

ANALYSING THE VALUE AND NON-VALUE ACTIVITIES USING ACTIVITY-BASED MANAGEMENT CONCEPT AT PT. CELEBES MINA PRATAMA BITUNG

ANALISA AKTIVITAS BERNILAI DAN TIDAK BERNILAI MENGGUNAKAN KONSEP ACTIVITY-BASED MANAGEMENT DI PT. CELEBES MINA PRATAMA BITUNG

by:

Riskabella Kalaena¹

Faculty of Economics and Business, International Business Administration, Management Program
Sam Ratulangi Manado

E-mail:

riskabellak@gmail.com

Abstract: In modern times, many companies of business industries in Bitung City especially in the fisheries sector are facing the tighter competition. That make every company want to give the best performance for customer with minimize the time and cost. The purpose of this study to analyze if there are non-value added activities at process production of wood fish at PT. Celebes Mina Pratama Bitung. This research using qualitative method that will identify the value and non-value activities at company and type of research is descriptive research. Population in this research is all employees who work at PT. Celebes Mina Pratama. There are 2 methods to collecting the data which are: primary data and secondary data such as; interview, observation and documentation. The result of this research shows if activity based management (ABM) concept is very useful to find out the non-value added activities at the company and the production process effectiveness in the company is good enough because it almost reaches 100% which are 95,45% for Katsuo Arahonbushi (KH) and 95,37% for Katsuo Arakamebushi (KK) that means the company need evaluation of each activity and process that exists. Researcher recommend for company to using ABM concept in their production process.

Keyword : *activity-based management, manufacturing cycle effectiveness, value added activity, non-value added activity*

Abstrak: Di zaman modern, banyak industri bisnis di Kota Bitung khususnya di sektor perikanan yang bersaing ketat. Itu membuat setiap perusahaan ingin memberikan tampilan yang terbaik bagi pelanggan dengan meminimalisir penggunaan waktu dan biaya dari proses yang tidak bernilai. Tujuan dari penelitian ini adalah untuk menganalisis apakah ada kegiatan yang tidak bernilai tambah pada proses produksi ikan kayu di PT. Celebes Mina Pratama Bitung. Penelitian ini menggunakan metode kualitatif yang akan mengidentifikasi nilai dan aktivitas yang tidak bernilai di perusahaan dan jenis penelitiannya adalah penelitian deskriptif. Populasi dalam penelitian ini adalah semua karyawan yang bekerja di PT. Celebes Mina Pratama. Ada 2 metode untuk mengumpulkan data yaitu: data primer dan data sekunder seperti; wawancara, observasi dan dokumentasi. Hasil penelitian ini menunjukkan bahwa konsep manajemen berbasis aktivitas (ABM) sangat berguna untuk mengetahui aktivitas yang tidak bernilai tambah di perusahaan, dan efektivitas proses produksi di perusahaan cukup baik karena hampir mencapai 100% yaitu 95,45% untuk Katsuo Arahonbushi (KH) dan 95,37% untuk Katsuo Arakamebushi (KK) yang berarti perusahaan perlu evaluasi setiap kegiatan dan proses yang ada. Sebaiknya perusahaan menggunakan konsep ABM dalam proses produksi mereka.

Kata Kunci: *manajemen berbasis aktivitas, siklus manufaktur efektivitas, aktivitas bernilai, aktivitas tidak bernilai*

INTRODUCTION

Research Background

In modern times, many companies of business industries in Bitung City especially in the fisheries sector are facing the tighter competition. That make every company want to give the best performance for customer. Government already make a regulation about Moratorium Policy about Illegal Fishing that give a big impact for fish industry. According to Nurlaili (2016) there are negative and positive impact because this regulation about termination of the licensing policy (moratorium) ships whose creation abroad need to stop operate and make some company can not be operate because lack of raw material, decreased the fish productivity and make the company have low income.

With this incident, company need to improve their performance with a good management to make the situation stable without interfere the process production of goods and services. The company should be able to improve corporate management as described by Griffin (2002) where management is a series activities including planning and decision making, organizing, leadership, control directed at organizational resources (human, financial, physical, and information) to achieving organizational goals effectively and efficiently. To achieve the company's management objectives, a good method is needed to be implemented in the company to create a good management system.

