An Introduction to the
Lean Visual Management

Maintenance

Foreword

Highways England has three imperatives :

Safety - our aim is that no one should be harmed when travelling or working on the strategic road network. We care about each other, our suppliers, our customers and communities.

Customer Service – improving how what we do impacts those that use the roads.

Delivering the Road Investment Strategy – on time and efficiently.

Lean principles provide a foundation to help enable all of these priorities to be achieved and our Lean approach will provide the skills and tools that support our organisation and those of our supply chain partners

We need to be bold and challenge some of our current practices, working with our suppliers to continuously improve. This is the basis of the Lean Division's work. This strategy document sets out how Lean will help us to deliver the RIS efficiently, whilst improving customer service and most importantly, doing it all safely.

Jim O'Sullivan – Chief Executive

Contents

About this Guidance Note

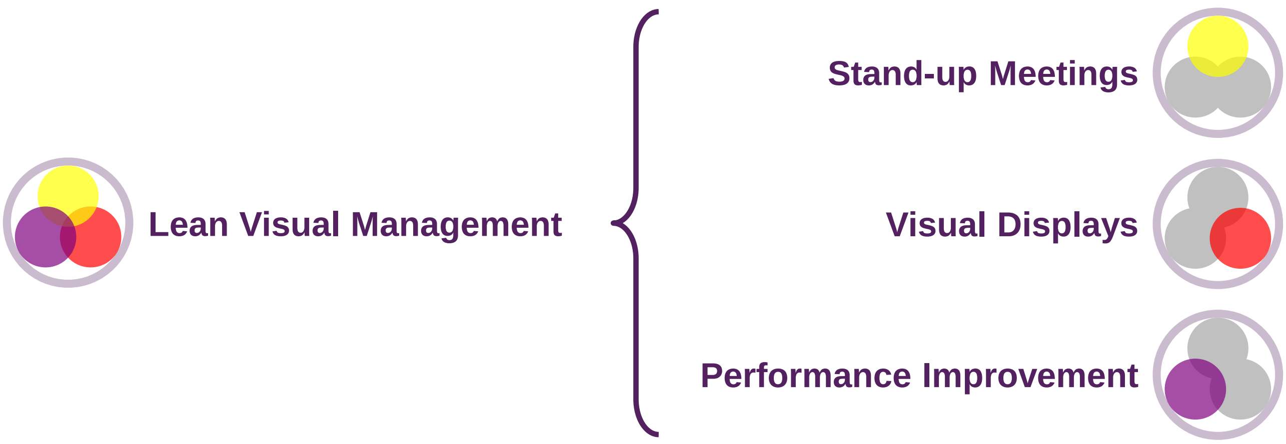
This guidance note is intended to provide an introduction to the concepts behind **Lean Visual Management**, a technique based on lean methodologies.

It is aimed at members of the highways industry that already have a basic understanding of lean principles and wish to implement the use of the **Lean Visual Management** within their own organisations.

Lean Visual Management complements other lean techniques including the **Collaborative Planning System** (see **Enhancing Lean Visual Management** on page 25 of this guidance note).

Navigating this Guidance Note

This guidance note uses colour coded page markers to easily distinguish between the different sections of the document. These correspond to Figure 1 on page 4 of this document and can be found in the top right hand corner of each page.

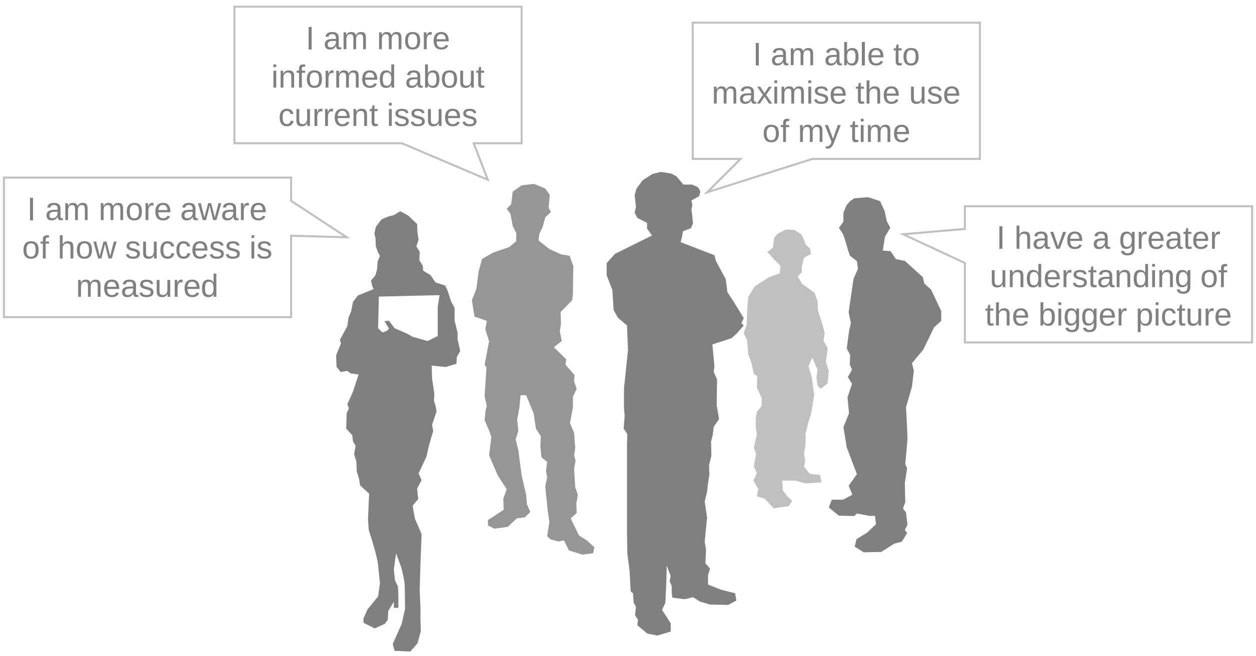


What's in it for You?

