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FOR SUCCESSFUL OFFSHORE OUTSOURCING ADOPTION HYBRID BWM-ELECTRE-BASED DECISION

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ABSTRACT

The goal of this research is to provide an enabler choice framework to aid managers in the adoption of offshore outsourcing by concentrating on the key enablers and their intensities. The applicability of created offshore outsourcing focused enablers across four automotive business organizations in India is tested using a hybrid Best Worst Method (BWM) – Eliminations and Choice Expressing Reality method, as well as the adoption score of the framework across case organizations. BWM is utilized to analyze the intensity of offshore outsourcing-oriented enablers and the Elimination and Choice Expressing Reality methods are used to rate organizations and calculate adoption index scores. Across the example organizations, the created methodology has a high acceptance rate in offshore outsourcing efforts. According to the study's findings, managerial and strategic enablers are the most important, followed by technical enablers and organizational enablers. This research also includes a sensitivity analysis to test the resilience of the proposed framework by doing experiments under various circumstances. This study will aid managers and experts engaged in offshore outsourcing efforts, resulting in greater labor and raw material cost advantages, improved economies of scale, and more long-term company growth.

KEYWORDS: *Best Worst Method (BWM), Enablers, Electra, Offshore, Outsourcing.*

1. INTRODUCTION

The current industrial type of situation has become challenging for both the old industry giants and new entrepreneurs. The old industry giants are continuously offering high-quality products at premium price; while the new entrepreneurs are providing the same products at economical price to establish themselves in the market. In this sense, the manufacturers need to be highly focused and proactive in their approach for sustainable business development. Simultaneously, constantly changing customer requirements for customized design, specifications and on time delivery requirements has also posed numerous challenges among the manufacturers. These issues are comparatively managed by the service industries, while the manufacturing industries are still struggling to achieve the optimum solution. From managerial viewpoints, to take

advantages of cheap labor and quick accessibility of raw materials and maintaining effective supply chain, the, etc [1].

The offshore outsourcing gained higher popularity in the developing countries due to the availability of cheap labor and raw materials. The offshore outsourcing becomes a prime choice among the service as well as manufacturing organizations to maintain their profit margins. In context to service industries, the offshore outsourcing portrayed noticeable benefits but as far as manufacturing industries are concerned, due to existence of physical goods, still substantial work is needed to extract the desired benefits. To enhance the adoption rate of offshore outsourcing, many researchers suggested various elements that serve as facilitators or drivers. Offshore outsourcing projects may be successfully completed by concentrating on these enablers. Furthermore, only a few studies have focused on the enablers that influence the adoption of offshore outsourcing in the industrial environment. There is no research in the literature that established a methodology for assessing the strength of relevant enablers, apart than a list of enablers to offshore outsourcing. The associated enablers will aid in improving the success rate of offshore outsourcing, although their relative importance may not be comparable. As a result, it becomes critical to assist managers in developing a decision framework for identifying and evaluating enablers in the implementation of offshore outsourcing projects [2].

An extensive literature study is conducted in order to achieve the above-mentioned goals. The expert panel discusses the list of enablers that assist the adoption of offshore outsourcing that was derived from the literature. Following the completion of the enablers, a framework is created and tested for application to four case organizations engaged in offshore outsourcing projects. Original Equipment Manufacturers (OEMs) in India's automobile industry are the focus of these case studies. These example companies are market leaders in their respective passenger vehicle and truck product categories, with a worldwide presence. A major component, the transmission gearbox, is manufactured offshore by passenger vehicle manufacturers.

Suspension systems are outsourced by truck manufacturers. To determine the intensity and the relative significance of the enablers, a hybrid Best Worst Method (BWM) – ELimination and Choice Expressing Reality (BWM – ELECTRE) Multi-Criteria Decision-Making (MCDM) method was used in this study. In addition, the adoption rate of the proposed framework is assessed across four case organizations using a hybrid BWM-ELECTRE method. A sensitivity analysis check is performed in accordance with this to ensure the robustness of the established framework. The current research is divided into seven parts, the first of which is the introduction. Describes the research technique used and the framework that was created. The implementation of the established methodology across case organizations is described. The study's contributions and consequences for academics and practitioners are described. Exploring the different enablers/drivers/critical success factors described in the literature is very important for successful offshore outsourcing adoption. The authors used the Systematic Literature Review (SLR) method.

