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BEING AGILE TO THRIVE AMIDST DISRUPTIVE DIGITAL INNOVATIONS

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Abstract

Firms around the world have been experiencing disruptive digital innovation. Such disruptions affect their business operations and models over time and geography. In this paper, we adopt Lucas and Goh's (2009) framework of disruption response to examine how do firms achieve agility in responding to disruptive digital innovation. The framework draws on dynamic capability theory, disruptive innovation concept, organizational agility concept and organizational core rigidity concept. This research-in-progress paper aims to conduct an in-depth case study to understand how firms can be agile in responding to disruptive digital innovation. As a case study, this study adds to the growing corpus of literature on disruptive digital innovation. Theoretically, this study extends Lucas and Goh's (2009) framework of disruption response, underpinning the advancement of knowledge in this area. The managerial insights gleaned from this study can also guide firms in being agile and thrive amidst disruptive digital innovations.

Keywords: Agility, Disruptive Digital Innovation, Disruptive Innovation, Dynamic Capability, Case Study

1. INTRODUCTION

According to the MIT Center for Information Systems Research, 32% of corporate board members predicted that their company's revenue are under threat from disruptive digital innovation in the next five years; in addition, 60% of board members felt that they should spend significantly more time on this issue (Weill and Woerner 2015a). This hints at the emergence of a global phenomenon where firms across industry sectors are experiencing an onslaught of disruptive digital innovations that impact not only their business operations, but also their business models (Weill and Woerner 2015b; Suleiman et al. 2002; Stamford 2015).

Disruptive digital innovation is understood as scientific discovery that enables a break-through in capabilities (Anderson and Tushman 1990; Bower and Christensen 1995). Firms that fail to respond appropriately to disruptive digital innovation stand the risk of losing market opportunities, becoming irrelevant or even extinct. Two infamous examples are Kodak and Nokia –both failed to respond rapidly to the emergence of disruptive digital technologies. In the case of Kodak, the disruption came in the form of digital photography technology, while Nokia failed to respond to the disruptive digital innovation of the smartphone technology (Lucas and Goh, 2009).

Even as disruptive digital innovation brings about turmoil and threatens businesses, it is also known to be an instigator for corporate innovation and wellspring of organizational capabilities and business opportunities (Walsh et al. 2002). Firms that are able to take advantage of disruptive digital innovation could create a niche and expand their foothold in a hypercompetitive economy (Accenture 2015; Kane et al., 2015; Lyytinen and Rose 2005; Sambamurthy et al. 2003). For example, the Apple iPhone disrupted the smartphone industry by offering application developers the ability to share and sell smartphone applications through the Apple App Store (Christensen et al. 2015). With the business environment becoming more hypercompetitive and dynamic (Wheeler 2002), it is important for firms to respond appropriately to disruptive digital innovation by capitalizing on the opportunities presented through disruptive digital innovation.

Accordingly, our research question is thus: 'how do firms achieve agility in responding to disruptive digital innovation?'. Through an in-depth case study, the outcome of this research culminates in a framework that explicates the role of organizational dynamic capabilities and core rigidities in the agile response process. In this paper, we adopt Lucas and Goh's (2009) framework of disruption response, which is based on dynamic capability theory (Barreto 2010; Eisenhardt & Martin 2000; Teece 2007; Wheeler 2002), disruptive innovation concept (Christensen 1997; Lucas and Goh, 2009), organizational agility concept (Sambamurthy et al. 2003; Teece et al. 1997), and organizational core rigidity concept (Leonard-Barton 1992).

2. RESEARCH BACKGROUND

2.1 From Digital Technology To Disruptive Digital Innovation

All disruptive digital innovations can trace their origins to some form of digital technology. New digital technologies are constantly developed from scientific research and discoveries. Some of these digital technologies may be combined and developed into digital innovation (Christensen and Rosenbloom 1995). For example, the smartphone is a digital innovation that incorporated various digital technologies such as touchscreen technology, mobile telephony technology, Internet technology, among others. A digital innovation may either be the product of the research and development efforts by research institutions or business organisations. In either case, while some extent of environmental condition, such as the maturity of supporting technological infrastructure and the sophistication of consumer demand (Porter 1990), impacts the development of digital technology into digital innovation, the literature ostensibly indicates that organizational capability has a larger bearing on the transformation of digital technology into digital innovation (Fichman and Melville

2014). A recent study (Kane et al. 2015) suggests that some of these key organizational capabilities include the ability to conceptualize how the new digital technology impacts current business processes/models and the ability to experiment and take risk. These organizational capabilities are enabled through resources such as conducive organizational culture and digitally savvy talent in the organisation. Such an emphasis on organizational capabilities over environmental condition in the transformation of digital technology into digital innovation may also explain why digital technology organisations operating under similar environmental conditions can yield drastically different outcomes.

