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EXPLORING THE CAUSES OF THE FINISHED PRODUCTS DAMAGE

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Abstract

The goal of this study is to explore the causes of the finished products damage, and also to propose damage classification. Grounded theory approach, were used to develop a comprehensive framework for establishing a proposition. This research conducted in warehouse facility named company "XYZ". The findings is complicated damage products type and proposed the classifications of finished products damage. This research delivered the systematic classification of finished products damage.

Keyword*: warehouse management, distribution centre, supply chain management, grounded theory.*

Introduction

Distribution centre (DC) activities can be classified into nine types, namely transportation, unloading, checking, staging, put away, storage, picking, recondition, and loading. Through observations made, the authors noticed that there are five potential points of damage, namely at the point of transportation, unloading, staging, put away and picking. The damage that could potentially arise are as follows: Transport: dented cardboard packaging due to vibration and pressure that occurs during the trip, as well as dented or product failure due to accidental drops and squashed other products, generally occur in the delivery of retail, the potential loss of product and destruction by external parties are also quite big. According to data from interviews with one of the distribution centres executive, damage to the transport process caused by an external party has often occur during the delivery of outside Java. Unloading: damaged side of the carton and cardboard into a blunt end. In addition to the potential to cause damage to the new product, retail unloading process also serves to detect product defects that occur in the transport process. But this can only be done in the process of unloading products from third-party retail Company XYZ. Staging: Some forms of product defects can occur in the process of staging, namely hit by forklift products, product snagged products that are nearby so dented or even falling, and the crushed product pallet. This damage appears when the staging area becomes full. Put away: damage that may arise in the process put away equal to the damages that may arise in the process of staging. Picking: The process of picking the double-deep racking area has the potential to cause damage, such as leaking cartons fork punctured by material handling equipment (MHE) and the product falling from a height. In addition, other damage that can happen is depressed corner dented cardboard carton.

2. Problem Formulation

Two main problems formulated, are mentioned below:

1. What are the causes and why damage to the products of Company XYZ?
2. How is the classification of product damage?

3. Research purposes

This research aims to determine and identify the main cause of damage to the product, and propose solutions to reduce the level of damage handling the product. The findings from this study could assist company

XYZ in addressing issues of damaged products and provide insight to academics about the cause of damage to the product in warehouse facilities.

4. The Concept

Material Handling

Material handling is an important process for the DC operating efficiency, in terms of the movement of goods in and out of DC, and the transfer of location of the product while in the DC (Coyle, 2003). One of the basic objectives of material handling is increasing the capacity utilization of warehouse facilities and DC (Coyle, 2003). According to Coyle (2003), there are 20 principles that must be followed when carrying out material handling process.

Previous research

The Analysis of Type of Damage Product Process Material Handling With Basic Seven Quality Control Tools (Katias & Dwihapsari, 2012) aims to find the cause of damage to the product, and then propose solutions to reduce the level of damage to the product at the facility Distribution Centre (DC) of DHL Supply Chain in Surabaya. This research analysis tools using the Basic Seven Quality Control Tools, the flowchart, check sheets, Pareto charts, and diagrams cause-and-effect. The findings of this study are; the biggest cause of damage to the product is mishandling warehouse by 88%, and mishandling reach truck, by 11%. Mishandling warehouse occurs in the DC area and has no known cause. While mishandling reach truck operator error caused the material handling process. Researchers classified the nine kinds, and the results of the frequency of occurrence as follows: (1) carton leak. due to stab a fork reach truck, frequency 53 (2) carton wrecked weight and tear, frequency of 26 (3) carton edge dented light and ends blunt, frequency 14 (4) carton edge dented light, frequency 3 (5) the contents of the carton is reduced and seals open , the frequency of six (6) ribs crushed cardboard torn like a heavy load, frequency 3 (7) ribs torn cardboard. This type of damage is difficult to know the cause for tears, frequency 4 (8) product leak or less, the frequency 2 (9) unknown. The form of damage difficult to describe and sought the cause of the damage, the frequency 0.
Previous research (Katias & Dwihapsari, 2012) can not answer an important question what is the cause of damage to the products mentioned above, so as a refinement, the research method approach, research qualitative grounded research in order to gain a better understanding of the causes of damage to the product in the facility distribution Centre (DC) PT. Unilever Indonesia.

Research Methods

This study uses qualitative research methods, with approach of Grounded Theory (Strauss & Corbin, 2007), because qualitative methods to understand why individuals and groups think and act at the heart of qualitative research (Keegan, 2000: 11) expected able to understand the behaviour of resources human resources activities in distribution centre.

Research Location

This research conducted in warehouse facility owned by Company XYZ, East Java, in 2018.

