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Disrupted Disruptions: Lessons from Potential Disruptive Innovations that barely disrupted

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Abstract: Some potentially disruptive innovations (DI) will either not survive long enough or will not sustain their momentum sufficiently to eventually become disruptive. What value can we then extract from these occurrences to better understand how to sustain a potential DI? Conversely how does this phenomenon contribute to our knowledge of dealing with threats of disruptive innovation? This paper advances the concept of disrupted disruptions and reveals the surrounding elements and traits that can make an innovation with a disruptive promise to loose such potential. It also gives us understanding of how an innovation may lose such capacity due to the characteristics of the innovation itself or the responding actions of the industry/company being disrupted. The paper further present four propositions based on which a model - DIVE was then developed to conceptualize the characteristics and response attributes that characterize disrupted disruptions.

Keywords: Disruptive Innovation; Disrupted Disruptions; DIVE Model; Adoption Velocity; Information Technology; Change.

1 Introduction

Often times an innovation is introduced with attributes that seemingly qualifies such an innovation to be labelled a potential disruptive innovations. However over time, rather than developing to a fully disruptive innovation, many of such innovations tend to lose the disruptive potency with which they were associated at the onset. While some do not live long enough before they are themselves disrupted, others on the other hand, could not persistently maintain that disruptive potential to the degree necessary to become truly disruptive.

Many innovations are often quickly labelled as disruptive particularly when there are traits matching the definition of disruptive innovation postulated by Christensen (1997). For example, Google Docs was acclaimed as a potential disruptor for the dominant Microsoft office (Hang et.al. 2011) but it is yet to live up to the status. Minicomputers also potentially disrupted the mainframe, but not long enough to withstand the disruption of the personal computer which prior to its emergence was literally non-existent.

Typically, when disruptive innovation occurs, they usually hold extreme consequences for the organisations involved. The significance of this extremeness is typified by the fact that a leading company can face the threat of irrelevance if not complete obsolescence while disruptive innovations can equally propel a non-existing

company to the status of a major player (Christensen & Overdorf 2000). The challenge for organisations, particularly leading companies in their industry is how to identify and respond appropriately to innovation threats of a disruptive nature. It has therefore become important for organisations to be strategically aware and alert to avert disruptive innovations that can potentially upset their projected sustenance (Crockett, McGee and Payne 2013).

Logical questions to then consider includes: what makes an innovation disruptive and how can we assess the potential of an innovation to be disruptive? (Danneels 2004) Perhaps a question of more practical relevance to managers would be – how can a potentially disruptive innovation threat be prevented from resulting in a catastrophe?

Current Understanding

There has been a number of established and documented academic research on the concept of disruptive innovation (Govindarajan & Kopalle 2006; Danneels 2004 and Christensen 2000). Very few studies have however focused on examining the lessons that could be learnt from innovations that were considered as potentially disruptive on several measures which eventually end up not being disruptive or where themselves disrupted. Several issues are still open to be investigated to deepen our understanding of the disruptive innovation phenomenon and the dynamics of an innovation maturing from being potentially disruptive to becoming actually disruptive (Danneels 2004). With this research, the aim is to build on the disruptive innovation discuss to extend knowledge in this area specifically following the calls by Danneels (2004) and Markides (2006).

Research Question

The aim of this research is to investigate why potentially disruptive innovations which have been analysed to be disruptive relative to an industry/product fail to achieve that status despite the initial promise on several measures. In attaining these objectives, some of the underlying questions examined include:

- What are the key attributes and theoretical background that characterizes disrupted disruptions and potential disruptive innovations?
- What lessons can we extract from these occurrences that other managers facing threats of disruptive innovation can find valuable?

2 Methodology

This paper is a result of a two-step research process. The general research design is closely modelled after the approach adopted by Yu and Hang (2011). The first process involves a review of prior research via an academic literature review plus available media and archival data. The second process involved two qualitative interviews which are detailed in this section. Firstly, the literature review[1] was carried out to identify innovations that have been labelled as disruptive from prior academic research. The

[1]Due to space limitations, further details and tables from the literature review are available on request.

methodology adopted for this process follows an adaptation of the guidelines outlined for conducting a literature review provided by Okoli & Schabram (2010) and Webster & Watson (2002). This study employed an analysis of articles returned from two academic journal databases - Science Direct (Elsevier) journal database and EBSCO Host journal database.

