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Science, Engineering and Social Science Series
ISSN/e-ISSN: 2541 – 0369/2613 – 988X
Vol. 1, No. 1, 2019, Printed in the Indonesia

Lean Government Concept and Design Over Service Administration in Indonesian ID Card

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Bureaucracy in Indonesia have problematic in public services performance due to lack of apparatus resources quality. Here, the solution to solve the problem cannot fixed. By using the lean thinking concept, we can improve this problem to fix it. This concept namely lean government to find best solution whether the application of Lean Government concept with Lean Consumption Map (LCM) and DMAIC (Define, Measure, Analyze, Improve, Control). This method can be applied in public services, especially in the Indonesian ID Card service process over Department of Population and Civil Registration of South Tangerang, West Java, Indonesia. In this study, we use qualitative research methods to obtained the data based on survey, observations, interview, analysis of documents and records or reports from Department of Population and Civil Registration, South Tangerang, West Java, Indonesia. The result showed, Value to Waste Ratio increased from 9.1% to 43% while in the provider side from 7.2% to 46%. This study shows that the Lean thinking methodology can be embraced by public services to create an efficient and effective process in reducing the service process time.

Keywords: Lean Thinking, Lean Government, Lean, and Lean Six Sigma.

1. INTRODUCTION

The public bureaucracy is basically presented to provide services to the community or public. The public bureaucracy has different characteristics from business organizations and have programs to follow the principles of efficiency, effectiveness, and place in community as a stakeholder. Here, a public service has principles of simplicity, clarity, certainty of time, accuracy, security, responsibility, range of facilities and infrastructure, accessibility, discipline, politeness, friendliness. This principle to create public services optimal and cannot carried out to properly due to have enough respond towards the dynamics of community ability, either through to market mechanisms or community social organization mechanisms to allows bureaucracy mission.

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The implementation of public service must be fulfilled the several principles of service as mentioned in *Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi Republik Indonesia* (Kemenpan RB) regulation No. 63, 2003. The implementation of public services must be fulfilling several principles [1, 2]. Here, the Simplicity is public service procedure which is not complicated, easy to understand and easy to implement. Clarity are covers in terms of technical and public service administrative requirements. Moreover, the work unit/official authorized and held responsible to provide public services and resolve the complaints, problems, and disputes over public services implementation. The implementation is certainty implemented over public services which is in specified time to increasing the Accuracy over public service product such as received correctly, precisely and legally.

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Furthermore, the security process in implementation is a product of public services to provide a sense of security and legal certainty. A responsibility over head of public services organization must be responsible to be implemented in services and completion from complaints inside public services. The completeness facilities and infrastructure e.g. telecommunications and information technology (telematics) facilities are needed to support public service. Here, the accessibility to support service facilities are reachable in the community due to utilize telecommunications and information technology. Moreover, the discipline, politeness, and friendliness are need to improve hard skill over service providers. Also, environmental service must be provided to support customer satisfaction with comfortable and clean over waiting room. Here, the external factor can be increased customer satisfaction with a healthy environment and service support facilities such as toilets, parking area, and others.

After that, the Indonesian ID Card service process in the Department of Population and Civil Registration, South Tangerang, West Java, Indonesia has been implemented healthy environment. Here, The Government of South Tangerang, West Java, Indonesia have one Regional Governments to continue and improve the public services over community. Many researchers use Lean Six Sigma methodology to integrated into service administration and varies assessment with organizations such as manufacturing in the private sector [3, 4]. The Lean Six Sigma is a combination method aims to identify and minimize waste, improve process, improve the quality of production processes/services, and improve the customer satisfaction. In this study, we use DMAIC to improve the effort and minimizing waste, expediting material, product and information flow, and continuous improvement while the Six Sigma methods aim to reduced variation process and continuous improvement [5, 6].

Furthermore, the lean six-sigma in government has also been running in many countries. A several countries such as Australia, Canada, Finland, France, Ireland, the Netherlands, Scotland, South Africa, Sweden, the United Kingdom and the United States are implemented service process to their communities. Here, the purpose of implementing this method in organization to increase continuously the ratios between values added and waste (Value to Waste Ratio). The observations and measurements using Lean Consumption Map was used to assess Value to Waste Ratio in service process over Indonesian ID Card. In practice service process, we filling out forms due to no examples form. The existing problem is stand for registration form doesn't not clear.

