



Operator Development Game Plan

Do you have a Game Plan for each Production Area for developing your Operators?

As seen in the case study below, the way we develop our Operators on each shift can have a significant impact on the approach we should take to introduce continuous improvement activities such as 5S / Work Area Management and Autonomous Maintenance / Operator Equipment Management, and most importantly the sustainability of the improvements.

Case Study

Some years back we were working with a site that ran 3 shifts on their main processing lines. They started their improvement journey focusing on their 2 main processing lines and established a cross-functional team for each line to understand all their losses and wastes and implement some quick wins to increase OEE by more than 10%. Both teams were successful with 15% and 20% gains on the lines along with further cross-functional team improvement opportunities identified.

During their next cycle, as well as establishing more cross-functional teams, they also decided to introduce Production Area Based Team improvement through Work Area Management (enhanced 5S) on both lines as they could now afford to stop both lines for up to 5% of the time each week and still be ahead following their first cycle gains.

Each shift consisted of a Frontline Leader and 5 Operators, and each line had an entry area, filling, sealing and labeling area, and a packaging area. The intent of the Operator Development Program at the site was to train all Operators so they could work all workstations on their line and to rotate regularly so there was maximum flexibility and good ownership for their entire line.

As such, to introduce Work Area Management they divided each line into 3 Improvement Areas and to make it fair, each shift selected their Improvement Area from a 'draw from a hat'.

During the improvement activity time the whole crew with their Frontline Leader would work in their designated Improvement Area.

As the improvement cycle progressed it became apparent that the Dayshift and Afternoon Shift crews were progressing well however the Night Shift was making slow progress and towards the end of the cycle they were way behind. When asked to investigate why the Nightshift didn't embrace the improvement activities it soon became clear after talking to the Frontline Leader about how he ran his shift. He explained that 2 of the Operators didn't get on, in fact they had been in a brawl outside of work and hence refused to work near each other. To keep the peace he stopped rotating the Operators like the other shifts and allocated one of them to the entry end of the line while the other worked at the packaging end.

As a result only 2 of the 6 Operators of the crew actually worked in their allocated Improvement Area with the other 4 having no ownership and hence no interest in the Improvement Area improvement activities because they never worked in that area. As such the 2 Operators who did work in the Improvement Area thought it was unfair for them to do all the work while the other 4 did very little so they became disinterested as well.

Once this was brought to the attention of management they were able to initiate actions to address the situation with the 2 offending Operators, get resolution, and the crew were able to follow the same Operator Development Plan or Game Plan of regular rotation resulting in the improvement activities getting back on track.

What game or games do you use to model the way you develop your Operators especially if more than 1 shift is involved?

We can develop our Operators following the analogy of a sporting game. The key is to know what game best suits each area of production, and then ensure that all shifts in the area are playing the same game. Multi-shift sites that fail to recognise the importance of this often are the ones that struggle to progress and sustain their improvements.

Why is this important?

In Jeffrey Liker's book 'The Toyota Way' he introduced the house of Lean with the roof describing the goals of Lean or Operational Excellence:

Best Quality – Lowest Cost – Shortest Lead Time – Best Safety – High Morale
through shortening the production flow by eliminating waste

To achieve 'Best Quality' we need to achieve Zero Breakdowns as we have found most process quality problems occur when the plant is not running perfectly, shuts down unexpectedly (equipment fails), or is restarting.

