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Managing IT for world-class manufacturing: the Indian scenario

K. B. C. Saxena*, B. S. Sahay

Management Development Institute, Mehrauli Road, Sukrali, Gurgaon 122 001, India

Abstract

The success of Indian manufacturing in meeting global competition will depend on its speed to move itself from a protected domestic to a world-class global manufacturing status. This paper analyses a survey conducted for the purpose of determining world-class status of Indian manufacturing companies and identifies important issues that need to be addressed in order to be a world-class manufacturer. The analysis compares the manufacturing intent to be an agile manufacturer and their information technology (IT) infrastructure in terms of scope of use, extent of use and integration of IT-based systems. The findings of the analysis are somewhat alarming as they show that most of the companies have fragmented (rather than integrated) information management systems which may not enable them to deliver superior value to their customers and lead them to world-class status. They must, therefore, align their IT initiatives towards facilitating agile manufacturing rather than introducing IT to merely automate their conventional operations. © 2000 Elsevier Science Ltd. All rights reserved.

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1. Manufacturing: a paradigm shift

Of late, the environment facing developing countries has become increasingly more turbulent, dynamic and complex. A combination of external and internal factors including population growth, weak infrastructure, foreign debt, asymmetric world relations and increasing inequalities between individuals, groups and regions has prevented many developing countries from achieving significant socio-economic improvements. Some developing countries such as India have,

* Corresponding author. Tel.: + 91-124-340153; fax: + 91-124-341189.
E-mail address: bsaxena@mdi.ac.in (K. B. C. Saxena)

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therefore, made economic management their prime agenda. They are going through a process of restructuring their economy to emphasize competition, integration with global markets and increasing level of privatisation.

Consequently, the Indian manufacturing industry has been thrust from the protected environment of the "*license-permit-quota*"[1] regime to an uncertain environment of global competition and global markets. Global competitors operating in global markets almost always tend to have world-class performance. World-class manufacturing has often been characterised by three core strategies of customer focus, quality and agility (i.e. the ability to quickly, efficiently and effectively respond to change), and six supporting competencies — employee involvement, supply management, technology, product development, environmental responsibility and employee safety, and corporate citizenship (Kinni, 1996). However, we have characterised world-class manufacturing with the fact that the organisation may have presence in global markets. Thus, in order to compete in global markets, Indian manufacturing necessarily needs to acquire world-class performance. Oddly enough, countries such as India, China and Brazil themselves constitute a huge market which might attract many world class players from other countries to sell their products in these countries. Thus, even the domestic firms are constrained to compete with the world-class players by virtue of their entry to the domestic market because of liberalisation of Indian economy. Therefore, as is clear from Fig. 1, Indian manufacturers need to acquire world class status irrespective of whether they are a domestic player or an exporter. Needless to mention, achieving world-class status is a great opportunity for those who can make it and for others, is a serious threat. Though to some extent Indian industry has realised this and risen to the challenges, its battle for survival and growth has just begun. The success of Indian manufacturing in meeting this challenge will depend on its readiness to move itself from a *protected domestic* to a *world class global manufacturing* status quickly and confidently.

In order to monitor and facilitate this transition, it is important to develop an understanding of the existing scenario of Indian manufacturing, and to assess the direction in which it is heading. In order to accomplish this we have chosen to assess the *world class manufacturing readiness* of Indian industry in terms of three attributes: the manufacturing intent, manufacturing practices, and the supporting IT infrastructure. The reason for choosing these three attributes is based on the simple logic that readiness depends on what the firms want to do — their 'intent', what they are doing — 'practices' and what they are capable of doing — 'infrastructure'. Thus, this study of the Indian manufacturing industry takes a techno-strategic perspective rather than an economic one.

The paper is organised as follows. The next two sections describe the problems in the manufacturing industry and manufacturing challenges. This is followed by a description of motivation for this research, the research methodology, and the profile of responding companies. Next the results of the survey conducted as part of this research are described in terms of (i) manufacturing objectives and strategy, (ii) usage of management tools and technologies, (iii) manufacturing management practices, and (iv) IT infrastructure and practices. The next section describes the analysis of the survey findings. This analysis is carried on in subsequent sections on manufacturing

[1] Before liberalisation of the Indian economy, many industries were heavily regulated through licensing and permit requirements, and quotas were fixed for raw materials and finished products by the government. Business, therefore, concentrated on getting the license for production rather than product quality and/or marketing.

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