

An Analysis of Technological Innovation Management

Sh. Sachin Gupta

SOMC, Sanskriti University, Mathura,

Uttar Pradesh, India

Email Id- chancellor@sanskriti.edu.in

ABSTRACT

In high-tech & inventive companies, innovation & 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, & assist any organization dominate in global market. In present scenario, every company is attempting to integrate technology in 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 & technology is critical inside 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 depending upon several criteria, technological innovation in digital business environment, obstacles, & technological innovation management.

KEYWORDS

Innovation, Proactive, Product, Process, Reactive.

1. INTRODUCTION

In a competitive global economy marked by constant & fast technological growth & development, relevance of research in areas of technology management, innovation, & change is critical. Technology & innovation are two most important elements that help companies attain global market competitiveness [1]. Why is it so essential to control technological innovation? Importance of technology management stems from: high rate of technological change, which necessitates multidisciplinary approaches; rapid technological advancement, which has shortened product life cycle; need to reduce product development time & make companies more agile; & need to take good usage of developing technology to maximize competition.

Technology & innovation are at heart of policy & strategy developed for companies, markets, national economies, regions, & sectors, among other things. Technological innovation is most important kind of innovation for manufacturing businesses since it may improve efficiency, solve issues, & create value. Technical advancements are credited with changes in goods, services, & production processes, but although charming form of innovation is probably most

apparent, not every company is capable to develop technologically. Study looks at how technological innovation is handled in digital corporate settings. A summary of technical innovation, digital business paradigm, its difficulties, methods, & best practices in business sector to accomplish technological innovation will be presented in following parts [2].

1.1 Overview of Technological Innovation

Innovation is process of integrating new ideas into existing services & products. New ideas are applied via invention, & design ensures that these innovations are useful. Emerging technologies are revolutionizing world of work. They have already become an essential component of companies, driving growth of two most powerful rising forces in world's cyber- & computer-based sector. Such technological advancements, in turn, offer tremendous new benefits to companies & employees. To improve productivity of any company or to maintain a market position, it must embrace a technology or procedure. Desired contribution to success or output of implementation organization is typically fundamental goal of implementing a new technology or method. Technological innovation is economic function of new technologies in production & consumption. Understanding most recent technological possibilities, as well as organizing & supporting required human & financial resources to convert them into real goods & processes, are all part of this process. This is important since technical advancements have been vital in substantially increasing living standards. Product & process innovation are examples of technical innovation, whereas marketing & organizational innovation are examples of non-technological innovation. This section provides professionals, managers, & academics with an understanding of challenges surrounding management of technological advancements in digital companies. Next part provides an analysis of six most frequent developments based on technique used & business activities they entail [3].

1.2 Types of Innovation

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

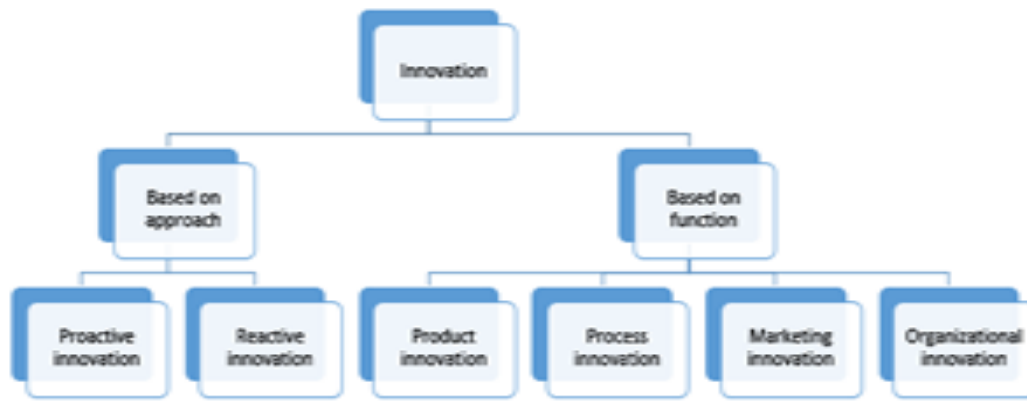


Figure 1: Representation of several types of Innovation

1.2.1 Innovation Based on Approach

1.2.1.1 Proactive Innovation

Companies that concentrate on creative product creation may help any company get a competitive advantage in market. They have access to information & make big bets/take big risks from a variety of places. Discovering & spreading new ideas is also part of proactive creativity. Proactive innovation refers to a company's continuous identification of new possibilities & problems, as well as application of those ideas to produce new goods & services that address those challenges. In order to innovate, businesses must first evaluate & identify issues or difficulties with their existing product, & then devise a brainstorming session or method for coming up with creative solutions to solve problems. As people begin to innovate, it's critical to establish a team environment & focus on their ideas[4]. Framework clarifies what kinds of ideas are required, provides easy rules for meeting, evaluating, & demonstrating how ideas are utilized to demonstrate their value. Our active early search for ideas is another proof of our contribution to innovation cycle.

