Procurement performance improvement: A case study of non-profit organization in Myanmar

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Abstract

Supply chain management is a critical process for a humanitarian organization to fulfill the requirement of targeted beneficiaries who need assistance for their daily life to access foods, shelters, water & sanitation, etc. This research is about a non-profit organization that has been facing poor supply chain performance for the food procurement process in the targeted area of offices. This issue is a sensitive case for the organization to show the transparency of the process, the performance of the procurement process and accountability to donors. According to historical data from January 2017 to December 2018, there are 12 procurement cases (tender) were conducted by the two offices. Data were analyzed and the average total lead time of the current food procurement process is 41 days which is over than standard time as in policy. To overcome this issue the researcher applied Value Stream Mapping (VSM) Methodology for the improvement of process value-added time and to reduce the total lead time of the process in order to finish within the suggested time frame. The VSM methodology was applied to identify the wastes (non-value-added activities) and their root causes by applying causes and effects analysis in the process of tender from reviewing purchase to the payment process. Then, a work plan developed and applied in the current process during the specific period, and after that, the researcher tested the pilot test whether the work plan is effective to achieve a good procurement process or not. To monitor the future process, a performance measurement plan was developed for the continuous improvement of the process performance of an organization.

Keywords: Beneficiaries, Humanitarian organization, Procurement process, Value-added time, Value stream mapping.

JEL Classification Codes: L10, L31, L39, H57.

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1. Introduction

Nowadays, there are many kinds of natural disasters as well as human-made disasters which are increasing significantly around the globe. Due to climate change, there will be more disasters shortly, and at the same time, the conflicts between humans can create massive number of disasters as well. Thus, to give humanitarian assistance to affected people is a critical role and an objective of humanitarian organizations.

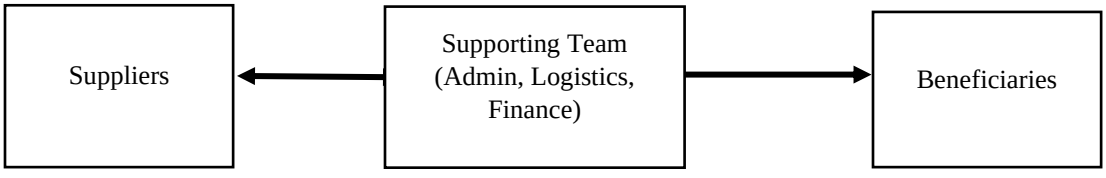
The humanitarian supply chain is the network of humanitarian organizations in which the number of different functions and activities are involved through cooperation and collaboration towards filling the essential relief services or supporting physical goods to the beneficiaries.

SMILE organization, founded in 2012 and guided by the Social Teaching of Church and mandated by the Catholic Organization, undertakes the social development activities in 16 sub-offices across Myanmar. SMILE has five focal sectors namely Education, Health, Livelihoods, DRR (Disaster Risk Reduction), and Emergency sectors. Each sector has different kinds of projects, which are funded by various donors to implement humanitarian aid activities through dioceses.

The Emergency sector is the biggest of all sectors of SMILE in terms of budgets to implement the rapid response program for natural disasters such as floods and landslide, and other programs for IDPs or internally displaced peoples who lived in temporary camps due to the armed-conflicts exposure between military and ethnic groups. Food, shelter, and WASH (water and sanitation) supporting activities are the basic needs for IDPs while they are staying in the temporary camps. Food categories such as rice, oil, salt, and bean are distributed to the IDPs according to the Sphere standard.

The department of supply chain is responsible for supporting the internal requirement of different sectors such as procurement of goods and services within the organization. Each SMILE sub-office has a supply chain team similar to the main office structure to ensure local Logistics activities.

Figure 1: Current Procurement Process



Source: SMILE Organization

The procurement process starts when the project manager releases the purchase request to the logistic team. Then, the Logistics team starts the purchasing process in line with the existing procurement procedure, in collaboration with the finance team and sometimes admin team, from the sourcing of suppliers' quotations through the payment process and delivery process to beneficiaries.

SMILE organization has an active procurement policy that covers all sub-offices across the country. In the policy, there is a procurement scheme to reference different kinds of purchasing goods and services or in a combined nature. It shows the types of procurement which have different threshold levels and different procurement methods to make it convenient when sourcing suppliers and purchasing goods or services.

Table 1: Procurement Threshold of SMILE Organization

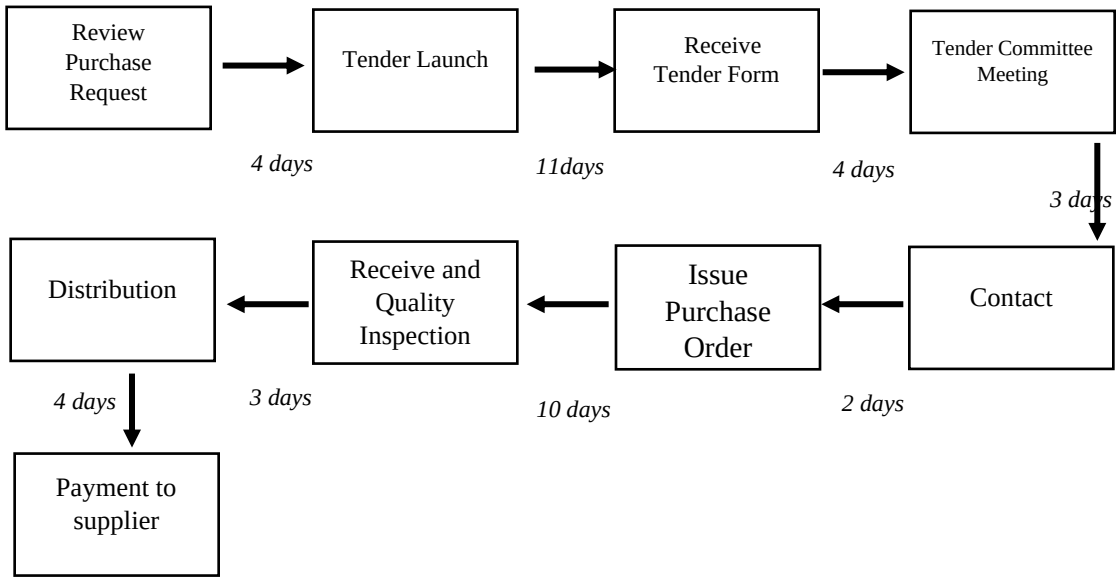
Type of purchase	**Amount**	**Procurement Method**	**Suggested Standard time (days)**
Small	USD1 to 500	Direct Purchase	7 days
Medium	USD 501 to 1,000	Three Quotations	7days
Large -Type 1	USD 1,001 to 3,000	Five Quotations	7-14 days
Large -Type2	USD 3,001 to 10,000	More than five Quotations	7-14 days
Very Large	Over USD 10,001	Invitation to Bid (Tender Process)	Within 30 days

