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## When Disruptive Innovation is not only about Companies - A Societal Perspective.

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**Abstract:** Whenever disruptive innovations occur, they hold significant implications for the organisations involved. Consequently many studies have been carried out to investigate disruptive innovations from the (for-profit) organisations perspective with little focus on other affected actors. Without diminishing the importance of the organisational perspective, this paper presents an exploratory study on the impact and implications of disruptive innovations on three actors – Individuals, organisations and the society.

The paper additionally outlines a classification of possible impact categories of a disruptive innovation in a wicked-empower framework. For theoretical and practical utility of the framework, the paper advances a sense-making model for assessing the potential impact of an emerging disruptive innovation from the three actors' perspective.

**Keywords:** Disruptive Innovation, Societal Impact, Wicked-Empower Kite Model, Wicked Problems, Empowerment, Nokia, Kodak, 3D Printing, Individual; Organisation and Society Actors.

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### 1 Introduction

In the disruptive innovation research space, there seem to be an implicit assumption that has characterized the view of researchers, practitioners and policy makers about the disruptive innovation concept. This is the assumption that disruptive innovation is a phenomenon that is solely aimed at and mostly relevant for companies. The theory itself lends itself readily to this thinking. The expression of the theory is generally stated with the notion of an incumbent company being unseated by the arrival of a new entrant with a disruptive innovation (Christensen 1997).

Truly, by their nature, Disruptive innovations prompt a reshuffling of organizational positions in an industry whenever they occur. For the firms facing disruptive innovation, the effect can be extreme and in many cases irredeemable. This can range from the extreme instance of absolute obsolescence of a foremost company on one hand to the other extreme of a prior non-existent company gaining ascendancy in an established

industry. By extension and depending on the scale and nature of the disruption, it can be logically deduced that the occurrence of a disruptive innovation holds correspondingly relevant concerns for other actors and the societal context in which it occurs.

As examples, the cases of Kodak and Nokia are typical situations of disruptive innovations (which are further explored in this study) that transcends beyond the organizational level to the society and even to the national level. Kodak for instance, at its peak employed about 140,000 people while Instagram promises its users the same value propositions and it employed only 13 people before it was acquired. Another related case is Nokia which once significantly contributed economically to Finland but is presently seeing a dwindling in this significant national position. In essence disruptive innovations are not necessarily limited to the industry, but can have far reaching consequences for the people affected and can rebalance the wealth of nations in the geographical location involved. Hence, the importance of studying the impact of disruptive innovation on these other actors becomes even more relevant.

The aim of this paper therefore is to extend the understanding of the disruptive innovation concept by outlining the importance of the impact that the occurrence of disruptive innovation have on three actors - the individual, the organization and the society following the actor delineation by Meyer and Jepperson (2000) and Harpaz (2002). What we term the “*Wicked*” and “*Empower*” dimensions of disruptive innovations are advanced as theoretical contributions. Wicked in this context is adopted from the notion of wicked problems as disruptive innovations present challenging, complex and uncertain situations while Empower is expressed as the affordance provided to do or be able to perform activities that were previously not attainable.

In conclusion, the paper makes a call for researchers and practitioners and particularly policy makers to look beyond the organization creating or threatened by a disruptive innovation and consider the many implication of its occurrence on the other essential actors - ranging from the micro perspective of the individual users to the macro dimension of nations along with the society.

## **2 Research Background**

### *Current Understanding*

Since its conceptualization over a decade ago, very few innovation management concepts have gained as much wide spread attention as the concept of disruptive innovation (Danneels 2004). By extension the concept has been largely researched and discussed in both the academic world and practitioner spheres (Christensen et al 2000, Markides 2006, Govindarajan 2006, Baiyere et al. 2013). It is however of interest to observe that despite the attention that the concept has drawn, there still exist a strong inclination to describe and view it only with the lens of profit making organisations (Govindarajan et al 2011, Schmidt et al 2008). While this is appropriate considering the initial theoretical underpinning of the concept, it is arguably equally as important to consider the impact of disruptive innovation on other non-profit making actors and particularly the potential long lasting implications that it holds for the society.

Few scholars have considered disruptive innovation in this perspective, notably among these are Ahlstrom (2010), Carlsen (2010), Stuart and Christensen (2002). However, despite taking the lead in this discussion, the focus has still largely been about

innovations for companies and its impact on the sustainability of these companies. This paper however argues for the importance of considering the sustainability of the societal balance vis-a-vis corporate organizations in any disruptive innovation scenario.

