

PROJECT FOCUS

KEYWORDS

Theory of Constraints • Human Resource Management • Process • Critical Chain • Process Improvement • Mapping • Project Management • Work Flow

# CRITICAL ANALYSIS OF THE GOAL

in Relation to Human Resource Management: A Research Note

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• ABSTRACT •

The book entitled The Goal by Goldratt and Cox is one of the best-selling business-oriented books in the world. One of the aspects making the book interesting is how it utilizes a fictional case scenario of a production plant experiencing real business challenges concerning profitability. Specifically, the novel entails one of the manufacturing plants of UniCo, which is headed by the main character named Alex. The reader is taken through some of the interventions the main character adopts to address challenges in production performance. This correspondent sought to analyze the book in the context of how HRM contributed to addressing and overcoming the challenges that were experienced in the production plant. One aspect that assisted to address the production challenges included that of the theory of constraints.

1. INTRODUCTION AND BACKGROUND ABOUT THE BOOK

One of the most fundamental components in the manufacturing industry is continued improvement in quality and quantity of the produced goods and services. However, most companies and manufacturing plants experience difficulty in ensuring continued improvement in production and profitability.

In the literary context, few books were written that manage to pinpoint challenges within manufacturing plants and how they can be addressed to ensure success in the production chain. A renowned business management guru known as Elihayu Goldratt wrote one such book. Goldratt is also a consultant in business-related matters. Notably, he is famous because of his mastery and application of the theory of constraints (TOC) to business. Goldratt's success, knowledge, and experience in business inspired him to write his business-oriented novel.

Goldratt's book is entitled, The Goal: A Process of Ongoing Improvement, first published in 1984. The book is a work of fiction that describes a real situation in the broader context and field of business. Specifically, the novel is based on a manufacturing plant called UniCo in a small town, Bearington. The main character is Alex Rogo, the manager of the Bearington branch of UniCo Manufacturing Corporation. A critical focus of the novel is the challenge the production plant experiences regarding a decline in profitability. Because of the low profitability and performance, Alex's senior, Bill Peach, gave him an ultimatum—Alex had three months to improve the production, or the plant would be closed. Alex was under substantial pressure to save the plant, which forced him to make sacrifices with his family.

Alex sought to achieve a complete overhaul of his production plant and meet the expectation of his seniors concerning profitability. Clark et al. (2002) indicated that meeting profitability goals was one of the most critical elements in any organization and was usually one of the top objectives of organizations in the world. This is one reason Alex was pressured to ensure his plant and branch exhibit demonstrated sustainable profit trends. To achieve this, Alex sought help and assistance from people he considered experts in business. One person that Alex reached out to for help was his former professor Jonah, a physicist. He offered Alex some principles to apply in saving the plant. In this perspective, Zahid et al. (2013) indicated there was concern regarding the lack of management skills of students leaving college, even with higher training in business. Specifically, Alex was presented as a highly trained professional with a Master of Business

Administration, but lacking competence in managing a simple plant. This link between academics, training, and managerial capability highlighted the need for a review of the credentialing curriculum of top executives, such as business management, MBA, and others, which are meant to inculcate management skills for top executives. The book entailed Alex implementing Jonah's business model to manage the plant, increase production, and foster Alex's promotion to division president.

Therefore, this discussion focuses on a critical analysis of the human resource management (HRM) perspective, based on the decisions made by several figures in the company's management positions. This paper also focuses on the implications and learned lessons from the book regarding effective HR management in a global corporation. Section 1 presents critical background information about The Goal and the major factors in the book. Section 2 outlines the research methodology, Section 3 presents the key findings of applying HRM principles to the scenario in The Goal, while Section 4 outlines the managerial relevance and implications of the role HRM plays in any organization. Section 4 concludes the paper by presenting the limitations and future research of the topic, while also presenting the originality and contribution of this research to different research areas and topics

2. RESEARCH METHODOLOGY

We used a systematic literature review to collect and review existing literature. This approach was used because of its quantitative nature. It also helps to standardize collected results, eliminate bias, and find literature from multiple sources with prior defined criteria. Usually, the systematic literature review will return fewer results than a traditional literature re-

view because of the criteria confinements. It may also exclude studies that are discrete in their findings, and instead focusing on published studies with significant findings. When a systematic literature review cannot unearth relevant studies, it is coined the “file-drawer” problem. Fortunately, this limitation can be avoided, since many new ways have been developed in methodological literature to test and eliminate it.