*1USD = 1000Kyats *(Kyats is the standard currency of Myanmar)*
Source: SMILE Organization

SMILE organization used to do the tender process because of the amount of food procurement is over USD10,001 for each quarter. From January 2017 up to 2018, a total of 12 tender cases of food procurement were done by SMILE.

The tender process has the following nine steps to implement:

Figure 2: Steps of Current Tender Process



Source: SMILE Organization

The entire process takes an average lead time of approximately 41 days from the date of reviewing the purchase request to the payment date. The standard time suggested for the tender process in the procurement threshold is within 30 days (calendar days).

Thus, the primary focus of this study is to reduce the lead time of the tender process to be within suggested standard time by using Value Stream Mapping methodology to identify and eliminate wastes in the tender process.

The main objectives of this research are as follows:

1. To identify the non-value-added activities in the current Tender process by Value Stream Mapping Methodology.
2. To identify and analyze the root causes of the long lead time Tender process.
3. To implement a new standardized Tender process to promote the performance of the procurement process.

2. Review of Related Literature

This study *focuses* on the humanitarian supply chain, which needs an improvement in the process performance of Food procurement. Therefore, the scope of the literature review

covers the concept of Humanitarian Supply Chain, Process Mapping, Value Stream Mapping, Cause and Effect Diagram, and Lean Concept.

2.1 Humanitarian Supply Chain

The performance of the humanitarian supply chain is to improve the transparency of operations and to demonstrate the level of accountability that meets the desire/criteria of donor agencies. The implementation of a performance measurement system in the humanitarian supply chain is not easy because of the complexity in the operating environment in diverse areas, different regulations, limited resources, different culture and low level of participation across different ethnic groups in gathering and sharing information (Haavisto & Goentzel, 2015).

Humanitarian Logistics has different performance measurement which focuses on accountability in each step of work to all parties involved in the process, to the beneficiaries to get the assistance promptly, and to the donors for the cost-effectiveness of using funds in the operations (Lu, Goh, & Robert, 2016).

2.2 Process Mapping

Process Mapping also a useful tool for an organization to transparently identify and reduce the wastes across its business functions. It helps to set an action plan for an area which needs the improvement action (Klotz et al., 2008).

Hines and Richthe (1997) stated that there are five stages to approach process mapping:

1) Learn the overall flow of the process
2) Identify wastages in the process
3) Generate an idea in the process flow by rearranging a link in a more efficient order
4) Redrawing a new layout to reduce the length of the process
5) Consider a step or an activity in the process that can be modified and change what may affect the process.

The swim lane process mapping can show an easy way to identify the actors who are responsible for each step in an operation that can give a clear vision into the process to find out the waste activities and then make an improvement plan (Adams, 2011).

2.3 Lean Concept and Lean Management in Humanitarian Supply Chain

Lean process can achieve a competitive advantage by reducing the wastes and streamlining the process flow in order to maximize the efficiency of the production system **(**Chavez, 2019).

The lean supply chain shares information among supply chain partners to get real-time information, creates visibility of holistic view of embedded functions, encourages coordination and collaboration towards the best output of workflow, and empowers the staff to learn about capacity building to contribute more for the better supply chain. Seven wastes of lean are (Barac, Milovanović, & Andjelković, 2010):

1) Overproduction
2) Defects
3) Unnecessary Inventory
4) Transportation
5) Waiting
6) Correction of mistakes
7) Unnecessary Motion

Lean management in the humanitarian supply chain is to provide the goods or services for the satisfaction of beneficiaries promptly through transparently utilizing fewer resources such as in human and finance. promote accountability to the donor for the use of funding **(**Shafiq & Soratana, 2019).

2.4 Value Stream Mapping

Value Stream Mapping is a graphical presentation that shows the current state value stream of the process to identify the non-value-added activities (wastes) that cause the poor performance of process movement, and to analyse in-depth into wastes activities to plan for the improvement actions for the future state value stream (Thangarajoo & Smith, 2015).

The goal of Value Stream Mapping is to find and move out any activities that do not add any values to the final services or products (Rother & Shook, 1999).

Rother & Shook (1999) suggested that VSM has the following steps to implement:

1) Identify the activities, systems, or products to be the map.
2) Map the Current State that identifies wastes to eliminate
3) Map the Future State
4) Implement the Future State

2.5 Cause and Effect Analysis

The Cause and Effect Analysis helps to identify the causes of problems such as how much the destruction in the business functions is and shows the way to take preventive actions to avoid such kind of similar problem in the future (Belyh, 2019).