### *Theoretical framework*

From the previous disruptive innovation studies focused on organisations, it is clear that the occurrence of a disruption would have varying level of impacts on different organisations (Christensen 1997) and by extension it should have varying impacts on the three different actors. Consistent with Schumpeter's principle of creative destruction (1942), innovations can be a double edged sword and disruptive innovation is a special candidate (Christensen 1997). For the disrupting organisation, disruption is a positive experience as the organisation is empowered to do more with its flourishing innovation. While for the disrupted organisation, it is a negative and challenging experience (Christensen et al. 2000) bearing similarities with the concept of wicked problems (Dufor 2013). We have therefore adopted the theoretical lens of wicked problems and empowerment as an appropriate analysis frame for providing a balancing view on the impact of disruptive innovation to the three different actors.

Wicked problems are challenging situations without a single clear cut solution (Rittel and Weber 1973). They tend to provide confusing information and generate conflicting values and interests within different stakeholders. Solutions to such problems are not necessarily measured by true or false but rather good or bad (Rittel and Weber 1973). In general wicked problems are unique to each context (churchman 1967). According to Whyte and Thompson (2012), unlike problems where there is clear cut understanding and little disagreement about its basic formulation, wicked problems are characterized by uncertainties and ambiguity in the foundational assumptions and the possible solution paths used in their articulation (Ferlie et al. 2013; Conklin et al 2006). These are attributes that very closely describes the challenging nature of disruptive innovation for actors that happen to be exposed to the wicked axis of its occurrence (Dufor 2013).

On the other hand, empowerment from the individual's perspective is a construct that describes the process where individuals are enabled to have a closer link between their goals and the sense of how to accomplish them (Mechanic 1991; Zimmerman 2000). Basically as (a) *a goal*, empowerment means having control over the determinants of one's quality of life, and (b) *as a process*, empowerment means ability to take control over activity (-ies), by having the capacity to determine both the goals of the process and the means to utilize it (Tengland 2008, Rappaport 1985). From the societal/organisation perspective, Empowerment is a mutual process through which people without an equal share of some valued resources/capability gain better access to and control over those resources/capabilities (Zimmerman 2000; Rappaport 1987; Cornell, 1989). Presenting a view of empowerment that encompasses both individuals, organisations and society, Page and Czuba (1999) described it as a process that allows individuals/groups/organisations control over key aspects of their existence (i.e their lives and activities) and gives them the chance to achieve things that were hitherto not easily attainable, if at all possible.

### *Research Question*

The goal of this submission is to elucidate the importance of other actors in the disruptive innovation equation and advance a call for further studies aimed at expounding the

"how", "why" and "way forwards" for disruptive innovation related research as a contribution to this research stream and for practice. Hence, the driving research question propelling this study is: what are the (potential and observable) implications of disruptive innovation on the three actors - individuals, organisations and the society?

### **3 Methodology**

To carry out the goals laid out for this paper, the research design involved two phases. Firstly, it required a review of prior literature and secondly an evaluation of several archival resources from public company information and historical records. The review phase enabled the collection of different disruptive innovations that have been documented in prior research. From which it was then possible to narrow the number of cases to be empirically investigated for this paper. It also allowed more understanding of the different perspectives and characterization that have been used to evaluate the impact of disruptive innovation in earlier studies.

Secondly, for each of the selected case, the search for relevant archival data was necessary to understand and evaluate the impact of the disruption in each case and to match the impact to the three levels of actors that has been advanced as the evaluation lens for this paper (Meyer et al. 2000; Harpaz 2002). The archival data helped understand how each disruption holds potential and observable implications for the three main actors of the advanced framework. The impact on organisations became readily available in many cases from the academic research found in the literature review phase, while findings for the individual and societal implications were strengthened by historical data and other publicly available data sources and repositories.

The review process followed the “go forward and go backward” search procedure outlined by Webster and Watson (2002). This required snowballing from the references and from citations of a selected paper to get prior and recent work that are of relevance to the topic. From this process, it was obvious that the overarching focus of prior studies on disruptive innovation have been predominantly about impacts of disruptive innovations on organisations with very little done from the individual and society point of view.

For the collection of the archival data, we first narrowed the list drawn up from the review phase to two representative cases on which there appeared to be substantial publicly available secondary data. From this process, Nokia and Kodak emerged as the representative cases that have enough material to provide a rich insight on how disruptions can impact other actors. Most of the secondary data came from the firms data sources and from other representative secondary sources that provided information on how the disruption impacted other actors external to the organisations involved.

### **4 Results**

After reviewing different cases of disruptive innovation in prior studies, two cases selected for further analyses were – the disruption of Nokia by the smartphone and the disruption of Kodak by digital imaging. These cases were selected as they provided insightful details about the impact of disruptive innovations on the three actors.

