

# E-Government and the Construction Industry

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## INTRODUCTION

Recent trends indicate drives by various governments to adopt electronic means to handle their affairs and also provide value to their citizens irrespective of time and space via so-called electronic governments (see, e.g., Mathews, 2001; Tillett, 2000). Although the construction industry is part of the clientele which e-government seeks to serve, traditionally many governments are often the major clients for the supplied services of the industry. This scenario appears to re-shape the traditional customer-supplier relations into that of evolving roles, as for example in the digital environment both parties may find themselves in the roles of supplier or customers at varied times. This article seeks to explore the nature of the exchange interactions which may evolve between e-governments and the construction industry in the digital environment in value delivery. First, perspectives on the key concepts in this article are offered, then relevant literature on the subject is examined, before conceptual models to explain potential evolving roles of the two entities in the delivery of value in the digital/virtual realms is given. An outlook on future trends on the topic is then proposed before the conclusions.

## BACKGROUND

### Perspective on Key Concepts

Prior to the review of other relevant literature this section first examines three major concepts: electronic government, customer-supplier relationship, and digital value delivery.

### Electronic Government

Electronic government also referred to as e-government, digital government or e-gov, government online, etc., made its debut in 1998 in the U.S. (Bose, 2004; Mathews, 2001). There are indications to however suggest that conditions which led to this phenomenon were at least identified about 30 years ago (see, e.g., Relyea, 2001). There appears not to be any consistent definition for the electronic government concept (see, e.g., Fang, 2002;

Relyea, 2001; Seifert, 2003). As a dynamic concept it has evolved through varied perceptions. Initial perceptions of this concept concerned the use and application of information technology (IT) by government bodies, and later perceptions relate it to the ambiguous symbolic perceived use of IT to the operations of government, as well as the attainment of the goals of performance efficiency and economy (Relyea, 2001).

Three stakeholders which appear to be commonly identified within electronic government relationships are the government, citizens and business (Fang, 2002; Nikolopoulos, Patrikakis, & Lin, 2004; Seifert, 2003; The World Bank Group, n.d.). This may provide three clusters of operational interest as follows: government to government (G2G), government to citizens (G2C); government to business (G2B) (see, e.g., Fang, 2002; Nikolopoulos, Patrikakis, & Lin, 2004; Seifert, 2003; The World Bank Group, n.d.). These broad areas may also be subject to variations relative to one's intentions. For example within the G2G cluster one could refer to inter or intra government operations, and in the latter case one may for example identify government to employee (G2E) (see, e.g., Bose, 2004; Liu & Lai, 2004). The interest of this article is in the G2B cluster with specific reference to the exchange interactions (customer-supplier relations) between e-government and the construction industry. This interaction may concern the delivery of services, goods and allied items which may provide business efficacy. The next section discusses customer-supplier link in value delivery.

### Customer-Supplier Exchange Relationship

Potential procurers (customers) of goods and services may directly or indirectly require exchange interactions with potential suppliers to fulfill (to a relative degree) their needs or wants. This appears to make the customer-supplier link important in fulfilling requirements. The term customer-supplier has been directly or indirectly used across varied disciplines (see, e.g., Ellegaard, Johansen, & Drejer, 2003). In marketing for example, the concept of "exchange" between potential customers and suppliers has been a recognized central model for many decades (Blois, 2004). The customer-supplier link is stressed in marketing exchange concept via emphasizing (among others) what both potential customers and suppliers have

to offer and benefit from an exchange (Blois, 2004). One other prominent area in literature (of relevance to this article) which has heralded the importance of the customer-supplier link has been that of quality and its related fields. Most of these literature emphasize (among others) the need to: involve customers in value delivery processes so as to understand their requirements well in order to fulfill or exceed their expectations; continuously improve the suppliers' transformation processes and other value delivery systems (see, e.g., Huang & Lin, 2002; Ousthuizen, Koster, & Rey, 1998). The seemingly increased attention to include the customer in recent times contrast previous management orientation where transformation processes for example tended to focus on the suppliers' internal activities and were indifferent to the customer (see, e.g., Ousthuizen, Koster, & Rey, 1998). Thus arguably a shift to a relatively much broader and beneficial way in dealing with exchange interactions between customers and suppliers in delivering value. The next section discusses digital value delivery.

### **Digital Value Delivery**

One of the aims in customer-supplier interactions concerns that of the delivery of value. One influential work on value delivery (in the business sector) was the work of Porter (1985). He defined value as the amount buyers are willing to pay for what a firm delivers to them. This work perceives value delivery via the analogy of a chain, whereby the processes for delivering value are seen as linked value adding processes. Although this work has been criticized as linear, and other conceptions like value constellations, nets, etc., proposed (see, e.g., Kippenberger, 1997a, 1997b; Parolini, 1999) it made significant impact on the conception of value delivery in the business sector (see, e.g., Kippenberger, 1997a). As value delivery within the digital environment evolved, Rayport and Sviokla (1999) also offered another seminal conception of value delivery within the digital environment, which they called virtual value chain. In their article they argued that although the processes for delivering value in the physical and virtual worlds are mutually dependent they are however not the same. They asserted that unlike the traditional value chain model which perceives information as a supporting element, the digital environment enables the use of information as a primary source of value creation (Rayport & Sviokla, 1999). They defined the virtual value chain to involve the processes of creating visibility, mirroring, and establishing new customer relationships. Visibility involves the ability of companies to use information to see their physical operations more effectively; mirroring involves the substitution of physical activities with virtual activities; then new customer

relations can be created via the use of information (Rayport & Sviokla, 1999).

Although value delivery may require consideration of many other relevant things (e.g., dynamic turbulent business environment, etc.), the seminal models explained above, as well as those based on the supplier-customer delivery perspective could provide meaningful reference point, and hence basis for more complex and varied conceptions.

### **Trends in E-Government and Construction Industry and the Importance of a Focused Structured Link Between the Two Entities**

Since the debut of e-government, various research has been done to assist in the comprehension, improvement or impact of e-government concept (see, e.g., Buckley, 2003; Fang, 2002; Hazlett & Hill, 2003; Mathews, 2001; Nikolopoulos, Patrikakis, & Lin, 2004; Teicher, Hughes, & Dow, 2002). A sample of the research findings however provide mixed results of either spectacular failure in some cases (see, e.g., Hazlett & Hill, 2003); modest or disproportionate impact (see e.g., Teicher, Hughes, & Dow, 2002); or success and a positive correlation between e-government adoption and economic competitiveness (see, e.g., Deloitte Touche Tohmatsu, 2003). Other researchers have also highlighted some of the potential opportunities for e-government leverage via enhanced forecasting, information provision, transactions, etc. (see, e.g., Nikolopoulos, Patrikakis, & Lin, 2004); whilst others have cautioned on the need to perceive e-government as both an opportunity (e.g., improvements in government services) as well as challenge (e.g., Internet security, privacy, etc. (see, e.g., Seifert, 2003)).

Although the theme of most of this research is on improvements and related issues, little focus has been accorded the link between e-government and a specific sector like the construction industry. Certain governments however commissioned studies which were aimed at improving traditional construction delivery (see, e.g., CIRC, 2001). The focused study of the interaction between e-government and the construction industry could aid improve or transform: the traditional relationship between the two which often involves huge monetary exchange transactions; the role of the industry (just like other sectors) in contributing to employment, taxes, etc. For example, e-government initiatives on building permits approvals accrued 100 million dollars savings to the construction industry in the State of Oregon, USA (see e.g., Deloitte Touche Tohmatsu, 2003). This savings may also aid improve on reciprocal tax receipts to government,

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