

# The Role of Information and Communication Technology on Adoption of Manufacturing Automation, Engagement of Strategic Alliance and Customer Related Performance

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Today's business organisations<sup>1</sup> are facing a highly competitive environment due to globalisation, deregulation, corporatisation/ privatisation, and technological innovation. One of the consequences of such competitive business environment is that customers have more choices; they become more demanding for competitive prices, and better quality products and services. Such a competitive environment also encourages changes in customers' behaviour, their tastes and preferences, and a rapid change or innovation in manufacturing technology and processes. To face the increasing competition and its resultant effects, organisations must satisfy its customers by providing a broad range of high quality products and services at competitive prices.

Manufacturing automation, such as computer assisted design and computer assisted manufacturing (CAD/ CAM) promises organisations capabilities and opportunities to produce a broad range of quality products with less cost and time. Because of the potential of manufacturing automation to provide more efficient and faster production at lower costs, manufacturers are always on the lookout for suitable manufacturing automation to accelerate their production processes and meet the customers' growing demands for quality products and services at competitive prices.

Further, in today's competitive environment, businesses must have a global perspective in order to identify opportunities and threats in the marketplace. The extant literature suggests that to outlive the threats from local as well as global competitors, firms not only should increase product and service quality and offer better value for money, but they should also actively seek to penetrate into foreign/new markets in addition to the local market. One way for a firm to enter into a foreign market is to engage in a strategic alliance with other firms.

The relevant literature suggests that a firm's successful adoption of manufacturing automation and engagement in a strategic alliance may depend on collection of accurate and timely data or information on its actual performance, and on issues like market opportunities, customer tastes and preferences, technological innovation, and local and foreign competitors' actions. Without accurate and timely information, and feedback on these matters, a firm may not be able to monitor its operating environment, plan its actions, and evaluate its own performance effectively. In other words, an organisation needs to have an information and communication technology such as internet and intranet that can present relevant and timely information. This study argues and provides empirical evidence that managerial use of information and communication technology (ICT) can effectively perform the above functions and thereby improves organisational performance.

Results are based on the responses of 104 general managers from large manufacturing firms and the data were analysed using path analysis. The results reveal that a firm's adoption of manufacturing automation and engagement in a strategic alliance positively influences the firm's customer related performance through managerial use of the ICT.

**Key words:** Manufacturing automation, Strategic alliance, ICT, Performance.

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<sup>1</sup>. The terms 'organisation', 'company' or 'firm' are used as synonyms in this thesis.  
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