In order to present the result of this paper in line with the guiding research question, we adopt the concept of actors as used in the work by Meyer and Jepperson (2000) and

Harpaz (2002). The notion of delineating actors into individual, organisation and society has been demonstrated to be a useful lens for positioning studies in contextual units (Meyer and Jepperson 2000; Holloway 1996). Additionally, the presentation of the case is done in sections that aim to establish a clear distinction between the positive effects (empower) and the negative impacts (wicked) of the disruptions in each case. Lastly, the analysis adopted a social, economic and geopolitical lens for describing the impacts of the innovation in consistence with prior studies (Dakhli and De Clercq 2004; Boehmker and Witmer 2004).

### *Case I: Nokia and the Smartphones*

The disruption of Nokia, a once dominant leader in the mobile phone sector, is a classic example of a disruptive innovation that holds major consequence that transcends beyond the organisation to the individuals and communities associated with it. In its flourishing days, Nokia accounted for a significant portion of all mobile phones. It was so dominant that it holds the record as the largest mobile phone vendor in the world. Focusing on just the smartphone market, according to data from Gartner analysis, Nokia had about half of the smartphone market as at 2007 when the company's disruption began with the introduction of Apple's iPhone. In the face of the disruption, this percentage of smartphone market share attributed to Nokia however dwindled from 49.4% to barely 3% in 2013 before the mobile division was acquired by Microsoft.

**Wicked Problem:** The impact of the disruption felt by Nokia as an organisation is clear and this has been documented in prior studies (Palacios and Tellis 2015; Lubinaite 2015). Exploring this disruption with respect to the other actors, reveal that the impact of the disruption of Nokia by the adoption of rival smartphones by the market holds some challenging effects on these actors. Firstly, from the individual perspectives, the disruption led to the unemployment of several Nokia employees. This is evident from the closure of several production facilities and whole plants in certain regions. For instance in Beijing China, a unit with 5000 employees was staggeringly reduced to 300 employees. While in Salo Finland, production plants were closed. In essence due to the disruption, individuals felt the impact economically. This also extends to other smaller organisations that have historically relied on providing services to Nokia going out of business as their business is closely tethered to Nokia.

Consequently, many families had to relocate from their place of abode to other locations where they could find a job, thereby altering the social balance that they had hitherto known. Additionally, as is typical of large entrenchments in a single region, the layoff of so many people in one location casts a looming shadow of uncertainty in the social setup of the individuals that make up that arguably disturbed community. The mass effect of such events has led to ghost towns and rise in need for social care.

From the societal perspective, the disruption of Nokia is more pronounced in its home base of Finland. According to figures from the Research Institute of the Finnish Economy (ETLA), Nokia was a hallmark company for Finland as it singlehandedly contributed a quarter of Finland's growth from 1998 to 2007. In that period, Nokia's spending on research and development contributed 30% of Finland's total, and one out of every five of Finland's exports. Of important mention is that Nokia was paying as much as 23% of all the nations corporation tax prior to 2007. This pervasive presence of Nokia in virtually every core facets of the Finnish economy underscores the graveness of the disruption of Nokia's mobile business to the country and its economic projections.

On a social dimension, Nokia's dominant status holds reverberating social effects on the communities that have been hitherto reliant on it. According to the Research Institute of the Finnish Economy, Nokia's contribution was declining as it generated 14% of exports and 1.6% of the country's GDP in 2009, down from 4% in 2000. The socio-economic implication of this is recognisable from the countries slow but steady recovery from the economic recession of the late 2000s.

**Empower Opportunity:** Generally, in disruptive innovation discourse, there is usually the challenged company (-ies) and the company (-ies) that benefits from the disruption. Therefore, on a converse note, we will also consider the positive impact of the smartphone disruptions from the perspective of the three actors. Apple is the firm that has been attributed as the key driver of the smartphone disruption that has challenged the dominance of Nokia in the mobile industry. As an organisation, taking the lead as the disrupter has yielded incredible financial benefits to Apple. An organisation that was close to bankruptcy some years earlier recently held claim to the most valuable company in the world. This typifies (perhaps extremely) how the creation of a disruptive innovation can hold beneficial rewards for organisations.

The benefit of the emergence of the disruptive smartphone also ushered in the birth of new smaller companies, particularly with the mobile ecosystem that came along with it. This has grown significantly to be tagged the –App Economy. For organisation on this side of the disruptive innovation equation, they got empowered to establish businesses or product portfolios that were not possible prior to the advent of the App economy.

