Using Economic Decision-Making Tools in Continuous Improvement Environments: How They Overlap

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ABSTRACT

This study presents an integrated approach in the effect of using economic decision tools in continuous improvement. Some of the economic decision-making tools have limitations, which hinder managers when trying to reach the right decision. This study presents the idea of continuous improvement to eliminate the negative impact of the decision-making tools. Well-defined strategies, quality related issues, and economic analysis tools were used in our approach to deeply examine the hidden issues and impact of implementing the decision-making tools in continuous improvement. In addition, it explored the interconnection between the key component of continuous improvement and intangible factors that affect the decision-making.

KEYWORDS

Capital Budgeting, Continuous Improvement, Decision-Making, Economics, Investment Appraisal, Kaizen

INTRODUCTION

Most of the companies use economic analysis to make a decision, based on main criteria, which are about the economic issues such as overall benefits of investments. Other criteria must be considered such as strategy, which deals with company market competitiveness and quality, which is related to customer needs. Solely evaluating the overall benefits of investments can lead to an inappropriate decision. There are two reasons: firstly, the investment may negatively affect the company strategy, and secondly, the investment may not meet customer needs or quality requirements. Thus, an inappropriate decision, related to an investment, can lead to major problems such as affecting the long-term profit or goals of the company or organization.

Decision-making could be involved in an equipment selection, a technology selection, and a make or buy decision. In general, a decision-making tool is a tool that decides which alternative of investment is better for an organization or company. In the middle of last century, Chester Barnard (Kang, 2011) has introduced the idea of decision-making to the business world. Subsequently, other ideas, such as managerial decision-making, were found, because managers were responsible for
dealing with decision-making and, when necessary, selecting the best alternative. Recent studies are providing more complex approaches such as Axiomatic Design (Galli, 2018a) and Fuzzy Multi-criteria Analysis (Galli, 2018a; Kang, 2011). However, these approaches are pretty difficult to be implemented in industries because of their complexity. On the other hand, according to the high competition between companies or organizations about producing high quality products or services with lower prices, companies and organization are moving to apply the concept of continuous improvement (Galli, 2018b). In essence, economic decision-making revolves around the key concepts of capital budgeting and investment appraisal in order to determine the best course of action (aka decision) for a project or operation given a set of circumstances. But within the world of capital budgeting and investment appraisal, there are tools and concepts that are the most effective in helping to ensure an organization makes the best decision. To note, the most common economic decision-making tools include: present worth analysis, annual equivalence analysis, and cost-benefit analysis; therefore, these three tools are the primary focus of this study.

In the 1980s, the concept of continuous improvement was widely used when Deming was the father of quality. Deming’s 14 principles are major methods to implement total-quality management. In principle 5, Deming focuses on improvement, stating it should be constant and forever. Also, Juran initiated the trilogy, which is related to the quality plan and focus on improvement and controlling in continuous loop (Galli, 2018b). It is worthwhile to mention that the Toyota system and ISO 9000 supported the idea of continuous improvement. In order for a certain number of companies to economically survive, they need to be ISO certified; this certification becomes mandatory for companies that want to make a deal with a percentage of their clients, and one of the ISO 9000-2015 requirements deals with continuous improvement. Section 10 of ISO 9000:2015 provides information about PDCA, which means plan, do, check and act for processes that are related to continuous improvement. In order to meet the customer needs, firms extend their effort to work with quality-oriented programs such as Lean Six Sigma, Total Quality Management, and Kaizen. Using economic decision-making tools in continuous improvement is challenging, but it is not impossible. There are a lot of factors that affect decision-making, but no literature shows that continuous improvement could positively affect decision-making and vice versa. This study will explain the use of economic decision-making analysis in continuous improvement.

The objective of this research paper aims to explore the main aspects in using the economic decision-making tools in continuous improvement. Aspects such as climate changes, or future risks, and uncertainty should be either monetized or follow a well-defined strategy. Economic decision-making is a key element in selecting alternatives, but, on its own, it is not sufficient enough to have the green light to select one alternative. The use of strategic planning, which is related to continuous improvement, must be considered. The primary contribution of this paper is to see the gaps in implementing economic decision-making tools in continuous improvement. This study will open avenues for decision-makers to deeply think about the intangible factors that must be evaluated when dealing with economic decision-making by using the notion of continuous improvement.

Recent studies focused on either economic decision-making tools or continuous improvement, and there is no literature that combines both of the concepts and simultaneously applies them. This study will examine the relationship between the two concepts and discover any hidden issues, which should be considered as a major effect to an organization or firm’s growth. The rest of this paper is organized to be as follows: section 2 provides information about the literature review; section 3 provides information about the methodology, hypotheses, and the research focus; section 4 provides information about the results; section 5 evaluates and discusses the result; section 6 presents a summary and conclusion based on the evaluation of the results.
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