The benefits of Lean Visual Management

Successful **Lean Visual Management** can benefit teams by:

- Improving communication of key information
- Providing everyone in the team with the same picture
- Fostering collaboration, promoting teamwork and improving morale
- Providing a forum where all staff are able to raise any issues
- Helping the team identify and solve problems
- Measuring progress, identifying trends and analysing performance
- Focusing on and establishing goals for continuous improvement
- Providing performance information



Creating the right environment

Lean Visual Management is based around communication, with teams working together to achieve clear shared goals. Subsequently, **Lean Visual Management** works best when:

- A collaborative form of contract exists that promotes improvement
- Leadership encourages and demonstrates working together
- Incentives are focused on improving the overall outcome
- Goals and the criteria for success are clearly defined
- A lean practitioner facilitates improvement
- All stakeholders contribute and are engaged in participation
- Teams are willing to positively embrace transparency
- Teams are prepared to be constructively honest yet direct with each other
- There is a commitment by all to learn
- A designated area is available to facilitate teams coming together
- Good facilitation skills are available to keep meetings concise and focused
- There is a willingness to jump in and learn by participation

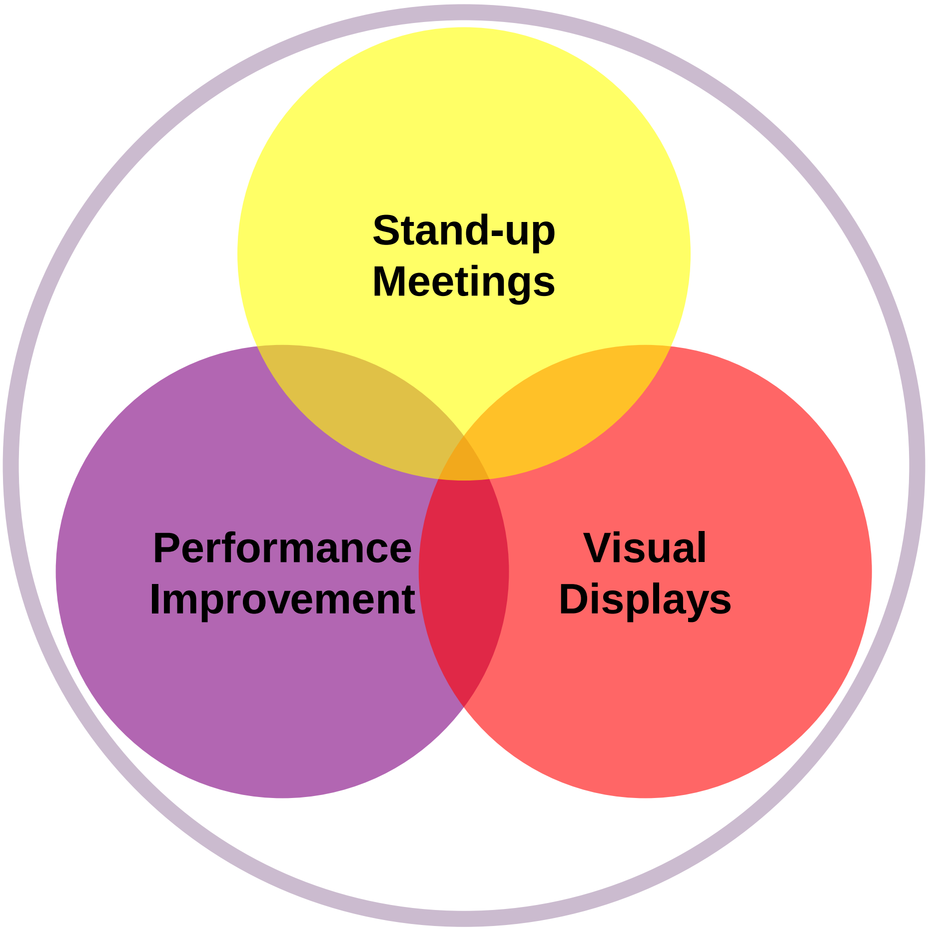
What is Lean Visual Management?

Lean Visual Management is about communication and enabling teams to deliver performance improvement over time. It involves doing three things:

- Using **Primary Visual Displays** (see **Appendix B** of this guidance note)
- Having **Stand-up Meetings**
- Seeking continuous **Performance Improvement**; by measuring, monitoring and reviewing team performance

Together, these three actions provide a foundation upon which teams can begin to continuously improve.

Figure 1 Lean Visual Management

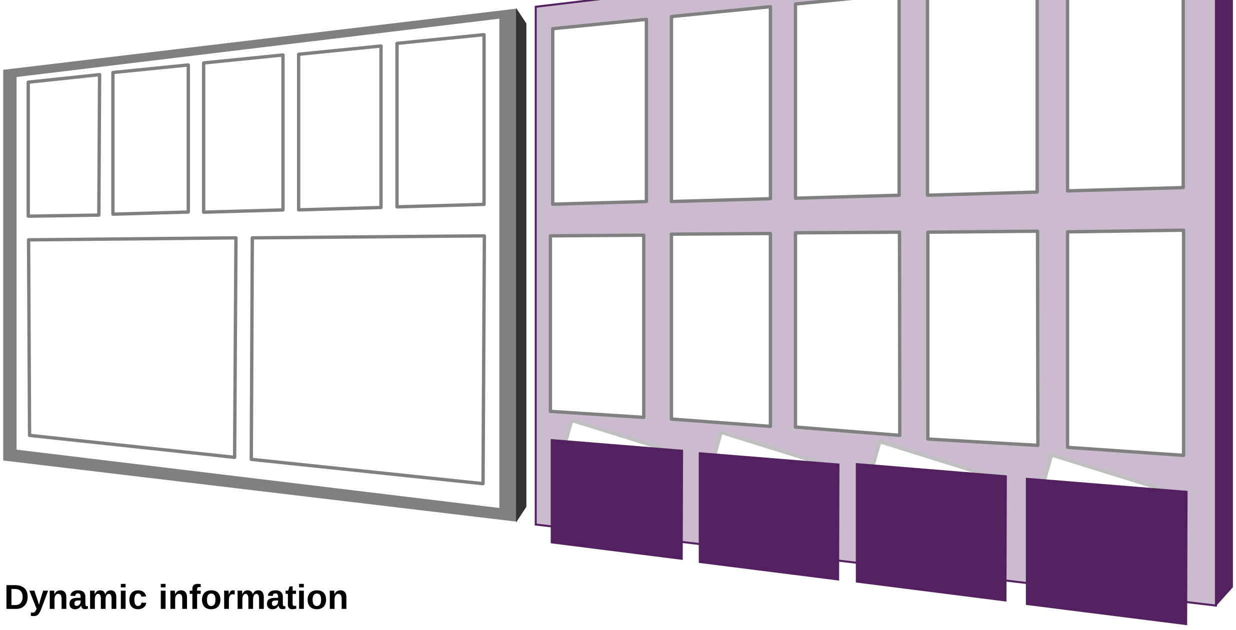


What are Visual Displays?