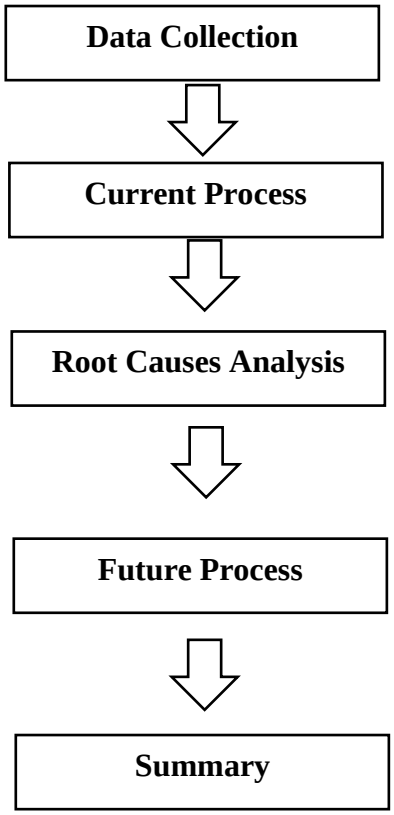
According to Kollengode (1990), there are some steps in creating Cause & Effect (fishbone) diagram:

1) Problem Statement: Choose a problem that needs to find the leading causes.
2) Major Cause Categories: Identify significant factors of a problem statement.
3) Sub-Causes Categories: Brainstorm causes of the problem under each major cause categories.
4) Analyze and identify the final root causes of the problem that have a significant impact on the problem.

3. Research Methodology

The outline of detail methodology that focuses on the process improvement of food procurement by reducing lead time and removing wasted activities.

Figure 3: Research Methodology



Source: Authors

3.1 Data Collection

Document Review: The researcher collected the data by reviewing historical documents, taken from the physical archive of offices, related to the Tender process and which were created between January 2017 and December 2018.

Observation: The researcher observed the detailed working steps of the Tender process among departments.

Interview: The interview was conducted with the five focal persons of each office.
Question-1. What are the existing problems in the current Tender process?

Question-2. What are suggestions for future process improvement?

3.2 Current Process

Data Analysis

The researcher collected *the* data that reviewed tender cases. There are twelve tender cases from January 2017 up to December 2018.

The researcher used *the* following formulation to calculate the total lead time of the tender case,

Total Lead Time of Tender Case = (Final Payment Date) - (PR Issued Date)

Table 2: Total Process Lead Time of Tender Processes

Tender Case	PR Issue Date	Payment Date	Total Process Lead Time (days)
Case 1	15/1/2018	27/2/2018	43
Case 2	5/4/2018	21/5/2018	46
Case 3	3/7/2018	20/8/2018	48
Case 4	12/10/2018	16/11/2018	35
Case 5	6/1/2017	13/2/2017	38
Case 6	3/4/2017	15/5/2017	42
Case 7	5/7/2017	14/8/2017	40
Case 8	10/10/2017	17/11/2017	38
Case 9	15/1/2018	20/2/2018	36
Case 10	2/4/2018	11/5/2018	39
Case 11	9/7/2018	21/8/2018	43
Case 12	4/10/2018	15/11/2018	42
Average lead time for 12 cases is (491/12) days			41 days

Source: SMILE Organization

The average lead *time* of current tender process is 41 days.

3.3 Tender Process Analysis

The average of *average* for each sub-process is as following.

Table 3: Summary of Average Lead time of Sub-Processes

No.	Sub-Processes	Average Lead Time (days)
1	Review PR	4
2	Tender Launch &RFQ	11
3	Receive Tender Form	4
4	Tender Committee meeting and Evaluation	3
5	Contract	2
6	Issue Purchase Order and (Waiting for Delivery)	10
7	Receive and Quality Inspection	3
8	Distribution	4
Total Average Lead Time		**41**

3.4 Value Stream Map of the Current Process

Process flow

The process flow is the flow of activities involved in the process of manufacturing in which the product *moves* from the source of supply to the final customer.

Information flow

Information flow shows the communication process of related-information and data transmissions *between* the process.

Timeline

The value-added activities of the Tender process perform the activities in each sub-process to finish a *specific* task and move to the next process to finish the entire process.
Cycle Time is the average amount of time taken to complete one task in a specific process so as to move to the next.

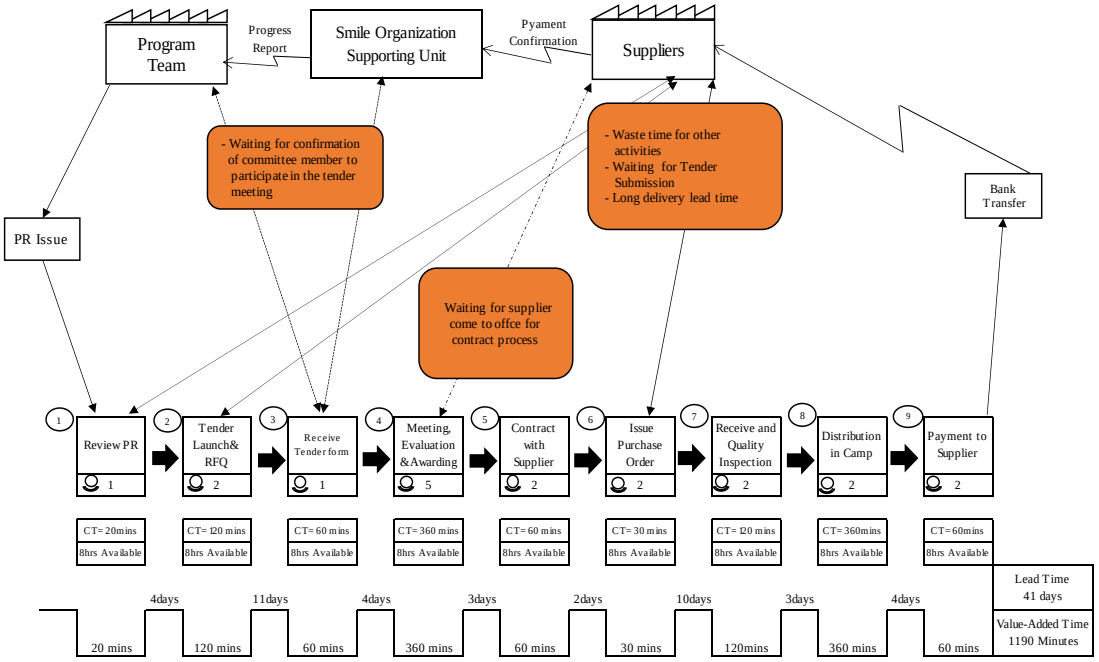
Lead Time is the *average* amount of time needed for the request to make it through the whole process to the ending point