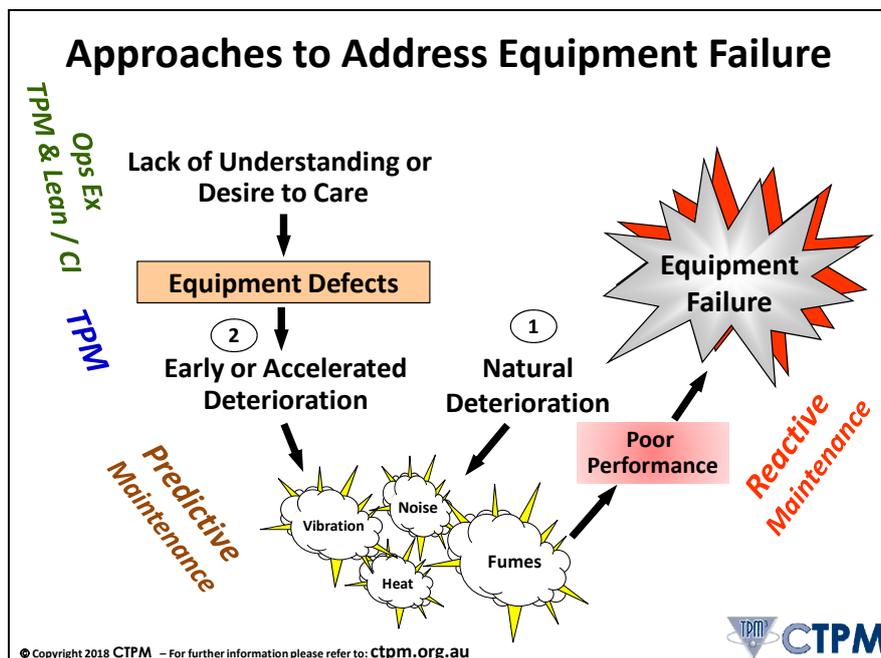
To achieve 'Best Safety' we also need to achieve Zero Breakdowns as we have found accidents or incidents can occur in the course of responding to problems such as unexpected equipment failures or breakdowns.

As such achieving Zero Breakdowns is a pre-requisite to achieving Best Quality and Best Safety.

To achieve Zero Breakdowns at the lowest possible cost we need to be mindful of the root cause of most unexpected failures. As highlighted in Figure 1, equipment failure is often preceded by a number of situations either caused by the equipment components reaching their natural life or experiencing accelerated or early deterioration and failing earlier than expected.

Extensive research over the years has shown that most accelerated deterioration can be contributed to Looseness, Contamination or Poor Lubrication which is often referred to as Equipment Defects – anything that can lead to accelerated or early deterioration of equipment.

Figure 1: Approaches to Address Equipment Failure



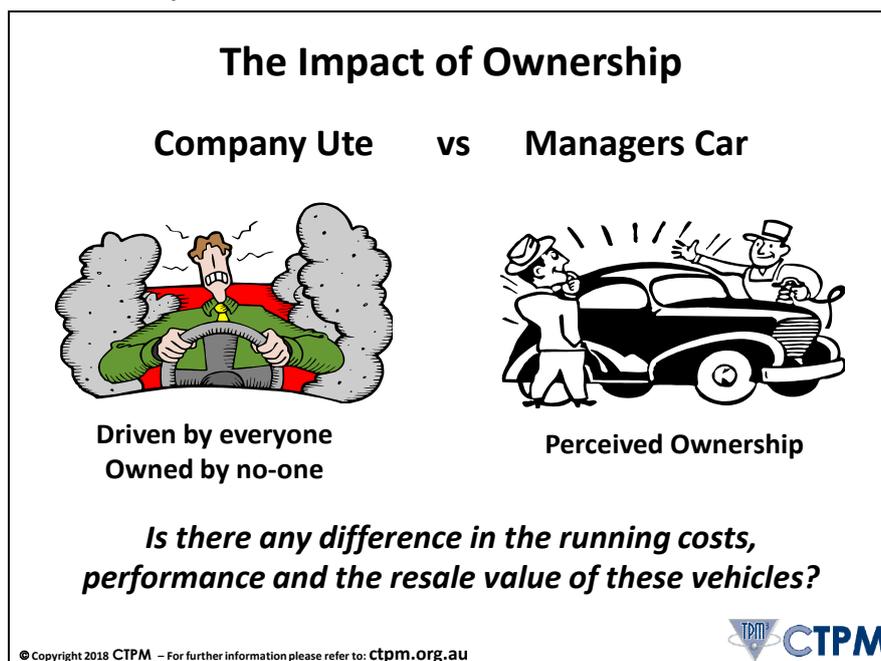
Having everyone able and wanting to identify equipment defects at the earliest possible time and arrange for them to be addressed such that they don't return, supported by effective Preventive and Predictive Maintenance, is the most cost effective way of achieving Zero Breakdowns and ensure reliable plant and equipment. As such we need to understand why Operators and anyone else associated with the equipment do things such as hose equipment down with compressed air or water, or don't do things such as clean up and stop contamination that could introduce equipment defects.

