

REVIEW ARTICLE

ROLE OF DISRUPTIVE TECHNOLOGY IN MANAGERIAL DECISION MAKING: A QUANTITATIVE INVESTIGATION

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ABSTRACT

Disruptive technology or disruption has become a popular term in the social area and in the business industry. Disruptive technology is a new technology that has low cost and whose performance is measured by conventional criteria. It has high supplementary performance. Primarily, disruptive technology is described as "innovation that results in poor performance of a product that has been brought to the market at a different value proposition. The products related to disruptive technology are usually cheap and low cost, small, simple, and easy to use. The popularity and frequency of disruptive technology, its products, and business model innovation are increasing the process of digitalization, which is ultimately increasing the development and usage of disruptive technology and innovation that provides various businessmen and entrepreneurs with various opportunities. Disruptive technology has become so popular that it has turned into a secret solution in almost every management talk, startup pitches, as well as political speeches.

KEYWORDS

Disruptive Technology, Artificial Intelligence, Managerial Decision Making, Digital disruption, Technological disruption.

1. INTRODUCTION

It is evident that in the business domain at the present time, disruptive technology is being used and accelerated a lot. Disruptive technology is more likely to be considered as a process instead of a product or just as a technology. A significant role is played by disruptive technology in either disrupting an existing market or by developing a totally new market by bringing changes in its values. An easy way to under this concept is to break technology into two parts, one is sustainable, and another is disruptive. Sustainable technology is about making investments in present technologies in order to make them work in a better way by upgrading their features. On the other hand, the goal of disruptive technology is changing the present rules and regulations and develop a new technology (Brennan et al., 2019). Although, in some cases, disruptive technology can become a threat to the old and existing models of business if they are unable to cope up with the changing trend. One of the biggest examples of such failure is Kodak, which couldn't cope up with the disruption of technology. Nokia is another example where the decisions of management didn't either support disruptive technology nor even approved them to be incorporated into their business.

Some of the examples of the modern usage of disruptive technology are the Internet of Things, Artificial Intelligence, Machine learning, Robotic Process Automation RPA, Blockchain, virtual reality, etc. all these have been listed in the list of development of businesses and changes people's mind towards utilization of innovation. Technology has the power to transform the whole business and the organization. However, it is worthy of getting a chance to do its work, which was previously done manually by human beings. The scope of innovations and develop new and automated system in an organization has proved to be a considerable measure to identify the real potential of a business organization. The situation has been well-analyzed by the management and managers, and their opinion

says that disruptive technology has proved to be a huge benefit for the companies that are capable and have already incorporated it into their businesses. There is very less time to consider issues and make strategic and effective plans and decisions that would help in the improvement of the company's business.

In the present scenario, innovation and disruptive technology have made management of the company give time and think over potential problems that are less dispensable and are important for the development and growth of the company. A time has come for the up-gradation of things and the way things were previously for the development of disruptive paths in order to meet the requirement level of performance by the clients. The participants or the contributors in innovation and disruptive technology have the responsibility to work on the demonstration of their performance related to innovation and the steps that they have taken to reach the quality requirements of their clients and overcome the challenges (Anchal et al., 2022).

Most insecure and helpless organizations also participate in innovations and disruptive technology and usually have good skills in it. One of the major issues which are identified is they still have more commitment towards the older one that has reached the highest point of its development. The insured organizations continue to add more commitment towards the development of old products even after their sale gets decline in the market. The explanation of management behind these difficulties is "the decision behind the allocation of resources to old and new technology in an organization are overburdened with a lot of consequences for the one who takes the decision, it is not just that old products are lined in threat, but also the old skills and the positions would get influenced." If one has to bet only on the basis of technical resources on which a company would master a disjointedness, then one would possibly bet on an organizational firms with a cultured technology base and a higher level of developing spending in an industry featured with

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quick transformations, each of which would signify a moderately lower step as compared to past. Definitely, those companies would find it tough to become engrained.

2. LITERATURE REVIEW

In some study, stated that disruptive technology and innovation projects are found to be challenging for small companies, particularly in the industrial sector with very higher consistency potential (Petetin et al., 2011). Due to such complications, the final result of the innovation is dependent on the quality of the decisions all through the process of innovation. The work presents an approach whose goal is to simplify decision-making in disruptive technological innovation projects. It promotes using the potential value creation for the shareholders of the innovation and the risks that are frightening such value creation as a measure during the process of decision-making. To assist companies in achieving innovation, various studies have been conducted that describe the process of innovation. The goal of these processes is to help companies in the adoption of such technology that increase their abilities of innovation and increases its efficiency as well.