Table 4: Average Value-Added Time of Current Tender Process

No.	Sub-Processes	Value Added Time (minutes)	Activities
1	Review PR	20	Check detail specification (completed or not)
2	Tender Launch &RFQ	120	Creating the Tender form and take approval sign of Head
3	Receive Tender Form	60	Tender form Receiving
4	Tender Committee meeting and Evaluation	360	Presenting, discussing, evaluating, negotiating, and awarding.
5	Contract	60	Detail explanation and signing contract.
6	Issue Purchase Order	30	Create the Purchase order form and take approval sign of head
7	Receive and Quality Inspection	120	Unloading, counting, quality inspection, storage and signing (GRN, Waybill)
8	Distribution	360	Distributing, counting, recording, checking balance and make the report
9	Payment	60	Take signatures of heads and bank transfer process
Total Value-Added Time		**1,190**	

The average value-added time spent in order to complete the activity of each sub-process in the current *tender* process. The researcher collected this data in the data collection process. The average total value-added time is 1,190 minutes.

Figure 4: Value Stream Mapping of Current Tender Process



Source: Authors

Process 1) Review PR takes an average lead time of four days, but the actual value-added time is 20 minutes. There is so much waste time that can be reduced in the process. This includes the responsible person having no proper planning to take actions in a timely manner, and they sometimes focus on other responsibilities.

Process 2) Tender Launch and request for quotation, the average lead time for this process is 11 days, but the actual value-added time is 120 minutes to request approval signatures of the head and dispatch tender to suppliers. In this process, what can be reduced is the waiting time for quotations and communication activities (wastes) which can be made faster in the process of tender.

Process 3) the Tender form receive and plan for the meeting, the average lead time for this process is four days, but the actual value-added time is 60 minutes to receive tender forms and to invite the committee members for an evaluation meeting. The waste activities in the process are waiting for confirmation of committee members for their availability to join the meeting.

Process 4) Committee meeting and evaluation process; the average lead time is three days, but the actual value-added time is 360 minutes for discussion, negotiation with suppliers on

the phone, and the selection and awarding process. The waste activities in the process are the communication activities with suppliers to confirm the date for contracting and waiting for the supplier to come to the office.

Process 6) is the purchase order process. The average lead time is 10 days, but the actual value-added time is 30 minutes to prepare PO, take the signature of the head, then confirm with suppliers. The waste activities here are the time waiting for suppliers who take long lead time in a delivery process which can be reduced.

Table 5: Summary of Waste Activities in the Current Tender Process

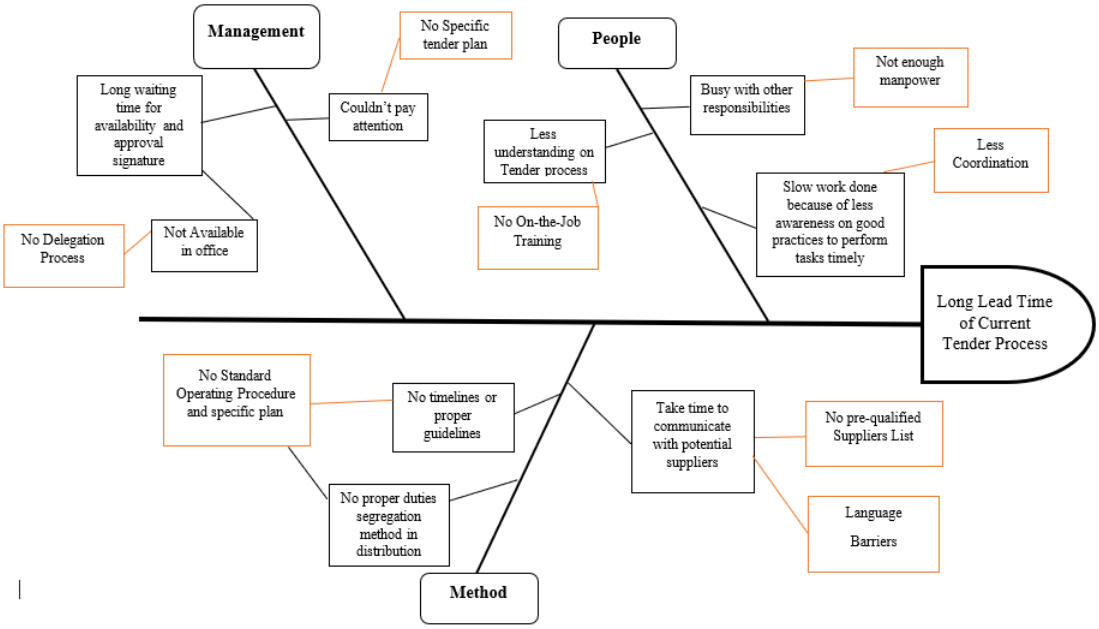
Sub-Process	Waste Activity
Review PR	Waste time (Logistics officer busy with other responsibilities)
Tender Launch and RFQ	Waiting for supplier quotations
Receive Tender Form	Waiting for confirmation of the committee members to join the meeting
Meeting Evaluation and Awarding	Communication activities to confirm the date for contracting and waiting times for the supplier to get to the office
Issue Purchase Order	Wating for the supplier, delivery to camp

Source: Authors

3.5 Root Cause Analysis

The three components that cause a longer lead time to finish the process are people who are involved in the process, the Management team who is responsible for an authorization to move further steps, and the step-by-step method to complete the process.

