# Transformation of Human Resource Management to Increase Work Process Efficiency at Indonesian Quarantine Agency (A Study on The Implementation of Lean Management in Human Resource Management)

**Suwarno Tri Widodo [1*], Lijan Poltak Sinambela [2]**

[1*,2] Faculty of Economics and Business, Universitas Nasional, South Jakarta City, Special Capital Region of Jakarta, Indonesia

Email: drh_widodo@yahoo.co.id [1*], lijanmarnala@gmail.com [2]

**Abstract**

The field of Human Resource Management (HRM) in an organization aims to ensure that the organization achieves its established objectives by involving skilled and capable employees. One of the primary challenges faced is creating efficiency in work processes without compromising service quality. In the context of HRM, common issues include inadequate use of modern technology, complex procedures, resistance to change, and suboptimal interdepartmental collaboration. The transformation of HRM at the Indonesian Quarantine Agency through the application of lean management has become a strategic step to enhance work process efficiency and effectiveness. In this context, HRM plays a crucial role in achieving organizational goals by engaging skilled and capable employees. However, challenges such as bureaucratic procedures, resistance to change, and insufficient use of technology remain prevalent. This research employs the Soft Systems Methodology (SSM) approach to identify problems and formulate solutions. The results show that lean management implementation can reduce waste, increase added value, and optimize workflows. Through AHP analysis, it was found that the commitment of top and middle management, along with active employee involvement, are key factors for the successful implementation of lean management. Additionally, proper training on the concepts and techniques of lean management is prioritized to ensure the success of this transformation. Consequently, this study provides strategic recommendations to enhance productivity and service quality at the Indonesian Quarantine Agency while contributing theoretically to the development of HRM in the public sector.

**Keywords**:
Human Resource Management; Lean Management; Transformation; Efficiency; Indonesian Quarantine Agency.

## 1. INTRODUCTION

Human Resource Management (HRM) plays an important role in ensuring organisations achieve their goals by engaging competent and skilled employees. HRM is a pillar in the construction and development of organisations. Without adequate human resources, the company will find it difficult to achieve the expected targets. HRM is tasked with managing various organisational activities related to employees through a number of strategic functions. Supervision of employee performance is needed so that work can be done effectively and efficiently to support the achievement of organisational goals (Chiarini & Brunetti, 2021).

In general, the role of HRM includes providing input in decision-making related to employee management, ranging from planning, recruitment, payroll, productivity improvement, to training, development, and occupational health and safety (K3). HRM is also a key factor in the company's success. However, there is still an assumption that HRM only functions as an administrative unit that manages personnel (Radnor & Osborne, 2018). On the contrary, HRM contributes to the development of

organisational members to achieve common goals. With effective and efficient HR management, companies can more easily recruit new workers who have the skills they need (De & Kelliher, 2020).

The Indonesian Quarantine Agency is one of the important institutions under the Ministry of Agriculture. This institution has a strategic role in maintaining food safety, environmental protection, and ecosystem balance through strict supervision of agricultural products entering and leaving Indonesian territory. In carrying out its duties, the Indonesian Quarantine Agency faces major challenges, such as increasing international trade volumes, global policy changes, and public expectations for fast and efficient services.

One of the main challenges faced is how to create efficiency in work processes without compromising service quality. In the context of human resource management (HRM), problems that often arise include the lack of utilisation of modern technology, convoluted work procedures, resistance to change, and less than optimal collaboration between work units. These issues contribute to low productivity, high operational error rates, and rising operational costs.

To address these challenges, HR management transformation is an urgent need. This transformation includes not only the implementation of new technologies but also fundamental changes in organisational culture, talent management, and employee competency development. One relevant approach to be applied in this transformation is lean management, a method that focuses on reducing waste and increasing added value in every work process.

The Indonesian Quarantine Agency faces various problems that hinder the efficiency and effectiveness of work processes. Inefficient work procedures are one of the main obstacles, where many processes are still manual and bureaucratic, take a long time, and require large resources. In addition, resistance to change is often a barrier to the implementation of new approaches such as lean management. Employees tend to feel reluctant to adopt new ways of working that are perceived as complicated or change their old habits.

Underutilisation of technology is also a significant challenge. Existing information systems are often fragmented, making coordination between work units difficult and impeding the flow of information required for strategic analysis and planning (Shah & Linderman, 2017). In this case, technology integration becomes an urgent need to support data-driven decision making. Hierarchical and bureaucratic organisational cultures exacerbate the situation by inhibiting innovation, collaboration and flexibility at work.

