DISRUPTIVE INNOVATION: A DRIVER TO ENTREPRENEURIAL SUCCESS

Oyo-Ita Dorothy, Covenant University Chris-Ossai Ekene, Covenant University Oputa Alma, Covenant University Sodeinde Adekunle, Covenant University Ogunnaike Olaleke, Covenant University Worlu Rowland, Covenant University Ogbari Mercy, Covenant University Ukenna Stephen, Covenant University

ABSTRACT

All entrepreneurs have a goal to excel with benefits socially or financially in business and because of rapid environmental changes, these entrepreneurs are looking for means to take a lead in the industry. Disruptive innovation is the application of new methods or technology in the current market of an organization. It was recognized that the impact on the business environment, not of the technology itself, that is disruptive. The effect can be damaging on existing organisations that do not follow the new trend as the current market is more likely to take the new technology because it is leading and enhancing the characteristics of other technologies in the market. This paper is an archival study aimed at identifying disruptive innovation as one of the recent drivers of success as entrepreneurs, how disruptive innovation can provide an entrepreneur with a competitive advantage and how disruptive innovation affects entrepreneurs.

Keywords: Disruptive innovation, Entrepreneurs, Technology, Products.

INTRODUCTION

Strong links between entrepreneurship and innovation have been identified by several literature (Autio et al., 2014; Chang Chieh Hang et al., 2015a; Kenney, 1986; Schumpeter & Opie, 1961; Tilmes, 2018; Varis & Littunen, 2010). Schumpeter & Opie, (1961) discussed the gales of creative destruction which is unleashed by the entrepreneurs through the introduction of the disruptive products, services and processes into the market sphere; consequently challenging and disrupting the present industrial existing conditions (Autio et al., 2014).

The prevalence of disruptive technology, products, and business model innovations is on the grounds of the continuous increase of the digitalization process; thereby increasing the widespread development and utilization of disruptive technology and innovation which provide various entrepreneurs and stakeholders with numerous opportunities, including risks. Also, the development of new disruptive products and business model innovation may bring about new business opportunities for well-established entrepreneurs; for example, entrepreneurs can gain easy access to new markets through the development of new product and service. Nonetheless, new (disruptive) product and business model may be developed by market competitors as well as

new and established entrepreneurs; the resulting implication of this development is the reduction of long-established market shares and profit margins for established entrepreneurs (Kay et al., 2018).

One of the major challenges of well-established entrepreneurs is finding promising techniques to manage the rapid change in the market, which is brought about by both the incumbent and the newcomer firms. The rapid change in the market sphere is due to the activities of both the incumbent and the newcomer firms for the sole purpose of making profits as well as meeting the firms set aims and objectives (Andersson & Eriksson, 2018). Furthermore, the comprehensive and indiscriminate nature of disruptive innovation influences the variation in the market; the effect of the variation caused by disruptive innovation in the market is experienced by several entrepreneurs and firms in different. Additionally, the means of value creation is profoundly affected by disruptive innovation and technologies as well as customer's preference in general (Bleicher & Stanley, 2016; Kagermann, 2015; Loebbecke & Picot, 2015). Thus the enhancement of entrepreneurs knowledge and understanding about disruptive technology, product and business model innovation is paramount (Chang Chieh Hang et al., 2015a).

Technological change and innovations have brought about significant improvement in productivity and efficiency of entrepreneurs. As stated by (Christensen, 1997), technological changes can either be sustaining or disruptive. Sustaining innovations strengthen conventional business practice and technological archetypes and standards. Sustaining innovation does not lead to the development of innovational technology; instead, they support the development of existing ones. Disruptive product, technology, and innovation primarily focus on the market, industries, and enterprises (Adner & Zemsky, 2005; Henderson, 2006; Karimi & Walter, 2016; Kay et al., 2018; Molina-Morales et al., 2019; Momeni & Rost, 2016). The predominant perspective of disruptive technology and innovation literature is the displacement of long-established business in other to favor the entrant of new business into the market. Disruptive innovation and technology provide the new businesses with the opportunity of effortless market entrant and domination while the long-established business are forced change strategies in other to key-up with the current market trend or be displaced (Feder, 2018).

Given the fact that business and entrepreneurs are an essential stakeholders in every economy; nonetheless, the manner by which business and entrepreneurs manage the versatility of evaluating and utilizing opportunities brought about by various disruptive technologies and business model innovation is of top-most importance (Andy Hayes, 2014; Kay et al., 2018; Seth, 2019). Available empirical evidence and studies examining the major disruptive technology and the entrepreneurial competencies which influence the successful implementation of disruptive technology and innovation are few. Hence, this study aims to examine the major disruptive innovation and competencies utilized by entrepreneurs and firms in other to attain entrepreneurial and business objective. The study aimed at determining how disruptive innovation can provide a business entrepreneur with a competitive advantage and the importance and benefits to entrepreneurs and companies from disruptive innovation.

