

# The Interface of IT Capabilities and Disruptive Innovations

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## Abstract

The occurrence of disruptive innovations tends to challenge the fabric, structure and capability that define firms facing their threat. Prior research indicates that the capacity of a firm to restructure and reconfigure its resources to face/leverage such turbulent situations is dependent on how well it can orchestrate its capabilities. Although IT capability has been identified as one of the essential capability of today's organisations, managers as well as researchers are yet to uncover the dynamics through which an organisation's IT capability can be leveraged in disruptive innovation situations. This paper contributes to our understanding in this direction by conceptually exploring the different roles of an organisation's IT capability in disruptive innovation scenarios. The paper provides a synthesis of the current state of knowledge about both concepts and extends this to highlight the different dimensions through which prior IT capability research could contribute to our knowledge of disruptive innovations. We advance the theoretical concepts of "disrupt-ability and disruptability" as dual dimensions of IT capability in disruptive innovation scenarios, that underscore the capacity of an organization's IT capability to serve as an enabler, a sustainer or a barrier.

**Keywords** Disruptive Innovation, IT Capabilities, Literature Review, Disrupt-ability and Disruptability

## 1 Introduction

There is an ongoing search for ways to respond as well as create Disruptive Innovations (DI). No definite formulaic answers exist yet, however several studies have given us insights that are valuable in dealing with DI situations (Govindarajan and Kopalle 2006, Markides 2006, Christensen and Raynor 2003, Sood and Tellis 2011). Although it can be implied that an organization's IT capability is one of the important elements in dealing with a DI situation, little or no study has been carried out to investigate how (and if) IT capability actually plays a role or contributes value (Lyytinen and Rose 2003, Baiyere and Salmela 2013). This paper is an attempt to provide a background study towards further research exploring the interface between an organisation's IT capabilities and DI.

Disruptive Innovations are innovations that erode the business, profitability, or market position of an incumbent organisation. DIs have challenged the survival of dominant companies and industries while propelling new entrants to positions of power. These dual extremes associated with DIs underscore the importance of this phenomenon to both practice and scholarly enquiry. Different management disciplines have engaged in studies to better understand DI, however, the voice of information systems is arguably lacking in this effort. With the pervasiveness of digitalization and information technology in today's organisations, it is logical to hypothesize that the IT capability of an organization will likely play an important role in disruptive innovation scenarios. Yet, next to no study can be identified in prior literature that has attempted to investigate the connection between a firm's IT capabilities and its potential to respond to a disruptive innovation or to enable the creation of such innovations. Furthermore, the occurrence of DI has also been considered a phenomenon with extreme consequences (Christensen et al 2003). For example, DI can be catastrophic to a dominant player in an industry and render its competitive advantage obsolete, while at the same time it can propel an emerging entrant from a non-existent player to the position of an industry leader. Research findings from the extant management literature have highlighted different ways in which DI can be approached in practice. Some of the key elements, in the discussion about handling DI have included the dynamic capabilities and resource based views (RBV). These two among others, have been presented in prior literature as valuable theoretical lenses that can be exercised in practice (Markides 2006, Henderson 2006).

Typically, organisations are composed of different resources and organisational capabilities. In an era characterized by ubiquitous influx of digital innovations, IT capability is arguably one of the core organizational capabilities that is necessary in situations characterized by disruptive innovations. With the pervasiveness of information technologies in today's organisations, the IT capability of an organization is poised to play an important role in disruptive innovation scenarios. It is worth acknowledging that responding/creating a disruptive innovation requires different organisational capabilities of which IT capability is one. Although, IT capability alone may not be sufficient to deal with disruption in the absence of other capabilities, prior research have shown us that it has a potential to contribute to our understanding of the DI phenomenon. Furthermore, with digitalization becoming more and more woven into the fabric of today's organisations, plus the ubiquity of information technologies in and around the organization, there exists a possibility that IT capability plays a research-worthy role in the creation and/or the response to disruptive innovations.