Visual Displays are large central communication points focused around up to date team-specific information and continuous improvement activities.

Typically, wall-mounted pin boards are used in combination with magnetic or dry wipe boards. This allows regularly reported information, normally updated on a weekly or monthly basis, to be displayed alongside more dynamic information, which is updated daily. Examples of both dynamic and regularly reported information are provided in the figure below.

Figure 2 Visual Display



Dynamic information

- Safety issues
- Weather forecasts
- ISU movements
- Contact details
- Activity schedules
- Roadspace booking
- Shift handover notes
- News / Reminders

Regularly reported information

- Health and safety information
- Programme / Cost information
- Permitted route working times
- Recent incidents
- Area Performance Indicators
- Continuous improvement activity
- Lessons learned

Using Visual Displays

Teams should use their **Visual Display** as:

- The focus point for **Stand-up Meetings** and team interaction (see **What are Stand-up Meetings?** on page 18 of this guidance note)
- A central communication point
- A place where improvement activity takes place (see **Performance Improvement** on page 10 of this guidance note)

It is important to remember that **Visual Displays** are the focal point for team interaction and the two-way flow of information. Subsequently, it is important that **Visual Displays** are created by the team, for the team, and that the information they display is relevant, accurate and timely.

Visual Displays should be vigorously maintained so that the most up-to-date information is available. Subsequently, it is recommended that you nominate a person or persons who will be responsible for updating **Visual Display** information.

Location

Visual Displays should be located as close as possible to the team's working area. This is important for a number of reasons:

- It helps to create a sense of ownership within the team
- The **Visual Display** can be easily and regularly updated
- The close proximity to the team ensures that new information is communicated in the most efficient way

In a maintenance environment **Visual Displays** should be located in an area where teams regularly convene before they go to their point of work. This may be an existing meeting point, the depot canteen, or another specifically designated area within the depot.

The location of **Visual Displays** is an important consideration and every effort should be made to locate them as close to the working area as practically possible.

Content

Your **Visual Display** should contain team-specific information related to the following areas:

- People
- Performance
- Continuous improvement

People

Resource-orientated information is a key part of **Lean Visual Management** because it facilitates day-to-day project delivery. Subsequently, it is vital that your **Visual Display** contains up to date information about the team.

Information should cover areas such as:

- Who is in the depot?
- What are they scheduled to be doing?
- When are they scheduled to be doing it?
- Are there any issues currently preventing them from successful completion?
- Are there any hazards / risks that people should be aware of?

Displaying this information on a **Visual Display** provides everyone with the same picture of what everyone else is doing at all times. This helps the team to identify potential problems early and thus mitigate any associated time, cost and safety implications.

Performance

Visual Displays play a key role in communicating up to date performance information to the team. Displaying this information focuses team members on their immediate targets and helps them to understand how their individual performance can contribute to overall success.

A team's **Visual Display** is a reflection of that team. It is therefore important that team members are able to easily relate their individual performance to the information on display. This leads to greater ownership and commitment. Teams will also take more pride in their performance when they can see the impact of 'a job well done'.

On this basis, information should be relevant to the team and communicated in a way that allows the team to see the contribution they are making. One of the simplest ways to achieve this is through the use of regularly reported performance measures.

The importance of performance measures

In order to understand the importance of performance measures, it is useful to understand why we produce these measures in the first place.

Put simply, performance measures help to answer the question: "How are we doing?". Without performance measures you can't fully understand how well you are doing because there nothing to tell you if your performance is good or if your performance is bad. Subsequently, you have no way of measuring whether or not your performance has improved over time because you have nothing to compare your performance against - you will have no **baseline for improvement**.

Choosing the right performance measures

It is very important that the right performance measures are chosen if improvement is to be achieved. When choosing suitable measures for your team it is useful to consider the following questions:

- Is the measure important to the customer?
- Is the measure easy to understand?
- Is data available that will allow the measure to be updated on a regular basis?
- Can the team relate to it? Will they gain satisfaction from improvement?
- Can improvements be tracked and captured easily?

Examples

Examples of performance information that might be used to develop measures are:

- **Product:** CAT 1 Defect response time
- **Product:** Lane availability
- **Product:** Incident response time
- **Service:** Number of maintenance interventions
- **Service:** Number of complaints
- **Right First Time:** Number of defects
- **Cost:** Actual cost against cost forecast
- **Time:** Actual time against time forecast
- **Safety:** All Accident Frequency Rate

Continuous Improvement

Visual Displays provide information and tools that facilitate continuous performance improvement at a team-level. Continuous improvement activity is a key part of **Lean Visual Management** and team performance is unlikely to improve without it. Information and tools include:

- Current performance measures
- **Improvement Suggestion Systems**

Improvement Suggestion Systems

Improvement Suggestion Systems are continuous improvement tools that support **Visual Displays** and **Stand-up Meetings** by providing teams with a structured approach to realising performance improvements.

What do they involve?

Improvement Suggestion Systems involve the capture of any practical improvement suggestions that are generated by the team. These suggestions will normally be driven by off-target or static performance measures identified by the team and highlighted at daily **Stand-up Meetings** (see example agenda on page 21 of this guidance note).

It is recommended that suggestions are focused on simple, low-tech solutions that can be implemented by the team without the intervention of senior management.

Suggestions that are implemented by the team can be considered as 'banked', providing a platform for the next improvement. By continuing to capture and 'bank' small incremental gains teams will begin to see that it is possible to realise significant improvements in performance.

There are various methods teams can employ to capture improvement suggestions and teams are encouraged to try various methods in order to ascertain those that work best for them. However, two of the most common approaches are:

- **Concern, Cause & Countermeasure (3C)**
- **The Four Folder Approach (4FA)**

Concern, Cause & Countermeasure (3C)

Concern, Cause & Countermeasure is a simple, table-based approach to capturing improvement suggestions generated by the team. An example **Concern, Cause & Countermeasure** table that can be used on a team's **Visual Display** is provided in Appendix A of this guidance note.

Where do I start?

Initial suggestions submitted under **Concern, Cause & Countermeasure** are normally aimed at addressing concerns raised by senior management or off-target Area Performance Indicators. Issues raised at this level are more likely to reflect what matters to your customer, and delivering maximum value to the customer is a fundamental part of lean.

