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The Disruption Dilemma

Unplugged - Book review essay

Joshua GANS (2016), Cambridge, MA: MIT Press.

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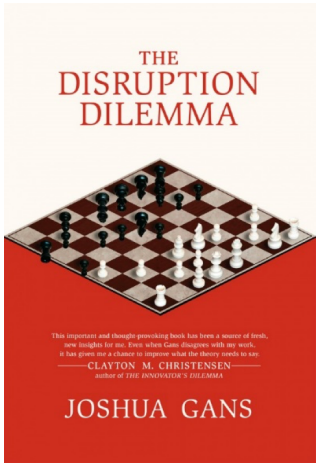

"Tell me what disruption is" reviewed by

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Since its birth, management science has been greatly concerned with the social utility of its outcomes: meeting the needs of firms (Hambrick, 1994; Hamet & Maurer, 2017). It is therefore surprising that an "academic construct"[1] which has been so widely disseminated among managers has been so criticized. Popular since the publication of Christensen's seminal works (1995, 1997), "disruption" has become one of the most widely disseminated constructs in the academic and public spheres. Christensen is one of the most influential business thinkers: Thinkers50 ranking; a Google query yields more than 33 million results; and managers and policy makers refer to the term "disruption"[2]. Criticism of disruption (in particular of Christensen's theory) are severe and relate to both conceptual (ambiguity and analytical inconsistency) and practical (lack of predictive power and of supporting empirical evidence) issues (Danneels, 2004 ; Henderson, 2006 ; King & Baatartogtokh, 2015; Lepore, 2014).

Despite Christensen's response to these criticisms[3], it remains difficult for practitioners and researchers to understand the complexity, validity and practical implications of disruption.
In his book *The Disruption Dilemma*, Joshua Gans (2016) has made a considerable effort to provide an impressive synthesis of works on disruption, whether they use this term or not. Gans, a Professor of Strategy at the Rotman School of Management, University of Toronto, is one of the most influential researchers in innovation, with renowned publications on the economic determinants of innovation and scientific progress, and markets for ideas and strategies for the commercialization of innovation. In this book, he proposes a broader and more reflective view of disruption through a combination of theoretical (modeling), qualitative (case studies)

1. "Academic construct" is used to refer to an object or form used by researchers to formalize and communicate scientific knowledge (theory, framework, tool, etc.) (Warnier et al., 2015).
2. The French President Emmanuel Macron announced in an interview with Forbes "I want my country to be open to disruption and to these new models" www.forbes.com/sites/randalllane/2018/05/01/exclusive-french-president-macron-says-he-will-end-frances-notorious-exit-tax/#76a7512b1d2b .
3. The numerous criticisms he received led Christensen to reply in an article entitled "What Is Disruptive Innovation?" in which he explained that his theory was a victim of his success and called for "refinements" (Christensen et al., 2015).

and quantitative (sectoral studies) perspectives. By doing so, Gans provides the clarity required for understanding an important and often cacophonous subject.

The book is structured around eight chapters (in addition to an introduction) and explains the sources of disruption as well as strategies to deal with it.

Chapter 2 defines disruption and distinguishes it from other factors that lead to the failure of established firms, "incumbents", (for instance managerial frauds). The author introduces a new definition of disruption as a phenomenon that occurs "*when successful firms fail because they continue to make the choices that drove their success*" (Gans, 2016: 9). Disruptive events, the author explains, come from two sources: demand (low-end market) and supply (a new architecture). While Christensen explains incumbents' disruption as being the result of their rational choice not to adopt a "low-performing" technology that is not desired by their current customers, Gans points to the inability of incumbents to adapt as another source of disruption. This alternative explanation is inspired by the results of Rebecca Henderson and Kim B. Clark (Henderson & Clark, 1990) on architectural innovation[4]. These authors found that incumbents fail when they are unable to internalize and introduce a new architectural innovation. The "competence" or "capability" explanation of disruption highlighted by Gans is interesting and has been suggested by other researchers such as Danneels (2004) and Henderson (2006).

