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GLOBAL MANUFACTURING

STUDY OF COMPANY INTEGRATION WITHIN A COUNTRY

By

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Abstract

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A number of studies on Global Manufacturing Practices and the establishment of global company integration based on the similarity of practices among countries or regions have been conducted in the past. However, very few studies have been conducted on the integration of companies within a country. This study, using a survey approach, investigates an integration method based on Global Manufacturing Practices data collected from small and medium manufacturing companies in Indonesia.

The development of successful joint ventures, integration, and other forms of collaboration depend on the ability to successfully integrate the production activities (Gyula Vastag, 1993). Global Manufacturing Practices developed by D. Clay Whybark, describe methods to examine the aspect of manufacturing activities based on the compatibility index (i.e. manufacturing practices) among participating companies around the world. The measurement of compatibility developed in his study is based on the data compiled by the Global Manufacturing Research Group (GMRG). Several comparisons, primarily based on statistical analysis, are helpful in understanding differences in manufacturing practices.

Using the Global Manufacturing Practices survey, the study examines the participant perceptions of the manufacturing practices within their companies. The survey subjects are small and medium manufacturing firms (SMEs) from different regions of Indonesia. In addition to making general conclusion about manufacturing practices, the research proposes suggestions for development of integration based on measurements of the compatibility index of manufacturing practices relative to the Polman¹ base region.

The study evidence indicates the following major finding:

- The participating companies indicated that a manufacturing activities database of Global Manufacturing Practices is an important knowledge resource and should be established on the basis of being clearly defined and accessible to all, including people outside the contributing companies.
- To gain the most potential benefit, this data should be used for strategic planning prior to collaboration.

The findings of the study suggest that a successful production activities integration process is dependent, to some degree, on the compatibility of manufacturing practices between collaborative parties. Further work, to confirm the suitability of the Compatibility Index for predicting actual compatibility, will be needed, but was judged to be beyond the scope of this thesis.

¹ Politeknik Manufaktur Bandung (Bandung Polytechnic for Manufacture), an Educational institution (see chapter 4).

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1 CHAPTER 1: INTRODUCTION

1.1 Project Area of Interest

"The concept of "Martini Merger" was developed to describe alliances that had great promise from a boardroom standpoint but failed because of operational details. Often, top executives enter into agreements for collaborating. These agreements must then be made to work at the operational level, and that is where the compatibility of the manufacturing practices comes into play..." (D. Clay Whybark, 1993)

"Manufacturing competition in the global markets has posed strategic challenges for every nation. In this global era, the national boundaries become less important than the ability of the manufacturing organization to find and secure its competitive place in the world" (Kenichi Ohmae, 1990). The companies that do not plan for continuous improvement in the conceptualization and implementation of innovative state-of-the-art manufacturing systems will be marginal competitors (Bidanda, Cleland, and Dhawadkar, 1993). To face this challenge, Indonesia has established cooperation efforts in the field of science and technology. During the 1995 meeting of APEC's Science and Technology ministers in Beijing, it was agreed that member economies should accelerate their common efforts in science, technology, and research (Samadikun, 1991). Samadikun concluded that Indonesia has to prepare by developing its small and medium-sized enterprises through technology-oriented knowledge and by strengthening the degree they collaborate as a group.

A form of collaboration among companies within a country is an important factor in the 25 years to come. In this era, Indonesia together with other APEC countries, has agreed to joint trade liberalism (Samadikun, 1991). This event will

have big influences for Indonesian manufacturing industries considering that they have to compete with multi national industries. To face the challenge and to achieve the benefits of the situation, companies should have strong and well-developed strategic cooperation systems. Such systems should consist of strategy for both planning and management including the use of all information on manufacturing practices. The purpose of such information is to help provide insights on the practices that lead to better performance and develop an understanding of where differences in practice between two parties might lead to problems (Whybark, 1993). By achieving a database of such information, Indonesian companies could have all the needed information prior to the collaboration process taking place between them.

