

ANALISIS KUALITAS PRODUK PACKAGING PLASTIK DENGAN PENDEKATAN METODE POKA YOKE (STUDI KASUS: B69.PRINT)

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***Abstract**---B69.PRINT is a small micro-enterprises (MSMES) that manufactures various types of packaging, the company realized to compete in business competition then business actors must improve the quality of their products and services to maintain the trust of the consumers. The company currently has problems in its product results, which is still a product that does not meet the quality standards, so that it can affect consumer interest and the marketing process so disturbed. This research is done to reduce the errors that underlie waste and can provide solutions to effective and efficient problems.*

The problem now faced by the company is the quality of the product, it is seen from several products defect to exceed the determination of the tolerance limit of 1.5%. Quality is the main factor that needs to be noticed in B69. Print, therefore, required a tool or method to suppress the number of defects of the product to Zero Defect. The tools or research methods that are done in case studies are using Pareto Diagram, Fishbone Diagram, and Poka Yoke method to define the mistakes caused by Human Error and can provide proposals for improvement.

*Based on research that has been conducted known defect priorities using Pareto Diagram is located on the type of Screen Printing Defect (A) with an average percentage throughout the year 2019 of 1.91% which occurs due to overproduction over the capacity of B69 production capability. Print each month reaches 13,104 Pcs. Fishbone Diagram shows the magnitude of demand often lowers the focus of workers due to rush chasing deadline without regard to product quality. The results of Poka Yoke analysis also shows there is still "step process not done" with the highest score of 8 points, then the author team proposed three types of improvements started from the **Warning** function as a tool to ensure, **Control** tools to show the order of work, and **Shut Down** to show the time of the worker process.*

***Keywords**---Quality, Zero Defect, Pareto Diagram, Fishbone Diagram, Poka Yoke.*

I. INTRODUCTION

A. Background

Every business perpetrator in running the businesses certainly hopes to provide maximum results and their best servers. The main key to the success of a company is facing competition in the ASEAN Economic Community era (MEA) is by

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conducting continuous improvement innovations that focus on quality, both product quality and quality in the production process. If the company can produce a product that has high quality and competitive price, then the company will tend to dominate the market and can compete in the increasingly stringent business competition (Murdifin and Mahfud, 2014).

Micro Small and Medium Enterprises (MSMES) in Indonesia are economic actors with the limited capital that can withstand the economic crisis that many large companies are collapse, this is seen in the event of an economic crisis in the year 1998, but the problem faced by MSMES nowadays that is not able to market its products with the wide but in Indonesia, itself is a very potential market. Core Competencies is a unique set of capabilities developed in operational areas such as quality, service, innovation, team building, flexibility, and fast responsiveness that allows exceeding competitors (Zimmerer and Scarborough, 2002:41). Quality improvement is an activity of adding value to a product or service, then compared to the size of the result as well as taking appropriate improvement measures there is a difference between the actual and standard (Gaspersz, 2001), based on the statement one of the research focus of this time is the quality analysis of plastic screen printing products in MSMES business unit B69. PRINT is addressed in Cimencyan District, Bandung.

A country desperately needs the existence of SMES in its economic activities, B69. PRINT is a business unit that is engaged in the printing of packaging, the problem faced by this company is the percentage of waste exceeds the standard that is defined as 1.5% occurred due to employee error (Human Error), based on the research conducted there are two types of defects (Defect) that are defects of the first screen printing due to the inconsistency of the screen printing paint and a The cause of a product is said to be defective in case of product defects, design defects, and the inconsistency of instruction or Miss Communication (Jiwa, 2009). Companies today realize that they have a fairly high percentage of defects, so it takes a tool to reduce product defects to a minimum known as Poka Yoke method, according to (Burlikowska and Szewieczek, 2009) using Poka Yoke can anticipate any errors that may occur (Zero Waste) and improve the accuracy of employees in the work.

Table 1. Production Data and Defective Product Data B69.PRINT January until December 2019

Month	Production (pcs)	Defect A (Pcs)	Percentage A (%)	Defect B (Pcs)	Percentage B (%)	Good Product	Percentage (%)	information:
January	21000	436	2,08%	325	1,55%	20239	96,38%	
February	8500	105	1,24%	88	1,04%	8307	97,73%	
March	12000	321	2,68%	201	1,68%	11478	95,65%	
April	13000	345	2,65%	213	1,64%	12442	95,71%	
May	13500	250	1,85%	216	1,60%	13034	96,55%	
June	12000	225	1,88%	154	1,28%	11621	96,84%	
July	12000	231	1,93%	179	1,49%	11590	96,58%	
August	7900	98	1,24%	73	0,92%	7729	97,84%	
September	16900	308	1,82%	299	1,77%	16293	96,41%	
October	17000	357	2,10%	250	1,47%	16393	96,43%	
November	15450	315	2,04%	225	1,46%	14910	96,50%	
December	8000	112	1,40%	107	1,34%	7781	97,26%	
Result	157250	3103	1,91%	2330	1,44%	151817	97%	

Source: B69.PRINT

Based on table 1 above obtained from the company, showing production data and product defects for one year in the period of January to December in 2019. Note that B69. PRINT has two types of defect namely Broken Screen Printing (A) and Broken Plastic Bag (B) and there is a standard percentage limit of 1.5%. Business actors now have a target to minimize defects in product produced by B69.PRINT to zero defects.