2. METHODOLOGY

2.1 Indonesian Electronic Identity Card (E-KTP)

Indonesian Electronic Identity Card (E-KTP) is an identity card as a legality that the person from Indonesian republic. This document contains a system of security or control in administration and information based on national population database. The Indonesian resident only allowed to have one E-KTP with listened over Population Registration Number (NIK). NIK is a single identity for each resident to validation of life including name, address, religion and many more. The NIK number can be used as a basis of issues Passport, Driving License, Taxpayer Identification Number, Insurance Policy, Certificate of Land Rights and issuance of other identity documents [7, 8].

2.2 Lean Six-Sigma

The Lean combined with Six Sigma is very good to assess service process [9, 10]. Six Sigma have complements Lean philosophy in providing the knowledge to address specific problems an along the Lean journey [11]. The two methodologies are considered as a competitor to argues between Lean and Six Sigma [12, 13]. Here, the Lean does not provide statistical control to process while Six Sigma cannot improve the speed of the process [14, 15]. The complementary concepts are used to combine Lean and Six Sigma. The contribution of Lean Six-Sigma to solving framework and organizational structure. The last goal to improve methodology but focuses on different process elements.

2.3 Tools for Lean Government methods

Auxiliary tools that are used in Lean Government are more than one because the problems that must be faced are very complex and require deep understanding so that the right solution is obtained to meet the desires of the customer. The tools are DMAIC (Define, Measure, Analyze, Improve, Control) Time Series Plots, SIPOC, Process Map, Cross Function Flowcharts, Spaghetti Diagrams, LCM (Lean Consumption Map), VAS (Value Added Assessment), FMEA (Failure Mode Effect and Analysis), Impact and Effort Matrix, SOP (Standard Operating Procedure), Change Management, OCAP (Out of Control Action Plan).

3. RESULT AND DISCUSSION

In this study, we use qualitative data from secondary data to successfully a service process of E-KTP over January to March 2017 with 12 days average. Here, the performance of 12 days observation has unfavorable impact in service outcomes. The realization of service process from January to September are captured 43% only (see Figure 1).

The objective of improvement service process to reduce E-KTP process from 12 days to 6 days. Furthermore, SIPOC is used to define stage of service process to reduce E-KTP to 6 days. The SIPOC method is used to provide a good result to reduce service process to 6 days.

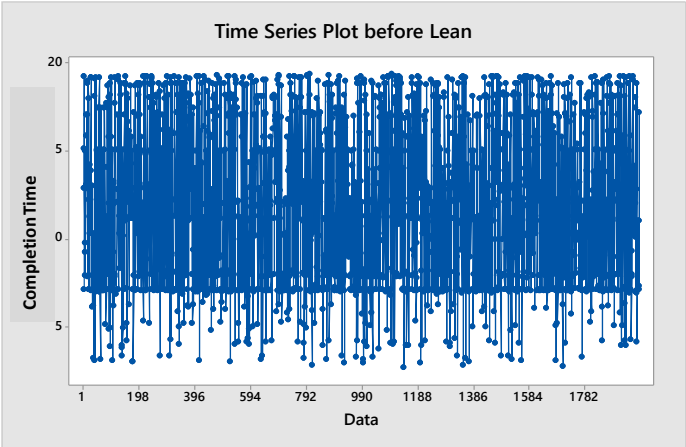

Figure 1. Time series plot observation E-KTP data over January to March 2017

As can be seen in Figure 1, the Y axis is parameter current state from service process while X axis is data observation (customer document submission). In this study, we used five model to assess service process of E-KTP such as Process Map, Cross Functional Process Map, Flow Charts, Lean Consumption Map and Value-Added Assessment. In first step, Process Map was used to design work flow diagram to understand the process of producing goods or services. In second step, Cross Functional Flowchart or Cross Function Flow Chart was used to describing the process and responsible to service process. In last step, the Lean Consumption Map is used to calculated Value Added Assessment to see the contribution of time with classified as a Value Added from total time before Lean Government (see Table 1).

Table I. Value Added Assessment before Lean Government January to March 2017

		Customer (Consumption Time)	Provider (Provision Time)
Total Time	(a)	1551	1872
Value Added	(b)	130	126
Non value Added	(c)	1421	1746
% VA	= (b) / (a) * 100%	8,4%	6,7%
% NVA	= (c) / (a) * 100%	91,6%	93,3%
Value to Waste Ratio	= (b) / (c) * 100%	9,1%	7,2%

Furthermore, Flow Diagram serves the facilitate to identifying problems and improvements especially related to the layout and flow activity. Here, we obtain measurement results value from waste ratio around 9.1% (consumers) and 7.2% for providers with the biggest value of identification is signature from Head of Service and recording stage over service process E-KTP in South Tangerang, West Java, Indonesia (see Figure 2).