Activity is a part of management to running a good company. Because, activity as a process can be understood in the form of a series of activities that originated from the wisdom is derived in the form of projects. Therefore, this research will be focus in Value and Non-Value activity, uses activity based management concept on process dimension using the manufacturing cycle efficiency method.

The value-added activities are activities needed to carry out business operations, so that they can provide value and increase company profits. Hines and Tailor define value-added activities, namely all activities that produce products or services that provide added value in the eyes of consumers (Verdiyanti and El-Magviroh, 2013).

Activity-based management is an integrated and comprehensive approach that make the management attention centered on the activities carried out with the aim of increasing the value for the customer and the profits earned by providing that value. That is why this research use activity based management concept because this concept offers a solution to solve the problem at the company. Benefits obtained by using activity-based management are management can determine the area to make operating improvements, reduce costs, or value for customers.

This is the same way as what happened in many company to improve their service quality, with arrange the time management. The overall goal is to increase the customer responsiveness. At the companies there are the value added activity which is time of product process is obtained from production activity (processing by direct labor), direct material addition and marketing activity / product delivery. Production activities include the process of receiving raw materials, sorting, cutting, boiling, bone removal, fumigation, and settlement (including label and packing until the goods are ready for sale).

In addition, there are some non-value adding activities, such as inspection time on inventory control (quality check and raw material quantity check up to final product), inspection time of production process, inspection time at completion (quality control), inspection time on the packing process, the timing of the schedule (the production schedule and the export schedule), and the time of transfer (transfer material from inventory control to cutting section).

Therefore, to overcome the waste of time that may occur is used MCE analysis as a tool of activity analysis to calculate how much non value activities addition can be reduced and eliminated from production activities. Based on the problem this research will be used manufacturing cycle effectiveness analysis tool to find out about all non-value activities at the company. Manufacturing cycle effectiveness (MCE) is a comparison between processing time and throughput time indicating the percentage contained in an activity used by the firm to generate value for the customer by measuring how much non-value-added activities are reduced and eliminated from the manufacturing process

Research Objectives

To analyses the activity based management can help the company to find the values and non-values activities with using manufacturing cycle effectiveness as an analysis tools.

THEORETICAL FRAMEWORK

Management

Management is very important for company because without management the company can not be running effective and efficient. Management is process of planning, organizational, observation and guidance of effort all organizational member and usage of resource, other organizational to be reaching the target of organization which have been specified (Stoner, Freeman and Gilbert, 1995). Management is a distinct process consisting of planning, organizing, actuating and controlling; utilizing in each both science and art, and followed in order to accomplish pre-determined objectives (Terry, 1977).

Activity-Based Management

All organizations want to perform optimally and avoid or reduce mistakes as much as possible. Activity-based management enables an organization to control its activities properly, as a result of which performance and customer-orientation are increased. Activity-based management concept is really useful to improve performances of the enterprises on many fronts. An enterprise becomes consciousness of activity-based management importance only when the right person or persons are accessing the right information for making right decisions and improvement performances of the enterprise. Activity based management is an integrated approach to the whole system and focuses on management's attention or activities with the goal of increasing value for customers and the profit achieved by realizing that value (Hansen and Mowen, 1999)

Manufacturing Cycle Effectiveness

According to Saftiana, Ermadiana, and Andriyanto (2007) manufacturing cycle effectiveness (MCE) is the percentage percentage value added activities in activities production process used by companies to produce value for customers. According to Mulyadi (2003) Manufacturing cycle effectiveness is a measure that indicates the percentage value added activity available in activity to increased non value-added activities and manufacture of products. Manufacturing cycle effectiveness is an analysis tools of production activities, for example how much time is consumed by an activity ranging from handling of raw materials, products in the process of up to finished product. Manufacturing cycle effectiveness is calculated by utilizing cycle time data or throughput time that has been collected. The cycle time selection can be done by doing activity analysis. According to Mulyadi (2003) cycle time consists of value added activity and non value added activities. Value added activity that is processing time and non value added activities consisting from schedule time, inspection time, time moving time, waiting time, and time storage (storage time). Manufacturing Cycle Effectiveness itself have formula to find the result if the process production activities at the company is effective, the formula is:

$$\text{Manufacturing Cycle Effectiveness} = \frac{\text{Processing time}}{\text{Cycle time}} \times 100\%$$

According to Saftiana, Ermadiana, and Andriyanto (2007) if the result is 100% the companies have a good effective process production, but if the result below 100% there are still have non-value activities.