In addition, the lack of understanding of lean management principles among both employees and managers makes its implementation less effective. Without adequate training and the right communication strategy, the transformation is unlikely to take off as expected. All these issues point to the need for a holistic approach that not only changes work processes but also the overall culture of the organisation (Womack & Jones, 2019).

HR management transformation through the implementation of lean management offers a solution to address these issues (Zang, 2019). By focusing on reducing waste, improving efficiency, and continuous innovation, the Indonesian Quarantine Agency can achieve better service quality while optimising its resources.

Lean management is an operational approach to organisational management. Lean Management is driven by the philosophy of respect for people and continuous improvement. This effort is carried out systematically with existing resources, focusing on customer value and removing existing waste (Sunder & Mahalingam, 2018). The ultimate goal is to gain process speed, quality improvement and efficiency.

Lean has a methodology that can improve processes so as to deliver better products & services, faster and at a lower cost (Antony & Laureani, 2021). Lean can be applied to all organisations including public service organisations at the Indonesian Quarantine Agency. Lean gives even the lowest-ranking staff the opportunity to have a voice, express their ideas and take the necessary actions for improvement.

After understanding the concept of Lean, the head of the Indonesian Quarantine Agency may be faced with the question of how to implement it. According to Liker (2019), implementing Lean does not mean copying and pasting what is done by Toyota (as the origin of the Lean concept) or from other ministries that are considered successful in implementing Lean. The head of the Indonesian Quarantine Agency can develop Lean according to the conditions of the Indonesian Quarantine Agency or each work unit.

Lean management has proven effective in various sectors, including the public sector. This method emphasises principles such as value identification, value stream mapping, waste elimination, and continuous improvement (Zhu & Chu, 2020). In the context of the Indonesian Quarantine Agency, lean management can help identify and reduce non-value-added activities, such as duplication of tasks, unnecessary bureaucracy, and long waiting times in service processes (Zurga, 2021).

However, implementing lean management in HR management is not without its challenges. One of the biggest challenges is resistance to change. Employees who are accustomed to certain work patterns often feel reluctant or even refuse to adopt new ways of working (Zhang & Liu, 2022). In addition, the lack of understanding of lean management principles is also an obstacle to effective implementation. Therefore, an effective communication strategy, comprehensive training, and commitment from all levels of management are required to ensure the success of this transformation.

Another problem that arises is the limited data and information systems that can be used to support data-driven decision making. Existing information systems are often fragmented, making coordination between

work units difficult and impeding the flow of information needed for strategic analysis and planning. This condition emphasises the importance of information technology integration in supporting the implementation of lean management, especially in the aspect of HR management.

In addition, organisational culture also plays an important role in supporting or hindering HR management transformation. Organisational cultures that tend to be hierarchical and bureaucratic are often a barrier to innovation and flexibility. Therefore, a change in work culture in favour of collaboration, innovation and results orientation should be an integral part of this transformation strategy. A human-centred approach to HR management can help create a more inclusive, productive and adaptive work environment.

This study aims to explore the implementation of lean management in HRM at the Indonesian Quarantine Agency. The research will identify the challenges and opportunities faced in the transformation process, as well as provide strategic recommendations to improve work process efficiency. Thus, this study is expected to provide practical and theoretical contributions in the field of HR management, especially in the public sector.

## 1.1. HR Management Transformation

Changes in the role and function of human resources from a traditional approach to a more strategic and business-oriented role are expected to create reforms in the company's management system, so as to achieve good corporate governance and corporate social responsibility (Mujarudin, W., 2020). Contributions to the development of Lean Management, especially in strategic human resource management and transformation management, have a significant influence on the achievement of competitive advantage (Pakaya, 2021). Organisational transformation aims to improve capabilities in accordance with the demands of a changing business environment. Entering an era of change requires high adaptability, based on knowledgeable human resources (Poerwanto, 2018). Digital transformation itself refers to the significant use of digital technology to improve performance and achieve company goals (Royyana, 2018). The term 'transformation' reflects changes that have a major impact on organisational structures.

The era of digital transformation has changed the business landscape, forcing companies or organisations to adjust to technological developments in order to remain relevant (Nagel, 2020). This transformation includes business process automation to the application of the latest technologies such as big data and the internet of things, by going through the stages of education, transformation, and evaluation. Risk management is an important aspect in supporting this stage to minimise resistance from individuals and groups (Nurrosyidah, 2021). In facing the industrial era 4.0, continuous improvement in human resource performance can be achieved through HR management strategies that are oriented towards improving company performance. This strategy can be analysed using the AMO (Ability, Motivation, Opportunity) model, which is considered suitable for overcoming organisational challenges in this era. By fulfilling these three aspects, employees will be able to provide optimal work performance in the organisation (Ong, J. O., 2020).

