass multi-way collaborations between different service actors, comprising service providers, enablers, consumers, and other stakeholders, such as government agencies and

DOI: 10.4018/IJISSS.2017040101

regulators. These relationships are characterized as business-to-business (B2B), business-to-consumer (B2C) and consumer-to-consumer (C2C) (Basole & Rouse, 2008).

Comparing with other forms of business network, such as Virtual Corporation (Davidow & Malone, 1992), Smart Business Network (Heck & Vervest, 2007) and Business Web (Steiner, 2004) SVNs view everything as a service (Levitt, 1972) and goods and products as service delivery vehicles (Araujo & Spring, 2006; Lusch & Vargo, 2006). In addition, value in SVNs is created at the network level (Basole & Rouse, 2008; Bovet & Martha, 2000), in which each service actor contributes incremental value to the overall service offering. Thus in SVNs, value creation is a shared activity among service actors, who contribute to this activity by focusing on their core competence and leveraging knowledge and capital assets of their partners (Basole & Rouse, 2008; Blau et al., 2009; Conte et al., 2011). Consequently, value in SVNs is co-created by service actors (Basole & Rouse, 2008; Vargo et al., 2008) and the risk involved in value creation is also shared among them (Basole & Rouse, 2008; Michalk et al., 2010).

SVNs can be observed in almost all business sectors. For example, in software industries, service computing and cloud computing has changed the way we develop, deliver and use software. Everything as a service (XaaS) has been manifested as SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Infrastructure as a Service) (Zhang et al., 2010). Software companies collaborate to offer these services to their users over the Internet in a SVN fashion. In the telecom sector (Holzer & Ondrus, 2011; Peppard & Rylander, 2006; Zhang & Wu, 2006), network and infrastructure providers, handset providers, content providers, and customers have converged around the value network to co-create value. Similar phenomena can be observed in the e-commerce sector (Amit & Zott, 2001), the automobile industry (Basole & Rouse, 2008), and the healthcare sector (Basole & Rouse, 2008).

A SVN can also be thought of as a "service ecosystem (Lusch et al., 2010)", made from a constellation of service systems that interact to co-create value. A service system is "a configuration of resources (including people, information and technology) connected to other systems by value propositions (Vargo et al., 2008)."

However, while SVNs have captured the trait of today's industrial practice, academic studies of SVNs, in terms of their formalisms, models and value creation processes, are still lacking, with only sporadic publications available (Lusch et al., 2010; Basole & Rouse, 2008; Blau et al., 2009; Allee, 2000; Haak & Weinhardt, 2014). Expanding our early work reported in (Ren et al., 2013a), this paper intends to make a contribution to the formal studies of SVNs with a threefold aim: (1) to provide an overview of existing work on value creation processes in SVNs and SVN models, (2) through this exposition, to propose a formalism for measuring service utility for SVNs, and (3) to illustrate this formalism through a systematic approach applying to a real world SVN scenario based on China's mobile services market. These aims are detailed in the remaining paper.

VALUE CREATION PROCESSES, MODELS AND FORMALISMS FOR SVNS

Value and value creation are at the heart of SVNs. This section reviews some notable work on these concepts as well as on models and formalisms of SVNs.

S-D Logic: Capturing Value Creation Processes in SVNs

Proposed by Vargo and Lusch (Vargo & Lusch, 2004; Lusch & Vargo, 2006), service-dominant (S-D) logic is a new theory of value and value creation. S-D logic provides three fundamental notions: (1) service-centric—service is the basis of economic activity, (2) value co-creation—value is always co-created, (3) value-in-use—there is no value until a service is used. These notions have captured the essence of a service-oriented value creation process, which can be understood from three perspectives: (1) service is a process of doing something for and with another party whereas goods are service-delivery vehicles; (2) value creation is a collaborative process among all service actors