Chapter 46
Mastering Electronic Procurement, Green Public Procurement, and Public Procurement for Innovation

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ABSTRACT

This chapter explains the overview of Electronic Procurement (e-procurement); the critical success factors and implementation of e-procurement systems; the barriers to e-procurement implementation; the perspectives on electronic public procurement; the Interpretive Structural Modeling (ISM), Structural Equation Modeling (SEM), and e-procurement; the prospect of Green Public Procurement (GPP); the importance of Public Procurement for Innovation (PPI); and the intermediation of PPI. E-procurement, GPP, and PPI expand the aspects of enterprise resource planning systems, sustainability, and innovation, allowing the automation of internal business processes and providing the procurement-related platforms that support automation at a global level. The benefits of e-procurement, GPP, and PPI include reduced transaction time, increased productivity, improved standardization, enhanced sustainability, and simplified global procurement.

INTRODUCTION

The application of electronic procurement (e-procurement) ranges from the use of commonly available tools (e.g., web browsers and e-mails) to the use of dedicated e-procurement systems (e.g., interorganizational information systems) (Hassan, Tretiakov, Whiddett, & Adon, 2014). E-procurement is widely advocated as an effective tool to promote the participation of small and medium-sized enterprises (SMEs) as well as micro enterprises in the public procurement market (Albano, Russo, Castaldi, & Zampino, 2015). E-procurement enables organizations to reduce business costs, reduce paperwork, manage purchasing processes (Teo, Lin, & Lai, 2009), and access wider markets (Gunasekaran, McGaughey, Ngai,

& Rai, 2009). Gunasekaran and Ngai (2008) indicated that the supply chain of a company cannot be successfully integrated without the adoption of e-procurement systems.

Procurement has a key role in sustainability as policies and practices need to extend beyond organizations' boundaries incorporating their whole supply chains (Meehan & Bryde, 2011). A green economy that incorporates a vision of environmental sustainability and equitable social development requires a fundamental rethinking of the existing economic models which center on growth (Otsuki, 2011). The high impact of green public procurement (GPP) on production activities positively affects the probability that companies invest (at both technological and organizational levels) in the innovative solutions (Testa, Iraldo, & Frey, 2011).

Public procurement for innovation (PPI) is widely acknowledged as an important demand-side innovation policy instrument which occurs when a public purchaser either seeks to trigger innovation by demanding products that do not yet exist, or by choosing products which have innovative characteristics (Georghiou, Edler, Uyarra, & Yeow, 2013). PPI is at the essence of many innovation policy initiatives across the Organization for Economic Cooperation and Development (OECD) and at the European Union (EU) level (OECD, 2011). To focus on PPI as an innovation policy tool is to support and stimulate the demand for and adoption of innovation for the sake of generating the economic benefit for suppliers and supply chains, on top of the social benefit generated by the public sector organizations (Edler & Yeow, 2016).

This chapter aims to bridge the gap in the literature on the thorough literature consolidation of e-procurement, GPP, and PPI. The extensive literature of e-procurement, GPP, and PPI provides a contribution to practitioners and researchers in order to maximize the impact of e-procurement, GPP, and PPI in both the public and private sectors.

BACKGROUND

Intensifying competition in today's business environment has highlighted the need to optimize the management of supply chains. Developments in the information and communication technology (ICT) are important tools to manage supply chains effectively (Toktaş-Palut, Baylav, Teoman, & Altunbey, 2014). Procurement (i.e., a vital part of supply chain management) has been significantly impacted by the new technologies (Bayazit, 2014). In recent years, an increasing trend has been observed in the adoption of e-procurement systems, which help in the integration of the procurement process throughout the supply chain (Toktaş-Palut et al., 2012). When the traditional procurement system is analyzed, it can be considered that the process is implemented by using phone, fax, and other communication channels, showing how the procurement system is developed over time (Hawking, Stein, Wyld, & Foster, 2004).

Many studies have reported on the effectiveness of the EU procurement directives, mostly in terms of the impact on the openness of public procurement and the impact on cross-border trade (Gelderman, Ghijsen, & Schoonen, 2010). The European Commission believes that the solution to integrating government procurement into the single market lies in e-procurement (Khorana, Ferguson-Boucher, & Kerr, 2015). The EU-compatible public procurement regime is being consolidated throughout the Central and Eastern Europe (CEE) region (Engelbrekt, 2011). Alongside the remarkable efforts executed by the European governments to promote the adoption of GPP, legislative interventions, and operational tools have been developed by the United States (Swanson, Weissman, Davis, Socolof, & Davis, 2005),

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