

CHAPTER 3

METHODOLOGY

In order to improve process flow effectively, study of existing flow, operational system, and related factors is necessary. Then analysis of the achieved information is the next important step must be done for assessing advantage and disadvantage of the existing process flow in which that will be used to identify area of improvement.

In this chapter, the methodology used to do this thesis is:

1. Study the current operation system
2. Identify area of improvement
3. Develop improvement plan
4. Implement in the actual system
5. Evaluate the improvement

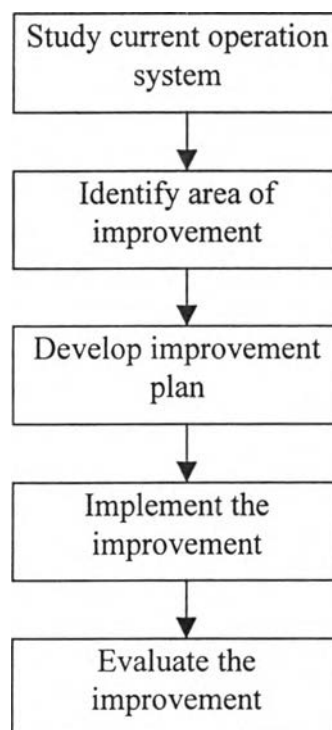


Figure 3.1: Overview Methodology Flow

The detail of each step is as following:

3.1 Study the Current Operation System

It is necessary to visit the case study jewelry factory and observe their production flow, environment, and related factor. Then after study the real situation of existing production workflow constrains, collection of necessary information will be carried out. It is very useful and effective to have interview of the related persons for detail of real production flow and related issues.

Scope of flow analysis for the case study factory covers the following shop:

1. Production
 - 1.1 Wax casting shop
 - 1.2 Setting stone info wax shop
 - 1.3 Treeing shop
 - 1.4 Investment casting shop
 - 1.5 Tumbling shop
 - 1.6 Polishing shop
 - 1.7 Setting stone into metal shop
 - 1.8 Q.C. shop
 - 1.9 Coating shop
2. Production management and control
 - 2.1 Coordinator

Method of Information Collection

Information collection is the primary step for development of system improvement. Thus, collection of information must be carefully done in order to achieve correct, complete, and actual information for use in further analysis and solve the problem effectively.

The necessary thing for receiving quality information is achieving cooperation from the factory staffs who relate with the considered areas. Therefore, explanation of the objective of collecting information must be provided in direction of that this study does

not attempt to assess performance or identify mistake of anyone. In fact, this tries to help to solve and improve the problems that anyone concerns with. The steps of collecting information are as follow:

1. Inform the objective and scope of this thesis operation to top management level for allowance.
2. Once allowance is achieved, introducing to production management team about the objective of to study area of problem is the next step.
3. After management team has understood the objective, management team introduces to related staffs in order to inform objective and detail of collecting information.
4. Start to collect information by walk through each shop to observe, interview. and collect information from supervisors of each shop.

Information collection aims to:

1. To analyse process flow of existing system used to identify weakness affected the delivery delay problem and improve the weak point by suggest new process flow system.
2. To analyse the existing document flow used to support workflow system of each shop in order to determine area of improvement.
3. To use the analysed information from 1 and 2 (information of workflow process and document) for analysing together to show the relationship of process flow and document flow of production operation.

In collecting of information, there are many ways used.

1. Interview and question. This method is the effective way to receive the detail of related information in short period.
2. Observe. This is the method that is used between and after interviewing and questioning in order to understand system clearly and be able to compare with the received information from interview and question method.

The areas related with process flow should be covered in analysing are as following:

1. Analyse the Existing Process Flow

This is the major area for the improvement. Detail related with process flow should be considered.

- 1.1 Analyse normal production flow. This concerns with analyse regular type of process flow required for manufacturing each type of product.
- 1.2 Analyse rework flow. This is the critical factor impact flow of process and leading to unable to finish manufacturing product on time.
- 1.3 Analyse coordinator function. From preliminary analysis, responsibility of coordinator is obviously complicated and results in inefficiency performance in performing its function.

2. Analyse Document Flow

Workflow document is analysed along together with workflow analysis in order to represent the clear relationship of the document role and flow of work. Analysing the existing used document is also used as reference for adapting to match with new workflow process.

3. Analyse Material Handling

Vehicle for transporting material or work-in-process is an important for flow. Changing process flow may require changing of material handling within flow.

3.2 Identify Area of Improvement

After the factors related with process flow, are identified and explored, study the methods that could help to improve is the next stage. Then specify the areas that can apply improvement ways which will be developed further.

The areas of improvement are as follow:

1. Process Flow
2. Document Flow
3. Material Handling

3.3 Develop Improvement

This step concerns with adapting the chosen methods to match with the existing process flow system. Then the improvement plan is developed.

1. Work study. This concept can be used in analysing process flow.
2. Information management. This concept can be used in analysing document flow.
3. Project planning. This concept can be used with external factor which have impact to process flow improvement.

3.4 Implement the Improvement

After the appropriate method is selected, the implementation plan to apply with entire process flow system starts. Introducing and describing to related production staff is the first step. Then follow up the new system is necessary in which meeting is the effective way.

1. Explain problem caused from existing operating system and introduce alternative for improvement
2. Meeting is the alternative for brainstorming and merging between the suggested improvement and operational experience owned by the factory staff.
3. Follow up is utilised for collecting implement result which allow for further development.

3.5 Evaluation the improvement

Normally, after implementation, showing improvement is an important step to assure that the new system works. Performance measurement will be performed by comparison with the existing collected data. Then evaluation should be done. This involves with assessing the result of implementation in terms of benefit gained. Advantage and disadvantage of both existing and new system must be represented.