Even as organizations manage to transform digital technology into digital innovation, not all digital innovation can eventually be turned into disruptive digital innovation. The transition from digital innovation to a disruptive digital innovation is contingent on a myriad of organizational capabilities and environmental conditions (Christensen 1997; Lyytinen and Rose 2005). Results from the initial studies on the transformation of digital innovation into disruptive digital innovation point to the importance of organizational leadership and coercive pressure from the institutional environment such as industry trends and consumers' preference (Lui et al 2015). For instance, widespread investment into novel disruptive digital innovation may be resisted by shareholders as these are deemed risky and presents uncertain benefits. Many organizations, especially the larger ones, are more reluctant to adopt new disruptive technologies. They seem to prefer proven technologies and innovations (Kassicieh et al. 2002). In fact, Christenson (1997) states that well-established firms are usually poorly positioned to introduce disruptive digital innovations into markets. Instead, it is the new high technology firms that outperform the larger more established and resource rich organizations (Walsh et al. 2002).

This process of transforming digital technology into digital innovation and consequently into disruptive digital innovation is depicted graphically in Figure 1.

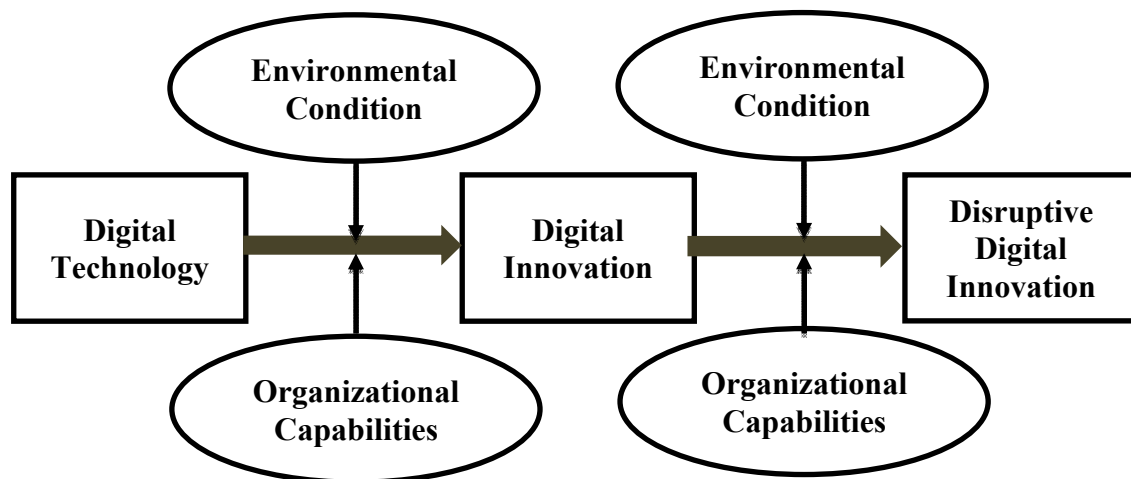


Figure 1. Transformation from Digital Technology to Disruptive Digital Innovation

2.2 Theoretical Framework

In this paper, we adopt Lucas and Goh's (2009) framework of disruption response to examine how do firms achieve agility in responding to disruptive digital innovation (Figure 2). The framework is developed based on Christensen's disruptive innovation theory (Christensen 1997; Christensen and Raynor 2003) and highlights how firms deal with the changes brought about by disruptive innovation (Mann 2009; Tellis 2006). The framework also draws on other theories and concepts such as dynamic capability, organizational agility and core rigidity. Based on this framework, we propose that organizational agility is key to how firms respond to disruptive digital innovation. Agility is achieved

through the management propensity to organize and marshal their capabilities for change on the one hand, and to attack organizational rigidities on the other.