When investigated further we have found Operators or anyone else associated with the equipment either have a lack of Understanding of what equipment defects are or what causes them, or they lack the Desire to Care about the equipment often because other people work in the same area such as other shifts, and they don't care so why should they.

We also found that a key ingredient to Care of Equipment is Ownership. People are more likely to take care of something if they have a strong sense of ownership to it than if there is no sense of ownership like when we hire or borrow something to use. There are always exceptions to this thinking however in the workplace we have certainly seen the impact of a lack of a sense of ownership especially when Operators are moved into different areas on a frequent basis, or when short term casuals are used to operate equipment.

For example, think about the vehicles purchased or leased by your company as seen in Figure 2. Many companies have common use vehicles on site such as a company Ute or Pick-up as well as having managers who have a vehicle allocated to them?

Figure 2: The Impact of Ownership



In most cases, both are company assets from reputable suppliers, yet after a year or so we often find there is often quite a significant difference in their running costs and re-sale value. The most common reason for this is based on this issue of ownership. In the majority of cases because the manager has perceived ownership of the vehicle, he or she will care for the vehicle, that is, ensure it is regularly serviced and any problems addressed as soon as practical. With the company Ute or Pick-up, most people using it tend not to care or take responsibility for its condition.

The impact is often a significant difference in the running costs, performance and the resale value of these vehicles.

We find in most situations the manager's car has lower running costs, and higher re-sale value.

At one mine site I was at several years ago in Queensland running our 2-day workshop, the Service Manager made the comment that he had recently completed a review of the running costs of the company utes compared to the company cars used by managers and the figures came out: Car: 7 c/km; Ute: 67 c/km due to all the repairs required by the utes including replacement differentials and gearboxes.

If we go back to the workplace and look at it in the context of Operator Ownership we find at many sites historically Operator ownership of plant & equipment has often been forsaken for multi-skilling.

The Pendulum of Change – the history of ownership within the workplace

If we reflect back to the 1980s in Australia we find that many workplaces were highly demarcated, often with one person allocated to one machine or one area of responsibility. Although the Operator was allocated to a machine or section of plant, they often were supported by someone else who would clean the machine, someone else who would maintain the machine and in some cases someone else who would set-up the machine or bring the raw materials to the machine or remove the finished output. On the positive side, this did provide the opportunity to develop a level of ownership however the lack of flexibility often led to problems when people are away and there is an urgent customer need requiring a quick response.

Since the late 1980s we saw the pendulum of change occur to our workplace with the introduction of Multi-skilling to many sites, refer to Figure 3. This involved the incentive (dash for cash) for the workforce to forgo many demarcations and take up new skills and responsibilities.

However as some companies went through this experience, they noticed that quality and reliability problems started to increase.

Some realised that without a sense of "ownership" personnel tend not to care for, or want to understand more about their equipment, or be in a place long enough to gain a very good understanding of their equipment.