It can be seen the production period for one year on average the number of translucent requests up to 13,104 Pcs, but because of MSME coverage is a small scale, B69. PRINT is still using the manual production system and limited resources. There are defect types that exceed the limits of the company's determination that can interfere in this increasingly restrictive era of competition, so it is required an effort that can reduce the risk of loss of consumer confidence. SMES in

Bandung certainly not the only one that can fulfill the demand for packaging needs, potential B69. Current PRINTING has grown rapidly which is expected by the presence of this research can improve the quality of the products in the results.

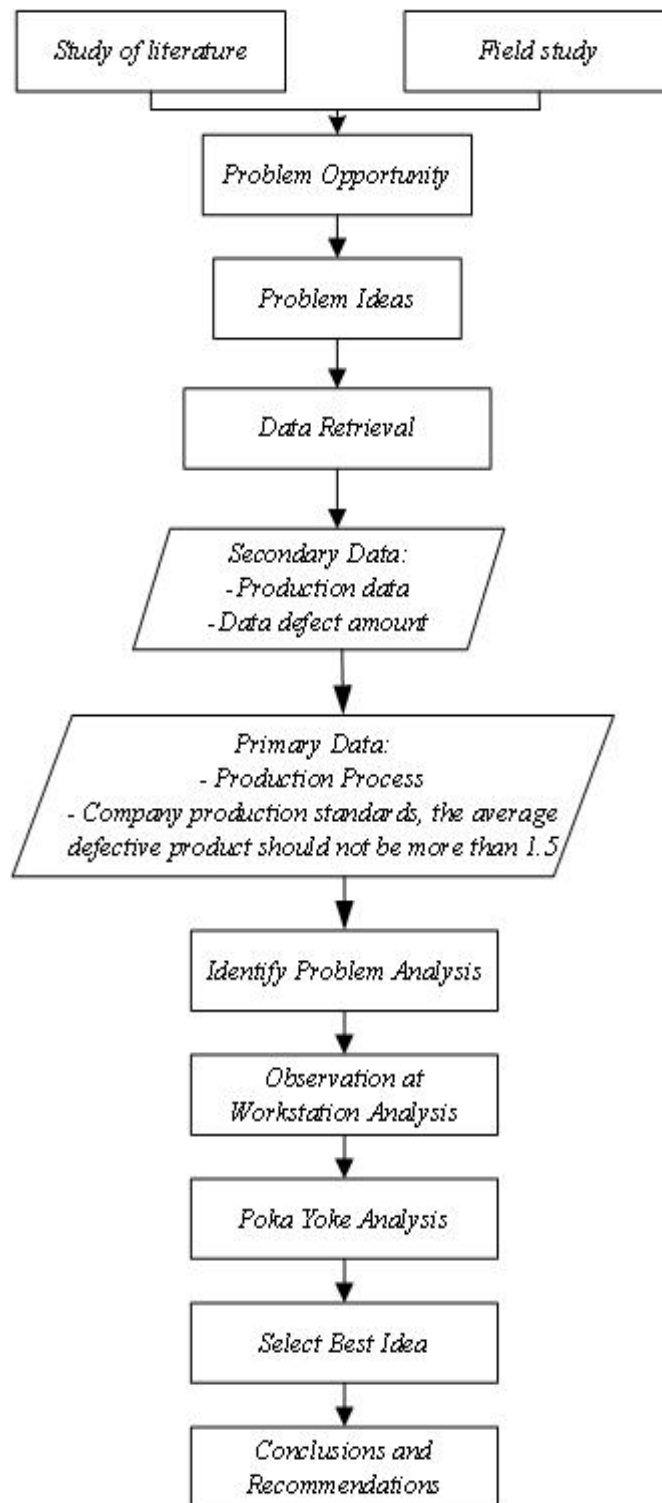
The Poka Yoke method is one of the methods expected to reduce or even cross a defective product to Zero Defect (daughter, D. R. & Handayani, W., 2019), with this method the company can know how to make repairs during the production process that aims to reduce the Defect by observing aspects of the error in the production process such as preventing, correcting and reducing human error (Human Error). This implementation effort is done so that problems faced by the company, related to limited resources can be hit as small as possible. According to the research, the company can avoid Pemborosan and can apply the proposed improvement that will be expected to be able to make an effective and efficient production process by reducing the risk of possibilities that can occur.

B. Research objectives

The purpose of the research is to identify the cause of defect products produced in the production process and provide proposals for improvements to the defect produced using the Poka Yoke method.

II. RESEARCH METHODOLOGY

The research methodology is a framework of thinking or draft research that will be done in the quality analysis of product quality produced by B69.PRINT with the Poka Yoke method approach at B69. Print. The research method provides an overview of the research plan that includes the procedures and steps that have been taken, research time, data source, further processed, and analyzed. Here is the research structure to be done that can be seen in Picture 1.



Picture 1. Issue Research Flowchart

The research methodology consists of the literature study, which is the first step in determining the case study by conducting field studies to look for an issue (problem Opportunity). Problem Ideas, is a step to know the source of the problem and what problems occur. Data Retrieval, is done by retrieving primary data and secondary data, data taken in the form of production Data and the number of defective product Data, as well as production processes and company production standards. Identify Problem Analysis, after obtaining data then the data is processed into tables and diagrams.

