

# **Eliminate Time Process in Order to Cost Leadership Strategy Implementation. Case Study : Zamzam Medical Clinic**

**Sita Nurlailly**

Department of Industrial Engineering, Universitas Indonesia, Indonesia  
[sita.nurlailly@ui.ac.id](mailto:sita.nurlailly@ui.ac.id)

**Lutfiani**

Department of Industrial Engineering, Universitas Indonesia, Indonesia  
[lutfiani@ui.ac.id](mailto:lutfiani@ui.ac.id)

**Alif Faridalthaf**

Department of Industrial Engineering, Universitas Indonesia, Indonesia  
[alif.faridalthaf01@ui.ac.id](mailto:alif.faridalthaf01@ui.ac.id)

## **Abstract**

Zamzam Medical Clinic is a reference clinic for examining prospective migrant workers. with current process time Zamzam Medical Clinic has a lot of Non Value Added. Total of cost that expense per year is about Rp 542 million. and non value added about 12%. Elimination process time improvement has been implemented with eliminate Non Value added work element, the result is Zamzam Medical Clinic can save about Rp143 Million. Changes in cheaper prices can expand the customer segment, namely a way to compete in price with medical clinics operating in the same area. This is the way Zamzam Medical Clinic can use the Cost Leadership Porter Strategy by competing with competitors for price without compromising quality.

## **Keywords**

Cost Leadership, Porter's Strategy, Non Value Added

## **1. Introduction**

### **1.1 Objectives**

Zamzam Medical Clinic is a reference clinic for examining prospective migrant workers. Zamzam Medical is required to provide medical check-up services according to health service standards. Since August 2016 to February 2018 Zamzam Medical Clinic served 26674 medical check-up patients with an average of 1404 patients per month. However, the limited number of workers makes the process time in running the business inefficient, thus making this clinic indirectly spend more cost-effective costs.

Based on the decision number: 14/KPPU-L/2009 and from data obtained from the Gulf Cooperation Center Approved Medical Center Association (GAMCA) or the Association of Health Facilities specifically for Middle Eastern countries, Zamzam Medical Centre clinic was appointed as one of 22 referral clinics for the examination of prospective Indonesian workers. Within this competitive era, organization is required to improve its performance to win the competition. It can be done by reducing spending, innovating processes and products, and improving quality and productivity. According to Assauri (2008), the process is a way, method and technique of how the resources (manpower, machinery, materials and funds) are changed to obtain an outcome. The organization will do some ways to reduce production costs or services cost. One way to reduce spending can be done by increasing the amount of output with a predetermined working time and also eliminating work activities that do not have value added in a production or even services.

Zamzam Medical Clinic with 30 employees. With details of the number of medical officers 8 people consisting of 1 administration, 1 cashier, 2 laboratory analysts, 1 nurse, 1 doctor and 2 radiographers for the X-Ray photo section, 2 online results and the rest as managers, online results input clerk, cleaning service and driver. With 10 medical service personnel serving an average of 94 patients a day. Operating hours start from 09.00 - 17.00. MCU patients more often come near 12.00 and 16.30. Laboratory tests take  $\pm$  1 hour 52 minutes, longer than other tests.

This is a problem for medical personnel because MCU patients come in the afternoon in large numbers. This happens because the registration officer does not limit the hours of admission of patients. For the Laboratory section, the examination of the sample starts at 16.00 while at the same time it continues to provide blood and urine samples for patients who have registered.

This situation made the Zamzam Medical Clinic think about what strategy should be done, Strategy is an important factor for the success of every organization. It is defined as the connection between goals and objectives and specific actions and ways to achieve those planned goals (Nickols, 2012). Strategy is also defined as a set of plans, guidelines and programs that are aimed to tackle business situations. Generally, strategies can be characterized by two distinctive elements. "They are made in advance of the actions to which they apply, and they are developed consciously and purposefully". Such a strategy may be developed in a general or a specific manner (Mintzberg, 1987). Strategy is essential for the organization's success in terms of setting the overall organization's direction and enables it to face the challenges in a competitive environment. Moreover, the strategy is needed to ensure proper synchronization of the organizations' different activities and direct its efforts.