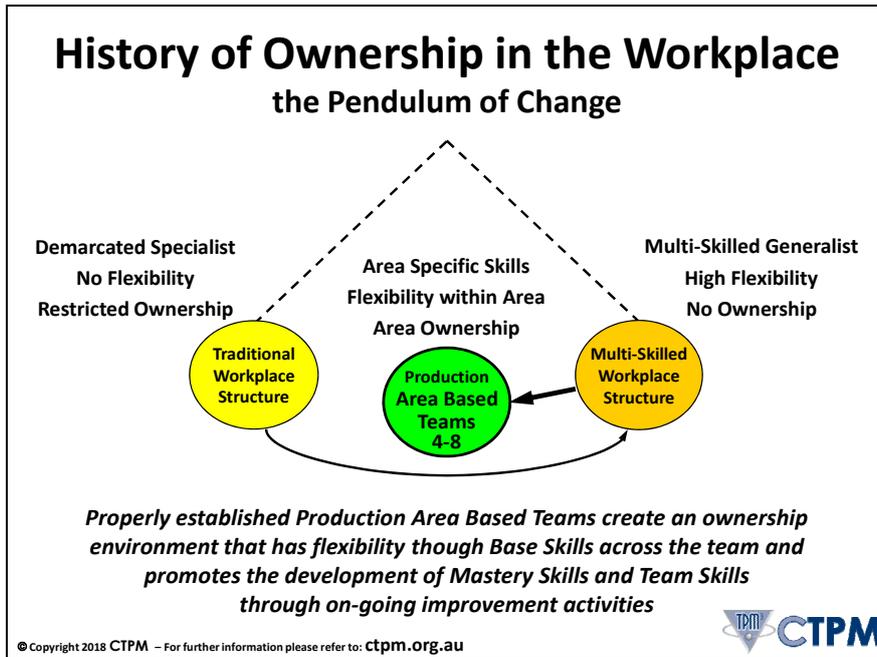
We still find today at some sites where enterprise agreements have been established over the past few years that require Operators to move to different areas of the plant every six months so they can build up credits to move to the next pay level and receive a pay rise based on their overall plant flexibility. At these sites we also find management complaining that they are only getting average performance out of their plant and their Operators.

Referring back to our example of the company Ute versus the manager's car, both vehicles are the property of the company, yet the manager's vehicle, because of the perceived "ownership" of it by the manager, is often more reliable, performs better and has lower operating and servicing costs than the company Ute which is driven by everyone and owned by no-one.

This is because in a traditional multi-skilling environment our plant & equipment becomes like the company Ute – it performs poorly often causing quality problems and has high operating and servicing costs which often leads to increases in maintenance spend.

We are not saying multi-skilling was a bad idea. We believe, in many cases we needed to move the pendulum across to get the change. Also the experience of having our workforce go through a lot of retraining has been very positive. Multi-skilling has been successful in creating a more flexible workforce. However, experience now highlights that while personnel move from equipment to equipment, or area to area, they lose the motivation to seek out basic equipment problems or defects which if left unchecked, will cause failure in the future as shown previously. The Operators often demonstrate a lack of understanding or care for the equipment because they know they will soon be moved to another area or piece of equipment.

Figure 3: History of Ownership in the Workplace



What do we mean by Development Game Plan?

A Development Game Plan is the way you focus the training of your Operators to achieve the maximum flexibility for the Production Area to support Operational Excellence through TPM & Lean.

Often the technology and the learning capability of your Operators involved in the Production Area will influence the Development Game Plan to be adopted.

The most successful sites select the Development Game Plan they want to achieve for each Production Area then develop the recruitment requirements of their Operators.

Sadly, many sites we come across don't have a Development Game Plan, but rather use a random approach that best suits the leader of each shift.

In some situations we find the technology and complexity of the Production Area will dictate which game is most suited for the operation of that area. Ideally all Production Areas at a site should be on the same game plan however sometimes this is not practical due to the differing nature of certain Production Areas.

A key learning has been once a game plan has been decided for a Production Area then all shifts in the Production Area should apply the same game plan.