Technological advances and human resource management simultaneously have a significant impact on employee competence (Abbas, 2018). A company's capacity to build organisational resilience can be achieved through human resource management strategies aimed at creating individual competencies among core employees. These competencies, when combined at the organisational level, enable companies to deal effectively with uncertainty, respond to threats with specific solutions, and ultimately perform transformative activities (Sunarsi, 2019).

Various factors, such as leadership, motivation, training, and work environment, together influence employee performance. Other factors that can also contribute to performance include incentives, work culture, communication, job titles, nutrition, and training (Munparidi, 2017). Organisational transformation is characterised by significant and sudden changes focused on three key elements of the organisation. Motivation and compensation received by personnel can act as mediators that strengthen the relationship between the implementation of organisational transformation and performance achievement (Wijayatma, 2022).

Communication skills, teamwork, leadership, and analysis-based decision making simultaneously have a significant effect on employee performance. This indicates that the higher the competence of employees, the better their performance (Yunus, 2017). In addition, the work environment, as a physical element where employees work, has a positive influence on employee performance (Lestary, 2017).

## 1.2. Lean Management

Lean is a process improvement method that aims to deliver better, faster, and more cost-effective products and services. Lean management focuses on increasing value for customers by eliminating or avoiding waste. In other words, activities that add value to the customer are expanded and optimised, while non-valuable or redundant activities are eliminated. This creates a more efficient and effective work process. Lean management is based on the philosophy of respect for people and continuous improvement. This approach is done systematically by utilising existing resources, oriented towards customer value, and eliminating waste. The ultimate goal is to improve process speed, quality, and efficiency.

Based on the literature review on lean management described earlier, it can be concluded that the implementation of lean management produces three main outputs, namely: efficiency (in time, movement, activity, and cost); quality (through quality control and quality improvement); and the creation of value added. Therefore, to deeply understand these three aspects, it is necessary to further explain the concepts of efficiency, quality, and value-added.

Efficiency is a measure of the success of an activity or activities, which is assessed based on the amount of costs or resources used to achieve the desired results. Meanwhile, according to Goetsch and Davis as cited by Tjiptono (2017:152), quality is defined as 'a dynamic condition related to products, services, human resources, processes, and environments that meet or exceed expectations.' Thus, quality reflects the relationship between the product or service provided and the level of satisfaction and expectations of consumers.

Value added, as explained by Ruggles and Ruggles in Staden (2022), refers to the additional value generated by the company. This value is created through the activities of the company and its employees, which can be measured by the difference between the market value of goods produced by the company and the cost of goods and materials purchased from other producers.

## 2. RESEARCH METHOD

This research uses the Soft Systems Methodology (SSM) system approach. The system approach is understood as a problem-solving method that starts with identifying various needs to create a system operation that is considered effective. The system philosophy in systematic thinking and study has three main characteristics, namely: (1) Cybernetic or goal-oriented, where this thinking encourages a positive outlook and triggers creativity in finding innovative solutions to achieve goals; (2) Holistic, which is a comprehensive perspective without reducing the complexity of the problem at hand; and (3) Effective, by emphasising scientific processes whose results can be implemented (Kholil et al., 2018; Eriyatno, 2018).

In the application of the system, a pluralist methodology approach is used, where system experts can utilise various methods to support specific goals. This systems approach in the modelling process involves SSM and System of Systems Methodology (SOSM). SSM methods are usually applied through a workshop or focus group discussion (FGD) format. The main factor that must be considered is whether the situation being studied is classified as unstructured or has a complex structure (Eriyatno and Larasati, 2018; Jackson, 2023).

The Soft Systems Methodology (SSM), developed by Peter Checkland and his colleagues, departs from the view that the real world is complex and unstructured. Therefore, this approach can only be explored through learning systems by modelling them as systems of human activities that have specific goals. The SSM method consists of seven steps that entail an iterative process, where an iterative review of the various stages is conducted, as depicted in Figure 2.

As such, the application of the SSM method and its supporting techniques should not be done mechanically or in a linear sequence. This iterative process is critical, as expert input can creatively evolve following a proposed improvement or intervention design (Checkland and Scholes, 2021; Checkland and Poulter, 2019; Hardjosoekerto, 2022).

