



A membership-based organisation assisting companies since 1996 to develop and unleash the full potential of their people, equipment and processes using our proven **TPM & Lean (TPM³)** approach

Preparation for Area Based Teams & Work Area Management (5S)

Edition 15

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1. Background

1.1 Improvement Teams

Following feedback from a recent TPM³ Pre-cycle Strategy workshop, where the issue of establishing production area based improvement teams through the Work Area Management (WAM) and Operator Equipment Management (OEM) activities was discussed, we prepared the following background information for the Leadership Team based on our learnings over the past 14 years.

In 1996 when we first visited Proctor & Gamble's site in Wyong NSW where they were attempting TPM for the second time with very impressive results (OEE up from 35% to 86% across their site), we were intrigued by their comment regarding Area Based Teams. They originally commenced TPM in 1992 following the Japanese approach, which only lasted for about 6 months. In 1994 with OEE still around 35% they decided to have another go but this time modifying their approach based on their learning from the USA and Europe.

They found initially by using Cross-functional improvement teams they were able to raise OEE up to about 70% before hitting a 'wall' ie very little improvement from further Cross-functional Teams. After some analysis and review they realised several factors. First, their policy of moving their employees around departments / areas every 6 months to ensure maximum flexibility at the site was impeding their improvement activities as it did not allow the development of mastery skills (how the equipment functioned which is fundamental to the success of TPM). Secondly, they identified that the losses between their 70% OEE performance and their world class target of greater than 85% OEE were predominantly people related rather than technical related and as such were not being resolved by the Cross-functional Teams due to lack of ownership of the solutions by the employees across all shifts who had to sustain the solutions.

Once they realised that TPM was more than just a project based improvement strategy they moved forward rapidly to reach their greater than 85% OEE target along with zero breakdowns, zero quality problems and most importantly zero accidents.

In March 1997 we attended a seminar in Wollongong regarding Workplace Teams in Australian Industries where 4 sites from various manufacturing industries presented their learnings. At the conclusion of the seminar the chairperson who was a HR Manager at BHP Steel summarised the learnings with the following dot points:

- Establish what your vision for Area Based Teams is first, recognising the 4 stages of Area Based Team development;
- Communication is critical so everyone understands why, what's in it for them, how the business is performing, and where they contribute to this performance;
- Sharing is necessary to ensure the understanding continues, it also helps to develop trust;
- Individuals must be taught how to communicate and how to handle conflict in the early stages of being Area Based Team members;
- Must impart skills to team members, so they can perform as a team;
- Everybody must be involved;
- There needs to be a structured process;

- Process is important (and necessary), however the relationships are critical;
- Use an outside Navigator - someone who can be seen as independent, but is also experienced; and
- Turn failures into learning opportunities.

This learning was similar to our MM Cables experience in 1999 when after 12 months of project focused TPM³ activities they moved into *formal* Area Based Team activities with significant results in plant performance, reduced costs and engaged employees. In 2001 Uncle Toby's Smithfield Site also attributed their impressive results especially in safety, capacity and quality due to their TPM³ *formal* Area Based Team activities supported by focused Cross-functional improvement Teams.

In more recent times we have seen successful Area Based Team improvement activities as a critical part of achieving and sustaining operations excellence as demonstrated by the 32 recipients of our 5 Level Milestone TPM³ Excellence Awards we have been privileged to award to our clients since 2002 when they were introduced to assist sites to set and achieve an internationally recognised improvement vision.

To assist Leadership Teams to better understand the difference between Cross-functional Teams and Area Based Teams we have prepared the following table.

Comparison of Production Cross-functional and Area Based Improvement Teams

	Cross-functional Teams	Area Based Teams
Activity	Focused Equipment & Process Improvement	Work Area Management (5S) Operator Equipment Management Steps 1-7
Focus	Macro: All losses within Defined Production Area Micro: All losses within Section of Defined Production Area Special Micro: Particular loss across Defined Production Area Mini Micro: Small Loss or Issue	Defined Improvement Area within the Defined Production Area
Make-up	Cross section of Disciplines	Team Leader and Operators (total 4-8)
Skills	Develop Problem Solving skills	Develop Visual Workplace and Prevention at Source skills
Impact	Understand and Improve Losses / Wastes	Safety, Quality and Equipment Performance
Meeting Time	~ 1.0 - 1.5 hrs / meeting (normally weekly at a fixed time and place)	~ 0.25 – 0.5 hr / meeting (normally weekly however timing may vary due to urgent production requirements)
Support Activity Time	~ 0.5 - 1.5 hrs / week	~ 1.0 – 1.5 hr / week
Total Weekly Time	~ 1.5 to 3.0 hrs total time per week	~ 1.25 to 2.0 hrs total time per week
Culture	Learning about working together so as to build relationships between groups	Building Area Based Team Synergy
Typical Life	up to 12-14 week cycle then disband	Ongoing within 12 week cycles of structured improvement activity

Defining a Production Area Based Team

A production Area Based Team typically consists of 4-8 employees including a dedicated working Team Leader with an expected indefinite life. They are responsible for a Defined Production Area or Area of Responsibility (part of a Defined Production Area if there are more than 8 operators per shift required to run the Defined Production Area) and have clear boundaries for 'Achieving the Production Plan' in a safe, quality, cost effective and environmentally sound way. They are also given a clearly defined Improvement Area and boundaries to 'Formally Improve' the way they achieve the production plan in a safe, quality, cost effective and environmentally sound way. When more than 1 shift is involved in a Defined Production Area or Area of Responsibility, the area will be divided into separate Improvement Areas so that each shift can be allocated an Improvement Area for their formal improvement activities.

Why Area Based Team Improvement Activity

A key outcome from Area Based Team improvement activity is to develop employees who can identify and arrange prompt rectification of problems at the source (eg safety, quality, equipment etc). Before we can start developing these skills, we need to create the time for operators to be freed up from achieving the production plan recognising the importance of doing formal improvement activities during normal work time.

In TPM³ a key role of the initial Macro Focused Equipment & Process Improvement Cross-functional Team in a Defined Production Area is to create time through increased OEE for Area Based Teams to carry out formal area based improvement activities without impacting on achieving the production plan. For example if OEE is increased by 10% and half this improvement is invested back into developing operators through Area Based Team improvement activities then they would have some 2 hours a week to stop the line and still produce 5% more than before. The Area Based Team improvement activities involve what we refer to as Work Area Management which incorporates S1 and S2 of 5S (typically an initial 12 week cycle of a half-hour meeting and 1-1.5 hours of improvement activity per week) and Operator Equipment Management which incorporates all of 5S (typically 2-3 year process of 7 steps and some 8-10 12-week cycles).

By extending your employees through the structured continuous steps of Work Area Management and Operator Equipment Management you achieve sustainability of your TPM³ journey and an engaged work force capable of identifying and diagnosing problems at the earliest possible time to ensure their prompt rectification, leading to World Class Performance through:

1. Frontline Safety & Environment
2. Frontline Quality (input, process, output)
3. Frontline Equipment Care
4. Achieve the Production Plan
5. Formal Continuous Improvement

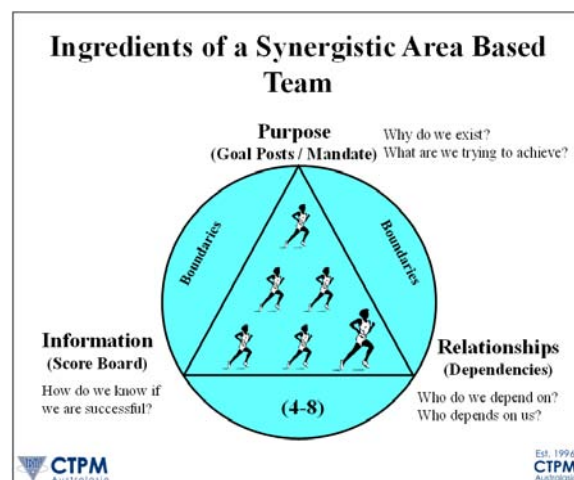
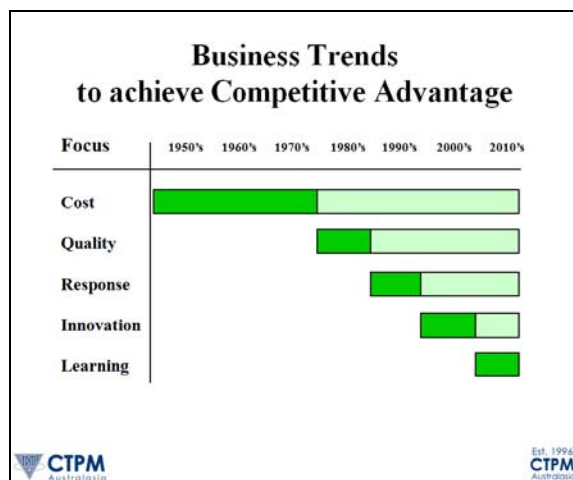
Work Area Management (1 Cycle then ongoing)

- Establish flexible team (4-8) with designated working Team Leader
- Standardise Work across all shifts
- Establish discipline within the workplace so that everything is orderly, neat & tidy
- Improve communications across shifts

Operator Equipment Management (7 Steps over 9 Cycles)

- Step 1 Identify & Rectify Equipment Defects
- Step 2 Address Sources of Contamination and Difficult to Access Areas
- Step 3 Establish Perfect Lubrication and Clean for Inspection Standards
- Step 4 Understand Equipment Functioning (by each inspection category)
- Step 5 Finalise Inspection Standards for Equipment Care
- Step 6 Understand Quality and Equipment relationships
- Step 7 Manage own Workplace ensuring Zero Breakdowns, Zero Process or Output Quality Problems, Zero Accidents or Incidents

1.2 The need for Purpose Driven & Learning Area Based Teams



In order to create a learning environment that allows employees to:

- take on new challenges created by an ever changing, innovative business climate;
- take on new training to enhance knowledge and skills;
- care for their workplace (equipment and work area) to address a key cause of early failure;
- care for their fellow employees to address poor safety behaviours which lead to near misses and accidents; and
- reach their greatest potential;

we need to create a 'Purpose Driven & Learning' Area Based Team environment with the ultimate goal of developing mature synergistic Area Based Teams focusing on both:

- achievement of the production plan in a safe, quality, cost effective and environmentally sound way; and
- formal continuous improvement in the way this is achieved.

Firstly the size of each Area Based Team needs to be considered. We have found any less than 4 permanent employees tends to reduce the flexibility of the team, while any greater than 8 tends to make creating the right team chemistry (an essential ingredient for synergy) more difficult to achieve. The team should also include a working Team Leader.