It is also worth noting that IS as a research discipline –which is situated at a junction between technical, social and management dimensions of information technology - is well positioned to provide valuable contributions in this area of enquiry from both the theoretical and practical perspectives (King and Lyytinen 2004, 2006, Hirschheim and Klein 2003, Benbasat and Zmud 2003). The impact of many disruptive innovation cases to both the organisations involved (and by extension - the society as a whole), is so profound that it should not be ignored particularly due to the extreme outcomes that typically follow. For example, the demise of the dominance of mainframe computer companies versus the rise of personal computers; the bankruptcy of Kodak (film photography) versus the rise of digital photography; the decimation of the global dominance of Nokia versus the rise of Apple from a state of bankruptcy to most valuable company, to mention only a few. The importance for IS scholars is even moreso due to the fact that a majority of disruptive innovations recorded in prior studies have also been information technology innovations.

A joint analysis of the interplay between IT capabilities and DI is necessary in order to bring to light the key value of information systems and technologies in scenarios of DI. A relevant observation is – why the IT capability of some organizations fail to adapt to DI while others thrive on such disruptions. This joint analysis extend the knowledge of IT capabilities with a focus on the peculiarities of DI situations. We therefore present this study as a step towards further scholarly studies aimed at contributing to knowledge about the interface between IT and the DI phenomenon.

This paper is an attempt to provide a step in this direction. Towards this aim, we advance the notion of *Disrupt-ability* (ability to disrupt) and *Disruptability* (ability to be disrupted) as conceptual constructs that characterize the possible role of IT capabilities. Essentially, the gap this paper aims to fill seats at the interface between existing knowledge about IT capability and what theoretical and practical value it brings to our disruptive innovation understanding. Therefore, the driving direction for this paper is to seek to understand the insights that prior IT capability research provides us in creating or responding to disruptive innovations.

## 2 Research Design

The paper has been designed as a conceptual study based on prior research and existing knowledge about the two concepts being examined. Typically, conceptual papers build on prior studies and rely on the strength of the presented reasoning accentuated by relevant examples and narratives. In a similar vein, this paper's research design follows the principles of a reflective review paper in order to arrive at a deep knowledge of what is known in the field in this area and as a step towards providing a useful synthesis of prior research. The review process employed is an adoption of the reflective hermeneutic approach proposed by Boell and Cecez-Kecmanovic (2014) which provides a useful lens to present a cogent articulation of the issue under investigation based on the key relevant prior research identified from the pool of literature. This gives the advantage of a terse and pithy presentation of prior research and gives room for more conceptual reasoning over the tendency to re-list articles. However, achieving this requires a thorough examination of all the identified studies in this area nonetheless.

To ensure that the key studies and all relevant articles are identified and reviewed, we have adopted, Webster and Watson's (2002) recommended approach. Webster and Watson's approach stipulates that a process of "Go-Forward" and "Go-Backwards" be employed for the literature search. Applying the Go-Backwards steps requires looking through the references cited by initial articles found. From the references, relevant articles are then selected based on title, then abstract and the main article contents. Additionally, most relevant articles were identified from how the context in which they have been cited within the article's main text. Similarly, our Go-Forward steps followed the same approach with the exception that going forward implies identifying articles that have been citing the articles identified. With the massive amount of literature on disruptive innovations, we focused only on articles that have addressed disruptive innovations in either (or combination) of two ways: *creation* of disruptive innovations and/or *response* to disruptive innovations.

It should be noted that our intent is not to claim to have adopted a systematic literature review but a conscious attempt to identify the key articles that extend our knowledge of the creation/response to DI in order to sufficiently provide a reflective review of what is known. The aim of our search is to identify the key relevant literature. We align with MacLure's (2005) position, which emphasizes the importance of studying and the dialogical interaction between the literature and the researcher; continuous reflection and questioning; critical assessment and imagination; argument development and interpretation, which are activities, aimed more at intellectual development rather than replicability (MacLure, 2005, Boell et al 2014, Hart, 1998). To get an overview of the knowledge generated on the topic of IT capability, we also employed a similar process for articles on IT capabilities with particular focus on how the capability has been construed to facilitate the creation of innovations and how it supports organisations in turbulent situations.