Possible Game Analogies

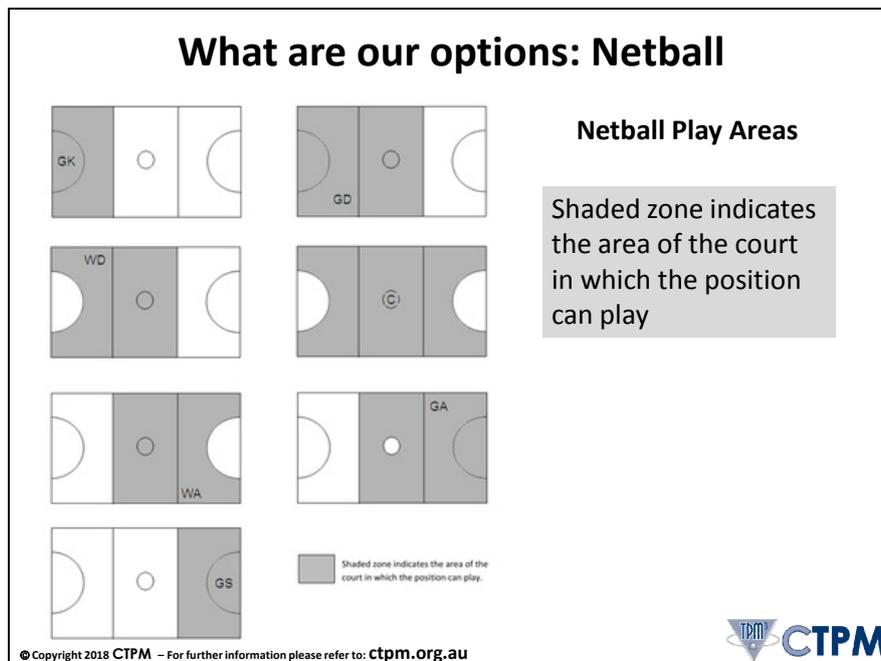
The four most common games used to model an Operator Development Plan are outlined below, with Volley Ball being the preferred as it is recognised as the most team orientated sport where everyone rotates and has equal responsibilities and opportunities.

Table 1: Possible Game Analogies Options

Game	Players	How Played	Impact on Players
Volley Ball	6	Everyone does everything in rotation	Equal Attributes and Skills / ownership of entire court
Basketball	5	Everyone works everywhere (anyone can score) however special tasks (Forwards, Guards, Centre)	Specific Attributes and Skills / ownership of entire court
Soccer	11	Specific set roles (Goal Keeper, Striker) and specialised positions	Specialised Skills / limited ownership for some
Netball	7	Fixed Areas of Responsibility with limited flexibility (GA and GS can both score, but Centre can't)	Specialised Skills / limited ownership for all

For those not familiar with Netball, see Figure 4 for all the different allocated Netball Play Areas.

Figure 4: Netball Play Areas



Why is this important?