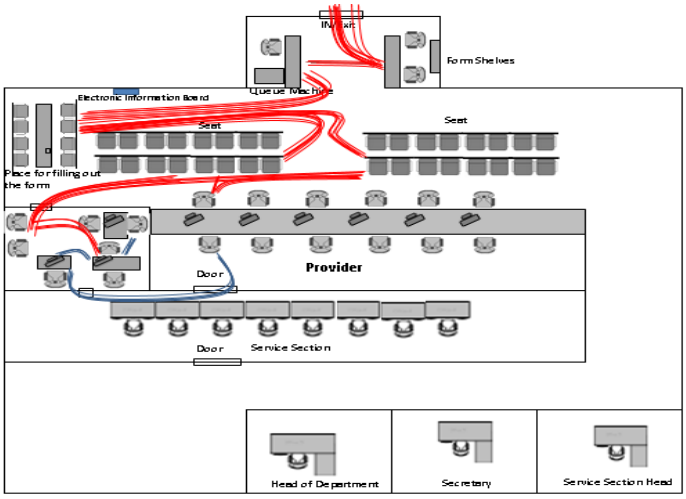

Figure 2. Flow service process E-KTP over South Tangerang, West Java, Indonesia

As can be seen in Figure 2, the service process of E-KTP is very crawdad in provider. Here, FMEA proposed to analyze failure rate with brainstorming related to potential failures at each stage of process activity. The serious level at impact (inside process failure) is determining with potential rate and give failure level of occurrence. The detection method to process and determine rating was discussed to improve service process in near future with prediction level from RPN (before and after recommendations). Thus, to improve the design and test an implementation of FMEA method is very effective to improve service process. We obtained 5 proposed improvements from FMEA method with Customer side and 8 administrators to given improvement proposals (See Table 2).

Table II. List Proposed Improvement from FMEA

List of proposed improvements	Proposed Improvement Code
Provides Electronic Information Board	S1
Conduct quarterly maintenance contracts with providers	S2
Add one service officer	S3
Apply the 5S program and make a shelf for storing files according to the name of the form	S4
Wet signature by the Head of Service / Secretary	S5

As a summarized in table II, the 5 proposed improvements are similar with several processes in Customer side or the Provider side. This proposal was given a proposed code in determining to calculate Impact and Effort Matrix. Here, proposed improvements will be selected by using Impact and Effort Matrix method to determine improvement model (good or not good) in terms of business. Thus, by using theoretical basis Zone IV is does not recommended to proceed. The first priority

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is Zone I (short term) and Zone II as a medium term also followed by Zone III as the long term. Based on Zone calculation model, the diagram Impact and Effort Matrix (see Figure 3) was proposed to improve service process over *Dinas Kependudukan dan Pencatatan Sipil* (DUKCAPIL), South Tangerang, West Java, Indonesia. Here, the Value Added has been increased throughout to the process from the Customer side or Provider side.

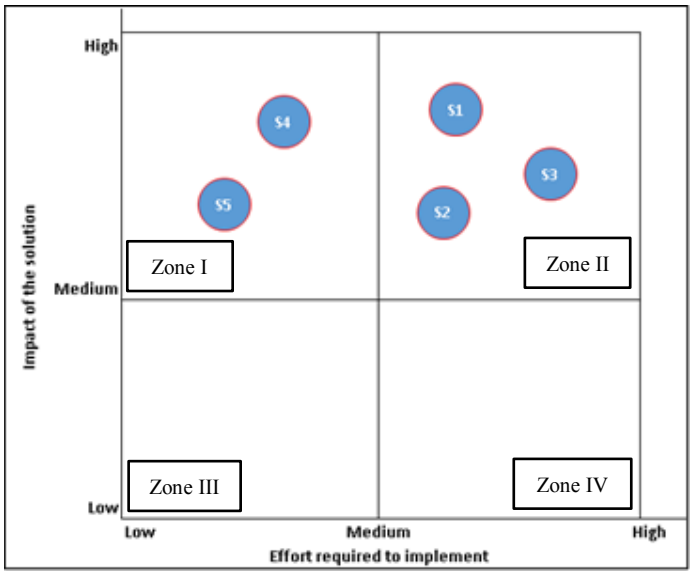

Figure 3. Impact and Effort Matrix service process of E-KTP over South Tangerang, West Java, Indonesia

Furthermore, in the next step we estimate proposed improvements over Value-Added Assessment combinate with Lean Consumption Map After Lean Government. Here, all the data displayed to estimates or simulate based on observations and interview with correspondence. During observation, we provide an overview from estimated improvement over DUKCAPIL, South Tangerang, West Java, Indonesia. Figure 4 shows time series plot before and After Lean Government.

