

Applying lean government to improve public services performance effectively: a case study of lean implementation in tangerang customs office

Asral Efendi¹, Imam Tri Wahyudi², Fitri Rinaldi³
Eko G.Samudro⁴, HJR Saragih⁵

¹Indonesia Defense University ²Indonesian Customs and Excise ³Indonesia Defense University

⁴Indonesia Defense University ⁵Indonesia Defense University

Email: asral.efendi@idu.ac.id

Email: imam.tri@kemenkeu.go.id

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Abstract:

This paper evaluates the implementation of a Lean approach developed by internal organization with a supervision from an external consultants into the Tangerang Customs Office (TCO) to improve public services. The purpose of this paper is to examine which tools/techniques are implemented into the TCO together with their impact as viewed by the formal leader within the organization.

The research takes a case study approach based on visiting the TCO, by using the Library Research method on Activities Report VSM training, implementation of lean tools, and in-depth interview with formal leader.

This paper reflects on the implementation of a Lean approach into the TCO in order to understand which tools are relevant and have had an impact. This research showed that lean implementation has led to tangible and intangible benefits. Tangible benefit appeared in reduction of the average customs permit processing time, although average submitted documents increased. Intangible benefits include a better understanding of Lean concept and methods and its application know-how, a rise in employees motivation and morale by executing employees improvement proposal as a bottom-up approach.

To date the implementation of Lean as a business improvement methodologies are still under researched within public services in Indonesia. The majority of papers to date focus on presenting case studies of what happened outside of Indonesia. This paper attempts to go beyond that in order to present framework to help in understanding, implementing and challenging the concept of Lean in public services in Indonesia.

Keywords: Lean Government, Value Stream Mapping, Public sector organizations, Business process re-engineering

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1. INTRODUCTION

Bureaucratic Reform is one of the government programs currently being implemented in all ministries in Indonesia. Bureaucratic reform carried out by the Ministry of Finance is directed to achieve several targets, namely improving Good Governance, improving the performance of officials, and improving services to the public.

The implementation of good governance in organizations marked by the creation of a government bureaucracy that is clean of corruption, the realization of accountability and transparency in

the administration of the state, presenting legal certainty and justice, as well as professionalism and government support in carrying out development programs. This condition will further contribute to increasing the productivity and competitiveness of the Indonesian nation on the international scene so that it can increase economic growth, welfare, and a sense of security for the community which can ultimately increase national resilience (Putra, 2019).

In the target of improving the performance of officials, the Ministry of Finance's bureaucratic reform requires the achievement of optimal work productivity obtained from a series of innovative,

effective and efficient activity programs in managing existing resources and supported by high dedication and work ethic.

Regarding the target of improving public services, it is expected that there will be satisfaction felt by the public as a result of the work of a bureaucracy that is professional, dedicated and has a high standard of moral values in carrying out their duties with all their heart and sense of responsibility. In order to achieve these targets, the Minister of Finance of the Republic of Indonesia has since 2007 launched the Bureaucratic Reform which includes priority programs in the area of organizational structuring, business process improvement, and improving Human Resource management.

The Tangerang Customs Office (TCO), as one of the structural units under the Ministry of Finance, supports the business process improvement program, where there are demands for improvement that are focused and directed at efforts to improve public services.

Through Lean Management, TCO hopes to change public perceptions of the lack of service quality and the complexity of the bureaucratic process. TCO can provide excellent service to the public, which is service that is measurable and certain in terms of completion time, administrative requirements that must be met, and costs that must be incurred. Each of these is directed to produce business processes that are accountable and transparent, and have fast and concise performance.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Lean Government

The term lean is a management philosophy that has historical roots in the Toyota Production System. Through long learning and experience, Toyota has succeeded in reducing waste systematically and building systems that learn and adapt, far better than other companies. Toyota's reputation in terms of management and manufacturing excellence continues to grow and become a reference for operational activities of manufacturing companies in the world.

The term Lean was first introduced in 1990, when a group of researchers from the Massachusetts

Institute of Technology published the results of their research on the comparison of several automotive companies in different parts of the world, in a book entitled *The Machine That Changed the World*. Five years of research has been carried out to understand the characteristics of various global automotive companies, especially in terms of quality and productivity. Based on the results of the study, they found that automotive companies in Japan (especially the Toyota car assembly plant) produced more cars, with better quality, with fewer defects; by using fewer resources, both in the amount of labor and the area of production needed. The term Lean was chosen to describe the desired goal of eliminating continuous waste so that a lean organization is formed.