Cycle Time

Activity in manufacturing production process consists of activities which are processing time, inspection time, moving time, waiting time, and storage time (Mulyadi, 2003)

1. Processing Time is the entire time needed from each stage taken by the raw material, the product is in the process until it becomes finished goods.
2. Inspection Time is the whole time consumed by activities to keeping all products processed can be produced in accordance with the established standards
3. Moving Time is an activity that uses time and resources to move raw materials, products in the process and finished products from one department to another
4. Waiting Time is an activity in which raw materials and products in the process of using the time and resources in waiting for the next process
5. Storage Time is an activity that uses time and resources, as long as the products and raw materials are stored as inventories

Value Added Activities

Activities that must be maintained in business are often referred to as value-added activities. According to Rahmawati (2008) the value-added activities are activities needed to carry out business operations, so that they can provide value and increase company profits. Hines and Tailor define value-added activities, namely all

activities that produce products or services that provide added value in the eyes of consumers (Verdiyanti and El-Magviroh, 2013). According to Mulyadi (2003) value added activities are activities that are viewed from the perspective of the customer adding value in the process of input processing into output. Value added activities can be created by increasing the quantity and quality of products that are able to meet customer needs.

Non-Value Added Activities

A production activity that is not important to be maintained in business, so that it is considered as an unnecessary activity is called non value added activities. According to Rahmawati (2008) non-value added activities are activities that are not needed and must be eliminated from business processes because they hinder the performance of the company. Non-value added activities are activities that cannot fulfill one factor from the condition of value added activities. Non-value added activities are activities that do not contribute to consumer value or to the needs of the organization. Activities that do not cause additions, changes in circumstances do not allow other activities to be carried out.

Previous Research

Hossain and Hoque (2016) studied about the causes of non-value added times and manufacturing waste, to reduce the lead time and to improve the process cycle efficiency. And using value stream map and kanban board as a method to analysis the data find the result. The result of the research present process cycle efficiency was calculated at 11.58% that should be improved to be globally competitive. In order to do this; it was proposed to use the just in time and Kanban production philosophy. It was enumerated that after the lean tool implementation the lead time, cycle time, and non-value added time would be reduced to 366 min, 396 min, and 99 min respectively and consequently, the process cycle efficiency would be improved to 21.04%.

Eswaramurthi and Mohanram (2013) this research is studied to separate the value and non-value added using lean concept so they can reduce the inspection time to make the process production more effective in manufacturing industry. By the categorization value added and non-value added activities the result is if most of the non-value added activities have been eliminated and after elimination the total times of inspection is reduce by 30% and non-value added activities reduced by 70%.

Gunasekaran, McNeil and Singh (2000) this research studied about to develop an activity based management system for the company which leads to appropriate improvement actions based on a make or buy decision about different parts of the machine. Identify non-value-added activities (e.g. inventory carrying, material handling and inspection) , and then try to eliminate these activities by using the number of available management methods and techniques. Also, there are possibilities to improve value-added activities. The result is Activity-Based Costing provides accurate cost information and Activity-Based Management uses this information to initiate improvements. Activity-Based Costing systems produce a large amount of information that is used by the Activity-Based Management.

Conceptual Framework

Conceptual framework is the arrangement of logical construction that regulated in order to explain the variable in the research.

