IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

A Review Paper on Technological Innovation Management

Roma Khanna, Assistant Professor
Department of Teerthanker Mahaveer Institute of Management Technology, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India
Email id- romakhanna11@gmail.com

ABSTRACT: ***In high-tech and inventive companies, innovation and technology management is an unavoidable problem. Organizations must always concentrate on new product creation in order to maintain market leadership. Innovations play a critical part in product development in any company in order to expand business quicker, improve efficiency, and assist any organization dominate in the global market. In the present scenario, every company is attempting to integrate technology in the workplace in order to provide a better route to innovation that will enable them to outperform their rivals. Any organization's business is immediately affected by technological innovation, which is why good management of innovation and technology is critical inside the company. Effective management may assist any company in maintaining its market leadership position. This article offers an overview of business innovation, concentrating on various kinds of innovation based on different criteria, technological innovation in the digital business environment, obstacles to technological innovation, and technological innovation management.***

KEYWORDS: ***Innovation, Proactive Innovation, Product Innovation, Process Innovation, Reactive Innovation, Technology, Technological Innovation Management.***

1. INTRODUCTION

In a competitive global economy marked by continuous and fast technological growth and development, the relevance of research in the areas of technology management, innovation, and change is critical. Technology and innovation are the two most important elements that help companies attain global market competitiveness. Why is it so essential to control technological innovation? The significance of technology management stems from[1]:

- the rapid pace of technical change, which necessitates interdisciplinary methods; and
- Rapid technological development, which has shortened the product's life cycle.
- the requirement to reduce product development time and make businesses more nimble;
- the necessity to make effective use of new technologies in order to maximize competitiveness;
- the importance of adapting management techniques in response to fast technological developments.

Technology and innovation are at the heart of policy and strategy developed for companies, markets, national economies, regions, and sectors, among other things.

Technological innovation is the most important kind of innovation for manufacturing businesses since it may improve efficiency, solve issues, and create value. Technical advancements are credited with changes in goods, services, and production processes, but although the charming form of innovation is probably the most apparent, not every company is able to develop technologically. The study looks at how technological innovation is handled in digital corporate settings. An overview of technical innovation, the digital business paradigm, its difficulties, methods, and best practices in the business sector to accomplish technological innovation will be presented in the following parts.

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

1.1. Technological Innovation Overview:

Innovation is the process of integrating new ideas into existing services and products. New ideas are applied via invention, and design ensures that these innovations are useful. Emerging technologies is revolutionizing the world of work. They have already become an essential component of companies, driving the growth of the two most powerful rising forces in the world's cyber- and computer-based sector. In fact, such technological advancements offer tremendous new benefits to companies and employees.

To improve the productivity of any company or to maintain a market position, it must embrace a technology or procedure. The anticipated contribution to the success or output of the implementation organization is typically the fundamental goal of implementing a new technology or technique. Technological innovation is the economic function of new technologies in production and consumption. Understanding the most recent technological possibilities, as well as organizing and supporting the required human and financial resources to convert them into real goods and processes, are all part of this process. This is crucial since technology advancements have been important in significantly increasing living standards. Product and process innovation are examples of technical innovation, whereas marketing and organizational innovation are examples of non-technological innovation. This section provides professionals, managers, and academics with an understanding of the challenges surrounding the management of technological advancements in digital companies. The next part of this chapter examines the six most frequent developments in terms of the technique used and the business activities they include [2]–[5].

Various types of innovation may generally be classified into different categories, but two of the most common are innovation based on technique and innovation based on function.

1.1. Innovation Based On Approach:

The most frequent innovation categories in this category are proactive and reactive innovation.

1.1.1. Proactive Innovation:

Companies that concentrate on creative product creation may help any company get a competitive advantage in the market. They have access to information and make big bets/take big risks from a variety of places. Discovering and spreading new ideas is also part of proactive creativity. Proactive innovation refers to a company's continuous identification of new possibilities and problems, as well as the application of those ideas to produce new goods and services that address those issues. In order to innovate, businesses must first evaluate and identify the issue or difficulties with their existing product, and then devise a brainstorming session or other method for coming up with creative solutions to these problems. As people begin to innovate, it's critical to establish a team environment and focus on their ideas. The framework clarifies what kinds of ideas are required, provides easy rules for meeting, evaluating, and demonstrating how ideas are utilized to demonstrate their value. Our active early search for ideas is another proof of our contribution to the innovation cycle.

1.1.2. Reactive Innovation:

Not many companies have the necessary resources to become industry leaders and adopt cutting-edge technological advancements on a regular basis. However, in order to successfully compete against rivals and guarantee long-term market dominance, these businesses must react to innovations done by other companies, typically competitors, and create their own innovation plan. Reactive innovation is a method for ensuring a company's existence by responding to rivals' advances. As a result, reactive innovation is an unexpected, instantaneous reaction to an

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

external event or change that may be conservative or progressive. Reactive innovations may assist companies with a weak market position in gaining and maintaining a competitive edge over their rivals. The introduction of a competitor's brand is closely linked to reactive innovation. Reactive innovation requires a thorough competitive emphasis, while proactive innovation is better linked with a strong customer focus [6], [7].