All team members should be working the same shift pattern and be permanently allocated to the team. The team should have a designated Team Leader responsible for the team achieving the production plan in their allocated Defined Production Area or Area of Responsibility and for their formal continuous improvement activities in their allocated Improvement Area.

We have found that there are 3 critical foundations for a successful Area Based Team:

Purpose: the Area Based Team needs to be 'purpose driven'. In other words, there needs to be clear goals and mandates set for the team for both achieving the production plan and formal continuous improvement.

Information: the Area Based Team needs to have formal regular (preferably daily or initially at least weekly) feedback on not only their performance but also the entire performance (all shifts) of their Defined Production Area in order to support the notion that the Area Based Team is also part of a bigger team (all employees in the Defined Production Area). For this reason we see it as critical that a Noticeboard and Scoreboard is established in each Defined Production Area (key function of the Leadership Team) so that daily or initially at least weekly 10 minute toolbox meetings can be held for each shift in front of the boards to allow feedback on the formal improvement activities (eg Micro FE&PI teams) and the goal aligned performance measures for the Defined Production Area:

- Safety & Environment Performance;
- Asset Performance (eg OEE and Inventory Levels);
- Quality Performance;
- Customer Satisfaction Performance (eg attainment of Production Plan within Quality Specification);
- Supplier Performance (eg Delivery, Quality);
- Human Resource Performance (eg Productivity, Morale); and
- Financial Performance (eg Costs)

Relationships: the Area Based Team needs to have designated support personnel allocated to them. In Rule 2 of the Four Rules from Toyota as outlined in the paper: Decoding the DNA of the Toyota Production System published in the Harvard Business Review Sep-Oct 99, they highlight the need for every Area Based Team to have designated support ie allocated mechanical maintenance (fitter), electrical maintenance (electrician), quality support person etc.

The Four Rules of Toyota

Rule 1: All work shall be highly specified as to content, sequence, timing, and outcome

Rule 2: Every customer-supplier connection must be direct, and there must be an unambiguous yes-or-no way to send requests and receive responses

Rule 3: The pathway for every product and service must be simple and direct

Rule 4: Any improvement must be made in accordance with the scientific method (Plan-Do-Check-Act as used in the 9 step process of FE&PI), under the guidance of a teacher (initially TPM³ Co-ordinator then the Supervisor and Team Leader), at the lowest possible level in the organization

Source: Decoding the DNA of the Toyota Production System; Harvard Business Review Sep-Oct 99

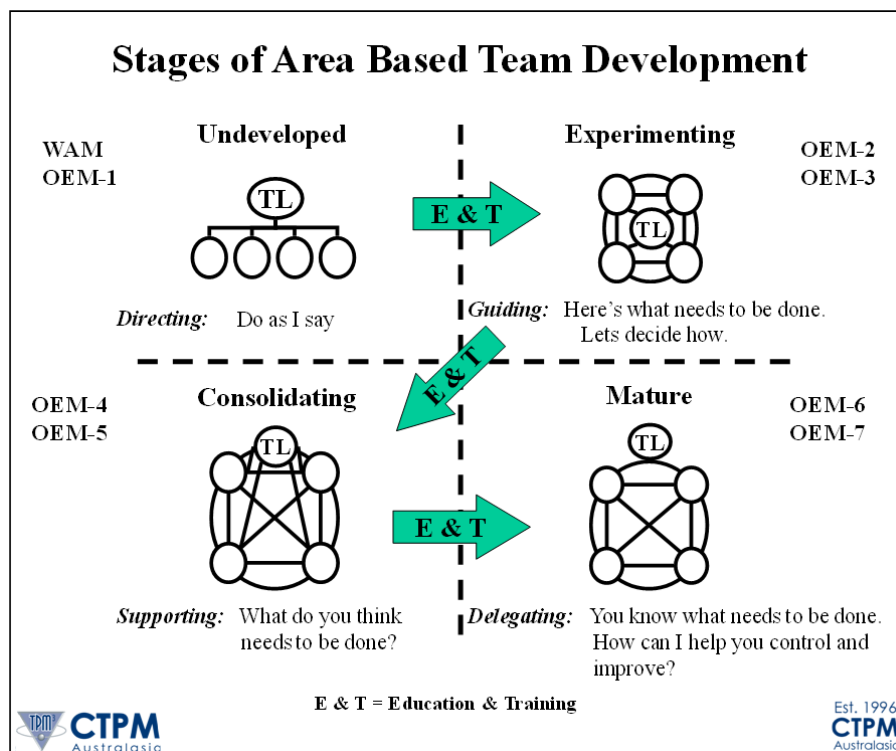
The Four Capabilities from Chasing the Rabbit by Steven J. Spear

- 1: System Design and Operation – identify problems at the earliest possible time
- 2: Problem Solving and Improvement – swarm problems rapidly
- 3: Knowledge Sharing – document and share the learning
- 4: Developing High-Velocity Skills in Others – leadership to do 1, 2 & 3 above

Source: Chasing the Rabbit by Steven J. Spear – McGraw-Hill 2009

1.3 The Development of Area Based Teams

Synergistic Area Based Teams do not happen naturally. They need to be developed over a period of time (2-3 years) supported with clear boundaries that are gradually expanded along with ongoing education & training with time for learning by doing (weekly formal improvement time) supported by reflection (mid and final presentations each 12 week cycle).



It is critical for the ultimate success of an Area Based Team that we recognise and manage the 4 stages of Area Based Team development:

- **Undeveloped** – Directing: Do as I say
- **Experimenting** – Guiding: Here's what needs to be done, lets decide how
- **Consolidating** – Supporting: What do you think needs to be done?
- **Mature** – Delegating: You know what needs to be done. How can I help you control and improve?

Experience has shown that each stage can take on average, up to 9 months for a team to progress.

Toyota describes their 4 stages of Area Based Team development they used in their USA plants as:

Stage 1: *Orientation*

The team needs strong direction from the leader and must understand the basic mission, rules of engagement, and tools the members will use.

Stage 2: *Dissatisfaction*

The team goes to work, which is a lot less fun than talking about great visions of success, and the members discover it is harder than they thought to work as a team. In this stage, they continue to need strong direction (structure) from the leader but also need a lot of social support to get through the tough social dynamics they do not understand.

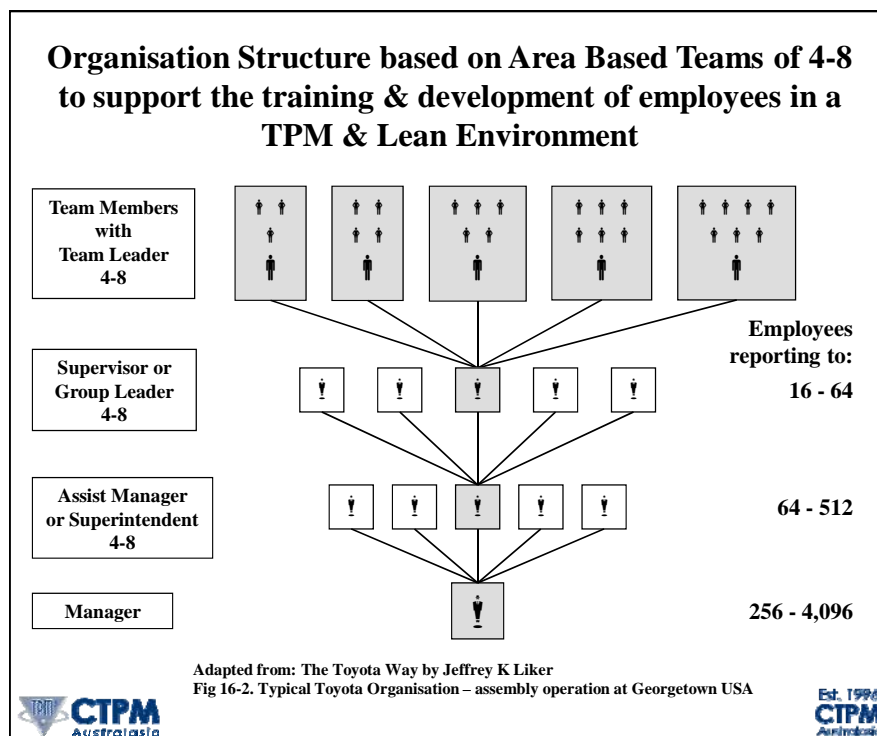
Stage 3: *Integration*

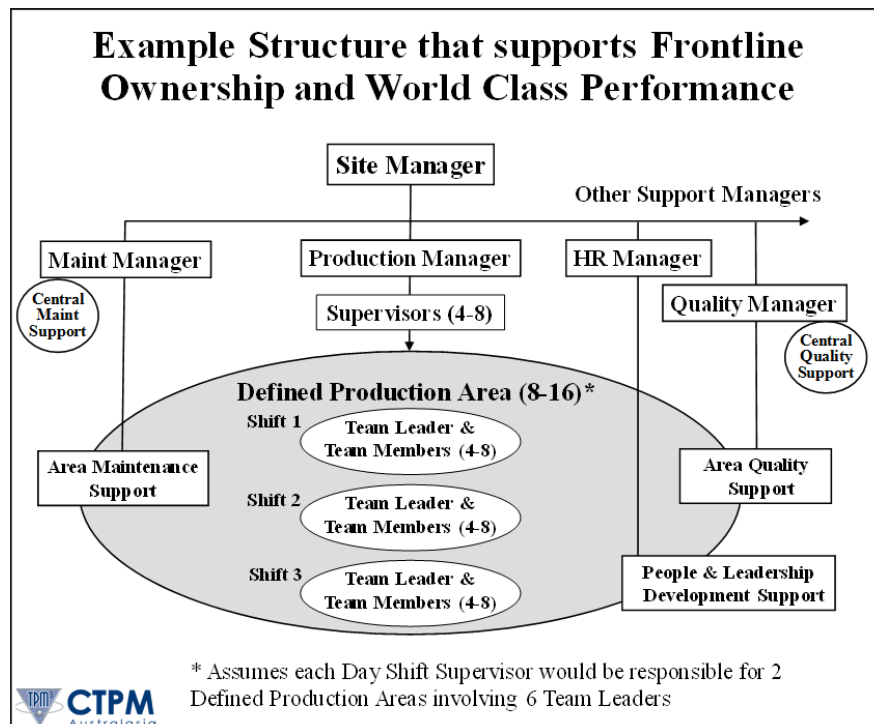
The team starts to develop a clearer picture of the roles of various team members and begins to exert control over team processes. The challenge is for the team to learn about roles, goals, norms and team structure. The leader does not have to provide much task direction, but the team still needs a lot of social support.

