


# How Statistical Analysis Tools Can Be Used to Effectively Plan and Execute a Strategic Plan for an Organization

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## ABSTRACT

Pre-existing literature does not show how these variables, their concepts, and models help in strategic planning, which has resulted in a research gap. Thus, this study addresses the most current variables, their concepts, and models within operations and project management. With a design-science-investigate strategy, the authors approve a valuable growth reveal for reasonable and hypothetical application. Thus, they create a suitable assessment model to fill the research void, as well as to contribute to the engineering field by improving the project success rates and helping with team communication.

## KEYWORDS

Planning, Project Management, Statistics, Strategy

## INTRODUCTION

### Background

Data analysis and management skills are assets to every organization. In the age of big data, skills in machine learning, analytics, and statistics are essential sources of competitive advantage (Bryson, 2018; Zwikael, & Smyrk, 2012; Xue, Baron, & Esteban, 2017; Shenhar & Levy, 2007). In an ideal situation, any profession or organization requires the combined skills of machine learning, analytics, and statistics (Carnall, 2018; David, David, & David, 2017; Arumugam, 2016). However, it is difficult to find all three skills being used in one organization, which is why statistics skills are mostly preferred.

Furthermore, statistical analysis is involved with the transformation of raw data to information that can be used to inform decisions in every organization, which includes engineering. Statistics is involved with more than just the transformation of data (Chambers, 2017; Medina & Medina, 2015; Hoon Kwak, & Dixon, 2008; Galli, Kaviani, Bottani, & Murino, 2017). Essentially, statistics is concerned more about using the right methods, tools, and tests to transform the data. Statistics uses mathematical models and science to fulfill objectives in the transformation of data, which is why statistical analysis tools are so important to engineering, the engineering management profession, and the research fields in general.

Although it is clear that statistical analysis tools are important in the transformation of data to information, it is still hardly considered that statistical analysis tools can be used to effectively execute

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a strategic plan (Hand, 2017; Appelbaum, Kogan, & Vasarhelyi, 2017; Ahern, Leavy, & Byrne, 2014; Brown & Eisenhardt, 1995; Schwedes, Riedel, & Dziekan, 2017; Zhang et al., 2016). Similarly, there has been limited research focusing on the nexus between statistical analysis tools and the strategic plan of an organization, so this research seeks to establish the importance of statistical analysis tools.

## **Problem Statement**

There is limited research focusing on the significance of statistical analysis tools in the planning and execution of strategies in an organization. However, this is despite the realization that data is an essential part of the organization and can actually be a source of competition. Overlooking the importance of statistical analysis tools leaves statisticians insufficiently involved in strategic planning (McLean, 2018; Xiong et al., 2017; Von Thiele Schwarz, 2017; Marcelino-Sádaba et al., 2014; Hartono, FN Wijaya, & M. Arini, 2014). The statisticians and statistical analysis tools only come to the limelight when the organization is facing a crisis and needs to analyze data to diagnose the problem. Thus, this study seeks to shift the position and view of statistics and statistical analysis tools by making the tools a central feature in strategic planning in organizations. The study believes the following:

- Null hypothesis: Statistical analysis tools would not result in significant differences in the planning and execution of a strategic plan for an organization
- Alternative Hypothesis: Statistical analysis tools would result in significant differences in the planning and execution of a strategic plan for an organization

The study features original research focusing on the significance of statistical analysis tools in the strategic planning of an organization. Also, the study seeks to collect original data on the perception of organizations with respect to how they feel about statistical analysis tools in strategic planning. No part of the research will be drawn from any other documented information, whether published or unpublished. Any information drawn from any other source will be duly cited and acknowledged.

## **Research Objective**

Literature may depict how important the variables, their concepts, and models can be within project management and performance, but there is a research gap that has developed. Few sources address how these variables, their concepts, and models cause project management and performance to progress smoothly. As a result, this research highlights the research gaps about these variables, their concepts, and models and an assessment of the elements and applications. Thus, the study reveals how the variables are alike and different, which will allow the proposal of a framework that depicts the best practices of these variables. Such a “universal” framework can apply to every aspect within projects, operations, and performance, as well as to all types of organizations. This study will also offer answers to commonly asked questions from experts on these variables, such as how to best use them to achieve project management and performance objectives. These answers will be evidence-based, and the findings can become a platform for future research on these variables, their concepts, and models.

## **Managerial Relevance**

An engineering manager is tasked with decision-making situations. In the future of project management and engineering, decision-making will become even more important. Thus, this study addresses the future of decision-making for an engineering management practitioner to understand how this applies to engineering management. Also, this study will address ways for engineering managers to account for decision-making during their operations, throughout the project management lifecycle, and within various project management environments. The implications of these findings are

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