



Developing dynamic capabilities in electronic marketplaces: A cross-case study

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ABSTRACT

Business-to-business (B2B) electronic marketplaces (EMPs) have increased the efficiency and economy of business purchasing by bringing together a critical mass of organizations that buy and sell goods and services. While many studies have investigated mature EMPs and identified factors leading to their success and failure, few studies have investigated the capabilities necessary to *develop* successful EMPs. This research shares findings from in-depth case studies of two EMPs conducted over a 3-year period. Using the dynamic capabilities framework as a theoretical lens, this paper: (1) identifies the capabilities necessary to develop EMPs that generate and sustain participant contributions, and (2) discusses how to develop these capabilities. This study finds that the cultivation of a “trial-and-error” culture along with sales managers’ activities played key roles in developing outside-in and spanning capabilities. Taken together these capabilities helped the successful EMP develop entrepreneurial alertness and customer agility, two capabilities that were not developed in the failed EMP. These findings extend dynamic capabilities theory and may help practitioners better develop two-sided networks, such as EMPs, that require a critical mass of buyers and sellers.

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1. Introduction

Business-to-business (B2B) electronic marketplaces (EMPs) are Internet-based intermediary hubs that bring together a critical mass of organizations that buy and sell products and services (Malone et al., 1987; Matook and Vessey, 2008). These EMPs offer many advantages over traditional hierarchical modes of coordination, including reducing search costs, increasing competition, lowering product costs, and reducing coordination costs (Bakos, 1997; Granados et al., 2007).

Many researchers have studied the success and failure of EMPs (Allen et al., 2000; Premkumar et al., 2004; Howard et al., 2006; Soh et al., 2006; White et al., 2007). These studies conclude that EMPs that succeed attract a critical mass of active members, while EMPs that fail do not. Attracting a critical mass of active members requires EMPs to offer both sides of the network (that is, both buyers and sellers) value. Unfortunately, many EMPs have failed (Day and Fein, 2003) because parties in a trading relationship often believe that EMPs may leave them worse off (Mithas et al., 2008). Common concerns are that EMPs may harm existing business relationships (Ganesh and Madanmohan, 2004; Howard et al., 2006; Mithas et al., 2008), increase transaction risk (Barrett and Walsham, 1999; Allen et al., 2000; Howard et al., 2006), and/or increase price transparency (Ganesh and Madanmohan, 2004; Soh et al., 2006).

Many organizations that have overcome these challenges and developed valuable offerings have the advantage of migrating existing auctions (Lee and Clark, 1996; Kambil and van Heck, 1998), markets (Choudhury et al., 1998; Barrett and Walsham, 1999; Grewal et al., 2001), or buyer–seller networks (Hess and Kemerer, 1994; Premkumar et al., 2004; Soh et al.,

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2006) to EMPs. However, other organizations develop EMPs without the benefits of a pre-existing membership base and already-developed offerings or processes. With the exception of Rangan (1999) and Ganesh and Madanmohan (2004), few studies have investigated the capabilities that these organizations focus on developing in order to create EMPs that add value and therefore attract a critical mass of active members. Understanding the process of developing EMPs that become value-adding intermediaries can provide much needed insight into their success and failure.

This study seeks to address these gaps by reporting on longitudinal case studies of two B2B EMPs, each of which evolved its business model over the course of many years. Using within- and cross-case analyses, this study answers the following research questions:

- What types of capabilities differentiate organizations that create B2B EMPs that are able to generate and sustain participant contributions from those that do not?
- How do executives create these capabilities within an EMP's organizational structure?

This paper is organized as follows. Drawing primarily on the dynamic capabilities framework (Teece et al., 1997; Sambamurthy et al., 2003), the paper outlines the theoretical basis for the argument that the success of EMPs can be explained by the capabilities that the executives focus on developing. The paper then explains the research method, outlines each EMP's evolution, and contrasts the development efforts of each EMP's founding executives. Based on this analysis, the discussion identifies: (1) the capabilities that differentiated the EMP that succeeded from the EMP that failed, and (2) how the executives of the successful EMP developed these capabilities within their organization.

2. Theoretical background: dynamic capabilities

This research employs the dynamic capabilities framework (Sambamurthy et al., 2003) as a theoretical lens to answer the research questions. As capability-building mechanisms, dynamic capabilities are a “firm's processes that use resources – specifically the processes to integrate, reconfigure, gain, and release resources – to match and even create market change” (Eisenhardt and Martin, 2000, p. 1107). In the information systems (IS) field, significant dynamic capabilities include digitized process reach, customer agility, and entrepreneurial alertness (Sambamurthy et al., 2003). Digitized process reach is an organization's ability to deploy integrated and connected information technology (IT) enabled processes like B2B EMPs. This ability is influenced by an organization's customer agility and entrepreneurial alertness. Customer agility, which is created from a customer-centric culture that fosters trust and motivates customer involvement, is the ability to co-opt customers as partners in exploring and exploiting opportunities. Organizations create entrepreneurial alertness, which is the ability to explore marketplaces and identify opportunities for action, by probing and trial-and-error experimentation.

As higher-order capabilities, dynamic capabilities emerge over time from bundles of capabilities (Sambamurthy et al., 2003). Capabilities bring assets like IT infrastructure together and enable an organization to deploy them advantageously (Day, 1994). An organization's capabilities can be sorted into inside-out, outside-in, and spanning capabilities (Day, 1994; Wade and Hulland, 2004). Inside-out capabilities are deployed from within the organization, tend to be internally-focused, and include abilities like technology development and employee recruitment. Outside-in capabilities are oriented externally and include external relationship management and market responsiveness. Spanning capabilities integrate inside-out and outside-in capabilities. Strategy development and new product/service development are activities that must be informed by both external (outside-in) and internal (inside-out) analyses (Day, 1994). Executives and boundary spanners (e.g., sales agents and purchasing managers) develop outside-in and spanning capabilities by assuming cross-organizational roles (Montealegre, 2002; Sambamurthy et al., 2003; Levina and Vaast, 2005) through which they develop embedded relationships with outside organizations.

Dynamic capabilities are typically used to study how a single organization secures an advantage over its competitors (Teece et al., 1997). However, in cases involving B2B EMPs that serve an entire industry, cooperation – the process of working together to achieve a common goal (Teece, 1992) – plays a key role in whether, and how, capabilities can be developed. Since developing successful EMPs requires funding, business process knowledge, and a critical mass of industry organizations that use the EMPs on a regular basis (Soh et al., 2006), organizations creating EMPs require this type of cooperation throughout the EMPs' life cycle. Towards this end, this paper analyzes the process by which two industries developed B2B EMPs. The in-depth case studies show the types of capabilities that each EMP's executives focused on developing as their EMP passed through several life cycle stages: inception, adaptation, and outcome (Ganesh and Madanmohan, 2004). The analysis identifies the types of capabilities that differentiate B2B EMPs that succeed from those that fail.

3. Methodology

This research employed exploratory case study approaches (Eisenhardt, 1989; Yin, 1994) to answer the two research questions. Following theoretical sampling, two cases were selected based on their similarities and differences. The selected EMPs are referred to as Freight Exchange (“FreightX”) and Convenience Store Exchange (“cStoreX”).

Both EMPs exemplified characteristics representative of other B2B EMPs. These included: (1) executives who envisioned transforming their respective industries by implementing an Internet hub to facilitate frequent, market-based comparisons

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