Gans suggests two types of disruptive innovations: demand-side disruption (disruption "*à la Christensen*", i.e., innovation that originates in the low-end market) and supply–demand disruption (disruption "*à la Henderson*", i.e., disruption that is induced by a new architecture troubling the incumbent organization). This typology is the cornerstone of the analysis developed throughout the book.

Chapter 3 deepens the discussion of the different sources of disruption and shows the multifaceted character of the disruption phenomenon. The author refers to various works (Ron Adner on the impact of price and Michael Tushman on the role of dominant designs) and illustrates, using the case of the mobile phone industry, how disruption can originate from the demand and/or supply side[5]. Taking this broad perspective, the author considers various elements missing from Christensen's theorization but which remain important for understanding the triggers of disruption. By proceeding in this manner, Gans provides an interesting explanation of how the leaders in the mobile phone industry were disrupted (a case that Christensen's theory has failed to explain).

Chapter 4 tackles the complex issue of predicting disruption. For the author, uncertainty is inherent in disruption "*à la Christensen*": it is hard to anticipate if (and how) the performance of an innovation introduced by a new entrant to a low-end market will reach the standard required by an incumbent's customers. This uncertainty is precisely what creates a dilemma for the incumbent: should he react to an event that may or may not turn out to be disruptive, especially when the reaction involves abandoning the choices that made the incumbent successful? Furthermore, the multiplicity of sources of disruption makes the task of

4. "The essence of an architectural innovation is the reconfiguration of an established system to link together existing components in a new way. Architectural innovation is often triggered by a change in a component – perhaps size or some other subsidiary parameter of its design – that creates new interactions and new linkages with other components in the established product… Architectural innovation presents established firms with a more subtle challenge. Much of what the firm knows is useful and needs to be applied in the new product, but some of what it knows is not only not useful but may actually handicap the firm. Recognizing what is useful and what is not, and acquiring and applying new knowledge when necessary, may be quite difficult for an established firm because of the way knowledge, particularly architectural knowledge, is organized and managed" (Henderson & Clark, 1990: 12–13).

5. This choice is interesting because Christensen failed in predicting the future of this industry on the basis of his theory (see "Why Clayton Christensen Worries About Apple" – Forbes, 2012).

predicting difficult, even impossible. Through the cases of Polaroid and Kodak, the author shows the complexity of predicting the evolution of an industry despite the efforts of incumbents to identify the source of the disruption. Nevertheless, Gans details some of the characteristics of the industries that may be subject to disruption (industries with significant inefficiencies compared to existing technological opportunities and/or industries dominated by monopolies or oligopolies that leave unserved market segments), and he highlights the benefits of "wait and see" as a response to uncertain disruption as well as the role of holding key complementary assets as protection against disruption.

Chapters 5, 6 and 7 discuss the management of disruption and the set of strategic options available to incumbents.

Chapter 5 tackles the reactive options for managing disruption. The author discusses two options: competition by "doubling-down" (i.e., aggressive investment in the new technology) or by "doubling-up" (i.e., alignment with the efforts of the disrupting competitor), and cooperation by "buying-up" (i.e., acquisition of the disruptor or in-licensing its technology). These are illustrated by cases from different industries (smartphones, search engines, and speech recognition) to show the wide variety and usefulness of these options. For the author, they are adapted to and valuable for managing disruption "*à la Christensen*".

Chapters 6 and 7 are dedicated to the proactive management of disruption. In chapter 6, the author discusses the benefits and limitations of the solution to disruption recommended by Christensen. For Christensen, an incumbent must create an independent entity to compete on a similar basis with the disruptor in the low-end market. This is summarized in one word: separation. The power of this idea has spread beyond the academic community, as evidenced by Christensen's business consulting activity. For Gans, this strategy is not free of risks. Through the cases of IBM and BlackBerry[6], he shows that separation can postpone the challenge of disruption instead of solving it because top management has to deal with problems of coordination and conflicts between the new separate entity and the rest of the organization.