At first, we collected literature with a traditional literature review from the key databases and specific keywords (including Theory of Constraints; Human Resource Management; Process; Critical Chain; Process Improvement; Mapping; Project Management; Work Flow). The study was performed over four months, from January 2017 to April 2017. We used keywords, search filters, and Boolean functions to identify 110 pieces of literature (N=110). We used the systematic literature review to reduce the 110 to a more productive sample size. The filters employed had a balance of sensitivity and precision. Sensitivity is the ability of a filter to find all relevant material in the database. Precision is its ability to reject irrelevant material. A filter with a high emphasis on sensitivity will tend to include less and irrelevant material, whereas higher precision will often reject potentially relevant information.

By using this systematic search strategy, we reduced N of 110 to 44 (n=23). This is 40.00% of the total literature identified. We then used quantitative and qualitative textual content analysis to identify common themes and concepts in the selected 44. After the analysis, we used affinity diagrams to determine the sections of this paper. As a result of filtering and diagramming, 23 articles were identified with the specific keywords and topics examined in this study. The selection of studies began with an N of 110 potential articles. However, the complete search procedure returned a total of 23 (20.91% of the original population). With a thorough review of the 23, it was found that the results varied in focus and depth about the focus of this study. The next section presents the findings of this research method in the scope of the themes/topics discussed in the subsequent sections.

### 3. ANALYSIS

#### --- 3.1 Discussion of Current State ---

Via closer analysis of the novel, it can be inferred that HRM contributes to the initial state of performance in the book’s production plant. The issues explained in the meeting between Alex and the division vice-president, Bill Peach, prove this aspect. Some challenges and concerns from Bill Peach include delayed production and delivery of orders and offering costly goods. Babayan & He (2002) indicate that delayed production is increasingly becoming a concern for many companies. Most often, it has the potential to ruin the reputation of a company.

In the book, one order, #1427, becomes the critical point of reference since it was delayed for seven weeks. Bill Peach finds it difficult to understand how an order can be so long overdue and not addressed by anyone. This is one of the many forms of inefficiencies in the plant. Concerning the workforce, there were two rounds of laying off employees and an overall cut of 20% in human capital. Gibbons and Katz (1991) maintain that low performance is one of the main reasons to lay off so many employees. These factors result in a low profitability for Alex’s plant.

Alex is given a maximum period of three months for a complete turnaround in production and profitability. Some HRM issues deducted from the book includes hiring incompetent employees or those that lack the right skills and experience in production. In this aspect, Stevens (1997) indicates that incompetency of employees most often leads to job loss. The number of late orders and delayed production proves this. Employees that are not well skilled in a particular line of production usually take longer to produce a given unit of goods compared to those with experience and proper skills.

The fact that Alex laid off employees twice is a clear indication the production team lacks the much-needed skills. Further, it is clear Alex lacks the crucial management skills for proper HRM. This is demonstrated by the notion that he had nowhere else to go but to seek consultation with his former professor, Jonah. Another clear aspect of HRM that contributes to challenges in Alex’s plant includes challenges in inventory management. This is affirmed since shipments are always late and orders with pending production increases by the day.

Per Bin Syed et al. (2016), any company must adopt effective inventory management to produce more units of sales, thus working towards increasing overall performance and success. One primary challenge facing Alex’s plant is that the human resource (HR) crisis has affected even the inventory management of the company. Further, Godana and Ngugi (2014) cite that there is usually a great need for companies to consider all elements and principles of inventory management. While this is achieved, raw materials and other production inputs are usually available for production plants to produce all pending orders. This will reduce the unnecessary delay and lateness in production that became rampant in the company.

Inventory management that is ineffective sometimes results in the loss of both customers and sales. Ziukov (2015) asserts that poor inventory management creates much uncertainty in the production process. This is the nature of the challenge that UniCo experienced. Further, because

of the challenges in inventory, UniCo was shipping products that were of inferior or poor quality. The products were not only inferior but also tended to have high prices. This did not help boost customer support or sales, thus hurting the company’s ability to remain profitable and competitive in the market.