The organization of the paper is as follows. Following the methods and materials, the review of literatures on disruptive innovation, disruptive technology and it effects on entrepreneurial success, the study explored the major disruptive innovation utilized by entrepreneurs and major entrepreneurial competencies adopted for the achievement of a successful disruptive innovation implementation; in the following section we discussed the opportunities, effects and benefit of disruptive technology to entrepreneurs. The conclusion and

the implication of disruptive innovation on entrepreneurial success is contained in the last section of the paper.

Methods and Materials

This paper is a conceptual study, proposed by other scholars who in recent times found some troubling creativity and its market consequences. which observed and analysed previous studies, propounded by other authors that looked at some disruptive innovation in recent times and their effects in the business environment.

LITERATURE REVIEW

When talking about disruptive innovation, it is impossible not to mention Clayton Christensen, who according to literature, was the originator of the concept. Christensen described it as a process by means of which a product or service is first developed on the ground of the market and then swiftly explodes the market which displaces existing competitors. (Horst, 2013); (Hardman & Steinberger-wilckens, 2013). Chang Chieh Hang et al. (2015) viewed disruptive innovation as a process in which entrepreneurial effort and action are crucial to the development and commercialization of the innovation. Most researchers in the field of disruptive innovation research reference the work of Christensen while improving on her work and coming up with new ideas and concepts. Hardman et al. (2013) defines disruptive innovation as innovations that are so different that their establishment in the market disrupts the pre-existing system. Their work was centered around the ability of new technologies to penetrate the market, that is, whether or not a technology is potentially disruptive. Existing literature highlight historical case studies of successful technologies which provided seven characteristics of disruptive technologies at the stage of market penetration. A three-part criterion to define disruptive technologies was proposed by the authors which include relation of disruption to manufacturers and infrastructure while innovation must provide more than the equivalence of service to the end-users. These seven characteristics gotten as a review of successful historic technologies where then used to as a yardstick to measure the possibility of emerging technologies which include battery-electric and hydrogen fuel cell vehicles and the result was similar to what was seen during the review of other historic innovations in terms of market penetration challenges, but it also identified more prominent ways to aid higher market penetration of the technologies.

In (Guo et al., 2018), the authors consider disruptive innovation as challenging, especially when it comes to assessment. In other to address the issue, a multidimensional measurement framework was presented. The framework considered three aspects to disruptive innovation which includes market place dynamics, external environments, and technological features, and it was tested using three different innovations to ascertain the viability of the framework. Hence, the study provides perceptions when it comes to product launch and resource allocation regarding disruptive innovation potentials even though a larger sample size was not considered in testing the framework. Chang Chieh Hang et al. (2015a) consider disruptive innovations and entrepreneurial opportunities with an emphasis on the importance and opportunities of disruptive innovation in both emerging and advanced economies. A case study showcasing how entrepreneurs have undertaken disruptive innovations for customers of low-end and new markets was provided. According to Brattstr et al. (2018) considers strength and weakness in innovation by highlighting the importance of innovation auditing; they believed that the audit framework that exists are not sufficient because they lack significant trends which include openness,

servitization, and digitalization; hence they proposed a revised innovation audit framework which comprises of these trends.

A significant aspect of technological innovation that has evolved drastically and has also become an essential practice is the concept of disruptive innovation theory which was propagated by Christensen in 1997. The disruptive innovation theory has brought about a noteworthy influence on management practices in various organizations as well as sufficient stimulated debate within the academia (Yu & Hang, 2010). Five-dimensional factors that drive disruption include cost, quality, customers, regulation, and resources. In 2003, Christensen and Raynor replaced the term disruptive technology with disruptive innovation this was because they broadened the use of the theory to include both technological and non-technological products, services and business models innovation like online businesses education, discount department stores (Yu & Hang, 2010); Markides, (2006) argued that technological innovations were diverse from business model innovations and requested a better way of categorization within the sphere of disruptive innovation.

