

# Lean Visual Management

## Major Projects


### Minimum Standard

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# 1. Purpose of the standard

This standard intends to provide the minimum requirements for Lean Visual Management on Highways England's schemes. Adding detail to Highway England's general guidance found in **An introduction to the Lean Visual Management**.

The standard is for Highways England and supply chain teams working on Major Projects schemes in the development, design and construction stages.

Lean Visual Management compliments other lean techniques. This standard is to be used in conjunction with the minimum standard for [Lean Collaborative Planning](#).

The execution of Lean Visual Management must be increased across Highways England's schemes and Highways England are taking the lead by introducing a minimum standard for visual management on our schemes.





## 2. Benefits of Lean Visual Management

### Key Benefits of Successful Lean Visual Management are:

- Improved communication of key information (such as schedule, delivery and risks)
- Where everyone in the team has the same picture
- Collaboration, promoting teamwork and improved morale
- A forum where all staff are able to raise any issues
- Establishing a team identity
- Problem solving of key issues
- Measuring progress, identifying trends and analysing performance
- Focusing on and establishing goals for Continuous Improvement

### Specifically, Lean Visual Management:

- **Supports teamwork and team coordination**
  - Provides structure and focus to team meetings
  - Supports team coordination
  - Simplifies progress reporting
  - Supports teams' understanding of their customers

- **Aids process transparency**

- Displays team related information to all team members
- Increases the transparency of team performance
- Facilitates better information flow between team members

- **Enables more effective task and resource management**

- Supports task planning and control
- Leads to improved task delivery by team members
- Helps with team resource allocation and levelling
- Enables more efficient use of team resources
- Supports task delegation, empowerment and employee autonomy



### 3. What is Lean Visual Management?

Lean Visual Management is the connection between people, project and data. It is where information is provided in a simple format that is easy to understand and available in the workplace. It enables teams to view their performance and provide information on what they need to action and where they can improve.

Fundamentally it involves doing three things:

- Using Primary **Visual Displays**
- Having **Stand-up Meetings**
- Seeking continuous **Performance Improvement**; by measuring, monitoring and reviewing team performance

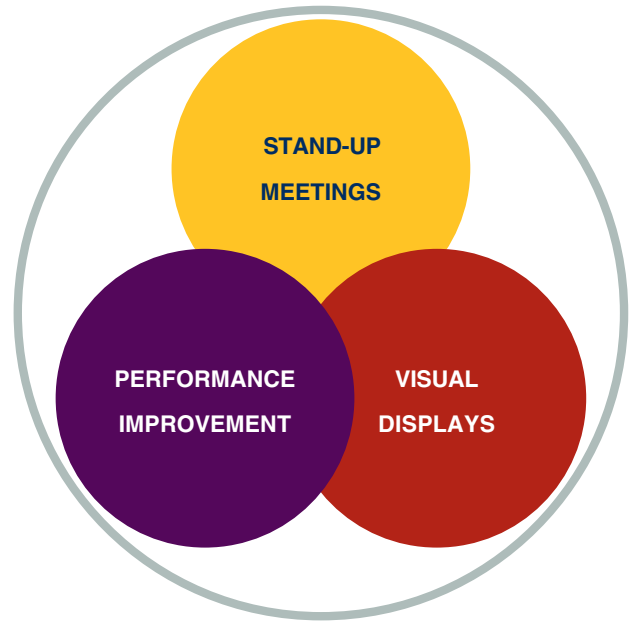


Figure 1. Fundamentals of Lean Visual Management

## 3.1 Visual Display

### What

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 for is updated daily (for projects in the construction phase).



### How

The use of Visual Displays is about a two-way flow of information. They are of limited benefit unless the other two aspects of Lean Visual Management are employed. Specifically, Visual Displays should be used by teams as:

- The focus point for team interaction and Stand-up Meetings
- A central communication point
- A place where improvement activity takes place

### Where & When

Visual Displays should be located as close as possible to the team's working area. In an optioneering and design environment visual displays should be in an area that team members will frequent regularly and large enough to accommodate Stand-up Meetings. Where team members are in multiple locations (potentially across different countries) there may be a requirement to duplicate visual displays. Alternatively, the use of digital visual displays in combination with virtual Stand-up Meetings (enabled by conference calls) should be considered. In a construction environment visual displays should be in an area where teams regularly convene before they go to their point of work. This may be an existing meeting point, the site canteen, or another specifically designated area within the site. Comprehensive visual displays alongside operational information can be used to create construction environment Mission Rooms.

## 3.2 Stand-up Meetings



### What

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:

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

### How

Teams are deliberately required to stand to ensure that meetings are kept short. 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

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.

### Where & When

In an optioneering and design environment Stand-up Meetings will typically occur on a **weekly basis**, but potentially daily where a high volume of tasks or improvement activities are in progress. In a construction environment Stand-up Meeting should occur on a **daily basis**.



## 3.3 Performance Improvement

### What

Improving team performance can be enabled in a structured approach by utilising improvement suggestion systems in support of the visual displays and Stand-Up Meetings.



### How

The visualisation of plans, productivity data and performance trends help teams identify potential performance improvement ideas. Simple and consistent methods to capturing those ideas and monitoring progress of implementation can be used within Stand-up Meetings. As a combined approach changes can be made effectively to bring about performance improvement with an outcome of reliable and improved productivity.

### Where & When

Identification of improvement ideas should be an integral part of all Lean Collaborative Planning and Stand-up Meeting events; it is a mindset that should be held by all members of the team. Understanding the root causes of issues and developing improvement actions can be conducted either during Stand-Up meetings or, for more complex issues, separate problem solving workshops.

## 4. Visual Displays

This standard identifies various types of Visual Display, referred to as components, that can be found in projects at various stages of the project life cycle. Effective Visual Displays must be resourced sufficiently and physically located in the appropriate spaces to enable use by project team members. Visual Displays can range from single display boards for small projects within the optioneering phase to full Mission Rooms for significant projects in the construction phase.

### 4.1 Required components

#### Visual Programme & Milestones (Master)

- A simple visual representation of the High-level Plan (a product of Lean Collaborative Planning) that highlights key activities and milestones within the project stage. This visual gives a holistic view of timeline within which the project outputs must be delivered to achieve the desired outcomes.



#### Visual Programme (Look ahead)

- A detailed plan for the next 12 weeks including milestones & critical tasks which helps identify workload priorities and dependencies to enable successful completion of the task (this is a product of look-ahead planning within the Lean Collaborative Planning activity). It will most likely be a product (particularly within construction) created using sticky notes or magnets and found in a dedicated space for Lean Collaborative Planning. For projects within optioneering or design phases the look-ahead plan may be summarised in a digital format. Visualisation of the look-ahead plan can help aid early identification of problems giving scope to plan and prepare to avoid negative impacts to the project.