This involved searching the databases with the keyword 'disruptive innovation' and subsequently collecting articles that specifically were referring to disruptive innovation in the context of one or more particular innovation examples rather than general disruptive innovation discussions. This pre-selection mostly involved the title and the abstract of the returned articles. From the selected articles, a list was made highlighting different examples of innovations that have been labeled as either a DI or a potential DI. This list provided the starting point for this study. The review also provided the academic framework under which any pre-identified innovation in prior literature has and/or can be considered as a disruptive innovation and by extension – a disrupted disruption. The literature review additionally provided a source for collecting a list of innovations that have been considered disruptive or potentially disruptive from the perspective of academic research.

In addition, the decision to proceed further to examine archival data is due to the nature of the research questions and topic under consideration. The archival data were valuable secondary sources of data to assess and confirm the relative disruptive status of innovations that have been earlier predicted to be of a disruptive potential. This process was more targeted as further secondary information was sought for most of the innovations that were unfamiliar in the compiled list. This helped to make an initial screening of the collected examples and to confirm the present status of the DI examples and to better assess if the example is indeed a DI, a potential DI or a case of a failed DI. An extensive collection of data spanning different industries and product history were gathered to facilitate the analysis from which the proposed disrupted disruption framework advanced for this paper has been deduced.

Furthermore, in addition to the aforementioned data sources, a number of expert interviews were conducted to acquire insights from practitioners involved on the innovation examples that were finally included in our analysis. These interviews were useful in understanding the why's, how's and what if's (Yin 1994) that surrounds the notion for a particular innovation to have been deemed potentially disruptive as viewed from their foresight/hindsight. These qualitative technique of interviews most suitably fits this need due to the nature of answers required which depended on the intrinsic knowledge of the participants of the interviews (Eisenhardt 1989).

Nineteen (19) interviews were conducted over a period of three (3) years. The first interviews were conducted in 2011 involving thirteen (13) managers with Innovation responsibilities or research related responsibilities in (10) leading multinationals across different industries. This provided foresight answers to a test scenario of what innovations were considered likely to move from being potential DIs to actual DIs from the list. The next sets of interviews were conducted in 2013 with six (6) executive level managers with innovations and IT as their domain of expertise. These second set of interviews were now aimed at assessing their expert opinions from hindsight on the potentially disruptive innovations from the list that could be considered to have truly transcended to the status of an actual DI or if they have fallen short of that label – hence

becoming disrupted disruptions. The insights and knowledge gathered from the interviews thus provided the basis for answering research question two.

Lastly, to test the broad acceptability of the disrupted DI examples and gather further data on other possible cases of disrupted disruptions, a workshop with 36 participants was organized on the concept of disruptive innovation, disrupted disruption and potential DI. The participants were then requested to make a list of examples (with reasons) that they consider to be clear cases of disrupted disruptions and potential disruptive innovations. This phase of the research served as a triangulation measure to confirm and further analyze our preliminary findings and to tune the lessons learnt for practical relevance to practitioners as well as the academic society (Eisenhardt 1989).

In summary, this paper builds on an extensive body of academic literature, historical articles, industry publications, archival data and interviews on the topic of disruptive innovations especially the evolution of potentially disruptive innovations.

3 Results and Discussions

Conceptualising Disrupted Disruptions and Potential Disruptive Innovations

Due to the nature of disruptive innovations, they generally cannot be truly labelled as such ex ante (Christensen 2006, Markides 2006, Daneels 2004). Also, according to Christensen (2006) and Govindarajan Koppalle (2006), DI is a relative phenomenon, which therefore implies that it is not sufficient for an innovation to only have the attributes of a DI to actually qualify as a DI. For an innovation to thoroughly qualify as a DI there needs to be what it has been disruptive relative too. For example, for each disk drive disruption there was a generation of disk drives being disrupted (Schmidt and Druehl 2008 and Christensen 1997); for the disruption of the PC computers, there was a mainframe computer disrupted. In other words before an innovation has a clearly identifiable organisation/product that it has disrupted, it can only at best be considered a *potential disruptive innovation (PDI).* Therefore, when an innovation with tendencies and attributes of a disruptive innovation is introduced, it is logical to pronounce such an innovation as a potential disruptive innovation until what it is disruptive relative to is clearly adjudged as disrupted.

The concept of PDI becomes relevant if we consider the different cases of acclaimed DIs that really never disrupted. These PDIs that eventually fall short of being termed DIs are what we effectively refer to as *disrupted disruptions (DD).*This then leads to a logical consideration of the possible paths of a PDI as illustrated in figure 1.