In the background of disruption, innovation and technology can be referred to as a transformation that makes existing processes, services, or products futile. Whilst disruptive innovation is defined as the commercial introduction of product or service that disrupts activities of existing services in an industry or system. Disruptive innovation can occur at various levels such as industry segment, industry structure, and social system. Millar et al. (2018) defined disruptive technology as a technology with the possibility to create disruptive innovation at any of the levels of disruptive innovation. Disruptive technologies are those technologies that deliver standards different from the conventional type of technologies; they are initially inferior to those technologies especially in terms of performance which is of utmost importance to the consumers (Yu & Hang, 2010).

Nagy et al., (2016) highlight and addresses three vital questions regarding innovations that forestall academics from helping managers find out if a new technology is a disruptive innovation to their organization. These questions include the meaning of disruptive innovation, how disruptive innovation can be disruptive to some and yet supporting to others, finally how disruptive innovations can be identified before a disruption occurs. They further proposed a heuristic to determine whether an innovation could be disruptive through the relative nature characteristics of the innovation. Reinhardt & Gurtner, (2018) discussed the overlooked role of embeddedness in the disruptive innovation theory, defining embeddedness as the degree to which a product is anchored in the social, market, and technological system of the user. They highlight embeddedness as a tool that would help understand the dynamics of disruptive innovations as a significant moderator that complements the theory.

Considering disruptive innovation in low-income context, Nogami & Veloso, (2017) analyzed the concept of disruptive innovation in the low-income market. A theoretical review of disruptive innovation was done, and several challenges such as low income, budget instability which endangers financial planning. Solutions to penetrate low-income markets that include simplicity, the convenience of use and low prices was suggested. (Chang Chieh Hang et al., 2015a) considering disruptive innovations as essential in both developed and developing economies calls for a better understanding of opportunities provided by these disruptions. A study which shows how ambitious consumers from the low-end market and emerging industries have welcomed innovative technologies.

Li et al. (2018) conducted a bibliometric study and gave a detailed analysis of the relationships between emerging technology and disruptive technology. The results highlight

several theoretical foundations of research around disruption, emergence, and technological change processes. Autio et al. (2014) discussed the importance of entrepreneurial innovation, the article emphases the managerial, policy and theoretical implications of entrepreneurial innovation. McDowall (2018) whilst discussing on disruptive innovation and energy transitions argues that Christensen's theory relies on narrow conception of both disruption and innovation to be a central framework for thinking about low-carbon transitions.

Major Disruptive Innovation Utilized by Entrepreneurs

Internet-of-things

The term "Internet of Things" was invented by Kevin Ashton in 1999 (Ashton, 2009). The idea is to make it easier for everyone to connect to all things through the Internet. This means, in theory, all cars, retailers, ticket providers and even the living spaces would compulsorily be linked to the internet, allowing more business to be automated in effect. In return, this will require more artificial system development based on intelligence. Investments are being pushed into IoT (Al-Fuqaha et al., 2015) so it can become the standard, and examples of such companies running with this (Atzori et al., 2010) include Intel. The disruptive potential of the IoT is possibly making it connect each of our devices to the Internet (Gasiorowski-Denis 2016). Though there are concerns concerning this development such as the rapid demand for the use of the internet, network and data security. Therefore, measures should be taken preceding the progress of IoT in specific countries in order to understand all these issues.

Cloud computing

This is can be defined as an action whereby the process is stored and maintained on the internet. NIST describes cloud computing as a model that enables a common pool of programmable computing resources to be accessible widely, flexibly, efficiently and quickly provided and released with minimal management effort and interaction." (Mell & Grance, 2011). Since its emergence, a number of fields have been disrupted and the computer service environment has changed constantly. Spotify, a service that downloads songs, revolutionised music consumption with the advent of IoT. The use of Spotify, however, includes the use of cloud computing to preserve its user data (Metz, 2016). Cloud enables global users to use the social service. For other purpose, such as training, storage and business purposes, more data will be available. But there are still concerns. For starters, protection and confidentiality of cloud computing information. Research should therefore be undertaken to deal with the problem.

Blockchain

It is the major feature that led to Bitcoin 's success, originally written as Block Chain. Lou Carlozo states the blockchain is a decentralized database archive that is publicly available and often updated. This transaction was made publicly and experts considered it difficult to corrupt. Instead Lou reiterates the concept of Blockchain by describing it as a database of business records carried out in chains. A major reason this technology is very successful is because it provides financial transactions without a third - party intermediary being involved in the transaction. The Bitcoin's volatile function generates a disruptive technology which is the distributed ledger system.