Observation of Workstation Analysis, at the stage is a step to know the cause of the problem that occurs using fish bone diagram (Fishbone Diagram). Poka Yoke Analysis, at this stage based on the observation done on the production process is running, it can be defined the problem factor that occurs. Select Best Idea, this step is the selection of solutions from some of the accumulated repair solutions. Conclusions and Recommendation is the last step, to provide conclusions from the research that has been made and advise the company.

III. LITERARY STUDIES

Literary studies are a way of collecting data or resources related to a topic raised in a study. Literature studies can be obtained from a variety of sources such as journals, documentation books, the Internet, and libraries. This literature study will then become a reference so that the authors can understand the materials related to the research that can be seen as follow

A. *Micro, small and medium enterprises (MSMES)*

MSMES is a business that is done by the people who can move the economy wheel in Indonesia, which can be felt both from the employment available as well as from the number of businesses (Rudjito, 2005). Data from the deputy of macroeconomics and Finance of the Ministry of Economic Coordinator said that SMES contributed 60.34% GDP in 2018, from that data can be seen that the role of SMES is very helpful in their existence to national economic development. SMES also have a significant increase in the number of workers 97% of all the national workforce (SME business profile LPPI and BI, 2015). SMES proved its existence by never being affected by the economic crisis. The Data of the central Statistic Agency showed, after the economic crisis that occurred in 1997-1998 MSMES in Indonesia did not decrease, and always increased even able to absorb 85 million to 107 million workforces until 2012. In that year there are SMES as much as 56.534.592% or 99.99% and 0.01% or 4.968 Unit is big business.

B. *Production Management*

In the process of production management not only does the production process, but also does other things. According to (Sofian, Assauri, 2004), there are four important functions in production management which are planning that is the organization of a production activity that will be done with a certain basis of time and Periode. In the next step of processing, this process is crucial for utilizing maximal and efficient resources. The next step of supporting means, this step is needed to establish the method to be used for the processing process when production can take place effectively and efficiently. The final stage of control/supervision, this stage is not less important with the previous stage because at this stage guarantees the implementation of the activities with the planning, so we can know whether the process is an appropriate plan or still need improvement. Good production management will be in line with the production of good results too. The result of this production in the form of goods or services that also functioned to provide added value for a product (Zulian, 2013).

C. *Quality*

Quality is the level of good or bad, it is often related to the improvement of a quality product or service aimed at the fulfillment of users (Murdifin and Mahfud, 2014). He quality of this product is based on the assessment of conformity to the standards set by the company (Handoko, 2002), quality products have the main characteristics that are satisfying customers and consumer, then the more appropriate standards set by the company the product results are made more qualified so that will ultimately affect the customer satisfaction. According to (Tjiptono, 2008), there are eight dimensions of the quality of a product that is performance, durability, conformance to specification, features, reliability, aesthetics,

perceived quality, serviceability. However, nowadays there are still many products sold in the market that still do not meet the good quality standards so that there are still many consumers who have not received maximum satisfaction. Many producers simply sell a large amount, but still pay less attention to the quality of the product, sometimes producers think of a lot of profit without having to spend a large production cost.

D. Lean Manufacturing

Lean manufacturing deals with the disposal of seven large waste that serves to reduce the impact of supply variability, processing time, or acceptance. One of the big waste is the defect (defect). (Gaspersz, 2007), expressed that Lean manufacturing is an ongoing effort in eliminating waste and enhancing the value-added products in the form of goods or services to provide value to the customer, the original concept of Lean is known as the Toyota Production System (TPS), a concept that Toyota used in producing and provide value for its customers. All types of waste often occur in every production process, but sometimes it is often not realized because it has been considered as a natural thing, when in fact is very detrimental to the company, especially impact on the increase of operating costs (cost) that should be avoided. Because the implementation of lean will be able to help the company to cut unnecessary costs while increasing revenue.

E. Cause and Effect Diagram (Fishbone Diagram)

The Cause and Effect Diagram is one (Tools) that can be used to demonstrate the relationship between causation and consequences to find the cause of a problem. Fishbone diagrams can be used to view the causal factors and the consequences of quality by these factors. (Fishbone Diagram) a fishbone diagram is one of the tools that identify the process elements (causes) that may affect the results and provide solutions for solving a problem (Heizer and Render, 2015).

F. Pareto Diagram

Pareto diagram is a diagram that is often used for control of quality, in this diagram will show problems based on the order of the number of occurrences, the result can be seen in the diagram from the far right to the left (Nasution, 2010). Pareto Diagram is a bar graph that serves to indicate problems based on the order of the number of occurrences. This sequence starts from a common problem up to the least extent of the occurrence and this graph shows the highest (leftmost) chart rod to the lowest (far right) chart. Steps to create a Pareto chart:

1. Identify the problems to be researched. and causes of occurrence.
2. Use a good time to analyze, for example daily, weekly, or monthly.
3. Create developmental records during events on the check sheet.
4. Create a list of problems by using sequences as per occurrence.
5. Perform cumulative frequency calculations and their percentage.
6. Make those frequencies using bar graphs.
7. Make the cumulative percentage of the Kumulatifmya in the line graph form.
8. Explain in detail the Pareto Chart.
9. Decision-making based on the priority aspect of events.