With this current situation Zamzam Medical Clinic can reduce their time process then they can reduce cost of operational, finally they can use a cost leadership strategy for the organization to offer products and services at lower prices compared to its competitor. Such an organization is able to sell large quantities at the most competitive prices to its target market (Li & Li, 2008). Through following a cost leadership strategy, an organization should produce products or services that are standardized with minimal customized modifications. By applying Cost Leadership Strategy is expected Zamzam Medical Clinic able to reduce the cost from all Non Value Added processing time and is able to achieve customer new check-up clinic competitors.

## 2. Literature Review

### 2.1 Porter's Strategy

KAYA (2015) stated that Generic competition strategies of Porter have been deeply analyzed in terms of strategic marketing and strategic management literature and dual approach has risen about generic strategies. Porter's Five Forces Model of analysis Competitive is an approach that is used widely to develop strategies in multiple industries (Mustamu, 2015). The purpose of these strategies is to create a competitive advantage and a possibility to compete with competitors in industry (Erika et al., 2012).

Based on Porter's Strategies, there are two basic strategies that needed for satisfying customer, cost leadership (this one is based on lower cost) and the differentiation strategies (this one is based on unique product) (Uwe Dombrowskia, 2018). According to Uwe Dombrowskia (2018) in order to have a clear competitive advantage, companies must determine which strategies that will used according to porter strategies.

Hilman, Mohamed, Othman, & Uli (2009) stated that to increase the cost leadership of the company, the company must integrate its strategy both forward, backward and horizontally. (Haim Hilman, 2014). Bordean et al., 2010 and Porter, 1985 say that organizations that implement a cost leadership strategy can apply to several activities such as forecasting demand, high capacity utilization, economies of scale, technology advancement, outsourcing and learning / experience curve (Haim Hilman, 2014). (Jinmei Yin, 2020) said that cost leadership strategy represents that firms need to make a low cost advantage relative to their competitors.

Cost leadership emphasizes producing standardized products at a very low per-unit for consumer who are price-sensitive, there are two type of cost leadership.

- Type 1: Low Cost strategy. It's offers products or services to a wide range of customer at the lowest price available on the market.
- Type 2: Best Value strategy. It's offers products or services to a wide range of customer at the best price-value available on market.

### 2.2 SWOT Analysis

SWOT analysis, first presented by the American business and management consultant Albert S. Humphrey, that used as a tool that deals with complex strategic situations by presenting and organizing information in a clear way for make a good decision (Gülçin Büyükoçkan, 2020). SWOT Analysis is a tool that use for strategic planning and also can use for strategic management in organizations. SWOT analysis can build organizational strategy and competitive strategy that good for company (TAT, 2017). Oreski (2012) say that two factors in SWOT (strengths and weaknesses) are related to internal organizational factors, while opportunities and threats for external organizational factors that cover a wider context. Maulana (2018) said that strategic decision making process always related to the development of the company's mission, goals, strategies and policies.

So, the company must define SWOT analysis carefully because it will give impact to company in the future. The strategy formulation obtained from the SWOT analysis above is a strategic formulation aims to take advantage of strengths and opportunities and minimize weaknesses and threats, which in its implementation must involve the community, business actors, government and other related parties (Maulana, 2018). Eliminating the process means that the existing process becomes non needed, because it can be no added value, so the process is eliminated (Rahmat Nurcahyo, 2020)

### 2.3 Value Stream Mapping

Value stream mapping is a lean manufacturing approach which is originated from Toyota Production System (Suman Kundgol, 2020). There are many methods that can be used to reduce production cost in the company, but in this research we use Value Stream Mapping to reduce it (Nurcahyo, 2015). And by using Value Stream Mapping, we reduce cost production by define value added and non value added activities from all existing activities (Nurcahyo, 2015). Actually, This mapping tool (VSM) involve all of the process starting from customer order and manufacturing the product to send it to the consumer (Seyed Mojib Zahraee, 2021), but in this research, we review medical company, that which serves the medical check-up process.