This is different from the current online payment where the banking or other payment methods are supposed to intervene. It is recorded that more than 24 countries currently participate in blockchain study at the 2016 World Economic Forum, and that more than 25000 blockchain patents have been filed since 2013. The disruptive effect of blockchain is evident with over 1.4 billion investments for technology in the past three years. Recently, however, Blockchain was discussed and used in other areas. In addition to its current primary use of bitcoins, the development of IoT and Artificial Intelligence suggests that the potential of blockchain would spread to other areas. There are more discussions elsewhere. The challenge, however, is that a great deal of cooperation between the financial service provider, government and developer is necessary for security purposes for future work to ensure that the distributed headline is done correctly.

Bitcoin

In 2008, the paper "Bitcoin A Peer-to-Peer Electronic Cash System" was published by Satoshi Nakamoto launching the Bitcoin phenomenon globally (Satoshi Nakamato, 2013). It was subsequently revealed publicly, where the name is a pseudonym to the Bitcoin creator, which may consist of one person or group (Segendorf, 2014). It is a digital money transaction, cryptocurrency, that does not have a Central Authority or an issuer (Reid and Harrigan 2013). Their cryptocurrency nature means that they use the encryption which, in turn, makes a secure transaction possible, without third parties. Many experiments have been carried out since its induction. In a Forbes article (Bovaird, 2017) the total market cap of Bitcoin reached \$100 billion. Google's findings of the searches related to its name show the major promise of Bitcoin. The Google Trends results of Bitcoin searches on 11 November 2017 demonstrated that search growth has risen by more than 300 per cent since 11 October 2015 with the buzz revolving around 4IR. In his article, Marc Andreessen pointed out that Bitcoin has many advantages, such as micropayment and anti-spam capability (Andreessen, 2014). The perturbing innovation feature of Bitcoin led to the creation of another perturbing innovation called Blockchain, covered in the next paragraph. A peer-reviewed journal called Ledger, which primarily discussed cryptocurrency and Bitcoin, was published in the year. However, several Bitcoin concerns, including privacy and safety risks during application use should be discussed.

Entrepreneurial Competencies Adopted for the Achievement of a Successful Disruptive Innovation

Competencies to create, promote or sustain disruptive innovations usually are not linear; there is no single strategy for how they are implemented or how they function.

Leapfrogging mindset

Leading disruptive innovation requires a strategy such as leapfrogging. This strategy involves achieving a new or different thing that makes a significant step forward. Leapfrog mindset is a strategy adopted by entrepreneurs to beat the market leaders (existing incumbents) in the business environment by engaging in a massive leap of intelligence that brings in extraordinary growth and an increase in profit. This is a strategy that assumes that a market challenger will bypass the market leader and takes over the non-existing consumers and eventually the existing consumers of the market leader. For the market challenger to gain great

strides, the market challenger must have game-changing knowledge and technology that is better in every way possible to that of its competitors. adopt a strong commitment to create breakthroughs and add new levels of value to the market (Kaplan, 2012; Mike, 2019; Serradell-López, 2019).

Boundary pushing

This is very vital to an entrepreneur that works with different people who have diverse talents. This leads to the development of creative problem-solving skills. This involves the continuous push of the limits of their team member to broaden their mind to create new opportunities (Mike, 2019; Serradell-López, 2019).

Data-intuition integration

Entrepreneurs require data to make vital decisions. In most cases, robust and rigid data in the event of disruption are not usually available for them to take decisions. However, they have to use all available information from various sources and use impulses to comfortably find answers to existing opportunities. (Mike, 2019; Serradell-López, 2019).

Adaptive planning

It calls for incredible levels of insecurity. It is also a way to achieve efficiency through repeating corrective actions. We understand them, and then we change hypotheses and methods in the same way. Whether these results are large or terrible, they will usually get closer to the leap, as the result is generally new perceptions. These new perceptions shape our future activities, which are inevitably better adapted to market needs. (Mike, 2019; Serradell-López, 2019).

Savoring surprise

Disruptive innovation is an unexpected process that might include technological advances, customer feedback, business trends, political and supervisory movements, and other usually unexpected events and planned changes. Most businesses believe surprises should be avoided. Entrepreneurs who view surprises as an unavoidable part of the procedure are best prepared to use them as an analytical tool to make them the most active and effective organizations to capitalize on unexpected events. Based on this increasingly disruptive competitive environment, entrepreneurs that are able to differentiate themselves and their organizations must gain new capabilities (Serradell-López, 2019). Also, the introduction of virtual collaborations, technological convergence, integration into a universal hierarchy and the development of online communities are some strategies required by entrepreneurs in the company that may be employed to incorporate disruptive innovation (Allen, 2018). (Denning, 2013).