The phrase "Lean Production" describes a manufacturing management model that is able to produce more output, with fewer resources (do more with less). The concept of Lean Production was later developed and adopted in various industrial sectors, which became known as the Lean Thinking concept. A fundamental aspect of Lean Thinking is the focus on "continuous transformation to turn waste into benefits (value) from the customer's perspective."

Over time, the lean concept which was originally only applied in the scope of production and manufacturing activities, has developed in a wider scope. The application of lean then extends to the non-manufacturing sector such as the administration sector (Lean Administration), services (Lean Service), education (Lean University), health (Lean hospital), and the public sector (Lean Government) (Barraza and Pujol, 2010).

Several public organizations in various countries in the world have implemented lean to improve business processes, both in the health sector (Marchildon, G. , 2013; Rosmulder, 2011; Papadopoulos, 2011; Dahlgaard and Brehmer, 2007), finance (Radnor, 2010), human resource office (Barraza and Pujol, 2010), local government (Barraza, Smith, and Park, 2009), municipalities (Arlbjorn and Haas, 2011), universities (Comm and Mathaisel, 2005), even in the military sector (Rebentisch, 2004; Clark and Kaehler, 2006; Soto et al., 2012).

Lean Government is the application of lean principles and methods to identify and implement the most efficient ways and add value in providing services in the public sector. The application of lean methods in the public sector has been proven to improve understanding of how it works and facilitate the process of identification quickly and direct the implementation of improvements so as to foster a culture of continuous improvement (EPA, 2011), both tangible (results which can be measured) or intangible (qualitative results) (Radnor, 2006).

.According to Kaplan and Norton (2008) in his book *The Execution Premium: Linking Strategy to Operations for Competitive*, an organization that has implemented a visionary strategy such as the BSC must have a link between the strategy and its implementation at the operational level. Visionary strategies that do not have links to operational excellence and process management cannot be implemented. In contrast, operational excellence can reduce costs, improve quality, and reduce processes and lead time, but without direction and strategic vision, organizations will not enjoy sustainable success.

2.2 Tools of Lean Management

2.2.1 Value Stream Mapping (VSM)

Value Stream Mapping (VSM) is one of the lean methods used to map the flow of goods and information flow in a series of mapping of all activities that produce products or services. VSM mapping aims to facilitate the identification of waste that occurs throughout the mapping flow (Rother and Shook, 2009). Furthermore, the waste that has been identified will be the object of continuous improvement. The chosen external consultants are known to have experience in implementing lean in both the private and public sectors.

The use of Value Stream Mapping in the private sector has been running for a long time and has been proven to have a significant impact on efficiency and cost down. In this case, VSM office activities in the private sector can be adopted as a form of VSM training at the TCO, because they have the same kaizen object as administrative activities. With some adjustments, the implementation of kaizen in private companies can be adopted and implemented in the context of

increasing the efficiency of the bureaucracy, especially those relating to public service activities.

2.2.2 Waste elimination

Waste is “anything other than the minimum amount of equipment, materials, parts, space, and worker’s time which are absolutely essential to add value to the product.” Wastes take many forms and can be found everywhere and at any time. It can be implicit in policies, procedures, process and product designs, and in operation (Russell and Taylor, 1999, cited in Singh and Sharma, 2009 pp. 58-68; Peacock, 2010). Taiichi Ohno identifies 7 wastes such as defects, over-production, waiting, transporting, movement, excess processing and inventory (Peacock, 2010).

Shankar Prasad Adhikari (2010) has studied the Application of Lean Management in Customs Services of Nepal. He summarized wastes found in customs, as follows:

- a. **Movement:** it implies the unnecessary movement of person at work station, journey and search. In customs it may include movement of employees for searching documents and logistics, going to meet boss to take permission to deal with a particular issue, movement of clients to meet the staffs can be taken as movement.
- b. **Excess processing:** it relates to unnecessary processing, and non-value adding cost creating activities. For example in customs, processing of customs declaration form of tariff-free goods.
- c. **Inventories:** these are the stuffs such as raw materials, work-in-progress, finished goods, people and information in pipeline and logistics in store which are cost-creating for the business. In customs, the customs goods inside customs area and customs warehouse to be verified or under verification or already verified, customs declaration forms and attached documents, clients queued for services, clients’ application for reviewing tariff assessment, unprocessed information in the system, case-files under post-clearance audit, correspondence letter waiting for directions from customs department, and other backlogs files to be made decision are inventories.

