

## Characteristics of Disruptive Innovations- Revisited



## Management

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### ABSTRACT

*This research focus is the descriptive review of 'Disruptive Innovation'. This secondary data based research paper aims to search more important or essential component among the various popular characteristics of Disruptive Innovation. The research paper concludes that an essential characteristic of the disruptive innovation (existing technology, business model or services) is its adoption or acceptance to a total or highly significant magnitude against the disrupted entity or system. The paper also addresses at least three types of actors involved in disruption, the entrants, the incumbents and the customers. The implication of the paper would be the encouragement of further research on disruptive innovations and further debate by practitioners and scholars.*

The term 'Disruptive innovation' was coined by Clayton Christensen to describe a process by which a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors/ products. An innovation that is disruptive allows a whole new population of consumers at the bottom of a market access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill. Characteristics of disruptive businesses, at least in their initial stages, can include: lower gross margins, smaller target markets, and simpler products and services that may not appear as attractive as existing solutions when compared against traditional performance metrics. Because these lower tiers of the market offer lower gross margins, they are unattractive to other firms moving upward in the market, creating space at the bottom of the market for new disruptive competitors to emerge. The conceptualization of the disruptive innovation theory has been around for almost two decades (Christensen 1997) and a many studies have been carried out to better understand and extend the theory. There are some noteworthy research papers which are clarifying the disruptive innovation theory and its misconceptions (Danneels 2004, 2006, Markides 2006, Tellis 2006). This research paper tries to focus on some of the myths about the concept. This paper describes about the claims that certain innovations are disruptive from beginning (Danneels 2004, 2006). This paper also questions the notion that by meeting some attributes of a disruptive innovation, an innovation automatically earns the title of a disruptive innovation (Palacios et al 2015). The authors argue that adoption is a necessary characteristic for an innovation to be labeled a disruptive innovation (Christensen and Raynor 2003). The implication of all these researches is that it is not enough for an innovation to only meet some of the established attributes of a Disruptive Innovation (Yu 2010, Baiyere 2014), but it should by the definition of a Disruptive Innovation (Christensen 2006, Govindarajan and Koppalle 2006, Baiyere and Salmela 2013) must also have gained sufficient acceptance that has proven it to be disruptive. (Christensen, Clayton; Disruptive Innovation, In a polarizing article, Lepore critiques Christensen's model of disruptive innovation, and finds little evidence of such processes, or that the examples of 'disrupted' firms Christensen refers to remain leading companies in their respective fields. She criticizes disruption as an inflexible pursuit of change. Lepore asserted that Disruptive Innovation is a theory of why some businesses fail, and not a theory of change, nor a mantra for progress and continual improvement and efficiency, while her arti-

cle was widely championed, from sources including the Economist and business Insider, many others challenged her analysis, including Christensen, and pointed to the evolution of the theory (and the analysis of the case studies) since Christensen's first publication. Many authors have contributed to the concept and applications of DI but few noted contributors have been shown in the table1.0.

**TABLE 1.0 showing noteworthy contributors to the concept of Disruptive Innovations**

Authors	Research Area	Main contribution to Disruptive Innovations
Hart and Christensen (2002)	Driving innovation from the base of the pyramid	Diffusion of Disruptive Innovation from the base of the market pyramid.
Adner (2002)	Demand-based view of the emergence of competition	Introducing demand base view of disruptive technologies
Markides and Charitu (2003)	Responses to DI	Talking about the incumbents' responses in the post-DI period
Christensen and Raynor(2003)	Innovators' solution: attention to technological point of view	Clarifying definition of DI
Daneels (2004)	Criticizing Christensen's initial concept of DI	Issuing eight cardinal critiques of Christensen's perspective on the concept of disruptive innovation
Christensen(2006)	Completing the notion of disruptive technologies	Replying to Daneels' critiques of disruptive innovation
Markides (2006)	In need of a better theory	Classification of disruptive innovations into different categories for better understanding of DI's concept
Schmidt and Druhel (2008)	Identifying a framework for DI	Different classification of disruptive innovations based on encroachment models
Yu and Hang (2009)	Reflective studies of the field	Historical literature review about DI and issuing questions for further research
Droege and Johnson (2010)	Limitation of DI	Limitations and criticisms of DI notions