### 3. Methods

The research model we use is field observational research and is assisted by secondary data from previous research, websites, case studies. The purpose of this study is to identify the efficiency of reducing activities that do not add value by using the Value Stream Mapping method and to evaluate the appropriate business strategies used to reduce production costs using SWOT analysis related to Porter's Strategy. Subject of this research is Zamzam Medical Clinic that have problem on Reducing Time Process. The following are the stages carried out in this study:

1. Collect Secondary the data from Previous Study.
2. Do an assessment from Porter Strategies.
3. Do analysis of existing data.
4. Devise a new strategy.
5. Draw conclusions from research

### 4. Data Collection

From Zamzam Medical Clinic we get all detail of activities in each Unit, then we can classification this activities into Value Added, Non Value Added, and Necessary but Non Value Added. And after that, we using Value Stream Mapping to help reducing cost production. Table 1. Administration Unit Work Element Grouping show each activities in Administration unit as beginner unit in Zamzam Medical Clinic. Table 2. Laboratory Unit Work Element Grouping show each activities in Laboratory Unit. Table 3. Physical Inspection Unit Work Element Grouping show each activities in Physical Inspection Unit. Table 4. Radiology Unit Work Element Grouping show each activities in Radiology Unit. Then Table 5. Results and Archives Unit Work Element Grouping show each activities in Result and Archives Unit. And the last, we sum up all this unit as seen in Table 6. Summary of Activities of All Work Units.

Table 1. Administration Unit Work Element Grouping

ADMINISTRATION UNIT		
No	ELEMENT OF WORK	TYPE OF ACTIVITY
1	Waiting for the patient to sit down	NNVA
2	Take out a pen	NNVA
3	Waiting for the patient to fill in the identity data on the MCU examination form	VA
4	Input MCU patient identity data	VA
5	Take photos of MCU patients	VA
6	Make a payment receipt	VA
7	Payment transactions	VA
8	Waiting for the patient to walk into the waiting room	VA

Table 2. Laboratory Unit Work Element Grouping

<b>LABORATORY UNIT</b>		
<b>No</b>	<b>ELEMENT OF WORK</b>	<b>TYPE OF ACTIVITY</b>
1	Receive the examination form	VA
2	Take out a pen	NNVA
3	Record patient identity data in the book	VA
4	Walk towards the patient waiting room	NNVA
5	Calling the patient	VA
6	Provide queue number	VA
7	Waiting for the patient to walk to the Laboratory room	NNVA
8	Call the patient by the queue number	NNVA
9	Waiting for the patient to sit down	NNVA
10	Waiting for the patient to tidy up the clothes in the area to be sterilized	NVA
11	Open the alcohol swab	VA
12	Opening the syringe	VA
13	Installing a tourniquet	VA
14	Sterilization	VA
15	Sampling	VA
16	Waiting for the patient to tidy up the clothes in the sampled area	NVA
17	Waiting for the patient to walk to the urine collection room	NNVA
18	Waiting for the patient to collect a urine sample	VA
19	Blood group examination	VA
20	Record blood group results	VA
21	Wait for the patient to walk into the physical examination room	VA
22	Hematology examination	VA
23	Centrifuge blood samples	VA
24	Blood chemistry tests	VA
25	Serology examination	VA
26	Macroscopic examination of urine	VA
27	Record the results in a book	VA
28	Record the results on the form	VA
29	Input results online	VA

Table 3. Physical Inspection Unit Work Element Grouping

<b>PHYSICAL INSPECTION UNIT</b>		
<b>No</b>	<b>ELEMENT OF WORK</b>	<b>TYPE OF ACTIVITY</b>
1	Receive the examination form	VA
2	Take out a pen	NNVA
3	Record patient identity data in the book	VA
4	Call the patient according to the queue number	VA
5	Weigh the patient's weight	VA
6	Measure the patient's height	VA
7	Record the results of measurements of the patient's weight and height on the form	VA
8	Waiting for the patient to change clothes	NVA
9	Measure the patient's blood pressure	VA
10	Record the patient's blood pressure measurement results on the form	VA
11	Perform a physical examination	VA
12	Record the results of the physical examination on the form	VA

<b>PHYSICAL INSPECTION UNIT</b>		
<b>No</b>	<b>ELEMENT OF WORK</b>	<b>TYPE OF ACTIVITY</b>
13	Waiting for the patient to change clothes	NVA
14	Waiting for the patient to walk to the radiology room	NNVA