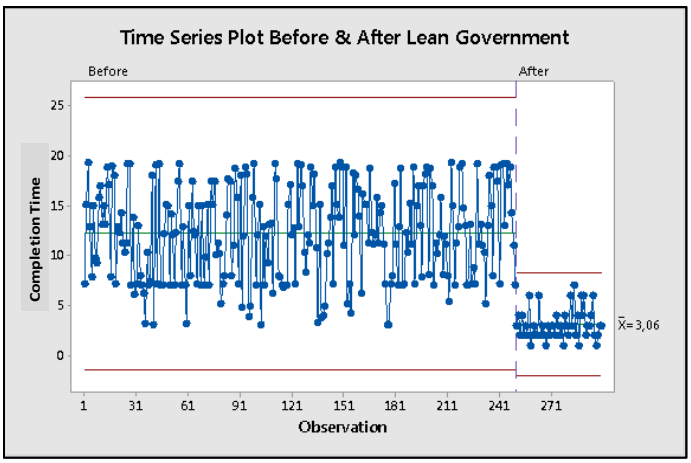

Figure 4. Time series plot before and After Lean Government of E-KTP over DUKCAPIL South Tangerang, West Java, Indonesia.

As can be seen in Figure 4, we obtained time improvement from Customer side over 1227 minutes or equivalent 79.1%. Then the proportion for Value Added Time is increased (8.4% to 30.2%) while the Non-Value-Added Time is decreased (91.6% to 69.8%). We also calculate improvement time over Provider side which is have 1514 minutes or equivalent to 81% while the proportion for Value Added Time increased 6.7% to 31.6% and Non-Value-Added Time is decreased (93.3% to 68.4%). Furthermore, we also obtained improvement value and average time from 12 days to 3 days with 9 days decreasing value or equivalent to 75%. The calculation of improvement target is better than the previous calculation (6 days). Thus, we are very confident to apply this design to improve service process over DUKCAPIL, South Tangerang, West Java, Indonesia to improve E-KTP (see Table III).

Table III. Value Added Assessment after Lean Government

		Customer (Consumption Time)	Provider (Provision Time)
Total Time	(a)	324	358
Value Added	(b)	98	113
Non value Added	(c)	226	245
% VA	= (b) / (a) * 100%	30,2%	31,6%
% NVA	= (c) / (a) * 100%	69,8%	68,4%
Value to Waste Ratio	'= (b) / (c) * 100%	43%	46%

In order to obtain best solution, we determine a new standard and change the Management Plan to implement over proposal Lean Government. In this level, we will support and changed a new culture with structure of organization DUKCAPIL using Out of Control Action Plan (OCAP) method. This method is very good to carried out and maintain the consistency in achieving improvement results. The failure rate in carrying out in the new process is possible over whole of team in preventive measures. Based on simulation results, we obtain the benefits for some parties over consumers E-KTP by using the Lean Government method and Lean Six Sigma concept. Here, we can reduce waste of time for applicants and providers especially from filling the blank forms, recording, and interview (required 1551 minutes to 324 minutes).

4. CONCLUSION

The lean government concept uses the Define Measure Analyze Improve and Control (DMAIC) and LCM methods has been successful to applied over E-KTP study case in the DUKCAPIL, South Tangerang, West Java, Indonesia. Before lean government implementation, the completion of document E-KTP reached 12 days. However, after the lean government implementation is increased to 3 days from 8.4% to 30.2% while value add for the provider from 6.7% to 31.6%, respectively. The proposal improvement is an ideal solution and adjusted to

the organization's capabilities with a new innovation and effort. Thus, the organization will be willingness to improve E-KTP services with Transparency and accuracy of data. Based on simulation result, we confident to apply this project over DUKCAPIL especially over Wes Java, Indonesia in near future.

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Received: 04 December 2018. Accepted: 07 February 2019

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