International Journal Of Humanities Education And Social Sciences ***(IJHESS)*** *E-ISSN:* **2808-1765**
Volume 3, Number 2, October 2023, *Page. 691 - 698*
Email : editorijhess@gmail.com

Analysis of the potential development of defense industry policies with the Total Quality Management (TQM) approach at PT. PAL

Andy Ferdiyasto[1)], Aries Sudiarso [2)], IB Putra Jandhana [3)], Fatmawati [4)],Rudy AG Gultom [5)]
[1. 2.3.4.)] Defense Industry Study Program, Faculty Defense Sains and Tecnology, Republic Indonesia Defence University
[5)] Sensing Tecnology Study Program, Faculty Defense Sains and Tecnology, Republic Indonesia Defence University

*Corresponding Author
Email: andiferdiyasto@gmail.com

Abstract

This article discusses the analysis of potential defense industry policy development with the Total Quality Management (TQM) approach. The defense industry plays an important role in maintaining the security and sovereignty of a country. In the face of increasingly complex and dynamic security challenges, the product quality and competitiveness of the defense industry must be continuously improved. TQM has proven effective in improving performance and quality in various industrial sectors. This approach emphasizes continuous quality improvement and involves all members of the organization in process and product improvement. In the context of the defense industry, TQM is becoming increasingly relevant to achieve industrial independence and improve competitiveness in the global market. This research uses literature study, data analysis, and case studies of defense industries in several countries. This data is used to identify strengths, weaknesses, opportunities, and threats in developing the defense industry with a TQM approach. The results of this analysis are expected to contribute to policy makers and defense industry management in formulating strategies to improve the independence, efficiency and overall quality of the defense industry. By exploring the potential for developing defense industry policies with a TQM approach, the country can strengthen its defense capabilities, increase the contribution of the defense industry in supporting national security, and face the future with greater confidence and resilience. By exploring the potential of integrating the TQM approach into defense industry policies, this research strives to fortify a nation's defense capabilities. It also seeks to amplify the defense industry's role in bolstering national security. Consequently, this comprehensive analysis offers a blueprint for a future that promises increased self-assuredness and resilience, enabling the country to navigate evolving security challenges with confidence and adeptness.

Keywords: Defense industry, Industrial independence, Total Quality Management (TQM), Organizational cycle, Product quality, Process efficiency, Competitiveness, SWOT Analysis

INTRODUCTION

The defense industry plays a crucial role in ensuring the security and sovereignty of a country. In the face of the growing complexity and dynamics of security challenges, it is important for the defense industry to continue to adapt and improve product quality and competitiveness. One approach that has proven effective in improving performance and quality in various industrial sectors is Total Quality Management (TQM). TQM is a management approach that focuses on achieving excellence through continuous quality improvement in all aspects of the organization. This approach involves all lines of the organization, from management to field employees, to play an active role in process and product improvement. TQM emphasizes aspects of quality, efficiency, and innovation in achieving organizational goals.

In the context of the defense industry, TQM is becoming increasingly relevant given the demand for high-quality products and reliable defense systems. Defense industry independence is also a strategic priority for many countries, as it can reduce dependence on foreign suppliers and increase national defense capabilities. Therefore, this journal aims to conduct an analysis of the potential development of defense industry policy with a TQM approach. In this analysis, we will explore how the application of TQM principles can have a significant impact on the defense industry's ability to achieve self-reliance and improve product quality and competitiveness in the global market.

The research methods used in this journal include literature study, data analysis, and case studies of the defense industry in several countries. The data and information obtained will be used as a basis for identifying strengths, weaknesses, opportunities, and threats in the development of the defense industry with a TQM approach. Based on the analysis, it is hoped that this journal can make a meaningful contribution to policy makers, defense industry management, and other related parties in formulating appropriate strategies and policies to improve the independence, efficiency, and overall quality of the defense industry. We believe that by exploring the potential of developing defense industry policies with a Total Quality Management (TQM) approach, the country can strengthen its defense capabilities, increase the contribution of the defense industry in supporting national security, and face future challenges with greater confidence and resilience.

