International Journal of Applied Management Sciences and Engineering
Volume 7 • Issue 1 • January-June 2020

Economic-Decision-Making in New Product Development : A Review of the Relationship

Brian J. Galli, Hofstra University, USA
https://orcid.org/0000-0001-9392-244X

ABSTRACT

Economic decisions for a new product can impact any subsequent development, as well as the launching of the product. Furthermore, unsuccessful decision-making can result in missing business opportunities or spending more money on rework. This article investigates economic decision-making in the product development process. It also enhances the understanding of the process, the difficulties involved, and how to improve decisions during new product development. Thus, this study can serve as a reference when support methods for economic decisions are being initiated. Industrial engineers and engineering managers use economic decision-making for new product development. The results of this study indicate that economic decisions are vital to new product development, as they also bring radical changes in the fields of IE/EM/PM. The engineering management practitioner will understand the importance of these topics, their relevance to engineering management, and how engineering managers can integrate these ideas into their operations and project management lifecycle and project management settings. Economic decision-making models in IE/EM/PM should replace traditional non-scientific methods because they are inaccurate and speculative at best. Overall, by using the economic models, the engineering manager is prioritizing on the long-term prospect that the decision will have.

KEYWORDS

Economic Decision-Making, New Product Development, Product Development

INTRODUCTION

Background Information

Economy and economics are concerned with how factors of the business chain interact. Economics is a social science that involves the study and analysis of how a product, good, or service, moves from the source (manufacturer or service provider) to the end user (consumer) and how factors of production affect the overall efficiency of the chain (Giordano et al., 2011; Galli, 2018c; Loyd, 2016). The economic perspective in decision-making is paramount, and economic planning is used to strategize on effectively generating the product in question. Meanwhile, economy studies the availability and scarcity of resources, so the resources in question include production, capital/investment availability, and distribution networks (Seram, 2013; Ahern, Leavy, & Byrne, 2014; Eskerod & Blichfeldt, 2005). The absence or presence of these factors assists in making informed decisions when analyzing the viability of a new venture.

DOI: 10.4018/IJAMSE.2020010101

Anyone involved must have the necessary information or technical assistance when making decisions for their financial well-being. Economic decision-making assists managers, investors, and economists to gauge the success rate of a new product in the market. Also, the return on investment (ROI) and maximizing payoff are the major incentives for the parties to use the economic decision-making process (Luglietti, 2016; Xue, Baron, & Esteban, 2016; Zhang, Bao, Wang, & Skitmore, 2016).

Essentially, human beings are prone to being misguided by emotion and impulses when making decisions. Thus, rationale emphasizes focusing on merit-based/factual decisions (Virlic, 2013; Zwikael, & Smyrk, 2012; Svejvig & Andersen, 2015). An economic decision involves tradeoffs, where one thing is given up (sacrificed) to gain another, and the tradeoff factors are usually resources, such as money, time, and skill (Buchert et al., 2015; Milner, 2016; Lee et al., 2013). For example, when a party is faced with making the choice of immediate low-profit or delayed high-profit, the loss of one to gain another is known as the cost of a decision. Do benefits exceed cost? Does upside or incentive offered by the alternative outweigh the cost offered up? The answer to these questions assists the decision-maker to generate an informed decision.

When a new product is being developed, the investors go to great lengths to ascertain the venture viability. To lessen the risk, the most common questions asked to gauge the venture viability are: is there an opportunity (need)? What is the need? Is there competition? Who is the competition? What is the product? What is needed to come up with the product? The questions can be categorized to revolve around the need, company SWOT analysis, competition, cost of production, and target market (Luglietti, 2016; Medina & Medina, 2015; Usman Tariq, 2013). Research is conducted by the individual(s) to answer these questions, and companies or professional experts are called upon to provide the service. In a new product development, many factors are considered before the product is developed. Some of the economic factors include price, target customers, and quality. With price, a bulk of the final consumers of the product is swayed by the cost of the product, so consumers are always looking for discounts, provided that the product satisfies the intended need (Luglietti et al., 2016; Von Thiele Schwarz, 2017; Marcelino-Sádaba et al., 2014). The Luglietti school of thought has brought about new ways to solve the need to reduce the cost of the product. For example, retail chain stores have resulted in buying products in bulk, which has eliminated middlemen and other unnecessary aspects in the supply chain.

Since products are designed to satisfy specific needs of the consumer, the need dictates how the product will be designed. Needs are specific to the target consumer, which dictates the nature and characteristic of the product. Target consumers can be categorized in terms of age, social class, religion, and culture, among other factors (Yahaya & Bakar, 2012; Nagel, 2015; Galli, Kaviani, Bottani, & Murino, 2017). For example, young people will be more drawn to trends and appearances, while older generations will be more concerned with the functionality and user-friendly characteristics. In addition, the quality of a product and its price go hand-in-hand. As the quality of the product increases, so does its price because the quality of a product is dependent on the workmanship and design of the product.

Furthermore, the process of innovation is complex, as it covers various dimensions, such as technological, process, product, managerial, organizational, and marketing. For firms to introduce a new service or product in the market, various activities, known as new product development, are undertaken (Tyagi, 2014; Hartono, FN Wijaya, & M. Arini, 2014). New product development is the transformation of an opportunity in the market and some given assumptions regarding a product technology into a good or service that can be sold. The new product development process is considered to be an integral section of the process of innovation processes (Tyagi, 2014; Galli, 2018b). Also, it is regarded as an interdisciplinary transformation that requires all functions of a firm to be involved in the process from product design to marketing. Thus, firms usually obtain a good or service that is usually new to both the firm and the market (Yakubu, 2017; Gimenez-Espin, 2013; Detert, 2000). This is usually achieved through a radical innovation or through the improvement of a good or service that already exists in the market. There are terms that display the mutual dependence between the new