G. Poka Yoke

Poka Yoke has the meaning of mistake prevention or carelessness that often occurs in humans in work or often called human error, so often the employees are blamed by his superiors of the mistake. It will impact the psychic workers to bring down the spirit of the worker and will eventually affect the outcome of work (Dave, 2015). Shigeo Shingo introduces 3 types of Poka Yoke (Aishwarya, 2015):

1. Contact method, analyze the presence of tools and product contacts
2. A fixed-value method, ensuring that it has already made a preset gesture.

3. Phase-motion method, ensuring that the working step is appropriate or not.

Operator negligence often occurs in the production process, many of the factors that cause negligence on each operator are fatigue, hesitant, or bored/saturated factors. The Poka Yoke method is very important because it provides solutions to prevent operator negligence in working that does not require special attention even when the operator is not in focus with what is being done. The following steps are the preparation of Poka Yoke (Practice, 2015):

1. Expose the damage to be resolved in the form of a ratio or percentage.
2. Find and determine which process a malfunction occurs
3. Explain in detail the working step of the process for analysis.
4. Pay attention to the jellies in the process.
5. Using Method 5 Why (5 why) to get the cause factor.
6. Identify the tool to be used to resolve the problem.
7. Evaluate the implementation of the Poka Yoke method.

IV. RESULTS AND DISCUSSION

Along with the rapid development of micro Small Enterprises (SMES) in Bandung, of course, B69. PRINT is not the only business person who provides Packaging needs. The stricter competitiveness becomes a concern for business actors to produce a high-quality value of products and prices can compete. The quality of products makes it an attraction for consumers, so it has become a necessity for every business person to provide its best service.

A. Produk B69.PRINT

Based on the observation that has been done B69. PRINT is an entrepreneur engaged in the screen printing Packaging, as for the products are produced Plastic Bag, Paper Bag, Tote Bag, and various other types of Packaging. Each type of product produced has its level of risk, but broadly defect the variable is found in the results of screen printing that is not suitable or damaged and damage to the packaging itself. This research sample is done on Plastic Bag which in table 1 shows the production data as well as the data defect (screen printing defects and Product defects B) for a year from January to December 2019.

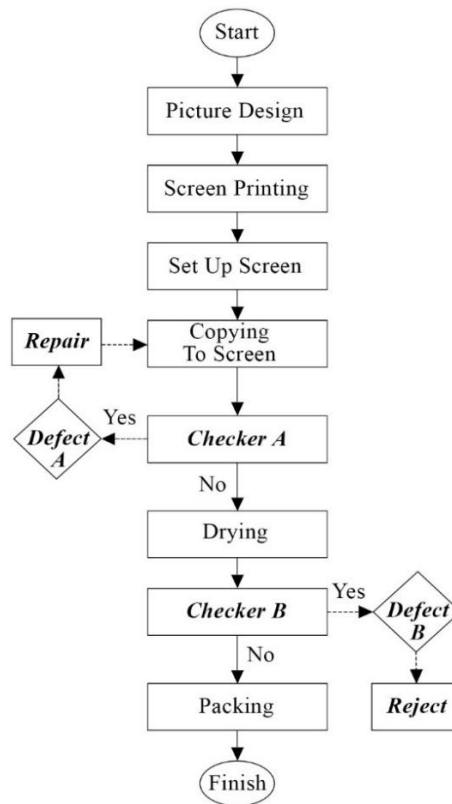


Gambar 2. Plastic Bag Products B69. PRINT

Quality consists of a variety of definitions, among others, quality is a product that can answer the needs of consumers, quality is free from defects (Zero Defect), and quality is also suitability with the purpose of users (Mudifin and Mahfud, 2014). The company currently has a percentage of Defect that fluctuating, it is known that some amount of Defect Mesih exceeds the limit of the disability tolerance that has been set B69. PRINT of 1.5%. Referring to it, it takes a system or a tool to help the company suppress the amount of Defect to a minimum to Zero Defect.

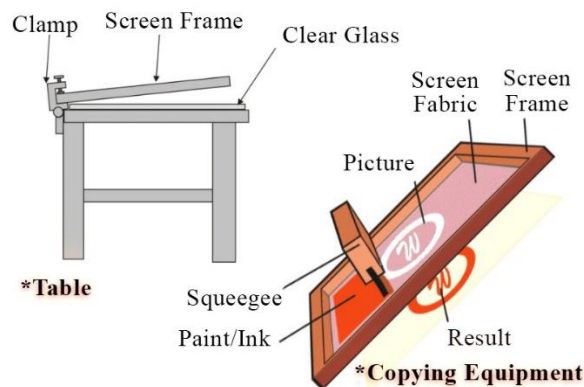
B. Production Procces

The production process is an activity involving manpower, material, and equipment to produce a useful product (Assauri, 2016). At the stage of production Screen Printing Packaging at B69. PRINT is done by way of manual system, while for the creation steps ranging from the design process, Screen printing, Set Up Screen, and copying to screen Production process flow Screen Printing Packaging will be described through the following Flowchart:



Gambar 3. Flowchart Process Screen Printing Packaging Production

Based on Picture 3 the process of Screen Printing Packaging production starts from the product design process based on consumer demand, then Screen printing is done according to predefined design. This process is performed by employees of B69. PRINT that has special expertise in the field of Screen Printing Packaging. The next step to ensure the printing position is done Set Up Screen that aims to adjust the size of the Packaging. After screen printing mold is installed then the operator will do the screen printing to Packaging with several repetitions to produce satisfactory results.



