Chapter 89
The Interactions Between Information and Communication Technologies and Innovation in Services: A Conceptual Typology

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ABSTRACT

Recent literature reveals the increasingly important role of Information and Communication Technologies (ICT) within innovation in services. This paper aims at outlining how scholars have conceptualized and defined the relationship between ICT and innovation in services so far, by analysing the fragmented body of knowledge available on the topic, to strengthen the research area as field of study and support its progress. The results of the literature review were derived through a concept-centric analysis of the existing research on ICT and innovation in services. The outcome of the literature review is a conceptual typology that organizes and summarizes the body of knowledge on ICT and innovation in services, and reveals the critical knowledge gaps along with an agenda for future research. The main contribution of this work resides in having organized existing literature on the relationship between ICT and innovation in services into a conceptual typology. The conceptual typology outlines the three main aspects of the link between ICT and innovation in services: the integration of organizational and innovation processes; the cooperation among internal and external agents; and the self-reinforcing innovation mechanism that characterizes ICT as a product.

INTRODUCTION

Innovation has become a crucial element of survival for organizations within every industry due to the crucial changes that are affecting modern economies (Atilgan-Inan, Büyükküpçü, & Akinci, 2010). With the advent of Information and Communication Technologies (ICT), services have become an important locus of innovative activity (Metcalfe & Miles, 2000). Recent innovation literature has dedicated

DOI: 10.4018/978-1-5225-9273-0.ch089

extensive attention to the link between ICT and New Product Development (NPD). Even though some scholars have argued that manufacturing and service industries share more similarities than differences (Evangelista, 2000; Forsman, 2011; Jong & Marsili, 2006), service innovation research stresses that NPD models are only partially appropriate for services (Aas, 2011; Sundbo, 1997; Tether & Tajar, 2008). More and deeper knowledge on the relationship between ICT and innovation in services is still needed to cover theoretical gaps that prevent a deeper understanding of innovation within the service context (Tether & Tajar, 2008) and to support practitioners in their quest for value creation.

A preliminary literature review around the terms "ICT", "service" and "innovation" shows that scholars have looked at these topics from several angles and with diverse scopes and objectives. Tether and Tajar (2008) outlined the need for more knowledge on the intersection between these three topics and called for more research effort to discover hitherto neglected aspects of innovation that are found across the economy, especially for what concerns the complementarities between technology and other types of innovation. Since their call for research, many scholars have dedicated their attention to ICT and service innovation (Bygstad & Lanestedt, 2009; Chesbrough, 2011; Targowski, 2009). On the one hand, the availability of diverse research supports the development of new knowledge. On the other hand, the heterogeneity of existing literature might make it harder to identify critical un-investigated topics when planning and executing research on ICT and innovation in services.

This paper aims at contributing to the development of literature on innovation in services by presenting a thorough literature review on the relationship between ICT and innovation in services. The novelty of this work stands in the systematic and structured analysis of the fragmented body of knowledge on the topic, and, more specifically, in considering both sides of the connection: not only the impact of ICT on innovation, but also the effect that innovation has on ICT adoption, development and implementation. The outcome of the literature review is a conceptual typology that organizes existing literature on ICT and innovation in services. Moreover, the literature review enables (a) identifying different perspectives on ICT and innovation in services, by outlining five umbrella themes in the body of knowledge; (b) spotting critical research gaps that might guide future inquiries within the field. The literature review focuses on the following research question:

- How can the relationship between ICT and innovation in services be defined and conceptualized according to existing literature?

This study adopts a structured approach towards the definition of concepts and constructs, which characterize the different facets of the relationship between ICT and innovation in services. The aim of the literature review is to support – and thereby contribute to – the future development of the literature by classifying the body of knowledge in the field and outlining a conceptual typology that synthesizes the relationship between ICT and innovation in services. In fact, thorough literature reviews can strengthen the academic relevance of the fields of study they address, as well as support their growth and progress (Webster & Watson, 2002). In addition, there are two main phenomena, which make the research question relevant. Firstly, the emergence of the Service-Dominant Logic (Vargo & Lusch, 2004, 2007) and the diffusion of servitization (Baines, Lightfoot, Benedettini, & Kay, 2009). Secondly, the rapid digitalization of both goods and services due to technological and market developments (Scupola, Henten, & Nicolajsen, 2009; Targowski, 2009). The results from the analysis and specifically the conceptual typology answer the research question and clarify the different perspectives, from which the relationship between ICT and innovation in services can be looked at.