## 3 A reflective review of IT and Disruptive Innovations

### 3.1 Disruptive Innovations

Disruptive Innovations (DI) are innovations that are usually regarded by companies as unsuitable for their mainstream customers which however develops to a point that it becomes a threat to the esteemed position of such companies. They tend to begin with simplistic or tangential applications at the fringes of a market but gradually encroach into the mainstream market with a potential to eventually displace established market leaders (Christensen, 1997, Govindarajan et al. 2006, Baiyere and Salmela 2013). In the context of organisations, DIs typically bring different set of business rules to the business domain, which initiate a situation that makes incumbent organisations struggle. In many cases, these threatened organisations falter and end up losing whatever dominance they may have had in that industry/domain (Christensen 1997). The act of dealing with a disruptive innovation is akin to changing the wheels on a moving vehicle. A principal reason for this is because, dealing with the change may require making prevailing competencies and operational knowledge

redundant (Christensen and Raynor 2003; Henderson 2006). The dilemma for managers is how to embark on these changes that conflict with existing practices or traditional moneymaking mechanism of the firm. (Chandy and Tellis 1998). Perhaps of more value to forward thinking managers is – *how can we keep our capabilities amenable to the challenges of disruption?*

One of the ironies of disruptive innovations is that their occurrence in some industries have led to the displacement of prominent companies by unlikely new entrants or in many cases by innovations that are well within their means and capacity to create and even respond too (Christensen et al 2003). For example, UNISYS was disrupted in the mainframe era by minicomputers and subsequently by desktop computers, which had lower processing and storage capacities. Kodak, which was one of the leading pioneers of digital imaging, got disrupted by the wave of emerging digital cameras; also despite Xerox being accorded with the title of inventing the photocopying machines, it still got displaced as the market leader by Canon and other less-performing photocopying machines. Generally, Disruptive innovations challenges incumbents with multifaceted (and many times contradictory) choices and they present opposing performance measures from what the incumbent companies are traditionally used to (Bower et al. 1995).

It can be deduced that there are different nuances in the particular organizational capabilities synergies required for responding to a DI as well as for creating a DI. This is especially so when the opposing manifestations of a DI can be either negative or positive depending on which axis (creation or responding) an organisation finds itself. By their nature, DIs prompts a reshuffling of organizational status in an industry whenever they occur. For organizations facing DI, the impact can be extreme and in many cases irreversible. DI holds intense consequence for organisations involved with it – either as creators or as responders. The import of this extremeness is epitomized by the fact that a leading company can face the threat of irrelevance if not complete obsolescence, while on the other hand a successful new entrant can dramatically move from being practically non-existent to the ranks of a major player (Christensen & Overdorf 2000). These extreme consequences from both axis, highlights that it has become important for organisations to be strategically aware and alert to avert disruptive innovations that can potentially upset their projected sustenance.

### **3.2 IT Capabilities**

IT capability generally refers to the ability for organizations to: redesign processes, facilitate information management and fulfill knowledge sharing needs among many other benefits (Ramirez et al. 2010 & Mithas 2011). The term IT capability is largely drawn from the concept of Resource Based View Theory, Capability Based Theory and Dynamic Capabilities in the management field (Wade et al. 2004, Peppard 2004, Teece et al. 1997, Baiyere and Salmela 2014). The resource-based view (RBV) theory, which has been used in prior studies on DI, posits that the source of a firm's sustained competitive advantage depends on the internal resources of the firm. The RBV theory essentially states that a firm's competitive stand is as a result of its acquisition and management of valuable, rare, inimitable, and non-substitutable resources. (Barney, 1991). On the other hand, Dynamic capabilities which is a root construct closely related to this foregoing discussion, has been described as the ability of a firm to integrate, build, and reconfigure both its internal and external competencies in order to project and respond adequately in rapidly-changing environments (Teece et al. 1997).

Furthermore, apart from the resources of an organization, it has been established that the capabilities of today's organizations come from the attributes of their IT resources and IT capabilities (Hoopes & Madsen 2008). Thus IT capabilities can be particularly useful for firms operating in turbulent environments (Wade & Hulland 2004). Even if the IT capabilities do not lead the organization to a position of superior competitive advantage, they are nonetheless considered to be very important in attaining a position of sustained competitiveness in unstable environments (Pavlou et al 2010, Baiyere and Salmela 2014). This is particularly the case if the IT capability can help the organization to develop, integrate, and release other key resources over time (Wade et al. 2004).

