

World Class Manufacturing (WCM)

World Class Manufacturing is a different set of concepts, principles, policies and techniques for managing and operating a manufacturing company. It is driven by the results achieved by the Japanese manufacturing resurgence following World War II, and adapts many of the ideas used by the Japanese in automotive, electronics and steel companies to gain a competitive edge. It primarily focuses on continual improvement in

1. Quality;
2. Cost;
3. Lead time;
4. Flexibility;
5. Customer service;
6. People motivation;
7. People development & Safety and
8. Continuous Improvement

World Class Manufacturing is a process-driven approach.

Companies engaging in World Class Manufacturing strategies focus on improving operations, strive to eliminate waste and create lean organizations. This often results in higher productivity. But these companies also focus on speed of total throughput from order capture through delivery setting new standards for delivery without the heavy dependence on inventory. Sequential methods of performing work are being replaced with concurrent methods to compress time, and functional and hierarchical divisions of duties are being replaced by team-driven activities.

World Class Manufacturing is a process-driven approach to improving manufacturing operations. It is often confused to mean standards of quality and image such as Rolls-Royce or Rolex.

It is in direct conflict with traditional capacity-driven manufacturing mentality found in western culture. The implementation will often surface resistance to change and "we've always done it this way" arguments. The worse resistance is usually found in lower and middle management, but can also be found in the mindset of workers as well. A case for change has to be created along with high employee involvement.

Capitalization is also a major issue when new equipment is required for quick changeover, faster cycle times, and flexibility in operations. Executives may take a piecemeal approach to save on investment costs as an alternative and find themselves disappointed with the lesser results.

Just like anything else, World Class Manufacturing is no panacea, nor should it be embraced as a religion. It is an operational strategy that, if implemented properly, will provide a new dimension to competing: quickly introducing new customized high quality products and delivering them with unprecedented lead times, swift decisions, and manufacturing products with high velocity.

Features for a WCM are as follows:

1. Customer service (OTIF or stock availability) will be 99% or better.
2. Regularly ask their customers about the level of service and, as a matter of routine, seek ways to continuously improve it.
3. Will Ship only the quantity needed by their customer.
4. Will be able and willing to offer kanban shipments to their customers if requested.
5. Sales staff will actively promote world class manufacturing's demonstrated benefits to the customers.
6. Will have an active lead time reduction group.
7. Everyone in the company knows about the key customers and what differentiates the company's products and services from the competition.
8. All staff who are in contact with customers will have the authority and empowerment to resolve customer problems.
9. Will have formal monthly sales and operations planning (SOP) process chaired by the Managing Director.
10. Business plan and financial budget will integrate with the sales and operations plan.
11. Will have a master production schedule which is managed out to at least the cumulative lead time and integrates with the sales and operations plan.
12. Material requirements planning will cover every manufactured or purchased part and product consumed in the manufacture and shipment of their products to their customers.
13. All planning and control systems are updated daily.
14. Will eliminate shortage sheets, rush sheets, etc.
15. Will reach at least 98% data accuracy in inventory records, bills of material and routings.
16. All dates on purchase orders and work orders will be realistic and achieved 98% of the time.
17. Will use resource capacity planning based on demonstrated capacity to validate all plans.
18. Will have 90% of manufacture (by value) under kanban control.
19. More than 75% supply of repetitively used raw material and parts from external suppliers will be controlled by kanban.
20. Will not have the central storage of direct material and the kitting process.
21. Will lay out the majority of the machines and equipment so as to minimize the distance between sequential operations.

22. Will have reduced set-up time between products to the point when it is economic to make the product in the quantities required for customer shipments.
23. Will have reduced lot sizes to customer shipment quantities throughout the company.
24. Will have ongoing education and communication programme to inform existing employees and educate every new employee, whatever function he or she performs, in the value of world class manufacturing.
25. Will have trained the majority of the people who work in production in basic problem solving techniques.
26. Employees will take the initiative to move to the point of need.
27. There are programmes in place to progressively reduce non value-adding costs.
28. Will have more than 50% of purchased items (by value) single sourced.
29. Will have decision to select a supplier based on the total acquisition cost rather than simply the price.
30. There are programmes to reduce the number of suppliers to no more than 50 per buyer.
31. Customer returns are measured in parts per million and down to 1,000 ppm or less.
32. Will have eliminated goods-in inspection on 90% of their repetitive material purchases.
33. Will have reduced independent and off-line inspection to specialized equipment only.
34. Will have 'fool proofed' critical jobs.
35. Will have eliminated independent rework and rectification.
36. Most personnel are cross trained in all the jobs that affect the end quality of their job as seen by their customer.
37. Everyone will have authority to "stop the line" if they are unhappy about quality level.
38. Will audit the product and process quality inside the test limits.
39. There will be mechanism to quickly and effectively receive and evaluate suggestions from all employees.
40. Majority of people who use equipment will be responsible for its basic maintenance.
41. Will monitor and continually work towards reducing equipment downtime.
42. Will have a preventative maintenance programme wherever it is possible.
43. Will have an active policy to help keep work areas clean, tidy and uncluttered.
44. Equipment selection criteria will include consideration of quality, set-up time and reliability in addition to any other considerations.
45. Engineering will change the fed back to the originators of the design to avoid repetition of problems in future products.
46. Design of products will include a consideration of the manufacturability of the product.

47. Current approved suppliers are consulted during the design process and monitored to improve existing designs.
48. Will have programme to reduce the time to bring new products to market.
49. New product development will be integrated into the manufacturing planning system.