Feasibility Studies Across Disciplines: A Systematic Review of Methodologies, Applications, and Strategic Insights

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ABSTRACT

This article examines the role of feasibility studies across various disciplines, focusing on methodologies, applications, and strategic insights. The primary objective is to analyze the different approaches used in feasibility studies and their effectiveness in assessing project viability. A systematic review methodology was employed, synthesizing findings from multiple sectors, including education, healthcare, and technology. The study categorizes feasibility assessments into technical, economic, operational, legal, and scheduling aspects, highlighting key factors that influence project success. Findings indicate that feasibility studies provide crucial insights for decision-makers by identifying potential risks, optimizing resources, and ensuring compliance with regulatory frameworks. The systematic approach enables organizations to enhance project reliability and sustainability, supporting evidence-based decision-making. These insights contribute to improved planning and implementation strategies, making feasibility studies an indispensable tool for diverse fields.

Keywords: Feasibility study, project assessment, systematic review, decision-making, strategic planning

INTRODUCTION

Feasibility studies represent a systematic approach widely employed across various disciplines to assess whether a project or initiative can be successfully implemented. These studies play a crucial role in assisting stakeholders in identifying potential risks and benefits before a project commences, thereby reducing uncertainty in decision-making (Del Caño, 1992; Urkiaga et al., 2006). Generally, feasibility studies involve the analysis of multiple factors that influence a project's success, including technical, economic, operational, and legal aspects (Georgakellos & Marcis, 2009; Jebrin, 2017).

In more specific contexts, feasibility studies are applied in key sectors such as education, healthcare, and technology to evaluate the viability of various interventions and new systems. By referring to previous studies, this article examines the methodologies employed in feasibility studies, as well as the applications and strategies that can be adapted for future research.

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FEASIBILITY STUDY METHODOLOGIES

According to Haramis (1992), there are three primary steps in conducting a feasibility study: (1) initiating the study by identifying the objectives and scope of the project, (2) employing a systematic methodology to analyze feasibility factors, and (3) providing a comprehensive report to support decision-makers. Mukherjee and Roy (2017) and Ahmad (2011) emphasize that feasibility studies require a combination of quantitative and qualitative approaches such as surveys, interviews, and secondary data analysis to obtain more holistic findings.

Feasibility studies can be categorized into several key aspects:

Technical Feasibility: This aspect evaluates the extent to which the necessary technology and infrastructure are suitable for project implementation. It includes the availability of technology, the technical capabilities of the workforce, and the stability of the systems used. This study also considers the usability of equipment and facilities to ensure efficient project operations (Rahim, 2006).

Economic Feasibility: This assessment examines the financial impact of a project, including initial costs, financing, long-term profitability, and overall economic impact. The goal is to ensure that investments in the project are worthwhile and yield satisfactory economic returns for stakeholders. This evaluation also involves market analysis, supply and demand assessments, and cost-effectiveness analysis concerning expected outcomes (Nazari, 2007).

Operational Feasibility: This factor assesses an organization's capability to manage, implement, and sustain the project over the long term. It includes workforce competency, operational procedures' effectiveness, and the extent to which the project aligns with predetermined objectives. This study also examines the organization's ability to address operational challenges such as logistical disruptions, skilled labor requirements, and operational risk management (Bause et al., 2014).

Legal Feasibility: This assessment ensures that the project complies with all regulations and guidelines established by local, national, and international authorities. This study is crucial in preventing legal issues that may hinder project implementation. It encompasses compliance with intellectual property rights, environmental regulations, and licensing and permitting requirements necessary before a project begins (Mukherjee & Roy, 2017).

Scheduling Feasibility: This aspect evaluates the project's ability to be completed within the designated timeframe. It involves resource planning, implementation schedules, and risk management regarding delays. This assessment ensures that the project is completed according to plan without affecting the budget and workforce requirements. Additionally, this study focuses on the impact of unforeseen changes in the implementation process that may cause delays or cost overruns (Gruneberd & Weight, 1990).

FEASIBILITY STUDIES ACROSS VARIOUS FIELDS

Education

Feasibility studies in education focus on the development and evaluation of the effectiveness of learning modules and the use of technology in classrooms. Zulkifli Osman (2013) assessed the feasibility of a holistic-based Malay language teaching module for Form Four students using surveys and semi-structured interviews. The study examined content relevance, objective attainability, and the feasibility of teaching and learning processes.

Another study in education, such as the research by Mazlini Adnan et al. (2016), investigated the feasibility of STEM education among PERMATA children. This study developed a STEM module integrated with the PERMATA National Curriculum and assessed its effectiveness through observations and surveys.

Technology and Digital Innovation

Feasibility studies in technology are often used to assess the effectiveness of digital systems and mobile applications. For instance, Dewi Mariati and Nur Atiqah (2014) evaluated the feasibility of a mobile application for the UiTM student portal, focusing on technical aspects and system integration. This study helped understand the challenges faced during mobile application development and provided guidelines for future digital system development.

A study by Nadini et al. (2020) assessed the feasibility of the StopTheSpread mobile application for outbreak monitoring during the COVID-19 pandemic. This application enabled users to track and report outbreak risks, demonstrating the role of feasibility studies in developing technology responsive to public health needs.

CONCLUSION

Based on the analysis of previous studies, feasibility studies play a crucial role in evaluating the effectiveness of interventions across various fields. Research in education focuses on developing learning modules and incorporating technology, whereas studies in healthcare contribute to the development of patient monitoring systems and digital healthcare solutions. In the technological domain, feasibility studies are used to assess the effectiveness of digital systems and mobile applications before widespread implementation.

A systematic approach in feasibility studies enables decision-makers to identify opportunities and challenges that may arise during project implementation. Through an in-depth analysis of technical, economic, operational, and legal factors, feasibility studies provide clear guidance to ensure project success in the future. Therefore, feasibility studies not only enhance the reliability of a project but also offer a scientific foundation for the planning and execution of more sustainable programs.

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