The chapter 7 discusses an alternative strategy to Christensen's solution, i.e., integration[7]. Using the results of research on the photolithographic alignment industry[8], Gans shows that integration is an effective response to anticipating the risk of disruption since it involves a continuous organizational evolution that allows firms to assimilate emerging innovations. For the author, the risk of disruption intensifies when a firm specializes teams by modules (subparts of a product) and focuses on the development of modular knowledge. Integration promotes the development of a high level of architectural knowledge and facilitates its evolution during the transition from a technological generation to another one. However, this solution creates another dilemma: short-term leadership enabled by developing modular knowledge (i.e., what is allowed by separation and specialization) versus long-term sustainability enabled by developing architectural knowledge (i.e., what is allowed by integration).

6. It should be noted here that the managers of RIM (BlackBerry's parent company) were inspired by Christensen's book *The Innovator's Dilemma* when thinking about which strategy to adopt against Apple. (See Castaldo 2012).

7. The integration discussed in the book is largely inspired by Henderson's work. It involves: a) closely linked teams operating in heavyweight projects; b) staff rotation between the different areas of development (optics, mechanics, electronics, etc.); and c) closeness between, on the one hand, the top management team and the development teams and, on the other hand, between the company and its customers. It can be approximated to an organic structure in the sense of Burns and Stalker (1961).

8. This industry develops important components (usually at least 30% of the cost of a new facility) used for manufacturing devices (for more details see Henderson and Clark, 1990).

Chapter 8 is probably the most interesting for researchers who have sought the truth about disruption following the recent severe criticism (King & Baatartogtokh, 2015; Lepore, 2014). Gans presents and discusses the research relating to the hard drive industry (the initial industry examined by Christensen), whether it claims to be studying disruption or not. This analysis is interesting because Gans presents different elements (the role of experience, origin of disruptors, etc.) that are crucial for understanding the competitive dynamics and their implications for incumbents, yet which are missing from Christensen's conceptualization. Gans explains that understanding the failure (or not) of incumbents requires consideration of these "missing" elements as well as options for managing disruption.

Hence, the author reveals a more complicated view of disruption than has been previously discussed. In my opinion, this chapter will help scholars to think of disruption differently because failing to observe the consequences predicted by Christensen's theory (i.e., failure and disappearance of established firms) does not mean that its causes are absent (i.e., disruptive forces). This is where I find this chapter to be the most interesting from a research point of view.

In the final chapter, the author decries the various attempts to twist "disruption theory" to predict the decline of the leaders in any industry (starting with Christensen himself when he predicted the failure of the iPhone) and invites managers and researchers to focus on the management of disruption instead of challenging its existence and/or its importance.

Personally, I found that the book recognizes and explains many important elements of disruption, particularly its multifaced character and non-fatality if we consider the various reactive and proactive strategies to cope with it. The book naturally has some limitations, which are inherent in any work as ambitious as that undertaken by the author. In my view, there are three points that are relatively under-developed in the book and that open up promising avenues for research.

The first of these relates to the role of complementary assets as protectors against disruption. Using the case of the typesetting industry, Gans (2016: 10) argues that "*some firms may be shielded from disruptive events because they possess key complementary assets, the value of which is not changed and may be enhanced by those events*". However, the findings of research conducted by Rothaermel and Hill (2005) suggested that what is "key" is unclear. These authors studied the impact of technological discontinuities on the performance of incumbents by considering the type of complementary assets (genetic versus specialized) required for the commercialization of a new technology. They demonstrated that, depending on their type, the value of the complementary assets of incumbents can be enhanced or destroyed under technological discontinuities. In the computer and steel industries, incumbents held generic assets whose value was destroyed by technological change. However, the value of specialized assets held by established firms was reinforced by technological changes in the pharmaceutical and telecommunications industries. Rothaermel and Hill (2005) concluded that the impact on the performance of incumbents declined if the new technology could be commercialized through generic complementary assets, but it improved if the new technology could be commercialized through specialized complementary assets. These results clearly indicate that not all complementary assets protect against

disruption. Explaining how and when different types of complementary assets can protect incumbents against disruptive events is a promising research question.