Some researchers revealed the importance of managers in lower and middle level firms for the utilization of disruptive innovation process (Sadiq et al., 2020). It provides various feedback and responses to managers to cope with the challenges and problems of a vibrant and forceful environment. The unique pattern of dissemination of disruptive innovation before its introduction in the market develops its identification complex until the last moment and leave options for a reactive approach. The management of the company must adopt a proactive approach to lead a sustainable competitive advantage over prospective and existing competitors. The study found that disruptive innovation activities of managers are spread all over the four phases of the DI process, which are initiation, introduction, evolution, and convergence. Moreover, the measures of reliability, analyses of exploratory factors, analysis of confirmatory factors, and successive convergent, and discriminant validity tests support the DIA scale.

Chapman explained that innovation is acknowledged as an important aspect while giving consideration to the competitive environment (Chapman, 2021). Application of a lens of disruptive innovation might reveal that at the time of development of any new technology, the theory of disruption would not command or order what managers should do; instead of that, it will assist them in making a strategic selection between taking a sustainable path or to choose a disruptive one. The outcome of the study is regarded as setting up a framework for additional examination as it is apparent that the advantages of accepting new and disruptive technologies supersede the prospective negative imageries one might have.

Wasono and Furinto stated that disruptive digital technology is driving the transformation in expanding way all across the industries (Wasono and Furinto, 2018). Therefore, it becomes a problem and challenge for the companies to sustain their future businesses. The obligatory requirement to reinvent the strategies to expect the rapidly transforming digital disruption. The findings of the study the theory that digital leadership and the management of innovation have an impact on the companies to face digital disruption, which is digital leadership has a more important role as compared to management of innovation. It explains that the challenges in disruptive digital age, the companies must take extra efforts for the development of digital leadership with the support of development of innovation management.

A group researchers opined that companies must adapt to business environment in constant stability (Zubizarreta et al., 2020). The political and economic factors, along with the continuous disruptions of new, are forcing companies to change and to get adjusted, to not let them be left behind. In the past few years, the past scenarios have been fully revolutionized with the development of disruptive technology and innovation. Such innovation breaks with what is already established, and the companies from different industries have no choice other than incorporating them into their businesses portfolios to sustain and survive in competitive world.

Nadkarni and Prugl stated that digital opportunities and potential requires come together with talented workers to disclose its power of transformation (Nadkarni and Prugl, 2020). Hence, the digital changes require people as well as technology. In the past some years, digital technology has received a lot of attention from scholars. Omenugha explained about the study to understand disruptive technology (Omenugha, 2019). Technology is the application of science for the resolution of daily life problems like education, communication,

agriculture, health, logistics, and banking. In this context, technology is being considered a product of the modern era like smart mobile phones, laptops, etc. Latest technology like digital gadgets is most probably create a threat, from better competitive models of business for the competitors to newcomers into the market.

Some researchers found that disruptive innovations influence the process development methods and products, concept of new production, new material for a product, as well as new organizational plans (Roblek et al., 2021). Furthermore, it is also identified that organizational transformations are associated with the development and usage of disruptive innovation in coming future. The examination of the study revealed three major groups of disruptive innovation and their influence on smart factor development in the near future, which are technological transformations, emerging innovative products, business models, and the solutions. Sousa & Rocha revealed three kinds of skills by analysis of the content through the survey (Sousa and Rocha, 2018). The three skills are leadership, innovation, and management. The study also attempted to examine the perception of managers from distinct industries with reference to the level of development required by the managers of disruptive businesses for similar skills.

3. OBJECTIVE OF THE STUDY

1. Identification of the role played by Disruptive technologies in managerial decision-making.
2. To ascertain how disruptive technologies help in the decision-making process.

4. METHODOLOGY

The nature of the study is empirical. The number of respondents who participated in the study was 171. The data was collected through a structured questionnaire. To identify outcome of the Mean and t-test were applied. Sampling method was convenience sampling.