**Adoption is essential for the title of 'Disruptive Innovation'.**

In essence, the concept of an innovation being a Disruptive Innovation is very much dependent on its adoption and more so how disruptive that adoption is to a particular actor (market, innovation or organization). This paper therefore calls discussion on the concept of "Disruptive Innovation by design". We mentioned that an innovation may be disruptive through design by satisfying some characteristic of a Disruptive Innovation, though it is at best a "potential disruptive innovation" (Baiyere 2014) until it has gained sufficient adoption and another entity has lost sufficient adoption (Christensen and Overdorf 2000, Nault et al 2000). Google-docs was acclaimed to be a Disruptive Innovation by design against the dominant Microsoft Office. But even a decade after its launch, Google-docs cannot be said to have disrupted Microsoft Office but rather it has incorporated advanced features into a competitor's product. Similarly, the Tata Nano car was largely received as a Disruptive Innovation by design positioned to disrupt the lower segment car in auto car Industry but its underwhelming adoption is an indication that the Nano car is far from being the Disruptive Innovation. Though above products never became disruptive as were considered on their inception, they had a number of the features of being a 'Disruptive Innovation' but due to insufficient adoption these could not acquire the title of 'Disruptive Innovations'. To support this view- the principle of innovation adoption; innovation diffusion and market adoption have also been well documented in prior research (Boehmke and Witmer 2004). The dynamics of innovation adoption has been also studied and considered to be an important determinant of the success of an innovation (Govindarajan, Kopalle, and Danneels, 2011). This research aims to increase the understanding of the Disruptive Innovation theory by emphasizing the importance of acceptance as the often ignored element of the Disruptive Innovation equation. The authors present this study as an appeal for researchers and for practitioners to enable the assessment and classification of an innovation whether it is a disruptive or not driven by adoption apart from other characteristics. This would help practitioners to make decisions and for researchers to re-examine the essential assumptions for future Disruptive Innovation related research. The goal of this research is to extend the understanding of which criteria make an innovation-a Disruptive Innovation. This study is designed as a descriptive research to discover the role of acceptance as a characteristic for an innovation to be considered as a Disruptive Innovation relative to other established characteristics of a disruptive innovation. This paper is a review of academic literatures and the review of publicly existing case examples. To initiate the study, we get on a prior literature review to collect the different definitions and characteristics that have been acknowledged in prior research (Webster and Watson 2002). In addition, the literature review was also a valuable way to generate a list of innovations that have been called as a Disruptive Innovation in earlier research. This created a background for building up the research and for selecting the few examples to be examined. Few examples were preselected from the literature review like, Google-docs, Nintendo Wii, Smart phones- iPhones v/s Nokia and Digital Imaging-Digital Camera v/s Kodak, 3D Printing and Uber. The table 2.0 is constructed by authors to show these examples.

**Table 2.0- Showing examples of Disruptive Innovations**

Disruptive Innovation	New Business Model	Comparable Existing Product / Business Model	Prior Research
Voice over Internet Protocol (VoIP); voice over wireless local area network (VoWLAN) via GPRS/3G	A flat rate subscription business model via IT terminators	Voice via GPRS/3G network - airtime per minute based business model	Habtay (2012); Madjdi and Huesig (2011); Huesig, Hipp and Dowling (2005); Christensen, Anthony and Roth (2004).
Instant mobile messaging (IMS), social networking on Java software application using the GPRS / 3G packet data	Social networking via membership subscription	Short Message System-charging per SMS business model	Habtay (2012); Madjdi and Huesig (2011); Huesig, Hipp and Dowling (2005); Christensen, Anthony and Roth (2004).
Internet- mobile banking (M-banking) Internet, USSD and WAP technologies platforms that processes virtual transaction on any cell-phone via any mobile network operator	Mobile low-cost high volume banking	Full-service branch based banking model	Markides and Charitou (2004). Christensen et. al., (2004).
Direct low-cost short-term insurance model	Direct low-cost short-term insurance model	Full-service broker's based business model	Markides and Charitou (2004).
Direct low-cost airlines model	Direct low-cost airlines model	Full-service agent based business model	Raynor, (2011); Christensen et. al.,(2004).

The five selected disruptive innovations are: i) Voice over Internet Protocol technology, alternatively known as voice over wireless local area network, ii) Mobile social networking technology that runs on java software application. These two technologies transmit Internet voice and data communications via the Internet over GPRS/3G Mobile Networks and Public Switched Telephone Networks. Research has already identified these innovations as Disruptive Technologies to the mobile cellular and fixed-line communications (Habtay, 2012; Madjdi and Huesig, 2011; Huesig, Hipp and Dowling, 2005). Iii) Low-cost no-frills airlines' business model, iv) Online direct insurance model, and v) Internet and mobile banking. Earlier research have identified these innovations as Disruptive Business Models (DBM) to the full-service mainstream business models in the airlines, insurance and banking industries (Raynor, 2011; Markides and Charitou, 2004; Christensen et. al., 2004). After selecting the few examples to focus on, we proceeded to source for more information about these examples. Publicly available data has been exploited for each and every example. Through finding it has been revealed that an innovation may have every other characteristic of a Disruptive Innovation but if it doesn't have adequate level of acceptance or adoption, it cannot be considered as a Disruptive Innovation. This is because Disruptive Innovation is a relative phenomenon by definition (Govindarajan and Kopalle 2006, Schmidt and Druehl 2008). For an innovation to be disruptive, an identifiable actor that has been clearly disrupted should exist. Without, this relativity condition,

an innovation cannot be effectively said to be a Disruptive Innovation. Consequently, for any organization to be declared disrupted, its demand should significantly decline in the market in such a way that declined demand affects its position, profitability and in some cases its survivability in that industry. By extension for an organization to drop in market share due to another innovation, means that the innovation must have influence into the market domain of the disrupted company. This could either be by pull out the market away (iPhones), eating into the market (Uber) or expose the company's offering relatively unattractive or completely obsolete market (Kodak and 3D printing). These patterns can be readily identified in all cases with varying degrees. This logically indicates that it could be the core components for an innovation to be truly disruptive. Subsequently, the paper ventures at advancing a model of a Disruptive Innovation anchored on the necessity of acceptance as one of the key elements and determinants of a Disruptive Innovation. The literature review evaluated the broad range of published literatures relating to the key issues and technologies being referred with the forthcoming technology and its relevance do disruptive innovations, the concept of Disruptive Innovation is indeed alluring however it has limited practical use since it cannot be generalized across industries, technologies, business models and products.

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