## Weekly / Daily Work Plans / Visual Task Trackers (i.e. Kanban)

- A rolling detail day-by-day plan (for construction phase) or week-by-week (for optioneering and design phases). It should cover at least 2 weeks and should never be more than a week out of date.
- The work plan enables review the team's current workload and dependencies for completion, improving reliability and reducing abortive work.

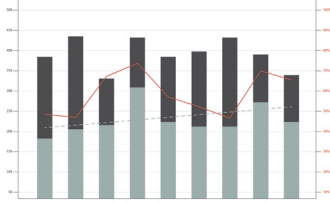


## Performance & Productivity Metrics

- Productivity measures how efficiently production inputs, such as labour, plant and material are being used to produce a given level of output. Productivity is a key source

- of competitiveness and the basic statistical information for industry comparisons and organisation performance assessments.
- Labour content is the dominant factor of overall unit productivity in construction whereas automation effectiveness is much more significant in manufacturing. Therefore improving labour effectiveness and construction processes will have a direct impact on construction productivity.
- Percent of Plan Complete (PPC) will be measured on a weekly basis at each production cell. As per the minimum standard for Collaborative Planning PPC on critical path items will be highlighted both at the production meeting and captured on the visual management system.
- Milestones (as agreed at the outset of the phase) will be tracked – no changes to the milestones in phase (even if scope changes) to allow a true measurement against the project start baseline. Milestones will be as determined in the project planning guidance.
- The highest value items, as per the Work Breakdown Structure (WBS) Level 2/3, will be reviewed monthly to ensure that highest value items are being tracked. Each section of a project will track weekly productivity against its highest value items. Initially all projects will be expected to measure site establishment and earthworks productivity. Earthwork represents the largest value of works in the majority of RIP projects. Target levels of productivity will be based upon the planned work in the accepted programme.
- Where measures exist for assessing the carbon footprint of the highest value items these should be recorded, together with any reductions made because of improved productivity and reported on the Environment visual management board.
- Productivity metrics include:
  - Overall PPC
  - Detail PPC
  - Critical Path activity PPC
  - Quality

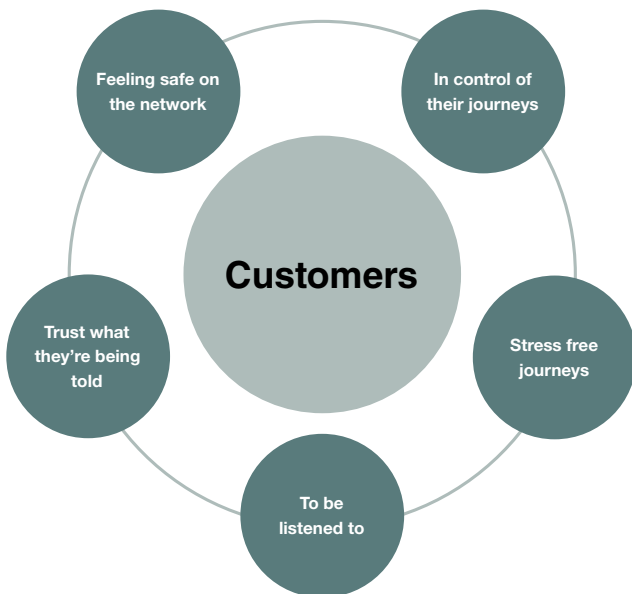
- Cost Performance Index (CPI)
- Schedule Performance Index (SPI)
- Milestone S-curves
- Performance Excellence (Improvement ideas generated, in process)
- Productivity (unit per time)



**Figure 2. Example of PPC Tracker**

### Customer Priorities / Voice of the Customer

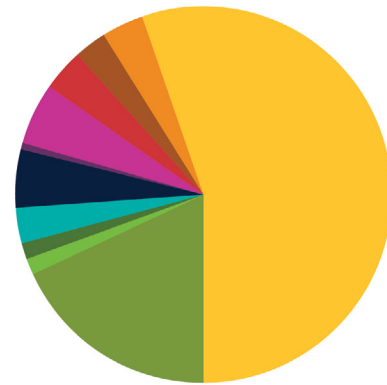
- Customers can be the end user of the project (i.e. drivers, local community etc.) or the recipient of your particular work (e.g. the construction team are the customer of those generating the design). Understanding customer concerns and priorities enables the output of a team to be achieved 'right first time' thus maximising value.



**Figure 3. Examples of customer concerns and priorities**

### Incomplete tasks & root causes

- The measurement of task completion should occur within Production Control meetings. Through continuous measurement we can identify trends which can enable continuous improvement activity. We can continuously improve if we look at:
  - what has been achieved/tasks completed since the last meeting
  - completion dates against schedule to track progress
  - the reasons where complete ahead of schedule and late / non-completion



- Changed Priorities (55.51%)
- Client Input Unavailable (3.47%)
- External Input Unavailable (2.86%)
- Insufficient Time Planned (3.47%)
- Internal Input Unavailable (5.31%)
- Missing Internal Control (0.61%)
- Reallocation of Resource (4.90%)
- Sickness/Absence (3.27%)
- Underestimation of Time/Resources (1.22%)
- Unforeseen Event/Conditions (1.22%)
- Other - Please fill out Risk and Issues Column (17.96%)
- Discuss at the meeting (0.20%)

**Figure 4. Pie chart of root causes**



## Lead & Lag Measures

- Tracking of project leading measures highlights enablers that can be used to influence and improve activities. Identifying lagging past performance measures, enables identification of areas with highest value and greatest benefit to look to improve.
  - H&S Leading measures = EWs, HIPOS
  - Examples of measures and where this has been deployed within projects required. Specifically what do we refer to in design and construction as lead and lag measures.

## Risks / Escalation Log (threats to project delivery)

- Escalate the priorities and areas of concern (RAG Red and Ambers) that have the potential to affect project delivery.

Risks					
Date	Risk	Mitigation	Who	When	Status
					✖

## Key Decisions (linked to Risks)

- The record and visual communication of key decisions both in design and construction ensures that team members are rapidly aware of the direction and guidance to work. There is particular benefit in the handover between teams / shifts. This reduces the risk of delay due to seeking clarification on the status of key decisions.

## Concerns

- Throughout the Lean Collaborative Planning approach the capture of concerns against performance and delivery should occur. Effective management of countermeasures / actions can then occur. Trends in concerns can be used to inform the prioritisation of problem solving and Continuous Improvement efforts.

3 Cs						
Date	Concern	Cause	Countermeasure	Who	When	Status
						✔

## Improvement Ideas

- See Chapter 6 for Visual Displays improvement ideas, such as Four Folders.

## Alerts / News (including Key Lessons)

- Developments and changes within the project that have an influence on delivery should be communicated efficiently, reaching all of the intended audience. Including alerts in Visual Displays ensures this information is made available to teams on a regular basis.