#### --- 3.2 Human Resource Management Principles to Improve Factory’s Operations ---

One aspect related to HRM that serves to improve the efficiency of factory operations includes Alex, as manager, seeking consultation with experienced business individuals. Kakabadse, Louchart, & Kakabadse (2006) assert that business consultants play a critical role in guiding inexperienced business people in achieving success in the business. The process of business consultancy usually involves acquiring and sharing knowledge between an experienced businessperson and one who needs them for the benefit of the company. Specifically, consultation is usually required at the management level. This is relevant concerning Alex’s production plant. That is why it was critical for Alex to seek consultation from experienced business people such as Jonah.

It can be stated that the inclusion of Jonah is meant to enforce the significance of consultation in business. In this perspective, one way to resolve challenges occurring in production can be through management consultation. Furthermore, acquisition of new knowledge and information by those in top management will usually be of great significance as it will serve to benefit the entire company (Krantz & Maltz, 1997). Despite Alex having a Master of Business Administration, he lacks the much-needed skills and knowledge to overhaul the production plant and achieve profitability and success in production and overall sales. In this perspective, business consultation is an important aspect and HRM principle available for top management members. This aspect is enforced by Kakabadse & Kakabadse (2006) research.

In an assessment of the advice given by Jonah, one sees the importance of the Socratic Method. This method functions as a principle of HRM. Alex adopted this after getting advice from Jonah. The Socratic Method usually involves an argumentative dialogue amongst individuals with a series of questions that trigger or stimulate critical thinking (Peterson, 2009). As a result, people involved are usually able to

come up with ideas and solutions that resolve challenges they encounter.

In the case of UniCo, using the Socratic Method helped Alex engage employees in searching for problems and challenges contributing to low performance. Goldratt and Cox noted, "Jonah's way of leading one to answers by asking questions through the Socratic approach is very effective" (Goldratt & Cox, 2016, p.274). For this method to work, top executives need to have a cordial and close relationship with middle-level employees. A friendly relationship between top executives and middle-level employees is one of the most important aspects of effective HRM, something that is emphasized by Heyden, Sidhu, & Volberda (2015). Specifically, an effective relationship usually ensures smooth flow of instructions, thus easing the process of communication. Therefore, the use of the Socratic Method will help Alex engage middle-level employees to identify and address the plant’s challenges and problems. This is demonstrated when Alex mobilized the entire production team to look for ways to increase production flow. This involved clearing accumulating orders that were pending production. Alex managed to establish a strong professional relationship with his subordinates in charge of production, accounts, and inventory. It was this type of interaction that enabled finding solutions to the manufacturing plants challenges.

The term stakeholder is usually used to mean all parties that influence the operations and success of a company. Stakeholders usually involve employees, management, investors, and customers. The only aspect of stakeholders evidenced in the book includes employees and management. Management entails Alex, as manager of UniCo Bearington Production Plant, and Bill Peach, vice president. In this context, stakeholders played a particular role in ensuring a complete overhaul of the plant. After meeting with Jonah, Alex engaged essential members in coming up with solutions to overhaul the plant. According to Jonah, the challenges in Alex’s plant could be addressed using a business model containing three independent aspects. The three aspects include throughput, inventory, and operational expense (Goldratt & Cox, 2016).

As explained by Jonah, the first aspect of throughput is used to refer to the rate at which a given production plant or company manages to generate money through sales. The second aspect includes operational expense, which entails consideration of all money a production system invests or uses to purchase other materials and produce certain products. In this scenario, the stakeholders play a critical role in assisting Alex in applying this business model. Alex worked with other employees at the plant, including Bob, head of production, Lou, from accounting, and Stacey, from the Department of Inventory Control (Goldratt & Cox, 2016). These employees were critical stakeholders in interpreting and applying Jonah’s business model to the UniCo manufacturing environment. Interestingly, Jonah did not furnish Alex with a detailed elaboration of everything, but he highlighted some aspects and let Alex figure out how to apply it all to the plant’s situation. Alex used the Socratic Method with the three employee stakeholders.

Further, these stakeholders played a critical role in applying the TOC. In the broader field of business, TOC is a management paradigm that assesses the management system as limited towards achieving the goals because of challenges, known as constraints. It is critical for organizational management to find any available constraint that could hinder smooth flow of the production process. For instance, a discussion with the accountant identified significant constraints on the use of robots within the plant. Specifically, as detailed in chapter nine of the book, the team discovered how robots contributed to inefficiencies within the production chain. These robots increased costs of production, which increased the operational expenses and lowered productivity.