Table 4. Radiology Unit Work Element Grouping

<b>RADIOLOGY UNIT</b>		
<b>No</b>	<b>ELEMENT OF WORK</b>	<b>TYPE OF ACTIVITY</b>
1	Receive the examination form	VA
2	Take out a pen	NNVA
3	Record patient identity data in the book	VA
4	Call the patient according to the queue number	VA
5	Waiting for the patient to change clothes	NVA
6	Directing the patient's standing position	VA
7	Set the exposure factor	VA
8	Shoots X-Ray rays	VA
9	Waiting for the patient to change clothes	NVA
10	The patient walks into the patient waiting room	NNVA
11	Walk into the dark room	VA
12	Change the film	VA
13	Wash the film with developer fluid	VA
14	Wash the film with fixer liquid	VA
15	Wash off the film with wixing liquid	VA
16	Dry the film	VA
17	Compile a film based on the patient serial number	VA
18	The doctor reads the x-rays	VA
19	Write the results of reading the X-rays on the form	VA

Table 5. Results and Archives Unit Work Element Grouping

<b>RESULTS AND ARCHIVES UNIT</b>		
<b>No</b>	<b>ELEMENT OF WORK</b>	<b>TYPE OF ACTIVITY</b>
1	Receive results of physical examination	VA
2	Receive radiological examination results	VA
3	Receive laboratory examination results	VA
4	Checking the results of physical examination	VA
5	Check the results of radiological examinations	VA
6	Check the results of laboratory tests	VA
7	Input online physical examination results	VA
8	Input the results of the online radiology examination	VA
9	Input the results of online laboratory tests	VA
10	Result archive	VA

Table 6. Summary of Activities of All Work Units

UNIT	TYPE OF ACTIVITY		
	NVA	NNVA	VA
Administration	0	2	6
Laboratory	2	6	21
Physical Inspection	2	2	10
Radiology	2	2	15
Results and Archives	0	0	10
<b>Totals Of Each NVA / NNVA / VA</b>	<b>6</b>	<b>12</b>	<b>62</b>

After classifying each work unit there, we also print out the existing cost per Year from Zamzam Medical Clinic in Table 7. Zamzam Medical Clinic Cost per year as consideration to reducing cost. And the cost divided into five categories ; Take Home Pay, Overtime, Meal Allowance, Health benefits, Ramadhan bonus, and Bonus.

Table 7. Zamzam Medical Clinic Cost per year

No.	Cost	Cost/ Year medical services area
1	Take Home Pay	Rp 360,000,000
2	Overtime	Rp 57,600,000
3	Meal Allowance	Rp 52,800,000
4	Health Benefits	Rp 12,000,000
5	Ramadhan Bonus	Rp 30,000,000
6	Bonus	Rp 30,000,000
	<b>Total</b>	<b>Rp 542,400,000</b>

After seeing the table of results for each unit in Zamzam Medical Clinic, then the table is processed using Value Steam Mapping to identify waste in value stream mapping. if waste has been found, it must be eliminated to improve the existing process. The purpose of value stream mapping is for the improvement process in an existing system. Figure 1. Current State Map Zam-Zam Medical Show Value Stream Mapping based on existing process.