RESEARCH METHODS

This research uses a descriptive analysis approach by collecting data from scientific journals and relevant articles from reliable and authorized sources on the internet. This method allows the author to explore comprehensive information about the theory of the organizational cycle in the context of the defense industry, the theory of the independence of the defense industry, and the factors that influence the independence of the defense industry. Data obtained from these sources will be carefully analyzed to identify patterns and relationships between the organizational cycle in the defense industry and the level of industry independence. Descriptive analysis will be used to explain the findings from the retrieved literature, as well as to build a deeper understanding of PT PAL's role in the organizational cycle and self-reliance of the defense industry. P,The limitation of this research method is that it depends on the quality and quantity of literature that can be found from limited sources. Therefore, maximum efforts will be made to ensure the accuracy and reliability of the data used in this study.

RESULT AND DISCUSSION

TQM is a management approach that focuses on continuous efforts to improve the quality of products, services, and processes in an organization. The concept was first introduced by management scientists such as W. Edwards Deming, Joseph M. Juran, and Philip B. Crosby. TQM emphasizes the involvement of all members of the organization in continuous improvement, customer involvement, and management based on facts and data. In the context of the defense industry, TQM can help improve efficiency, effectiveness, and innovation in the production process and create high-quality defense products.

Figure 1. TQM (total quality management) diagram circle chart with 8 module
Source : https://labmi.trunojoyo.ac.id/total-quality-management/

Organizational cycle theory explains how organizations go through various stages over time. The phases of the organizational cycle include startup, growth, maturity, and decline. Each phase has different characteristics, challenges and opportunities. In the analysis of potential defense industry policy development with a TQM approach, it is important to understand where the defense industry's organizational cycle phases are. In the startup phase, TQM can help build a strong quality foundation, while in the growth phase, TQM can help manage growth effectively. The concept of defense industry independence refers to the ability of a country to produce and provide its own defense needs without depending on imports from other countries. Defense industry independence is important to reduce the risk of dependence on foreign suppliers, ensure the availability of critical defense products, and support national defense policies. In this context, the application of TQM in the defense industry can help improve production efficiency and quality so as to achieve a higher level of self-reliance. SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is a tool used to evaluate the strengths, weaknesses, opportunities, and threats faced by an organization or industry. In analyzing the potential development of defense industrial policy with a TQM approach, SWOT analysis can help identify aspects that need to be improved and development potential that can be utilized in the implementation of TQM.

Through the use of this theoretical foundation, the analysis of potential defense industry policy development with the Total Quality Management (TQM) approach can be more comprehensive and targeted. This theoretical foundation helps to underlie and provide a strong basis for the recommendations and policies that will be proposed to strengthen the defense industry and achieve a higher level of independence.

Issue Analysis:

In the context of research on the relationship between PT PAL's organizational cycle chart and the independence of the defense industry, there are several problems that need to be analyzed in depth:

1. Organizational Cycle Stability: Defense industry companies such as PT PAL may experience fluctuations in their organizational cycles. Management changes, government policy changes, and market changes can affect the stability of the organizational cycle.

These issues need to be analyzed to understand their impact on PT PAL's defense industry independence.

2. Dependence on Imports: Despite PT PAL's significant contribution to the defense industry, there is sometimes a reliance on imports of certain defense systems. This issue concerns PT PAL's ability to independently produce some high-level defense technologies, which needs to be analyzed to evaluate the level of industrial independence.
3. Product Quality and Project Performance: The independence of the defense industry depends not only on production capabilities, but also on product quality and project performance. If PT PAL faces problems in terms of product quality or cannot achieve project performance in line with expectations, this could affect the success and independence of the industry.
4. Human Resources and Workforce Skills: The self-reliance of the defense industry is also closely linked to the availability of qualified human resources with relevant skills. HR-related issues such as lack of required skills or problems in HR management can impact the level of self-reliance of the industry.
5. Government Policy and Industry Support: Government support and policies are critical to promoting defense industry independence. Issues related to inadequate policy and industry support need to be analyzed to understand the extent to which this affects PT PAL's industrial independence.

An in-depth analysis of the above issues is expected to assist in assessing the relationship between PT PAL's organizational cycle and the independence of the defense industry. The results of this analysis are expected to provide insights and recommendations to improve the independence of the defense industry in Indonesia and bring benefits to PT PAL and the development of the national defense industry as a whole.