Stage 4: *Production*

The team puts it all together and is functioning as a high-performing team with little task support or social support from the leader.

1.4 Defining the Roles & Responsibilities to support Area Based Teams





Area Maintenance Support would typically involve:

- Rectifying Breakdowns
- Preventive / Predictive Work
- Corrective & Minor Improvement Work
- TPM³ Support & Training

Area Quality Support would typically involve:

- Rectifying Quality Problems
- SPC Audits
- Calibrations
- TPM³ Support & Training

People & Leadership Development Support would typically involve:

- Education & Training Process to assist in the development of Base Skills to allow Production Area Based Team improvement activities, Lubrication Skills through OEM-3 activities and Equipment Mastery Skills through OEM-4 activities
- People Support System Elements based on Team Skills Self Assessments to support On-going Improvement

In the book 'The Toyota Way' by Jeffrey K. Liker, there is a chapter on the organisation structure created to support Toyota's world class performance which initially appears quite hierarchical, however when viewed in more detail it highlights the need to support their employees as they focus on having problems continuously identified and addressed at the frontline where the value is added. Their structure is based on layers of 4-8 employees starting with Team Members reporting to Team Leaders reporting to Group Leaders or Supervisors reporting to Assistant Managers or Superintendents reporting to Area Managers. This structure allows for a workforce of up to 512 or as few as 64 employees to report to the Assist

Manager or Superintendent and 4,096 or as few as 256 employees to report to the Area Manager based on the notion that 4-8 Team Members make up a team, and 4-8 Team Leaders report to a Supervisor and 4-8 Supervisors report to a Superintendent and 4-8 Superintendents report to an Area Manager.

As a guide, we have listed our interpretation of the possible roles and responsibilities for the Team Members, Team Leaders and Supervisors.

Possible Key Production Roles to support a TPM & Lean Workplace

Team Member	Team Leader (Wages)*	Supervisor (Staff)
<ul style="list-style-type: none"> • Perform required tasks to standard • Support the achievement of the production plan in a safe, quality, cost effective and environmentally sound way • Be an effective and contributing Team Member • Be actively involved in scientific Problem Solving (identifying and solving problems using a scientific method such as Plan – Do – Check – Act rather than just working around problems) • Be actively involved in creating a Visual Workplace so that problems can be identified at the earliest possible time • Be actively involved in applying Prevention at Source so as to stop problems from occurring 	<ul style="list-style-type: none"> • Ensure required tasks of the team are completed to standard • Ensure the achievement of the production plan in a safe, quality, cost effective and environmentally sound way • Train and support team members in Base Skills • Train and support team members in Team Skills • Lead effective and contributing Team Members • Teach the team members to be successful in scientific Problem Solving (identifying and solving problems using a scientific method such as Plan – Do – Check – Act rather than just working around problems) • Teach the team members to be successful in creating a Visual Workplace so that problems can be identified at the earliest possible time • Teach the team members to be successful in applying Prevention at Source so as to stop problems from occurring 	<ul style="list-style-type: none"> • Provide frontline safety, human resource, engineering, maintenance and quality support • Setting goals and allocate resources • Teach and coach others to see problems, solve problems and build knowledge though ensuring clear expectations are established before initiating improvements • Develop detailed knowledge of their equipment, machinery and process and teach it to others • Create ample learning experiences by challenging standards to ensure work is being done without delay, without waste, and without strain of any kind • Be integral to major improvements of the process, even introducing new products and processes

***Note:** The Team Leader is a working role and as such is still a wages employee who takes on a number of the responsibilities traditionally done by staff or salary supervisors, although as Team Leaders are not formally staff or salary employees they normally do not have the authority to discipline other team members.

Possible Key Production Responsibilities to support a TPM & Lean Workplace

Team Member	Team Leader (Wages)	Supervisor (Staff)
1. Safety & Environment		
<i>Frontline Safety & Environment including:</i> <ul style="list-style-type: none"> Adhere to safe operating standards & procedures Ensure work area is neat and tidy Identify and promptly notify out-of-control safety or environmental conditions Stop production if out-of-control conditions cause safety or environment hazards Conduct job Safety Assessments for non-routine jobs Record accurately safety & environmental issues and incidents Identify safety & environmental hazards within own workplace Carry out workplace hazard control Conduct team member safety behaviour audits 	<i>Lead Frontline Safety & Environment including:</i> <ul style="list-style-type: none"> Ensure standardised work is followed Conduct risk assessments Rapidly rectify any workplace hazards Rapidly initiate incident investigation following any incident within workplace Rapidly initiate hazard control (minimise, isolate, eliminate) 	<i>Support Safety & Environment including:</i> <ul style="list-style-type: none"> Monitor safety & environment performance Develop safety & environment procedures and audits Conduct safety & environment audits
2. Quality		
<i>Frontline Quality including:</i> <ul style="list-style-type: none"> Carry out routine quality checks as per standard operating procedures Identify and promptly notify out-of-control quality conditions Stop production if out-of-control conditions cause 'out-of-specification' product defects Record accurately quality issues and incidents Understand the relationship between equipment and quality Predict problems in quality and detect their causes 	<i>Lead Frontline Quality including:</i> <ul style="list-style-type: none"> Confirm routine quality checks and address any issues Rapidly respond to out-of-control conditions and / or quality problems 	<i>Support Quality including:</i> <ul style="list-style-type: none"> Monitor quality performance Confirm routine quality and housekeeping checks Ensure quality checks achieve desired goals
3. Equipment Care		
<i>Frontline Equipment Care including:</i> <ul style="list-style-type: none"> Verify equipment is process capable after repairs & maintenance Record accurately equipment care issues or incidents Prevent deterioration by identifying equipment defects at the earliest possible time, ensuring their rectification is promptly carried out, and by establishing and maintaining Basic Equipment Conditions 	<i>Lead Equipment Care including:</i> <ul style="list-style-type: none"> Raise Work Orders for urgent maintenance support Confirm and support weekly Maintenance Plan Co-ordinate OEM activities with Maintenance Plan activities Co-ordinate priority of Equipment Defect List with maintenance support 	<i>Support Equipment Care including:</i> <ul style="list-style-type: none"> Plan and monitor weekly Clean for Inspection activities including allocating time for defect repairs Ensure where ever possible Preventive and Predictive Maintenance activities are incorporated into weekly Clean for Inspection activities Co-ordinate major maintenance

Team Member	Team Leader (Wages)	Supervisor (Staff)
<p>through regular Cleaning for Inspection and daily equipment care inspections & checks</p> <ul style="list-style-type: none"> Measure deterioration through routine inspections Predict deterioration by understanding equipment functions and mechanisms through Training for Inspection, and through periodic care including minor servicing, prompt reporting of problems and assisting in repairs and overhauls where appropriate Initiate equipment improvements by identifying opportunities and contributing to solutions 		<p>and shut down planning</p>
4. Achieve the Production Plan		
<p><i>Achieve the Production Plan including:</i></p> <ul style="list-style-type: none"> Properly operate, set-up & adjust all equipment and machinery within your Team's area of responsibility Ensure that the production plan is achieved in a safe, quality, cost effective, and environmentally sound manner Operate / perform tasks in accordance with agreed standards and procedures Promptly identify and notify your team leader and your team members of production problems Assist in on-the-job training of your team members Record accurately production issues or incidents Manage your workplace (work area and equipment) with your team members within the boundaries set by the company 	<p><i>Lead Achieve the Production Plan including:</i></p> <ul style="list-style-type: none"> Process start-up and control Meet production goals Respond to production problems raised by team members Cover temporary absenteeism Insure parts / materials are supplied to process Report / track daily production results Identify training needs of team members Plan and deliver on-the-job training to team members to enhance their Base Skills Update training & assessment records of team members Ensure issues and learnings are communicated effectively to the Team Leaders on other shifts Conduct start of shift review meeting with team and set priorities for the team Attend daily supervisor meeting to report on progress of team goals and escalate any issues outside the boundaries of their team 	<p><i>Support Achieve the Production Plan including:</i></p> <ul style="list-style-type: none"> Supervise manpower / vacation scheduling If required, cover Team Leader temporary absence Set production goals for all team leaders and monitor Conduct daily review meeting with team leaders and set priorities for the teams including Frontline Problem Solving Challenge standards to ensure work is being done without delay, without waste, and without strain of any kind
5. Formal Continuous Improvement		
<p><i>Engage in Formal Continuous Improvement including:</i></p> <ul style="list-style-type: none"> Participate and contribute in Frontline Problem Solving activities eg Cause & Effect and 5 Why Analysis (root cause analysis) 	<p><i>Lead and Support Formal Continuous Improvement including:</i></p> <ul style="list-style-type: none"> Support all team members as they participate and contribute in Frontline Problem Solving activities eg Cause & Effect and 	<p><i>Lead and Support Formal Continuous Improvement including:</i></p> <ul style="list-style-type: none"> Co-ordinate, promote and support Cross-functional improvement teams eg Micro FE&PI

Team Member	Team Leader (Wages)	Supervisor (Staff)
<ul style="list-style-type: none"> ▪ Record accurately improvement activities ▪ Participate in and contribute to Work Area Management (WAM) and Operator Equipment Management (OEM) team activities so as to strive for zero breakdowns, zero quality problems and zero accidents or incidents ▪ Take responsibility for your allocated Focus Point for Work Area Management ▪ Participate as a member of a cross-functional improvement team (eg Micro FE&PI) so as to address improvement opportunities outside the boundaries of your Area Based Team ▪ Identify and action small improvement initiatives (ie regularly complete a TPM³ Improvement Sheet) ▪ Lead small improvement initiatives as directed by Team Leader ▪ Develop and deliver One Point Lessons, where appropriate 	<p>5 Why Analysis (root cause analysis)</p> <ul style="list-style-type: none"> ▪ Lead Work Area Management (WAM) and Operator Equipment Management (OEM) team activities so as to strive for zero breakdowns, zero quality problems and zero accidents or incidents ▪ Support all team members as they participate as a member of a cross-functional improvement team (eg Micro FE&PI) ▪ Plan and prioritise small improvement initiatives and allocate tasks ▪ Lead team through self-assessments of their WAM / OEM activities and address any shortfalls ▪ Lead team through Team Skills self-assessment each cycle 	<ul style="list-style-type: none"> ▪ Co-ordinate, promote and support Area Based Team improvement through Work Area Management and Operator Equipment Management activities ▪ Set improvement goals for team leaders ▪ Monitor the Goal Align Performance Measures within Area of Responsibility and ensure targets are achieved ▪ Establish Work Area Management monitoring system ▪ Monitor compliance to Work Area Management standards & procedures ▪ Establish Operator Equipment Management monitoring system ▪ Monitor compliance to Operator Equipment Management standards & procedures