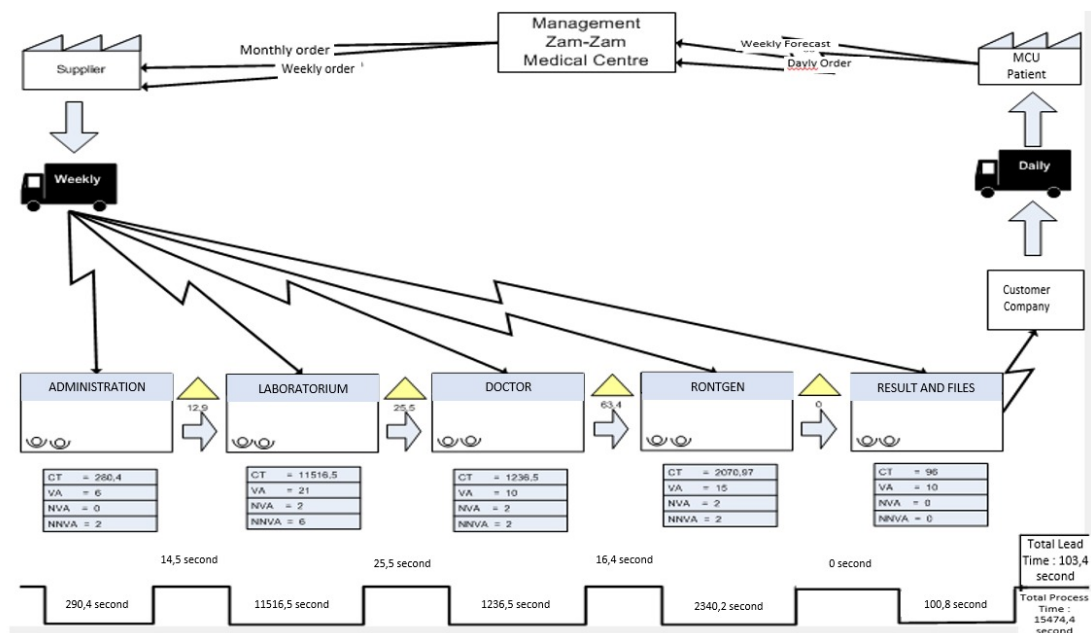


Figure 1. Current State Map Zam-Zam Medical Clinic

#### 4.1 Observation and Interview

Observation of this research is by asking the employee in Zamzam Medical Clinic. And in Table 8. The SWOT analysis from Interviewing Zamzam Medical Clinic Employee we define Each Categorize of SWOT: Strength, Weakness, Opportunity, and Threat.

Table 8. The SWOT analysis from Interviewing Zamzam Medical Clinic Employee

Strength	Weakness	Opportunity	Threat
Large Parking Area	Long Inspection Queue	Have a Good Image on their customer	Selling Price that compete with their competitors
The Place is reachable	Longer Service Time	Have Regular Customer	There are more than 2 competitors in the same area
Friendly Service	Expensive Price	To be a trusted Clinic	Threat: cannot remove NNVA Process that Important but doesn't necessary.
one of 22 candidates chosen to serve Indonesian Migrant.	lot of Non Value Added activities involve in Zamzam Medical Clinic	Can Reduce or Cut NVA Process.	
		Can serve more than just middle eastern countries.	
		Cheaper bills to migrant can expand their Customer.	

### 5. Result and Discussion

#### 5.1 Numerical Results

After implementation of improvements previous study, the result of Zamzam Medical Clinic are shown in Table 9. Modification Activities in Zamzam Medical Clinic. The big differentiation is in NVA activities, that have reduce process until 6 process. The process that have to eliminated is changing clothes for the patient, that repeated 6 times on all the processes. Its mean, NVA activities in fact it is not necessary, and can be diminished. Other than that, we can see the Future Value Stream Mapping on Figure 2. Future State Map Zam-Zam Medical Clinic, it also change on some point.

Table 9. Modification Activites in Zamzam Medical Clinic

Activities	Process		Time (s)		Percentage	
	Before	After	Before	After	Before	After
VA	62	62	13546.2	13555.3	88%	95%
NVA	6	0	1595.1	0	10%	0%
NNVA	12	14	333.1	685.8	2%	5%
$\Sigma$	<b>80</b>	<b>76</b>	<b>15474.4</b>	<b>14241</b>	<b>100%</b>	<b>100%</b>