With the versatility of the IT capability concept, it has been widely used in different studies. Some authors have used it in the context of Agility (Fink and Neumann, 2007; Lu and Ramamurthy, 2011), Organisational Change (Clark, Cavanaugh, Brown and Sambamurthy, 1997), Competitive Advantage (Doherty and Terry, 2009), Firm Performance (Bharadwaj, 2000), and Innovation (Pavlou and El Sawy, 2010), out of many other research perspectives. Prior research has thus, extensively shown that the IT capability of an organization contributes to its competitiveness, agility and ability to orchestrate its resources to remain innovative and responsive in a turbulent environment (Bharadwaj 2000, Peppard et al 2004, Overby et al. 2006, Mithas et al. 2011).

It is worth mentioning that IT capability evolved at a time when there was increasing question about the value or significant contribution of IT/IS to an organization. In overview, IT capability has contributed significantly in understanding how information technology remains a valuable component of any modern day firm (Santhanam and Hartono 2003). With the foregoing review of studies done under the IT capability research stream, it would be logical to expect that IT capability could be of value in bolstering our understanding of disruptive innovation from an IT perspective.

### 3.3 IT and Disruptive Innovations

Recent reviews of disruptive innovation literatures have highlighted two possible position of IT in the context of disruptive innovation studies (Yu and Hang 2010, Baiyere and Salmela 2013). The first and dominant point of view is to consider IT as the disruptive innovation (Nault et al. 2001). The second and largely under-researched perspective is the point of view of *IT as the creative source or asset for responding to a disruptive innovation*. This paper is a departure from the dominant view and a proponent for the latter view.

Although studies looking at the relationship between IT and DI is sparse, some notable exceptions exist in Lyytinen and Rose's (2003) and Sherif et al's (2006) empirical investigations. Lyytinen et al. (2003) presented a study of the actual role played by IT in DI regardless of the industry of occurrence and together with Sherif et al (2006), they extended knowledge of IT in disruptive scenarios from different perspectives. According to Lyytinen and Rose (2003), IT in DI can be classified based on the technology. They further advanced the concept of 'disruptive IS innovations' which refers to the modalities of applying IT in an organization such that it can exhibit radical breaks.

There are two perspectives of looking at IT from prior studies. Firstly there is the perspective that considers IT as the disruptive innovation (IT as DI). While the second viewpoint represents those studies that are concerned with the essence of IT in situations of disruptive innovation – either in creating or responding to it - regardless of whether the innovation is an IT innovation or not (IT in DI).

Furthermore, the connection between IT and DI can be inferred from prior studies. For instance, It has been established that the ability of organizations facing disruptive threats to reinvent their business process significantly determines the capacity of such organization to respond effectively (Sethi et al. 2003). According to Ramirez et al. (2010), the combination of an organizations process redesign and its' IT capability has been found to have a synergistic relationship. Many of such parallels are indicative of the implicit relationship between Information technology and the disruptive innovation construct. Additionally, many researchers have advanced some approaches for organizations to deal with DI. Some of which include – Business Model/Process Rethinking, Portfolio Diversification and the Ambidextrous Organization (Johnson et al. 2008). The need for a change in traditional business thinking/model is the key point surrounding the concept of disrupting and being disrupted. Despite being a relatively new topic of research, organizations have acknowledged it's impact (Tidd, et al. 2009 and Bower, 1995) and both practitioners and researchers are now delving deeper beyond its fundamentals. A budding achievement in the study of disruptive innovation is the efforts to understand how they can be consciously created by organizations.

Typically, DI tends to destroy the usefulness of the functional process knowledge of established firms, and since business process knowledge tends to be entrenched in the structure and information-processing procedures of established organizations, this disruption may be difficult for firms to correct. DI typically requires creating or redefining existing business process and the ability to do this is logically related to the IT capability of a firm. IT capabilities provide organizations with the ability to - restructure processes - enable information management and - achieve knowledge dissemination needs among several other benefits (Ramirez et al. 2010 & Mithas 2011).

## 4 Towards a Conceptual Framework of IT Capabilities in DI

In general, prior Information Technology and Information Systems Science research have shown that IT is a platform that fosters the creation and generation of different types of innovations; at the same time IT is also considered as an important leverage when responding to threats of emerging innovations. Logically, IT capability can be considered one of the cornerstone of the ability of any IT setup to achieve these. Also as highlighted from the foregoing discussion, the study of disruptive innovation can be unpacked in two routes – response or creation. It is thus logical that the capabilities required for creating a disruptive innovation would differ in nature from the capabilities required for responding to a disruptive innovation. Hence, based on this dual premise of IT and by extension IT capability vis-à-vis disruptive innovation, we advance a duality framework of IT capability as - "Disrupt-Ability" (ability to disrupt or stated as ability to *create* disruption) and "Disruptability"

(ability to be disrupted or *conversely* stated as the ability to *respond* to disruption). In essence, the framework (See Figure 1) posits that the IT capability of an organisation can be presented with respect to the dimension of disruptive innovation (creation or response) that it is poised to handle.