1.5 Further Possible Responsibilities of Supervisors or Group Leaders

We have found that in the old Mass Production environment a Supervisor (Group Leader) typically spent about 80% of their time on Task related activities; about 15% on Process related activities and only about 5% on People Development activities. This was often the result of having a large number of people reporting to them and little focus on getting the workers involved in any improvement activity. In a TPM & Lean environment, where the focus is on 'Prevention at Source' through the engagement of the workforce, a Supervisor who is supported by competent Team Leaders as outlined above, should be spending only about 20% of their time on the above 'Task' activities, with the rest of their valuable time spread between Process and People Development time along with contributing to Product development if and when required:

Process Development
<ul style="list-style-type: none"> ▪ Administrative: policy, attendance, corrective actions ▪ Translate high level / executive level goals into quantitative, achievable actions ▪ Shift to Shift co-ordination ▪ Process trials (changes in process) ▪ Co-ordinate work with up-stream and down-stream processes ▪ Co-ordinate support from outside groups
People Development
<ul style="list-style-type: none"> ▪ Team Leader performance and development including: <ul style="list-style-type: none"> ○ Decision Making / Problem Solving ○ Negotiation / Conflict Resolution ○ Teamwork / Communication ○ Presentation Skills ○ Inductive Mindset ▪ Support Team Member Development in Base Skills (flexibility), Mastery Skills (Equipment, Quality and Safety expertise), Team Skills and People Development Skills ▪ Monitor Team Morale ▪ Recognition ▪ Review and Feedback
Product Development (as required)
<ul style="list-style-type: none"> ▪ Co-ordinate activities around product development and new products ▪ Advise any impact on production performance ▪ Ensure all shifts are aware of the product trials and the learnings from such

Possible Key Roles and Responsibilities of a Production Team Member to support a TPM & Lean Workplace

Possible Key Roles of a Production Team Member	How Developed
<ul style="list-style-type: none"> Perform required tasks to standard 	Base Skills
<ul style="list-style-type: none"> Support the achievement of the production plan in a safe, quality, cost effective and environmentally sound way 	Base Skills
<ul style="list-style-type: none"> Be an effective and contributing Team Member 	Team Skills
<ul style="list-style-type: none"> Be actively involved in scientific Problem Solving (identifying and solving problems using a scientific method such as Plan – Do – Check – Act rather than just working around problems) 	Mastery Skills
<ul style="list-style-type: none"> Be actively involved in creating a Visual Workplace so that problems can be identified at the earliest possible time 	Mastery Skills
<ul style="list-style-type: none"> Be actively involved in applying Prevention at Source so as to stop problems from occurring 	Mastery Skills

Possible Key Responsibilities of a Production Team Member	How Developed
Frontline Safety & Environment including:	
<ul style="list-style-type: none"> Adhere to safe operating standards & procedures 	Base Skills
<ul style="list-style-type: none"> Ensure work area is neat and tidy 	Base Skills
<ul style="list-style-type: none"> Identify and promptly notify out-of-control safety & environmental conditions 	Base Skills
<ul style="list-style-type: none"> Stop production if out-of-control conditions cause safety or environmental hazards 	Base Skills
<ul style="list-style-type: none"> Conduct job Safety Assessments for non-routine jobs 	Base Skills
<ul style="list-style-type: none"> Record accurately safety & environmental issues and incidents 	Base Skills
<ul style="list-style-type: none"> Identify safety & environmental hazards within own workplace 	Base Skills
<ul style="list-style-type: none"> Carry out workplace hazard control 	WAM / OEM
<ul style="list-style-type: none"> Conduct team member safety behaviour audits 	OEM
Frontline Quality including:	
<ul style="list-style-type: none"> Carry out routine quality checks as per standard operating procedures 	Base Skills
<ul style="list-style-type: none"> Identify and promptly notify out-of-control quality conditions 	Base Skills
<ul style="list-style-type: none"> Stop production if out-of-control conditions cause 'out-of-specification' product defects 	Base Skills
<ul style="list-style-type: none"> Record accurately quality issues and incidents 	Base Skills
<ul style="list-style-type: none"> Understand the relationship between equipment and quality 	OEM
<ul style="list-style-type: none"> Predict problems in quality and detect their causes 	OEM
Frontline Equipment Care including:	
<ul style="list-style-type: none"> Verify equipment is process capable after repairs & maintenance 	Base Skills
<ul style="list-style-type: none"> Record accurately equipment care issues or incidents 	Base Skills
<ul style="list-style-type: none"> Prevent deterioration by identifying equipment defects at the earliest possible time, ensuring their rectification is promptly carried out, and by establishing and maintaining Basic Equipment Conditions through regular Cleaning for Inspection and daily equipment care inspections & checks 	OEM
<ul style="list-style-type: none"> Measure deterioration through routine inspections 	OEM
<ul style="list-style-type: none"> Predict deterioration by understanding equipment functions and mechanisms through Training for Inspection, and through periodic care including minor servicing, prompt reporting of problems and 	OEM

assisting in repairs and overhauls where appropriate	
<ul style="list-style-type: none"> • Initiate equipment improvements by identifying opportunities and contributing to solutions 	OEM
Achieve the Production Plan including:	
<ul style="list-style-type: none"> • Properly operate, set-up & adjust all equipment and machinery within your Team's area of responsibility 	Base Skills
<ul style="list-style-type: none"> • Ensure that the production plan is achieved in a safe, quality, cost effective, and environmentally sound manner. 	Base Skills
<ul style="list-style-type: none"> • Operate / perform tasks in accordance with agreed standards and procedures. 	Base Skills
<ul style="list-style-type: none"> • Promptly identify and notify your team leader and your team members of production problems 	Base Skills
<ul style="list-style-type: none"> • Assist in on-the-job training of your team members 	Base Skills
<ul style="list-style-type: none"> • Record accurately production issues or incidents 	Base Skills
<ul style="list-style-type: none"> • Manage your workplace (work area and equipment) with your team members within the boundaries set by the company 	WAM / OEM
Engage in Formal Continuous Improvement including:	
<ul style="list-style-type: none"> • Participate and contribute in Frontline Problem Solving activities eg Cause & Effect and 5 Why Analysis (root cause analysis) 	Base Skills
<ul style="list-style-type: none"> • Record accurately improvement activities 	Base Skills
<ul style="list-style-type: none"> • Participate in and contribute to Work Area Management (WAM) and Operator Equipment Management (OEM) team activities so as to strive for zero breakdowns, zero quality problems and zero accidents or incidents 	WAM / OEM
<ul style="list-style-type: none"> • Take responsibility for your allocated Focus Point for Work Area Management 	WAM
<ul style="list-style-type: none"> • Participate as a member of a cross-functional improvement team (eg Micro FE&PI) so as to address improvement opportunities outside the boundaries of your Area Based Team 	FE&PI, NEM, etc
<ul style="list-style-type: none"> • Identify and action small improvement initiatives (ie regularly complete a TPM³ Improvement Sheet) 	WAM / OEM, FE&PI
<ul style="list-style-type: none"> • Lead small improvement initiatives as directed by Team Leader 	WAM / OEM
<ul style="list-style-type: none"> • Develop and deliver One Point Lessons, where appropriate 	OEM

Possible Key Roles and Responsibilities of a Production Team Leader to support a Lean & TPM Workplace

Possible Key Roles of a Production Team Leader (Wages*)	How Developed
<ul style="list-style-type: none"> Ensure required tasks of the team are completed to standard 	Base Skills
<ul style="list-style-type: none"> Ensure the achievement of the production plan in a safe, quality, cost effective and environmentally sound way 	Base Skills
<ul style="list-style-type: none"> Train and support team members in Base Skills 	Base Skills
<ul style="list-style-type: none"> Train and support team members in Team Skills 	Team Skills
<ul style="list-style-type: none"> Lead effective and contributing team members 	Team Leadership Skills
<ul style="list-style-type: none"> Teach the team members to be successful in scientific Problem Solving (identifying and solving problems using a scientific method such as Plan – Do – Check – Act rather than just working around problems) 	Mastery Skills
<ul style="list-style-type: none"> Teach the team members to be successful in creating a Visual Workplace so that problems can be identified at the earliest possible time 	Mastery Skills
<ul style="list-style-type: none"> Teach the team members to be successful in applying Prevention at Source so as to stop problems from occurring 	Mastery Skills

***Note:** The Team Leader is a working role and as such is still a wages employee who takes on a number of the responsibilities traditionally done by staff or salary supervisors, although as Team Leaders are not formally staff or salary employees they normally do not have the authority to discipline other team members.

Possible Key Responsibilities of a Production Team Leader	How Developed
<i>Lead Frontline Safety & Environment including:</i>	
<ul style="list-style-type: none"> Ensure standardised work is followed 	Base Skills
<ul style="list-style-type: none"> Conduct risk assessments 	Base Skills
<ul style="list-style-type: none"> Rapidly rectify any workplace hazards 	Base Skills
<ul style="list-style-type: none"> Rapidly initiate incident investigation following any incident within workplace 	Base Skills
<ul style="list-style-type: none"> Rapidly initiate hazard control (minimise, isolate, eliminate) 	Base Skills
<i>Lead Frontline Quality including:</i>	
<ul style="list-style-type: none"> Confirm routine quality checks and address any issues 	Base Skills
<ul style="list-style-type: none"> Rapidly respond to out of control conditions and / or quality problems 	Base Skills
<i>Lead Frontline Equipment Care including:</i>	
<ul style="list-style-type: none"> Raise Work Orders for urgent maintenance support 	Base Skills
<ul style="list-style-type: none"> Confirm and support weekly Maintenance Plan 	Base Skills
<ul style="list-style-type: none"> Co-ordinate OEM activities with Maintenance Plan activities 	OEM
<ul style="list-style-type: none"> Co-ordinate priority of Equipment Defect List with maintenance support 	OEM
<i>Lead Achieve the Production Plan including:</i>	
<ul style="list-style-type: none"> Process start-up and control 	Base Skills
<ul style="list-style-type: none"> Meet production goals 	Base Skills
<ul style="list-style-type: none"> Respond to production problems raised by team members 	Base Skills