Any activity that aims to provide benefits and is easily understood in the form of a conceptual model needs to start with an observation through a Rich Picture (RP) scheme, which describes the transformation from input to output. In SSM, a Rich Picture is a diagrammatic representation used to identify different points of view with the aim of creating a shared understanding of an organisation or institution. The RP presents knowledge graphically and cartoonishly, representing different parties and their interests. Rich Picture serves as a tool for analysing needs and problem-solving investigations using iconography.

Root Definition (RD) is the fundamental definition of the problem being studied. Real-world situations always involve humans acting consciously to achieve certain goals (cybernetics). As such, the RD is designed as an expression of a holistic view specifically designed to scrutinise the characteristics and qualities of each problem situation. This holistic view is expressed in the RD format as a brief but comprehensive statement of the planned system intervention. The preparation of the RD is done iteratively through discussions with experts or stakeholders until adequate agreement is reached between the reviewer and the object of research.

Soft Systems Methodology (SSM) allows the creation of a human activity model, the PAM (Primary Activity Model), where in the process of systemic intervention, each potential change is tested for feasibility to ensure future improvements. The development of a PAM conceptual model requires the application of a logical thinking process protocol, which must be followed by creative systems thinking. Impatience in following the rules of logic in PAM modelling can lead to misleading leaps in argumentation (fallacy).

Errors in model construction can have a negative impact, especially when system assessment results are used to provide policy recommendations and implications. The rule of logic (logical thinking process) is an important step in deepening understanding of the issue or problem being studied, so that a balanced situational analysis can be produced based on expert knowledge (Eriyatno, 2018; Dettmer, 2017).

## 3.    RESULTS AND DISCUSSION

This research has carried out the initial activities of the study by conducting a situational analysis, as well as conducting RP and RD analyses in accordance with stages 1, 2, and 3. The advanced objective of SSM is the development of a PAM conceptual model, which serves as an intellectual tool for discussions related to real-world situations, especially in HRM that are considered problematic. At the system identification stage, which is the fourth stage of SSM, this conceptual model describes the human activities system on the basis of the main needs of the various parties involved, who are faced with the problem as described in the RD. This PAM conceptual model includes logically interconnected clusters of activities that, when combined together, result in the achievement of system goals (Figure 2).
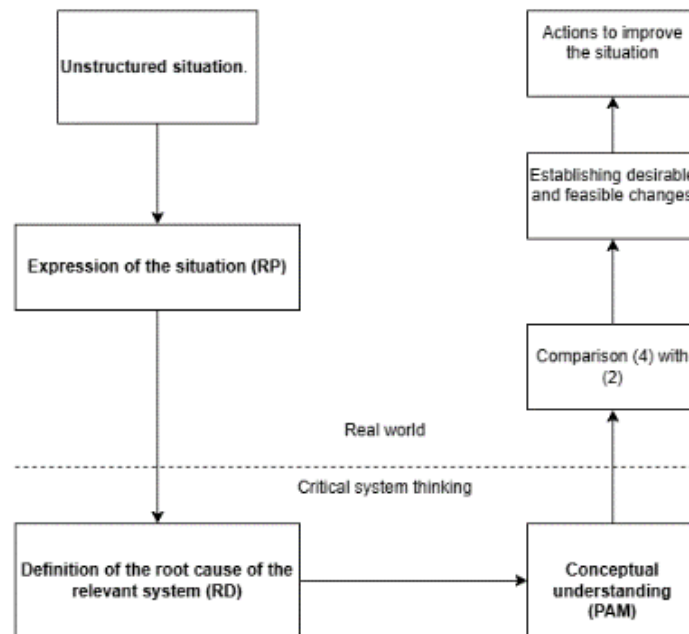