### --- 3.3 Basics of Theory of Constraints and Project Management ---

The core concept of TOC is that every process has a single constraint and that total process throughput is improved when the constraint is improved (Galli, 2017). TOC provides a specific methodology to identify and eliminate constraints, referred to as the Five Focusing Steps. As shown in the following diagram, it is a cyclical process ("Focus Improvement on the Manufacturing Constraint," 2017).

The Five Focusing Steps introduced in The Goal centered authoritative change endeavors in the zone through the association. By enhancing execution of the weakest connection and tying the execution of every other region to this constraint, the association can accomplish unique benefits from change endeavors. The Five Focusing Steps (see **Figure 1**) were done for the constraint in production, then dissemination, and project management. Association deals expanded and operations became more powerful. However, as the Five Focusing Steps anticipated, once the weakest connection was essentially enhanced, the limitation moved to somewhere

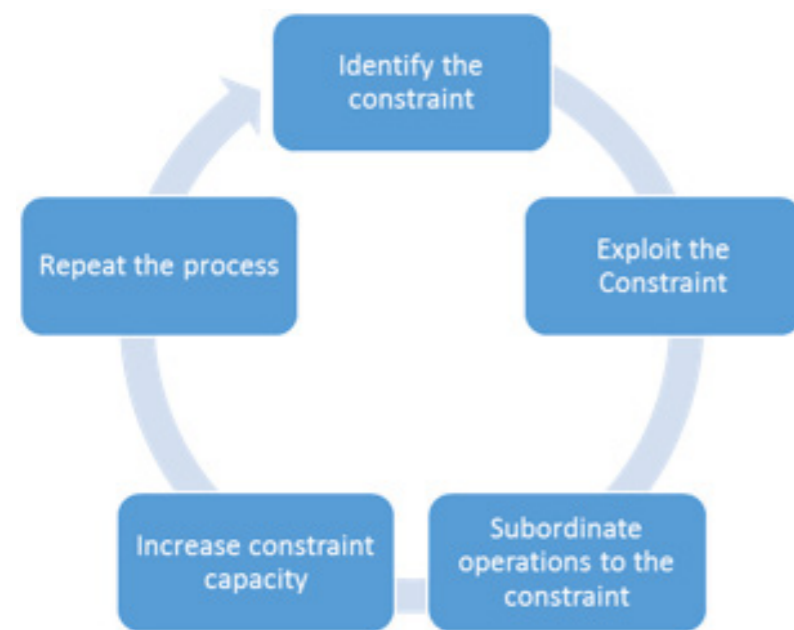


FIGURE 1• The Five Focusing Steps

else. Enhancements in the associations stagnated, and now they confronted the issue of abundance assets (Peschke, n.d.).

The use of TOC is linked to project management. The Project Risk Management area is used as an example. Any project risk may be a constraint or can turn into a limitation. Project risks are recognized and evaluated amid early phases of a project. Management and engineering endeavors are centered on decreasing the most elevated risk. Risk events that are not at first prioritized under, for example, the primary three or five are dismissed. This focus regularly brings a risk event, initially identified as not being critical, and turning it into the most critical (Steyn, 2002). On the off chance that the most unique risk occasion is distinguished, the attention ought to be on that occasion with the goal of eliminating or diminishing it from occurring. The input circle suggested by Step 5, that by consistently lessening the most astounding current risks, the general risk can be continuously decreased and deliberately (Steyn, 2002).

### --- 3.4 Theory of Constraints and Overcoming Bottlenecks ---

It can be stated that HR management impacts Goldratt's TOC by actual implementation. This is achieved through the assistance Alex received from the three employees in deducting some constraints. In this perspective, the constraints were referred to as bottlenecks. A case scenario is presented about the role of HR in identifying bottlenecks and assessing ways to overcome them. One of the major bottlenecks included production inefficiency created by the NCX10 machines. One of the NCX10 was old and appeared to have a zero contribution to production. The other bottleneck included heat treatment that resulted in massive delays in order production. Further, the team discovered an interesting aspect about the robots that instead of reducing the cost, they served to increase it by failing to reduce other related costs, such as direct labor. Robots are usually intended to replace human labor, which is usually expensive (Galli, 2017).