d. **Under-utilized:** Under-utilized staffs are also taken as wastes that include staffs waiting for upstream to finish their work, staff with skills not employed, staffs not asked for ideas and un-encouraged or under-encouraged staffs to grow in organization. In Nepal Customs, computer staffs waiting for entry, people in pool, people without assigned job, overstaffing in junior levels such as messengers and drivers, and staffs employed for customs statistics before introducing computer and unskilled computer operators can be taken as under-utilized staffs.

Above mentioned wastes are attributed to poor layout, high set-up time, poor maintenance, un-streamlined work methods and poor adherence to procedures, scheduling ineffectiveness, deficient training, unreliable supplier with low conformance to quality, inadequate materials, faulty human resource management, machine capacity and disorganization.

2.3 Problem Identification

Over time there have been some changes to the provisions, for example regarding subcontract work from other Bonded Zone (BZ) and / or from industrial companies in domestic area. In this case, the granting / acceptance of the subcontracted work must be with the approval of the Head of the Customs Office who oversees the BZ, in order to increase supervision and safeguard the rights of the state finances. The impact of this amendment to the provisions include a significant increase in the number of permit applications submitted to the TCO.

With so many licensing documents that must be dealt with, resulting in an extended licensing process time, which is a complaint of employers because the length of the licensing process can have an impact on slowing the production process, fulfillment of export and non-export orders. Based on the results of internal office discussions, 2 (two) business processes are set as priority quick improvements (quick win), namely:

1. Business processes for subcontracting licensing services
2. The business process of licensing services for capital goods lending

The target of revamping the two business processes is in terms of speed of service, which is expected to be better than the promise of loan service agreement for capital goods and subcontracting, namely 3 (three) working days or less, through reducing waste of process flow, so that service user satisfaction increases.

To overcome this, a breakthrough step is needed, one of which is the effort to create the realization of Lean Government in TCO in cooperation with external consultants. Lean Government is a lean bureaucratic system that is oriented towards improving public services by eliminating waste in all internal process streams so that all bureaucratic processes become more efficient and provide added value to service users. The realization of Lean Government is the fruit of the implementation of continuous improvement involving all stakeholders. The implementation of the "Value Stream Mapping for Lean Government" training at TCO became one of the steps in the initiative to realize the Lean Government, especially within the Directorate General of Customs and Excise.

This paper evaluates the transfer of a Lean approach developed by a global manufacturing and logistics company into a large UK Government department.

The paper aims to examine which tools and techniques were transferred and implemented into the government department together with their impact as viewed by the staff within the department. The paper will conclude by presenting frameworks for the types and purpose of tools as well as a framework to support the transfer of Lean into public services.

3. RESEARCH METHODS

The research method is qualitative descriptive. The analysis covers the situation and the impacts that occur and how the next main plan issues with the scope of the discussion on lean government. Primary data from interviews with top leader of TCO, while secondary data was obtained from TCO.

This data collection uses three methods, namely interview, observation and literature study.

The data used were collected through in-depth interviews on top leader of

TCO."Interviews have the power in their ability to target and focus directly on topic case studies as well as in their insights in delivering perceived causation and explanation conclusions (Yin, 2009)". Meanwhile, according to Thomas "They give a 'rich picture' of this business, seen in it interpretive light, and in fact the person interviewed will determine the direction of the Interview (Thomas, 2011)." Questions used in different interviews, based on who the interviewee. "Interviews can be done in a structured and unstructured and can be done with face to face or use the phone (Sugiyono, 2010)".

"Some forms of observation that can be used in qualitative research, i.e. participant observation, unstructured observation and unstructured group observation (Bungin 2007)". In this research using unstructured observation method, that is observation done without observation guide. Researchers directly observe the business that is running. The oversight is done directly on the ongoing business.

Literature study, this is the method used to collect all information or data from responsible sources, such as books or journals.

After completion of the data collection process, the results of the interview will be analyzed. The results of the analysis will then be adjusted to the review literature.