Suggestions should also be driven by the continuous review of team performance. All off -target performance measures should be raised as a concern on the **Concern, Cause & Countermeasure** form and subsequent appropriate action taken.

In the example provided, the first column of the **Concern, Cause & Countermeasure** form is used to provide a reference number for each concern raised while the second column is used to provide a brief description of the concern in question. These two columns will normally be populated by the team supervisor based on concerns passed down by senior management. These may be concerns about specific issues, such as a recent accident or incident, or downward trends in Area Performance Indicators. The third and forth columns are used to record the date the concern was raised and the name of the person who raised the concern, allowing progress to be tracked.

The fifth column is used to record the perceived cause behind a specific concern. For example, a concern about a rise in slips, trips and falls in a depot might be perceived to be caused by untidiness. This column is also normally populated by the supervisor. However, it is recommended that the rest of the team be encouraged to add their own ideas to the cause column as they are likely to have different views about causes when compared to those of supervisors and senior management.

The sixth column of the **Concern, Cause & Countermeasure** form is used to record the agreed countermeasure.

The seventh column is used to record the name of the person, or persons, who are responsible for instigating, undertaking and completing the actions associated with the agreed countermeasure.

The eighth column should be used to identify an agreed target date for completion of countermeasure actions and the ninth column should be used to record the status of the countermeasure actions in relation the target date.

The tenth and final column should be used to record the results of the countermeasure and the information provided in this column should be aimed at answering the following questions:

- Was the countermeasure successful? If not, why not?
- What was the result of implementing the countermeasure?
- Did performance increase? If so, by how much?
- Did performance increase in areas other than those expected? If so, why?
- Were there any lessons learnt? If so, what were they and how are they being communicated?

The Four Folder Approach

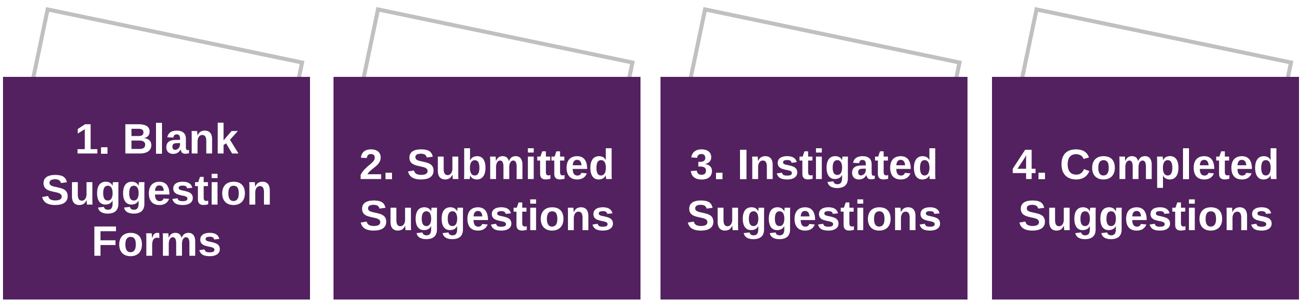
The **Four Folder Approach** is also aimed at capturing improvement suggestions generated by the team. Using the **Four Folder Approach** allows teams to:

- Capture ideas that fall 'below the radar' of other organisation-wide initiatives
- Provide team members with an opportunity to influence the way that they work
- Provide a means of identifying and capturing small changes that help eliminate waste at its source

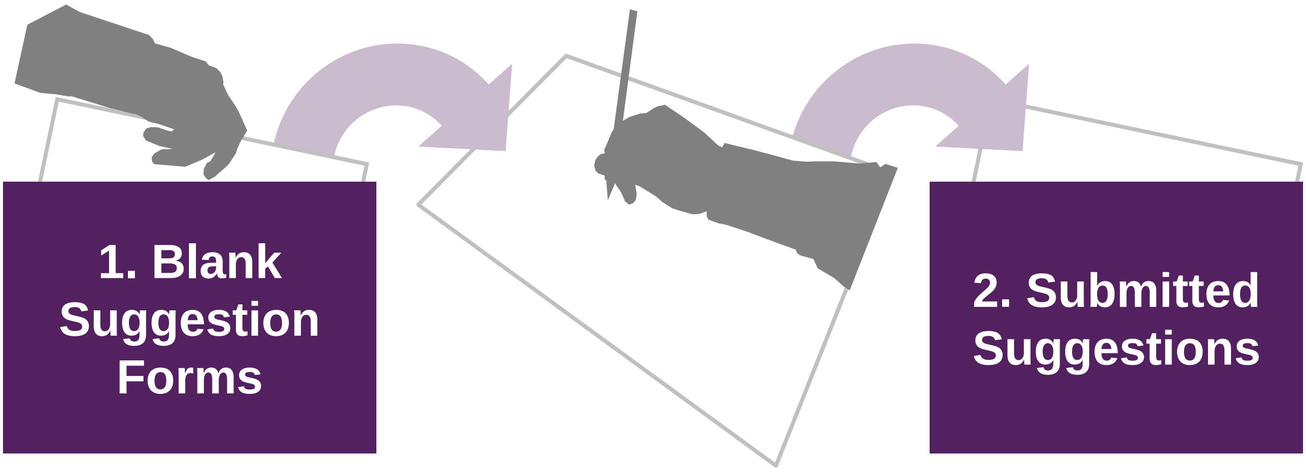
How does the Four Folder Approach work?