One main recommendation from Jonah was that phasing out robots from the manufacturing chain would be beneficial. Further, through business consultation sessions, Alex learned some of the basic elements of manufacturing. For instance, Alex was challenged

to determine the primary goal of the plant. It was here that he understood that the main goal was to be highly profitable. Additionally, Alex learned the fundamental principles of productivity. Specifically, through Jonah, he understood that any action that usually moves the company or plant towards realizing the main goal translates to productivity. On the other hand, any action that takes people away from the main goal of making money is non-productive (Galli, 2016). With this understanding, Alex began putting his manufacturing plant in line and started to see improvements in production. The improvements appeared through the production of goods on time without unnecessary delays. They also could ensure that only the best materials were procured to ensure high-quality products that meet the expectations of clients. It is clear the consideration of these aspects of production serves to increase and change the production of the plant (Galli, 2017).

### --- 3.5 Leadership and Human Resource Management ---

The role of leadership in HRM is a significant contribution. There are usually different forms of leadership analyzed by various business scholars and practitioners. Leadership usually determines the nature of HR that a company has about skills required to work in various positions within a business. Additionally, different forms of leadership usually determine how close employees are with each other, especially between those in top management and those in the middle level. From the reading of how Alex relates to his employees, it is clear the style of leadership adopted includes transformational leadership characteristics (Galli, 2016).

According to Chou, Lin, Chang, & Chuang (2013), transformational leadership is the approach that seeks to change individuals and the surrounding social systems. This form of leadership facilitates a closer connection between employees as evidenced between Alex, Stacey, and Lou. As a result of this closeness, Alex was able to come up with solutions to improve the production plant.

## 4. CONCLUSION

### --- 4.1 Relevance & Implications for Management & Project Environments ---

Based on the acquired skill and management strategies from the research, there is a need to make use HR in conducting business projects and project management. This can be achieved by ensuring a well-functioning HR that utilizes distinct skills to create a team that sees the company or projects ultimate goals. In this case, there is a need to invest substantially in HR before thinking

of the mode of technology to use in the project or management. The findings from this research study of The Goal helps to identify several managerial implications. More specifically, these results highlight the importance of a top-down and bottom-up approach to leadership and strategic planning especially when it comes to elements of operations management, and process improvement. The results of this study highlight the criticality of integrating HR principles into the leadership styles and tools leaders use to manage their HR.

The findings from this study also highlight the importance of HR throughout all aspects of an organization; obviously, HRM is one element in an organization's business model, but this study shows that the HR element directly impacts many other elements of an organization. Management and leadership of any organization need to have the training and skill sets, to not only manage their HR, but to effectively manage their HR. This study has shown that many of the current-state issues seen within the factory of The Goal stemmed from the leadership's lack of effectively leading and managing their employees. If the leadership has the tools and knowledge to effectively manage their HR instead of focusing on the bottom line (i.e., profits and costs), then the performance of an organization will improve and, as a result, the profits and costs will also improve.

Most importantly, this study highlights that business leaders tend to focus mainly on the financial elements of their business while ignoring or minimizing the HR element; this might work in the short-term, but the factory in The Goal shows that it is not a good long-term strategy. Over the long-term, leadership must have a multi-faceted approach where they manage operations, HR, financials, performance, and strategy from one overarching understanding that all of these elements are critical and they are all related. By understanding this view, a business leader will be better equipped to lead a successful company in both the short- and long-term.

### --- 4.2 Limitations ---

The study and results are somewhat restricted due to a few research limitations that should be discussed. The main limitation was the fact that the study had a limited sample size (i.e., one book) and it only studied key factors from this sample. The limitation of sample size introduces some potential bias and validity behind the findings and conclusions identified in the study, all of which could be alleviated by executing the study with a larger sample. Another limitation was that this study only examined the key factors and their relationship regarding a project environment; therefore, the conclusions and analyses are specific to project environments and the findings cannot necessarily be extrapolated to other areas such as supply chain

management, operations management, or strategic management. This is a limitation since the conclusions and analyses are specific; this limitation makes it difficult to argue that the findings from this study could be deployed and used in other industries or managerial settings.

--- 4.3 Future Research ---

Future research should explore a few different areas. For example, future research could investigate these factors and their relationship, but in the context of other industries and managerial setting. In these settings or contexts, it would be interesting to study the strength of these variables and their relationship as well as the factors that impact these variables and their relationship. Another avenue of research could be to explore these variables and their relationship, but from different perspectives, such as form an organizational, strategic, or cultural point of view. This would shed further light into the how this relationship is perceived across many different views and further understand the depth of the impact that factors such as culture, strategy, HR, operations have on the key variables and their relationship.