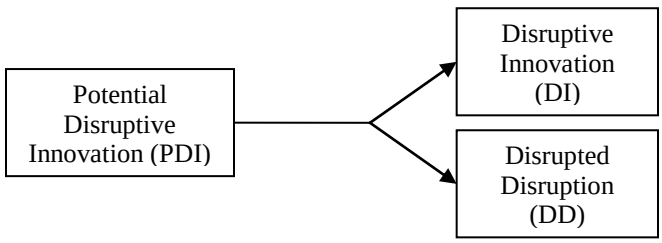

Figure 1 The possible evolution path of a potential disruptive Innovation.

The key distinction between a DI and a DD is dependent on if what the PDI was poised to disrupt is eventually disrupted. This is due to the fact that the relativity of the DI construct implies that the subsequent disruption process is not completely dependent on the Innovation or the creator of the innovation alone but it is also dependent on the actions and response implemented by the responding/threatened organisation. This therefore implies that while an innovation might be disruptive by design, its eventual path from the PDI position to either DI or DD can be influenced by the actions of the organisation to which it is potentially disruptive too.

The implication of this path view to the emergence of a DI highlights the point that organisations threatened by a PDI can in many case play a role in determining if the innovation would eventually become disruptive. This view is opposed to the thinking that an innovation is necessarily and sufficiently disruptive only by design. The identified distinction between the three concepts as identified and condensed from different papers form the conducted literature review is presented as a *disruption differentiating framework* in table 1.

Table 1 Framework for distinguishing between Potential Disruptive Innovation, Disrupted Disruptions and Disruptive Innovations

	PDI_{t1}	DD_{t2}	DI_{t2}
Innovation attributes			
Different performance attributes	Necessary	*Not Necessary	*Necessary
Not valued by key customers	Necessary	*Not Necessary	*Necessary
Encroaches existing markets	Necessary	*Not Necessary	*Necessary
Appeals to market fringes	Necessary	*Not Necessary	*Necessary
Simpler, more convenient	Necessary	*Not Necessary	*Necessary
Serves non-consumers	Necessary	*Not Necessary	*Necessary
Gains adoption	Necessary	*Not Necessary	*Necessary
Target low end of market	Not Necessary	Not Necessary	*Necessary
Product innovation	Not Necessary	Not Necessary	*Necessary
Less costly offerings	Not Necessary	Not Necessary	*Necessary
Inferior quality	Not Necessary	Not Necessary	*Necessary
Existence of a disrupted?	Not Necessary	No	Yes
Condition	contains two or more *necessary* attributes	lost the advantage of its key PDI attributes	significantly impacted the responders position

Key:

1. *Necessary*: Should possess the attribute but not compulsorily
2. **Necessary*: May still possess the attribute or it may have evolved
3. **Not Necessary*: Should have lost the attribute relative to responder but not compulsorily
4. *t1 and t2* indicate time at an initial time 1 and a later time 2

Table 1 shows a classification of the differences of an innovations attribute that distinguishes its status as a PDI, DD or DI. The table shows that while the presence of one or more attributes maybe a necessary requirement for being a PDI the absence of an attribute does not nullify its qualification provided the innovation possesses at least one of the attributes. For example, 3D printing does not presently score in terms of the attribute 'Gains adoption' but it can be said to be a PDI since it qualifies on other attributes (Grynol 2013) . Additionally, 3D printing can also not already be considered a DI or DD because it is an emerging innovation in its infancy that has not significantly impacted the manufacturing industry it is poised to disrupt neither has it lost its potency in the PDI attributes that currently defines it. Similarly are individually not sufficient to

The attributes were collected from different papers during the literature review, it was however discovered that while there are many attributes associated with a disruptive innovation in prior literature, most where different variations of the initial attributes of a DI as postulated by Christensen (1997, 2000) and further extended by Govindarajan and Kopalle (2006), Adner (2002) and Schmidt and Druehl (2008). Hence the attributes included in table 1 is representative of the dominantly occurring themes that has been used to characterize DI. Additionally, positioning the attributes into the different cells of PDI, DD and DI required taking a guide from Yu et.al. (2008) review of DI and a recent definition of DI advanced by Baiyere and Salmela (2013) which attempts to address some identified anomalies in earlier definitions:

> "A disruptive innovation introduces a different set of **attributes** relative to a **market** which are unattractive for mainstream customers on inception due to **variance** in attributes valued by this market - although a different market segment may value the new attributes. Subsequent developments over time, however, raise the innovation's attributes to a level sufficient to satisfy mainstream customers, thus attracting more of the mainstream market.
>
> Where: *Market* = (products, business models, goods... and/or technologies).
> *Variance* = (inferior, superior, complexity…) and
> *Attributes* = (features, performance, price,... and/or processes)"

Going from the definition of DI above, the attributes labelled as 'Not Necessary' in the PDI column can be readily understood. For instance, a PDI or DI does not necessarily have to be a product innovation but could also be a business model innovation. Furthermore the disruption is not essentially dependent on if the innovation is of lesser cost or is aimed at the low-end of the market neither is it dependent on if it is of inferior or superior quality as described by Baiyere et.al (2013).