A second point concerns the challenges of implementing reactive strategies, notably the buying-up option, in the case of disruption "à la Henderson". Incumbents' difficulties are organizational ones, as was highlighted by Henderson and Clark (1990: 13): "Architectural innovation presents established firms with a more subtle challenge. Much of what the firm knows is useful and needs to be applied in the new product, but some of what it knows is not only not useful but may actually handicap the firm. Recognizing what is useful and what is not, and acquiring and applying new knowledge when necessary, may be quite difficult for an established firm because of the way knowledge, particularly architectural knowledge, is organized and managed".

Therefore, a firm managing this type of disruption by "buying up" is confronted with the thorny issue of whether to integrate (or not) post acquisition. In other words, how does one merge and align two organizations structured around two conflicting architectures: that of the disruptor, organized around the new architecture, and that of the disrupted, organized around the old architecture? This issue is important not only for scholars with an interest in disruption but also for those who wish to examine the post-acquisition integration process (Colman & Rouzies, 2018; Marchand, 2015).

A third less-explored aspect of disruption relates to the disruptor itself. The literature on disruption has mainly addressed the "disrupted side" of the phenomenon and has rarely informed the strategies adopted by disruptors or their challenges (Ansari et al., 2016, 2018). Gans indirectly approached this issue by referring to the results of his and his colleagues' research on the automated speech recognition industry (Marx et al., 2014). Their findings show that disruptors can adopt a dynamic strategy involving product market entry before switching to a cooperative commercialization strategy. In other words, disruptors compete with incumbents by commercializing their own products to prove their value, but they cooperate with incumbents through licensing or acquisition deals once uncertainty around their innovation value dissipates.

However, it is hard to conclude that coopetition is a systematic valuable strategy for the disruptor. Indeed, the limited existing research on the "disruptor side" of the phenomenon is mixed: some studies have found a similar pattern, while others have not. Ansari et al. (2016) observed the existence of coopetition between disruptors and incumbents: their study of the challenges faced by Tivo in introducing a disruptive innovation (the digital video recorder) to the US television ecosystem revealed that the disruptor was confronted by three emergent coopetitive tensions (intertemporal, dyadic and multilateral) that required continuous strategy adjustment. However, the research conducted by Snihur et al. (2018) on the disruption of the CRM (Customer Relationship Management) industry by Salesforce innovation (a cloud-based software service) did not demonstrate the existence of such a strategy: the competition between Salesforce and Siebel (the incumbent) was not followed by cooperation between the two. These mixed findings raise an important issue: under what structural conditions does coopetition between disruptor and incumbent emerge? I believe that exploring what allows or inhibits the emergence of coopetition between disruptors and incumbents would be a

fruitful research avenue for expanding our understanding of both the disruption phenomenon and coopetition strategies (Cozzolino & Rothaermel, 2018; Robert et al., 2018; Yami et al., 2016).

Notwithstanding these quibbles, Joshua Gans brings forward a well-documented and intelligible piece of knowledge on the disruption phenomenon. *The Disruption Dilemma* is timely for researchers and managers who want to learn what disruption is, how it happens and how to deal with it. As well as recommending it to non-specialist colleagues, I highly recommend the book to anyone interested in innovation and corporate strategies. The research avenues I have highlighted invite researchers to explicitly link different research streams (disruption, mergers and acquisition, coopetition) to minimize the tendency to knowledge fragmentation, which limits our ability to address the complexity of these strategies.

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