Manufacturing Excellence Assessment

CULTURAL AWARENESS

(Customer focus : Employee awareness)

1	Factory Management communicate with all team members regarding employee satisfaction and organisational objectives at least twice per year	0 1 2 3 4
	Score Justification:	
2	Employees can accurately describe the organisation's goals and how their job contributes to the achievement of those goals	0 1 2 3 4
	Score Justification:	
3	There is a formal process for team members to regularly receive feedback on problems detected in downstream processes and at the customer	0 1 2 3 4
	Score Justification:	
4	There is a formal process in place that provides team members the opportunity to work in groups to address performance, quality, or safety issues	0 1 2 3 4
	Score Justification:	
5	Team members understand and can use common performance metrics to monitor and improve production processes	0 1 2 3 4
	Score Justification:	
6	When problems in production process occur, they are detected and investigated within a specified short time of the first occurrence. (Whether it be engineering, maintenance, or support personnel, there is a sense of urgency to rectify problems when they occur)	0 1 2 3 4
	Score Justification:	
7	Departmental leaders and support staff routinely go to the spot of a problem to assess the actual situation and talk to operators or relevant front-line workers	0 1 2 3 4
	Score Justification:	

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WORKPLACE ORGANISATION & VISUAL MANAGEMENT

(Making business processes and standards clear to follow)

1	**The factory is generally clear of all unnecessary materials or scrap and walkways & transport routes are clear of obstructions**	**0 1 2 3 4**
	Score Justification:	
2	**Lines on the floor clearly distringuish work areas, paths, and material handling routes. Signs clearly identify production, inventory staging, and material drop areas**	**0 1 2 3 4**
	Score Justification:	
3	**All employees are considerate of housekeeping and operators consider daily "clean-up & put away" activities part of their jobs**	**0 1 2 3 4**
	Score Justification:	
4	**There is a "place for everything and everything in its place"; every container, tool, and part rack is clearly labelled and easily accessible to the user. People using tools, parts, fixtures, quality guages, etc. know where to access them; how to get them and how to return them**	**0 1 2 3 4**
	Score Justification:	
5	**Updated display boards containing job training, safety, operating measureables, production data, quality problem and countermeasure information are readily visible throughout the factory**	**0 1 2 3 4**
	Score Justification:	
6	**Product quality and productivity boards are updated frequently for each line or process. (e.g. Product quality; returns, scrap, FTT, SPC. Productivity; production, uptime, utilisation, etc.) Team members get regular feedback on the team's performance**	**0 1 2 3 4**
	Score Justification:	
7	**There is good, effective communication between production shifts in the factory. (e.g. Equipment, quality problems, production schedules, etc. are communicated daily) Production areas are left "ready to go" by the previous shift**	**0 1 2 3 4**
	Score Justification:	

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STANDARD WORK

(Work the same way, get the same problems, solve the problem and solve for the whole team)

1	**A Standard Operating Procedure (or SOP) has been developed and used to train operators for each production process (e.g. SOPs contain standard cycle times, process or task sequences, and in-process inventories for each production process)**	**0 1 2 3 4**
	Score Justification:	
2	**Each production process has been designed to be completed within a standard time related to Takt time or relevant cycle time for a given part or product (Takt time = Available Production Time ÷ Required Volume)**	**0 1 2 3 4**
	Score Justification:	
3	**Team Members provide input and are involved in the process of job design and standardisation**	**0 1 2 3 4**
	Score Justification:	
4	**Frequently repeated, non-production operations in the factory are standardised such as change-over processes, quality checks, equipment checks, cleaning, hygienic activities and tools checks, etc.**	**0 1 2 3 4**
	Score Justification:	
5	**SOPs are time dated and show both what improvements have been made and when those improvements have been made**	**0 1 2 3 4**
	Score Justification:	
6	**SOPs throughout the factory are regularly audited for completeness and adherence**	**0 1 2 3 4**
	Score Justification:	
7	**Operators individually perform their processes according to the process sheets or SOPs and make few method or technique errors**	**0 1 2 3 4**
	Score Justification:	

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CONTINUOUS IMPROVEMENT

(Small, team-base improvements and problem solving)

1	**There is a clearly communicated strategy and designated champion for continuous improvement in the factory with the necessary resources, organisation, and infrastructure in place to support the process**	**0 1 2 3 4**
	Score Justification:	
2	**There is a formal process in place to review ideas and suggestions for improvements from all employees, and create appropriate actions to deliver agreed changes**	**0 1 2 3 4**
	Score Justification:	
3	**Employees are trained in the continuous improvement methods and are consulted during, or participate in continuous improvement projects**	**0 1 2 3 4**
	Score Justification:	
4	**Frequently repeated, non-production operations in the factory are standardised such as change-over processes, quality checks, equipment checks, cleaning, hygiene activities, and tools checks, etc.**	**0 1 2 3 4**
	Score Justification:	
5	**Continuous improvement projects are structured, planned, and time boxed. Successes are recognised and expanded throughout the factory (e.g. Projects have champions responsible for implementation, action items have responsibility assigned, and implementation timing milestones are established)**	**0 1 2 3 4**
	Score Justification:	
6	**Many of the improvements made throughout the factory involve minor or no capital investment (The improvement process is dominated more by small, incremental improvements than by large scale, capital intensive projects)**	**0 1 2 3 4**
	Score Justification:	
7	**SOPs are themselves continuously improved. Improvement includes updating the content, changing sequence of steps in the operations, adjusting material inventories, reducing non-value added actions, improving machine operational effectiveness, etc.**	**0 1 2 3 4**
	Score Justification:	