Resolution Efforts:

In overcoming the previously identified problems related to the relationship between PT PAL's organizational cycle chart and the independence of the defense industry, the following are some of the solutions that can be implemented:

1. Strengthening Organizational Cycle Stability: PT PAL needs to adopt a management strategy that is oriented towards stability and sustainability. In this regard, an experienced management team with a long-term vision should be established to manage fluctuations in the organizational cycle. The creation of a well-thought-out business plan and diversification of the project portfolio can also help reduce the impact of market fluctuations and policy changes.
2. Technology Capability Development and Innovation: PT PAL should increase efforts in research and development (R&D) to develop high-level defense technologies. Technology development and innovation will help PT PAL to be more independent in producing complex and sophisticated defense systems. In addition, PT PAL can also establish strategic partnerships with companies or research institutions to accelerate technology transfer and improve innovation capabilities.
3. Improved Product Quality and Project Performance: The implementation of TQM is key in improving PT PAL's product quality and project performance. By involving all

members of the organization in efforts to improve quality, PT PAL can identify and overcome problems that may arise in the production process. In addition, PT PAL also needs to ensure strict monitoring and evaluation of all stages of the project to ensure optimal performance.

4. Human Resource Development: PT PAL should invest in human resource development by providing appropriate training and education to improve the skills and competencies of the workforce. By having a qualified and skilled workforce, PT PAL can be more effective in carrying out projects and achieving industrial independence.
5. Strengthening Government Support: PT PAL needs to continue to communicate and collaborate with the government to obtain support and policies that support the development of the defense industry. Support from the government in terms of regulatory policies, licensing, and procurement of local defense equipment will help PT PAL to be more independent in meeting the country's defense needs.
6. SWOT Analysis on Potential Analysis of Defense Industry Policy Development with Total Quality Management (TQM) Approach:

Tabel 1. SWOT Analysis

Strengths	Weaknesses
a. Quality Improvement: A Total Quality Management (TQM) approach will promote improved quality of products and services in the defense industry. Higher quality will increase the reliability and effectiveness of the defense systems produced. b. Process Efficiency: Implementation of TQM will help improve the efficiency of production and management processes in the defense industry. More efficient processes will reduce wastage and increase productivity. c. Involvement of All Organization Members: TQM involves all members of the organization in the effort to improve quality. Active involvement from all levels will create a work culture that is oriented towards quality and innovation. d. Increased Competitiveness: By improving quality and efficiency, the defense industry will become more competitive in both domestic and international markets, thus creating opportunities to increase market share and global competitiveness.	a. Organizational Culture Change: TQM implementation requires a strong and sustainable change in organizational culture. The weakness lies in the resistance or difficulty in changing established mindsets and practices. b. Cost of Implementation: The TQM implementation process can entail significant costs, especially in training, certification, and other supporting infrastructure. This can be a challenge in adopting TQM, especially for companies facing budget constraints. c. Difficulty in Measuring Results: TQM emphasizes on continuous performance measurement and evaluation. However, in the defense industry, measuring results and performance can be more complicated due to the characteristics and confidentiality of certain projects.
Opportunities	Threats

a. Increased Customer Trust: Through the implementation of TQM, the defense industry can increase customer satisfaction by providing more reliable and high-quality products. Increased customer confidence can open up opportunities for more projects and long-term partnerships. b. Human Resource Development: TQM will encourage the development of high-quality human resources (HR). Skilled and trained human resources will be a valuable asset in the face of global competition. c. Government Support: A government that supports the development of a local defense industry can provide support and incentives for companies that implement TQM to achieve defense industry independence.	a. Global Competition: The defense industry faces intense competition at the global level. If TQM implementation is not successful in creating a competitive advantage, the defense industry may lose out to companies from other countries. b. Regulations and Standards: The defense industry is subject to strict regulations and standards. Not complying with applicable regulations and standards can result in legal issues and reputational damage. c. Government Policy Changes: Changes in government policies regarding defense budget and project priorities can affect the impact of TQM implementation in the long run.

By conducting a SWOT analysis on the potential development of defense industry policies with a Total Quality Management (TQM) approach, companies or related parties can holistically understand the existing challenges, opportunities, and strengths. By utilizing strengths and opportunities as well as overcoming weaknesses and facing threats, the development of defense industry policies with a TQM approach can produce more effective and sustainable results to achieve defense industry independence.

Through the implementation of this resolution effort, PT PAL can increase the independence of the defense industry and support the national strategic goal of creating a resilient, independent and globally competitive defense industry. By facing problems with the right solutions, PT PAL can continue to be a major player in Indonesia's defense industry and make a significant contribution to the country's defense and security.