Furthermore, the emergence of the smartphone disruption also empowered individuals to do a plethora of activities with a single device. The bundling of different offerings into the device afforded individuals the possession of a device with capabilities of – a camera, a GPS, a map, a radio, an internet browser, voice/video recorder, a mobile computer to mention a few, with utility options that were not previously available. In essence, the smartphone enables individuals to be connected with world at their fingertip. The advancement of the smartphone that came to characterize today's outlook on the device improved features of the Nokia smartphones and made them mainstream. The adoption of these devices have resulted to employees getting empowered with concepts like BYOD (Bring Your Own Device) social media, cloud computing providing more ways to enable employees achieve more. Basically, the smartphone allowed increased connectivity, immediate access to information, entertainment and enhanced possibilities to work remotely.

On the societal level, the massive adoption of the smartphones has led to a sort of paradigm shift in the traditional ways of doing and perceiving many things. With the advent and exponential growth of smartphone adoption, we have concepts emerging like – Mobile Learning, Mobile Banking, Mobile Taxi apps (Uber), Social Media (Pinterest, Whatsapp), Mobile Shopping (Foodie, Amazon) and a plethora of others. Also, societies and even nations hosting the major winners in this disruption are also recording economic and social benefits. For instance, Samsung and Apple have contributed to the creation of employment and also generated significant financial returns with their tax percentages. It thus become apparent that the disruption of Nokia by the advancement of the smartphone bears both positive and negative impact on the three actors affected by its occurrence.

## *Case II: Kodak and Digital Imaging*

Kodak is a company that dominated its industry for most of the 20<sup>th</sup> century and gained an almost ubiquitous status. As an indication of its size, at its peak, it controlled 90% of the market of the film photography market in the US and over two thirds of the global market until the rise of digital photography and digital cameras. Kodak's market was basically a process technology but with yielding of the chemistry of film to digital electronics, the market demand for Kodak's key products literally evaporated. The company recorded sales reaching \$10 billion but by 2012 when sales had reduced to \$3.5 billion, they filed for bankruptcy protection. Interestingly, records show that Kodak was a pioneer in the digital imaging field and held patents to its early and core technologies. Despite this Kodak still faced disruption due to the advancement of digital photography.

**Wicked Problem:** With Kodak's disruption came a wave of challenges for individuals affected by its disruption. For an organisation of its size, Kodak employed over 140,000 employees during its crowning period. However, as the company had to face bankruptcy, the workforce was significantly reduced. As an indication of the change, the Kodak workforce in the Rochester region saw a huge portion of employment disappear as 60,400 workers in 1982 were reduced to 5100 by 2011. In addition to this, as presented by KodakNext, tens of thousands of retired employees are left to fend for their own health coverage due to the bankruptcy. This therefore implies that the relaxed way of life that Kodak's 56,000 pensioners and their spouses hoped for has been jeopardized by the company's bankruptcy thereby resulting in those older than 65 being sent into the Medicare system with modest co-payments.

Similarly, from the society point of view, Kodak's home base of Rochester also felt the effect of the disruption. By the year 1980, the company contributed 21% of the total payroll of the city. Kodak was well woven into the fabric of the city that it appeared that everyone there had either worked for Kodak or has a relative or friend who has. Furthermore, the decline of Kodak can be visibly correlated with the population decline of Rochester which has been steadily dropping from its peak of 332,000 to its current value of 210,000. Along with this litany of impacts of the disruption of Kodak on Rochester city, Kodak also cut off its corporate philosophy which has been a key instrument of change that has shaped the city from university philanthropy to other social causes. It is thus worth recounting that these changes which Kodak had to embark on to stay competitive, demonstrates the severity of Kodak's impact and its subsequent disruption on the social and economic lives of Rochester and its residents.

**Empower Opportunity:** Although, the disruption of Kodak left some wicked problems in its wake, the advent of the digital camera also ushered in a series of opportunities for other actors. With the gradual decline of the film photography market, came the rise of new digital photography market. This empowered some organisations to flourish which resulted in creation of jobs in another area.

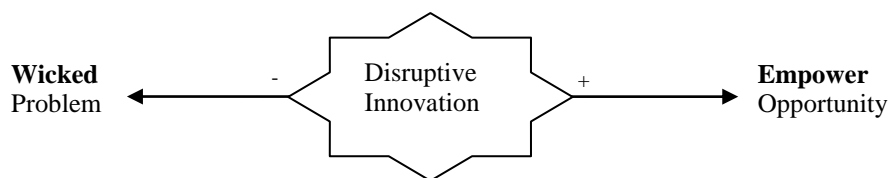
While Kodak and the film photography provided a means to capture moments, the digital images era extended that by making it easily and readily possible to not only capture moments but to share the moment with others as far as the other end of the world. Digital imaging put the power to take the picture and have a fully processed image into the hands of the individuals than was possible in the film days. During the film era, pictures taken had to remain in the film until an expert does the "finishing" to produce the final image. Apart from enabling people to do things they could not do prior to then, digital photography diffused rapidly and the technology improved so much that anyone

with a digital camera device became an amateur photographer. Furthermore, digital imaging appears to make more economic sense from the individual's perspective. For one, this allows several "picture moments" to be taken without worrying about using up your stock of photography films. In essence, with the digital photography, no moment need to be lost.