To further clarify the concepts of DD and PDI, cases that were dominantly recurring from the interview would be presented in the next section. These cases are a) mobile devices innovation as a pivot for a set of PDIs and b) Five example cases of typical DDs.

Case I: Mobile-Device-Driven Innovations as a Potential Disruptive Innovation

Some Innovations centred around the advances in the mobile device domain have been considered to be a case of PDI by both literature and interview respondents. Taking the increasing adoption of mobile devices as a pivot, many innovations surrounding or

emanating from the mobile space have positioned themselves as PDI to leading incumbents across several industries (See figure 2).

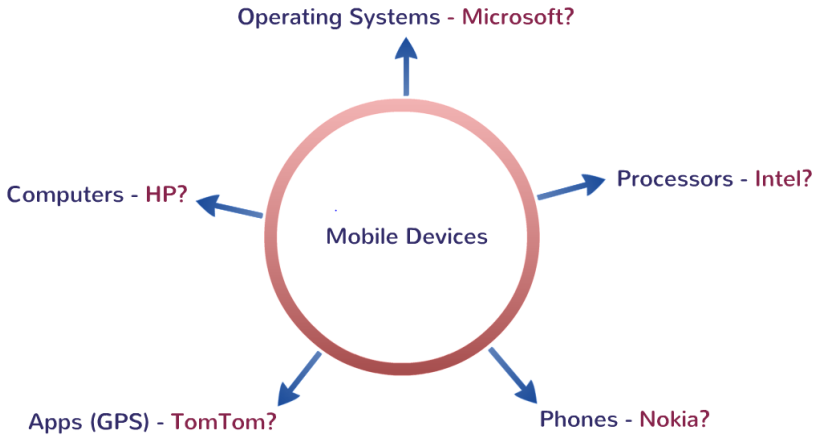

Figure 2: Mobile-driven innovations as a case of potential disruptive innovation

Figure 2 presents some of the perspectives with which the mobile space innovations have been identified to have disruptive potentials. The central factor considered to be driving this potential is the rate at which mobile devices are gaining adoption. Interestingly the industries identified as facing the threat from these trends are not directly operating in the mobile device industry. *This confirms the points out that disruptions can and do arise from industries or sectors that are tangential to the actual focus of the organisation facing such disruptions*.

In this case, while Nokia could be considered a direct responder to the emergence of smartphones, HP would be responding to the growing trend of users substituting their choice of buying computers with mobile devices like smartphones and tablets (see figure 3). Consequently, since computers are tightly associated with processors and operating systems, a decline in the computer industry in terms of manufacturing and sales potentially impacts dominant companies in this sector like Microsoft and Intel. TomTom on the other hand is facing the threat in the space as mobile apps like Google maps gains increasing adoption as an alternative route navigation system.

Figure 3 presents charts that highlight the trend of events that position some of these companies in a responding situation to the PDI nature of the mobile space innovations. The charts which are from Business Insider using public available data sourced from Asymco, IDC and Morgan Stanley research, shows the increasing pace of growth of mobile devices relative to the personal computers – PC. While figure 3a shows the relative growth of mobiles, figure 3b shows the stunted and declining growth of the PC market. These trends are of importance when viewed with respect to the dominant status of the companies facing this potential disruption. For instance, Microsoft's windows operating system accounts for 90% of all computing platforms in 2009 but presently accounts for 24% while Google's Android is continuously increasing its share in this space (Blodget 2013). Similarly, Intel is a clear leader in the microprocessor business, however, since Intel's business is closely tied to the PC industry, this dominant status is potentially being challenged by relatively new entrants like ARM (Andrew 2005, and

Mallinson 2008). Table 2 shows how these mobile-driven Innovations fit into the PDI component of the disruption differentiating framework of table 1.