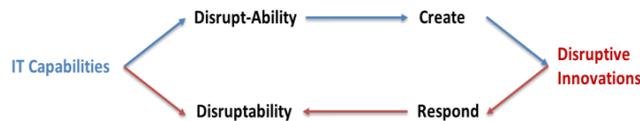


Figure 1. The Duality Dimensions of IT Capability in Disruptive Innovation

#### 4.1 Disrupt-ability

Disrupt-ability refers to the latency of an organisation's (IT) capability to enable it to create a potential disruptive innovation. The ability to come up with innovations in general has been shown to relate to the makeup and setup of the (IT) capabilities that defines an organization. With respect to IT capabilities, it is the forward-looking and proactive dimension of IT capabilities. Unlike some other organizational capabilities, IT capability is well positioned to contribute to innovation activities. The ability to leverage the potential to come up with an innovation with the attributes of a disruptive innovation is what underlies the disrupt-ability of an organization. As an example, Netflix leveraged the need to extend its existing operational IT capabilities as a launch pad for testing the waters with the launch of its online video subscription service. The process of developing and launching the digital Netflix service, relied on the innovation possibilities offered by the IT capabilities they had at that time.

It is worth noting that firstly, leveraging IT capabilities to create an innovation is not a new concept. Extending it such that it reflects the opportunity to create an innovation with disruptive attributes is a different paradigm. The conscious continuous questioning of the status of the IT capability as a means for generating a disruptive innovation, gives an indication of the function the IT capabilities disrupt-ability. The construct of disrupt-ability gives a notion that offers the potential to open new opportunities and also as a means for a counter response to an emerging DI threat. Furthermore, the disrupt-ability construct opens up an attack-as-a defence mechanism. It provides a lens with which the attribute of an IT capability can be exploited to generate innovations that align with the defined attributes of a DI. It is a function of how well an organization leverages the uniqueness and opportunities within its IT capability to launch disruptive innovations.

Theoretically, a key distinction between ability and capability is the future dimension of capabilities. While ability refers to what can be done that is known, capability refers to the capacity to do things that are yet to be tried. Therefore, IT capabilities are not limited to what has been done and tested in the past but it opens a window to what is possible. Disrupt-ability can thus be seen as a construct of IT capabilities that looks inward for what is possible within the limits of IT, in relation to the creation of an innovation with disruptive attributes that has the latency to influence an external market in a disruptive fashion.

#### 4.2 Disruptability

Disruptability in contrast to disrupt-ability, refers to the vulnerability and susceptibility of an organisations (IT) capability to succumb threats of a disruptive innovation. On a converse note, it gives an indication of the capacity of an organisation's (IT) capability to respond when faced by threats from a disruptive innovation scenario. With respect to IT capabilities, it is a dimension that explores the reactive nature of IT capability. Following the converse line of thought, the disruptability of an IT capability can be seen as a function of the degree to which it can support the response strategy and operations of an organization in the face of a disruptive threat. It thus conversely serves as a function of resilience, agility and flexibility of the IT capability in the face of a need to rapidly change and adapt to the environment. In other words, disruptability can be said to be a direct function of an organisation's IT disability as opposed to its capability. An example of disruptability is showcased in the degree to which Nokia's IT capabilities were able to enable them respond to the disruption they faced in the mobile industry. With a speedily declining market share and stiff competition from a newcomer in an area where Nokia has dominated for years, the disruptability of Nokia's IT capabilities can be reflected in its ability (or inability) to leverage its existing IT competences, processes and know how to turn the tide in its favour.

Disruptability encapsulates the perspective of IT capabilities that gives us a lens to examine how it contributes to how organizations fare with situations of disruptive innovation threats. It allows us to

examine different streams of IT/IS research that contributes to better understanding the role of Information technology in the disruptive innovation discussion. Importantly, while being proactive and exploring the ability to disrupt (disrupt-ability) is of value, the primary concern for many organizations would be the ability to respond or to be adequately prepared should a DI occurrence threaten their survivability – hence the value of the disruptability perspective.