To gather research papers, the authors used Scopus and Google Scholar databases. To include or omit a specific study, the keywords in the abstract and main body of the article were analyzed. In addition, we established some additional criteria for article inclusion and exclusion; Only peer-reviewed journal articles and book chapters were considered conference proceedings were excluded [3].

We scrutinize the gathered material using these criteria, and then use the forward and backward snowball techniques. Articles related to this project are collected in this manner. All papers were deemed to be indicative of the existing body of knowledge connected with outsourcing and

offshore implementation, as well as drivers and enablers that aid in the decision-making process for outsourcing and off shoring in production study. Institutional considerations, organizational factors, technical factors, economic factors, social and behavioral variables, and others all influence the acceptance of offshore outsourcing efforts taking these variables into account, industry experts may successfully complete their outsourced tasks. Offshore outsourcing's primary goal is to decrease total production costs by using low-cost labor, raw materials, and modern information and communication technologies.

The large industrial behemoths operate on the credo of maximum profit with little investment, thus assisting emerging countries in creating jobs and improving their economies. The flexibility to move up the value chain and the availability of quality labor are important enablers for the successful adoption of offshore outsourcing initiatives. Adoption of sophisticated information and communication technologies, data protection, and the usage of the Internet of Things aid in project management and tracking, which may be done in-house or outsourced. Data privacy, in this context, refers to an effective data privacy system that guarantees the protection of data throughout the whole production system. It aids in increasing the organization's trust and sustaining production quality standards [5].

2. DISCUSSION

Fill up their client's needs According to the findings of this study, managerial and strategic enablers have the highest weight (0.313) among the main criteria enablers, followed by technological enablers (0.218), organizational enablers (0.193), sociocultural enablers (0.170), and individual enablers (0.103). It is clear that management's strategic decisions and long-term policies improve the organization's capability, allowing them to take on offshore outsourcing projects. Manufacturers gain flexibility to produce highly customized products while maintaining high-quality standards by upgrading technological databases and employing advanced information and communication technology [6].

It's worth noting that a strong application of modern statistical and optimization techniques, as well as a multi-stage quality checks system, aids in the development of organizational capability and the improvement of the offshore outsourcing adoption index. Because the fluctuation of currency value directly increases/decreases the estimated project cost within a nation, accurate project cost estimation is also critical to the successful adoption of offshore outsourcing.

Organization 2 had the highest adoption index (8.404) among the four case organizations, followed by Organization 3 (8.111), Organization 1 (7.628), and Organization 4 (7.628). (7.417). According to the findings, the framework developed has the highest adoption rate of 84% and the lowest adoption rate of 74% during validation across all case organizations. The proposed framework's applicability is further enhanced by the use of sensitivity analysis. When the created framework is evaluated under various circumstances, the results of sensitivity analysis reveal relatively few modifications. This shows that the framework is robust and can be applied to other organizations that are similar to the ones in the case study. The current study is a first in the field of offshore outsourcing because it presents a unique set of enablers that influence offshore outsourcing adoption [10].

It also employs a novel BWM-ELECTRE combination for evaluating enabler weights and calculating each organization's index scores. Several researchers have highlighted the critical success factors that influence the adoption of offshore outsourcing in service industries, but very few studies have been able to link the same to the automotive manufacturing industry. As a result, this research adds to the theory by providing a comprehensive list of enablers for offshore

outsourcing in the industrial setting. Several research papers in the literature addressed the presence of offshore outsourcing enablers; however they failed to depict the intensity or relative significance of enablers. The greatest theoretical contribution provided by this study in the context of offshore outsourcing is the identification of relative significance of the enabler. The current research is a first attempt to use a hybrid BWM-ELECTRE method to assess the enablers that make offshore outsourcing more accessible to companies in the automobile manufacturing industry [7].