Gemici & Alpkan (2015) noted the practical effects of new technology for the company's members. One strategy that is identified is the management of both traditional and new technology business models, and best of all if traditional and disruptive business models differ in their costs and revenue structures. The authors suggested that business leaders should react with flexibility in their strategy plans to disruptive innovations, taking into account all external and internal factors.

DISCUSSION

Disruptive innovation is not a new product or service based on a particular technology, but a chance that the industry will meet or fulfill the needs of future customers or create new market segments in the low - end markets. New technology's ability to satisfy customers 'unmet needs or create a new market does not change the situation. Several investigative studies have identified guidelines for identifying potential disruptive innovation that are "disruptive steps" that can be used to better predict the incumbent companies, create disruptive innovations, identify the potential disruptive threat to incumbents and build a requirements sheet to evaluate their competition. (Chang Chieh Hang et al., 2015b).

Researchers have suggested that disruptive innovation is one that provides new value proposals appealing to another customer segment, but at the time of introduction unattractive to existing customers because of the interest they have on their lower level of performance on the attributes. Such technologies are being developed and improved, which would be appealing for some time for current customers. (Hang et al., 2011) claimed the mechanism for evaluating disruptive innovation is technology, market positioning, and other drivers. Considering multidimensional indicators such as technical features, dynamical marketplace and external climate also suggested a basis for measures of disruptive innovation (Guo et al., 2019). The technical characteristics included integration, management, maturity, diffusiveness and simplification; niche market dynamics; value network, cost reduction and external environment included policy and macro economies.

The assessment frameworks used to recognize future perturbing innovations are indicators for identifying opportunities within the business process.

The preference and demand of the customers has recently changed continuously. This leads organizations to always be relevant on the market, since they understand that tomorrow a useful business model can be outdated.

Disruptive innovation offers an organization a chance to grow and develop. It involves entrepreneurs supporting and understanding innovative concepts to address customers ' everchanging demands.

Organizations must implement well established traditional practices that invest in sustainable innovations and seek to make use of capital to disturb innovation. The structures and policies in the organization are repositioned, tested and compressed. Innovation and technology will develop and increase revenue over time. Each entrepreneur's new technology provides two alternatives, either to maintain the current market or to match new technologies (ICO, 2017).

Investigations show that certain entrepreneurs have used the disruptive innovation principles to make their businesses successful and also to change their industry rapidly. Disruptive innovation inevitably developed to remain relevant and to a regularly evolving business environment as one of the critical drivers for every entrepreneur.

Expand the market and set up a market niche: the company will experience a market expansion and discover its niche. It happens when the contractor discovers a possibility that relies on the unpredictable behavior of consumers as a solution to traditional industries. At first, the incentive does not seem to raise market shares or margins. According to Christensen, many of the disruptive companies have low brutal margins, products or services that tend to be less attractive to ever-developing industries but with steps and capability that can actually surpass previous technologies. This clarifies that these lower levels of the market deliver fewer gross margins that do not encourage other organizations to increase their market position and make room for a new disruptive product at the lower level to reach a ready-to-market entrant.

Improvement of process: entrepreneurs tend to strengthen their processes as they step up the market in addition to assessing the business process, as existing market identifies possible solutions to consumer needs, it defines how it adapts to the constantly changing business environment or enhances the existing product or service. Acknowledgement of new improvement territories and rapid adaptation to rapid changes in the business environment remain key factors in the industry that grow quicker using the principles of disruptive innovation.

Choosing leaders from various backgrounds: companies motivated and able to face new problems typically put their best efforts into creativity and attract people with these similar qualities. Drawing on people from various backgrounds will bring unique ideas and help the organization to reason outside the box. In less diverse organizations, different organizations achieve more financially. McKinsey published a diversity report in January 2015 which examined 366 public organisations, leading to 15 percent higher chances of surpassing their business counterparts in the top quartile for gender diversity. They also found that the highest quartile organizations of racial and ethnic diversity are 35 % more likely to outsource their counterparts financially in the industry.

ICO (2017) records for entrepreneurs what the advantages of disruptive technological innovation are: Creating a culture that encourages changes rather than disregards them. Renew and redo the current set of traditional practices and approaches; enhance business through innovation; facilitate the recognition of people who accept changes and optimize their approach to innovation. Livingston, (2017) has stated that disruptive market - based innovations can provide organizations with growth opportunities adapted to drive new patterns. The benefits of giving quality, less costly products and increased services will benefit both rivals and customers. It allows smaller organizations and new companies to deal with the company by establishing and developing new segments of their own markets. New ideas can be approved as protected innovation and regulated. Broadly speaking, large companies will make lucrative transactions or offer colossal funds to consolidate or to influence these fantastic new firms into their own action plan. According to the Midas exchange, disturbing innovations allow organizations, with new and existing products or services, to expand their market by introducing innovation, opening up organizations to urgency, helping entrepreneurs to find present and future opportunities and enabling the culture of the organization to become a learning network which understands change.

