Who can be a world class manufacturer?

Becoming a World Class Manufacturer is not a prerogative of the big corporations or the MNCs. Adopting World Class Manufacturing Practices does not require huge investments in Hi Tech machines or equipment or something like that! All that it requires is a change in mindset. So, even small and medium manufacturers can become World Class Manufacturers.

What are the benefits of adopting World Class Manufacturing Practices?

Very smooth functioning of the company with minimum intervention from top management. As if the company is running on auto pilot. Top Management free to plan for future growth.

Customers are assured of receiving goods of promised quality, on promised date. What would customers do in such a situation? They would never go to the competition. On the contrary it is the competition that shall start loosing their customers to you. What would happen in such a situation? Your company will experience top line growth.

Employees are exposed to a lot of involvement in the day to day running of the company, that leads to job satisfaction and the retention of the workforce. With a lot of freedom, opportunity to learn many new concepts and low workplace friction it will be possible to not only retain talent but to attract talent from the competition. Also highly motivated employees and efficient processes lead to bottom line growth.

With the top line of your company growing at two to three times industry average and the bottom line growing at four to six times industry average, shareholders are assured of a good return on their investment. They would want to invest more.

With inventories being turned over faster due to just in time production, money from revenues is available faster, so you would be paying your suppliers within 15 days or say 30 days if the average for the rest of the industry is 60 days or 90 days. Suppliers would not like to loose such a customer.

Due to just in time production a lot of inventory gets converted into cash, whatever inventory remains, is turned over faster, this leads to record cash flow from operations. You do not really need to go to the bank, now it is the bank that really needs you to borrow from them for increasing their revenues. The banks also know that your ability to pay back is high. Under this changed situation, banks will make all out efforts to woo you and offer you favourable terms.

What is World Class Manufacturing?

The term world class manufacturing was first publicized by Professor Richard Schonberger in 1986. He suggests that the term world class manufacturing captures the breadth and essence of the fundamental changes taking place in industrial enterprises. In recent years the world has become a much smaller place than it was in previous generations. Manufacturers in almost every industry find themselves competing with companies from every corner of the earth. After the end of 2nd World War, United States of America was the dominant manufacturing power. However in the decade of the 1970s Japan emerged as the most efficient manufacturing power, followed by Germany, France, Korea, and Taiwan. Until the 1970s, markets were stable and relatively undemanding, there were supply-shortages, anything that was produced at a reasonable price and quality was sold quickly. So there was a widely accepted view of the best practices in manufacturing.

These were as follows:

- Logistics were organised around the principle of mass production.
- Low cost was to be achieved through high volume. Machinery was thus designed to produce specialised products, and machine changeovers were to be minimised. This led firms to hold large inventories of incoming materials, work-in-progress and
finished products, just-in-case anything might go wrong and interrupt the flow of production.

- Quality procedures were designed so as not to get in the way of production-flow. So quality inspection was placed at the end of the production line, and faulty products were reworked before delivery.

- Work organisation was designed to support this system. Highly-skilled workers concentrated on management, design, quality, marketing and supervision, and unskilled workers followed the instructions they were given, often being paid on a piece-work basis in order to maximise production.

These principles of mass production were appropriate as long as markets were stable and undemanding. But once final markets became more heterogeneous and changeable, new principles of production had to be established. In Europe, North America and Japan, these market conditions began to change in the 1970s - customers wanted increasing variety and quality, and were unwilling to compromise quality for the sake of a low price. This led producers in these countries to adopt new organising principles for their production processes.

Producers in India and other developing countries were until recently insulated from more demanding markets and continued with outdated forms of manufacturing organisation. But now, with trade liberalisation, this ostrich attitude is no longer viable.

**The new principles of production** - World Class Manufacturing - are in sharp contrast to the inherited pattern of mass production, namely:

- Logistics are designed so that flexibility can be ensured. This means producing in small batches to satisfy varied and volatile markets.

- Inventories are organised on a "just-in-time" basis, and production flows through the plant as single units rather than in large batches. Attention is paid to rapid machine changeover and simpler and more flexible machinery is often used.

- Instead of checking quality at the end of the line, quality is assured at each stage of the production process, so that no defects are allowed to pass through the plant.

- Work organisation becomes much more flexible, and the boundaries between "skilled" and "unskilled" workers are narrowed. A key task is to develop an organisation which focuses on learning and continuous improvement, involving all of the labour force rather than just the "skilled" engineers and managers.

Toyota Motors of Japan was one of the major forces responsible for the development of these principles of production.

According to Mr Anand Sharma of TBM Consulting USA, If you meet the following seven attributes, and you do that, not just in one quarter but year after year, then you are a world class manufacturer. The most important thing is unrelenting and constant focus on these seven key attributes.

• Absolute focus on satisfying the customer every day, in three specific areas:

  i) increasing responsiveness in everything you do
  ii) reliability in everything you do
  iii) quality implied in everything you do

• Motivating and treating employees like appreciating assets (which everyone says but very few people do)
• Constant innovation in the products and services you provide. You have to be first to market and provide end-to-end solutions

• Providing seamless synchronization throughout the value chain, so that you have a line of sight from the moment you have contact from a customer

• Having a culture of continuous improvement:
  i) doing more with less (because we could do all the above and go out of business)
  ii) eliminating waste
  iii) reducing lead time

• Strategic agility to turn on a dime. People can think when you have done it once you are done. They become rigid in their new paradigm(role model). Top management has to stay relevant to customer needs

• Achieve growth in top and bottom line and reduce trade working capital. It has to be a multiple of industry average. The top line should be growing at two to three times industry average. The bottom line should be growing at four to six times industry average.