Figure 5: Causes and Effect Diagram of Long Lead Time Tender Process 41 days



1) *Not enough human resources*: According to the organization structure, the logistics staff needs to undertake several responsibilities meaning that the staff needs to take care of Logistics work under different projects. The logistics staff cannot fully pay attention on the tender process because other things are waiting. Not enough human resources can cause a delay in taking prompt action in the tender process.

2) *Less coordination*: To run the process quickly and effectively, four departments are involved in the Tender process namely Program, Finance, Admin, and Logistics. Currently, the coordination between departments is not strong enough, which causes some gaps or little awareness of good practices in the tender process. Besides, the staff takes more time to perform tasks.

3) *No On-the-Job Training*: There is no proper training for the tender process resulting in Logistics staff not having enough skill sets to perform steps in tender smoothly and quickly. It is one of the reasons causing a long lead time.

4) *No Specific Tender Plan*: There is no specific tender plan such as the timelines of what activities to be finished according to the specified date so the management team cannot take proper action plan to allocate time for the tender process.

5) *No Delegation Process*: Currently, there is no proper delegation process in the organization. If the authorized person is out of the office, no one can take care of his duties. In this case, everyone must wait for his/her availability to continue the process. It is also one main reason for the long lead time tender process.

6) *No Standard Operating Procedure*: There is no Standard Operating Procedure in SMILE to drive the tender cases. That creates a waste of time and poor performance which is not in line with compliance practices in each step of Tender, and less accountable to funding donors. As a result, lack of SOP causes a lack of guidance in each process that leads to more waste of time in the tender process.

7) *No Qualified Supplier List and Language Barrier*: The Logistics officer must confirm with the potential suppliers whether they are interested or not to bid in the tender process. That communication activity takes time and causes long lead time in the tender announcement process. Tender is announced in the border area where some suppliers are not locally based. They use a foreign language; for that reason, the logistics staff faces language barriers to communicate effectively. It is another reason that takes a long time in communication.

4. Presentation and Discussion of Results

This section shows the improvement activities of the current process in order to reduce the total lead time and to improve the performance of the tender process.

Table 6: Summary of Wastes and Root Causes of the Current Tender Process

Waste Activity	Root Cause
- Waste time (Logistics officer busy with other responsibilities)	- Not enough human resource - No Standard Operating Procedure - No On-the-Job Training - Less of coordination
- Waiting for supplier quotations - Waiting for confirmation of the committee members to join the meeting - Communication activities to confirm the date for contracting and waiting times for the supplier to come to the office - Wating for supplier delivery the cargo to camp	- No supplier list and Language barrier - No Specific Tender Plan - No Delegation process

Source: Authors

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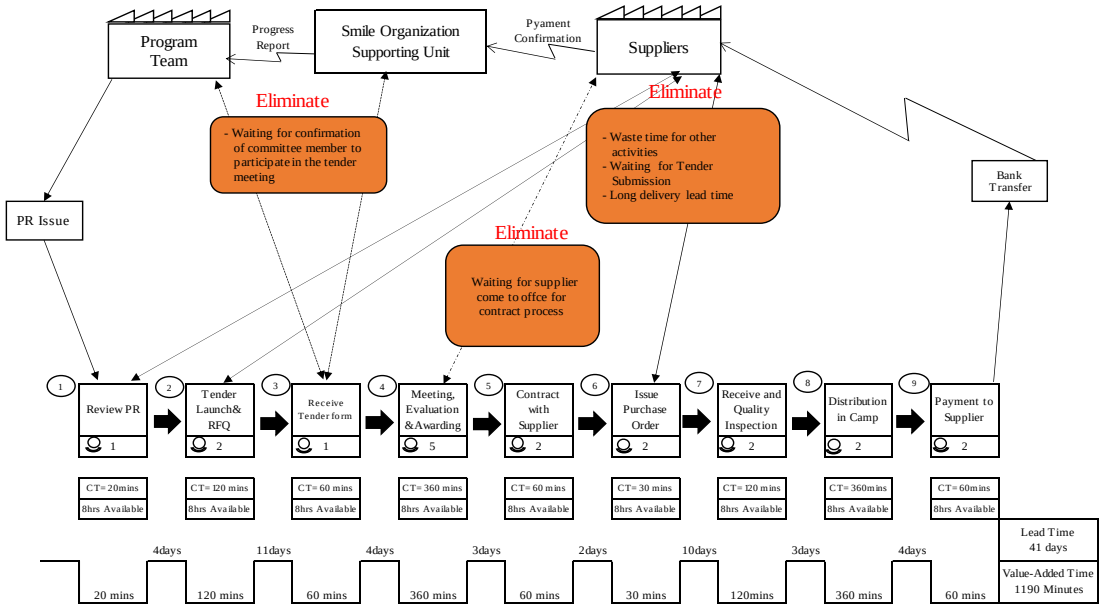
Figure 6: Value Stream Mapping to Eliminate Wastes of the Current Tender Process



Source: Authors

Figure 6 shows the Value Stream Mapping of the current state to eliminate wastes from each sub-process as follows:

Sub-process 1) eliminate the waste time that the logistics focal spends on other project activities.

Sub-process 2) eliminate time waiting for suppliers' quotations submission to the office and communication activities.

Sub-process 3) eliminate time waiting for confirmation from committee members to join the meeting.

Sub-Process 4) eliminate time waiting for suppliers to come to the office for the contract process.

Sub-process 6) eliminate the long delivery lead time of the supplier in sending food to the camp.

4.1 Work Plan and Implementation to Improve the Current Process

The researcher set the timeline to implement a work plan in the current operation of SMILE Organization between the first week of February 2020 and the first week of March 2020.