As its name suggests this approach is based around the use of four folders that form part of a team's **Visual Display**. These are:

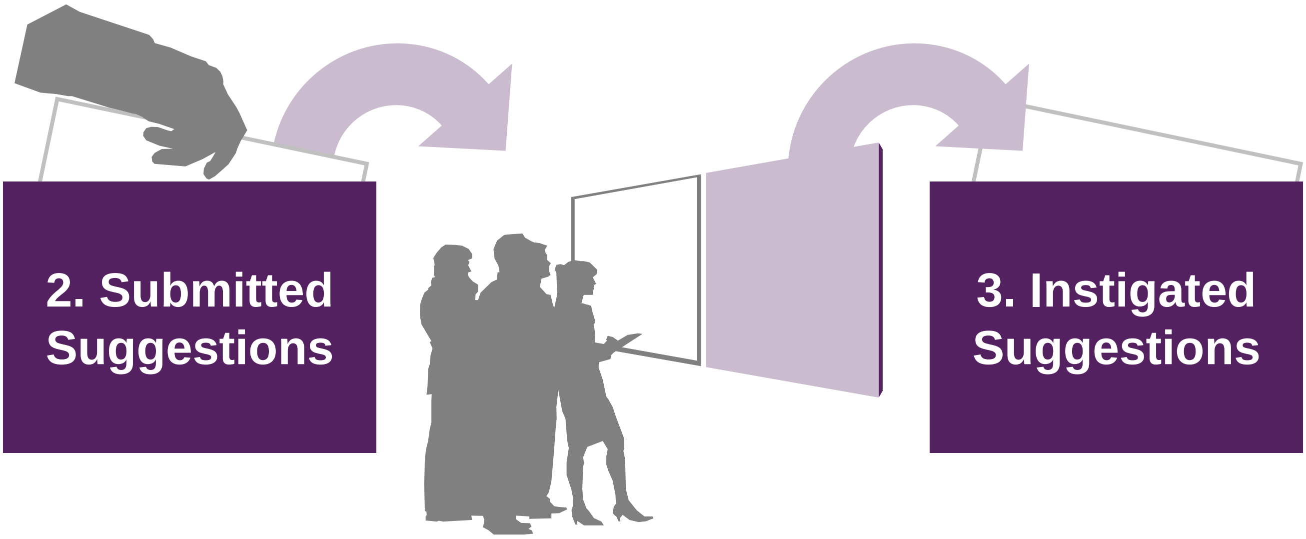
- A folder containing blank suggestion forms
- A folder for submitted suggestions
- A folder for instigated suggestions
- A folder for completed suggestions



The first step requires a member of the team to take a blank suggestion form from the first folder. They should then write down their suggestion and place their form the second folder.



Any submitted improvement suggestions should then be reviewed at the next **Stand-up Meeting**. During the meeting team supervisors should review suggestions with their teams and agree the appropriate action to be taken. The team supervisor may want to review suggestions ahead of the **Stand-up Meeting** depending on the number submitted.



Before moving suggestions from the second folder to the third folder team supervisors should agree one of the following actions with the team.

- Agree to instigate and undertake the improvement suggestion themselves
- Ask if any member of the team would like to instigate and implement the improvement suggestion forward on the team supervisors behalf
- Nominate a member of the work group to instigate and implement the improvement action on the team supervisors behalf
- Agree with the team that the improvement action is not feasible and should not be instigated
- Agree with the team that the improvement suggestion is 'too big' to be instigated by the team alone and should be submitted to senior management for consideration.

Only when improvement actions have been implemented and the results of implementation have been recorded can the suggestion be moved from the third folder to the fourth and final folder.

Performance Improvement

The recording of implementation results should be aimed at answering the following questions:

- Was the suggestion successful? If not, why not?
- What was the result of implementing the suggestion? Did performance increase? If so, by how much?
- Did performance increase in areas other than those expected? Why?
- Were there any lessons learnt? If so, what were they and how are they being communicated?

Key points

Improvement Suggestion Systems:

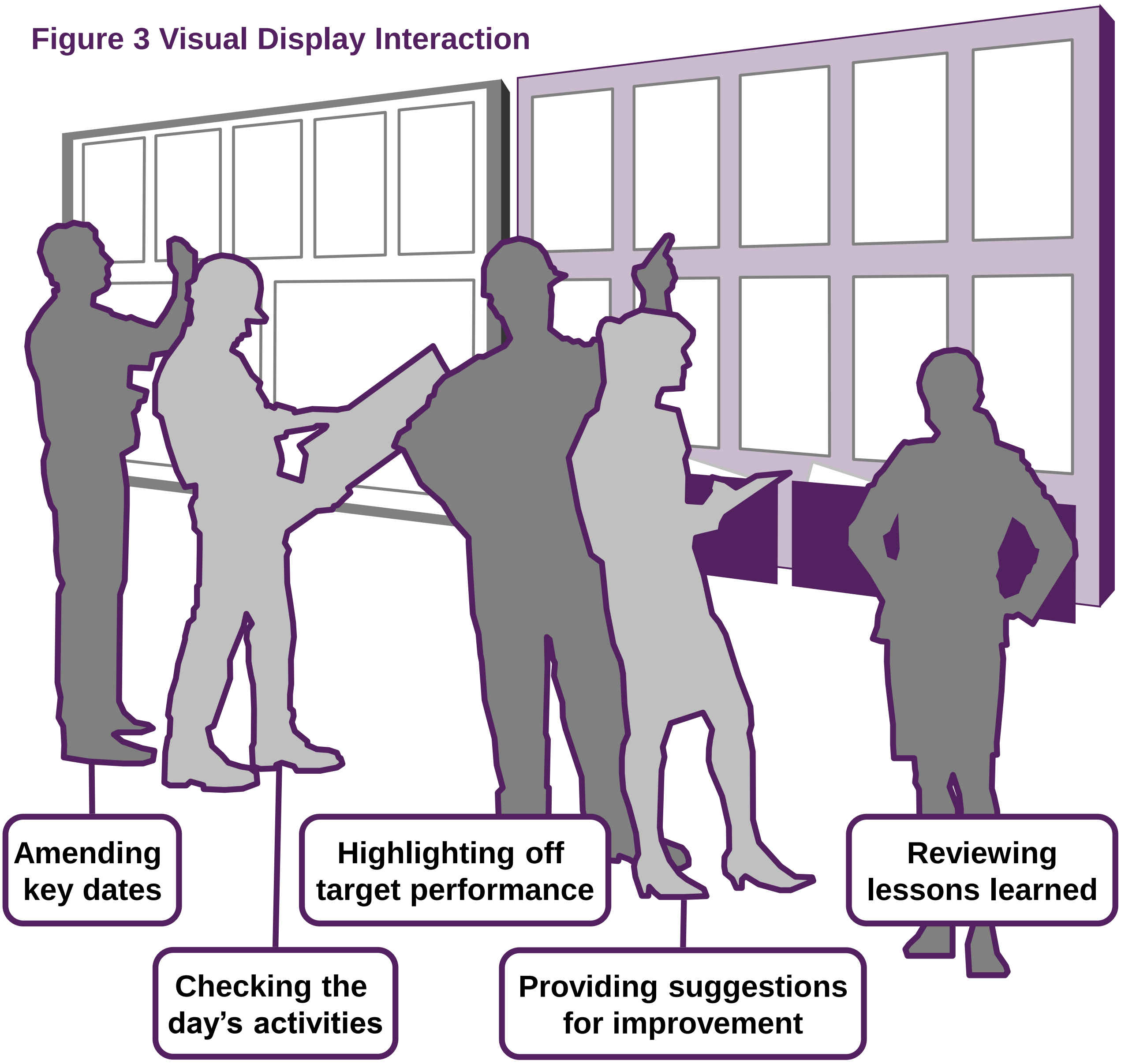
- Form part of a team's **Visual Display**
- Are discussed at daily **Stand-up Meetings**
- Are driven by team performance measures and suggestions focused on raising areas of underachievement
- Focus on solutions that can be implemented by the team

More than a notice board

It is important to remember that **Lean Visual Management** is much more than simply having a **Primary Visual Display** that simply displays information in the same way a notice board would.