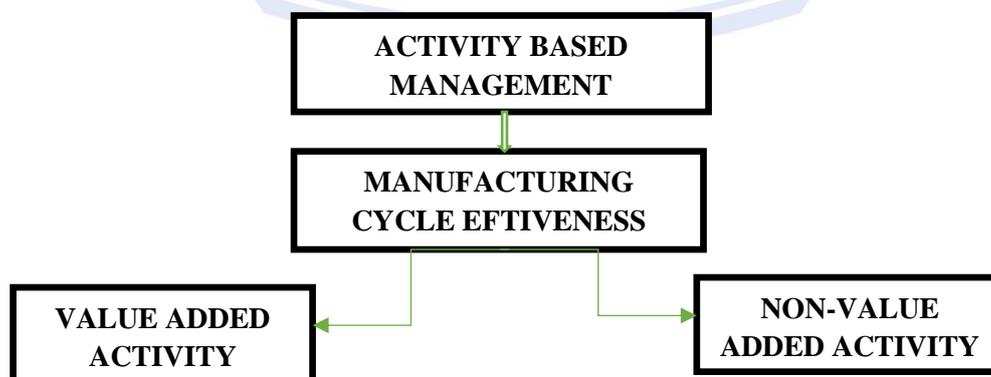


Figure 1. Conceptual Framework

RESEARCH METHOD

Research Approach

The type of this research is qualitative method that will identify the value and non-value activities at the company. According to Denzin and Lincoln (2008) qualitative research involves the studied use and collection of a variety of empirical materials case study, personal experience, introspective, life story, interview, observational, historical, interactional, and visual texts that describe routine and problematic moments. And for the type of this research is descriptive research. According to (Arikunto, 2013) descriptive research is a study intended for investigate the circumstances, conditions or other matters which the results are described in form of research report.

Population, Sample and Sampling Technique

The target population of this research is all employee who work at PT. Celebes Mina Pratama Bitung. The study sample is part of the population taken as a source of data and can represent the entire population. And for the sample of this research is employee and supervisor who work at process production division and there are 2 area which are: wet area and dry area in PT. Celebes Mina Pratama Bitung, North Sulawesi. Sampling technique that will be using for this research is non-probability purposive sampling. According to (Sugiyono, 2012) purposive sampling is a technique to collect sample of data source with some considerations like people who are considered understand the matter, can be trusted or people who has authority that will make it easier for the researcher to explore the certain object or social situation.

Data Collection Method

The data used in this research consist of two types of data, which is primary and secondary data. Primary data are gained from in-depth interview and make observation at company and secondary data are taken from several books, journals, and previous research.

Operational Definition of Research Variables

There are two main variables which is Value Added Activities (Processing Time) and Non-Value Added Activities (Waiting Time, Moving Time, Inspection Time)

Instrument Testing

The instrument testing are the tools that the researchers prepare for measurement while conducting the research. The key instrument of this research is the researcher itself. The researcher was under supervision and has good understanding about the aspects of this research. The researcher was equipped with a note book, recorder, and camera in order to conduct interviews with the respondents and observation about the process.

Data Analysis Method

The data analysis method in this research is a guide in the process of analyzing data to find the final result of the research. According to Hair (2007) there are generally steps in qualitative data analysis: Data Collection, data reduction, data display, drawing and verifying conclusion. And in this research using manufacturing cycle effectiveness as an analysis tools as a part of activity-based management concept.

RESULT AND DISCUSSION

Result

This study aims to find out the Value and Non-Value Added Activities at PT. Celebes Mina Pratama Bitung. The information is conducted from the informants who are manager, supervisor and employees in PT.Celebes Mina Pratama Bitung.

Categorizing

Based on the information of the informants, there are 9 important stages of the production process in making wood fish that shown in Table 1. All activity and the time of the production process is shown in table 2.

Table 1. Main Stages of Process Production

Process Production	Stages
Raw material preparation	1st
Cutting	2nd
Boiling	3rd
Bone extraction	4th
Drying	5th
Fumigation	6th
Grading	7th
Metal detecting	8th
Packaging	9th

Source: Primary Data, 2018

In table 2 will be shows all activities and the time in minutes for each process in the company to produce wood fish. There are 2 types of wood fish which are the large-size namely Katsuo Arahonbushi (KH) and medium-size namely Katsuo Arakamebushi (KK).

Table 2. Stages of Process Production

No	Activities	VA		NVA KH/KK	Time (Min)	
		KH	KK		KH	KK
1	Prepare raw material (P)	30	30		30	30
2	Moving to cutting (M)			5	5	5
3	Cutting process (P)	30	15		30	15
4	Moving to boiling (M)			3	3	3
5	Boiling process (P)	110	65		110	65
6	Cooling after boiling (W)			20	20	20
7	Moving to bone extraction (M)			2	2	2
8	Bone extraction process (P)	45	30		45	30
9	Moving to drying process (M)			5	5	5
10	Prepare the room to drying process (W)			30	30	30
11	Drying process (P)	720	720		720	720
12	Demolition the fish after drying process (W)			30	30	30
13	Moving to fumigation process (M)			5	5	5
14	Preparing and fill the fish to fumigation room (W)			30	30	30
15	Fumigation (P)	5040	5040		5040	5040
16	Demolition the fish after fumigation process (W)			30	30	30
17	Grading (P)	60	40		60	40
18	Metal detecting (P)	30	30		30	30
19	Packaging (P)	15	15		15	15
20	Take the package in warehouse (M)			10	10	10
Total		6080	5985	170	6250	6155