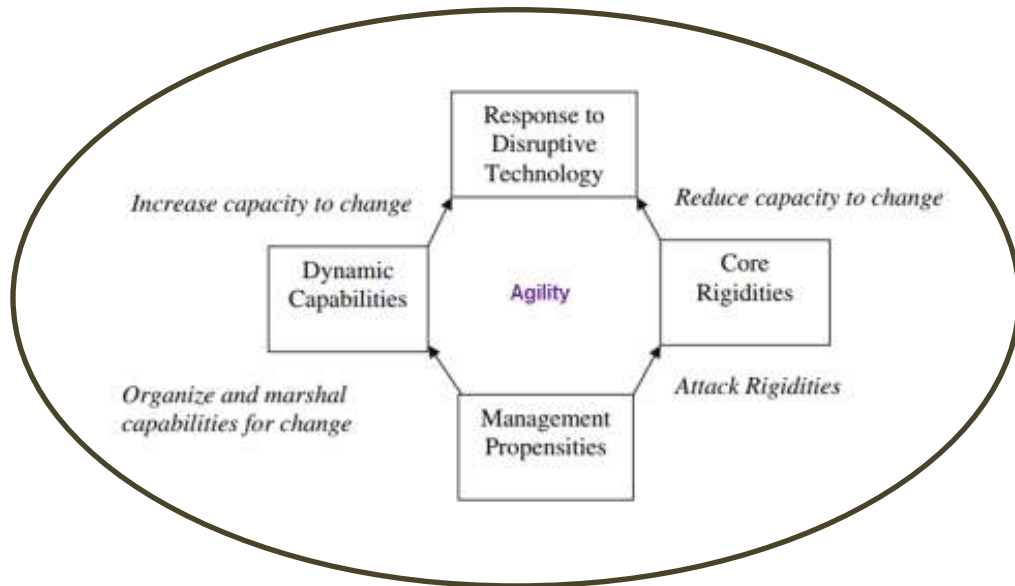


Figure 2: Lucas and Goh's (2009) Framework of Disruption Response

2.3 Dynamic Capabilities

Dynamic capabilities refer to a firm's ability to integrate, reconfigure, gain and release resources to match the changing market needs (Eisenhardt and Martin 2000). In a recent study, the dynamic capability concept is further categorized into three main components, namely, adaptive capability, absorptive capability, and innovative capability (Wang and Ahmed 2004). Dynamic capability has the adaptive capability to constantly address shifting strategic needs (Rindova and Kotha 2001) but also the absorptive capability to recognize, assimilate, and apply the knowledge and information (Cohen and Levinthal 1990) to develop new products and/or markets, through aligning strategic innovative orientation with innovative behaviors and processes (Wang and Ahmed 2004). In other words, dynamic capabilities give rise to the innovative capability that effectively links a firm's inherent innovativeness to marketplace advantage in terms of new products and/or markets (Wang and Ahmed 2008).

Theoretically, dynamic capability is a much broader concept than organizational agility (Overby et al. 2006). Generally, organizational agility can be thought of as being enabled by a specific subset of dynamic capabilities (Overby et al. 2006). For example, Lu and Ramamurthy's (2011) found that IT spending leads to superior IT capability that in turn provides greater organizational agility. For organization to respond readily, there are underlying capabilities that support organization agility (Overby et al. 2006). Creating and maintaining these capabilities is costly, therefore it is important to consider the contexts in which organizational agility is generated (Overby et al. 2006).

2.4 Organizational Agility

The organizational agility concept which originated from management theory pertains to a firm's success in turbulent environments (Teece et al. 1997). It is vital to the innovation and competitive performance of firms in the current marketplace (Sambarmrthy et. al. 2003). Agility refers to the ability to sense and respond nimbly to business opportunities and unexpected changes in market demand (Brown and Bessant 2003) in order to stay competitive and innovative in a turbulent

environment (Lyytinen and Rose 2004). Such a need for agility is due to change (Yusuf et al, 1999) in the external environment (Bottani 2010).