Data Collection Technique

Interviews with the picker the operator material handling equipment, repack workers, supervisors, warehouse executive, and management, check-sheet writer in this study were collected as primary data, as well as direct observation in the field by researchers. While the secondary data used is data damaged products since the year 2016 as well as the study of literature. Qualitative interviews, or interviews naturalistic and informal, carried out in a reasonable situation, what it is, so we get sufficient insight. While the observation; ordinary observation and participatory limited. Focus Group Discussion method, used to dig-up all the perspectives of respondents on various matters according to research problem.

Interview structure

Based on the formulation of the problem, who want to explore the causes of damage to the product, with a question that requires honesty and openness of the informants, as well as researchers should be able to adjust to the situation of the interview, so that this study uses low-Structure or Completely open-ended interview (Biber & Leavy, 2011) , In order to maintain the consistency of the interview process with the purpose of research, used the theme of the interview as a guide, namely: Scene; Cause Damage Products (a) sub-theme: Systems and Procedures, (b) sub-themes: Equipment / Machinery and (c) sub-themes: Human/Employee.

Sampling Method

Propulsive sampling, according to the respondents' level positions within the organization. Snowball sampling method (Dattalo, P. 2008) is also applied with the hope to generate greater data and solid research findings are expected to dig deeper in accordance with the formulation of the problem.

Data analysis technique

Grounded Theory applied for this research, the theory obtained inductively from the study of the phenomenon. Hence the theory is found, conceived and proved for a while through the collection and analysis of systematic data (Strauss & Corbin, 2007: 11-12).

Research Result and Discussions

Frequency of the phenomenon of defective products which often occur at the warehouse facility Company XYZ not quite adequate with quantitative research methods, especially with the interview procedure using a highly structured questionnaire. Snowball sampling procedure, which started from Mr. AA as a manager at Company XYZ, which manages distribution centre, then the resulting interviews with seven informants.

By using the Low-Structure or Completely open-ended interview (Biber & Leavy, 2011) and refers to the theme of the interview about the causes of damage to the product and sub-themes; Systems and Procedures, Equipment/Machinery and Human/Employee, conducted the interview process that began in 2017 until the month of July 2018, carried out in the warehouse facility.

Interviews Situation

Interview with the participant can be categorized into two conditions; First, the formal conditions with answers and responses of informants formal, rigid and tend defensive. Second, the opposite condition, where the informant to respond and answer what is, in the friendly conditions. The first condition in the format of focus groups in the manager's office.

Key informants

The information from the interview process to be further analysed is the result of an interview with Mr. A and Mr. B, though of another informant in the next analysis as basis for analysis and interpretation. The cause damage to the product of the analysis of the information Mr. A referring to the systems and procedures, such as in excerpts of the interview.

The operators, due to their status as a outsourcing employee, they demotivated, experienced by the predicate outsourcing, mainly perceived by them regarding the certainty of a fixed salary to be received in the future. Another cause is the type of leadership at the level below which unfriendly, thus making uncomfortable work situation.

In the aspect of man or the cause of the employees, more because of personal problems that can not be managed properly, to be brought to the place of work, information from Mr. A may be detailed in the interview.

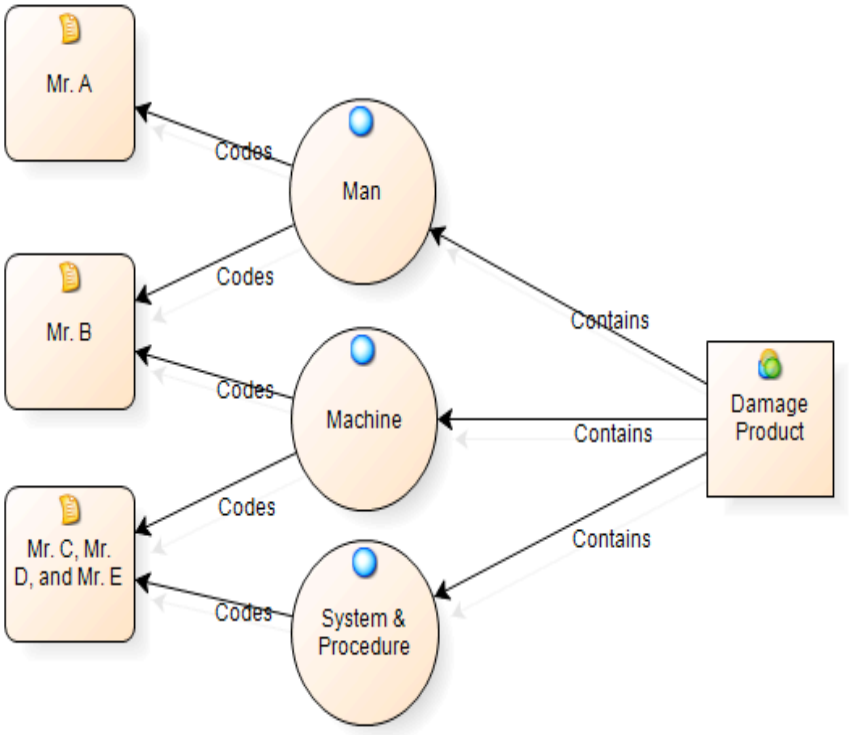
The cause damage to the product of the analysis of information obtained from interviews with Mr. B that refer to aspects of the systems, procedures and human aspects.