Table 7: Detail Work Plan and Implementation Timeline to Improve Current Process

No.	Root Causes	Work Plan	FEB				MAR	Lead Responsibility
			Week 1	Week 2	Week 3	Week 4	Week 1	
1	Not Enough Human Resource	Assign focal staff for Food procurement project						Logistics Manager
2	No Standard Operating Procedure	Launching Specific SOP of food procurement						Program Manager
3	No On-the-Job Training	Quarterly on-the-job training						Logistics Manager
4	Less Coordination Workshop/Meeting	Monthly Coordination Meeting						Admin / Finance Manager
5	No Supplier List and Language Barrier	Create a supplier list and translation for some formats						Logistics Officer
6	No Specific Tender Plan	Develop Annual Tender Plan for food procurement						Logistics Manager
7	No Delegation Process	Launch organizational delegation procedure						Head of Office

Source: Author

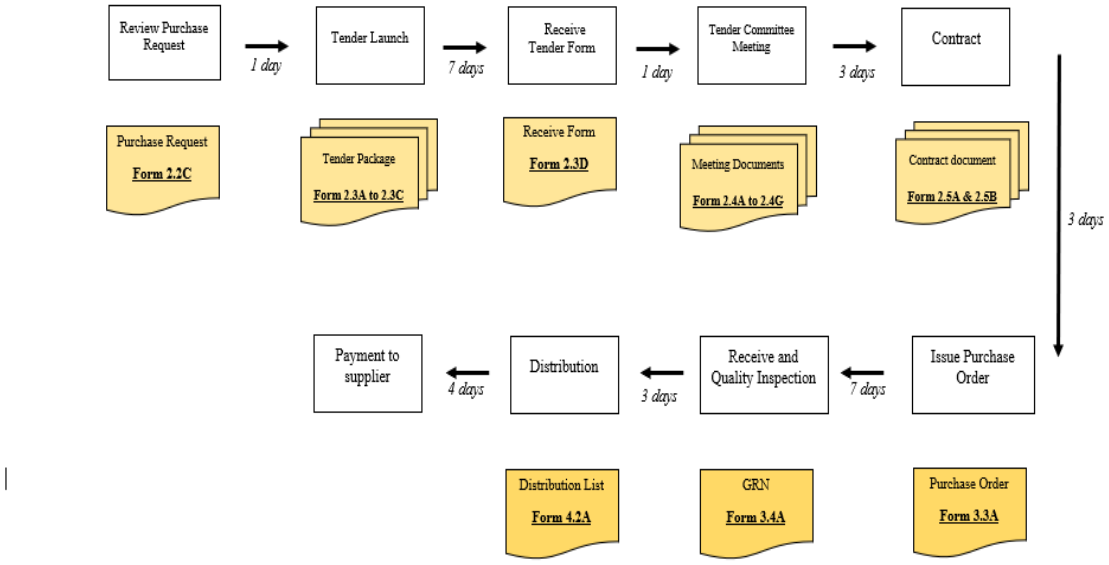
Recruit and Assign Focal Staff

The logistics manager collaborate with the HR Team concerning the staff affairs, and with the program manager for the budget approval, in order to assign one of the Logistics staff as a focal one for food procurement. Once the assigned process has been approved, the logistics staff will focus only on a specific project for food procurement.

4.2 Launch Standard Operating Procedure (SOP)

The first step of the plan is to hold a formal meeting with the related staff (Admin, Logistics, Finance, and HR) from each department, and announce an SOP to be used in the later process of food procurement. Second, the program manager officially informed the project office of the activation of SOP. This launching process was done in the second week of February 2020, and all the teams have been trying to follow an SOP for the process of food procurement.

Figure 7: New Standard Operating Procedure Flow Chart (Standardized Process) for Tender Process



Source: SMILE Organization

4.2.1 On-the-Job Training

Currently, SMILE organization has no specific plan for training to promote the knowledge and improve skills of the staff.

The annual training plan is as follows.

1) Quarterly Training (four times per year)
2) Trainer (outsource or internal resource)
3) Time: One-day training
4) Topic: Procurement Practices (Tender Process)
5) Place: SMILE Organization
6) Participants: Project Staffs, Logistics Staff, Admin Staff, and Finance Staff

Table 8: TOR of Procurement Practices Training

TOR of Procurement Practices Training	
Participants:	Logistics Officers and Finance Officers
Time Frame:	9:00 am to 4:30 pm (3 March 2020)
The Objective of the Training:	To share experience and gain knowledge of good procurement practices.
Trainer:	Logistic Manager
Expected Result:	Get knowledge of the procurement practices and the ways how to solve the issues while conducting the procurement.
Topic	
9:00 am – 12: pm	Sharing Experience about the real issues in the procurement process.
1:00 pm – 4:30 pm	Standard practices of SOP, ethical procurement practices, and develop an action plan for the issues to overcome.

4.2.2 Coordination Meeting

The admin manager organized the coordination meeting during week 4 of February. In that meeting, each department shared their current internal practices of working between the team, discussed the standard practices, made an agreement to promote information sharing and to solve issues through a collaborative approach, as well as discussed to apply the SOP practices in order to reduce the comments from an Audit firm about the procurement process.

The coordination meeting will be held at the end of every month for a better cooperation of teams and to promote the internal operations practices of SMILE.

4.2.3 Supplier List and Translation for Some Formats

The researcher created the supplier management database using an excel to insert the data (supplier information) collected from historical procurement documents. This database has three sections, which are general information, supplier management information, and performance of suppliers.

The translation of some formats serves to be an effective communication tools used with the supplier during the tender process. SMILE has worked with some foreign suppliers where a language barrier is challenging in the operation of procurement. To solve this problem, the procurement department should include a translation process of the desired languages for effective process in the future food procurement.

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Figure 8: Sample of Supplier Database

Supplier Management Database

Completion Guidelines

The Supplier List must be completed by the most senior Purchasing person who is responsible for Supplier Relationship Management.
This is be shared on a monthly basis with the Logistics Manager / Coordinator, for their review.