## Potential Notice Topics

- Training
- Engagement events
- Leadership priorities
- Site Visits schedule
- Tools & Techniques
- Latest learning and improvements
- Successes & Key Benefits delivered
- Outputs from data analytics

## Wellbeing and Safety Notices

- By providing the team with an area to highlight key messages in respect of Health Safety & Wellbeing on the project to look to improve individual and team working conditions, building engagement, support and morale.

## Shift Schedules / Team holiday charts

- Description (What) & Purpose (Why). By looking at individual schedules, it helps the team to see the whole picture when planning to improve the team's coordination.

## Organisation charts

- Visual representation of the project organisation or component teams. Places the team in context of the wider project. A useful tool when orientating new team members to the network in which they are operating.

## 4.2 Implementation

Not all components in this standard are required at every stage of a project.

Figure X identifies the degree of implementation by project phase using the categories:

- **Must** (the visual display component is essential to enabling Stand-up Meetings and performance improvement)
- **Should** (the visual component is expected but not essential)
- **Could** (consider whether the visual component can be administered, will add value to Stand-up Meetings and performance improvement activity)

### Visual Display Structure

Highways England recognises that the supply chain may have developed standard designs, layouts and structure to their visual displays; this standard does not seek to state a specific layout requirement.

Where projects do not have mature visual displays they should consider the SCALE structure for grouping of visual display components. SCALE utilises action titles to describe how the visuals are used within Stand-up Meetings:

- **Share** – Provide a quick project overview and key information
  - Programme
  - Processes
  - Performance Metrics
- **Control** – An interactive section that drives delivery, containing
  - Production Metrics (PPC)
  - Weekly Work Plans
- **Action** – An interactive section that captures actions, containing
  - 3Cs (Concern, Cause, Countermeasure)
  - Risks / Escalation Log
- **Look after** – Devoted to people, containing
  - Key successes, project news and alerts
  - Safety & well-being messages
  - Organisation charts
  - Calendars, shifts plans and holiday charts

- **Evolve** – Devoted to Continuous Improvement, containing
  - Improvement ideas
  - Four folders

Visual Display Component	Optioneering Phase (PCF Stage 1-2)	Design Phase (PCF Stage 3-5)	Construction Phase (PCF Stage 6-7)
Visual Programme (High-level & Lookahead Plan)	<b>Must</b>	<b>Must</b>	<b>Must</b>
Weekly /daily work plans	<b>Should</b>	<b>Should</b>	<b>Must</b>
Performance & Productivity Metrics (KPIs)	<b>Must</b>	<b>Must</b>	<b>Must</b>
Customer Priorities	<b>Should</b>	<b>Should</b>	<b>Should</b>
Incomplete Tasks & Root Causes	<b>Must</b>	<b>Must</b>	<b>Must</b>
Lead & Lag Measures	<b>Should</b>	<b>Should</b>	<b>Must</b>
Risk / Escalation Log	<b>Could</b>	<b>Must</b>	<b>Must</b>
Key Decisions	<b>Must</b>	<b>Must</b>	<b>Must</b>
Concerns (3Cs)	<b>Must</b>	<b>Must</b>	<b>Must</b>
Improvement Ideas	<b>Must</b>	<b>Must</b>	<b>Must</b>
Alerts / News	<b>Must</b>	<b>Must</b>	<b>Must</b>
Wellbeing & Safety Notices	<b>Must</b>	<b>Must</b>	<b>Must</b>
Shift schedules. Team holiday charts	<b>Could</b>	<b>Could</b>	<b>Must</b>
Organisation charts	<b>Should</b>	<b>Should</b>	<b>Should</b>



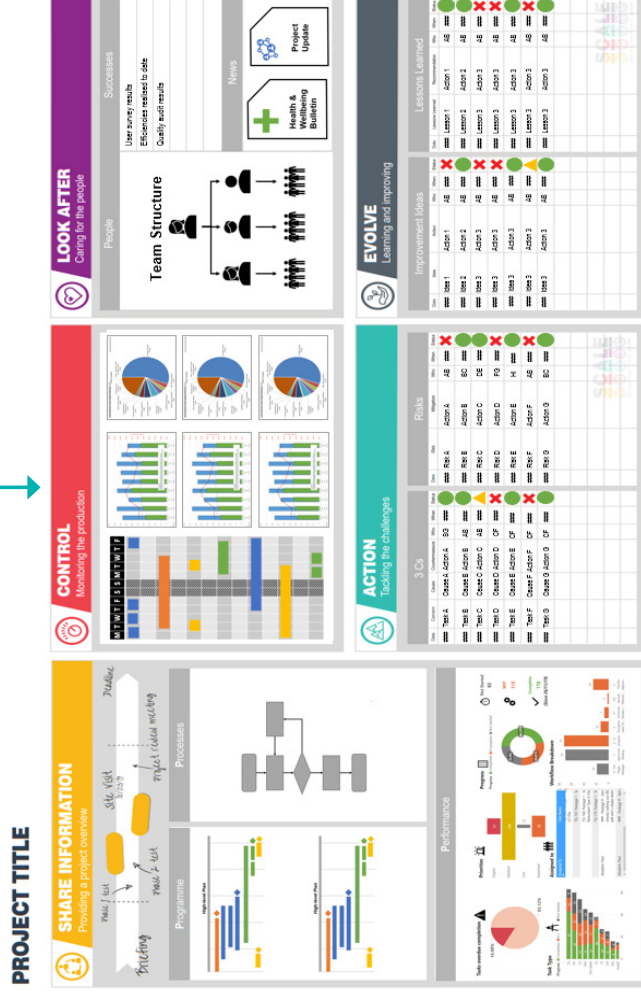
### Control the work

- Plan Percent Complete (PPC)
- Reasons for non-completion
- Lead / Lag measures

### Understand Programme, Process & Performance

- Key Milestones
- High-level Plans
- Processes
- KPIs

## Example Visual Display Board



### Look after your people

- Project Notices
- Safety & Wellbeing Alerts
- Organisation charts
- Successes

### Improve performance

- Improvement Ideas
- Continuous Improvement actions

### Act on information

- 3Cs Board (Concern, Cause, Countermeasure)
- Risk / Escalation Log

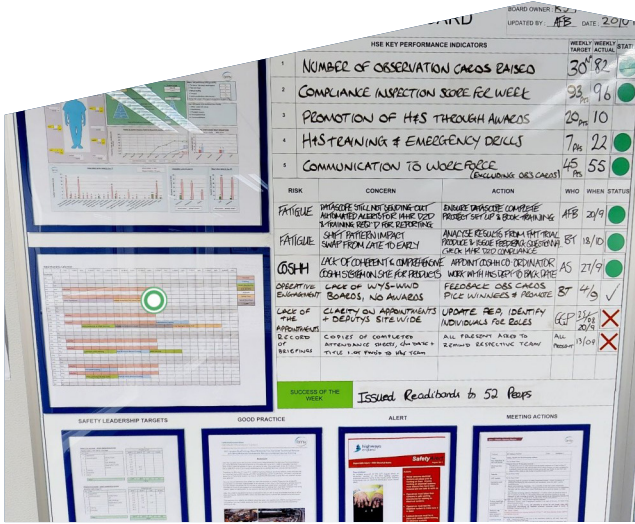
### 4.3 Equipment and space

Description of the physical tools used to create visual boards (homemade vs bespoke printed)  
 The dedication of a space that is accessible to all  
 Visual displays should be used as close to the place of work as possible  
 Visual displays provide information and tools that facilitate continuous performance improvement.