4. ANALYSIS AND DISCUSSION

The paper aims to examine which tools and techniques were transferred and implemented into the government department together with their impact as viewed by the staff within the department. This paper evaluates the lean implementation di TCO by using the five core principles of Lean, developed by Womack and Jones (1996) based on an underlying assumption that organisations are made up of processes, are:

1. Specify the value desired by the customer.
2. Identify all steps across the whole value stream and, challenge all of the wasted steps.
3. Make the product flow continuously. Standardise processes around best practice allowing them to run more smoothly, freeing up time for creativity and innovation.
4. Introduce pull between all steps where continuous flow is impossible. Focus upon the

demand from the customer and trigger events backwards through the value chain.

5. Manage towards perfection so that non-value adding activity will be removed from the value chain so that the number of steps, amount of time and information needed to serve the customer continually falls.

4.1 Tangerang Customs Office (TCO) Profile

TCO has a vision: "To become the World's Leading Customs and Excise Institution". While the mission of TCO is as follows:

- a. We facilitate trade and industry;
- b. We guard borders and protect Indonesian people from smuggling and illegal trade; and
- c. We are optimizing state revenue in the customs and excise sector.

With a total of 212 people (131 of whom are 40 years old / milenial), KPPBC TMP A Tangerang, Serving and Supervising Bonded Zone, Bonded Warehouse, Bonded Exhibition Organizer, Bonded Logistics Center and Excisable Entrepreneur with 3 (three) last year performance) as shown on table 1.

Table 1. Revenue Target and Realization in TCO Period 2017 - 2019

Year	Revenue target Rp millions	Revenue Realization Rp millions	% Realization
2017	1.599	1.602	100.15
2018	1.975	1.985	100.50
2019	1.850	2.061	111.42

In order to improve performance and services, TCO adopted lean management, beginning with the Value Stream Mapping for Lean Government Training in TCO in year 2018.

All trainees have been able to understand the basic concepts of Lean Thinking, Lean Government, and the method of making Value Stream Mapping to facilitate identification of waste. Understanding the making of Value Stream Mapping is then applied by creating an Actual Map and Future Map in accordance with the theme given related to the improvement of the licensing process, accompanied by proposed improvements in accordance with the RISE rules (Reduce, Integrate,

Simplify, Eliminate) as given in the theoretical session.

Based on observations made during the training, it appears that participants are very active and eager to follow all the material provided, both at the time of delivery of the material and at the time of practice. The trainees showed seriousness and were very cooperative when asked to provide input on potential improvements that could be made. Participants were very enthusiastic about learning new things and trying to apply them independently.

Each participant actively submits the proposed improvement, as well as submits a work plan to realize the proposed improvement. This was stated in the presentation delivered at the last session of the training. Each team also submitted data on estimated results of improvements in the form of reduced lead time, reduced process time and reduced number of processes. However, at this stage the effectiveness of corrective actions cannot yet be seen. The effectiveness of the new action can be seen after the improvement plan is followed up concretely by the participants themselves, to find out whether there is indeed an improvement, especially in terms of speed of completion of licensing services.

4.2 Specify the value desired by the customer

Value can only be defined for a specific product from the standpoint of the ultimate customer. Change programs must be aligned to the needs of customers and other stakeholders. Customer satisfaction surveys can provide some insight into how customers feel, and can be a useful input to the diagnostic, but there is no substitute for looking at the real customer experience. Based on the results of a satisfaction survey and discussion with service users, it can be concluded that service users are expecting to accelerate service, specifically in the Subcontracting License Service and Machinery (Capital Goods) Lending License service.

4.3 Identify the Value Stream

“Stop looking at aggregated activities and isolated machines ... Start looking at all these specific actions required to produce specific products and see how they interact with each other” Womack &

Jones. The aim is to optimize the Value Stream not departments, firms or supply chains

Wastes creating customs rules regarding bonded warehouse licensing, reviewing evaluation, lab test should be time bound in rule. Defects like clients' wrong harmonized code entry, wrongly declared goods, wrong computer entry should be timely checked through continuous process wise waste minimization method. Similarly, clients' and staffs' waiting, unnecessary transporting, movement can be minimized by work-flow based layout, effective horizontal communication between and among registration, verification section, valuation, computer entry; through improved work method, training, effective scheduling of each work, organization restructuring and compliance with procedures.