Gambar 4. Manual Screen Printing

The process of processing lasts for 2 hours to 3 hours per-Pack, then the result is dried or drying so that the printing results can be firmly attached to the Packaging. Customer satisfaction is the goal to reach B69. PRINT, therefore as the final process will be done quality checks, such as quality checking, image quality, Space, and other production standards (SOP). In the final stage, if there is a defective Packaging (Defect), it will be in the selection based on the type of

Kecacatanya, while the packaging with good quality will be packing to then calculated the amount and taken to the storage warehouse.

D. Problem identification (Identify Problem Analysis)

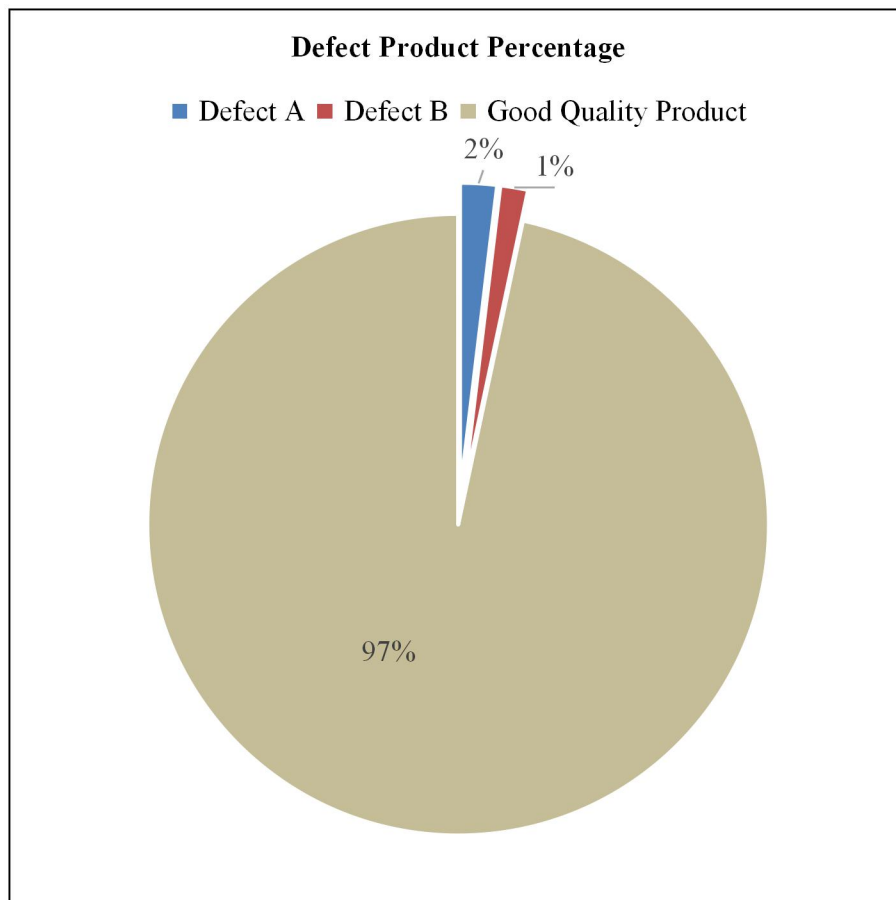
Based on observations that have been done, obtained secondary data in the form of production data and the percentage of the Defect period from January until December 2019. The result of data indicating product has not fulfilled the company's production objectives, which is pressing Defect to a minimum until it reaches Zero Defect. At the stage of identification, the following issues will be analyzed to determine the priority of the problem.

Tabel 2. Defective Product Data

Defect Criteria	Defect Amount	Defect Percentage	Cumulative Percentage (%)
Broken Screen Printing (A)	3103	57,11%	57,11%
Broken Plastic Bag (B)	2330	42,89%	100%
Result	5433	100%	