--- 4.4 Conclusion & Originality ---

Given this analysis, it is clear that The Goal by Goldratt and Cox (2016) offers pertinent advice for businesses seeking to improve HR-related issues and, by extension, increase productivity and profitability. The use of a fictional manufacturing plant facing challenges related to declining profitability was a strategic move by the authors to make the book relevant to modern day business dilemmas.

One clear aspect that stands out in the book includes the TOC. Goldratt grew in popularity in the business world because he created the TOC and demonstrated its effectiveness in overcoming challenges in production. The TOC concentrated on helping production associations enhance execution by distinguishing the frail connection in the association's chain and augmenting the throughput from that limitation. The TOC kept advancing, and today it is a noteworthy component of the world of management ("Focus Improvement on the Manufacturing Constraint," 2017).

Finally, one aspect that remains clear in the novel is the contribution of HRM to ensure a turnaround of Alex's production plant and that of the entire production division. Another key aspect of effective HRM is relying on business consulting to help find solutions to resolve the issues the business faces. Everything discussed in this paper about the book applies to modern businesses seeking to improve profitability and performance.

This paper critically analyzed the TOC through the lens of HRM

and in the context of The Goal. This paper showed that there were three major lessons that one can be drawn from HRM being applied in the arena of the TOC: specific HRM concepts in the TOC, leveraging technology and HRM in the TOC, and how HRM tools are critical to continuous improvement initiatives. When used alongside the organizations' goal, the tools and concepts of HRM can help to achieve that goal, the tools to measure effectiveness/throughput/constraints/bottlenecks, and qualitative measure; it can ensure the goal is met. Most importantly, it can do this without changing its purpose of existence. In other words, HR will still perform its fundamental function such as training, hiring, complying with government law, compensation, and so forth. However, it would be adding additional measures to align its responsibilities with attaining the organization's goal.

Rogo would have benefited greatly from an established HR department and HR Management system. He could have dealt with the people aspect more effectively, including their varying personalities. Also, he could have incentivized accordingly and communicated with his team more effectively. Finally, he could have benefited by better being able to understand the hiring criteria and look at past performance evaluation to determine who was his best laborers and those who took action.

Ultimately, The Goal (Goldratt, 2014) identifies ways in which quality can help avoid bottlenecks and constraints, and how the inability to have an established HRM processes adds to ineffectiveness in an organization. Also, it failed to fully implement a change that would integrate the two knowledge areas. It would be interesting to see how that experience would benefit Rogo, as he is now a VP who relies less on day-to-day processes and more on holistic views via face-to-face meetings with the employees. Good management should be based on the fact that, for a company to achieve the ultimate goal of profit maximization, there is a need for well-established coordination that ensures both the human capital and technology are adequately used.

There is a need to nurture human capital foster delivery at the most appropriate and optimal levels. There is also the need to ensure the company produces the product that will create and maintain customer loyalty. In this case, the quality of the product must be taken into consideration throughout all processes and decision-making. This quality can only be ensured through standards set by the HR and proper planning on the step-by-step strategies to be employed. The book, therefore, demonstrates the management techniques that engage the HR in achieving the goals of a company. Review of the literature showed that there is limited research that explored the concepts and the relationships between them in general.

This paper seeks to fill a void in the research identified earlier

in this study and alleviate previously preconceived risks and uncertainty. The results of this research study contribute to several different fields of research and topics, including HRM, the theory of constraint, project management, and process improvement. By performing this study, the result helps to enhance and evolve these fields of research and topics since this study not only built on existing research but attempted to expand and fill a gap in the research that was identified earlier on this study. By more thoroughly understanding these concepts and their relationships, we can understand the advantages and disadvantages, which in turn should help improve their effectiveness.

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This study also contributes since it introduces new ideas and avenues for future research in each of these fields of research and topics. Not only did this study seek to explore different variables and their relationships, but it also sought to understand the relationship and identify new ways of thinking about the variables under study. The results of this study were also valuable, from a practitioner perspective, since the understanding of these variables and relationships helped to introduce ideas and strategies that a practitioner can deploy to be more effective in their profession. The results from this study help a practitioner to understand the relationships and variables but also the implications related to these variables and relationship. ♦

uous improvement and project management. His work has been published in a variety of different publications and has been presented at several venues and professional organizations including: Institute of Industrial & Systems Engineers (IISE), American Society for Quality (ASQ), American Quality Institute (AQI), Society for Health Systems (SHS), American Society for Engineering Management (ASEM), Project Management Institute (PMI)

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