1.2. Innovation Based On Functions:

1.2.1. Product Innovation:

The traditional perspective of product innovation is that it is a way for businesses to keep their product ranges fresh. Product innovation not only enables companies to offer new products, but it also pushes them to improve their technology. The introduction of new goods, improvements in product design, or the application of contemporary technology and equipment in old production techniques are all examples of innovative products. To put it another way, the product is built on existing consumer markets and distinguishes itself via functionality and features not seen in current goods. Internally, however, product innovation is dependent on the company's experience, competence, money, and technology, as well as consumer requirements and the owner's expectations. It focuses on the exterior aspect of product innovation.

Technical product innovation is the introduction of a consumer product to the market that incorporates several technologies. Organizational performance may be enhanced by bringing new inventive products into the market that will assist in providing advantages to customers, allowing the company to maintain market share. Product innovation, on the other hand, is more external and requires more organizational efforts to raise awareness [8].

1.2.2. Process Innovation:

Product innovation is encouraged in today's dynamic manufacturing industrial sector. A new product that successfully increases the number of companies in their market. However, as a consequence of the outcome producer's encouragement to seek greater competitive advantages in terms of revenue creation, a market rival may manufacture comparable products at a cheaper cost. Developing a manufacturing strategy for sustainability, which enhances the product result, is one method to obtain a competitive edge. It also focuses on innovative process innovations that can protect against copycats. Because of limits in their process specification, accuracy in comparing these technologies is challenging when companies investigate new and undiscovered technological choices for production processes that will provide competitive benefits.

Furthermore, the successful implementation of new technologies is contingent on how effectively developing systems and processes align with existing system capabilities. Employee awareness, which is needed for manufacturing companies to attract consumers, is facilitated by the effective introduction of new technologies and processes, also known as creative processes. Furthermore, freshly innovative manufacturing products are produced, productivity gains are realized, time is saved, and strong competitive barriers are created, resulting in increased market share.

For a manufacturing facility to be profitable, process innovation is required. Process innovation is defined as a process of technological and organizational change that includes the enhancement of a company's production processes. Process improvement includes both organizational and technological advancements, and it is a major source of increased company efficiency. It may also help companies gain a competitive advantage by promoting equipment deployment, innovative management methods, and process enhancements. The capacity for

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

improvement in a company's operation is the ability to acquire, absorb, convert, and utilize technologically connected tools, processes, and information for process innovation objectives. Despite the benefits of integrating process innovations into a production system, study has rapidly identified the challenges of uncertainties that influence a production system's characterization and efficiency.

1.2.3. Marketing Innovation:

A major component of marketing innovation abilities is the ability of the company to maintain competitive advantage. Marketing innovation is critical for many kinds of innovation, particularly product innovation, where marketing innovations nearly always involve significant modifications to product structures, packaging, distribution, promotional items, and pricing. Marketing innovation adds product use information to the product development process, allowing the process to run more smoothly from idea to production. In competitive marketplaces, compliance with the current marketing regulations alone is not enough to guarantee sustainability and profitability. Marketing innovation is built on fun, limitless, and challenging creative thinking.

1.2.4. Organizational Innovation:

Plans for innovation must be coordinated throughout the whole organization. There can be no innovation policy if there isn't a creative culture and leadership. Another significant element that affects the success of creativity is organizational creativity. Before any result can be observed, the process of adoption, adaption, acceptance, systematization, and fusion must pass through organizational innovation. Organizational innovation may be defined as the adoption of procedures and methods, such as research, development, and implementation of new technologies, as well as behavior, all of which are necessary for the promotion of new product innovations[9]. Organizational reforms that foster creativity must have a strong organizational sense of purpose and faith. This necessitates the use of new organizational tools and skills, as well as the evaluation of cooperation and cross-sectional collaboration, as well as the performance of tasks, the interchange of creative ideas and resources, and the availability of and participation in recommendations. All of these interactions, sharing, points of view, and attitudes are crucial for reaching a consensus.

Organizational innovation is described as a company's ability to develop and implement technical and functional innovations on a regular basis with more integrated creativity than its rivals. As a result, it's reasonable to argue that 'organizational innovation' must embrace and apply the other three types of technologies that have been discussed: products, processes, and marketing strategy.

1.3. Technological Innovation in the Digital Business Environment:

Transformations are characterized as digital transformations or disruptions when businesses and their ways of working change from their traditional operating modes to new and technology-oriented operating modes. Because change is the only constant, digital transformation has become critical for every single, small, or medium-sized business. Different digital technologies have become a critical component of development in a variety of industries, including automation, distribution, applications, retail, and medical. A new creative business technology must be utilized to offer customers and employees with a positive digital business experience. In today's environment, businesses must develop creative bespoke apps in order to stay ahead of the competition[10]. The goal of digital transformation is to save operational expenses while also improving customer satisfaction. Not only does embracing the

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

newest technology contribute to digital transformation, but it also requires a change in attitude and corporate culture. Organizations must rapidly respond to changes in market circumstances, complicated business demands, and innovative methods to satisfy these changing requirements.