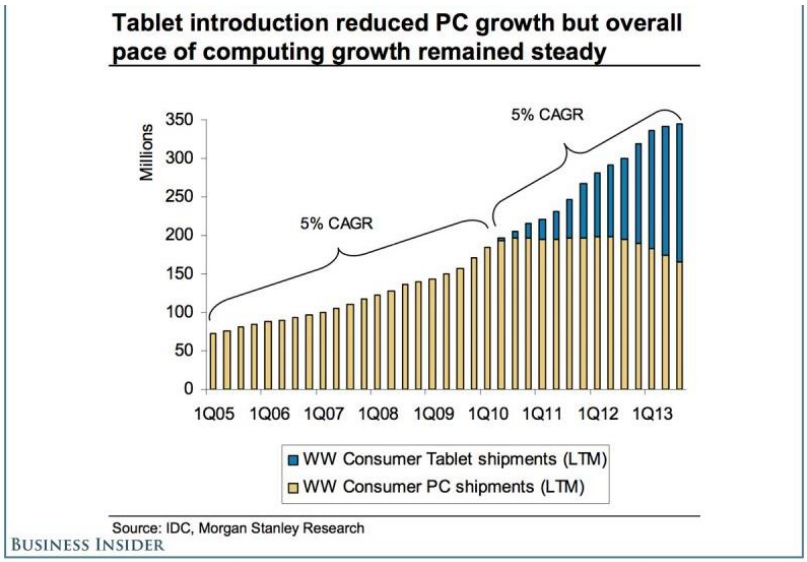

Figure 3: a) The outpacing growth of mobile devices relative to PCs b) The substitution trend of PCs by tablets.

From table 2 it can be observed that the innovations meet at least two of the criteria and not necessarily all as indicated by the conditions for labelling an innovation as a PDI in table 1. It should be noted however that the categorization is not a binary of true/false but based on the degree of fit (or level of fulfilment - Hüsig et.al. 2005) with which each individual attributes can be associated with each innovation. The process of determining

the appropriate check for each case is based on the insights of the interview respondents and further information sourced from the literature and historical data. The tick symbol ☑ is indicative that the attribute can - to a good extent be associated with the innovation while the ☒ symbol indicates a low or null association. The ☐ symbol symbolises neutrality where the status is neither true nor exactly false.

Table 2 Positioning the mobile space innovations as potential disruptive innovations.

Potential Disruptive Innovation →	Android / iOS	iPhone / Galaxy	ARM Processors	Tablets / Smartphones	Google Maps
Potentially disruptive to →	Windows (Microsoft?)	Feature phones (Nokia?)	PC processors (Intel?)	PCs (HP/Dell?)	GPS Navigation (TomTom?)
Innovation attributes					
Different performance attributes	☑	☑	☑	☑	☑
Not valued by key customers	☑	☒[1]	☑	☐[2]	☑
Encroaches existing markets	☑	☑	☒[3]	☑	☑
Appeals to market fringes	☑	☑	☑	☑	☒[4]
Simpler, more convenient	☐[5]	☑	☑	☑	☒[7]
Serves non-consumers	☑	☒[6]	☑	☑	☑
Gains adoption	☑	☑	☑	☑	☒[8]

Although these innovations may currently be regarded as PDIs, if they will eventually become a DI or end up as a DD is a function of time. However, their eventual path as demonstrated in figure 1 is very much dependent on their adoption and sustaining characteristics as well as the responding actions of the incumbents. The possibility and implications of these innovations ending up as a DD is captured by the DIVE model presented later in this paper.

Case II: Examining some examples of Disrupted Disruptions

Google Docs is a classic example of an innovation that at inception, very well aligned with the defining characteristics of a PDI. It scored highly in almost all metrics of a disruptive innovation as initially advanced by Christensen (1997, 2000). Although Google Docs can be said to be an innovation that was disruptive by design (Keller and

1 - Directly valued by high paying customers

2 - Valued as a supplement rather than a substitute

3 - Creates new market

4 - Appeals directly to same customers

5 - Not necessarily simpler/ more convenient but rather different.

6 - Serves existing consumers

7 - Not necessarily simpler however ccumbersome to mount

8 - Adoption currently in the infancy stage

Husig 2009), it however has lost the disruptive potential that characterizes its early days. To determine if it indeed has moved from being a PDI to a DD, the attributes that makes it a PDI relative to Microsoft Office would be evaluated with the disruption differentiating framework of table 2. From the table it can be readily deduced that it satisfies most of the criteria of a PDI with the possible exception of "Serves new customers" and Gain adoption". According to the framework, the condition to be considered a DD is that it should have lost most of the key attributes that made it a PDI. For instance the attribute "Different performance attributes" is no longer valid as Microsoft has also launched an identical product with some performance attributes as initially possessed by Google Docs.