#### Equipment

Engagement and update of visual boards should be accessible and interactive. This is best achieved using white boards with pens along with magnets or sticky notes.

- Magnetic whiteboards (suggest 2m x 1.2m as minimum size)



- Organised into component areas using black tape or bespoke printed laminate templates
- Container for:
  - Whiteboard pens and wipes
  - Black tape to design the boards
  - Magnetic RAG sticky notes and Magnets
  - Sticky notes

#### Use of RAG rating in task management

Tasks, actions and general items within tracker boards should utilise a RAG (Red / Amber / Green) rating to give visual board users an instant understanding of status. Colour blindness may prevent clear communication and understanding of the RAG colours and therefore they should be used within an appropriate symbol. The standard expected is below at Chapter 9.

#### Space

It is essential that Visual Displays are located as close to the place of work as practically possible and where they can be seen by all, thus promoting accessibility for all team members and effective engagement of Stand-up Meeting behaviours.

Sufficient wall space for Visual Displays should be made whilst ensuring there is enough floor space in front of the displays to accommodate all those attending Stand-up Meetings safely. Moveable boards on wheels can be an effective solution where wall space is insufficient / not available.

#### RAG Status

A consistent way to visualise action progress by colour and shape



Issue which will impact budget, schedule or scope



Issue which, without mitigation, will impact budget, schedule or scope



Action planned or in progress, no issues identified



Action complete

## 4.4 Mission Rooms & Lean Visual Management systems



### Mission Rooms

The primary purpose of a Missions Room (also known as War Room, Control Room, Big Room or Obeya) is to create a wholistic view of project status. It should be a collection of Visual Displays telling a story about the project as whole, which as a result:

- achieves transparency in project performance,
- enables engagement across tiers of the project hierarchy,
- enables effective decision making.

The Mission Room acts as the common information environment used by both those doing the work (design / construction teams) and those supporting (management), creating one version of the truth.

This transparency of information makes Missions Rooms the ideal place for project briefings, decision making and the sharing of Continuous Improvement actions.

Mission Rooms can encompass all of the visual display components listed in in this standard. And can be organised by discipline, by delivery workstream.

Mission rooms can be enhanced with digital tools and displays to visualise content such as programmes, digital models and live asset data from site.

### Design the system

It is best to take a considered approach to the establishment of Mission Rooms and Lean Visual Management on a project. Key steps are:

1. Confirm key performance / result areas the project intend to measure and the key performance indicators within that area
2. Establish visual display components that aligned to key performance areas and map out the practical distribution of visual displays across disciplines & teams
3. Establish project wide Visual Displays, which can be in the form of a Mission Room

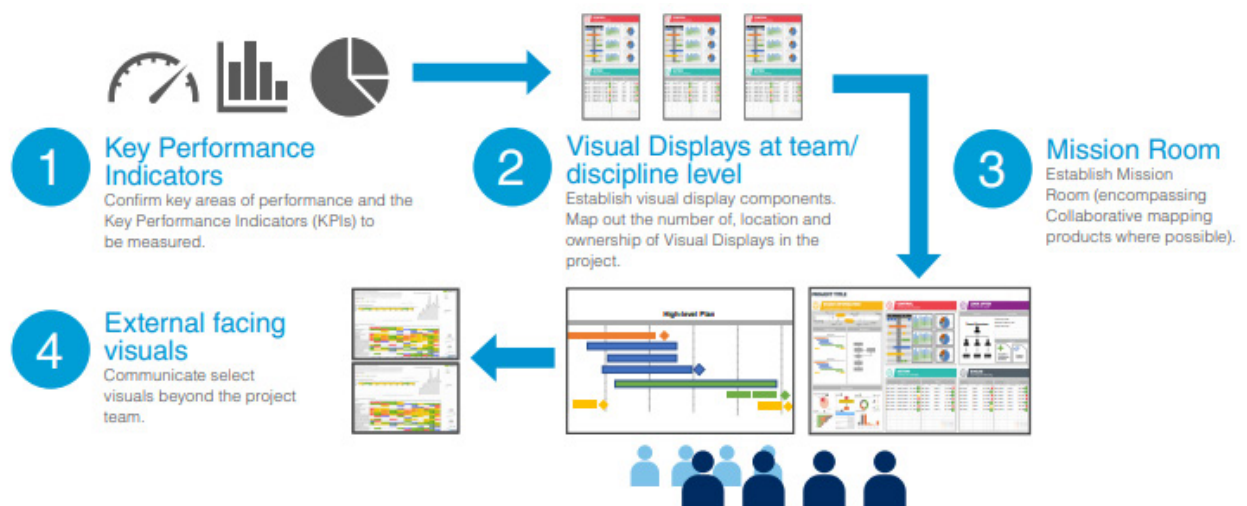


Figure 5. Lean Visual Management Process

- Consider which performance indicators and areas could be communicated digitally / as a routine infographics out with the immediate project team.

a capping or leadership board will work as an effective mechanism. The recommended hierarchy is shown in figure 6. Teams can add secondary boards as required for the project.

