Information system improvement
(Case Study: Noodle Factory X, Purwokerto, Central Java, Indonesia)

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ABSTRACT
A good information system would increase the company's productivity. One of the most important thing that to be concerned was the procedures. Good and organized procedures would create company standards. Through the research data collection through interview and observation, there were 6 (six) big procedures of Noodle Factory X, Purwokerto, Central Java, Indonesia, which were Material Purchasing Procedure, Material Arrival Procedure, Material Stock Recording Procedure, Finished Good Stock Recording Procedure, Finished Good Shipping Procedure, and Finished Good Selling Procedure. PIECES Analysis were used in this research to analyze the system, including Performance, Information, Economics, Control and Security, Efficiency, and Service. The overall results were material stock counting still used manual system and it could cause human error in doing it, and it was also not real-time count. If the material stock was already real-time count, the material stock recording procedure would not interfere the production process, so it could produce on time. The receipt was still manual, without the company's identity such as logo and name of the company. Information was not real-time produced. Report service for the management was also a bit slow. Some recommendations were given, such as giving the signature/stamp on the receipt as a proof that it was the receipt that was issued by company, try to implement a simple computerized system, improve the Big Book (for writing the stock), separate the book for material stock and finished good stock at office and at the factory.

1. INTRODUCTION
A good information system would increase the company's productivity. One of the most important thing that to be concerned was the procedures. Good and organized procedures would create company standards. An information system is defined as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making, coordination, and control, information system also help managers and employees analyze problems, visualize complex subjects, and create new products [1]. If there is lack of information, a company would have a disability to control its resource that will lose from its competitors [2].

The purpose of management information system is to be easy to use, the response time to be immediate, to intensively use the graphically information display, to provide real-time access to internal and external databases, to provide information about current facts and expected trends for the key factors, the presentation form of information to be consistent with managers' preferences who are using the system [3]. Information system is an application to support organizations operation in operation, computer maintenance, software, and data [4]. The need for time and cost efficiency causes every business actor feels the need to apply information technology in the work environment [5].

There are some methods to evaluate a system. One of them is PIECES Framework that can evaluate Performance, Information, Economic, Control, Efficiency, and Service of a system [6]. The explanation of PIECES Analysis would be as follow:

1. Performance
   Measuring the current system performance by measuring the output and response time if they reach the target or not.

2. Information
   Measuring how the use of current information, by measure the input, output, and how the store the data. Is there any data that difficult to get, repetitive data,
out of time data, lack of information, error format information, and error in processing data.

3. Economics
   Measure is the system can save the cost and give benefit for the users.

4. Control and Security
   Measure how the current control and security. Is the system has a security for the data and information if there is fraud. How is the control of the data and information access of the users?

5. Efficiency
   Measure how efficient the information system through human resource, machine, computer, and data processing perspective. Is it a user-friendly system so the employee could do the data processing right and accurately.

6. Service
   Measure how the system can give the current system, and if the system has given the accurate and consistent result, of there is a difficult system to learn.

Noodle factory X at Purwokerto, Central Java, Indonesia was categorized as a small-medium enterprise.

Although it was an old factory, but the system and procedures had not been documented well. Other findings were the inefficient, ineffective procedures and unrecorded documents, and also the system was not computerized at all. Through knowledge and technology for information technology and computerized system, small medium enterprises could prepare and face the challenge [7]. Through information system, the tasks will be able to be done faster, more reliable, and more accurate [8].

The goals of this research were to identify the weaknesses of the system and give the recommendations of the system. The flow diagram is used to describe the procedures easily and to know the person-in-charge for each activity. The flow diagram uses the symbols below [9]

2. RESEARCH METHOD
   The research method that was used in this research was explained by the flowchart below.

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### Figure 1. Flow Diagram Symbols

| Symbol | Meaning          |
|--------|------------------|
|        | Terminator       |
|        | Connector        |
|        | Document         |
|        | Process          |
|        | Input / Output Data |
|        | Sub-Process      |
|        | Decision         |
|        | On-page Connector |

The materials that were purchased from the suppliers including wheat flour, CMC, and dye. While the finished good was the noodle that was already packed as an uncooked fried noodle in plastic package.
The current location for the factory and the office was at different location, about 30 minutes trip from each location. The office was used for the marketing office.

### Problem Identification
The procedures and actual documents at Noodle Factory X have not been kept well and done efficiently.

### Research Goal
Identifying the weakness of the current procedure
Redesign business process

### Literature Study
System Document Flow Chart PIECES Analysis

### Data Collecting
Collecting actual procedure
Collecting actual document

### Data Process and Analysis
PIECES Analysis
Redesign the business process and documents

### Conclusion

**Figure 2.** Research Methodology

3. **RESULT AND DISCUSSION**
Through the research data collection through interview and observation, there were 6 (six) big procedures which were:

- Material Purchasing Procedure
- Material Arrival Procedure
- Material Stock Recording Procedure
- Finished Good Stock Recording Procedure
- Finished Good Shipping Procedure
- Finished Good Selling Procedure

**Figure 3.** Material Purchasing Procedure Flow Diagram

**Figure 4.** Material Arrival Procedure Flow Diagram
Production Department

Start
Ask for the Material
Do Production

Prepare the Material from the Warehouse
Write Down the Material Stock

Big Book

Write Down the Finished Good

Big Book

Quality Assurance

Sales Department

Finished Good Amount that is ordered

Prepare the Finished Good
Write Down the Finished Good Stock Left

Big Book

Finish

Sales Department

Quality Assurance

Figure 5. Material Stock Recording Procedure Flow Diagram

Figure 6. Finished Good Stock Recording at the Factory Procedure Flow Diagram
**Figure 7.** Finished Good Stock Recording at the Office Procedure Flow Diagram

**Figure 8.** Finished Good Shipping Procedure Flow Diagram

**Figure 9.** Finished Good Selling at Office Procedure Flow Diagram
For the future research, it was highly recommended to start from a simple computerized system, such as Microsoft Excel system to get the information that was needed by the management easily, even for the past data.

4. CONCLUSION

Based on the research, the conclusion were:

- The flow of the activities were good enough for a small medium enterprise company, simple and easy to be practiced.
- Material stock counting still used manual system and it could cause human error in doing it, and it was also not real-time count. If the material stock was already real-time count, the material stock recording procedure would not interfere the production process, so it could produce on time.
- The receipt was still manual, without the company's identity such as logo and name of the company.
- Information was not real-time produced.
- Report service for the management was also a bit slow.

The recommendations given were:

- Give the signature/stamp on the receipt as a proof that it was the receipt that was issued by Noodle Factory X, if the procedure would still be semi-manual, but if the procedure would be improved to be computerized, the receipt should be printed with the name of the company at top left.
- Separate the book for material stock and finished good stock at office and at the factory.
- Start to computerize all of the system at the company, to make it easier to count the real-time stock, real-time noodle.

For the future research, it was highly recommended to start from a simple computerized system, such as Microsoft Excel system to get the information that was needed by the management easily, even for the past data. It was considered because businesses use information system technology to gain competitive advantage agains their rivals, and in fact many basic business processes were set to increase output, productivity through the use of information system [10].

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