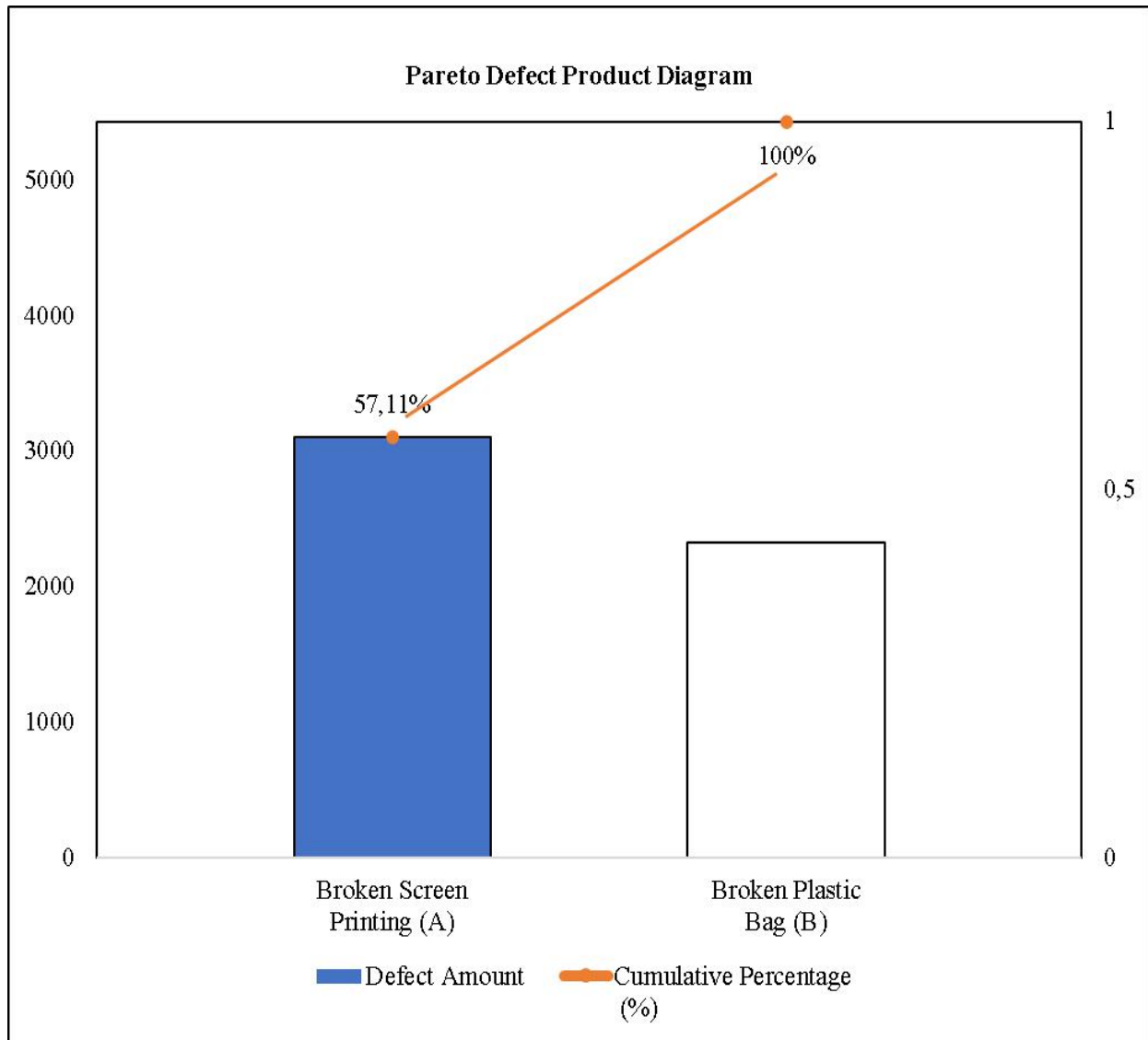
Source: Data Processing

Percentage of the number of Defects for one know in conversion into the month, then the result shows the average percentage of Broken Screen Printing (A) by 1.91% while in the Broken Plastic Bag (B) a percentage of 1.44% and if it is round Defect A 2% and Defect B 1% which can be seen in Figure 5 the following.



Gambar 5. Percentage of Defect

The above data can be processed to create a Pareto chart to determine which priority defects occur. Defect type Broken Screen Printing (A) is known to be the most priority defect or defect so that exceeds the tolerance limit that has been set by the company is 1.5%, while the data Defect A has a percentage above the standard decree of 57.11% with an average amount of Defect reached 1.91% in the year 2019. Here is the preparation of Pareto diagram of defective plastic screen printing B69. PRINT.