Office: _____

General Information										Supplier Management Information	
Supplier Code	Supplier Description	Contact Name	Address 1	Postcode	Phone 1	Fax	Email	Website	Supplier Classification	Detail Category	Supplier Ethically Certified
001_2020	ABC Company	DEF	XYZ	1111	09***		ABC@		FOOD	Rice,Oil, Salt	Yes

4.2.4 Annual Tender Plan for Food Procurement

The sample annual tender plan is created by the researcher to be used in the future as shown in Figure8. This plan includes information on project detail, the overall procurement timeline, goods to be procured, and the estimated detail timeline of each sub-process of the different tender processes.

Figure 9: Sample of Annual Tender Plan

Annual Tender Plan for Food Procurement

This template is to assist logistics team to plan procurement requirements for a project.

A. Project details	
1. Name of project	
2. Donor	
3. Start date	
4. Completion date	
5. Location of area logistician:	
6. Project activities	
7. Number of project sites	

B. Procurement Timeline							Jan-20				Feb-20				Mar-20				Apr-20				May-14			
List the goods and equipment below	Quantity	Unit	Budget	Procurement method	Responsible	Budget Line	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Rice	*****	kg	$******	*Tender*	Logistics	123																				
Oil	*****	litre	$******	*Tender*	Logistics	123																				
Salt	*****	kg	$******	*Tender*	Logistics	123																				
Beans	*****	kg	$******	*Tender*	Logistics	123																				

4.2.5 Launch Delegation Procedure

The head of the office, of SMILE organization, announced in an official email network to activate the delegation procedure during the 1st week of February. The expected result is that it can help all departments to complete the process faster by reducing waiting activities in the approval process, therefore resulting in a prompt action in project, Logistics, and financial work.

4.3 Pilot Test for Future Process

The researcher conducted the pilot test to see whether the result is good or not after implementing the work plan to improve the current process of the SMILE organization. The researcher coordinated with the logistics manager to conduct the pilot test, and the Logistics manager tried to test the tender process starting in week 4 of February.

Table 9: Total Lead Time of Pilot Test Result

Sub-Process	Activity Date	Process Lead Time (days)
1. Review PR	27/2/2020	1
2. Tender Launch & RFQ	28/2/2020	7
3. Receive Tender form	6/3/2020	1
4. Tender Committee Meeting and Evaluation	7/3/2020	3
5. Contract	10/3/2020	3
6. Issue Purchase Order and (Waiting for Delivery)	13/3/2020	7
7. Receive and Quality Inspection	20/3/2020	3
8. Distribution	23/3/2020	4
9. Payment	27/3/2020	-
Total Lead Time		29

4.4 Future Tender Process

The future tender process shows the improvement stage after eliminating the activities of waste from the current stage. It shows the standard process, which has no wastes, and it improves the performance of the process to meet the desired lead time of less than 30 days.

Table 10: Value-Added Time and Lead Time of Current Process and Future Process After Eliminating Wastes

Sub-Process	Waste	Current Process		Future Process	
		Value-Added-Time (minute)	Lead Time (minute)	Value-Added-Time (minute)	Lead Time (minute)
Review PR	Waste of time (Logistics officer busy with other responsibilities)	20	5,760	20	1,440
Tender Launch &RFQ	Waiting for supplier quotations	120	15,840	120	10,080
Receive Tender Form	Waiting for confirmation of the committee members to join the meeting	60	5,760	60	1,440
Tender Committee meeting and Evaluation	Communication activities to confirm the date for contracting and waiting times for the supplier to get to the office	360	4,320	360	4,320
Contract	-	60	2,880	60	4,320
Issue Purchase Order and Waiting for delivery	Wating for the supplier, delivery to camp	30	14,400	30	10,080
Receive and Quality Inspection	-	120	4,320	120	4,320
Distribution	-	360	5,760	360	5,760
Payment	-	60	-	60	-
Total		**1,190**	**59,040**	**1,190**	**41,760**

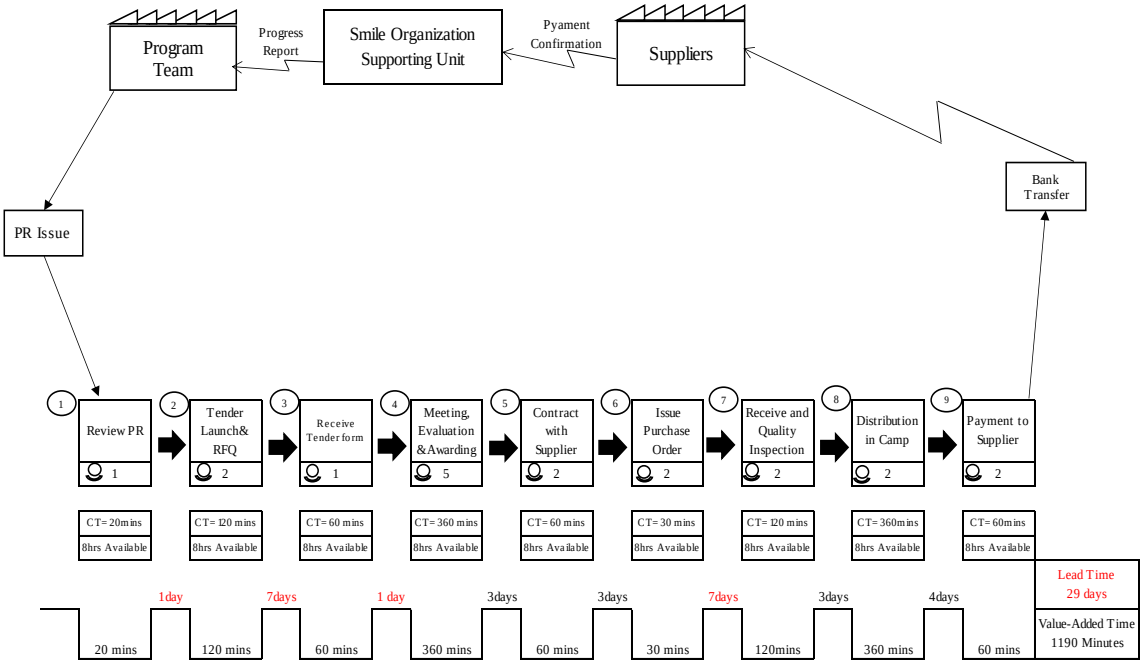
Table 11: Percentage Comparison of Value-Added Time for Current and Future Process