1.2.1.2 Reactive Innovation

Not all companies have necessary resources to become industry leaders & adopt cutting-edge technological breakthroughs on a regular basis. However, in order to successfully compete against rivals & guarantee long-term market dominance, businesses must react to innovations done by other companies, typically competitors, & create their own innovation plan. Reactive innovation is a method for ensuring a company's existence while also responding to rivals' advances. As a result, reactive innovation is an unexpected, instantaneous reaction to an external event or change that may be conservative or progressive. Reactive innovations may assist companies with a weak market position in gaining & maintaining a competitive edge over their rivals. Introduction of a competitor's by & is closely linked to reactive innovation. Reactive innovation requires a thorough competitive emphasis, while proactive innovation is better linked with a strong customer focus[5].

1.2.2 Innovation Based On Functions:

1.2.2.1 Product Innovation

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 motivates them to create new technologies. Introduction of new goods, improvements in product design, or application of contemporary technology & equipment in old production techniques are all examples of innovative

products. In other words, product is built on established consumer markets & distinguishes itself via functionality & features not seen in competing goods. Internally, however, product innovation is dependent on company's experience, competence, money, & technology, as well as consumer requirements & owner's expectations. It focuses on exterior aspect of product innovation. Technical product innovation is introduction of a consumer product to market that incorporates a variety of technologies. Organizational performance may be enhanced by bringing new inventive products into market that will assist in providing advantages to customers, allowing company to maintain market share. Product innovation, on the other hand, is more external & requires more organizational efforts to raise awareness[6].

1.2.2.2 Process Innovation

Product innovation is encouraged in today's dynamic manufacturing industrial sector. A new product that successfully increases number of companies in their market. However, as a consequence of 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 product result, is one method to obtain a competitive edge. It also focuses on innovative process innovations that may counteract imitators. Because of limits in their process specification, accuracy in comparing new & unknown technology choices for production processes that will provide competitive advantages is challenging when companies investigate new & unknown technology options for competitive advantages. Furthermore, successful implementation of new technologies is contingent on how effectively developing systems & processes align with existing system capabilities.

Employee awareness, which is needed for manufacturing companies to attract consumers, is facilitated by effective introduction of new technologies & processes, also known as creative processes. Furthermore, freshly innovative manufacturing products are produced, productivity gains are realized, time is saved, & 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 & organizational change that includes enhancement of a company's production processes. Process improvement includes changes in both organization & technology, & it is a major source of increased company efficiency. It may also help companies gain a competitive advantage by promoting deployment of new equipment, new management techniques, & changes to production processes.

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

1.2.2.3 Marketing Innovation

A major component of marketing innovation abilities is ability of company to maintain competitive advantage. Marketing innovation is critical for many kinds of innovation, particularly product innovation, which nearly always includes significant changes in product structures, packaging, distribution, promotional items, & price development. Product use data are introduced to product development process via marketing innovation, which helps product development process function better from idea stage through all or phases of production. In competitive marketplaces, compliance with current marketing regulations alone is not enough to guarantee sustainability & profitability. Marketing innovation is built on fun, unrestricted, & challenging creative thinking.

1.2.2.4 Organizational Innovation

Innovation strategies must be coordinated throughout whole organization. There can be no innovation policy if there isn't a creative culture & leadership. Another significant element that affects success of creativity is organizational creativity. Before any result can be observed, process of adoption, adaptation, acceptance, systematization, & fusion must pass through organizational innovation. Organizational innovation may be defined as adoption of processes & methods, such as research, development, & implementation of new technologies, as well as conduct, all of which are critical for promotion of new product innovations. Organizational reforms that foster creativity must have a strong organizational sense of purpose & faith.

This necessitates use of new organizational tools & skills, as well as evaluation of cooperation & cross-sectional collaboration, as well as performance of tasks, interchange of creative ideas & resources, & availability of & participation in recommendations. All of these interactions, sharing, perspectives, & attitudes are crucial for reaching a consensus. Organizational innovation is described as a company's ability to propose & implement technical & functional innovations on a regular basis with more integrated creativity than its competitors. As a result, it's reasonable to argue that 'organizational innovation' must embrace & apply or three types of technologies that have been discussed: products, processes, & marketing strategy.

1.3 Technological Innovation in Digital Business Environment

Transformations are characterized as digital transformations or disruptions when businesses & their ways of working change from their traditional operating modes to new & technology-oriented operating modes. Because change is 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, & medical. A new creative business technology must be utilized to offer customers & employees with a positive digital business experience. In

today's environment, businesses must develop creative bespoke apps in order to stay ahead of competition. Goal of digital transformation is to save operational expenses while also improving customer satisfaction. Not only does embracing newest technology contribute to digital transformation, but it also requires a change in attitude & corporate culture.