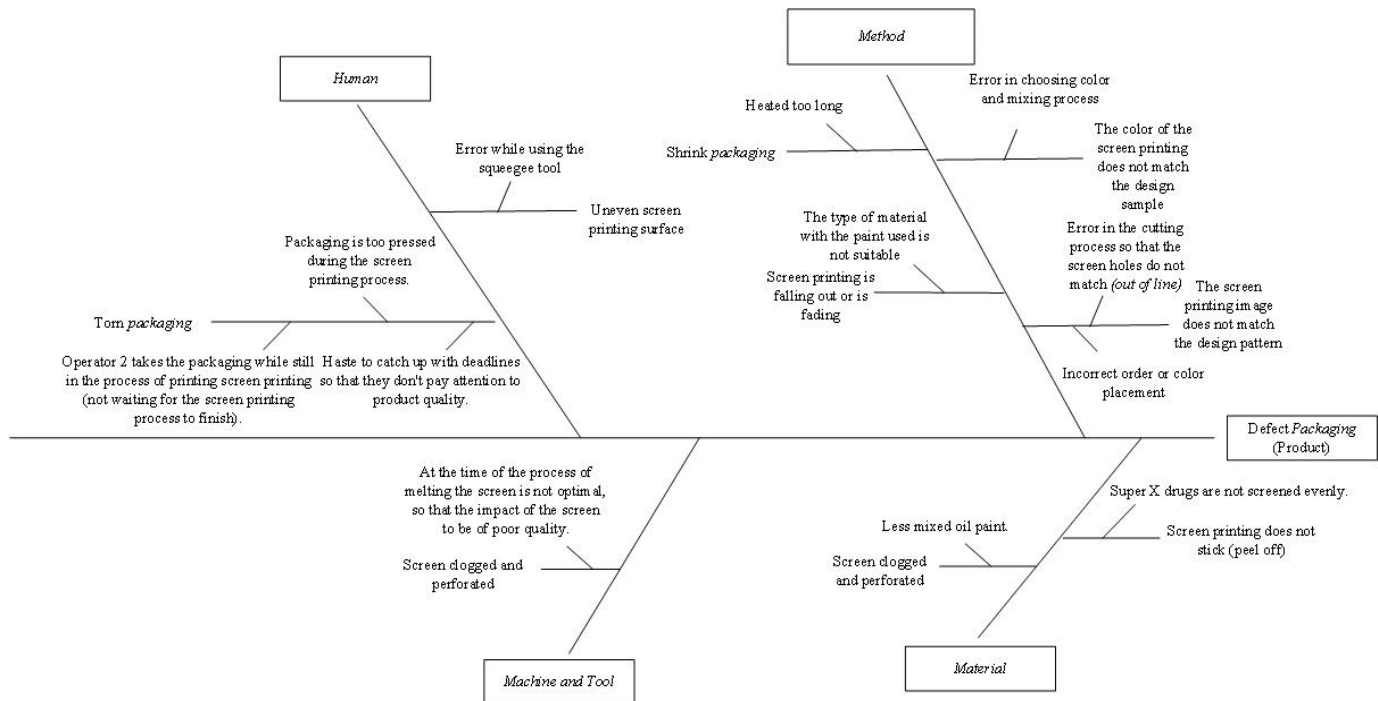
Gambar 6. Pareto Defect Diagram

E. Overall Pareto Diagram Analysis

The Pareto Diagram (Ariani, 2004) is an illustration to sort the data classification from left to right by highest rank to lowest. This application is useful for handling defects based on the order of risk level so it will have a big impact on the company's operations. Figure 6 Pareto Defect Diagram Product shows that the type of dominant defect is in the broken screen, the findings of this type of defects will inhibit time production or marketing process, if the defects occur repeatedly. This is because the production of each month reaches a large amount so that the chances of product defects can not be avoided due to the production system B69. PRINT is still using manual equipment.

F. Due-cause Diagram (Observation at Workstation)

Cause-induced diagram is a systematic technique used to identify causes that potentially affect results, this diagram can separate the causes of symptoms focusing on relevant things, and can be applied to each problem (Haizer and Render, 2015). The next step after the dominant Defect type in Pareto Diagram and the percentage of Screen Printing Defect damage 1.91% is still within the control limit, it will be searched the root cause underlying product defects using a causal diagram or commonly known as fish Bone Diagram (Fishbone Diagram). Here is a diagram of fish bones as well as explanations of causes defects problems product priority in B69. PRINT.



Gambar 7. Fishbone Diagram

Quality can be influenced by several factors such as the production process which is the procedure in producing a product, the quality of inputs are raw materials and labor, equipment or supporting equipment work, as well as quality standards to make the company's reference in producing a product (Zulian, 2013). Based on the diagram can be known cause of product defects that will be explained as follows:

1. Material, as for the material used is paint or printing ink, solvent materials (Oil), printing oil (Super X), and plastic bags. There are several factors Defect that occur such as screen printing does not stick (peeling) as well as stuffy and sloped Screen images, this occurs as a result of paint oil exceeds the time limit of use, not according to a mixture of solvents or oils, and errors in the application of printing oil (Super X). Other factors also include plastic is not worth using or tear, so it needs more attention in the selection of suppliers to establish cooperation so as not to disturb the production process or quality of the product itself.

2. method, procedure, or working step is the determination of a company so that the production process runs structured. There are errors in the disruption of production activity and product quality at B69. PRINT, such as too long the drying process causes the plastic to wrinkle, the process error of Cutting Screen images Consequently screen printing does not fit the design pattern, as well as incorrect order of color placement.

3. Labor, the number of production that many often lowers the focus of workers (Human Error), so it affects the quality of products produced. As for the mistakes that occur like the meticulous sorting of goods or materials, rush chasing deadline work activity so no regular.

4. Machine or tool, Setup Screen is an important factor to produce good printing molding results, therefore in this process often occurs the error of Setup Screen, because it must rely on the thoroughness to do so. The fault of the Mess Screen with the ink used to cause the screen printing image is not irregular.

F. Analysis of causal factors Defect (Poka Yoke Analysis)

At this stage based on the observation done on the production process running, it can be defined as a defect existing factor. Shigeo Shingo introduces three types of Poka Yoke methods that can be applied to this problem, which determines whether there are contacts between the tools and products caused by Human Error, ensuring that several movements based on the production procedure has been done, and ensuring several specific process steps have been conducted (Aishwarya, 2015). The following results of Poka Yoke analysis are shown in table 3.