Sub-Process	Current Process			Future Process		
	Value-Added-Time (minute)	Lead Time (minute)	% of Value-Added-Time	Value-Added-Time (minute)	Lead Time (minute)	% of Value-Added-Time
Review PR	20	5,760	**0.35%**	20	1,440	1.39%
Tender Launch &RFQ	120	15,840	**0.76%**	120	10,080	1.19%
Receive Tender Form	60	5,760	**1.04%**	60	1,440	4.17%
Tender Committee meeting and Evaluation	360	4,320	**8.33%**	360	4,320	8.33%
Contract	60	2,880	**2.08%**	60	4,320	1.39%
Issue Purchase Order and Waiting for Delivery	30	14,400	**0.21%**	30	10,080	0.30%
Receive and Quality Inspection	120	4,320	**2.78%**	120	4,320	2.78%
Distribution	360	5,760	**6.25%**	360	5,760	6.25%
Payment	60	-	-	60	-	-
Total	**1,190**	**59,040**	**2.02%**	**1,190**	**41,760**	**2.85%**

Table 11 shows the comparison of value-added time for current and future process after eliminating wastes. For sub-process, Review PR, the lead time has reduced to 1,440 minutes, which causes the percentage of value-added time to increase from 0.35% to 1.39%. For

Tender Launch & RFQ sub-process, the lead time has reduced to 10,080 minutes, which increases the percentage of value-added time from 0.76% to 1.19%. The lead time of Receive Tender Form has reduced to 1,440 minutes and has increased the value-added time from 1.04% to 4.17 %. For the Contract sub-process, the lead time has increased to 4,320 minutes, which decreased the value-added time from 2.08% to 1.39%. For the last sub-process, Issue Purchase Order, the lead time has reduced to 10,080 minutes and which increased the value-added time from 0.21% to 0.30%. After eliminating wastes, the total lead time has reduced from 59,040 minutes (41 days) to 41,760 minutes (29 days), and the value-added time has increased from 2.02% to 2.85%, which presents a shorter time.

Figure 10: Value Stream Mapping of Future Process After Eliminated Wastes



Source: Authors

After running the pilot test, the future state value stream mapping as shown in figure 10. The total lead time has reduced to 29 days.

4.5 Performance Measurement Plan

First is to measure the procurement process performance of SMILE. The purpose of this measurement plan is to evaluate how the guidelines, work plan, and standard process are useful as well as to take action promptly if there is a need for an update or change in the existing flow.

If the total lead time is more than a standard of 30 days according to the performance check form (No. 1), the performance of the process is not right, and a review of the process is required. After that, form (No. 2) needs to be conducted to find out the detail issues of each sub-process and the performance of staff as well as to make an action plan.

Figure 11: Performance Check Form (1)

Performance Check Form (1)

Organization:	SMILE
Department:	Supply Chain
Location:	Yangon
Date:	10-Jul-20

Procurement No.	Type of goods	Date		Total Process lead time	Good or bad?	Comment	Necessary Action
		Start	End				
Tener No.0001	Rice	7-Jun-20	5-Jul-2-	29 Days	Good	Good Performance	No further action.

Check by: **Approved By:** **Action Taken By:**

Table 12: Staff Information for Overseeing Sub-processes of Tender

Sub-Process	No. of overseeing staff	Position
Review PR	1	Logistics Manager
Tender Launch &RFQ	2	Logistics Officer, Logistics Manager
Receive Tender Form	1	Admin Manager
Tender Committee meeting and Evaluation	5	Committee Members
Contract	2	Logistics Manager, Head
Issue Purchase Order	2	Logistics Officer, Head
Receive and Quality Inspection	2	Project Staff, Logistics focal
Distribution	2	Project staffs
Payment	2	Finance Officer, Finance Manager

Source: SMILE Organization

Figure 12: Performance Check Form (2)

Performance Check Form (2)

Organization:	SMILE	**Tener No.**	**0001**
Department:	Supply Chain	**Start Date**	####
Location:	Yangon	**End Date**	####
Date:	####	**Total Lead Time**	## days

Sub-Process	Lead Time	Start	End	Issue	Comment	Responsible	Action Plan
Review PR	###	###	###	*Not finished as plan.*	*Not good performance.*	*Logistics Officer*	*Review the issue and make sure to be right in the next procurement*
Tender Launch &RFQ							
Receive Tender Form							
Tender Committee meeting and Evaluation							
Contract							
Issue Purchase Order							
Receive and Quality Inspection							
Distribution							
Payment							

Check by: **Approved By:** **Action Taken By:**

5. Results and Suggestions

The VSM methodology identified the non-valued activities in the current process, and Cause and Effect analysis resulted the root causes that contributed to non-value-added activities, and then workplan applied to the current process to improve the process performance. The polit tested conducted to see the workplan is effective to increase the process performance or not. The result was good by reducing the total lead time from 41 days to 29 days and increase percentage of value-added-time from 2.02% to 2.85% which means the process is faster.

After implementing the work plan and as the result of the pilot test, the tender process of the SMILE has resulted in less lead time and meets the standard time in the future state. Then, the performance of the procurement team and related staff has increased after eliminating the waste activities along the process. SMILE organization should maintain good progress in continuously implementing the work plan and performance measurement plan to achieve better performance as well as better ways to achieve better performance in the future.

5.1 Limitations and Recommendations for Future Research

This VSM methodology may not be applied in other procurement of construction process of SMILE organization because there are many kinds of materials to purchase as well as many service contract types, and the process is complicated.

The humanitarian supply chain is involved in terms of diversity, working environment, limited resources, and various cultures so the standard process is essential in humanitarian assistance activities, and further study should include the external factors of the supply chain.

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