### 4.3 Roles of IT Capability in Disruptive Innovations

The duality of IT capability as both an asset for the response and creation of disruptive innovations makes it a valuable organisational capability that is worth paying attention to. An examination of the positioning of IT capabilities in relation to DI, reveals that IT capability can essentially play a role in three possible dimensions in a DI situation (See figure 2). These three dimensions of the role of IT capability are: a) IT Capability as an enabler b) IT Capability as a sustainer and c) IT Capability as a barrier; in disruptive innovation situations.

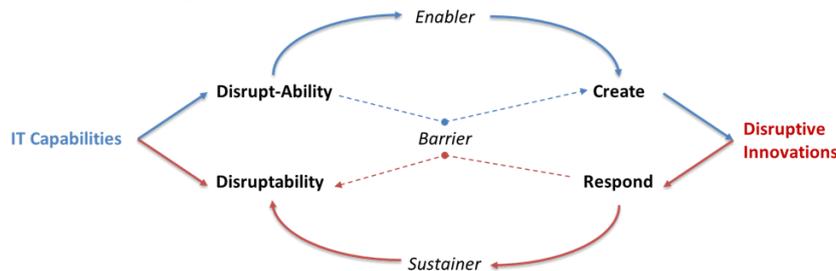


Figure 2. Possible IT Capability roles in Disruptive Innovation

**4.3.1. IT Capability as Enabler:** IT capability can unfold to an organization as an enabler if it allows the organization to leverage on it in order to create a disruptive innovation. This relates to the disrupt-ability perspective of IT capabilities. A typical example is the case of Apple who leveraged on its accumulated IT capabilities along with other capabilities to leapfrog from the creation of the Macintosh to the creation of the iPod which fed into the creation of the iPhone and subsequently the iPad.

Furthermore, as an enabler, IT capability unfold its value via its disrupt-ability attributes to either trigger the creation of the disruptive innovation or to facilitate the possibility for such innovations to emerge (See figure 2). For example, google had to unleash the potential of inherent in its IT capability to make provision for it to be a leader in the advertising industry. Although Google's initial focus was on its search engine, its profitability and related disruption of advertising was not achieved until it leveraged on existing capabilities to open a window into the world of advertising. This highlights the potential that could reside within the IT capability of an organisation as captured by the disrupt-ability construct.

DI scholars have highlighted that novel business models and adaptive organisational capabilities are essential in enabling the creation of a DI (Christensen and Overdorf 2000, Henderson 2006, Johnson). Similarly, IT/IS research has documented that capabilities such as IT proactive stance, improvisation, IT business spanning capabilities and Entrepreneurial alertness are important inputs of IT capability to the creation of innovations (Lu et al 2011, Pavlou et al 2010 and Sambamurthy et al 2003). By extension, it is conceivable that in the enabler role, IT capability can be unbundled into disruptive innovation via its disrupt-ability quotient.

**4.3.2. IT Capability as Sustainer:** This dimension reflects the role of IT capability as a sustainer where it represents one of the required cornerstones for responding, mitigating, and/or surviving the threat of a disruptive innovations. Unlike the enabler dimension, this relates to the disruptability perspective of IT capabilities. An example of a case of an organisations IT capability acting as a sustainer to a threat of a disruptive innovation is the response of Microsoft Office in responding to the disruptive threat of GoogleDocs. Despite GoogleDocs being generally acclaimed to have all the attributes of a disruptive innovation relative to MS Office when it was released, Microsoft was able to leverage on its IT capabilities to respond to Google's emerging threat.

Prior DI studies have demonstrated that surviving or sustaining against the threat of a DI requires a tweaking of organisational capabilities/competences and resource allocation in alignment with the nature of the disruption encountered (Bower et al. 1996, Henderson 2006, Christensen et al. 2000, Christensen et al. 2002). Likewise, in the IT/IS domain, studies have also highlighted capabilities such as organizational agility, dynamic IT capabilities, IT competences/personnel and strategic vision of IT

among others, as vital components of IT capability when operating in turbulent environments (Pavlou et al 2010, Bharadwaj et al 1999, Fink et al 2000 and Sambamurthy et al 2003). As illustrated in Figure 2, the role of IT capability as a sustainer is reflected in the disruptability function of the organisations IT capability. This brings to fore the question of - how prepared is the organisation's IT capability to sustain the company in the face of a disruptive innovation threat? The higher the disruptability measure, the more effort needed for the IT capability to contribute to sustaining the organisation against such threats. The sustainer role highlights the degree of agility, flexibility and adaptability of an IT capability to respond when confronted by turbulent times requiring swift and unconventional changes.