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FLEXIBLE OPERATIONS

(Process and employee flexibility)

1	**Team members are given a formal training period before doing a job on their own. Few defects or production slowdowns are attributable to new or inexperienced**	**0 1 2 3 4**
	Score Justification:	
2	**Part or product travel distances have been analysed and reduced by moving equipment and workstations closer together (e.g. wasteful material conveyance has been eliminated by reducing the distance between processes, work cells, process groups or material staging areas)**	**0 1 2 3 4**
	Score Justification:	
3	**Kitting, sub-assembly or production areas that supply a main production line or cell(s) do not change-over early to build additional inventory buffers (e.g. changovers are synchronised across related production processes)**	**0 1 2 3 4**
	Score Justification:	
4	**Defective items are immediately detected when they occur in the production process (e.g. Very seldom does a bad part or product go to a downstream process; parts or products will not go to the customer without appropriate quality assurance process adherence)**	**0 1 2 3 4**
	Score Justification:	
5	**Processes and equipment are arranged to facilitate a continuous flow of work through production and not arranged in machinery or process groups (e.g. Additional WIP inventory does not accumulate after processes. Bottlenecks of machines or equipment groups are understood and influence the material flow)**	**0 1 2 3 4**
	Score Justification:	
6	**Production operators are multi-process capable, fully trained and able to do the work at each station in a production cell, or each job in a production line team**	**0 1 2 3 4**
	Score Justification:	
7	**U-shaped layouts and U-shaped cells have been implemented on the shop floor to enable one-piece (continuous) flow of material through production to minimise operator walking and improve operator visibility of process**	**0 1 2 3 4**
	Score Justification:	

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ERROR PROOFING

(Preventing human or method based errors)

1	**Team members have been trained in the basics of error proofing and there is a team responsible for analysing production defects and identifying error-proofing opportunities**	**0 1 2 3 4**
	Score Justification:	
2	**Error-proofing devices and methods have been implemented or are being developed to eliminated the top production defects for each work area in the factory**	**0 1 2 3 4**
	Score Justification:	
3	**Error-proofing devices and methods have been applied to both manual operations and automated process (e.g. Manual processes have been improved using check fixtures, locating devices, etc. Automated machines are equipped with self-inspecting technology)**	**0 1 2 3 4**
	Score Justification:	
4	**Error-proofing devices that have been installed are monitored for effectiveness, and are maintainted and kept in good working condition**	**0 1 2 3 4**
	Score Justification:	
5	**Operators can stop the line when a defective product is found or when they cannot complete their process according to the SOP**	**0 1 2 3 4**
	Score Justification:	
6	**Manual processes or tasks have been equipped with mechanical checks to aid human judgement wherever possible (Mechanical checks e.g. colour-coding, or shaped slots, torque limiters, kitting supplied, etc.)**	**0 1 2 3 4**
	Score Justification:	
7	**Processes are equipped with call lights or signals (andons) that team members and machines use to call for assistance when a problem is encountered**	**0 1 2 3 4**
	Score Justification:	

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TOTAL PRODUCTIVE MAINTENANCE

(TPM, Planned Maintenance and Safety when using machines)

1	**Maintenance is scheduled in advance and communicated to ensure all members on the team know the day's Total Productive Maintenance schedule**	**0 1 2 3 4**
	Score Justification:	
2	**Machines have all safety guard devices operative and are locked out immediately when broken down (Safety guards are not disabled or removed. Malfunctioning equipment is not allowed to continue operating in production)**	**0 1 2 3 4**
	Score Justification:	
3	**Machines are kept clean and correctly lubricated, with all fixings tightened appropriately (Operators have reduced cleaning time by 90% to ensure machines have reduced sources of contamination and check tightness of components through running inspections)**	**0 1 2 3 4**
	Score Justification:	
4	**Preventative maintenance action lists are posted in work areas and item completions are tracked over time (Operators report all machine defects and these are added to machine defects from Preventative Maintenance into a single action list)**	**0 1 2 3 4**
	Score Justification:	
5	**Accurate and visible maintenance records are kept up to date and posted nearby for all production machinery**	**0 1 2 3 4**
	Score Justification:	
6	**Preventative maintenance activities are focused on increasing utilisation and minimizing cycle time variation. Capacity utilisation is tracked and cycle time performance is monitored for each machine and is used in maintenance activity planning. The maintenance team is evolving skills from preventative maintenance to include predictive maintenance and structured analysis**	**0 1 2 3 4**
	Score Justification:	
7	**Preventative maintenance responsibilities are defined for both maintenance and production workers. Operators are doing routine tasks like checking oil, cleaning machines & changing tools**	**0 1 2 3 4**
	Score Justification:	