Hence, the establishment of a manufacturing practices database within a country is important to the success of the integration process. Such data can be obtained based on the Global Manufacturing Practices survey methodology.

1.2 Research Problem

In relation to the database above, most companies in Indonesia have recently begun developing an information system for the creation of a manufacturing database organized by the Biro Pusat Statistik² (BPS). This data is intended to support manufacturing development. Any company looking for integration can search and gain information about their prospective business partners, as can people outside the company such as suppliers, markets, and vendors.

Nevertheless, it appears that this strategic planning manufacturing database covers only “regulation or policy”. It is not intended for integration matters that are based on the production activities. Therefore, this study will seek to gather

² Biro Pusat Statistik (Statistics Central Bureau).

such general data of manufacturing activities based on global manufacturing theory.

Given the problem context above, the objective of this study is to have information on production activities available for the Indonesian manufacturing communities, as well as people from outside the communities. Also based on these survey database results, the study will investigate the integration process.

Companies have been surveyed in order to seek answers to the following research questions derived from the objective above:

- How could a Global Manufacturing Practices database be beneficial to Indonesia manufacturing communities?
- How should the collected data be considered as a strategic planning tool toward companies' cooperation within the country?
- What are the major factors related to the integration process under Global Manufacturing Practices?

1.3 Conceptual framework and study method

Referring to the research questions above, the conceptual framework applied in this study is based on Whybark and Vastag (1993) concepts of how the data should be collected and processed under Global Manufacturing Practices. The purpose is to help provide insights on the manufacturing practices that lead to better performance and develop an understanding of where differences in practice might lead to problems. Thus, the units of analysis carried out in this study focus on:

- Participants perceived usefulness of the database, which is based on participants' assessment of the quality of the performance of their manufacturing practices and overall organizational management of their companies.
- Strategic planning with respect to Global Manufacturing Practices within Indonesian manufacturing enterprises, which includes identifying:
 - The companies' objectives and priorities with regard to an integration process.
 - Information that the companies hold and where it is held
 - Resources that the companies have and how they make the information accessible.
 - The value of data and how the company uses such data in relation to its resources and its objectives
 - The technologies used and how they are managed to support development of their activities

Because of these units of analysis, the study relies on a survey approach. The approach is carried out to analyze the suitability of the Global Manufacturing Survey Data to aid the integration process. This includes defining the methods for choosing variables and measuring similarities in the practices.

The survey is also used to analyze company staff's perceptions of Global Manufacturing Practices as well as to investigate the usefulness of having participation in the study. Using the questionnaire, the survey is conducted in relation to the first unit of analysis. The questionnaire was piloted with a prototype questionnaire in order to examine respondents understanding and to obtain respondents' opinions of the content of the questionnaire.

Database collected informs the current situation of the companies with respect to the Global Manufacturing Practices happening in Indonesia.

1.4 Report structure

This first chapter begins with a description of the project area of interest and the need for exploring companies' perception of manufacturing practices in order to investigate its effect on the successful integration in Indonesia. The description includes a general perspective of the problem context, as well as the project method and units of analysis carried out in this study. The remaining chapters of the report are outlined as follow:

Chapter 2 reviews some basic theories and ideas related to the issues of Global Manufacturing Practices. This also looks at some past studies that have investigated problems associated with the issues of global manufacturing and company integration process.

Chapter 3 discusses the methodology used in the research project. This includes the choice of research strategic and the proposed project design. The discussion comprises an assessment of theoretical-based research procedures and the application of recommended procedures.

Chapter 4 presents the results of analysis and interpretation of the data from the survey that is documented in spreadsheet format. The chapter consists of two sections, general survey result (survey database) and integration analysis results. It includes discussions of how the hypothesis is confirmed by linking the findings with the theoretical proportions of the project study. The limitation and the overall result of the project study are also reviewed in this chapter.

Chapter 5 concludes the entire project study with a general perspective by summarizing the project objective, design and methodology, findings and results

as well as limitations. This chapter also discusses some directions for further study.