Source: Primary Data, 2018

Discussion

Value Added Activities

Based on the result from interview with the informants, researcher find if there are 20 stages of process production at PT. Mina Pratama Bitung that shown in table 2. In 20 (table 2) stages of process production, there are 9 important or the main stages of this process production in number: 1,3,5,8,11,15,17,18, and 19. These processes are called processing time (P) as a value-added activities. These process so important if all of these processes do not exist, there will be no products that can be produced and distributed to customers. The time data obtained from the supervisor and employee who work in every section at wet area, dry area, and packaging area.

Non-Value Added Activities

Based on the result besides processing time that include in value activity, there are processes that include in non-value activity which is called as a process of waiting, moving, and inspection. For the situation in here the waiting time occurs because there must be a change between the previous and after processes, the waiting time (W) shows in number: 6,10,12,14,and 16 (table 2).

The moving time (M) in here situation shows in number: 2,4,7,9,13, and 20 (table 2). In process moving time at PT. Mina Pratama Bitung there are many of activity to moving the product from one place to another place because every process have their respective area.

For the inspection in here they use the time well to oversee every process and devide the task for every people who responsibility at this part. For the inspection time did not show in table, based on the informants 12 and 13 quality control section carrying out the inspections spent 30 minutes in one times inspection and in a day inspections were carried out 4 times in every hour 9am,11am ,1pm and 3pm. So, for a day their spend 2 hour (120 minutes) to do an inspection.

Manufacturing Cycle Effectiveness

Manufacturing cycle effectiveness is an analysis tool production activities, for example how much time is consumed by an activity ranging from handling of raw materials, products in the process of up to finished product. Manufacturing cycle effectiveness method using to seperate the value and non-value added by formula. But, before to make more easy to calculate we have to find out the cycle time first.

According to Mulyadi (2003) cycle time consists of value added activity and non value added activities. Value added activity that is processing time (P) and non value added activities consisting from schedule times, inspection time (I), moving time (M), waiting time (W), and time storage. For this research, researcher just using 3 parts of non-value added activities which are moving time (M), waiting time (W) and inspection time (I). Because, there is no data for schedule time and storage time.

Table 3. Cycle Time

Description	VA		NVA KH/KK	Cycle Time (Min)	
	KH	KK		KH	KK
<i>Processing time (P)</i>	6080	5985		6080	5985
<i>Moving time (M)</i>			30	30	30
<i>Waiting time (W)</i>			140	140	140
<i>Inspection time (I)</i>			120	120	120
TOTAL	6080	5985	290	6370	6275

Source: Primary Data, 2018

In table 3 shows about the specific cycle time that have 4 parts which are: Processing time, Waiting time, Inspection time and Moving time. For the data of processing time (P) is the total that calculation from process that include in value added activity that shown in table 2 number: 1,3,5,8,11,15,17,18, and 19. For the data that include in non-value added activity first, is moving time (M) is the total after calculation the moving process that shown in table 2 number: 2,4,7,9,13, and 20. Second, waiting time (W) is the total for every process of waiting in number: 6,10,12,14,and 16 (see table 2). For the inspection time did not show in table, based on the informants 12 and 13 quality control section carrying out the inspections spent 30 minutes in one times inspection and in a day inspections were carried out 4 times in every hour 9am,11am ,1pm and 3pm. So, for a day their spend 2 hour (120 minutes) to do an inspection.