Based on the results of the office's internal focus group discussion, it was found that the causes of the Subcontracting & Lending Licensing Process were:

1. Document Receiving Process: all Application Letters submitted by the User are directly accepted without being checked for completeness

2. Document Distribution Process: there are too many distribution processes for application files so that the drafter cannot directly work on them.

The cause of the problem was then analyzed in more detail and proposed improvements, with the following details:

1. **Waiting and Movement Waste:** Waste of process flow in receiving incoming letters, document distribution, and clustering.

Proposed Improvements: it namely combining the Inbox, Distribution Process, and Clustering Process, with the estimated D / T effect reduced from 25 minutes to 10 minutes, L / T reduced from 34 minutes to 20 minutes, this proposal can be implemented.

2. **Defect Waste:** Receipt of incoming letters without checking completeness.

Proposed improvement: namely that the document receiving staff checks the completeness of the application documents, with the estimated documents that enter the drafter complete and reduces the potential for

confirmation and rejection thereby reducing the delay time, this proposal can be implemented.

3. **Transportation and Movement Waste:** Waste of the distribution process of approval letter.

The proposed improvements: these are combining the Approval Letter Distribution Process, Outgoing Letter Numbering Process, estimated P / T effect reduced from 6 minutes to 3 minutes, this proposal can be implemented.

4. **Transportation and Movement Waste:** Document distribution is not optimal because office layout is less than ideal.

The proposed improvements: Layout rearrangement, with estimates Streamlining the flow of documents, and this proposal can be implemented.

5. **Excess Processing Waste:**The workload of the drafter is unequal because the clustering system is based on the work area.

The proposed improvement: there is equal distribution of the workload of the drafter by eliminating the drafting clustering and applying FIFO with an estimated effect: Availability of drafter work hours and a reduction in bottle neck during peak time. This proposal can be implemented.

6. **Inventorieswaste:** Consent letters have piled up in OutBox because the Service User does not know the approval letter has come out. **Proposed improvement:** Activate SMS gateway, Estimation of the effect: Service users immediately receive a notification when the letter has been approved, this proposal can be implemented

4.4 Develop a Continuous Flow

The TCO develops continues flow plan with VSM for the Subcontracting License Service and Machinery Lending License service.

a. The Continuous Flow of Subcontracting License Service

- Current State Map:
Processing time (PT)= 80 minutes; Delay time (DT) = 19hours 30minutes; Lead Time (LT): 20hours 50 minutes
- Future State Map:
PT = 50 minutes; DT = 8h50m; LT = 9hours 40 minutes

- Table 1 explains that the continues flow of Subcontracting License Service have a significant impacts on process time, lead time, % C&A and number of process.

Table 2. Estimated Subcontracting License Service Improvements

	Before	After	Improvement Percentage
Process Time	80 Minutes	50 Minutes	37.5 %
Lead Time	2,6 Days	1,1 Days	± 54 %
% C&A	85 %	88%	3 %
Process (number)	7	4	57 %

b. The Continuous Flow of Machinery (Capital Goods) Lending License service

- Current State Map:
LT: 23 hours, PT = 40 minutes and % C & A = 84%
- Future State Map:
LT= 9 Hours 38 minutes; PT=38 minutes; % C & A = 92.5%
- Table 2 explains that the continues flow of Lending License Service have a significant impacts on process time, lead time, % C&A and number of process.

Table 3. Estimated Machinery Lending License Service Improvement

	Before	After	Improvement Percentage
Process Time	40 Minutes	38 Minutes	5 %
Lead Time	2,8 Days	1,1 Days	60 %
% C&A	84 %	92,5%	8,5 %
Process (number)	7	4	42 %
Pace (number)	95	53	44 %

4.5 Introduce pull between all steps where continuous flow is impossible

The fourth stage of Lean is about working according to the pull principle. This means agreeing to produce nothing until there's demand for the product. The supplying department only sets out to produce something when the receiving department

asks for it. This way, a product is pulled through a process.

In the public sector, there are many processes with too much variation for useful implementation of kanban systems. Kanban (Japanese for “visible record” or “signboard”) is a stocking system used to guarantee that in the sequence of previous and following process steps everyone is always provided with a sufficient supply of current tasks and support material. A kanban can take the form of an order slip, but it also can be a tray that holds no more than a set amount of work.