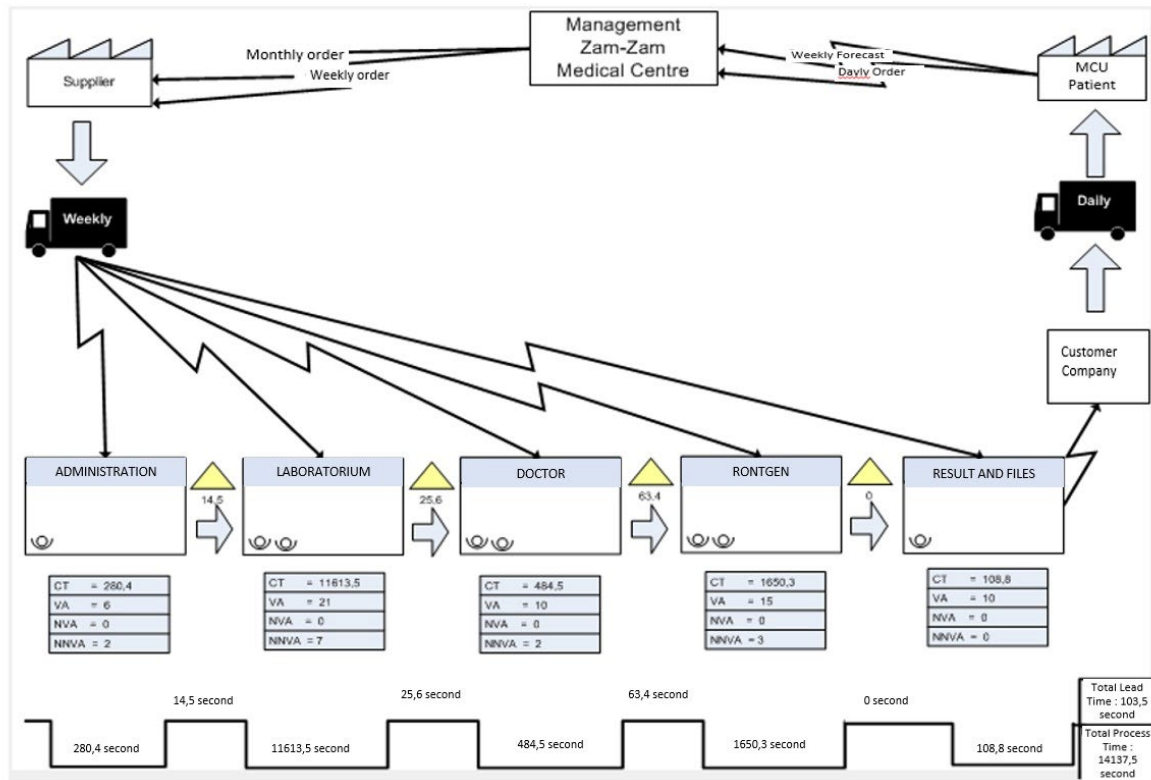


Figure 2. Future State Map Zam-Zam Medical Clinic

Table 10. Modification Cost After Improvement in Zamzam Medical Clinic

No	Cost	Cost/ Year medical services area (Before improvement)	Cost/ Year medical services area (After improvements)
1	Take Home Pay	Rp 360,000,000	Rp 288,000,000
2	Overtime	Rp 57,600,000	Rp 11,520,000
3	Meal Allowance	Rp 52,800,000	Rp 42,240,000
4	Health Benefits	Rp 12,000,000	Rp 9,600,000
5	Ramadhan Bonus	Rp 30,000,000	Rp 24,000,000
6	Bonus	Rp 30,000,000	Rp 24,000,000
<b>Total</b>		<b>Rp 542,400,000</b>	<b>Rp 399,360,000</b>

We can see in Table 10. Modification Cost After Improvement in Zamzam Medical Clinic, there is differentiation from the Cost before improvement and after improvement. The total gap is Rp 143,040,000. This cost is a adequate for Zamzam Medical Clinic to have cost reduction, and the biggest one cost reduction is overtime cost, its mean by reducing the NVA process, the company can save more money in overtime cost that have the second largest cost as an expense.

## 5.2 Discussion

After the implementation, Zamzam Medical Clinic is able to offer their customers a cheaper bill. With the current situation the Zamzam Clinic's target segmentation is foundations that oversee the process of Indonesian migrant workers in Middle Eastern countries. After implementing time process elimination, the Zamzam Clinic can cut production costs so that it can offer cheaper prices with the same quality.

Changes in cheaper prices can expand the customer segment, namely a way to compete in price with medical clinics operating in the same area. This is the way Zamzam Medical Clinic can use the Cost Leadership Porter Strategy by competing with competitors for price without compromising quality. The Zamzam Clinic can also arrange the best price offers at the ministry to expand customers / foundations that will use the Zamzam Clinic as a medical check-up referral clinic for prospective workers not only in the Middle East but also in other regions.



### 5.2.1 Cost leadership Strategy

Table 11. Cost Leadership Strategy Implementation

ZamZam Medical Clinic	Forecasting Demand	High-Capacity Utilization	Economies of Scale
<b>Before Elimination Time Process</b>	1404 Patients per month	personnel serving an average of 94 patients a day	Ministry or Migrant Indonesian worker foundation involve in Middle Eastern.
<b>After Elimination Time Process</b>	1700 Patients per month	personnel serving an average of 150 patients a day	Ministry or Migrant Indonesian worker foundation involve in Middle Eastern, south eastern, etc

## 6. Conclusion

Zamzam Medical Clinic can implement the new strategies, because the new implementation is more helpful and also can saving more money for the company. Meanwhile for the all process, we eliminated the process of Changing clothes, because the other process is needed in every unit, cause its related to medical process. And also, by using Porter Strategy that focus on Cost Leadership Zamzam Medical Clinic can expand the customer segment with different condition of course, but without leaving their service quality. The result of this research there are still shortcomings because we only review and focus in one company in medical sector, so for future research can review more company and another sector of company, so other company can compare which are the process that can be implemented or not, and also can reduce the cost of all the process.