Generally the society as a whole got empowered in many ways. Places that were fortunate to have the digital imaging companies of the time, had job opportunities open to them. Socially, digital photography combined with social media has proven to be a formidable partnership. This combo allows for the dissemination of digital images at a flash. This has enabled socio-justice situations with the timely documentation of critical events in situations like the Arab spring uprising and the recording of fatal police encounters with African Americans in the United States. Additionally, from a sustainable environment point of view, many digital pictures remain digital and are never printed on paper – thereby contributing to saving trees and consequently the environment.

## 5 Discussions

The two cases presented in this study demonstrate that the impact of disruptive innovations is not only about companies alone. One can easily deduce that the occurrence of a disruptive innovation will logically imply some consequence for the three actors, although, the impact of a particular disruptive innovation will manifest differently in different contexts and for different actors. It is however worthy to note that disruptive innovation is not necessarily a negative thing – depending on which side of the equation an actor happens to be. This dual nature of disruptive innovation impacts is what we have termed the: wicked and empower dimensions of disruptive innovation (see figure 1). It thus suffices to say - when a disruptive innovation occurs, it generates both negative (wicked) and positive (empower) impacts with varying degrees on different actors.



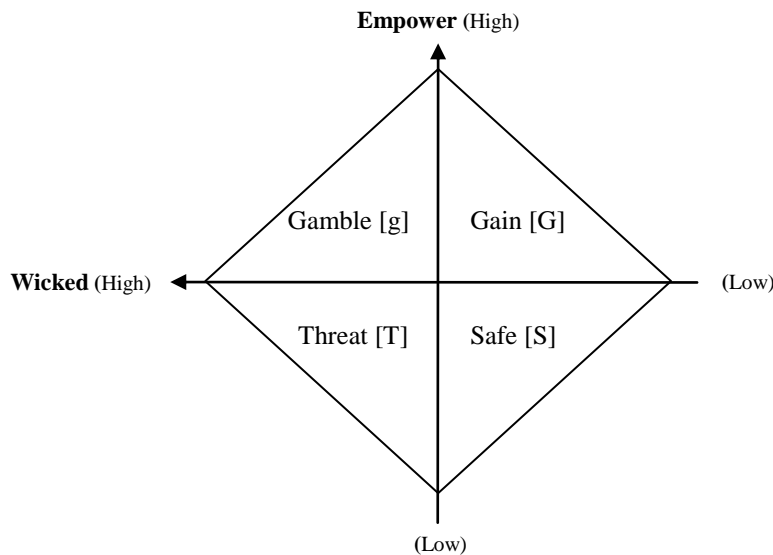
**Figure 1** The disruptive innovation impact model.

The wicked nature of disruptive innovation is well illustrated by the case of Nokia and Kodak among many other worthy examples. Each case is unique and solutions, strategies or actions that may have worked in one setting may not necessarily work in another case. Unemployment, social unrests, reshuffling of wealth of nations, immigration, ghost towns among others are examples of the resultant impact due to wicked dimension of disruptive innovation from a societal perspective. In summary, wicked problems encompass a challenging situation where there is need to act on the present and yet do that without discounting the future which is akin to changing the wheels on a moving vehicle – herein lies the dilemma and wicked nature of disruptive innovations on a societal level.

In the case of Nokia and Kodak presented in this study, it is evident that disruptive innovations, while wicked, could simultaneously have a positive empowering impact on some of the actors. In principle, as highlighted in the case, empowerment due to a disruptive innovation characterizes processes and goals that are capability bestowing, such that the effect of such innovations can be said to result in a level of power, influence or ability or simply put - a level of being empowered.

*The Wicked-Empower Kite - A Disruptive Innovation Impact Assessment Model*

The study has illustrated how disruptive innovations impact individuals, organisations and the society from the social, economic and geopolitical angles. We have also shown that the impacts can be classified as either wicked or empowering. It is apparent that, it will be valuable to have foreknowledge of what axis of the disruptive innovation impact model (wicked or empower) a society would be with the emergence of a potential disruptive innovation. We argue that this sort of knowledge would be of importance to practitioners, policy makers as well as researchers. A logical question that therefore becomes perhaps of more importance is - how can the impact of a potential disruptive innovation be assessed relative to an actor? While this still remains largely open to be researched, we advance the wicked-empower kite (figure 2) as a step towards this and present this as a call for further scholarly enquiries.