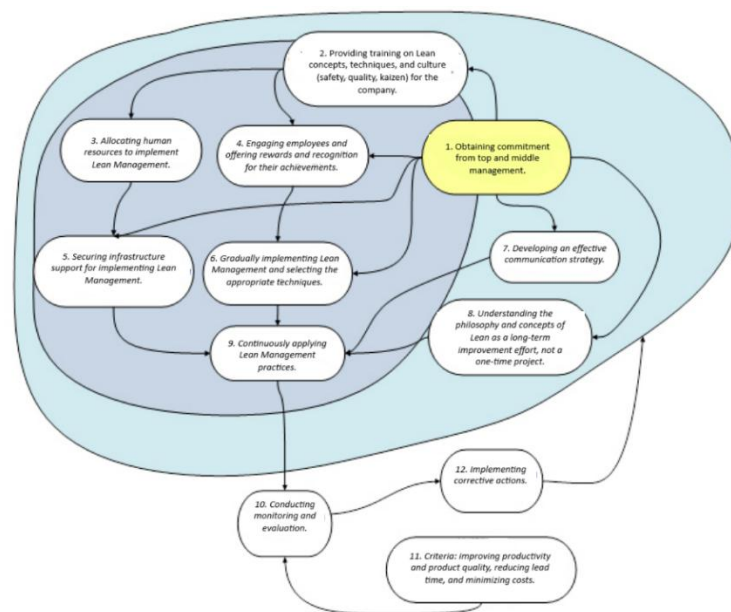Figure 1. Learning process of soft systems methodology



Figure 2. Purposeful Activity Model (PAM)

Activities 1 to 6 in the PAM conceptual model are the main basis for the successful implementation of lean management. Activities 7 and 8 aim to ensure that lean management implementation is sustainable, by delivering the right communication strategy to all employees about the purpose and concept of lean implementation clearly, and utilising various communication media such as visual boards in all areas,

banners, lean magazines, social media, and others. In addition, it is important to understand the philosophy and concept of lean as a sustainable and long-term activity, not just a temporary project.

To maintain the continuity of lean management implementation, the 9th activity should be monitored and evaluated (10th activity) using criteria such as productivity improvement, quality improvement, reduction of production process lead time, improvement of DIFOT (delivery in full on time), and reduction of production cost. If the results achieved do not meet the targets, corrective measures need to be taken by discussing again with experts, to ensure the implementation of lean management continues effectively (Activities 11 and 12).

Model Verification

According to the seven stages of SSM, the fifth stage is to compare the conceptual model of PAM with the real situation to identify gaps between the conceptual model and real-world conditions. The results of this model validation provide greater insight in formulating recommendations for changes and improvements related to sustainable lean management implementation.

After comparing the conceptual model of PAM with the real world (PAM with RP), further verification was conducted through in-depth interviews with bureau heads at the Indonesian Quarantine Agency who were successful or faced challenges in implementing sustainable lean manufacturing. The researcher found that there is agreement among lean experts and practitioners that the three main factors that act as the key to success in implementing sustainable lean management are commitment from top and middle management, active involvement of employees in lean implementation, and effective communication strategies. This finding is in line with the research results and the PAM conceptual model, which places these three factors as the top priorities for sustainable lean management implementation to increase company productivity in the face of global competition.

### 3.1. Strategy Prioritisation

Based on the stages of SSM, the sixth stage involves expected, culturally appropriate systematic changes and strategies or action plans to improve real-world problem situations. Prioritisation of effective strategies or action plans for sustainable implementation of the lean management model is done using the AHP technique, based on inputs from lean management experts and practitioners. At this stage, experts' knowledge is integrated to develop strategy alternatives and determine a hierarchy of goals (objectives), first-level criteria (actors), sub-criteria (factors), and alternative strategies or action plans as initial input. Then, the assessment of strategy alternatives is carried out based on the hierarchy. The result of this model selection stage is the prioritisation of strategies or action plans that influence success in the implementation of sustainable lean management, which is based on the highest aggregation of assessments from lean management experts and practitioners (Marimin, 2008; Saaty, 1993). The PAM conceptual model, which has been compared with the real world and verified by lean experts and practitioners, defines five main actors as key to the success of sustainable lean management implementation, namely the Head of the Indonesian Quarantine Agency, the Bureau Head, Middle Management, and staff employees.

The three main factors key to the successful implementation of sustainable lean management are: the commitment of top and middle management in supporting sustainable lean management implementation; active participation of employees in continuously implementing lean management; and effective communication strategies between management and employees in executing sustainable lean management. Five priority strategies or action plans that serve as primary alternatives for the successful implementation of sustainable lean management include: appropriate training on the concepts, philosophy, culture, and techniques of lean management; the application of basic lean practices as a solid foundation before advancing to more sophisticated lean techniques; benchmarking best practices from companies that have successfully implemented lean management; enhancing employee welfare and reward systems for those actively involved in lean management activities; and the selection and use of effective communication media.