## References

- Büyükozca Gülçin, Mukul Esin, Kongar Elif., Health tourism strategy selection via SWOT analysis and integrated hesitant fuzzy linguistic AHP-MABAC approach., Page 3, 2020.
- Dombrowski Uwe, Krenkel Philipp, Wullbrandt Jonas., Strategic Positioning of Production within the Generic Competitive Strategies, 51st CIRP Conference on Manufacturing Systems, Page 1, 2018.
- Foris Paskalino Jimmy, Mustamu Ronny H., Analisis Strategi Pada Perusahaan Plastik Dengan Porter Five Forces., AGORA Vol. 3, No.1, 2015.
- Gurel Amet, TAT Merba., SWOT ANALYSIS: A THEORETICAL REVIEW., The Journal of International Social Research., Vol. 10, Page 995, 2017.
- Jinmei Yin, Shaobo Wei, Xiayu Chen, Jiuchang Wei., Does it pay to align a firm's competitive strategy with its industry IT strategic role?, Information & Management, Page 2, 2020.
- KAYA Nihat., Corporate Entrepreneurship, Generic Competitive Strategies, and Firm Performance in Small and Medium-Sized Enterprises, 11th International Strategic Management Conference 2015 , Page 664, 2015.
- Kundgol Suman, Petkar Praveenkumar, Gaitonde V.N., Implementation of value stream mapping (VSM) upgrading process and productivity in aerospace manufacturing industry, Materials Today: Proceedings, Page 1, 2020
- Li, C. B., & Li, J. J. Achieving Superior Financial Performance in China: Differentiation, Cost Leadership, or Both, Journal of International Marketing, 1–22, 2008.
- Mintzberg, H. Generic Strategy: Toward a comprehensive framework. Advances in strategic management, 1-67, 1988.
- Nickols, F. Strategy: Definitions and Meaning. Retrieved from Distane Consulting [http://www.nickols.us/strategy\\_definition.html](http://www.nickols.us/strategy_definition.html), 2012.
- Nurcahyo, R., Firdaus, R.A., Gabriel, D.S., Cost reduction of a biotechnology products using cost integrated value stream mapping methods, International Journal of Applied Engineering Research, Volume 10, Issue 23, 1 December 2015, Pages 43533-43537.
- Nurcahyo Rahmat, Indramawan, Yadrifil, Muhammad Habiburrahman and Wibowo Nurhadi., Business Process Re-engineering For Reducing Time Of Procurement and Inventory Process in Telecommunication Tower Company., IEOM Society International, March 10-12, 2020
- Oreski Dijana., Strategy development by using SWOT – AHP., TEM Journal Volume 1, Number 4, 2012.
- Putra Gema Setya Anggara, Maulana Noveri., Strategi Meningkatkan Daya Saing Industri Kreatif Indonesia: Studi Kasus Pengembangan Kluster Industri Alas Kaki Kecamatan Tamansari, Bogor., ULTIMA Management | ISSN 2085-4587, 2018.
- Zahraee Seyed Mojib, Esrafilian Rasoul, Kardan Ramtin, Shiwakoti Nirajan, Stasinopoulos Peter., Lean construction analysis of concrete pouring process using value stream mapping and Arena based simulation model., Materials Today: Proceedings, Page 1281, 2021.

## **Biographies**

**Sita Nurlailly** is an Employee in one of BUMN Company in Indonesia, as a Procurement Production. She has earned her Bachelor Degree in Industrial Engineering of Telkom University. She has done projects on helped Transforming Company from using ISO 9001:2008 to ISO 9001:2015.

**Lutfiani** is an employee of a shipping company as accounting and shipping operations. He holds a Bachelor of Industrial Engineering from As-Syafi'iyah Islamic University. He has undertaken a project to help reduce corporate administrative activities by creating an integrated system concept with suppliers and customers.

**Alif Faridalthaf** is an local employee in Jakarta which active in Jewelery Industry. He has earned his bachelor's degree in industrial engineering of University of Indonesia. Alif also has certified in White-belt and Yellow-belt Six Sigma held by Experts Club Indonesia in 2020-2021.