Notice boards only provide a passive, one-way flow of information, from the board to the viewer. **Lean Visual Management** is different in that it requires teams to interact with their **Primary Visual Display** on a regular basis so that it becomes a focal point for team interaction and improvement activity. Under **Lean Visual Management** this interaction is facilitated by **Stand-up Meetings**.

Figure 3 Visual Display Interaction



What are Stand-up Meetings?

Stand-up Meetings are regular, mandatory meetings held in front of a team's **Visual Display**. The purpose of a **Stand-up Meeting** is two-fold:

- They provide a forum where teams discuss their progress on a regular basis and make work commitments
- They provide a forum where teams review performance measures and the progress of improvement actions

Teams are deliberately required to stand to ensure that meetings are kept short. In addition **Stand-up Meetings** should be:

- Attended by all members of the team
- Kept brief (ideally between 10 and 15 minutes long)
- Held at a regular time
- Follow a set agenda (see page 21 of this guidance note)

Visual Displays are an integral part of team **Stand-up Meetings**. A team's **Visual Display** therefore needs to present all of the information that needs to be addressed by the team.

Stand-up Meetings should be held daily. Where this is not feasible, or where work is intermittent (for example, where only weekend working is involved), less frequent (possibly longer) meetings can be held.

For example, a team that only works weekends would have a meeting on a Thursday or Friday in which they plan the entire weekends work. This will be followed by **Stand-up Meetings** on the Saturday and Sunday, which are followed up by another meeting on the Monday to review the entire weekends performance.

Where shift changes occur, handover notes on a team's **Visual Display** are an ideal way of updating the incoming shift in the absence of daily **Stand-up Meetings**. Notes may include progress made, any changes to the situation on site, or any potential safety issues.

The benefits of Stand-up Meetings

The benefits associated with **Stand-up Meetings** include:

- Bringing the team together and facilitating teamwork
- Providing every member of the team with the opportunity to contribute
- Providing every member of the team with same clear picture of what is happening
- Highlighting potential issues
- Focusing each member of the team on productivity and performance measures

What do they involve?

Stand-up Meetings require teams to do four things:

- Review the previous days performance
- Plan the current day's workload (assign and distribute work assignments)
- Identify obstacles to progress
- Discuss areas of underperformance, and any subsequent improvement actions

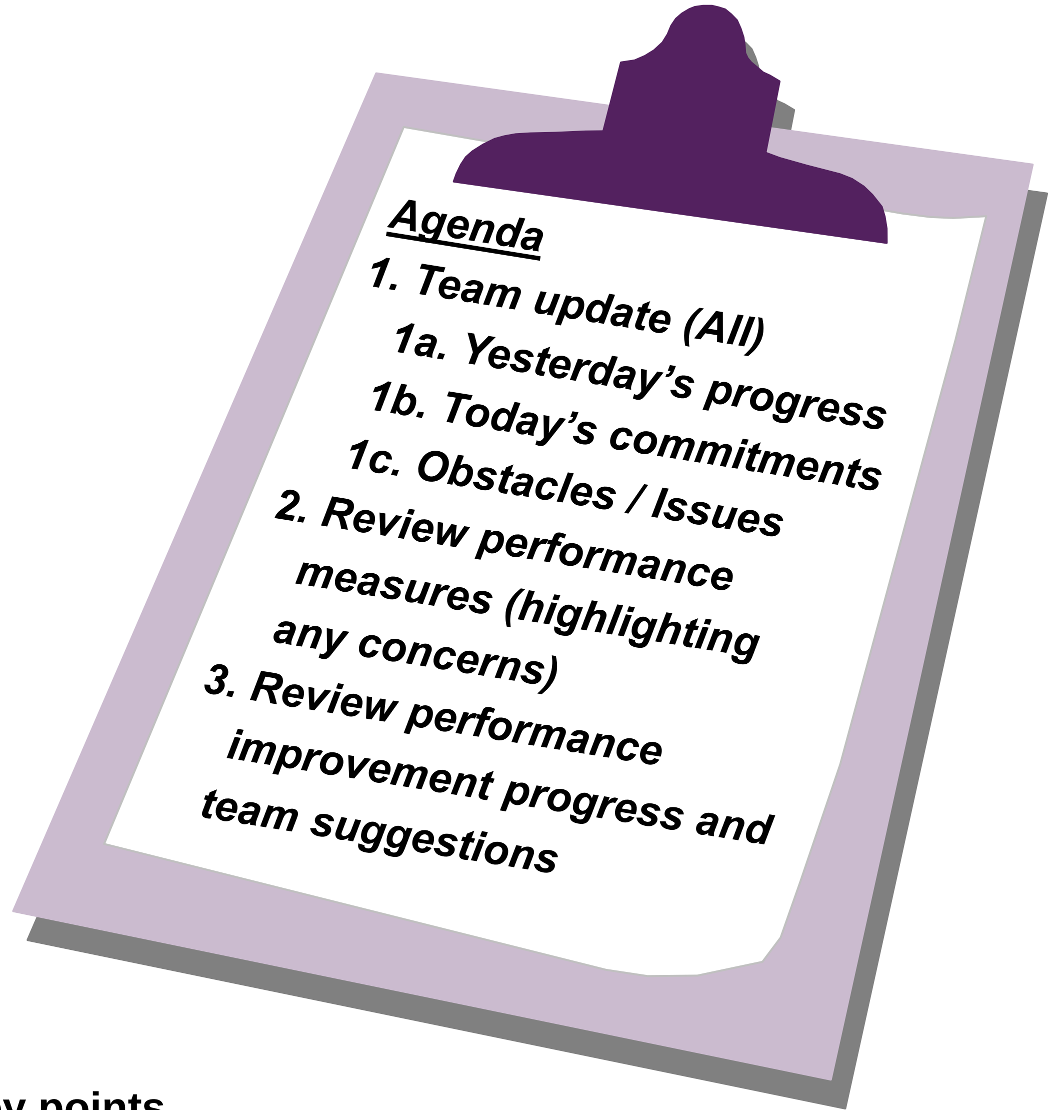
One way of doing this is to allow each team member to take turns in providing a progress update to the rest of the team. Updates should be kept brief and should answer the following three questions:

- What did I do yesterday? Or: Did I meet my commitments yesterday?
- What am I doing today? Or: What can I commit to today?
- What obstacles are preventing me from making progress? Or: What is preventing me from meeting my commitments?