## Primary Boards

For Visual Management to work there needs to be consistency in how information is displayed and the number of key reportable areas. It is important that all workstreams are given equal opportunity to visualise and use displays relevant to their work. Projects may find organising visual displays as primary boards, each feeding into

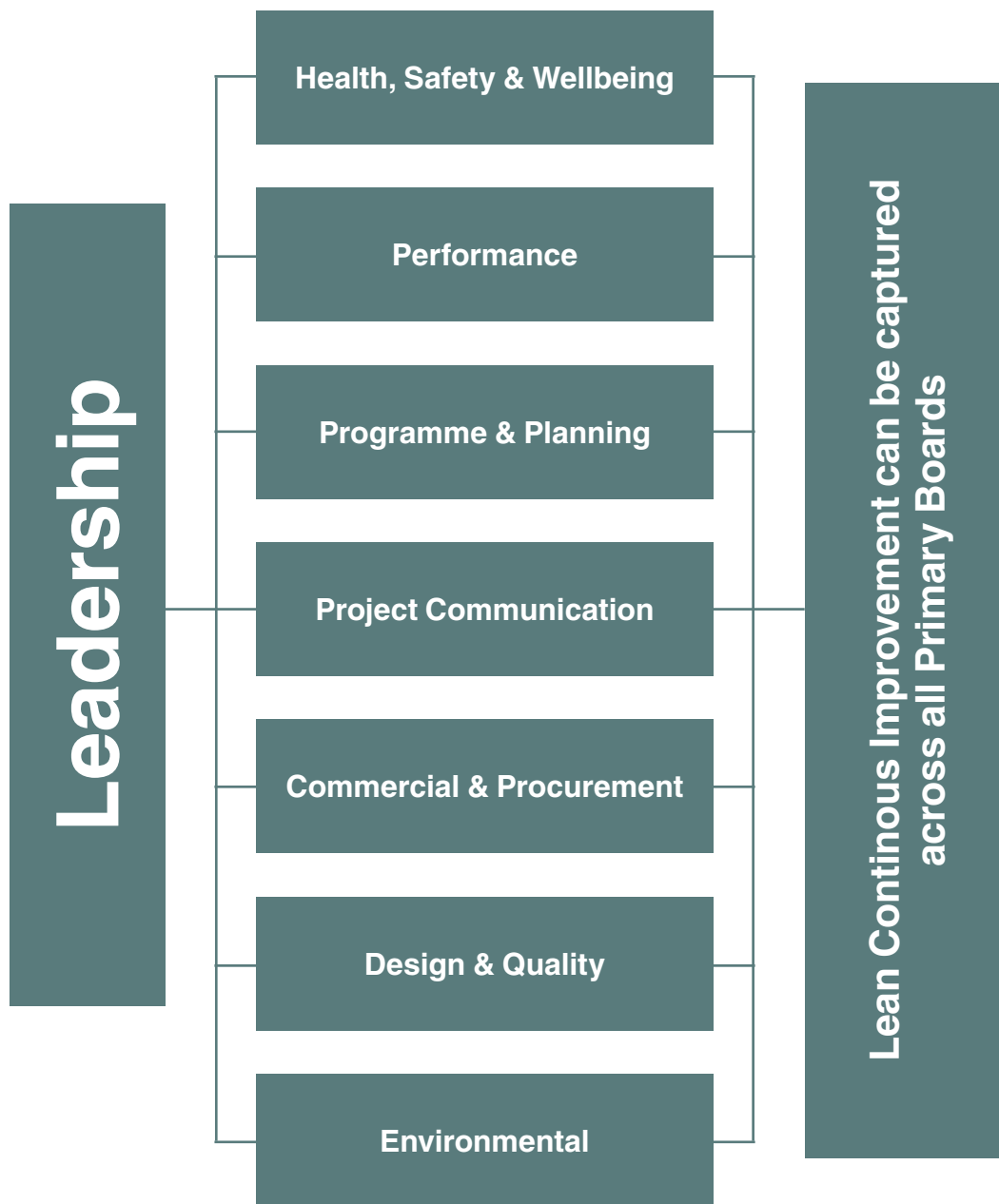


Figure 6. Example of a Primary Boards feeding into a overarching Leadership board



## 4.5 Digital Visual Management

It is not always possible to have all team members co-located in one place and some teams have a desire to adopt a technological solution rather than the usual at site or office Lean Visual Management approach. The principles and steps of Lean Visual Management however must still be applied.

A digital platform for visualising project information and results ensures that people stay connected to the work and each other no matter what time it is or where they happen to be. Whenever someone needs information about the state of a project or process, it's available.

When creating or selecting a digital Visual Management platform or tool the following functionality should be present:

- **Must** be accessible to all team members (consider what equipment the team require to view, such as tablet devices on site or large screens in office)
- **Must** always show live or up to date data.
- **Must** easily interpreted information so all levels can understand it.
- **Could** be automatically updated from Digital Collaborative Planning system.

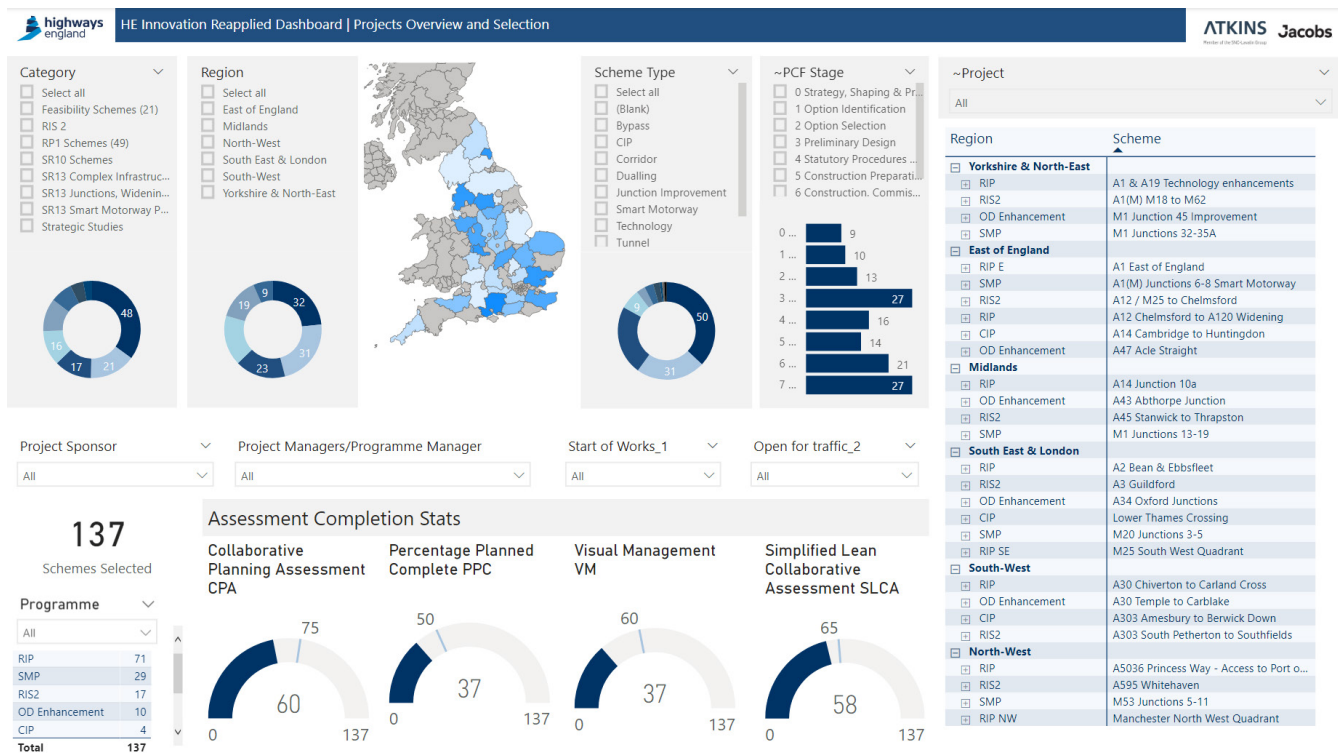


Figure 7. Visual Management board using Power BI

## 5. Stand-up Meetings

The use of Visual Displays is best achieved through Stand-up Meetings. A standard project approach, attended by disciplined participants and facilitated robustly will delivery the most effective outcome.