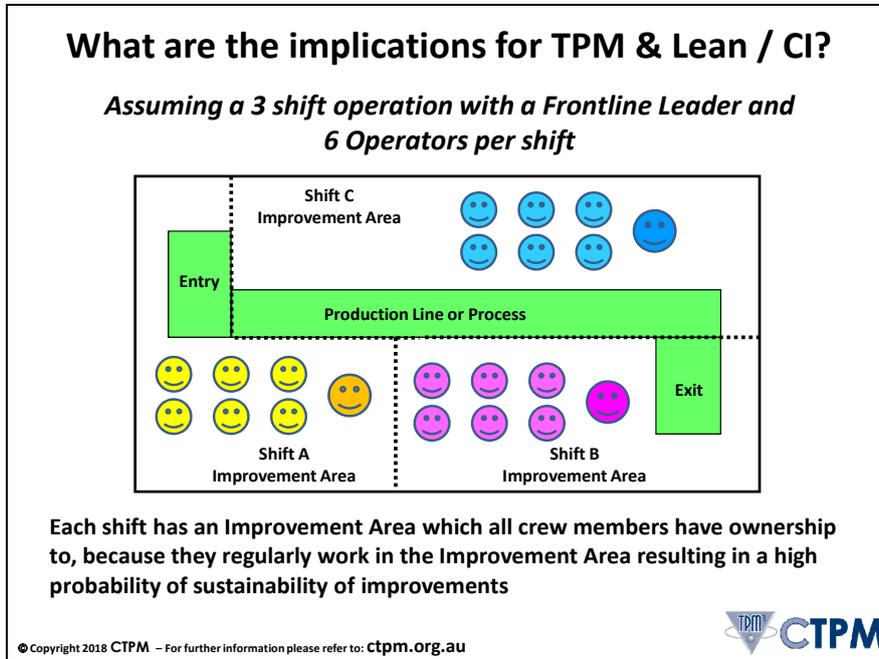
If you are progressing the TPM & Lean / CI journey, depending on which game you model the way you develop your Operators, will depend on how you adjust the application of TPM & Lean.

To demonstrate this, we will use a 3 shift operation in a Production Area that has a Frontline Leader and 6 Operators per shift.

If the Development Game Plan for the 3 shifts was based on Volley Ball or Basketball (regular rotation of Operators), so as to ensure Ownership for improvement, 3 agreed Improvement Areas could be established with rules relating to doing changes / improvements.

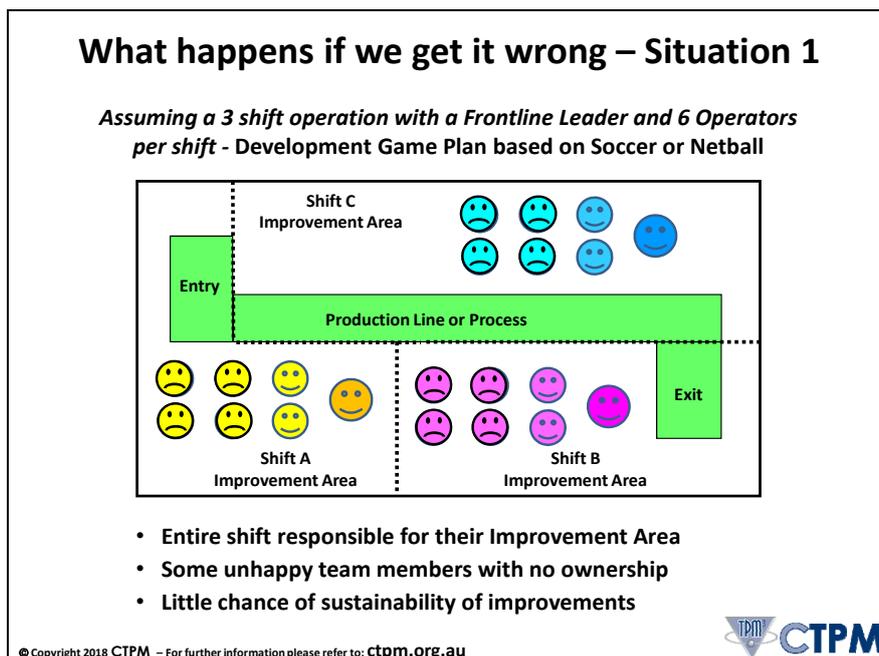
During their shift while they are achieving the Production Plan the Operators would work at their designated workstation however they would regular rotate through all the workstations to ensure total flexibility within the crew. When they are involved in their say weekly improvement time activities typically for up to 2 hours per week or 5% of their normal work time, they would focus their efforts in their designated Improvement Area. Because all Operators regular work in the improvement area due to their regular rotations, they would all have strong ownership to the area and hence there would be the greatest probability of successful outcomes from everyone’s contribution.

