Chapter 5

Conclusion and Suggestion

This chapter concludes the developing of information system for Production Activity Control (PAC), which is customized to solve the planning and control problems in term of data collection and information system. The scope of study focuses the production control and sequential processes for automotive part manufacturer. The result of this information system is evaluated by the improvement of production resource utilization in terms of manpower, production capability, and material availability.

5.1 Conclusion

The concepts and techniques, which are applied to develop an information system for PAC can be categorized into two groups as follows;

5.1.1 Workflow

The workflow of the existing production control and sequential processes can be categorized into three activities namely Order Planning, Operation Scheduling, and Production Reporting. Each activity is viewed as the integration of a group of processes, which is arranged by the Production Department.

The Production Department organizes a group of processes with the operation in the production control and sequential processes. Each group of processes is arranged to serve the main objective of each production process. With this organize workflow, the Production Department suffers from the higher cost of operation and over WIP stock, which are effected in the production process such as the part shortage in the final process (assembly), poor utilization of resources, and excessive work-in-process in the intermediate and primary processes. At present the supervise in the intermediate and primary processes try to maintain the production line under the existing production plan to solve that problem.

The IDEF0 Modeling technique is applied to attack those problems by building a model of the existing production control and sequential processes, which is preparing the structural and hierarchical relationship of existing workflow. And analyzing the ICOM (Input, Control, Output, and Mechanism) of each process, This model explains the cause of problems that due to workflow can summarize as follows:

1. Some processes cause a repetitive data
2. Some processes have not enough information to make decision
3. Many date items in each activity are not standardization.

Those cause of problems from IDEF0 Model are focus on some repetitive and obstructive processes, which are designed to serve the objective of production control and sequential processes. These are the obstruction of communication and data exchange between processes. Furthermore, some of the dependency tasks of each activity cannot share and communicate with others.

This study applies the concept of PAC to improve the workflow in terms of data collection and information system. This concept arranges many tasks in production control and sequential processes into six activities, which are formulated by the functional operation and arranged with a hierarchical structure as follows;

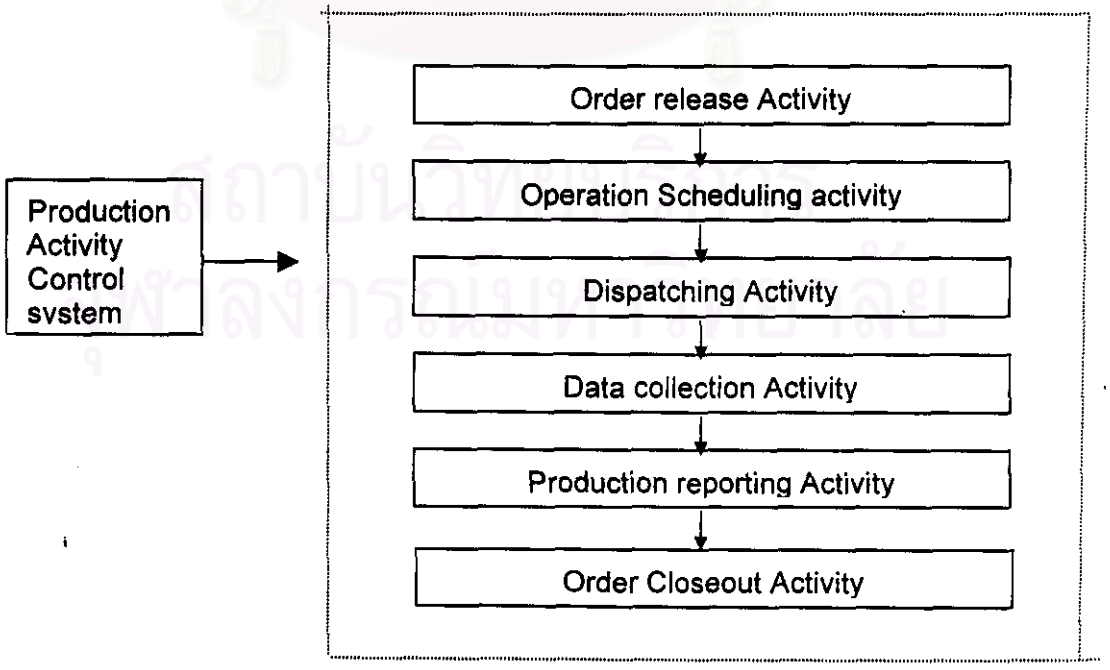

Figure 5-1 A hierarchical model of Production Activity Control [9]

A hierarchical structure of PAC is applied to arrange many tasks from the existing workflow by functional operation. Some repetitive processes are removed and obstructive process needs to improve. Thus, the developed workflow can improve the obstruction of communication and data exchange between processes from IDEF0 model, Moreover, the hierarchical structure can bring the pattern of data collection and information system that can provide the conceptual and implemented design of information system for PAC.

5.1.2 Database system

From previous topic, data and information of the existing production control and sequential processes scattering in each activity, which has no standard format to communicate and exchange with other activities especially an item master file. At present, staffs in the production control process apply a customer item number as default of all processes in Order Planning Activity. But the staff in the sequential processes apply a drawing number as a default of all processes in Operation Scheduling Activity.

This study modifies the concept of Bill of Materials (BOM) to improve the item master file problem. BOM is a completed list of all material, which is developing a fundamental information and relationship of each items. BOM information is used in conjunction with each process in the PAC system to determine the description and relationship of each items. Thus, BOM information has capable to improve the communication between activity and reduce the repetitive data.

This study also applies the concept of Data Dictionary/Directory (DD/D) to operate with the database system by storing and managing all metadata (data about data) in each item. Data Dictionary give a definition of record, data items, and relationship to describe the properties of data in each activity. In the other hand, Data Directory show an information about what data is store at each location in database system. Thus, an information about DD/D is the essential tool to manage and control the properties of each data item in the developed PAC system.

This study applies the normalization technique to perform the reliability of database in the physical design phase of information system by dividing a database into two or more table and defining relationship between the table. This technique use to eliminate the repetitive problem in each data item. Thus, the normalized

databases in the physical design phase are stable and suitable to perform the operation.

With many concepts and techniques, the developing of information system for PAC can minimize those problems, which cause the higher cost of operation and over WIP stock in part of data collection and information system for planning and control processes. The development of workflow and database system in this study can improve the quality of data and information in term of correction, completeness and relevance.

5.2 Suggestions

Although the developing of information system for PAC system is suitable with the requirement of production control and sequential processes in this company. There are still some suggestions as follows:

1. The study scopes in the production control and sequential processes of automotive part manufacturer. The pattern of information system may be applied to other departments in the information system for PAC because they have nearly same pattern of operation.

2. Although the workflow and communication of information system for PAC is developed, component delivery delay in many cases are neglect. Therefore, the company should develop the supplier relationship to improve delivery performance.

3. Although the information system for PAC can prepare the essential information to manage and control production control and sequential processes. The company should apply the MRP system or manufacturing management improve the production planning system for decision making.

4. When the developing of information system for PAC has been implemented on the representative product. Each data item should be analyzed to establish standards for other products.