According to Saftiana, Ermadiana and Andriyanto (2007) manufacturing cycle effectiveness itself have formula, to find the result if the process production activities at the company is effective, by using formula:

$$\text{Manufacturing Cycle Effectiveness} = \frac{\text{Processing time}}{\text{Cycle time}} \times 100\%$$

Researcher will be calculate the process production of Katsuo Arahonbushi (KH) for the first and the second is Katsuo Arakamebushi (KK) based on the formula in above. Before, we calculate manufacturing cycle

effectiveness we have to find out the cycle time, and according to Saftiana, Ermadiana and Andriyanto (2007) the formula is:

Cycle time = processing time + moving time + waiting time + inspection time

a. *Cycle time (Katsuo Arahonbushi) = 6080 + 30 + 140 + 120 = 6370*

b. *Cycle time (Katsuo Arakamebushi) = 5985 + 30 + 140 + 120 = 6275*

After we found out the cycle time, we calculate with manufacturing cycle effectiveness formula to find the result.

Katsuo Arahonbushi (KH)

Manufacturing Cycle Effectiveness = $\frac{6080}{6370} \times 100\% = 95,45\%$

Katsuo Arakamebushi (KK)

Manufacturing Cycle Effectiveness = $\frac{5985}{6275} \times 100\% = 95,37\%$

The results show if the production process at PT. Mina Pratama Bitung is quite satisfying because it is close to 100%, even it is still not good enough. According to Mulyadi (2003) a product manufacturing process produces cycle effectiveness of 100%, then activities that are not value enhancers can be eliminated in the product processing, so that product customers are not burdened with costs for activities that are not value added, and if the result is 100% the company have a good effective process production, but if the result below 100% there are still have non-value activities. The process production will be ideal if the result close to 100% Saftiana, Ermadiana and Andriyanto (2007). Based on the research, the process production in PT. Mina Pratama Bitung still not ideal because the result is not 100% . The company need to slightly reduce or decrease the activity or the other things.

For the situation in this study the waiting time occurs because there must be a change between the previous and after processes but the company has many things to do so, there is no much wasting time. In process moving time at PT. Mina Pratama Bitung there are have pretty much activity to moving the product from one place to another place because every process have their respective area. But, that is more easier because they using trolley to save the time. For the inspection in here they use the time well to oversee every process and devide the task for every people who responsibility at this part. But, but it would be better if the inspection was carried out at a certain time.

According to informant, he said if the grading process the most stage that consuming more time because the employee need to carefully separate thewood fish based on the size and type of fish it becomes difficult because, when transferring to grading sites, wood fish not separated according to their type. So, they have to seperate again the type of wood fish. And about bring the product to warehouse it takes more time because it is far away from the package area. Not all non-value added activities must be eliminated but there are non-value added activities that only need to reduced and not eliminate.

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the result and discussion from the previous chapter can be seen if the activity based management (ABM) concept is well used to find out if in the production process there are still non-value added activities and this study aims to provide empirical evidence regarding manufacturing cycle effectiveness (MCE) that can be applied in companies, in order to reduce and eliminate non value added activities. The steps that can be taken by management are the selection of activities, reduce time, division of activities and elimination the activities that can be carried out on non-value added activities for the company. So, the company management can improve activities by choosing effective and relevant steps for continuous improvement of the company.

The results of the calculation manufacturing cycle effectiveness (MCE) method to the company show if the production process in the company is good enough because it almost reaches 100% which is 95,45% for Katsuo Arahonbushi (KH) and 95,37% for Katsuo Arakamebushi (KK), so that means the company just need a little evaluation of each activity and process that exists because, not all non-value added activities must be eliminated but there are non-value added activities that only need to reduced and not eliminate. And, if the process production will be ideal if the result close to 100% Saftiana, Ermadiana and Andriyanto (2007).

Recomendation

Based on the result researcher give a recommendation for the company, universitt and for the furtherer researcher which are:

1. For the employee at fumigation area preferably when the process of demolition the fish wood from the fumigation section just carried out according to the type of fish. So, when moving to the grading section it will be easier and more save time for employee to separate the fish wood according to size only and not by type.
2. Looking at the area of the factory, the storage area should be moved closer to the packaging area. So, it does not waste so much time.
3. Hope this reserach can be a reference for other companies to improve the effectiveness of production process
4. For the university, hopefully can give the students, lecturers and other parties in university knowledge and additional information about activity-based management (ABM) conceptand manufacturing cycle effectiveness (MCE) method.
5. For the future researcher that would like to make a similar research with this research, the researcher recommend to do in other company and implementation more detail.