**Figure 2** Wicked-Empower Kite for assessing the impact of a potential disruptive innovation.

The wicked-empower kite in Figure 2 is a sense-making model that is positioned to support the process of assessing the impact of a potential disruptive innovation. This can be a useful tool for highlighting the appropriate measure and steps that policy makers can take to either limit a catastrophic impact of the disruption or to better position their policies to take advantage of the benefits of the disruption. The model is presented as a predictive tool for assessing emerging identified innovations with potential to be

disruptive before they actually cause a disruption when possible - hence the term potential disruptive innovations (Baiyere 2014).

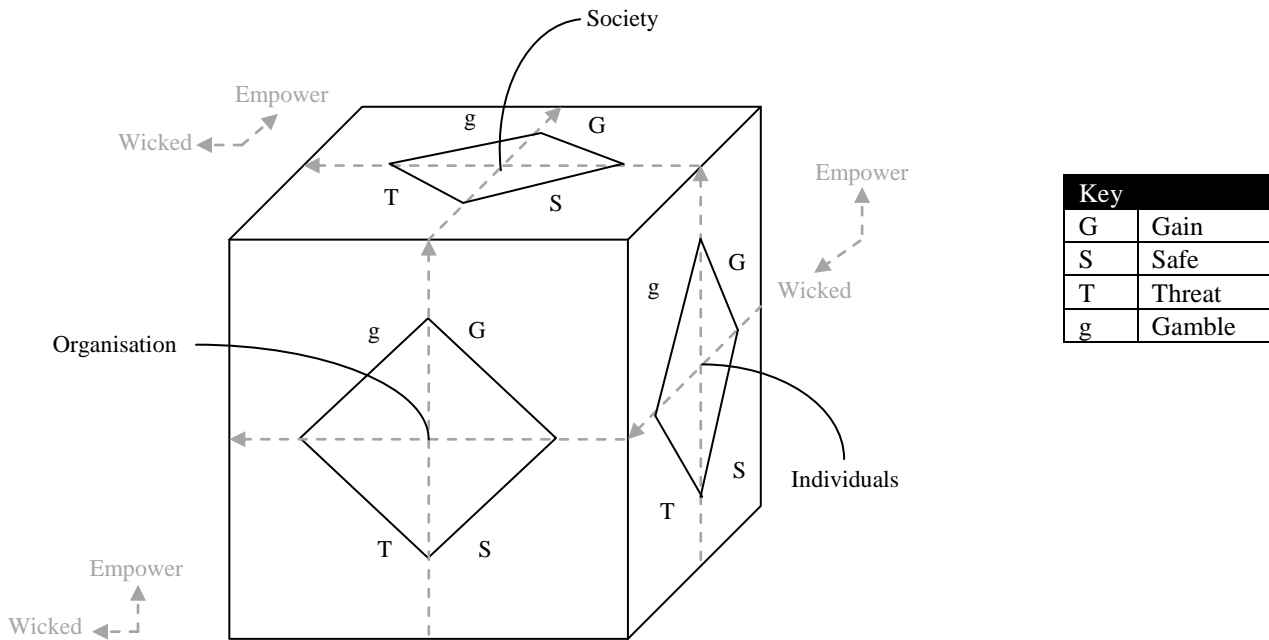
In its basic form, each quadrant of the kite represents the different situation an actor may find itself as it observes the maturation of a spotted innovation with disruptive tendencies. The kite positions an innovation based on an actor's evaluation of its relative position on both the empower axis and the wicked axis. The degree of empowerment and wickedness that is expected of an innovation will determine the quadrant it falls in and subsequently drive the set of actions designed to either limit its disruption or foster its empowerment.

**Gain [G]:** is a value adding quadrant. When the relative position of an actor to the disruption is in this spot, the innovation should be *embraced* by the actor. This is where the actors (e.g policy makers) could make efforts to support the realisation of such innovations.

**Safe [S]:** is a cautious quadrant where the actor needs to be *observant* and keep watch on the innovation as it evolves.

**Threat [T]:** is representative of a looming disruption that could have catastrophic impact. This a quadrant that should be responded to with an *attack cum defend* strategy to alleviate its impact should it occur.

**Gamble [g]:** is a risk-reward quadrant. It is the spot where the actors might consider *engaging* the disruption especially if it is inevitable. Uber (road sharing app) is an example of an innovation with potentially high wicked and empower status.



**Figure 3** Wicked-Empower Cube. A consolidated assessment model for assessing disruptive innovation impacts on Individuals, Organisations and the Society.

