

Chapter 94

Exploring Marketing Theories to Model Business Web Service Procurement Behavior

Kenneth David Strang

APPC Research, Australia & State University of New York, USA

ABSTRACT

This chapter provides literature-grounded definitions of contemporary Web services and marketing theories, which can model business demand through procurement decision-making behavior. First, the literature was reviewed to identify contemporary Web 2.0 and Web service ontology alongside marketing theories, which can describe individual decision making in an organizational or personal context. The Web services included cloud computing, social networking, data storage, security, and hosted applications. Then selected models for assessing procurement decision-making behavior were discussed in more detail. The constructed grounded theory method was applied by interviewing Chief Information Officers (CIO) at large organizations across four industries in the USA: healthcare, higher education, energy creation, and banking. The purpose was to determine which marketing theories could effectively model their Web service procurement behavior. An empirical procurement decision-making model was developed and fitted with data collected from the participants. The results indicated that Web service procurement decision-making behavior in businesses could easily be modeled, and this was ratified by the CIOs. The chapter proposes a state-of-the-art ontology and model for continued empirical research about organizational procurement decision-making behavior for Web services or other products.

INTRODUCTION

Business Web services are a relatively new phenomenon, despite the first Internet - ARPAnet - was developed in 1966 by the US Department of Defense (Usdod, 2013). Ironically Internet TCP/IP protocol and Domain Name Service (DNS) were developed in 1983, while Nexus the first

World Wide Web (WWW) browser came online available in 1991, followed by Netscape in 1993 (Estrin, 2009). Despite this, we know very little about how businesses make procurement decisions for WWW services.

The pervasiveness of personal computer technology such as Apple's iPhone which debuted in 2007 (Yan, 2008) make it easy to forget that busi-

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ness and government are large purchasers of Web services. In 2011, IBM announced Smart Planet Cloud Computing, designed to promote the sharing of application and data through the Internet. Google recently released a new 3D beta version of their maps and earth Web 2.0 applications, which allow users to contribute to the database (Google, 2013). Some researchers have argued that there business demand for these modern Web services are just as high as personal consumption, but for different reasons (Ante, 2012; Buera & Kaboski, 2012; Yeo, 2008).

As a case in point, one of the most successful business-oriented applications used by businesses in all sectors was the *Enterprise Resource Planning System* (ERP) that was developed in 1972 by German-based System Analyse und Programmentwicklung which we commonly know today as SAP R/3 (Buyya, Broberg, & Goscinski, 2011). When SAP became a Web-enabled hosted service by 2000, this enabled more affordable access to small businesses and non-profit organizations (Buyya et al., 2011). The affordable access to Web-serviced applications led to the modern e-business term, which means that business processes strategically leverage Internet-enabled ERP software to effectively and efficiently transform resources to produce and supply products or services to their clients and partners around the world (Strang, 2008). ERP's and e-business are synonymously associated with Web services for businesses.

ERP's are expensive, often costing millions of dollars, but in the early 2000's they became available online as hosted solutions from application service providers which made them more affordable to non-profits, small businesses and government (Golicic & Smith, 2013). Therefore, the question remains, do we know how to gauge this business consumer demand for Web services or how decisions are made?

The majority of 21st century Web-services seem to have been designed for the individual consumer. This raises the question about how

key executives, such as CIO's, make Web service procurement decisions. Decision making for Web services is a complex task, especially given the social versus economic level conflicts in organizations (Sun, Zhang, Dong, Kajan, Doro-loff & Bedini, 2012). This is why the researcher has attempted to explain executive CIO decision making for Web services through a consumer behavior model, which has been shown to explain individual behavior in businesses. In fact a number of researchers have applied marketing theories to understand individual consumer behavior for Web service purchases (Strang, 2011a). Thus, it was hypothesized that some marketing theories could be used to model business procurement behavior of Web services.

Research Purpose and Method

First, though, what are Web services? What models and techniques should Web service designers use to understand procurement decision making behavior by government, profit and not-profit organizations? Certainly no service provider would want to build a million dollar hosted business application without knowing there would be a market for that and understanding how consumers make purchase decisions.

This was the challenge facing the researchers of this handbook. There was a collaborative effort to document theories, techniques, and models for understanding the Web service procurement behavior of business, government and non-profit consumers. We already know a lot about consumer behavior but there are few empirical studies concerning procurement behavior of business consumers.

The purpose of this chapter was to qualitatively and quantitatively explore organizational decision making for Web services using demand theories from consumer behavior (and somewhat from micro economics). The exploration was empirically-driven, based on a literature review followed by a small sample of Chief Information

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