4.1 Study's Outcome

Table 1 shows Respondent's gender, male respondents are 59.65%, and females are 40.35%. Looking at the age group, those respondents between 28 to 33 years were 25.15%, respondents who were 33 years to 38 years were 41.25%, and those who were more than 38 years were 33.33%. Regarding the Sectors, Finance/banking are 19.30%, Manufacturing industry is 34.50%, Information Technology are 23.98%, and other is 22.22%. With reference to the Level of Management, Lower level management is 36.84%, Middle level management is 27.49%, and higher-level management is 35.67%.

Table 1: Respondent's Demographic Details		
Variable	Number of respondents	%
Gender		
Male	102	59.65%
Female	69	40.35%
Total	171	100 %
Age		
28 to 33 years	43	25.15%
33 to 38 years	71	41.52%
38 years & above	57	33.33%
Total	171	100 %
Sectors / Industry		
Finance / Banking	33	19.30%
Manufacturing Industry	59	34.50%
Information Technology	41	23.98%
Others	38	22.22%
Total	171	100 %
Management Level		
Lower level management	63	36.84%
Middle level management	47	27.49%
Higher-level management	61	35.67%
Total	171	100 %

Table 2: Role of Disruptive Technologies in Decision-making process

Sr. No.	Survey Statement	Mean Value	T-Value	Significance
1.	Disruptive technologies play essential role in removing the entry barriers in the industry	4.33	17.698	0.000
2.	Evolving disruptive technologies give assistance in business model innovations and development	4.19	15.935	0.000
3.	The profitability rates are higher of Companies who have already adopted innovative and disruptive technologies	4.11	15.101	0.000
4.	The ability of decision-maker to assess the situation for taking correct decision have improved	3.19	2.533	0.006
5.	Disruptive technologies have the ability to change the choices of decision-makers as per the flexibility, reliability, and requirement	4.07	14.497	0.000
6.	Majority of Emerging disruptive technologies have the capability to re-shape international politics	3.23	3.064	0.001
7.	Disruptive technology helps in increasing the efficacy of offensive and defensive decisions of cyber operations of businesses	4.29	17.346	0.000
8.	It has improved the capabilities of decision-makers to understand external environment	4.19	16.072	0.000
9.	Disruptive technologies provides decision-makers deep and accurate understanding of the situation	3.27	3.603	0.000
10.	It also support decision-makers by generating alternative course of actions	4.03	13.984	0.000

Table 2 shows mean values of the "Role of Disruptive Technologies in Decision-making process" the first statements of T-test is "Disruptive technologies plays an essential role in removing the entry barriers in the industry" it has scored the mean value of 4.33, statement says that disruptive technologies helps in business model innovations "Evolving disruptive technologies give assistance in business model innovations and development" has the mean value of 4.19. Third statement is "The profitability rates are higher of Companies who have already adopted innovative and disruptive technologies" the mean value is 4.11, next statement "The ability of decision-maker to assess the situation for taking correct decision have improved" with the mean score of 3.19, fifth statement is "Disruptive technologies have the ability to change the choices of decision-makers as per the flexibility, reliability, and requirement" the mean value is 4.07.

Statement "Majority of Emerging disruptive technologies have the capability to re-shape international politics" the man score is 3.23, seventh statement "Disruptive technology helps in increasing the efficacy of offensive and defensive decisions of cyber operations of businesses" has scored the mean value of 4.29, statement "It has improved the capabilities of decision-makers to understand external environment" has the mean value of 4.19. The last two statements, "Disruptive technologies provides decision-makers deep and accurate understanding of the situation" and "It also support decision-makers by generating alternative course of actions" has scored the mean value of 3.27 and 4.03 (Dorothy et al., 2020). T-value of each statement of the survey in the context of Role of Disruptive Technologies in Decision-making process are significant because t-value of all statements are positive as significance value is found to be less than 0.05.

CONCLUSION

The goal of every entrepreneur is to excel with advantages socially and financially in their businesses, and due to the rapidly changing environment, such entrepreneurs are finding for the means to take a lead in the market. Disruptive innovation is the application of new ways and technology in the present market. It is acknowledged that the influence on the business environment, not of technology itself, which is disruptive. The influence of disruptive technology can make damages to the existing company who are not following the new trend of the market as the current market is possibly adopting new technology as it is leading and expanding the features of other technologies in the market. Entrepreneurs must come up with new products and services that are attractive, have good value, and disruptive for customers as well as market during the time of introduction and not during normal trend of past disruptive innovation. Business should also target low end customers along with the customers who comes under average and above level.

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