### 5.1 Agenda

- **Team update (all)**
  - Last 24hours / week progress
  - Next 24hours / week progress
  - Obstacles / Issues
- **Review performance measures** (highlighting any concerns)
- **Review performance improvement progress** and team suggestions

### 5.2 Behaviours & Standards

- **Update visual displays before** the meeting if you own them
- **Think before you participate** Prepare topics to be raised before hand
- **Be punctual** and remain present for the duration of the meeting
- **Eliminate distractions** Phones to silent and no food/drink

- **One voice** at a time allows others to be heard
- **Focus on the priorities** (RAG Reds & Ambers)
- **Short discussion & to the point**
- **Challenge ideas, not individuals**
- **Capture clear actions** with owners by using the boards
- **Do not alter any displays that you do not own**

### 5.3 Facilitating Stand-up

Effective Stand-up Meetings are enabled by robust facilitation by appropriate team members such design managers, construction managers or Lean Practitioners. Facilitators should:

- **Lead by example** and adhere to the behaviours and standards of Stand-up Meetings
- **Enforce the agenda** to give structure to the discussion
- **Challenge ideas** and raise questions
- **Control** bold participants and encourage quiet ones
- **Ensure all actions are captured** with suitable owners
- **Challenge / escalate overdue** actions
- **Update stakeholders and management** of key progress, escalation points and lessons



## 6. Performance Improvement

Continuous Improvement activity focuses on process improvement and performance improvement, looking at where you can add value and reduce waste. It prompts people to take the time to think about and review their work and helps with early problem identification. Continuous Improvement offers a problem solving and work improvement opportunity using Lean tools to give insight to support teams to make intelligent decisions based on the information that will improve team's performance.

### 6.1 Improvement Suggestion Systems

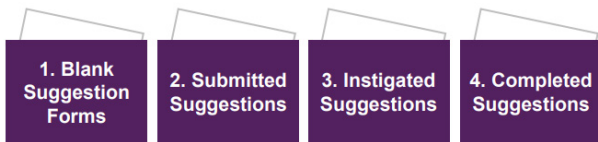


Figure 8. Example improvement suggestion system

#### Four Folders

The Four Folder approach aims to capture improvement suggestions generated by the team, providing team members to influence the way that they work and reduce waste. Suggestions are submitted by team members at anytime; reviewed in the Stand-up Meetings to confirm whether the improvement can be undertaken by a member of the team, whether it is 'too big' and escalated, or agree it is not feasible and discounted. Completed improvements can be in the final folder and shared with other teams as lessons.

#### Identify Wastes

Waste is any product / project, process or service which does not add value to the ultimate customer / client. In Lean applications, Highways England identifies eight types of waste:

- Transportation (eg moving aggregate from depot to site)
- Inventory (stock) excess (eg raw material, work in progress including design work and finished work not yet required and float in the programme, unused plant)
- Motion excess (eg excessive haulage roads on site)
- Waiting time (eg excavating plant waiting for spoil removal vehicles to become available)
- Over production / construction (eg making more than the customer / client wants)
- Over processing and extra process steps (eg unnecessarily high quality paint finish)
- Defects / rejects (eg fixing defects or scrap)
- Skills misapplication (eg appointing inappropriate people to business improvement roles)

#### Identify 8 Wastes (TIMWOODS)

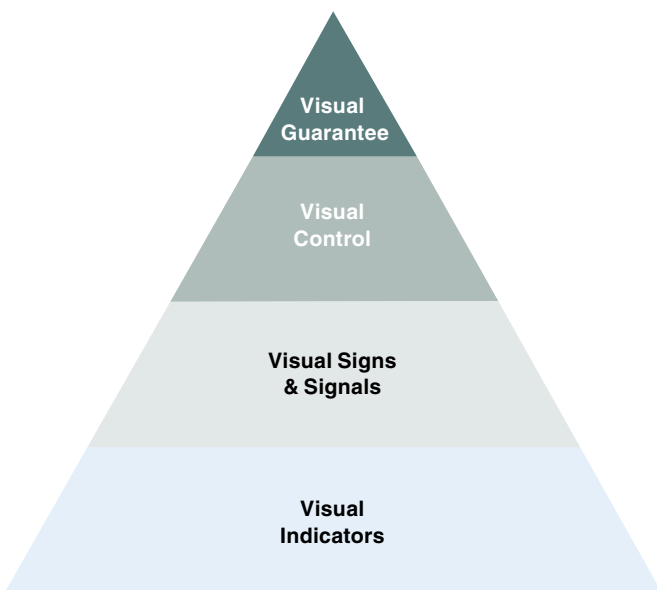
	Function	Example	Identified waste in process
	Transportation	Sending bulk emails when only relevant or of value to one recipient	
	Inventory	Ordering excess of what needed.	
	Motion	Traveling to meetings	
	Waiting	Waiting for information/supplies to meet deliverables	
	Over production	Detailed report instead of one page summary	
	Over processing	Complicating the process adding in extra steps	
	Defects	Work needing to be redone as not right first time	
	Skills misuse	Lacking training for ease of implementation	

Figure 9. Types of waste

### 6.2 Trend analysis

By visually highlighting the trends (improvements /deteriorations) in the data gathered intelligence can be formed to steer Continuous Improvement activity with the team providing suggestions for improvements on the project.

## 7. Visual Controls



**Figure 10. Visuals Controls usage pyramid**

Lean Visual Controls support safe working by considering how people work and interact within their working environment and then eliminating, reducing, isolated or controlling (ERIC) the Health and Safety risks.

Visual Control is a tool that is used to guide process outcomes and is realised through the four basic types of visual tools; visual indicators, visual signs and signals, visual controls and visual guarantees.

We use Visual controls across construction sites, such as using signage to indicate dangerous or hazardous situations, colour coding electrical wiring and, visual indicators such as designating and communicating floor space allocated for equipment and machinery.

Visual controls facilitate quick understanding, helping to prevent errors and accidents such as clearly marked walkways or parking areas or signage to identify sites where PPE is mandatory.

Visual controls can be used to maximise safety provisions when looking at improving production

processes and productivity outputs. By using visual controls in a process, performance outcomes become visible quicker, with easy identification of problems, sources of waste and opportunity for value adding activity.