It is important that **Stand-up Meetings** focus on the main issues of the day. More detailed discussions, which may be required to resolve a particular issue, should take place outside the **Stand-up Meeting** so as not to interrupt flow. For this reason it is important that there is an agenda and that the team adhere to that agenda.

Stand-up Meetings

Stand-up Meetings follow the example agenda below:



Key points

Stand-up Meetings:

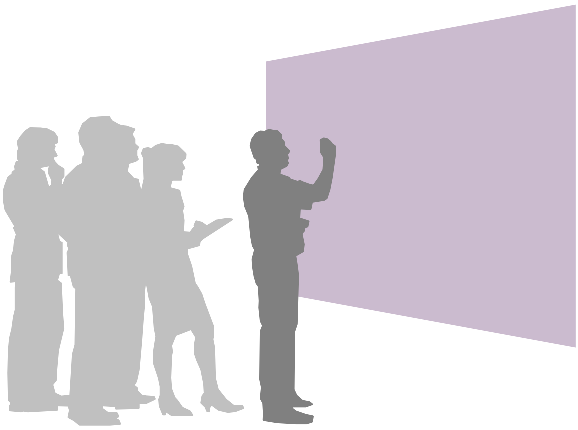
- Are held in front of the team's **Visual Display**
- Are short
- Review team performance against relevant performance measures
- Review continuous improvement activity
- Should end with a safety briefing

Structure

Lean Visual Management is based on the concept of teams. To ensure successful implementation of the **Lean Visual Management** you should give careful consideration to what constitutes a team with respect to your specific working environment. Generally, teams should comprise a group of 7±2 individuals, working in close proximity, who share many of the same goals and objectives.

It should be noted that both **Visual Displays** and **Stand-up Meetings** have the ability to function across work of varying degrees of size and complexity and at various levels of management and seniority.

For example, if you have a small work package that only involves a single team, you will only need one **Visual Display**. In this case the team supervisor will be responsible for facilitating **Stand-up Meetings** and reporting progress to senior management on a regular and ongoing basis.



Larger and more complex work packages that involve substantial multidisciplinary interaction may require each team to have their own **Visual Display**. In cases like this a team's **Visual Display** is likely to be more discipline-centric, with each team having their own individual board that contains project information relevant to them.

The team supervisor will still facilitate **Stand-up Meetings** with their individual teams but they may also participate in meetings with other team supervisors in order to disseminate and discuss cross-management issues. This meeting may utilise a **Visual Display** that provides information more pertinent to senior management. Where this is the case, teams should be encouraged to also highlight issues that have the potential to affect colleagues or stakeholders outside the immediate team, so that these can reported upward.

Structure is an important factor in **Lean Visual Management** and careful consideration should be given to this prior to implementation.

Implementing Lean Visual Management

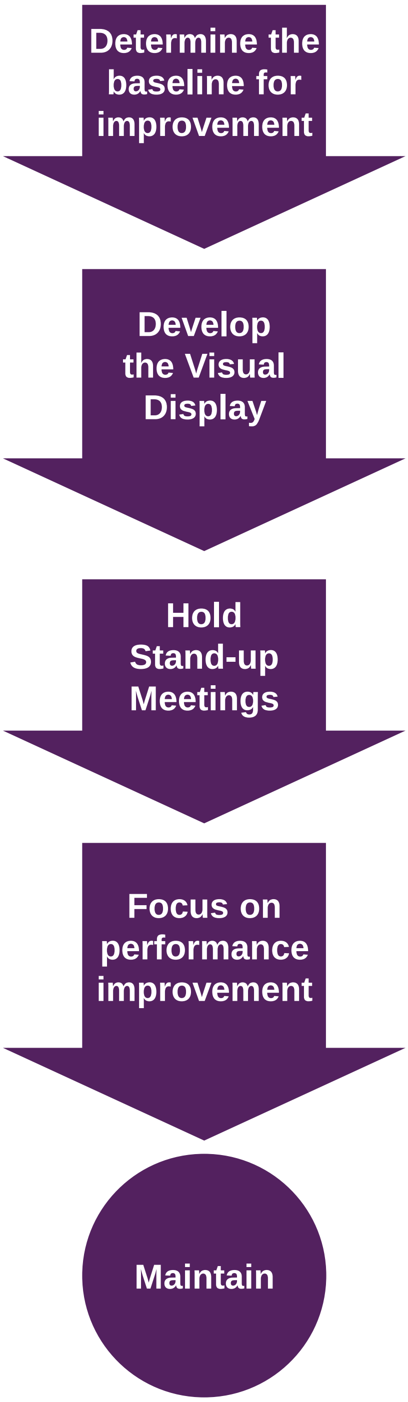
The first step in implementing **Lean Visual Management** is the determination and measurement of appropriate team-specific performance measures so that the team can determine their **baseline for improvement**.

Once suitable performance measures have been determined, teams can begin to develop their individual **Visual Displays**. This development will focus on the agreement of the information that best informs the team and which will enable performance improvement activity.

When teams have their **Visual Displays** in place, they can begin to hold regular **Stand-up Meetings**. Teams will soon become familiar with **Stand-up Meetings** and their use will start to become second nature.