A logical question to ask would then be – why/how did it end up as a DD? The answer lies in the response of the responding organisation – Microsoft and its adoption rate. Microsoft being a *direct competitor* with Google on other grounds easily noticed the innovation, recognised the potential and *promptly responded without ignoring* it (Mohan et.al. 2012). Secondly, Microsoft also had enough time to adequately respond to it due to the customer lock-in and inertia that limited the *speed of adoption* of Google Docs (Hang et.al. 2011).

Nintendo Wii is an example of an innovation that seems poised to be disruptive to Xbox360 and Sony's PlayStation3 (Yu et.al. 2011). In similar fashion as Google Docs, the Wii held the promise of another case of a DI (Kohlbacher 2007). An evaluation with the framework also confirms its PDI position as well as its current DD status. Comparably with the Google Docs case, Wii was aimed at disrupting incumbents with which its parent company – Nintendo already *directly competes*. Due to this awareness, *ignoring* the advances of Wii would not be a logical response. Therefore Wii's key advantage of creating a new market was *spotted early* and due to the *slowing rate of adoption*, Microsoft also had space to advance its Kinect technology to rival the performance attribute of the Wii.

Another example of a typical DD is the **Tata Nano** which also scores very well on the PDI scales but never advanced to becoming a DI. Interestingly, its PDI attributes that were most pronounced by analysts and scholars where all the PDI attributes that have been considered "Not Necessary" in the framework in table 1 (Ray et.al 2011). It was an example that draws a parallel with how the Japanese cars grew to be of a disruptive nature to the automobile industry in the US and Europe (Hart and Christensen 2002).

However despite its well fitted characteristics as a PDI (Wells 2010), Tata Nano *never gained adoption fast* enough to evolve to a significant threat to either the automobile industry or the two wheelers industry (Birtchnell 2011). In addition, being an *incumbent* in the automobile industry attracted attention such that *competitors* like Renault declared their intention to introduce a car which would be even cheaper than the Nano (Anthony 2009). These factors have therefore eroded its key advantage of "Serving non consumers" with "Less costly offerings".

A unique example of a DD case is the **Minicomputer**. What distinguishes this from the other DD cases is that it extends the PDI disruption path presented in figure 1. This is because it is a case where a PDI became a DI before becoming a DD itself (see figure 4). This occurrence is in line with Christensen's (1997) observation that a disruptive entrant usually matures or later slacks to a point that it then becomes an incumbent that is also ripe for disruption by another disruptor. He equally demonstrated this with the different generations of disk drives that disrupted the preceding generation. It can also be hypothesized that there is another path where a PDI that becomes a DD can similarly also

revive its potential to finally become a DI, however this study's present data (literature review, archival data + interviews) does not provide evidence of this. This therefore leaves this path of enquiry open to be empirically verified.

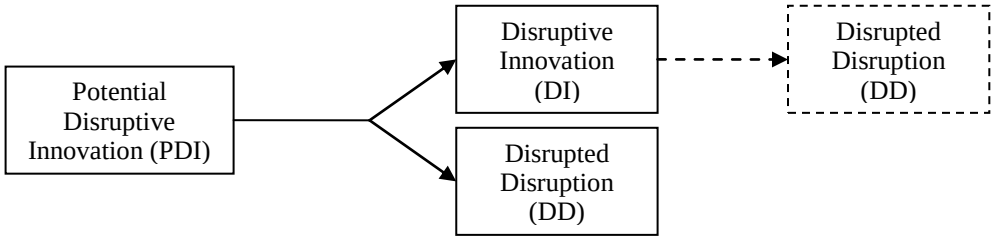

Figure 4 The extended evolution path of a potential disruptive Innovation.

The Minicomputer case can be referred to as the *stepping stone to the core disruption*. According to Markides (2006), it is often not the initial creator of the innovation (particularly radical innovations) that necessarily moves the innovation to its disruptive potential. In this case the minicomputers eventually disrupted the mainframe computer market but they were subsequently disrupted by the now dominant personal computers. In contrast to the other examples, this is an example where the companies who created the innovation at its PDI phase were mostly *entrants* and the PC companies subsequently that disrupted it were equally entrants (Denning 2012). Also, this is a case where most of the incumbents in both instances *ignored* the PDI only to realise they were *too late* (Bower et.al 1996, Christensen, Bohmer and Kenagy 2000), with the exception of IBM that successfully navigated through the disruption waves (Christensen et.al 2000b). Additionally, all the disrupting entrant companies in this chain of events were not already in *direct competition* with the incumbents. Lastly, the *pace of adoption* of the innovation was fast enough that late responding companies were indeed too late.

