Chapter 4

Manufacturing Information and Database Systems Adoption and Usage Trends in Developing Countries

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ABSTRACT

Data and information has become a central productive and strategic asset, and the success of the organization depends on its ability to gather, produce, maintain, and disseminate this information for its benefit and those in its value chain. The chapter details the results from a study concerning different types of software packages used by manufacturing and engineering firms in developing countries. The participants were categorized into six industries: academic, power generation, manufacturing chemicals, manufacturing engineering, mining, and transportation. The study revealed that 97% of the companies had a software package installed for their operations. The “big six” software packages found to be in use are Syspro, Sage, SAP, ELLIPSE, Navision, and SCADA DELTA. In the manufacturing sector, Syspro has the largest market share: 86%. ELLIPSE is largely used in the mining sectors. Companies spend about $20,000 as initial investment on the software and about $2,000 annually on license fees. More than 50% of the software users are satisfied with the performance of their software packages.
INTRODUCTION

Manufacturing Information and Database Systems (MIDS) are systems designed to collect and present the data which managers need in order to plan and direct operations within the company. MIDS are used in many manufacturing industries, they vary in type but they help the industries in their manufacturing endeavours. MIDS is a management information system used anywhere in the production line. A firm needs to determine its competitive strategy before deciding how to use information technology. That is, it must first understand its competitive position, the competitive forces affecting it, and its overall business strategy. The software package selected by an organization should support its competitive strategy and enable it to deal effectively with the competition forces in its industry. Industrial applications of Manufacturing Information and Database Systems are largely in ERP/CRM, PDM/PLM, SCM, and MOM/MES where the bulky of transactional and operational processes are executed.

The purpose of this chapter is to analyse adoption and usage trends of MIDS in developing countries. By assessing industry case studies, conceptual and literature review articles, a set of recommendations are outlined to assist companies make competitive strategies for ICT adoption.

The rest of the chapter is organized as follows: The next section provides a background to the operating environment for enterprises in the developing world. This is followed by literature review on various categories of MIDS, such as ERP and PLM systems. The research methodology applied in this study follows after the literature review. The chapter ends with recommendations to enterprises in order to be competitive in the modern business environment where business is heavily dependent upon the internet.

BACKGROUND

The modern day competitive global market place is characterized by stringent regulations, higher operating costs, scarcity of resources and demands from increasingly informed customers. In a changing competitive environment, there is need to develop systems and products that are significantly more flexible and responsive than existing ones. Companies in developing countries, with no exception need instant feedback, traceability, uniformity and transparency as some factors to make key decisions hence eliminating any of the loop holes like result forging and bias will hinder fast and effective decision making. Many organisations rely on systems that are disconnected from each other i.e. planning and execution processes. This situation often hinders manufacturers to fully explore market opportunities
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