**4.3.3. IT Capability as a Barrier:** This is a dimension that reveals the negatives that can be associated with the role of IT capability in responding to a disruptive innovation threat or in the creation of a disruptive innovation. Consequently, it is a dimension that is present in both disruptability and disruptability perspectives of IT capability as depicted in Figure 2. This typifies a situation where an organization is unable to leverage its IT capabilities to provide an adequate response to a DI threat. In many cases just as the IT capability can be a leverage in surviving it could also be the clog in the wheel that hampers an effective response. This is atypical of cases where the IT capability succumbs to the trap of system embeddedness and rigidity. On a similar vein, IT capability could also lead to the stifling of the creation of disruptive innovations if not mindfully positioned.

Many reasons have been given to explain how an organizations structure and capability make-up hinders the organisation from succeeding in fending off a disruptive threat or in successfully coming up with the next big innovation (Christensen et al. 2000). Christensen and Overby (2000), articulated this in the question – where does capability reside? They highlighted that the lack of synergy in the different make-up of an organisational capabilities – resources, process and values – could stifle the ability to deal with disruption. Just as with other organizational capabilities, IT capability can also effectively become a barrier (Lu and Ramamurthy 2011, Nault et al 2000). In the barrier role, IT capability effectively becomes a disability. It could either unfold in the form of an IT capability that is lopsided – heavily strong in some regards and helplessly weak in some other dimensions – or a veiled capability that obscures the key capabilities required for turbulent situations/generating innovations – or it could be seen from the lens of rigid and un-adaptive IT capabilities.

## 5 Implications for Research and Practice

We present the Disrupt-Ability and Disruptability perspectives of IT capability as sensemaking constructs for analysing an organisations IT capability relative to disruptive innovation. It is positioned such that an organisation can:

- reflect its own potential to leverage its IT capabilities to enable the creation of DIs or
- reflect the contribution of its IT capabilities as a sustainer to respond when faced by a DI threat
- reflect on the avenues its IT capabilities could be a barrier to its ability to respond or create a DI.

While the presented sensemaking model is not detailed to provide practical actionable steps, it does however aim to provide practitioners with a better understanding and to afford better clarity on the relative state of their IT capability to disruptive innovation scenarios. We hereby present this conceptual framework to be further tested, advanced and empirically validated.

## 6 Conclusion

Despite the impact of Disruptive Innovation and its implied practical and theoretical value for IS research, there has been little studies carried out with this lens. Adopting IT capability as a relevant construct from IT/IS discipline, this paper provides a reflective review of what is known about DI and IT capabilities towards a step in opening up further scholarly enquiry in this direction. A reflective review of prior literature shows that there is a link between IT capabilities and DI. Building on this link, the relationship between IT capabilities and DI can be conceptualized by the advanced constructs of disrupt-ability and disruptability.

We additionally contribute to prior knowledge about the value of IT/IS to organisation by highlighting the three plausible dimensions of IT capabilities that makes them an enabler, a sustainer or a barrier when dealing with disruptive innovations. These three dimensions are presented as theoretical constructs underlying the concept of Disrupt-Ability and Disruptability of IT capability. The enabler dimension highlights, the role of IT capability in DI where the capability is being explored as a means of facilitating or triggering the generation of innovations with potential for disruptive attributes in the

market place. The sustainer dimension provides a lens for considering IT capabilities as a means of responding in situations where there is a threat due to a disruptive innovation. The barrier perspective provides a view of IT capability where the setup and composition of IT capability within an organisation, can effectively constitute a hindrance to a swift response to the threat of disruptive innovations and similarly as a barrier to the capacity to create such innovations. In contributing to practice, we argue that, managers need to assess their IT capabilities as well as their IT disabilities in order to thrive in an era of disruptive innovations.

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