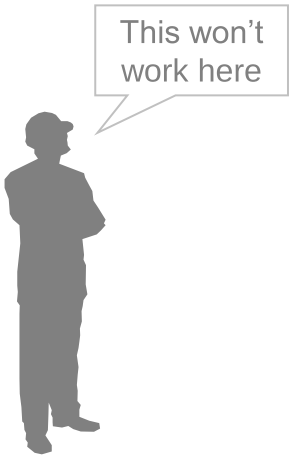
As the use of **Stand-up Meetings** matures, teams will find that they are spending less and less time reporting individual progress updates and more time focusing on performance measures and improvement activity - due to the increased efficiency of meetings over time.

When teams reach a position where performance measures and improvement activity are a part of their daily routine they need to ensure **Stand-Meetings** and **Visual Displays** are maintained and that performance improvement continues - teams should periodically review team performance against the original **baseline for improvement** to see what has been achieved to date.

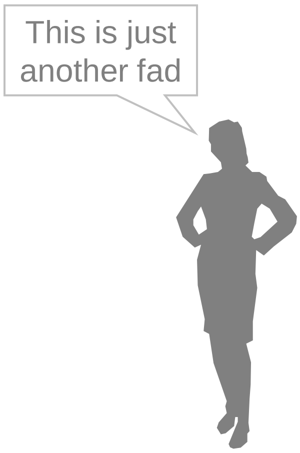


Things you might hear

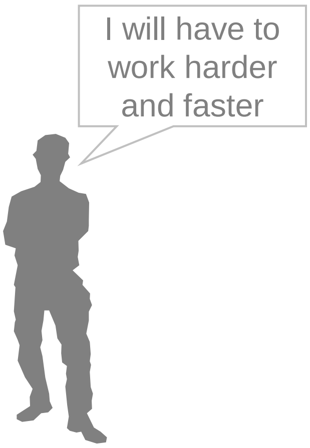
There are a number of phases that you might hear when first implementing **Lean Visual Management**. These are normally based on the perceptions (and misconceptions) of people before engagement, education and training (which is why these are so important to successful implementation). It is worth remembering that people normally have a healthy scepticism about new ideas that only manifests itself because they want to be sure that those ideas are sound.



The idea that Lean is only suited to manufacturing processes is a common misconception. Since its inception, Lean methodology has been successfully adopted across a wide range of industries including aerospace, engineering, finance, research and development, and marketing.

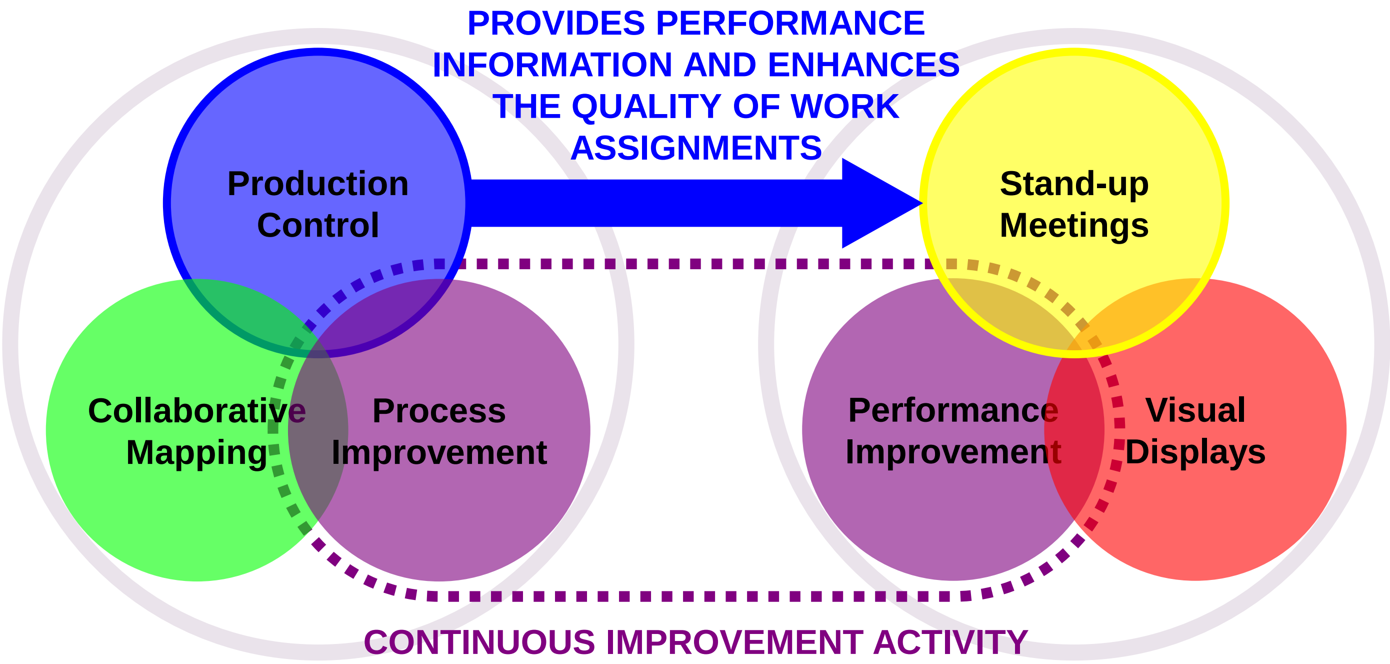


Lean is not a new concept, but one which has been around since the early part of the 20th century. Many of the tools that are associated with modern Lean techniques were developed in the Japanese automotive industry at the end of the Second World War. Since then, Lean methodology has proven itself around the world.



Lean isn't about increasing the pace of work. It is about increasing productivity by establishing ways in which teams can work more efficiently, both individually and collectively.

While **Lean Visual Management** can be used as a standalone technique, the benefits it delivers can be enhanced by the **Collaborative Planning System**. The figure below shows how these two techniques complement one another.



At its core, the **Collaborative Planning System** is focused on **planning to do work**. Similarly, **Lean Visual Management** is focused on **putting people to work**.

The quality of work assignments distributed via **Stand-up Meetings** can be enhanced through the use of **Production Control** techniques by ensuring that all inputs, controls and resources required to successfully complete assignments are in place prior to starting work.

In addition, **Process Improvement** and **Performance Improvement** techniques work together because they are both focused on continuous improvement activity. Together, they provide teams with set of tools with which to add value and reduce waste.

Appendix A: Example Cause, Concern & Countermeasure (3C) table

Concern, Cause & Countermeasure									
Crew:									
Ref.	Concern	Date raised	Raised by	Cause(s)	Countermeasure(s)	Responsibility	Target date	Status	Result
1									
2									
3									
4									
5									
6									
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