Trade working capital =The difference between current assets and current liabilities directly associated with everyday business operations. This measure is relevant in analyzing the near-term financial health of a company, as only current assets and current liabilities used for everyday business are considered.

Strategic agility to turn on a dime
Strategic = long term
agility = nimbleness
to turn on a dime = to change direction very quickly

The world class journey is a journey without destination not without direction, because the direction is clear—it’s forward. What it means is you never get to the end, because there is always something you can improve. The minute you think you have finished is the time somebody else starts to catch up with you. There are a lot of people who are peripheral on this journey, however, roughly 80 percent of manufacturers claim to be following continuous improvement, 10 to 20 percent of them are genuine and 80 percent are fooling themselves. These people do a little bit and think they are almost there. People who have been doing it for years always say they have just scratched the surface. That’s the difference in mindset.

How is World Class Manufacturing Achieved?
There are a large number of "tools" which can be used to realise these objectives with regard to production control, inventory and work-organisation. Some of these are to do with factory layout; others affect production scheduling, machine changeover, quality assurance and work organisation. There is no universal toolkit that all firms need to adopt in all circumstances. Which tool is relevant depends upon the particular Critical Success Factors in the market in which the firm is operating. In making the transition to World Class Manufacturing, the firm needs to address three primary challenges, namely to:
Develop the awareness of the need to make the transition to World Class Manufacturing
Develop the ability to search for relevant tools and to apply them effectively
Monitor progress so that an improvement program can be systematically utilised.

World Class Manufacturing usually involves implementation of the following:

- Make-to-order
- Streamlined flow
- Small lot sizes
- Families of parts
- Doing it right the first time
- Cellular manufacturing
- Total productive maintenance
- Quick changeover
- Zero Defects
- Just-in-time
- Variability reduction
- High employee involvement
- Cross functional teams
- Multi-skilled employees
- Visual signaling
- Statistical process control
### World Class Manufacturing

**Supporting Pillars of World Class Manufacturing**

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<td>Resolve problems that cause poor quality rather than merely detect them.</td>
<td>Change the shop floor layout to reduce the movement of materials.</td>
<td>Transfer of responsibility.</td>
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<td>Reduce the reject rate gradually and systematically to zero.</td>
<td>Reduce production setup times so that products can be made in very small batches. (Ideally a lot size of one.)</td>
<td>Transfer to the production shopfloor personnel responsibility for:</td>
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<td>Place the quality control responsibility on the shop floor with the production operators.</td>
<td>Synchronize the manufacturing process so that subassemblies and components are available just when they are needed and not before (or after).</td>
<td>Product quality.</td>
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<td>Provide the operators tools and equipment necessary to inspect their own work.</td>
<td>Create mutually beneficial relationships with suppliers.</td>
<td>Production target attainment.</td>
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<td>Provide education and cross training to the operators.</td>
<td>Give them the authority to stop the production line if they detect quality problems.</td>
<td>Production Scheduling. &amp; Preventive maintenance.</td>
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<td>Give them the authority to stop the production line if they detect quality problems.</td>
<td>Create quality circles for devising long term solutions to quality problems.</td>
<td>Education and cross training.</td>
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<td>Create quality circles for devising long term solutions to quality problems.</td>
<td>Problem solving and quality circles.</td>
<td>Provide to the shop floor personnel ongoing training in:</td>
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<td>Just-in-time manufacturing.</td>
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<td>Quality control &amp; Customer service.</td>
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<td>Train the operators to do a wide range of jobs to have more flexibility.</td>
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<td>Design flexibility.</td>
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<td>The purpose of a quality circle approach is to have every employee involved in solving production (and other) problems. Each one contributes his skill or experience.</td>
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Production flexibility.

Production flexibility is achieved when:
- A company can offer short lead times.
- The product mix within the plant can be changed significantly from day to day.
- The people within the plant are cross-trained to manufacture a wider range of products.

Design flexibility.

Design flexibility is related to the company's ability to introduce:
- New products & Modifications to the current products.
<table>
<thead>
<tr>
<th>Supporting pillars of WCM</th>
<th>Programs/Tools for improvement</th>
<th>Key elements of manufacturing strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Performance Measures</td>
<td>User oriented New Standardization</td>
</tr>
<tr>
<td></td>
<td>Visual Communication</td>
<td>Benchmarking</td>
</tr>
<tr>
<td></td>
<td>Hoshin Kanri</td>
<td></td>
</tr>
<tr>
<td>A new approach to quality.</td>
<td>TQC</td>
<td>7 QC tools</td>
</tr>
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<td></td>
<td>SPC</td>
<td>7 New QC tools.</td>
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<tr>
<td></td>
<td>P S Q M</td>
<td>DOE</td>
</tr>
<tr>
<td></td>
<td>Activity Based Costing/Mgt.</td>
<td>Target costing/Kaizen costing</td>
</tr>
<tr>
<td></td>
<td>DFM</td>
<td>Value Engineering</td>
</tr>
<tr>
<td>Just In Time manufacturing techniques.</td>
<td>Just in Time</td>
<td>Kanban</td>
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<td></td>
<td>Kaizen</td>
<td>SMED</td>
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<td>T. P. M.</td>
<td>Poka_Yoke</td>
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<td></td>
<td>Cycle (Lead) Time Reduction</td>
<td>QFD</td>
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<td>A more flexible approach to meeting customer needs.</td>
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<td>V RP</td>
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<td>Change in management of the workforce.</td>
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- **Quality**
- **Cost**
- **Delivery Reliability**
- **Lead-time**
- **Flexibility**
- **Employee Relationships**