Digital technology is becoming more important in order to accomplish corporate goals, and its long-term impacts have led to a significant change of the whole sector. The trend toward more complete commoditization has been accelerated by the digitization process, which has impacted many aspects of art, culture, industry, and society, and has become a major element in the design, production, and distribution of products. Digitalization is advancing at a rapid pace, with additional potential advantages to global industry. This has resulted in new opportunities and repercussions for innovation on par with the initial industrial revolution.

Changes in systems are a result of technological advancements. The business cycle is shifting away from traditional procedures and toward new technologies, such as cloud computing. IoT, big data, and so forth. These and other advancements in these areas are then adopted and recognized across the company. It provides value to the market, increases speed, reduces effort and expenses, and improves performance.

2. DISCUSSION

The era of innovation and technology management is beginning to emerge in developing businesses. By default, the innovation and technical environment in developing nations is characterized by a bad business model, government circumstances, and low levels of education, inadequate technology management, and insufficient infrastructure. Developing-country businesses often lack a thorough knowledge of or access to the technologies required. Because technical managers were often unavailable, companies were unable to create their local technology infrastructure and environment for the absorption of imported technology. At the very least, basic training is required in order to deal with any kind of technical tool and equipment, production, or selection of any appropriate technology. The continuous development of human capital will be critical in this regard.

The education levels in developing nations are very low. It is also a significant impediment to innovation, technology management, and growth. Indeed, a definite connection between educational requirements and various stages of industrialization may be established. In the pre-industrial period, just basic literacy is needed, while in the post-industrial age, more technical and specialized skills are required. Education institutions, which are the source of new ideas and inventions, are, of course, one of the answers. The world's top universities are located in underdeveloped countries. The academies at elite institutions also have strong connections with businesses, with the majority of academies being entrepreneurs themselves. To guarantee efficiency and development in today's highly competitive markets, a well-developed economic and social infrastructure is critical. In addition, poor infrastructural conditions in emerging nations need innovation and technology management. Although most nations (including India) have played a significant role in the creation of new technology and innovation management, this is insufficient and must be improved.

3. CONCLUSION

This study looked at previous research that looked at the factors that influence technological innovation in any company. This article primarily focuses on many elements of technological innovation, such as kinds of technological innovation, the idea of digital business, technological innovation management, and obstacles to innovation, among others. Organizations may develop quicker by implementing innovation in technology-adopted

ISSN PRINT 2319 1775 Online 2320 7876

Research paper UGC CARE Listed (Group -I) Journal Volume 11, Iss 6, June 2022

workplaces. Because innovation affects every step of a company's life cycle, it's critical to successfully develop and manage it. Reactive innovation includes continual enhancement of current goods, while proactive innovation assists any company in creating new and inventive products, resulting in the firm becoming an industry leader in the market. Economic, knowledge, and market constraints are some of the limiting variables considered in relation to technological progress. Economic considerations are very essential in any company since they have a direct effect on innovation. Overcoming these obstacles is critical for every company to maintain a healthy business in the market. The most significant incentives are financial ones, which express themselves in the form of direct and indirect benefits, such as improved market position, competitive advantages, and so on. At the same time, the company's ability to innovate is influenced by the economic and political climate in which it works, as well as the organizational culture and social backdrop and financial resources available.

REFERENCES:

[1] M. T. García Merino, M. V. Santos Álvarez, and M. L. Pereira do Carmo, "Characterisation of technological innovation management journals," *J. Technol. Manag. Innov.*, 2008.

[2] R. E. Lewis and R. J. Heckman, "Talent management: A critical review," *Hum. Resour. Manag. Rev.*, 2006.

[3] D. Pandita and S. Ray, "Talent management and employee engagement – a meta-analysis of their impact on talent retention," *Ind. Commer. Train.*, 2018.

[4] P. Bolander, A. Werr, and K. Asplund, "The practice of talent management: a framework and typology," *Pers. Rev.*, 2017.

[5] S. Jayaraman, P. Talib, and A. F. Khan, "Integrated Talent Management Scale: Construction and Initial Validation," *SAGE Open*, 2018.

[6] G. D. Holt, "British construction business 1700-2000: Proactive innovation or reactive evolution?," *Constr. Innov.*, 2015.

[7] U. Maunsbach, "The CJEU as an Innovator – A new perspective on the development of internet related Case-Law," *Masaryk Univ. J. Law Technol.*, 2017.

[8] N. Zhang and G. W. Lee, "Consumer valuations on digital product innovation," in *ACM International Conference Proceeding Series*, 2016.

[9] Y. Liao, Y. Fan, and Y. Xi, "A Technological Innovation Management Based on the Audit," *Int. Bus. Res.*, 2011.

[10] J. L. Hervas-Oliver, F. Sempere-Ripoll, C. Boronat-Moll, and R. Rojas-Alvarado, "On the joint effect of technological and management innovations on performance: increasing or diminishing returns?," *Technol. Anal. Strateg. Manag.*, 2018.