Visual controls limit the number of conceivable mistakes, providing a guided approach, which is informative, providing answers without the need to ask further questions.

The Visual Guarantee (error proofing) approach maximises on visual control to either prevent mistakes from being made or make the mistakes obvious at a glance so that it can be put right.

Visual control can be incorporated in design using Visual Guarantees (error proofing) so that only the correct parts and installation position is possible, working in prevention and avoiding waste in the process. This is achieved by colour, part shapes and sizes. The andon system is a visual control system that has been used in Highways England construction projects and has been adopted to document and capture defects and the reason in processes.

5s is a Lean tool aimed at optimising the workplace environment, providing visual order so that it works to visually enhance performance in an efficient manner, whilst maintaining a safe working environment. Adding a standardised approach to Visual Control helps provide clear understanding of what is required, enabling planning and leads to better adherence to plans, enabling processes to be repeated, visually analysing performance to look at improving accuracy, quality and reducing costs.

## Visual Order (5s)

**Sort** = Identify essentials making them readily available and surplus/non-essential items either disposed of or set aside.

**Straighten** = Arranging items so that those used often are easily located and in easy reach and those that are rarely used are moved to the back.

**Shine** = General housekeeping layout, where items are placed to cause minimal risk of injury, removing trip hazards, looking at manual handling arrangements and warnings.

**Standardise** = Develop standard processes that can be easily complied with by those who have access to the items, incorporating visual markers or shadow boards as a visual indicator.

**Sustain** = Don't slip back into old ways, maintain the new improved ways of working continuously improving and adapting to changes as required.

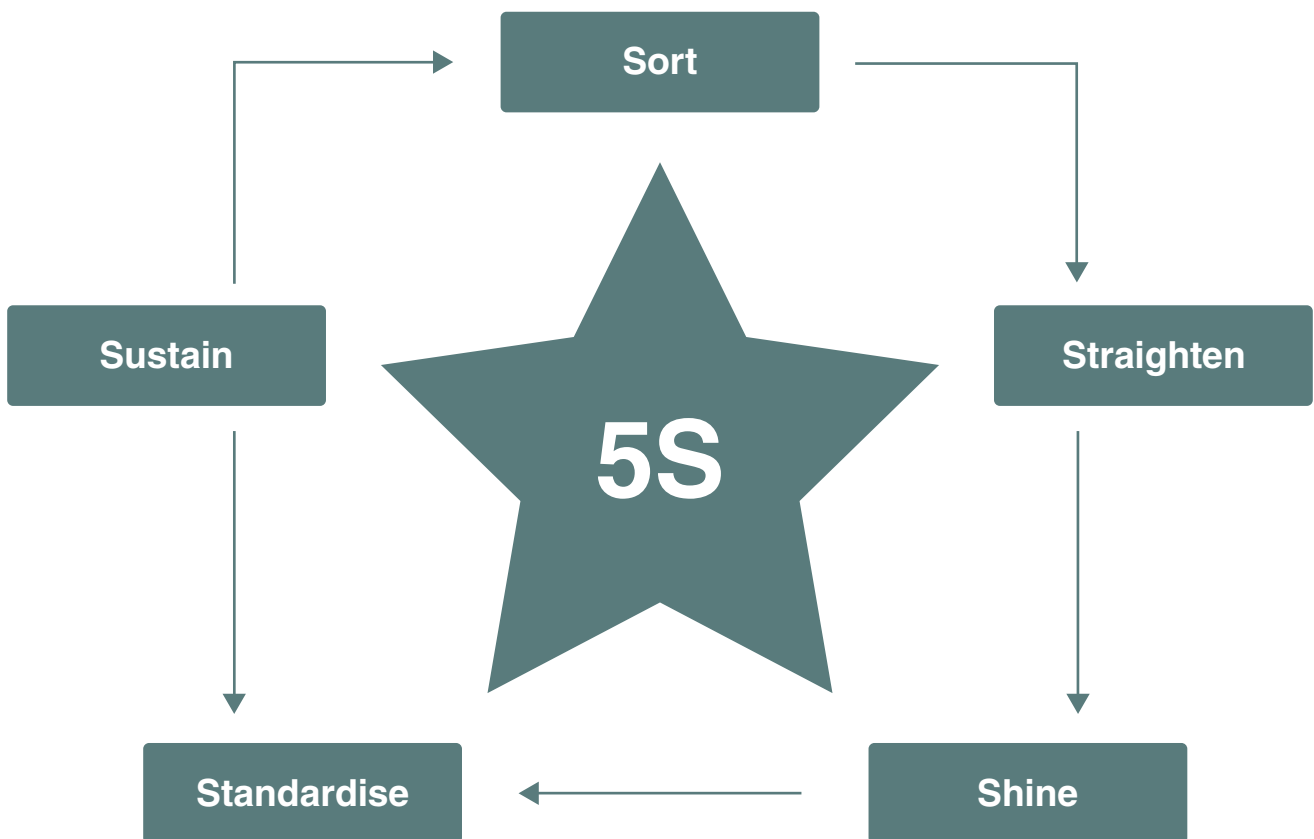


Figure 11. Visual Order 5S diagram



## 8. Lean Visual Management and Collaborative Planning

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 Lean Collaborative Planning approach 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, the Continuous Improvement Activity spans both techniques as they both work towards performance and process improvement activity. Together, they provide teams with a set of tools with which to add value and reduce waste.