From a societal perspective, the impact of a disruptive innovation is a bundle of the impacts on the individuals and the organisations in that society. Hence, in order to assess

the impact degree of a potential disruptive innovation on a society, the impact on the constituent people and firms is imperative. Figure 3 provides a consolidated view of the wicked-empower kite that superimposes the impact of an innovation to the three actors for a view of the overall societal impact.

The kite is the building block of the cube and it forms the basic unit of analysis for each actor. When the kite analysis of all the actors is combined, the cube gives a representative overview of the impact of the analysed innovation (figure 3). Lastly, to illustrate the utility of the model in making sense of certain actors' possible impact due to a disruptive innovation, we will take 3D printing as an example. 3D printing is an emerging innovation that has disruptive potentials and its' identified probable locus of disruption as perceived by most scholars, is the manufacturing industry. To assess its societal impact, we can consider countries with varying degree of manufacturing industries – Finland and China or Nigeria and USA.

For Finland that is positioning itself as a knowledge economy, most manufacturing jobs have been moved to areas where cheaper labour can be harnessed. Hence the likely disruption of 3D printing may be positioned in the Gain [G] quadrant for most organisations. Similarly for individuals the social and economic impact is likely to be more of an empowering nature than wicked, hence this could also be analysed to be in the Gain [G] quadrant. An overview of this for the society as a whole could be analysed to fall also in the Gain [G] quadrant. For, China however, the result of the analysis may be different. Since most manufacturing jobs have been a beneficial input to the economy due to the recent surge in outsourcing. With the strong base of manufacturing industry, should the 3D printing become pervasive and disruptive, the organisations may analyse it to be highly wicked and low in empowerment representative of the Threat [T] quadrant. From the individuals' perspective, they can be said to be empowered to unleash their creativity with the micro manufacturing capabilities introduced by 3D printing. In overview the society would need to weight the empowering options of the innovation with the wicked dimensions. As the manufacturing companies are threatened and jobs are lost, can the creativity of the people and other emerging companies due to the advent of the 3D printing fill that void? How does it impact the social and economic picture of the country? What other indicators need to be considered. Based on these analyses, the society perspective might position it as a potentially high empowering yet highly wicked innovation and the corresponding position would be the Gamble [g] quadrant.

Hence, the outcome of the application of the kite would result in different outputs and correspondingly different action paths for various actors. It should be noted that there can be several measures employed in the analysis of where to position a disruptive innovation and such analysis already exist and is done differently by different groups. The kite presented here is advanced as a complement to these analysis approaches and we have used the economic and social indicators here as an illustration of how the kite can be used and not an authoritative guide on how to go about the analysis. The kite is essentially a model of the wicked-empower framework, that could help to make sense of the actors status relative to a disruption.

## **6 Conclusions**

We posit in this paper that, when disruptive innovations are not only considered from the perspective of companies, rich insight can be drawn from their probable and observable

impact on other actors, notably the individuals, organisation and the society. Taking a societal perspective to the disruptive innovation discourse reveals how the effects of disruptions cause ripple effects in the society and in some cases on a global scale.

The advanced duality of disruptive innovation into wicked and empower, helps shift the narrative from solely looking at the concept from a disruptive-negative-evil set of perception as the name “disruption” would imply. Rather we can complement the negative consequences with the positive outcomes that are generated as a result of same disruption. To operationalize this dual perspective, we advanced the wicked-empower kite as a theoretical frame and a sense making device that can be utilized to position the impact of a (potential) disruptive innovation on different actors. It is expected that having this view of an actor’s positioning, the actors can be better informed on how to approach dealing with a disruptive innovation as it emerges. We hereby advance this wicked-empower framework and encourage scholarly engagement in developing, critiquing and improving the framework for more practical and theoretical utility.