4 Theoretical and Practical Implications and Contributions

Disrupted Disruption Propositions

Following the analysis of the different examples of DDs presented above, we can summarily highlight some key characteristics that are peculiar to DDs. In this section the defining characteristics of DD that have been identified are specifically expatiated upon to formulate four set of propositions (represented by DIVE) that attempt to better conceptualize the notion of disrupted disruptions. These propositions open up research agendas that are open to be empirically developed by future research.

Firstly, innovations that create entirely new markets or encroach on an existing market from the fringes can effectively grow to a significant level before the responding organisation (responder) gears itself to respond. However, innovations that begin by directly attacking the core customers of the responder would very likely be promptly resisted before its disruptive potential is unleashed. For instance, PCs were not targeted at the core customers of the minicomputers or the mainframes at inception. Due to this the

PC market could grow without any targeted response until the PCs gradually started attracting the main customers of the minicomputers. Generally, PDIs tends to be more lethal when they emerge from unsuspecting or unlikely contenders.

> *Proposition **D** (Direct competition): If the initial offering of a Potential Disruptive Innovations is not 'directly competing' for the mainstream customers, the chances of ultimately becoming disruptive is higher.*

Secondly, when a PDI is spotted early enough and importantly, if it is not ignored, the responding organisation gains a valuable start to launch a counter response. However, often times most PDIs are actually spotted early yet they are ignored at the onset. The challenge here is closely related to Proposition D because when the disrupter is an unsuspecting/unlikely contender, it understandably gets lesser attention compared to a direct competitor. Baiyere et.al (2013) provides a CLIF framework which highlights why most PDIs are ignored. These include a) Customers feedback as a blinding veil. b) Leadership orientation based on short term goals c) Innovators emotional attachment to their existing innovation. d) Financial projections as a DI evaluation lens. From the DD examples above it can be seen that one of the core reasons why they failed to become disruptive is related to the fact that they were not ignored by the responding organisation Generally, one major factor that supports many PDI to advance enough to unleash their disruptive potential is because they were not considered worthy of the attention and resources of the incumbent company. History has therefore shown that ignoring DIs comes at a big cost.

> *Proposition **I** (Ignore): If a potential disruptive innovation is acknowledged 'early and not ignored', the likelihood of it significantly disrupting the market position of the responder can be limited.*

Thirdly, an important component in the success of a PDI is the adoption. While adoption is perhaps a constant in all cases of eventual disruptive innovations, the speed with which the innovation is adopted is relevant in determining the possibility of an effective response. Following the arguments of Proposition I, it can be logically deduced that spotting a PDI 'early' is relative to the rate at which the PDI is being adopted. In essence, being 'early' or 'late' is a function of how far the PDI has been adopted. For example, when Xerox realised it had to respond to the threat of the lesser performing copiers from Canon, the Japanese copiers had gained wide spread adoption and the damage was already done. However, Google Docs' rate of adoption was slow enough for Microsoft to come up with an effective response.

> *Proposition **V** (Velocity of adoption): The 'velocity of adoption' of a potential disruptive innovation is one of the parameters that can significantly determine if it will eventually develop to be disruptive.*

Lastly, all the examples show that when an innovation that is poised to be disruptive occurs in a domain where the innovation creator (disruptor) is already operating in same domain as the responding organisation, the likelihood of the innovation ending up as disrupted rather than disruptive increases. This is primarily because competitors naturally are aware of - and pay attention to – any new innovation from each other which makes it difficult to create an innovation that will be ignored by the competitors Baiyere (2011). This can be also explained with a converse argument. For example, it was easier for Google to be disruptive to the traditional advertising industry since that sector was not its

primary business focus. Similarly, Apple could easily attack Nokia's dominance without an immediate response since it was considered a novice entrant into Nokia's terrain of vast expertise, if however the iPhone was introduced by Motorola, it plausibly would have received more attention. Therefore new entrants introducing a PDI to an industry have an advantage of stealth over the incumbents.