• Cover temporary absenteeism	Base Skills
• Insure parts / materials are supplied to process	Base Skills
• Report / track daily production results	Base Skills
• Identify the training needs of team members	Base Skills
• Plan and deliver on-the-job training to team members to enhance their Base Skills	Base Skills
• Update training and assessment records of team members	Base Skills
• Ensure issues and learnings are communicated effectively to the Team Leaders on other shifts	WAM / OEM
• Conduct start of shift review meeting with team and set priorities for the team	OEM
• Attend daily supervisor meeting to report on progress of team goals and escalate any issues outside the boundaries of their team	OEM
<i>Lead & Support Formal Continuous Improvement including:</i>	
• Support all team members as they participate and contribute in Frontline Problem Solving activities eg Cause & Effect and 5 Why Analysis (root cause analysis)	Base Skills
• Lead Work Area Management (WAM) and Operator Equipment Management (OEM) team activities so as to strive for zero breakdowns, zero quality problems and zero accidents or incidents	WAM / OEM
• Support all team members as they participate as a member of a cross-functional improvement team (eg Micro FE&PI)	FE&PI, NEM, etc
• Support team members as they identify and action small improvement initiatives (ie regularly complete a TPM ³ Improvement Sheet)	WAM / OEM, FE&PI
• Plan and prioritise small improvement initiatives and allocate tasks	OEM
• Lead team through self-assessments of their WAM / OEM activities and address any shortfalls	WAM / OEM
• Lead team through Team Skills self-assessment each cycle	WAM / OEM

2. Planning for Area Based Teams

Before commencing Area Based Teams and Work Area Management in a Defined Production Area, 3 related reviews should be carried out:

1. Review the number of operators required to achieve the production plan in each shift in the Defined Production Area and if more than say 8 then review the layout of the Defined Production Area to determine whether the Defined Production Area requires to be split into Areas of Responsibility with 4-8 operators including a Team Leader in each Area of Responsibility.
2. Review the current skills status of all employees (including Team Leaders) working in the Defined Production Area regarding:
 - a. the ability to competently operate all* the plant & equipment within their team's area of responsibility; and
 - b. the ability to competently carry out their responsibilities as per the agreed Key Responsibilities of a Production Team Member list (see above)
3. Review the current skills status of the Team Leaders working in the Defined Production Area regarding:
 - a. the ability to competently carry out their responsibilities as per the agreed Key Responsibilities of production Team Leader list (see above)
 - b. the ability to competently lead team members to achieve the production plan in a safe, quality, cost effective and environmentally sound way and to conduct formal continuous improvement activities by the application of management / leadership capabilities.

* To ensure each proposed Area Based Team has sufficient skills flexibility to allow all operators to cover for each other in the various tasks required to achieve the production plan and hence be able to rotate around the various tasks on a regular basis to ensure total ownership of their Defined Production Area or Area of Responsibility.

2.1 Review 1: Determine need for Areas of Responsibility

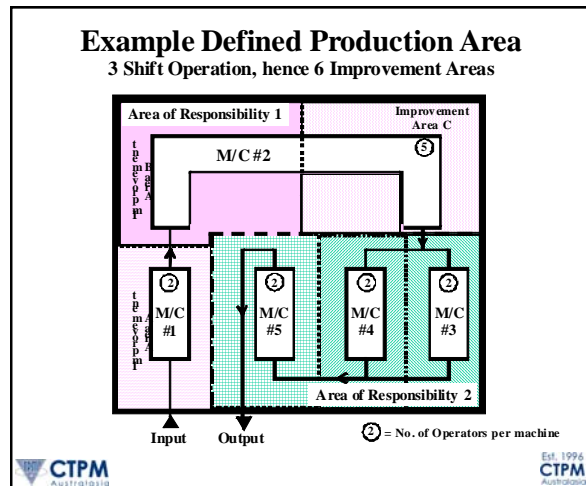
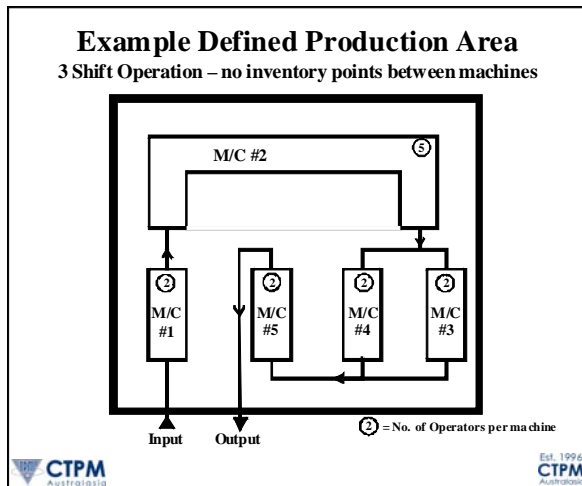
To assist with this review, we have prepared an example below along with supporting definitions:

Defined Production Area

Able to measure OEE (ie good output and good input) and at least 4 permanent employees per shift.

Area of Responsibility

The area the team is responsible for achieving the production plan. If the Defined Production Area has sufficient employees to create more than 1 team of 4-8 per employees per shift then there will be more than 1 Area of Responsibility within the Defined Production Area eg instead of 13 employees working the whole line, 7 will work on the front end of the line and develop their base skills and mastery skills (Area of Responsibility 1) and 6 will work on the back end of the line and develop their base skills and mastery skills (Area of Responsibility 2).



Improvement Area

The area the team is responsible for Area Based Team improvement activities (ie WAM / OEM). If there is more than one shift within the Defined Production Area then there will be more than one Improvement Area within each Area of Responsibility.

As there are no inventory points between machines, OEE can only be measured at the output of the process (M/C 1 – M/C 5). Hence the Defined Production Area involves 13 operators working 5 machines over 3 shifts (total 39 operators). To create Area Based Teams of 4-8, the Defined Production Area needs to be divided into two Areas of Responsibility for the Area Based Teams. In this example we have made Machines 1 and 2 involving 7 operators as Area of Responsibility 1 and Machines 3, 4 and 5 involving 6 operators as Area of Responsibility 2.

As each Area of Responsibility has 3 shifts, each shift is to be allocated an Improvement Area (approx 1/3 of the Area of Responsibility). In the example, for Area of Responsibility 1, Improvement Area A would cover M/C 1 and its associated work area, and Improvement Area B would cover half of M/C 2 and its associated work area, and Improvement Area C would cover the other half of M/C 2 and its associated work area. Area of Responsibility 2 would also be divided into three Improvement Areas as shown.

Outcome

Each Area Based Team (6 in total) will be accountable for Achieving the Production Plan (~ 95% of their time) in a Safe, Quality, Cost Effective and Environmentally Sound way for their Area of Responsibility and be accountable for their WAM / OEM improvement activities (~ 5% of their time) in their designated Improvement Area.

Notes: This concept of Improvement Areas for each shift is based on the premise that all team members in each Area Based Team have flexible Base Skills and work all areas of the Defined Production Area or Area of Responsibility on a regular basis. By being allocated an Improvement Area with a rule that no changes or improvements can be carried out until all other shifts who work in the Improvement Area have signed off on agreement to the change or improvement, communications improve and agreement about common practices between shifts is greatly enhanced.

This sign-off process is typically carried out using a simple Improvement Sheet which highlights the current situation (photo of problem) and a proposed change or improvement (sketch, description or photo of temporary solution such as taped out floor area) and provision for the Team Leader of each shift to sign off on behalf of their shift agreeing to the proposed change / improvement.

If operators on all shifts do not have flexible Base Skills and do not move around their Defined Production Area or Area of Responsibility on a regular basis (eg one person – one machine focus of running the shift) then when the concept of Improvement Areas is introduced to support Formal Improvement (eg WAM / OEM) the operators who do not work in the Improvement Area will not have ownership and hence may resist improving an area they do not work in and hence create friction between all the Team Members by not doing their share, making it impossible to create synergy within the team.

2.2 Review: Determine Current Base Skills of Operators and Team Leaders

For Area Based Teams to be effective we need to develop flexibility within the team members ie all team members can do basic tasks that allow them to cover for each other when a team member is away at a Cross-functional Team meeting or doing some other development activity ie attending a training course.

To assist in ensuring Base Skills are developed by all team members within a team (includes Team Leader) we recommend a Base Skills Matrix be developed for all Area Based Teams to highlight the basic tasks required by each team member and whether each team member has these basic task skills or is working towards obtaining the basic task skills to ensure the team has sufficient flexibility to support Formal Continuous Improvement activities (WAM / OEM).

Sample Team Member Equipment & Machinery Base Skills Matrix

Name	Machine 1 Operate plus Quality Checks on Inputs & Outputs	Machine 2 Operate plus Quality Checks on Inputs & Outputs	Machine 3 Operate plus Quality Checks on Inputs & Outputs	Machine 4 Operate plus Quality Checks on Inputs & Outputs	Machine 5 Operate plus Quality Checks on Inputs & Outputs
Member 1	4	2	1	3	
Member 2	1	3	2	3	
Member 3	2	2	3	2	2
Member 4				3	1
Member 5	2	1	3	2	3

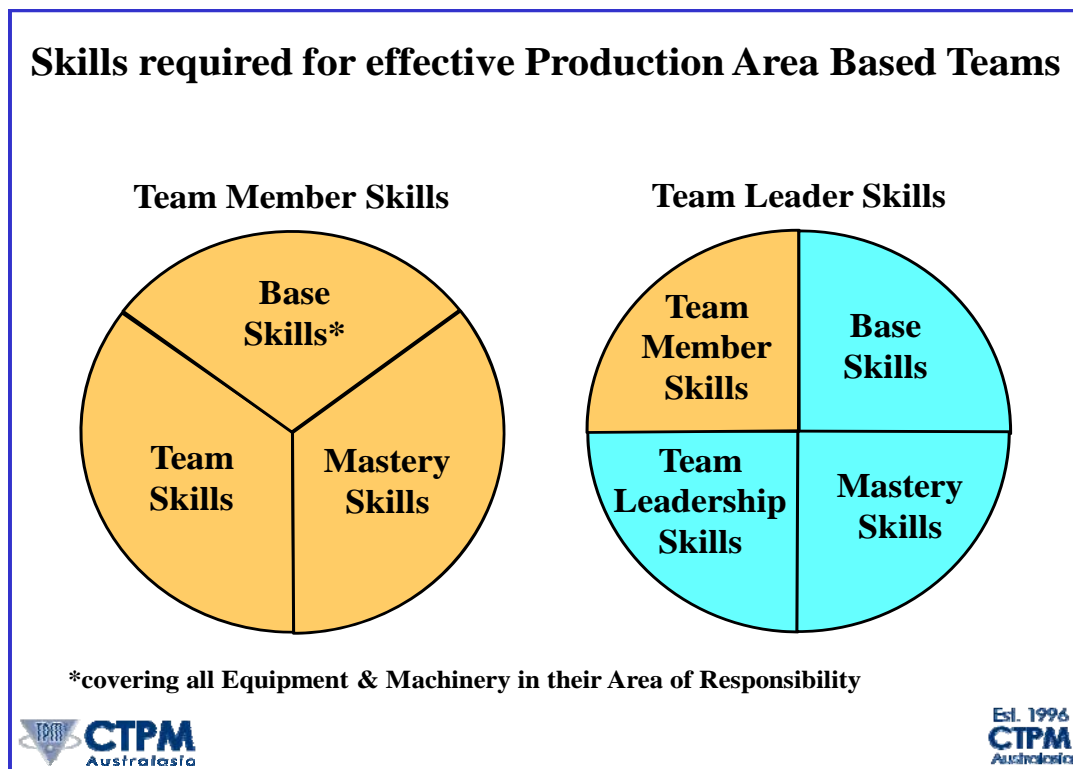
Codes:

- 1 Commenced formal training program for the machine
- 2 Can Operate with regular Team Leader support
- 3 Can Operate with high level of confidence, minimal Team Leader support
- 4 Can train other Team Members

Note: Highlights lack of flexibility within the team and hence the need for base skills development before Area Based Team improvement activities (WAM / OEM) are commenced if more than 1 shift is involved in the Defined Production Area

Note: To assist with the current skills reviews we recommend the use of the People & Leadership Development Activities of TPM³. This may involve the creation of the People & Leadership Development Leadership Team which would establish Micro Education & Training Teams to assist each Defined Production Area to carry out the

skills review and develop plans to achieve a flexible workforce with ownership to their entire Defined Production Area or Area of Responsibility. Alternatively the Micro Education & Training Teams could report directly to the Site Leadership Team.



Micro Education & Training Process – Base Skills

- **Requirements Analysis** to identify skills and competencies required to Achieve the Production Plan in a safe, quality, cost effective and environmentally sound way within the Defined Production Area (Base Skills)
- **Needs Analysis** to determine the gap to the requirements
- **Delivery Analysis** to determine the most appropriate means to address the needs (ie On-the job Training; Workshops; Self Learning etc)
- **Delivery** to develop the required skills and competencies
- **Competency Assessment** to allow self management and recognition of achievement
- **Skills Update Process** to ensure employees continuously refresh their skills and competencies

2.3 Review: Determine Current Skills of Team Leaders to support the development of their Area Based Team

For the Area Based Teams to be effective we may need to further develop the skills and abilities of the Team Leaders. Again the Micro Education & Training Team framework can be used.

Micro Education & Training Process – Team Leader Base Skills

- **Requirements Analysis** to identify skills and competencies required to lead and support their Production Area Based Team to achieve the production plan in a safe, quality, cost effective and environmentally sound way.
- **Needs Analysis** to determine the gap to the requirements
- **Delivery Analysis** to determine the most appropriate means to address the needs (ie On-the job Training; Workshops; Self Learning etc)
- **Delivery** to develop the required skills and competencies
- **Competency Assessment** to allow self management and recognition of achievement
- **Skills Update Process** to ensure Team Leaders continuously refresh their skills and competencies

Education & Training Teams are based on the 9 Step Process		
Deming's P-D-C-A	Macro & Micro FE&PI 9 Step Process supported by Team Member Manual	Micro E&T 9 Step Process supported by Team Member Manual
Plan	1. Confirm Mandate & Boundaries	1. Confirm Mandate & Boundaries
	2. Form Team & Scope Activities	2. Form Team & Scope Activities
	3. Analyse Current Situation regarding requirements	3. Analyse Current Situation regarding Requirements
	4. Develop a Vision of Improved Performance	4. Determine Needs
	5. Identify Possible Root Causes & Solutions	5. Determine best Delivery methods
Do	6. Pilot Proposed Solutions, Refine & Implement Successful Solutions	6. Deliver the Training
Check	7. Evaluate Results & Measure Progress	7. Competency Assessment
Act	8. Hold Gains & Define Future Actions	8. Skills Update
	9. Communicate Result & Share Learnings	9. Communicate Result & Share Learnings

Determine Training Plan for the development of Team Leader Team Skills and Leadership Skills

Part A:

2 hour Team Skills training modules with other Team Leaders so as to develop competency before their team's are given the Team Skills training*.

1. Being an Effective Team Members
2. Running Effective Meetings
3. Presentation Skills
4. Decision Making & Problem Solving
5. Dealing with Difficult People
6. Conflict Resolution
7. Negotiation Techniques
8. Appreciation of Individual Strengths & Weaknesses
9. Giving & Receiving Feedback
10. Planning & Prioritising

***Notes:** Priority of the training can be established by conducting a Team Skills Self-Assessment before finalising the order of the training program.
Suggest a module be delivered either weekly or fortnightly

Part B:

2 hour Team Leadership training modules with other Team Leaders so as to develop leadership competencies*.

1. Delegating & Time Management
2. Motivation & Accountability
3. Knowing your Learners
4. Training Methods
5. Evaluating Leadership (Self Development)

***Notes:** Prior to the training, Team Leaders to pre-read this document 'Key Production Roles & Responsibilities to support a TPM & Lean Workplace' which should have been tailored for the site prior to commencing this training.
Suggest a module be delivered either weekly or fortnightly

Determine Training Plan for Team Skills Development for Area Based Teams

Integrate through a pull approach (Team Skills Self-Assessment), 2 hour Team Skills training modules (10 off) into TPM³ Area Based Teams* so as to develop team members' competency in:

1. Being an Effective Team Member
2. Running Effective Meetings
3. Presentation Skills
4. Decision Making & Problem Solving
5. Dealing with Difficult People
6. Conflict Resolution
7. Negotiation Techniques
8. Appreciation of Individual Strengths & Weaknesses
9. Giving & Receiving Feedback
10. Planning & Prioritising

***Notes:** Normally presented during OEM half-day kick-off workshops, however this can be accelerated by running specific 2-hour sessions in lieu of the weekly OEM Improvement time say once a month.

3. Preparation for Area Based Teams and WAM / OEM for TPM³ Champions (assisted by TPM³ Co-ordinator)

3.1 Outline of WAM & OEM

Work Area Management is an ongoing activity for Area Based Teams, which typically commences with a designated 12-week cycle to engage all employees and significantly reduce their frustrations with their work area and to induce a significant improvement in standard practices and communications between shifts. The key outcomes from Work Area Management are:

- Support the Defined Production Area in improving OEE along with the agreed holistic goal aligned performance measures under the following typical headings: Safety & Environment Performance, Asset Performance, Quality Performance, Customer Satisfaction Performance, Supplier Performance, Human Resource Performance and Financial Performance
- Introduce formal improvement activities involving everyone within the Defined Production Area by establishing Area Based Teams of 4-8 employees with a designated Team Leader across all shifts with clear responsibilities and boundaries for agreed Improvement Areas
- Establish a communications Noticeboard to support sharing of information between shifts to gain agreement and buy-in on improvements
- Establish a Scoreboard for each Area Based Team to provide feedback to the team and everyone else at site on the progress of their improvement activities
- Improve safety, productivity and morale by establishing “a place for everything and everything in its place” within the Defined Production Area
- Standardise practices to support a more consistent approach to achieving the production plan across all shifts within the Defined Production Area via defined Improvement Areas for each team
- Introduce the practice of Area Based Team self-assessments
- Improve communications and standard practices between shifts by having all teams within the Defined Production Area sign-off on every other team's improvements
- Create time and reduce the frustrations of all Area Based Team members so that there will be a desire (pull) to support the introduction of Operator Equipment Management

Operator Equipment Management involves a 4 Stage 7 Step Process of some 8-10 12-week cycles with Work Area Management activities supporting along the way to ensure ultimately we achieve a workplace that is free of accidents, breakdowns and quality problems. The key activities of Operator Equipment Management include:

- Support the Defined Production Area in improving OEE along with the agreed holistic goal aligned performance measures under the following typical headings: Safety & Environment Performance, Asset Performance, Quality Performance, Customer Satisfaction Performance, Supplier Performance, Human Resource Performance and Financial Performance
- Reduce accelerated or early deterioration of equipment by establishing Basic Equipment Conditions
- Assist in keeping equipment in its 'ideal' state through daily checks and proper operation after maintenance have restored equipment to its 'ideal' state
- Identify and initiate the improvement of Design Weaknesses

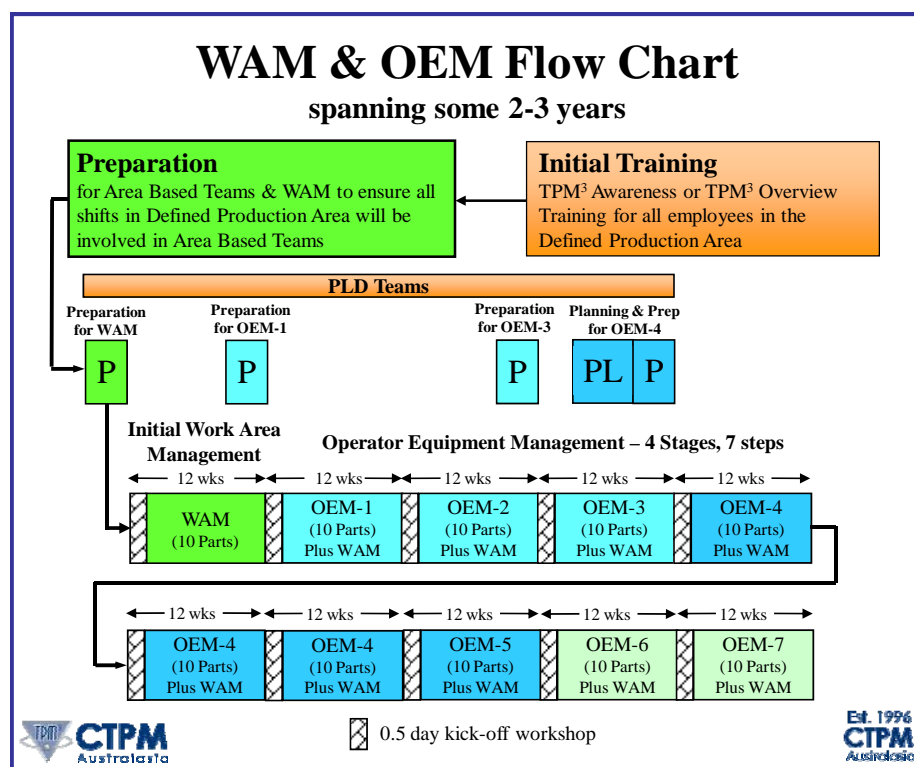
Some of the outcomes from Operator Equipment Management activities include:

- Using care of equipment as a means of teaching employees new ways of thinking and working
- Creating a positive environment to enable maintenance and production to gain a greater understanding of each others situation and build relationships

- Providing everyone with the training, systems and opportunities to care for their own equipment & workplace
- Establishing the necessary conditions and systems to allow equipment to be properly maintained
- Developing self-managed world class operators competent in:
 - Frontline Safety & Environment
 - Frontline Quality (input, process, output)
 - Frontline Equipment Care
 - Achieving the Production Plan
 - Formal Continuous Improvement

who can:

- Recognise equipment defects or problems at the earliest possible time
- Initiate and ensure rectifications are promptly carried out
- Understand equipment functions and mechanisms
- Detect causes of defects or abnormalities
- Carry out minor servicing of their equipment where appropriate
- Understand the relationship between equipment and quality
- Predict problems in quality and detect their causes
- Manage own workplace
- Developing synergistic mature Area Based Teams recognising the 4 stages of Team Development
- Creating the environment where Production and Maintenance work in harmony
- Creating a failure-free, trouble-free, safe workplace



Notes: Typically a 2-3 year employee development process involving 10-12 cycles of education, demonstration, doing and reflection so as to achieve set outcomes. Each cycle spans 2-4 months commencing with a half-day kick-off workshop and concluding with a team presentation. Mid-way through the cycle the team puts forward its improvement plan to allow the Leadership Team to review progress and, if necessary, adjust the boundaries to ensure the team will be successful. The process is supported throughout by People & Leadership Development activities

3.2 Determining Your Improvement Areas for WAM / OEM Activities

Once Areas of Responsibility have been established and agreed to, Improvement Areas need to be established. To ensure ownership and buy-in from the employees we suggest the following way forward.

If all Area Based Teams will be present at the WAM kick-off workshop then we suggest you provide a simple schematic drawing of the workplace to enable the Area Based Teams to determine and agree on the Improvement Areas during the WAM kick-off workshop. Once the areas are agreed to then we would suggest a simple draw from a hat could be a means to allocate the Improvement Areas if there allocation isn't obvious;

OR

If all the Area Based Teams cannot be present at the WAM kick-off workshop (more than one WAM kick-off workshop conducted) then we suggest after or during the TPM³ Awareness or TPM³ Overview training the TPM³ Champion for the area (Production Manager) divide the workplace into suggested Improvement Areas (don't allocate) and display the proposed Improvement Areas (simple schematic drawing) for comment and agreement from all shifts, advising the Area Based Teams that Improvement Areas will be allocated by 'drawing from a hat' or other agreed method during the WAM kick-off workshops obviously with the first workshop Area Based Team taking the first draw from the hat.

3.3 Establishing Area Based Teams

1. All permanent employees (operators) who work in the Defined Production Area must be allocated to an Area Based Team. Any employee who may work in the area during peak loads or to cover for absenteeism should be treated as a 'visitor' to the area who will be expected to follow the 'rules' including standards and procedures established by the Area Based Teams.
2. WAM participation, unlike Cross-functional Focused Equipment & Process Improvement teams is not by invitation, all employees working in the Defined Production Area / Area of Responsibility must be involved.
3. In some cases, Area Based Team structures are obvious and will be accepted by all employees. In other cases, TPM³ Awareness or TPM³ Overview training may be required prior to consultation with the employees affected to ensure buy-in to the proposed new Area Based Team structure.
4. A list of each designated Area of Responsibility within the Defined Production Area and the corresponding Area Based Team members (4-8), should be prepared and agreed to before the WAM kick-off workshop.
5. A Base Skills Matrix, if not already in existence, should be established to identify any immediate training needs to ensure the Area Based Teams will be flexible enough to support Formal Continuous Improvement.
6. In determining the Area of Responsibility structures, consideration must be given to the allocation of specific support staff to each Area Based Team. The allocated support staff (eg mechanical maintenance, electrical maintenance, quality / technical, mentor etc) should be determined before the WAM kick-off workshop(s) so they can attend if practical. Use of a Team Information Sheet for each team is recommended.

Work Area Management Team Information Sheet (Area Based Team)

Cycle No.:	Defined Production Area:		Improvement Area:																
Starting DPA OEE:	Target DPA OEE for this Cycle:																		
Mandate:	<ul style="list-style-type: none"> Clear-up and clean-up your Improvement Area and create 'a place for everything in its place' by working through the 10 parts of Work Area Management (WAM); Create or enhance standards and checklists for your work area and work processes to ensure that improvements are sustained; Ensure appropriate Visual Controls are established to communicate work area standards and to make any deviation from standard easy for all to see; Achieve a WAM Self-Assessment Rating of at least 80%; Contribute along with all other Area Based and Cross-functional Teams in your workplace to help improve the OEE and the Goal Aligned Performance Measures for your Defined Production Area Complete within 12 weeks 																		
	Physical:	Within the team's Improvement Area																	
	Technological:	No change to existing technology unless approved																	
	Team Resources:	Time for meetings per week: approx 0.5 hrs Time for improvement activities per week: approx 1.5 hrs Total Time for formal activities (excludes discretionary time): 2.0 hrs																	
	Support Resources:	Allocated Mech Maint support: as required up to 2.0 hrs per week																	
Boundaries:	Financial:	Allocated Elect Maint support: as required up to 1.0 hr per week A budget of \$1,000 per team subject to application from the team and approval from L/T at the mid-way presentation. Further money may be available if justified and then approved by the Leadership Team (your TPM ³ Co-ordinator can help you with this)																	
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Team Leader</th> <th style="width: 70%;">Designated Support</th> </tr> </thead> <tbody> <tr> <td>Operator</td> <td>Maintenance - Mechanical</td> </tr> <tr> <td>Operator</td> <td>Maintenance - Electrical</td> </tr> <tr> <td>Operator</td> <td>Quality / Technical</td> </tr> <tr> <td>Operator</td> <td>Safety</td> </tr> <tr> <td>Operator</td> <td>L/T Member (Mentor)</td> </tr> <tr> <td>Operator</td> <td>TPM³ Co-ordinator</td> </tr> <tr> <td>Operator</td> <td>CTPM Navigator</td> </tr> </tbody> </table>			Team Leader	Designated Support	Operator	Maintenance - Mechanical	Operator	Maintenance - Electrical	Operator	Quality / Technical	Operator	Safety	Operator	L/T Member (Mentor)	Operator	TPM ³ Co-ordinator	Operator	CTPM Navigator
	Team Leader	Designated Support																	
Operator	Maintenance - Mechanical																		
Operator	Maintenance - Electrical																		
Operator	Quality / Technical																		
Operator	Safety																		
Operator	L/T Member (Mentor)																		
Operator	TPM ³ Co-ordinator																		
Operator	CTPM Navigator																		
Kick-off Date:																			
Kick-off Time:																			
Meeting Day & Time:																			
Activity Day & Time:																			
Recommendations from Mid-way Presentation:																			
Results from Final Presentation:																			
Key Learnings from Final Presentation:																			

To be handed to Team in Step 1 / Part 1 of kick-off workshop; To be completed at end of cycle for archives

7. A diagram of the proposed Improvement Areas for each Area of Responsibility within the Defined Production Area should be prepared and preferably agreed to before the WAM kick-off workshop(s) especially if not all Area Based Teams will be attending so that the allocation of the Improvement Areas can be carried out during the WAM kick-off workshop(s).

3.4 Identify the Area Based Teams and their Members (4-8)

For each Defined Production Area that is to embark on WAM, identify the Areas of Responsibility (if only up to 8 permanent employees per shift then Area of Responsibility will be the same as the Defined Production Area) and the team members on each shift (each Area Based Team).

Defined Production Area:

Area of Responsibility:

Shift / Team	Shift A	Shift B	Shift C	Shift D
Team Leader				
Operator				
Operator				
Operator				
Operator				
Operator				
Operator				
Operator				

3.5 Designated Support for Area Based Teams

Designated people must be allocated to support the Area Based Teams especially Maintenance, Quality and Management (mentor). For each Area Based Team allocate the relevant support people recognising that often support people are responsible for more than one Area Based Team.

Defined Production Area:

Area of Responsibility:

Support Area	Designated Person for	Designated Person for	Designated Person for	Designated Person for
Team / Shift	Shift A	Shift B	Shift C	Shift D
Mechanical Maintenance				
Electrical Maintenance				
Quality				
Leadership Team Mentor				
TPM ³ Co-ordinator				

*Note: Ensure all 'designated persons' have attended at least TPM³ Awareness training
Ensure at least the designated mechanical maintenance person and Leadership Team mentor attends the WAM kick-off workshop*

3.6 Establish Time for Formal Improvement Activities for the WAM Cycle

Sample Allocation of Improvement Time during the WAM Cycle

Key Roles of an Area Based Team	WAM % Time	Micro FE&PI % Time
1. Achieve the Production Plan in a Safe, Quality (right first time), Cost Effective, and Environmentally Sound way (S,Q,C,E way) including keeping the <i>entire</i> Area of Responsibility clean	90%	
2. Formally Improve the way the Production Plan is achieved through WAM / OEM and Micro FE&PI activities	5%	5%

Notes: 5% is typically 2.0 hours per week with Area of Responsibility. Team Members may need to stop (or have relief coverage) to allow say 15-30 minute meeting and 1.0–1.5 hours improvement activities

5% is typically 2 – 4 team members on separate Micro FE&PI teams involving say 1 hour off the job for a meeting and say 1 hour for activities to support the team

3.7 Establish Area Based Team Mandate during WAM Cycle

Sample Team Mandate:

For your Area Based Team's **Improvement Area** for WAM:

- Create 'a place for everything and everything in its place' by working through the 10 parts of Work Area Management (WAM);
- Achieve a WAM Self-Assessment Rating of at least 80%;
- Create standards to maintain achievements
- Complete within 12 (**determine**) weeks

For your team's **Area of Responsibility** and Defined Production Area

- During the WAM cycle, contribute along with all the Area Based Teams and Micro FE&PI teams to help improve OEE (A x R x Q) by at least 5% (**determine**) while having a positive impact on the goal aligned performance measures such as:

Safety & Environment Performance;

Asset Performance (Equipment and Working Capital / Inventory;

Quality Performance;

Customer Satisfaction Performance;

Supplier Performance;

Human Resource or People Performance; and

Financial / Cost Performance.