Disruptive innovation is advantageous to entrepreneurial successes as it improves productive capacity, bolster business procedures, and helps in value expansion. Entrepreneurs ought to know that disruptive innovation is focal and gives an intervening job which bolsters cooperation businesses and clients (Dhar & Sundararajan, 2007). A significant level consideration has to be given the value of innovation to decide if its effect will help firms to reshape their procedures so as to accomplish their objectives.

The effects of disruptive technology are as follows (Der, 2017):

1. Motivating businesses, the customers and community; different business processes in the business environment by filling out as a possible motivating agent for organisations, are transformed by interruptive developments. The aim is to improve business processes and lower operating costs with disruptive innovations, leading to efficient working processes and faster supply chains. The way organizations communicate with their consumers has changed radically with disruptive technologies, which allow businesses to help us understand consumer behavior and improve supply decisions. Sellers have linked to customers in the mobile application Jumia and Aliexpress, thus increasing business coverage and boosting revenue. Therefore, the expanding advantages to the successful entrepreneur from disruptive technologies

- must not be overlooked, as consumers gain from the better value offer of innovative products and the decrease in prices due to the reduced costs of production that improve the businessperson's revenues.
- 2. In expectation of a new competition paradigm; despite the increase in this technology which threaten to dissolve the competitiveness of the undertakings that rely on existing quality and product offerings. The fact that one new products and innovative business strategies undermine market share overall through the replacement effect, and that two enhanced business processes reduce the costs of production of the entrants while at the same time subverting market prices and making established business models rentable may disrupt conventional industry players. Technological innovations continue, as markets are likely to increase, to remove obstacles for entry and question ancient market structures based on cost disincentive. Several businesses are ready to implement disruptive innovations in their own business processes. Others can decide to use mergers and acquisitions to convert disruptive technologies into their own advantages. A new competition paradigm has recently been introduced by innovation as entrepreneurial skills can be no longer satisfied, they must constantly adapt to technologies beyond their traditional fields in order for the company to remain competitive.
- 3. Refined job market; the demands for work related to such technology tend to increase as new industries emerge that could have a positive effect on levels of employment, as a result of innovation and the adoption of new technologies. On the other hand, the elimination of human labor is brought about by labor-supplying technology, including computerisation, robotics and artificial intelligence. In general, growth of productivity in economic expansion is increasingly separated from employment growth; the exact relation between industry and industry depends on the nature of the technologies used. The biggest challenge is the widening gap in skills. The result is the creation of new jobs that differ from the familiar skills which increases the risk of unemployment, because repetitive work can not be held in new roles. The lack of capacity attributed to inappropriate skills, thus ruining further development, could distress new industries.

CONCLUSION

This paper advances the understanding of disruptive innovations and how it impacts on the success of modern-day entrepreneurs. It hinges on the competencies an entrepreneur must develop to succeed in our fast-growing technological age; and how these competencies are beneficial to identifying and seizing entrepreneurial opportunities. Some recent disruptive innovations in different sectors of the economy were discussed, and their effects and benefits so far.

Entrepreneurs should begin to come up with new products and services that are immediately attractive, valuable and disruptive to the existing customer and market at the time of introduction, rather than the normal trend of previous disruptive innovations. They should also target not only low-end customers but also customers who are average and above. This helps give their new innovation some value and wider acceptance on introduction into the market.

While entrepreneurs and organizations are keen on adapting to new technologies that exist to improve their operational processes and cut down on cost and time, it is important for them to stay abreast and not do away with some traditional processes that cannot be replaced in business operations. A reason being that, new technologies are not without errors and also tend to develop faults and errors.

It may also be good for organizations to look at innovation on a 'transformational' level rather than a 'disruptive' level. This helps them to focus more on producing valuable goods or services at their pace, rather than giving more energy to trying to compete with other firms in their industry. This is not to debunk the place of competition in industries, but if the organizational energy is wrongly channeled, the new product or service would be undesirable. Moreover, it may be more beneficiary if we have many firms thriving at what they do or produce than having a particular firm take over all others and limit the choices available to consumers.

ACKNOWLEDGEMENT

The authors acknowledge the financial support of Covenant University-Centre for Research and Development (CUCRID) regarding the paper.