Organizations must rapidly respond to changes in market circumstances, complicated business demands, & innovative methods to satisfy these changing requirements. Digital technology is becoming more important in order to accomplish corporate goals, & its long-term impacts have led to a significant change of whole sector. Trend toward more complete commoditization has been accelerated by digitization process, which has impacted many aspects of art, culture, industry, & society, & has become a major element in design, production, & distribution of products. With additional potential advantages to global business, digitalization has introduced new opportunities & implications for innovation that are just as significant as initial industrial revolution. Changes in systems are a result of technological advancements. Business cycle is shifting away from traditional procedures & toward new technologies such as cloud. IoT, big data, & so forth. These & other advancements in development are now adopted & recognized across company. It provides value to market, increases speed, reduces effort & expenses, & improves performance [7].

1.4 Issues & Challenges in Developing Countries

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

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

2. LITERATURE REVIEW

Salvador G et al. discussed Management model for technological innovation in real estate in which y explained how In Mexico, no model for managing technical innovation has been adopted, which refers to development or modification of a product or process in a practical manner that is helpful for generating economic advantages by bringing innovation to market. This has resulted in scattered & sporadic efforts in this field; nevertheless, real estate industry has realized necessity to adopt such technological innovation management in order to differentiate itself. Process of organizing resources in order to produce knowledge, processes, & products is referred to as technological innovation management. This article is an attempt to put into practice a Model for Management of Technological Innovation (MGIT) in housing industry. MGIT considers evolution of building technology as well as characteristics of this industry. Goal of this endeavor is to minimize amount of time & money spent on search for technical innovation [8].

Prates R et al. discussed Technological Innovation Management in which y explained how majority of empirical research on identification of drivers of innovation focus on innovation rar than underlying processes. Goal of this research is to discover drivers of proficiencies in various processes, as well as to assess effect of se variables on proficiencies. Information utilized came mostly from three surveys carried out in Brazilian state of Paraná. For proficiencies, we created ordered probit econometric models with explanatory variables linked to companies' external & internal characteristics [9].

Pereira do Carmo M et al. discussed Characterisation of technological innovation management journals. Purpose of this article is to describe technical innovation management forum's publications. It examines four elements to achieve this goal: direction, style, uniqueness, & readability. Emerald Management Reviews database was utilized to compile data for this research (Emerald Group Publishing). From 1996 through 2003, study was conducted. Study finds, based on data, that re has been a growing clarity in research direction through time. Journal Research-Technology Management is most practice-oriented. Research also uncovers a definite academic style domination, with some space for professional-journalistic style, as well as a loss of originality & readability in publications over time [10].

3. DISCUSSION

Due to one of major requirements of creative project is financial incentives for innovation, difficulty of finding cooperation partners on innovation projects is a significant impediment to innovation. Collaboration between companies's their customers, suppliers, scientific & technological systems groups, & rivals is a driving force behind innovation. Communication with outside information sources has a significant impact on a company's ability to innovate. Companies with external partnerships are more likely to develop new goods. It should be emphasized, however, that many businesses innovate without needing to depend on collaborative partners, indicating that strategies based on company capability are much more effective than those engaging international partners. This paper discusses several aspects of technological innovation management.

4. CONCLUSION

This study looked at previous research that looked at factors that influence technological innovation in any company. This article primarily focuses on many elements of technological innovation, such as kinds of technological innovation, idea of digital business, technological innovation management, & obstacles to innovation, among others. Organizations may

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

REFERENCES

- [1]. Rahman NA, Yaacob Z, Radzi RM. An Overview of Technological Innovation on SME Survival: A Conceptual Paper. *Procedia - Soc Behav Sci*. 2016;
- [2]. Coombs R. The Management of Technological Innovation. *Res Policy*. 2002;
- [3]. Tálamo JR. Managing Innovation – Integrating Technological, Market and Organizational Change. *EccoS – Rev Científica*. 2008;
- [4]. Gawer A, Cusumano MA. Industry platforms and ecosystem innovation. *J Prod Innov Manag*. 2014;
- [5]. Cohen WM. Innovation and Technological Change, Economics of. In: *International Encyclopedia of the Social & Behavioral Sciences: Second Edition*. 2015.
- [6]. Stoneman P. Handbook of the Economics of Innovation and Technological Change. In: *Readings*. 1995.
- [7]. Godin B. Invention, diffusion and linear models of innovation: the contribution of anthropology to a conceptual framework. *J Innov Econ*. 2014;
- [8]. Daniel B, Salvador G, Solís JP. Management model for technological innovation in real estate. *Rev Ing Constr*. 2011;
- [9]. Bellegard NL, Prates RC. Determinants of Proficiency In Underlying Processes of Technological Innovation Management. *Int J Innov Manag*. 2017;
- [10]. García Merino MT, Santos Álvarez MV, Pereira do Carmo ML. Characterisation of technological innovation management journals. *J Technol Manag Innov*. 2008;