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QUICK CHANGE OVER

(Improve regular planned product changeovers)

1	**Changeovers are scheduled in advance and communicated so all members on the team know the day's change over schedule**	**0 1 2 3 4**
	Score Justification:	
2	**Set-up activities have been subject to detailed process analysis techniques such as TIMWOODS analysis using video or other capture methods**	**0 1 2 3 4**
	Score Justification:	
3	**Changeover time, both internal and external, is visibly tracked at each workstation where changeovers are performed**	**0 1 2 3 4**
	Score Justification:	
4	**As new changeover procedures are developed, they are standardised and replicated in other areas of the factory. Procedures are documented and made available at point of use. All affected employees have been re-trained, production planning use the reduced changover times within production schedules**	**0 1 2 3 4**
	Score Justification:	
5	**Special tools or equipment has been developed and implemented to reduce time and labour needed for the changeover process. Fasteners, guides, fixtures, posts, bars or other repeatable methods for changeover are in use**	**0 1 2 3 4**
	Score Justification:	
6	**All dies, fixtures, tools, fasteners, materials, parts, raw materials, etc needed for the next production run are prepared in advance with suitable locations at point of use**	**0 1 2 3 4**
	Score Justification:	
7	**All dies, fixtures, tools, fasteners, materials, parts, raw materials, etc needed for changeovers are stored in specified locations and maintained in good condition**	**0 1 2 3 4**
	Score Justification:	

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MATERIAL CONTROL

(Use Kanban, Pull or other systems to better control flow of

1	**The target and actual hourly outputs are displayed for each manufacturing area and the overall production requirements and timing for the entire factory**	**0 1 2 3 4**
	Score Justification:	
2	**Leadership and supervisors have been trained in principles and implementation of shop floor material Pull systems to understand why Pull systems must be used**	**0 1 2 3 4**
	Score Justification:	
3	**Material flow or movement in the factory is dependent on automation or individual Pull signals (via Kanban, etc.) from downstream workstations as parts or materials are consumed**	**0 1 2 3 4**
	Score Justification:	
4	**Downstream processes are pulling material from upstream processes; upstream production schedules are dependent on downstream use. (e.g. Production departments or process groups do not operate on autonomous production plans determined by inventory targets, batch size capability, etc.)**	**0 1 2 3 4**
	Score Justification:	
5	**Adapting to changes in customer demand requires changing only the production schedule for the "final" line or process. (e.g. Customer order changes do not require the rework of numerous "process" production schedules throughout the factory since the "final" line pulls from all preceding processes)**	**0 1 2 3 4**
	Score Justification:	
6	**Team leaders are motivated to produce only the parts that the subsequent processes require. (e.g. Supervisors are not motivated to "build to make the numbers" regardless of downstream process requirements)**	**0 1 2 3 4**
	Score Justification:	
7	**Maximum and minimum quantities of materials or Work In Progress (WIP) are visible and frequently reviewed to optimise availability of materials whilst reducing space and working capital**	**0 1 2 3 4**
	Score Justification:	

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LEVEL PRODUCTION

(Balance customer demand with appropriate inventory levels)

1	**There is an effort to level production schedules by spreading the monthly purchase volume evenly over the period. (e.g. The daily production volume for a part or product does not vary substantially from one day to the next based on daily release quantities)**	**0 1 2 3 4**
	Score Justification:	
2	**Changeovers in production are made to support the mix of customer demand and not to support long productions run, additional WIP inventory buffers, or emergency short ship reactions, etc.**	**0 1 2 3 4**
	Score Justification:	
3	**Takt time influences the pace of production in the factory (Takt time = Available Production Time ÷ Required Volume)**	**0 1 2 3 4**
	Score Justification:	
4	**Takt time influences the basis of how process cycle times and work allocation are controlled through the production process. (e.g. Production processes are designed with cycle times that do not exceed Takt time)**	**0 1 2 3 4**
	Score Justification:	
5	**Processes on production lines or in cells are balanced or levelled so the difference between cycle times of linked processes is optimised**	**0 1 2 3 4**
	Score Justification:	
6	**When demand volumes increase, production processes are re-balanced or redesigned to reduce process cycle time to correspond to the new Takt time**	**0 1 2 3 4**
	Score Justification:	
7	**Forecast accuracy is measured, and analysis conducted to understand how to improve predictability of demand**	**0 1 2 3 4**
	Score Justification:	