CONCLUSION

From the analysis of the relationship between PT PAL's organizational cycle chart and the independence of the defense industry and the proposed solution, the following conclusions can be drawn:

PT PAL's organizational cycle has a significant impact on the independence of the defense industry. The growth phase and peak performance can provide opportunities for PT PAL to improve product quality, production efficiency, and technological capabilities that contribute to industrial independence. However, the decline phase requires special attention to prevent a decline in the quality and sustainability of defense projects. The implementation of Total Quality Management (TQM) is a relevant strategy in increasing the independence of PT PAL. By focusing on quality improvement, production process efficiency, human resource development, and a quality-oriented organizational culture, PT PAL can achieve higher defense project success and increase the level of industrial independence.

To achieve higher defense industry independence, PT PAL needs to overcome the problems it faces, such as organizational cycle stability, dependence on imports, product quality, project

performance, and human resource development. Government support and policies are also important factors in achieving industrial independence. PT PAL has a crucial role in defense projects and has great potential to continue to contribute to increasing the independence of the defense industry in Indonesia. Through appropriate resolution efforts, PT PAL can strengthen its position as a strong and reliable defense industry company.

The conclusion confirms the importance of a stable organizational cycle, TQM implementation, and effective problem handling in increasing the independence of PT PAL's defense industry. With the right steps, PT PAL can continue to develop its capabilities and abilities in meeting the country's defense needs, achieve higher independence, and become an important pillar in strengthening Indonesia's defense and security.

REFERENCES

Agustini, R.R. (2017). PEMBENTUKAN CAUSAL AMBIGUITY DI TRANS MEDIA.

Ariani, H.D. (2017). PEMANFAATAN OFSET DALAM UPAYA PENGEMBANGAN TEKNOLOGI RADAR PERTAHANAN DI PT. INTI.

Farhan, M.F. (2022). Peran Nasionalisme dalam Kemandirian Bangsa dan Kemandirian Industri Pertahanan. Jurnal Global Citizen : Jurnal Ilmiah Kajian Pendidikan Kewarganegaraan.

Gilbert, K. (1993). Practical application of total quality management to a military electronics operation. *Proceedings of WESCON '93*, 194-198.

Hamza, D. (2008). EVALUASI SISTEM INFORMASI AKUNTANSI SIKLUS PENDAPATAN : Studi Pada PT. Citra Tama Adigraha di Surabaya.

Lab Manajemen Industri Trunojoyo. (20/02/2023). Total Quality Management (TQM). Diakses pada 29 Juli 2023, dari https://labmi.trunojoyo.ac.id/total-quality-management/

Luerdi, L., & Marisa, H. (2019). Civil Participation in Military Innovation: Cooperation between the Defense Industry of Indonesia and Turkey 2010 - 2018.

Mustofa, M.L. (2012). Monitoring dan evaluasi: konsep dan penerapannya bagi pembinaan kemahasiswaan

Needham, C.W. (1990). An application of total quality management at an intermediate maintenance activity. *Naval Engineers Journal, 102*, 35-43.Nurlaeli, F. (2013). PENERAPAN PRINSIP CONTINUAL IMPROVEMENT DALAM KERANGKA TOTAL QUALITY MANAGEMENT : Studi Fenomenologi pada PT Industri Telekomunikasi Indonesia (Persero) Bandung.

Pitman, G., Motwani, J., & Schliker, D. (1994). Total Quality Management in the American Defence Industry: A Case Study. *International Journal of Quality & Reliability Management, 11*, 101-108.

Ridha, M., & Hatta, M.I. (2016). Hubungan Iklim Organisasi dengan Komitmen Kerja pada Karyawan PT. LEN Industri Bandung.

Rohmad, R., & Susilo, E. (2022). Kemandirian Industri Pertahanan dalam Mewujudkan Investasi Pertahanan. JIIP - Jurnal Ilmiah Ilmu Pendidikan.

Reiter, D.J. (1989). A Study as to the Feasibility of the Department of Defense Mandating its Supplier Base Adopt Total Quality Management.

Utama, A.B., & Anwar, S. (2021). SEJARAH PENGGUNAAN PESAWAT TERBANG TANPA AWAK (PTTA) DALAM PERANG MODERN DAN PERSIAPAN MILITER INDONESIA. Jurnal Pertahanan & Bela Negara.

Wibowo, R.D. (2016). PERMASALAHAN DALAM MEWUJUDKAN KEMANDIRIAN INDUSTRI PERTAHANAN. DEFENDONESIA.

Witt, B. (1991). The Development of a Total Quality Management Plan for David Grant USAF Medical Center Travis Air Force Base, California.