There is a critical point that is revealed from the interviews with Mr. B, namely reward system or appreciation, in addition to the style of leadership in the distribution centre. While aspects of the machinery or equipment that can be revealed is the quality of pallets that are not strong enough to withstand the load being transported forklift product.

These three aspects are derived from analysis of two informants interview above to cause damage to the product; the aspects of system and procedures, human aspects and aspects of machinery and equipment. Figure 1 describes the relationship of cause and effect.

Classification of Causes of Product Damage Based on preliminary data described in Table 1, occur occurrence of product defects initiated in 2016 by 85%, then in 2017 by 94%, and increased in mid of 2018, as many as 97% indicated an increase in the need to focus on three aspects cause damage to the product, which means that the next step is to determine the cause of the critical relationship of the three aspects analysed above, to get a deeper interpretation. From the transcript can be classified 5 causes damage to the product by reference to the informants, as in Table 1 where interviews of informants complementary information in the triangulation process that the determination of causes of damage to the product becomes more valid.

Figure 1. 3 Aspects of Damaged Product



Source: NVivo Analysis

No	Cause	Aspect
1	Reward System	System & Procedure
2	Leadership Style	Man/Crew
3	Quality of Pallet	Machine/Equipment
4	Careless Forklift Operator	Man/Crew
5	Careless Picker	Man/Crew

Source: field research

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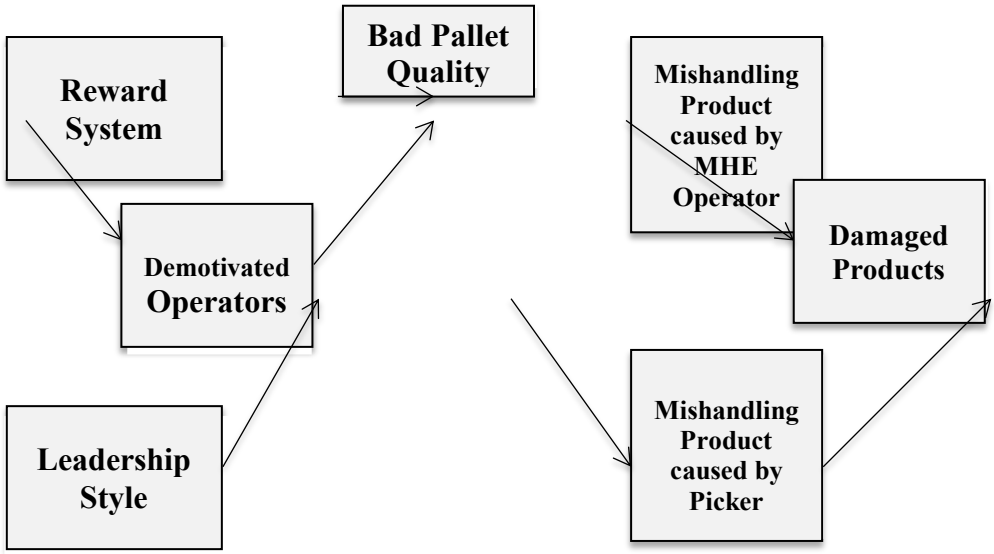
Figure 2.

Relational Pattern Between Cause of Damaged Products



Source: research analysis

The three causes of damage to the product, has relationships with each other that ultimately contributed to the damage condition of the products. From the transcript of the interview, Table 1 and Figure 1 can be developed a cause and effect pattern, where the product is damaged due to mishandling by forklift operator and Mishandling by Picker for wrong handling products, such as the overhang condition, bad quality pallet will cause mishandling by forklift operator, while the demotivated forklift operator and picker caused mishandling activities. Unsatisfied reward systems according to the perception of employees also strong leadership style as perceived by employees as the root cause of the damaged product. Figure 1 above shows the pattern of relationship between cause damage to the product.

Conclusion and Recommendation

Conclusion

This research explored the cause of damage product in Company XYZ, there are three critical aspects as the cause:

1. Aspects of systems and procedures.
2. Aspects of man or crew.
3. Aspects of machinery and equipment.

The five classifications of product defects in Company XYZ:

1. Reward system is not satisfactory as perceived by employees.
2. Leadership style as perceived by employees.
3. Bad Quality of pallet.
4. Careless of Forklift Operator.
5. Careless of Picker.

Recommendation

As a recommendation, the authors propose the correct product handling solutions at Company XYZ is to evaluate and enhance the reward system for employees to improve employee motivation, as well as improve the pallet quality of pallet to reduce the risk of damage products.

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