REFERENCES

- Adner, R., & Zemsky, P.B. (2005). Disruptive Technologies and the Emergence of Competition. SSRN Electronic Journal.
- Al-Fuqaha, A., Khreishah, A., Guizani, M., Rayes, A., & Mohammadi, M. (2015). Toward better horizontal integration among IoT services. *IEEE Communications Magazine*, 53(9), 72–79.
- Andersson, J., & Eriksson, L. (2018). Incumbent Firms Towards Successfully Innovating the Business Model Applying Strategic Entrepreneurship with Business Model Innovation.
- Andreessen, M. (2014). Why Bitcoin Matters. Retrieved from https://dealbook.nytimes.com/2014/01/21/why-bitcoin-matters/
- Andy Hayes. (2014). Entrepreneurs: The backbone of the economy. Retrieved August 15, 2019, from https://www.canr.msu.edu/news/entrepreneurs_the_backbone_of_the_economy
- Ashton, K. (2009). That 'internet of things' thing. RFID Journal, 22(7), 97–114.
- Atzori, L., Iera, A., & Morabito, G. (2010). The Internet of Things: A Survey. Comput. Netw., 54(15), 2787–2805.
- Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097–1108.
- Bleicher, J., & Stanley, H. (2016). DIGITIZATION AS A CATALYST FOR BUSINESS MODEL INNOVATION A THREE-STEP APPROACH TO FACILITATING ECONOMIC SUCCESS. *Journal of Business Management*, (12).
- Bovaird, C. (2017). Bitcoin's Market Cap Is Now More Than \$100 Billion. Retrieved September 20, 2019, from https://www.forbes.com/sites/cbovaird/2017/10/20/bitcoins-market-cap-is-now-more-than-100-billion/#7a6e77c32b8b
- Christensen, C. M. (1997). The Innovator's Dilemma When New Technologies Cause Great Firms to Fail. *Harvard Business School Press*, 1–14.
- Der, D.C.K. (2017). The Impact of Disruptive Technologies.
- Dhar, V., & Sundararajan, A. (2007). Information technologies in business: A blueprint for education and research. *Information Systems Research*, 18(2), 125–141.
- Feder, C. (2018). The effects of disruptive innovations on productivity. *Technological Forecasting and Social Change*, 126, 186–193.
- Gasiorowski-Denis, E. (2016). How the Internet of Things will change our lives. ISO News, 5.
- Guo, J., Pan, J., Guo, J., Gu, F., & Kuusisto, J. (2018). Technological Forecasting & Social Change, (September). https://doi.org/10.1016/j.techfore.2018.10.015
- Guo, J., Pan, J., Guo, J., Gu, F., & Kuusisto, J. (2019). Measurement framework for assessing disruptive innovations. *Technological Forecasting and Social Change*, 139, 250–265.
- Hang, C.C., Chen, J., & Yu, D. (2011). An assessment framework for disruptive innovation. *Foresight*, *13*(5), 4–13. https://doi.org/10.1108/14636681111170185
- Hang, Chang Chieh, Garnsey, E., & Ruan, Y. (2015a). Opportunities for disruption. Technovation, 39–40(1), 83–93.
- Hang, Chang Chieh, Garnsey, E., & Ruan, Y. (2015b). Opportunities for disruption. *Technovation*, 39–40(1), 83–93.
- Hardman, S., Steinberger-wilckens, R., & Horst, D. Van Der. (2013). Disruptive innovations: The case for hydrogen fuel cells and battery electric vehicles. *International Journal of Hydrogen Energy*, *38*(35), 15438–15451.
- Henderson, R. (2006). The innovator's dilemma as a problem of organizational competence. *Journal of Product Innovation Management*, 23(1), 5–11.
- ICO, O. (2017). Disruptive Technology in Business Management. Retrieved September 20, 2019, from https://blog.goodaudience.com/disruptive-technology-in-business-management-207ad40d0d1b
- Kagermann, H. (2015). Change through digitization Value creation in the age of Industry 4.0. In *Management of permanent change* (pp. 23–45). Springer.
- Kaplan, S. (2012). Leapfrogging: Harness the Power of Surprise for Business Breakthroughs, 208.
- Karimi, J., & Walter, Z. (2016). Corporate Entrepreneurship, Disruptive Business Model Innovation Adoption, and Its Performance: The Case of the Newspaper Industry. *Long Range Planning*, 49(3), 342–360.
- Kay, R., Nielen, S., & Schröder, C. (2018). SMEs' responses to potentially disruptive innovations: Does strategic