Agility and disruptive digital innovation can be studied from two angles. On one hand, firms have to be agile in sensing environmental change and respond readily to digital disruptions. At the same time, disruptive digital technology can also be leveraged by firms to develop technology-enabled organizational agility in responding to subsequent disruptive digital innovation (Fink and Neumann 2007). Given such a complexity, our study will explore both aspects, i.e. (i) enterprise agility in responding to disruptive digital innovations, and (ii) disruptive digital technology-dependent enterprise agility (Walsh et al. 2002).

2.5 Organizational Core Rigidity

The concept of organizational core rigidity is traced to the works of Leonard-Barton (1992). Core rigidity arises when the core capability of a firm becomes so rigid that they continue to persist even when the capability is no longer relevant. Hence, instead of aiding the development and competitiveness of the firm, such rigid core capability becomes a hindrance. For instance, the success of Blackberry's feature phones is often attributed to its email capability. However, with the emergence of the disruptive digital innovation brought about by smartphone technology, the same email capability became a core rigidity for Blackberry given its inability to move on from the email capability and develop other relevant capabilities. Rigidity thus inhibits organizational learning amidst disruptive digital innovation (Lucas and Goh 2009).

3 RESEARCH DESIGN

The research method of choice is case study (Pan and Tan 2011; Yin 2003) as it allows an in-depth examination of contemporary phenomenon such as how firms achieve agility in responding to disruptive digital innovations. On selecting the specific company, we have successfully obtained an IT firm that is regarded as the most innovative IT organization in Singapore in 2007. In this case study, we will focus on how the case company manages to achieve agility in responding to disruptive digital innovations and excel in the Asia Pacific region.

We adopted a qualitative research approach with a case study design (Pan and Tan 2011). The selection of the case was guided by the principle of theoretical replication (Yin 2003). The case study approach is appropriate for an exploratory study as it aims to address the "how" question (Walsham 1995); that is how a firm achieve agility in responding to disruptive digital innovations.

The firm achieved agility in responding to disruptive digital innovations with an increasing share of the international market. With this case, at least 15 face-to-face interviews with the key stakeholders are planned. The duration of the face-to-face interview is expected to be one to one-and-a-half hour. The interviews will be digitally recorded with the informant's consent. Additionally, we will request for secondary data such as newspaper articles, annual reports, project newsletters to supplement the primary data collected.

Our data collection techniques and analysis follow Pan and Tan's (2011) structured-pragmatic-situational (SPS) approach. We commenced the cycle by gathering the background information about the firm and the phenomenon of our interest (i.e. how do firms achieve agility in responding to disruptive digital innovations) through literature review. Next, we initiate interviews to generate fresh perspectives on the phenomenon of interest and progress to the preliminary stage of theorizing. With the constructs refined and data re-organised, we will go through a continuous framing cycle and collect additional data to seek corroborating evidence that transforms the conceptual framework and associated theoretical lens into a full fledged theory. The emerged framework will then

be validated through an iterative process of follow-up interviews to ensure congruence with both the empirical data and the existing literature (Pan and Tan 2011).

4 EXPECTED CONTRIBUTIONS & CONCLUSION

Our initial research contributes to the literature, theory and practice in several ways. Overall, our study makes two major contributions to the existing IS literature. First, this research offers a empirical study that explains how do firms achieve agility in responding to disruptive digital innovations. Second, our study offers to extend Lucas and Goh's (2009) framework of disruption response. In so doing, our framework can serve the underpinning for future advancement of theoretical knowledge in this area.

Beyond its theoretical implications, the findings from this study can also illuminate managerial practice. As the firms across different sectors experienced disruptive digital innovations, many of these firms do not have a strategy in place to deal with such turmoil, much less on how to take advantage of disruptive digital innovations to create an advantageous outcome for themselves. This research will hence yield useful insights into how firms achieve agility in responding to disruptive digital innovations.

Through this in-depth case study, we hope to contribute to the growing corpus of literature on disruptive digital innovations, especially in the Asian context where anecdotal evidence from the trade press and academic literature suggest widespread interest in remaining agile and relevant amidst disruptive digital innovations. As the current catalytic rate of digital technology breakthroughs and the intensifying emergence of disruptive digital innovations, understanding this phenomenon is becoming increasingly vital.

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