Using the AHP (Analytic Hierarchy Process) method, the priority order or influence level of elements in a hierarchy can be determined. The hierarchy development is based on expert opinions (justifications), which include experience, literature, and results confirmed through interviews and discussions. The AHP hierarchy model in this study was obtained through a valid and accountable process. AHP allows for solving complex, unstructured, strategic, and dynamic problems by breaking them into simpler parts, which are then organized into an easily analyzable hierarchy. Issues are deconstructed to simplify them, and based on experience and understanding, priorities among actors, factors, and alternative strategies or action plans influential in implementing sustainable lean management can be determined.

The AHP analysis was used to prioritize actors, factors, and alternative strategies influential in implementing sustainable lean management, involving respondents from the Indonesian Quarantine Agency. Each respondent completed the questionnaire fully and consistently. The consistency of responses was measured using the consistency ratio (CR). In this study, the consistency ratio threshold was set at 0.1 (10%). If the CR is greater than or equal to 0.1, decisions are considered inconsistent, whereas if the CR is less than 0.1, decisions are deemed consistent (Marimin, 2008).

The AHP analysis results, with a CR of 0.05 (Figure 4), show that the main actor influencing the successful implementation of the sustainable lean management model is the bureau head, with a priority

value of 0.346, followed by middle management with a value of 0.331. The next priority is employees, with a value of 0.157. The similar values between the bureau head and middle management indicate that these two actors play a dominant role in influencing the success of sustainable lean management implementation.

The factors influencing the implementation of the sustainable lean management model include middle management's commitment to supporting lean management execution with a score of 0.654. Other factors include employee involvement with a score of 0.205 and effective communication strategies between management and employees in implementing lean management with a score of 0.141. Based on the AHP results, the commitment of middle management aligns with the priority of the main actors, who play a significant role in the successful implementation of sustainable lean management, namely middle management and the bureau head.

Alternative strategies or actions that influence the success of sustainable lean management implementation indicate that the first priority is training on the concepts, philosophy, culture, and techniques of lean management, with a value of 0.321. The second priority is implementing basic lean practices to establish a strong foundation before advancing to more sophisticated lean techniques, with a value of 0.266. The next priorities are improving employee welfare, with a score of 0.170; benchmarking ministries or agencies that have successfully implemented lean management, with a value of 0.158; and finally, selecting and utilizing appropriate communication media, with a score of 0.084.

Overall, the conclusion that can be drawn is that two primary strategies must be prioritized: appropriate training on the concepts, philosophy, culture, and techniques of lean management, and the implementation of basic lean practices as a solid foundation before advancing to more sophisticated lean techniques. The key factor supporting the successful implementation of lean management is the commitment of middle management, with the bureau head and middle management serving as key actors ensuring the success of the sustainable lean management model.

### 3.2. Strategic Assumptions

The identification of strategic assumptions is carried out using the Strategic Assumption Surfacing and Testing (SAST) method. At this stage, knowledge from an expert panel is gathered to identify assumptions related to the strategy for implementing sustainable lean management, particularly involving stakeholders who are affected by, interested in, or in a position to influence its implementation.

Five strategic assumptions agreed upon by the experts, which serve as prerequisites for the successful implementation of a sustainable lean management model, include: (A) The level of maturity or readiness of the organization, where the organization must have a solid lean foundation, including the application of basic lean management practices such as EMBA, 5S, Lean Kaizen, 7 Wastes, Muda, 5Why, Mura, and visual boards. (B) Support from top management to implement lean management effectively. (C) Inclusion within an ecosystem that already applies lean management principles. (D) Harmonious working conditions, with employee support to enhance the organization's productivity. (E) Financial health of the organization, which should be sufficiently strong to support lean initiatives.

## 4. CONCLUSION

The transformation of human resource management (HRM) at the Indonesian Quarantine Agency through the implementation of lean management has proven to be an effective approach to enhancing work process efficiency. By adopting lean management principles, such as waste reduction, value-added improvement, and workflow optimization, the Indonesian Quarantine Agency can achieve a more productive and responsive HR management system aligned with organizational needs.

Based on the prioritization established using the AHP method (actors, factors, and strategies) and the five strategic assumptions identified as the foundation for the sustainable implementation of lean management through the SAST method, an operational strategy model for sustainable lean management implementation at the Indonesian Quarantine Agency has been formulated.

The AHP prioritization highlights the bureau head and middle management as the primary actors, with the commitment of middle management identified as the main influencing factor in the sustainable implementation of lean management. This successful transformation is underpinned by visionary leadership, alongside the prioritization of key strategies for sustainable lean management. The primary strategy is to provide comprehensive training to all employees, covering basic lean management, the concepts and philosophy of lean, lean culture, and fundamental lean management techniques.

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