Tabel 3. Defect cause factor based on error type in Poka Yoke

No.	Defect Criteria	Critical to Quality	Defect Factor (Primary)	Description of Causes of Defect (Secondary)	Contact Tools and Products	There Is A Movement That Is Not Done	There Are Process Steps That Are Not Done	Control / Solution	
1	Broken Screen Printing (A)	Screen printing is falling out or is fading	Metode	The type of material with the ink used is inappropriate	✓			Put a mark (symbol) on each type of ink.	
		Screen Clogged and Perforated	Material	Super X drugs are not screened evenly.	✓	✓		Use a tool (Squeegee) make	
			Mesin/Alat	At the time of the process of melting the screen is not optimal.	✓		✓	The operator must first confirm the screen to be used.	
		The screen printing image does not match the design pattern	Metode	Error in the Cutting process so that the Screen hole is out of line (Out of line)			✓	✓	Using measuring devices.
			Metode	Incorrect order or color placement				✓	Sort design and packaging before the printing process with a sign (symbol)
		Screen printing does not stick (peel off)	Material	Too much oil paint.		✓			Create operational standards for the use of paints and oil paints.
		The color of the screen printing does not match the design sample	Metode	Error in choosing color and mixing process				✓	Create operational standards for the use of paints and oil paints.
Uneven screen printing surface	Manusia	Error sweeping (Squeegee)				✓	Make sure general and experienced operators do the work.		
2	Broken Plastic (B)	Tom packaging	Manusia	Operator 2 takes the packaging while still in the process of printing screen printing (not waiting for the screen printing process to finish)	✓			Give a voice tag or make a voice tag, to make sure the operator is done.	
			Manusia	Accessibility Links Skip to main content Accessibility help Accessibility feedback Gooble	✓		✓	Make sure general and experienced operators do the work.	
			Manusia	Haste to catch up with deadlines so that they don't pay attention to product quality.			✓	✓	Use a manufacturing fee system if the production capacity exceeds working hours.
		Shrinking packaging	Metode	Heated too long				✓	Make a Timer (Alarm) to determine the drying time.
Result					6	3	8		

Source: Data Processing

The Data above is information about the problem that is obtained from the observation and is accompanied by the employee of B69. PRINT. Two main types of defects occur Screen Printing Defect and Defect Plastics, the cause of error

occurs on the labor factor, raw material, machinery or tools, and working methods. Improvements are made to related factors, among them is the fault caused by Human Error (Labor).

The main problem is that there is in the process of the application, often the workers prioritize to pursue the target rather than the quality of the products, the number of orders with the limitation of using manual equipment in need of the precision and skill of competent. In the second problem is defective plastic, this happens when the plastic is made from the supplier the findings of the plastic is categorized not worth wearing or sticking with each other that resulted in the damage to the plastic bag itself, other problems are also caused by the fault of the worker during the process of screen printing occurs errors that eventually decrease the quality of the product.

According to table 3 above, there can be a score stating that there is no process step that is caused by the workforce has the highest score value of 8. Defects or damage to the product almost occur every day, of course, quality becomes the main factor to be aware of B69. PRINT, but the fact of the production process is still using machines or manual tools to support the work, so it needs precision and special skills for the workers.

F. Phase Improve (Select Best Idea)

Select the best idea in the form of a selection of solutions from some of the accumulated repair solutions. The choice of the best solution is to apply all three functions Poka yoke method, which is starting from the warning, control, and shut down functions, here is the stage to minimize the occurrence of a defect in B69. PRINT based on Select best idea:

1. **Warning**, the Operator must ensure the first screen to be used, to make sure the screen is not broken and not perforated.
2. **Control**, sort the design and the packaging before the printing process with a sign (symbol), to adjust the paint to be used. Read the operational standards of paint use and paint oil. Ensure general and experienced operators working to maximize a good working process. If the production capacity exceeds the working hours, use a makloon system to minimize the occurrence of work fatigue.
3. **Shut Down**, mark the sound or make a sound mark, to make sure the operator is finished and make a Timer (Alarm) to determine the screen printing drying time.

V. CONCLUSION AND SUGGESTION

A. Conclusion

Based on the discussion above, it can be found the type of dominant defect occurs in the type of damage-printing defect due to the production system in B69. PRINT is still using limited resources and production systems manually, while the production of each month on average reaches up to 13,104 Pcs. Defect type Broken Screen Printing (A) is known to be a priority defect or most defects so exceeding the tolerance limit that has been set by the company is 1.5%, while Defect A data has a percentage above the standard decree of 57.11% with an average amount of Defect reached 2019 1.91

The number of productions often lowers the focus of the worker (Human Error), thereby impacting the quality of the products produced. As for the mistakes that occur like the meticulous sorting of goods or materials, rush chasing deadline work activity so no regular. Fishbone Diagram shows the magnitude of demand often lowers the focus of workers due to rush chasing deadline without regard to product quality. The defect cause factor based on the type of error in the tool Poka Yoke also shows there is still "step process not done" with the highest score of eight points, then the author team proposed three types of improvements started from the Warning function as a tool to ensure, Control by using a sign or symbol to indicate the order of the work and Shut Down using a Timer (Alarm) to show the timing of the worker process.

B. Suggestion

Suggestions that can be given by the author are as follows:

Each type of the packaging defect should be easily resolved when the operator mastered and understood the operational work standards that have been given by the owner of the company, because the quality of the product depends on the effort (effort) issued by the firm, if the corporation provides a maximum effort (effort) then the product can have guaranteed quality.

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