- It is very difficult to infiltrate all of the enablers inside an organization at the same time. In order to cope with this, industry practitioners may use assessing the influencing intensity of the enablers to assist them implement offshore outsourcing more effectively. In such situations, it's conceivable that certain enablers have a greater impact on the adoption of offshore outsourcing than others. As a result, practitioners may concentrate on the high intensity facilitators based on their intensities by identifying them. The comprehensive list of offshore outsourcing enablers and their intensities given will assist industry practitioners in removing possible barriers to successful offshore outsourcing adoption [8].
- By analyzing the adoption index of organizations engaged in the automotive industry, this study offers an in-depth insight to managers in the successful adoption and execution of offshore outsourcing projects. This study will help academics and practitioners in emerging economies like India, China, Brazil, and Thailand improve the success rate of their offshore outsourcing decision efforts and create more job opportunities.
- Researchers and practitioners will benefit from the hybrid BWM-ELECTRE method used in this work. When dealing with a big number of enablers with different options, ELECTRE is the best option. The academics are eager to expand their knowledge on how to implement offshore outsourcing projects. Figure 1 discloses the Sensitivity analysis for condition (A) [9].

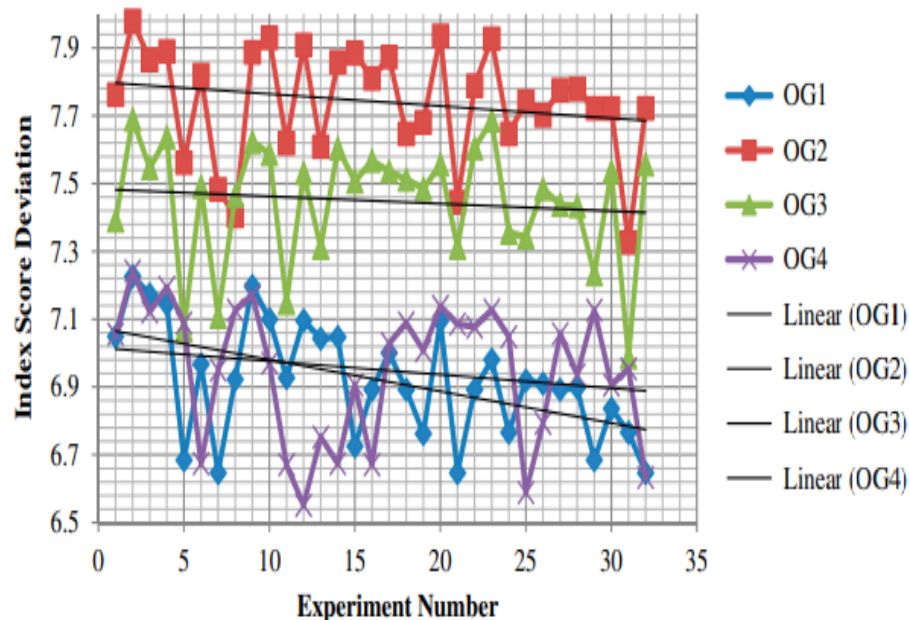


Figure 1: Sensitivity Analysis for Condition (A).

3. CONCLUSION

This paper is a first effort to look at the benefits of offshore outsourcing for companies in the automobile industry. The finalized enablers are assessed using a hybrid BWM-ELECTRE method to provide an offshore outsourcing decision framework. The enabling weights are computed using BWM, and the ranking of automotive case organizations in successful offshore outsourcing adoption is evaluated using ELECTRE. This research also reveals the adoption index score of each established offshore outsourcing choice framework to assist practicing managers. Those managerial and strategic enablers are the most important among the major enablers. Then there are organizational enablers and technical enablers. During the validation process, the framework created in this research had the greatest adoption of 84% and the lowest adoption of 74% across all case organizations. Automobile manufacturers may expand their customer base by improving their organizational index score. Of offshore outsourcing initiatives that will immediately increase the number of qualified experts employed. The sensitivity analysis test is used to ensure that the created framework is stable.

This study will make things easier. Managers and professionals that engage in offshore outsourcing efforts benefit from greater cost savings. Increased economies of scale in labor and raw materials, greater sustainable company development, and so on. Despite a thorough study of the literature, it's likely that certain key facilitators affecting offshore outsourcing adoption were overlooked. More studies like these will encourage academics to look at a variety of other aspects of offshore outsourcing. To improve the offshore, the researchers may use aspects of the Internet of Things and Industry 4.0. Organizations in the automotive sector may benefit from outsourcing possibilities. The BWM-ELECTRE hybrid Researchers may use the approach-based created decision framework used in this study to evaluate its effectiveness. Applicability across manufacturing sub-domains (electronics & electrical manufacturing, process manufacturing, etc.) Based on industry objectives and expert feedback this research may serve as a solid basis for offshore outsourcing. Among linked organizations in the automobile manufacturing industry.

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