

# **WORLD CLASS MANUFACTURING: BLUEPRINT FOR SUCCESS**

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## **ABSTRACT**

Manufacturing organizations are facing new challenges as global competition accelerates and supply chain management intensifies. Customers are demanding short delivery times for customized products with high quality and performance expectations. To respond, firms are examining their strengths and weakness and considering how to change their competencies and capabilities to be effective world-class competitors. This paper provides managers with an overview of World Class Manufacturing (WCM) and describes a process to implement it.

## **INTRODUCTION**

Expanding global competition, rapidly changing markets, and the world-wide spread of advanced manufacturing technology are creating a complex and uncertain environment. As customers become more demanding and global competition intensifies, manufacturers feel the pressure to meet tighter quality, cost, and delivery requirements. To effectively respond to these challenges, many manufacturers are striving to become world-class competitors.

Simply stated, world-class manufacturers design, produce, and deliver products that delight customers and enable firms to compete with the best in the world. World Class Manufacturing (WCM) is a process, based on employee development and involvement, that unites key cross-functional actions such as product development, material acquisition, lean manufacturing, and quality management in ways that meet precisely specified customer requirements. Success is achieved by (1) setting business goals and understanding customer expectations, (2) defining essential manufacturing competences that determine a firm's ability to meet or exceed customer expectations, (3) creating metrics for these competences, (4) benchmarking performance, (5) determining target levels for each metric, (6) develop plans and programs that enable the firm to meet these targets (7) organizing and managing the implementation process, and (8) evaluating performance and revising the system. When properly executed, these actions lead to customer satisfaction and positive business results.

For many years, manufacturing was internally focused. Employees often completed tasks without understanding the effects of their actions on customers. The internal focus was perpetuated by the separation of critical functions such as engineering, purchasing, quality control, and manufacturing. This separation was often described as the "over the wall" approach to manufacturing. These walls inhibited direct and continuous interaction between functions and shielded decision-makers from both internal and external customers. The results of this separation of tasks by functions were the loss of time, information, and money, and the creation of finished products that do not meet customer expectations. World-class manufacturers are involved in cross-functional processes that focus outward on customers and build strategic relationships with internal and external suppliers. These efforts at supply chain

management and customer relationship management unify actions and focus attention on the customers of the final rather than intermediary products.

This paper provides practicing managers with an overview of WCM as an integrated, cross-functional effort that focuses on customers and strives for business success. Its primary contributions are to describe a process for implementing WCM. The paper provides managers with a set of actions to guide implementation and a set of metrics to measure performance.

## WORLD CLASS MANUFACTURING

WCM is a cross-functional process for designing, producing, and delivering goods that delight customers and lead to exceptional firm performance. It combines skills and resources from various functions to focus on opportunities and threats in the environment. WCM has sophisticated customers, global manufacturing systems, a faster pace and wider scope of activities, and an emphasis on product quality.

1. Sophisticated Customers: Increasing consumer sophistication and wealth as well as more sophisticated marketing are leading to a proliferation of products that target more diverse tastes and accommodate special market niches. The growth in stock keeping units (SKUs) compounds manufacturing complexity exponentially. This increases the need for flexible systems to design, produce, and deliver these products.
2. Global Manufacturing Systems: Design expertise and production capabilities are sourced globally. Subassemblies may be produced on three different continents while final assembly takes place on a fourth. Coordination and control are managed through integrated, worldwide information and distribution systems that work to meet customer needs.
3. Pace and Scope of Business Activities: Time and distance are being compressed by the electronic movement of information in all forms including television's influence on consumer desires, electronically connected trading markets, and the influence of fax machines and portable telephones on management styles. Business activities that took weeks now take days, or are performed in "real time."
4. Demand for Higher Quality: Customers cannot afford to buy unreliable products. Their lifestyles and schedules leave no time for getting products serviced or returning defective ones to their supplier. The conventional wisdom that zero defects is unachievable has been debunked by a flood of products that work and work well.

To compete, organizations must build competitive advantage by meeting precisely defined customer demands. By seeking leadership in the global marketplace, organizations are choosing to be "world-class." The popularity of Richard Schonberger's *World Class Manufacturing: The Lessons of Simplicity Applied* (1986) and *World Class Manufacturing: The Next Decade* (1996) help to raise awareness and give definition to a new and better approach to manufacturing.

WCM focuses on customers, relies on critical manufacturing competences, and develops measures that lead to customer satisfaction and positive business results. The key differences between WCM and traditional manufacturing begin with a shift in focus from internal operations to customers. Employees and suppliers must understand customer expectations and how their efforts impact customers. The key competences shift from engineering effectiveness, quality control, and manufacturing efficiency measures to employee development, supplier development, product development, quality improvement

efforts, and just-in-time. This change expands management's focus to include developing procedures and methods that add value for customers. As the organization adopts WCM principles, key measures tend to become multi-dimensional with throughput time, supplier capability, employee skills, and other measures being added to more traditional financial measures such as labor costs or material variances.

The top of the WCM model contains the overall goals, which are customer satisfaction and business results. Good customer service has long been a primary objective of manufacturers. Over time, the definition has changed as the word "service" became "satisfaction" or even "delight". From meeting specifications and delivery dates reasonably well, the criteria now include anything relevant to ensuring complete customer satisfaction. Business results are an extension of the profit goal. The Malcolm Baldrige National Quality Award describes business results as key measures and/or indicators of company operational and financial performance.

Surrounding the WCM model is continuous improvement. Striving to achieve WCM status is an on-going, iterative effort that seeks continuous improvements to meet increasing expectations. Recognizing, evaluating, and acting on opportunities for improvement set world-class manufacturers apart from their competition. Achieving a high level of competitiveness requires a well-defined and well-executed approach to continuous improvement.

## **PROCESS FOR IMPLEMENTING WORLD CLASS MANUFACTURING**

Even though WCM depends heavily on continuous improvement, initiating these concepts and ideas may require radical change. Radical change requires top management commitment, support, and involvement. Each of those words implies different things. Top management commitment implies the consent of organizational leadership to pursue WCM. Top management support is the allocation of sufficient resources in people and capital to design and implement WCM. It requires the time and talent of the best and brightest people from across the organization. Top management involvement includes the time of top executives in defining the concept of WCM, communicating its importance, and breaking down barriers to change. Success requires a process that integrates WCM initiatives into the business planning process. A process for achieving this integration has eight steps.

1. Set *business goals* and understand *customer expectations*,
2. Define essential *manufacturing competences*,
3. Create *metrics* for these competences,
4. *Benchmark* performance
5. Determine *target* levels for each metric,
6. Develop *plans* and *programs* to achieve the targets,
7. *Organize and manage the implementation process*, and
8. *Evaluate performance and revise the systems*.

WCM is not an end, but rather, it defines a process. As firms recognize WCM as a process, they are more likely to achieve the outcomes associated with a successful implementation. The full paper provides additional insights for implementation and for building the commitment needed to be successful.

**A copy of the complete paper is available from the authors.**