- entrepreneurship provide an explanation? Bonn: Institut für Mittelstandsforschung (IfM) Bonn. Retrieved from http://hdl.handle.net/10419/190808
- Kenney, M. (1986). Schumpeterian innovation and entrepreneurs in capitalism: A case study of the U.S. biotechnology industry. *Research Policy*, *15*(1), 21–31.
- Li, M., Porter, A.L., & Suominen, A. (2018). Insights into relationships between disruptive technology/innovation and emerging technology: A bibliometric perspective. *Technological Forecasting and Social Change*, 129, 285–296.
- Livingston, J. (2017). How disruptive innovation benefits the marketplace. Retrieved September 20, 2019, from https://channels.theinnovationenterprise.com/articles/how-disruptive-innovation-benefits-the-marketplace
- Loebbecke, C., & Picot, A. (2015). Reflections on societal and business model transformation arising from digitization and big data analytics: A research agenda. *Journal of Strategic Information Systems*, 24(3), 149–157.
- Markides, C. (2006). Disruptive Innovation: In Need of Better Theory, 19–25.
- McDowall, W. (2018). Disruptive innovation and energy transitions: Is Christensen's theory helpful? *Energy Research and Social Science*. Elsevier. https://doi.org/10.1016/j.erss.2017.10.049
- Mell, P., & Grance, T. (2011). The NIST Definition of Cloud Computing, 28(12), 1063–1065. https://doi.org/10.1136/emj.2010.096966
- Metz, C. (2016). Spotify Moves Itself Onto Google's Cloud—Lucky for Google. Retrieved September 24, 2019, from https://www.wired.com/2016/02/spotify-moves-itself-onto-googles-cloud-lucky-for-google/
- Midas Exchange. (2016). The Benefits of Disruptive Innovation and Marketing: A Special CMO Club Report, 1–12. Retrieved from http://www.claytonchristensen.com/key-concepts/
- Mike. (2019). Disruptive Innovation Case Study to Stimulate Learning. Retrieved September 6, 2019, from https://digitalsparkmarketing.com/disruptive-innovation-case-study/
- Millar, C., Lockett, M., & Ladd, T. (2018). Disruption: Technology, innovation and society. *Technological Forecasting and Social Change*, 129, 254–260.
- Molina-Morales, F.X., Martínez-Cháfer, L., & Valiente-Bordanova, D. (2019). Disruptive technology adoption, particularities of clustered firms. *Entrepreneurship and Regional Development*, 31(1–2), 62–81.
- Momeni, A., & Rost, K. (2016). Identification and monitoring of possible disruptive technologies by patent-development paths and topic modeling. *Technological Forecasting and Social Change*, 104, 16–29.
- Nagy, D., Schuessler, J., & Dubinsky, A. (2016). Defining and identifying disruptive innovations. *Industrial Marketing Management*, 57, 119–126.
- Nogami, V. K. da C., & Veloso, A. R. (2017). Disruptive innovation in low-income contexts: challenges and state-of-the-art national research in marketing. *RAI Revista de Administração e Inovação*, *14*(2), 162–167. https://doi.org/10.1016/j.rai.2017.03.005
- Reid, F., & Harrigan, M. (2013). An analysis of anonymity in the bitcoin system. *Security and Privacy in Social Networks*, 197–223.
- Reinhardt, R., & Gurtner, S. (2018). The overlooked role of embeddedness in disruptive innovation theory. *Technological Forecasting and Social Change*, 132(February), 268–283.
- Satoshi Nakamato. (2013). Bitcoin: A Peer-toPeer Electronic Cash System, 1–9.
- Schumpeter, J.A., & Opie, R. (1961). The theory of economic development: an inquiry into profits, capital, credit, interest, and the business cycle. Harvard University Press Cambridge, MA.
- Segendorf, B. (2014). What is bitcoin. Sveriges Riksbank Economic Review, 2, 71–87.
- Serradell-López, E. (2019). Management disruptivo. En búsqueda de "The Next Big Thing." *Blog EADA*. Retrieved from https://blogs.eada.edu/2019/04/29/management-disruptivo-en-busqueda-de-the-next-big-thing/
- Seth, S. (2019). Why Entrepreneurship Is Important to the Economy.
- Tilmes, K. (2018). Perspectives on Disruptive Technologies and Forces.
- Varis, M., & Littunen, H. (2010). Types of innovation, sources of information and performance in entrepreneurial SMEs. *European Journal of Innovation Management*, 13(2), 128–154.
- Yu, D., & Hang, C.C. (2010). A Reflective Review of Disruptive, 12(4), 435–452.