REFERENCES

- Arikunto, S. 2013. *Prosedur Penelitian: Suatu Pendekatan Praktik*. Rineka Cipta, Jakarta.
- Denzin, N. K., and Lincoln, Y. S. 2008. *Strategies of Qualitative Inquiry (Vol. 2)*. Sage, United States of America.
- Eswaramurthi, K., and Mohanram, P.V. 2013. Value and Non-value Activities Analysis of an Inspection Process – a case study. *Department of Mechanical Engineering, PSG College of Technology*, Vol. 2, No. 2.
From: <https://www.ijert.org/phocadownload/V2I2/IJERTV2IS2522.pdf> . Accessed on March 30th 2018
- Griffin, R. W. 2002. *An Introduction to Management*. 7th edition, Houghton Mifflin Company, Boston.
- Gunasekaran, A., McNeil, R., and Singh, D. 2000. Activity-Based Management in a Small Company: a Case Study, *Department of Management, University of Massachusetts*. Vol. 11, No.4
From: https://www.researchgate.net/publication/255594942_Activity-based_management_in_a_small_company_A_case_study. Accessed on April 1st 2018
- Hair, J. F. 2007. *Research Methods for Business*. Hoboken, N.J.: John Wiley & Sons Ltd. Chichester, West Sussex, England.
- Hansen, D.R., and Mowen, M.M. 1999. *Manajemen Accounting*. 5th Edition. South – Western Publishing Company, USA.
- Hossain, M. M., and Hoque M.M. 2016. Lead Time Reduction and Process Cycle Improvement of an Ice-cream Manufacturing Factory in Bangladesh by Using Value Stream Map and Kanban Board: A Case Study. *Australian Journal of Basic and Applied Sciences*, Vol. 10, No. 15,
From: https://www.researchgate.net/publication/310126167_Lead_Time_Reduction_and_Process_Cycle_Improvement_of_an_Icecream_Manufacturing_Factory_in_Bangladesh_by_Using_Value_Stream_Map_and_Kanban_Board_A_Case_Study. Accessed on March 15th 2018
- Mulyadi. 2003. *Activity-Based Cost System*. Edisi 6. UPP AMP YKPN, Yogyakarta.
- Nurlaili. 2016 . Dampak Kebijakan Moratorium Terhadap Sektor Usaha Perikanan Tangkap di Kota Bitung. *Jurnal Kebijakan Sosek*, Vol. 6, No. 2. Jakarta Utara, Indonesia.

From: <http://ejournal-balitbang.kkp.go.id/index.php/jkse/article/download/3327/4494>. Accessed on March 1st 2018

Rahmawati, E. 2008. Upaya Menghilangkan Aktivitas-Aktivitas Tidak Bernilai Tambah Dalam Proses Pabrikasi Di Divisi Kapal Perang PT.PAL Indonesia Surabaya. *E-Jurnal Akuntansi Universitas Airlangga*. Vol.10, No.2.

From: <http://journal.feb.unmul.ac.id/index.php/JURNALMANAJEMEN/article/view/2302>. Accessed on April 1st 2018

Saftiana, Y., Ermadiana., and Andriyanto R.W. 2007. Analisis Manufacturing Cycle Effectiveness Dalam Meningkatkan Cost Effective Pada Pabrik Pengolahan Kelapa Sawit. *Jurnal Akuntansi dan Keuangan*, Vol. 12, No. 1,

<http://journal.feb.unmul.ac.id/index.php/JURNALMANAJEMEN/article/view/1194>. Accessed on March 17th 2018

Stoner, J.A.F., Freeman, A.E. and Gilbert, D.R. 1995. *Management*. 6th edition. Prentice Hall Inc, Ontario.

Sugiyono. 2012. *Metode Penelitian Bisnis*. Cetakan Ke 16, Penerbit Alfabeta Bandung.

Terry, G.R. 1977. *Principles of Management*. 7th edition. Irwin Publishing Company, Illinois.

Verdiyanti, T.R., and El-Magviroh, R. 2013. The Analysis of Manufacturing Cycle Effectiveness (MCE) in Reducing Non Added-Value Activities (Empirical study at PT. Bhirawa Steel Surabaya), *Journal Perbanas*, Vol. 3, No. 2

From: <https://journal.perbanas.ac.id/index.php/tiar/article/view/tiar.13.030205/147>. Accessed on March 15th 2018.