## References

- Ahlstrom, David. "Innovation and growth: How business contributes to society." *The Academy of Management Perspectives* 24.3 (2010): 11-24.
- Baiyere, A. (2014) Disrupted Disruptions: Lessons from Potential Disruptive Innovations that barely disrupted, Proceedings of ISPIM Conference, Dublin, 25, 1
- Baiyere, A., & Salmela, H. 2013. Review: Disruptive Innovation & Information Technology- Charting a Path. *Proceedings of the 24th Australasian Conference on Information Systems (ACIS)*. In Deng, H. and Standing, C. (eds) December 4-6, Melbourne, Australia, RMIT University, 1-11
- Boehmke, F. J., & Witmer, R. (2004). Disentangling diffusion: The effects of social learning and economic competition on state policy innovation and expansion. *Political Research Quarterly*, 57(1), 39-51.
- Carlsen, H., et al. "Assessing socially disruptive technological change." *Technology in Society* 32.3 (2010): 209-218
- Christensen C.M. 1997, *The Innovator's Dilemma When New Technologies Cause Great Firms to Fail*, Harvard Business School Press
- Christensen, C. M. and Overdorf, Michael 2000,. "Meeting the Challenge of Disruptive Change." *Harvard Business Review* (78:1): 67-76
- Christensen, C. M. and Raynor, Michael E. 2003, *Innovator's Solution*. Boston: Harvard Business School Press
- Churchman, C. West 1967. "Wicked Problems". *Management Science* (14,4).
- Conklin, E. J., & Conklin, J. 2006. *Dialogue mapping: Building shared understanding of wicked problems*. Chichester: Wiley.
- Dufour, Y., & Steane, P. 2013. "Implementing Disruptive Innovation: A Wicked Problem for Health Care Managers?." *Management & Avenir Santé*, (1,1), pp. 33-52.

- Ferlie, E, Fitzgerald, L, McGivern, G, Dopson, S & Bennett, C 2013. *Making Wicked Problems Governable?: The Case of Managed Networks in Health Care*. Oxford University Press, Oxford.
- Cornell Empowerment Group. (1989). Empowerment and family support. *Networking Bulletin*, 1(2), 1-23.
- Dakhli, M., & De Clercq, D. (2004). Human capital, social capital, and innovation: a multi-country study. *Entrepreneurship & regional development*, 16(2), 107-128.
- Danneels, E. 2004,. "Disruptive Technology Reconsidered: A Critique and Research Agenda". *Journal of Product Innovation Management* (21:4), pp 246-258.
- Govindarajan, V., and P. K. Kopalle. 2006." The usefulness of measuring disruptiveness of innovations ex-post in making ex-ante predictions." *Journal of Product Innovation Management* (23:1), pp 12-18.
- Govindarajan, V., Kopalle, P. K. and Danneels, E. 2011, "The Effects of Mainstream and Emerging Customer Orientations on Radical and Disruptive Innovations ." *Journal of Product Innovation Management*, (28), pp. 121–132.
- Harpaz, I. "Advantages and disadvantages of telecommuting for the individual, organization and society." *Work Study* 51.2 (2002): 74-80.
- Lubinaite, S. (2015). Strategic technology management of Nokia Corporation 2003-2013: faulty choices and the collapse of the handset business.
- Markides, C. 2006 "Disruptive Innovation; In need of Better Theory", *The Journal of Product Innovation Management*, 23, 19-25.
- Meyer, J. W., & Jepperson, R. L. (2000). The 'actors' of modern society: The cultural construction of social agency. *Sociological theory*, 18(1), 100-120.
- Holloway S (1997). Review of Martha Finnemore 'National Interests in International Society' *Canadian Journal of Political Science*, 30, pp 410-411.
- Page, N., & Czuba, C. E. 1999. "Empowerment: What is it?" *Journal of extension*, (37,5), pp. 1-5.
- Palacios, J., & Tellis, G. J. (2015). The Dive and Disruption of Successful Current Products: Measures, Global Patterns, and Predictive Model. *Journal of Product Innovation Management*.
- Perkins, D. D., & Zimmerman, M. A. (1995). Empowerment theory, research, and application. *American journal of community psychology*, 23(5), 569-579.
- Rappaport, J. (1985) The power of empowerment language. *Social Policy* 16: pp. 15-21
- Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American journal of community psychology*, 15(2), 121-148.
- Rittel and Webber, (1973) 'Dilemmas in a General Theory of Planning' *Policy Services*. 4, pp.155-169.
- Schmidt, G. M. and Druehl, C. T. (2008) "When Is a Disruptive Innovation Disruptive?" *Journal of Product Innovation Management*, 25, 347-369.
- Schumpeter, J. A. (2014) [1942]. *Capitalism, socialism and democracy* (2nd ed.). Floyd, Virginia: Impact Books

- Hart, S. L., and Christensen, C. M. "The great leap." *Sloan Management Review* 44.1 (2002): 51-56
- Tengland, P. A. (2008). Empowerment: A conceptual discussion. *Health Care Analysis*, 16(2), 77-96.
- Webster J. and Watson R. Analyzing the past to prepare for the future: writing a literature review, *MIS Quarterly*, 26 (2002):2
- Whyte, K. P., & Thompson, P. B. (2012). Ideas for how to take wicked problems seriously. *Journal of Agricultural and Environmental Ethics*, 25(4), 441-445.
- Zimmerman, M. A. (2000). Empowerment theory. In *Handbook of community psychology* (pp. 43-63). Springer US.