*Proposition **E** (Entrants): New 'entrants' to a market/industry are more likely to disrupt than incumbents.*

The DIVE Model

The four propositions characterizing DDs are useful inputs in modelling the interaction between the innovation and the responding/disrupting organizations which we refer to as the DIVE model (see figure 5). Each component of the DIVE model is representative of 4 set of evaluations that are needed in better understanding the potential of the innovation. These are the Customer, Market, Industry and Self evaluations.

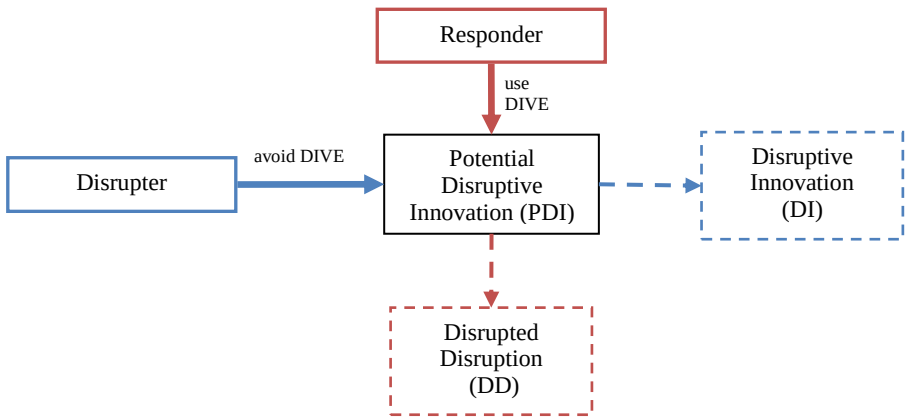

Figure 5 The DIVE Model

The model is built on the foundational premise that an innovation may be disruptive by design but for it to transit from a PDI to a DI it has to pass through the response actions of the Responder. Therefore as illustrated in the model, for a Disrupter to avoid its innovation from being pushed into the DD zone, the Disrupter needs to consciously try to avoid the trap of each DIVE component. This implies that the innovation needs to be positioned to satisfy questions such as –

a) *How can 'direct competition' for the mainstream customers be initially avoided?[Customer Evaluation]*

b) *Can the responder(s) consider it as an innovation to 'ignore'? [Industry Evaluation]*

c) *How do we gain a high 'velocity of adoption'? [Market Evaluation] and*

d) *Are we positioned as 'entrants/incumbents'? [Self-Evaluation]*

By applying same DIVE principles but by applying it conversely the model can also be used to present the Responder some set of underlying questions to guide it to better make

decisions that can potentially push the PDI to the DD zone. The questions that should be satisfied in order to better position and have the possibility to prevent the PDI from blossoming to a DI include:

a) *Which segment of our customers is the innovation 'directly targeting'? Or is the innovation presenting our customers with a substitute?[Customer Evaluation]*

b) *What are the risks of 'ignoring'? [Self-Evaluation]*

c) *How 'fast is it gaining adoption'? [Market Evaluation] and*

d) *Is the potential disrupter an 'entrant/incumbent'? [Industry Evaluation]*

In summary, the model provides a simple yet practical tool for the evaluation of an innovation both from the disrupters' perspective as well as the responders' perspective. Basically innovations can be easily positioned as either a PDI, DD or DI using the disruption differentiating framework. Subsequently if the output of the framework is a PDI, the DIVE model can then be used to analyse the PDI and better determine the most suitable course of action relative to either the Disrupter or the Responder position. The model is advanced to help conceptualize the attributes and response approaches that can characterize disrupted disruptions. Summarily it is presented to illuminate some of the findings of this research and to contribute to current understanding of the disruptive innovation phenomenon.

5 Conclusions

This study indicates that the concept of disrupted disruptions can provide us valuable insights into how innovations with potential to be disruptive relative to an incumbent can lose its potency and become just another innovation. On the other hand the study also conversely provides some approaches that can be followed to mitigate an emerging disruptive innovation by an incumbent company facing the threat of imminent disruption. Additionally, the disruption differentiating framework provides a platform and reference point for future research to elicit as a worksheet for determining whether an innovation qualifies to be considered a PDI, DD or DI.

The practical implication and contribution of this paper is unfolded in two dimensions with one focus on the disrupters while the second focus is from the perspective of responders. For organisations creating or aiming at creating innovations that can be labelled disruptive, the paper provides the DIVE model with which they can evaluate their innovations potential. For the responding organizations, the model also gives the decision makers some indices to position the looming disruption and better guide their decisions towards thwarting the innovation from attaining its disruptive potential.

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