Figure 5: Development Game Plan based on Volley Ball or Basketball



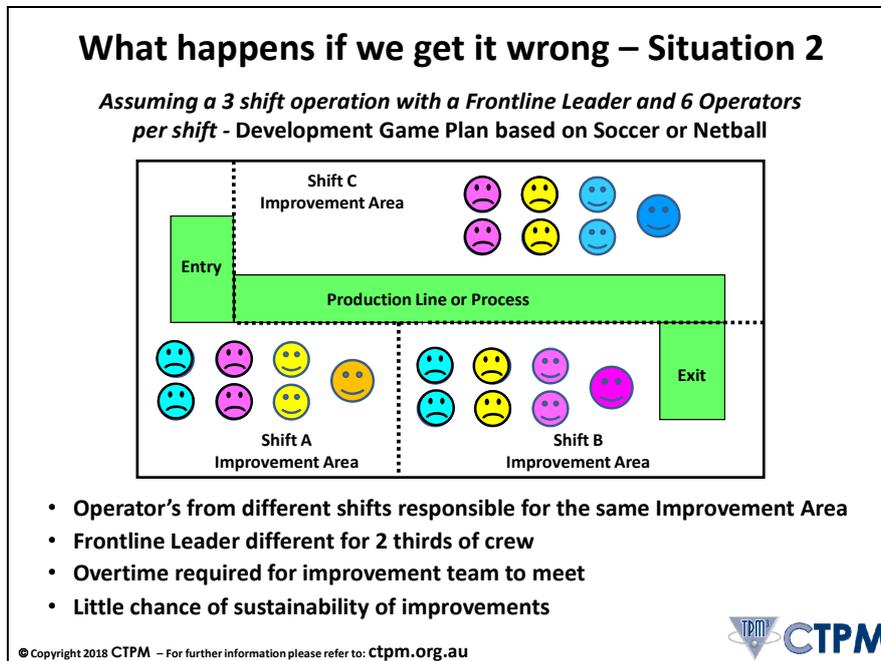
If however the Operator Development Game Plan is based on Netball, where some or all Operators have fixed workstations and there is little or no rotation within the crew, then allocating Improvement Areas will be difficult to implement as some Operators will have no ownership to the area they have been asked to contribute to improve and as such may have little interest or step back and provide very little if any contribution.

Figure 6: Development Game Plan based on Soccer or Netball – Situation 1



To compensate for this situation, rather than use Improvement Areas for each shift, you could have the Operators working their workstation across the 3 shifts do the improvements at their workstation area. However, you would struggle to establish good communications between the improvement team members as they would be on different shifts, or you would be required to have the Operators work overtime to catch up with each other which we know is not a sustainable way to conduct on-going continuous improvement.

Figure 7: Development Game Plan based on Soccer or Netball – Situation 2



What are the benefits of getting it right?

If your Development Game Plan for each shift is based on Volley Ball or Basketball so as to achieve a flexible crew where everyone can work every workstation, then you have the highest probability of achieving:

- Buy-in from the entire crew;
- Agreement across shifts; and
- Sustainability of Improvements.

For example, Toyota model the way they develop their Operators and run their crews on the Volley Ball game and as such when multi-shifts are involved, there is strong ownership when Area Based Team improvement areas are established for 5S / Work Area Management and Autonomous Maintenance / Operator Equipment Management activities to support achieving their goal of zero breakdowns at the lowest cost.

Operational Excellence is about everyone on every shift having the Passion to find and address problems and equipment defects, at the earliest possible time, while creating a workplace that stops them from occurring.

Like all successful teams, you need an effective development plan that supports ownership along with the **discipline** and **stability** to succeed.

If you would like to find out more about how to get the most from your current Operator Development Game Plan to support your improvement activities, please contact Ross Kennedy at CTPM's Head Office on +61 2 4226 6184, via mobile on 0418 206 108 or via email ross.kennedy@ctpm.org.au.