3.8 Establish Team Boundaries for WAM

Sample Boundaries for the WAM Cycle

Physical: Within the team's improvement area

Technology: No change to existing technology (unless approved)

Team Resources: Total Time per week: 1.5 or 2.0 hours*
Time for meetings per week: 15 or 30 minutes
Time for Improvement Activities per week: 1 or 1.5 hour*

** Plus any special activity (eg Clear-up) time approved by the Leadership Team*

Support Resources: Maint Support per week: 1 hour **

*** Plus any extra time approved by the Leadership Team*

Finacial: A budget of \$1,000 (**determine**) per team. Your plans for this should be explained to the Leadership Team at the mid-way presentation. Further money may be available if justified and then approved by the Leadership Team.

Activities: If there is an urgent customer requirement or production / safety issue and the planned activities for WAM (including the weekly meeting) has to be deferred it should be rescheduled at the earliest convenient time within the week.

Changes: Before any changes to your **Improvement Area** can be done they must be agreed to by all the other shifts in your Area of Responsibility by having the other shift Team Leaders sign off on your Improvement Sheet outlining the proposed change.

3.9 Establish Meeting and Activity Plan for WAM

Sample Meeting Plan

A formal team meeting should be held weekly at a regular time and place preferably in front of the team's Noticeboard / Scoreboard / Whiteboard for a maximum of 30 minutes dependent on any urgent customer / production / safety requirements where upon the meeting is to be deferred until the earliest suitable time within the week.

Sample Activity Plan

Formal team improvement activities should be carried out at a regular time for a maximum of 90 minutes including meeting time, dependent on any urgent customer / production / safety requirements where upon the activities are to be deferred until the earliest suitable time within the week.

Note: Informal team meetings / activities can be carried out during normal work time provided they do not impede the team's ability to achieve the production plan in a Safely, Quality, Cost Effective and Environmentally sound way (S,Q,C,E).

The initial formal meetings may be a little longer with less time for activity while planning for the Clear-up is finalised.

3.10 Review People Issues

For each Defined Production Area review any people issues identified by the Macro FE&PI Team through their Operator Surveys, OEE Observations, Loss Analysis or Improvement Implementations (eg talk to team members and review their mid-way and final presentations) that may be of assistance in preparing the WAM kick-off workshop.

3.11 Prepare TPM³ Champion presentation for the WAM Kick-off

Assist the TPM³ Champion (Production Manager) to prepare a brief presentation for the WAM kick-off workshop regarding:

- the history of TPM³ at the site to date;
- outcomes from previous TPM³ Team activities;
- why the site is embarking on Work Area Management in the designated areas;
- what is the expectation and timeframe of the cycle and mid-way presentation
- introduce the WAM kick-off workshop presenters

3.12 Review Steps to be Covered in WAM Kick-off Workshop

0. Introduction

Brief review of previous TPM³ Training

History of TPM³ at our site

Why WAM (supported by story telling of examples of frustrations by operators)

Overview of WAM

1. Confirm Mandate & Boundaries

Allocate Improvement Areas for each team

2. Form Team & Scope Activities

Understand what makes an effective Area Based Team

Mandate & Boundaries

Responsibilities, Roles & Rules

Monitoring Progress

3. Clear-Up of Area (part only)

Clear-Up process

Note: Ensure all WAM kick-off workshops are conducted in an ‘inductive’ way ie all employees are engaged to participate in WAM activities by asking questions (Do you ever waste time trying find something when you are about to do a task? Do you every get frustrated because what you need is not at your finger tips? Would sorting out your work area make life easier for you? etc) supported with story telling by the employees outlining their experiences and frustrations from not being able to find things when needed.

3.13 Prepare Training Aides for WAM Kick-Off Workshop

1. Take photos / videos of designated workplace focusing on potential WAM opportunities to assist team members to visualise opportunities within their **Improvement Areas**
2. Prepare photo's / videos of ‘Vision of WAM Excellence’ eg shadow boards, place for everything, Unilever - Indonesia videos etc

3.14 Determine WAM Schedule (Recommended completion within 12 weeks)

Sample WAM Schedule

Parts	Week											
	1	2	3	4	5	6	7	8	9	10	11	12
0. WAM Half-day Kick-off Workshop												
1. Confirm Mandate & Boundaries												
2. Form Team & Scope Activities												
3. Clear-Up of Area												
4. Identify Requirements for Area												
5. Identify Place for Everything in Area												
6. Obtain Approval to Proceed												
<i>Mid Presentation to Leadership Team</i>												
7. Establish Place for Everything												
8. Set Standards & Procedures												
9. Self-Assess Achievements & Team Skills												
<i>Final Presentation to Leadership Team</i>												
10. Communicate Results & Share Learnings												

Note: Date and time of the mid-way and final presentations should be finalised as soon as practical in order to ensure all Leadership Team members can attend. These presentations are to be conducted in front the each team's Noticeboard / Scoreboard / Whiteboard so that other shifts can view their boards after the presentation and see what was presented.

3.15 Establish Standard for Noticeboard and Scoreboard

- Use sheets with One-Point Lessons on the back
- Boards to be as per Site Standard
- Make-up a set of boards for each WAM team

WAM NOTICEBOARD			
1. Team Roles Sheet with Photo	4. Team Information Sheet	8. Team Name & Rules	12. Latest Task Sheet (previous sheets behind)
2. WAM Attendance & Schedule Sheet	5. Focus Points Allocation Sheet	9. Clear Up Sheets	13. History Sheet (previous sheets behind)
3. Team Meeting Agenda	6. Minutes Sheet (previous sheets behind)	10. Items & Storage Requirement Sheets	14. Parking Lot Sheet (previous sheets behind)
	7. TPM ³ Improvement Sheets Progressing	11. TPM ³ Improvement Sheets Completed	

WAM SCOREBOARD			
2. Tasks Run Chart	1. Team Name		9. Improvement Area Within the Defined Production Area
3. Red Tag Run Sheet	5. WAM Team Assessment Sheet Summary	6. WAM Team Assessment Sheet Part A	10. Team Base Skill Matrix
4. Improvement Sheet Run Chart	7. WAM Team Assessment Sheet Part B	8. WAM Team Assessment Sheet Part C	11. Team Skills Assessment Score Sheet

3.16 Establish Tagging System

Decide on tags to be used for the Tagging System

1. What type of material for the tags?
2. Decide on design, contents and colour?
3. How they will be attached?
4. How many will we need?
5. When will we have to order them?
6. Do you wish to use the CTPM developed light blue Clear-Up Tags*?

The image shows two sides of a light blue 'CLEAR-UP TAG'. The front side (left) is a form with a header '○ CLEAR-UP TAG' and a table for data entry. The back side (right) is a solid light blue card with a large white box for 'Extra Comments' and CTPM Australasia contact information at the bottom.

○ CLEAR-UP TAG	
Tag No.	
Item Name	
Proposed Action	Throw Out <input type="checkbox"/>
	Take Outside Area <input type="checkbox"/>
	Relocate within Area <input type="checkbox"/>
Reason	Broken <input type="checkbox"/>
	Not Needed <input type="checkbox"/>
	Use Unknown <input type="checkbox"/>
	Rarely Used <input type="checkbox"/>
Identified by	
Tagged Date	
Action Date	
Objection by	
Reason	
Action Approved	sign: _____

Extra Comments:

CTPM
Australasia
Phone: +61 2 4246 6184
Website: www.ctpm.org.au

Example Clear-Up Tag available from CTPM

* Traditionally Clear-Up Tags are called 'Red Tags', however we have found Red Tags cause confusion on sites where 'Danger Tags' are red. For this reason we recommend Clear-Up Tags that are light blue in colour.

3.17 Order Supplies

Determine and order supplies required for WAM Activities:

- Noticeboard & Scoreboard
- Whiteboard
- Clear-Up Tags
- Cleaning Items
-
-

3.18 Brief Team Leaders

Conduct a briefing session (suggest about 2 hours) with the Team Leaders to introduce them to the Team Leader WAM Manual so they will be able to lead their team through the WAM Kick-off Workshop.

4. Required Outputs

Preparation for Area Based Teams & Work Area Management

Output		<input checked="" type="checkbox"/>
1.1	Reviewed Background to Improvement Teams	<input type="checkbox"/>
1.4	Defined Roles & Responsibilities for Team Members	<input type="checkbox"/>
1.4	Defined Roles & Responsibilities for Team Leaders	<input type="checkbox"/>
1.5	Defined Roles & Responsibilities for Group Leaders or Supervisors	<input type="checkbox"/>
2.1	Determined whether Areas of Responsibility are needed, and if so identify	<input type="checkbox"/>
2.2	Reviewed current Base Skills status of all Operators and Team Leaders	<input type="checkbox"/>
2.3	Determined current skills of Team Leaders to support the development of Area Based Teams	<input type="checkbox"/>
3.2	Defined Improvement Areas	<input type="checkbox"/>
3.3	Established Area Based Teams & Team Information Sheets	<input type="checkbox"/>
3.4	Identify the Area Based Teams and their Members	<input type="checkbox"/>
3.5	Established Support for Area Based Teams	<input type="checkbox"/>
3.6	Determined Time for Formal Improvement Activities including WAM Activities	<input type="checkbox"/>
3.7	Established Mandate for WAM	<input type="checkbox"/>
3.8	Established Team Boundaries for WAM	<input type="checkbox"/>
3.9	Established Meeting and Activity Plan for WAM	<input type="checkbox"/>
3.10	Reviewed People Issues from FE&PI Teams	<input type="checkbox"/>
3.11	Prepared TPM ³ Champion (Production Manager) presentation	<input type="checkbox"/>
3.12	Reviewed Steps for WAM Kick-off Workshop	<input type="checkbox"/>
3.13	Prepared Training Aides for WAM Kick-off Workshop	<input type="checkbox"/>
3.14	Determined Team Schedule for WAM	<input type="checkbox"/>
3.15	Make-up WAM Noticeboard and Scoreboards for WAM team	<input type="checkbox"/>
3.16	Agreed Tags for Tagging System	<input type="checkbox"/>
3.17	Ordered supplies for WAM Activities	<input type="checkbox"/>
3.18	Conduct Team Leader Briefings	<input type="checkbox"/>