In order to ensure flow in processes, given that variation, it may be necessary to streamline the customer demand at the beginning of the process. A methodology for streamlining is *con WIP* (constant work in process). *Con WIP* is based on the principle that the processing of a highly irregular supply of new applications must be regulated to a constant work flow. The number of applications being processed remains constant regardless of the variation in supply. TCO has developed some initiative to measure this continuous flow running well as described on table 3.

Table 4. Progress Action Plan

No	Plan	Implementation
1	Checklist form as an instrument control	Checklist has been implemented since 25 April 2018
2	Layout Change	Layout changes have been realized for In - Out Letters
3	Simplification of Work Processes (Receiving Documents and Distributing Outgoing Letters)	<ul style="list-style-type: none"> Process cuts from 7 processes to 4 processes have been realized as of April 24, 2018 SMS Gateway sudah diaktifkan kembali Amendments to the SOP have been submitted to the Internal Compliance Unit

4.6 Manage toward perfection so that the number of steps and the amount of time and information needed to serve the customer continually falls

The objective of improvement needs to be visible and real to the whole organisation. Changing (and even breaking) mindsets to view the situation from a different perspective (usually the ‘customer’). Table 4 explains that the amount of time needed to serve customer falls drastically.

Table 5. Kaizen Event Result (Period April 23 – May 7 in 2018)

	Document Completed	% C/A	Avg Time to Complete before Lean	Avg Time to Complete after Lean
Subcontracting License	321	100	2,6 Days	0,67 Days
Machinery Lending License	21	100	2,8 Days	0.85 Days

4.7 Lean's relationship with Leadership

DJBC in Indonesia is part of the Ministry of Finance. Since 2008, the Ministry of Finance has implemented a performance management system based on the Balanced Scorecard (BSC) to strengthen the pillars of reform. This concept of performance management has brought a new approach regarding organizational focus strategies. The Ministry of Finance developed a strategy map containing strategic objectives and flowing strategies for the lower level, General Level Directors and then flowing to the smallest unit of the organization. As a result of implementing BSC, the Ministry of Finance adopted a one-year and five-year Strategy Plan by adopting the Maps Strategy. In practice, the Ministry of Finance makes perspective / concept layer adjustments to link it to the characteristics of the Ministry of Finance's organization.

To ensure the success of BSC implementation, (Kaplan & Norton, 2010) it is proposed that there are five requirements for creating a successful strategy execution, helping create an organizational focus strategy (SFO), they are: mobilizing change through executive leadership, translating strategies, aligning organizations with strategies, motivating employees to make their daily work strategies and commanding to create sustainable process strategies. Of course this lean is very supportive of the successful implementation of BCS in Tangerang Customs. In line with the opinions of Marr, B., & Creelman, J. namely:

The implementation of Lean must be in support of clear strategic goals. Once these goals are articulated and agreed by the senior team, then the principles of Lean thinking can be applied to ensure the processes are linked to these high levels of priorities are delivered in the most effective and efficient manner. The strategic goals are best described through a Balanced Scorecard Strategy Map. (Marr, B., & Creelman, J. (2011). More with

less: Maximizing value in the public sector. Springer)

Based on interviews with the head of the TCO Office for the period 2019, it was explained that the main obstacle to implementing lean management was the reluctance to change and get out of comfort zones and routines, even though these new things provided benefits. Because of that, it takes the role of the leader as a motor of change that invites and directs a new culture for the better.

The Head of the TCO Office, stated that the Lean Govt Principle is a scientific method that can be applied everywhere. All can try and implement according to the needs of each organizational unit.

5. CONCLUSION

5.1 Conclusion

The purpose of this paper was to explore government organization's TCO's ability as a government organization to implement and sustain a Lean-based enterprise system. The results show that this lean implementation has increased the TCO performance in both service, subcontracting license service and machinery (capital goods) lending license service.

This study indicates the importance of an understanding of the implications for management and leadership related to a Lean implementation. Managerial ability has been identified as a key factor for successful Lean implementations. Managers need to learn to be Lean practitioners by engaging in collective experiential or experimental learning and by testing and analyzing together with others.

The staff should also be engaged in the changes and thereby encouraged to make improvements to the process in which they work. Then, Teamworking was also seen to be better under Lean with better team spirit.

5.2 Recommendation

The results and findings may be of use for TCO considering implementing lean management in the other business process. To expanding this implementation, TCO needs management commitment and staff's active participation in Lean implementation work

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