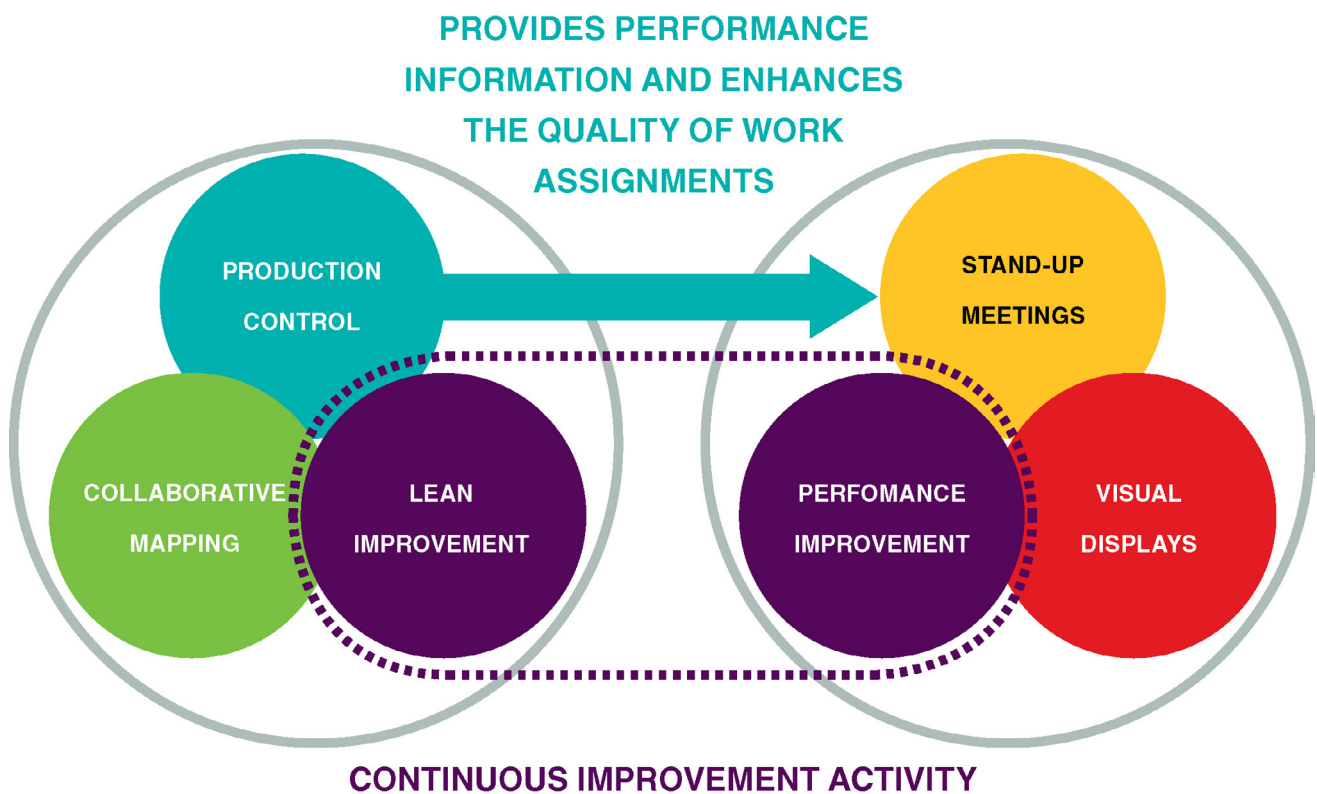


Figure 12. The combined benefits of Lean Collaborative Planning and Lean Visual Management



## 9. Lean Visual Management Assessment & Tool

Lean Visual Management can be applied anywhere where teams work together to undertake activities. Highways England has found Lean Visual Management to be highly beneficial in successful project delivery and have therefore developed an assessment tool to ensure Lean Visual Management is adopted and highlight best practice across their supply chain. This assessment should be carried out by experienced personnel who are familiar with the principles of Lean Visual Management together with the Highways England Lean Team, who will support assessors to ensure scoring is consistent across schemes.

This tool can be used to review and measure the quality of your Visual Management performance cell and ensure it is still working for the team.

The four areas assessed are:

1. Standard format
2. Governance
3. Meeting behaviour
4. Leadership

The Assessor will briefly note areas where there may be 'opportunity to improve' and elements of 'good practice' to share against the areas as necessary. There is no need to retain any written evidence.

The assessment should take no more than two hours, including observation, scoring and submission. The initial assessment must take place once Lean Visual Management is established. Reviews should be carried out at intervals of no more than three months and should be focussed on areas of change i.e. to discuss by exception.

The frequency of the assessments will be every 6 months.



## 9.1 Scoring

For each section a score will be determined based upon the Assessor and HE's Lean representative view of the maturity of Lean Collaborative Planning on the scheme. The overall maturity of Lean Collaborative Planning will be the average of the five section scores.

The assessment focuses on five areas, of which the scores attract an equal weighting (scoring between levels 0-4). **A minimum attainment of level 3 is expected for all schemes.**

Level Classification and Expectations	Typical Activities and Behaviours
Level 4 - Excellent continuous improvement culture adopted for whole scheme delivering significant benefits with all team members/ suppliers/ stakeholders engaged	All team members adopt all aspects of the Lean collaborative planning system and proactively undertake continuous improvement activities. Evidence of an improved system being developed as the scheme progresses.
Level 3 - Good practice and performance improvement evident in all key and many other areas	All senior and most other team members support LCP and undertake continuous improvement activities, good practice is shared within the wider highways community. Benefits are tracked and high-performance levels are evident in key areas.
Level 2 - Developing and delivering in specific areas	Processes are widely adopted by most team members, continuous improvement visible in specific areas and its performance is routinely tracked to identify areas for action. Benefits are being realised.
Level 1 - Initial fragmented activity	Priority change
Level 0 - Process not started and no systems in place	There is little evidence of the processes taking place and where implemented activity is sporadic, benefits are not recorded and lacks focus.

## 9.2 How the assessment will be used

**Project Team** - This assessment shall be supported by experienced personnel from the project team who are familiar with the principles of Lean Visual Management together with the Highways England Project Manager. The assessment will be conducted by an assessor and representative from Highways England's Lean Team. Reference should be made to the Highways England's minimum standard for Lean Visual Management which explains the terms used.

**Evidence to support this assessment** - The scheme representatives shall provide evidence to demonstrate compliance in each area being assessed. Failure to provide evidence will result in a no score; the onus will be on the scheme representatives to provide evidence. The assessment level will be representative of the scheme not individual suppliers.

**How to assess against levels** - Individual questions should be answered using a simple Yes/ No responses. The section score will be determined by the Highways England assessor rounded to 0.5. A minimum level of 3.0 is required in each area. The overall Lean Visual Management value will be an average of the four section scores rounded down to the nearest 0.5. Note the Lean Value Management assessment is only valid if it has been undertaken by an appointed assessor and representative from the Highways England Lean Team.

**Recording Scores** - The scheme representative is to complete the Lean Visual Management Assessment on the [Major Project Assessment Toolkit](#).

**Distribution** - Assessment results are to be distributed to the Highways England Project Manager, the supplier's Project Manager, the Highways England Regional Lean Area Manager, the Highways England Lean Improvement team and the relevant Highways England programme office. The assessment will be recorded and reported in monthly performance reviews.

**Improvement Plans** - If the scheme does not achieve the minimum of 3.0 in any area, it will be assessed as failing to meet the requirements of implementing effective Lean Visual Management. An improvement plan must be submitted to the Lean Area Manager & Highways England Programme Manager within 1 month. A follow up assessment shall take place within a further month. Failures will be reported through the performance management process.

## 9.3 Evidence Examples

1	Standard Format	Possible Evidence
1.1	Visual Management Boards are in place in a accessible and central location	Boards displayed in central location that workforce can see
1.2	KPI's & Productivity measures are shown (external and internal) with targets and actual performance	PPC boards up to date with root cause analysis
1.3	Targets & Trends are shown	Root cause analysis done and shown
1.4	3C's in place (Cause, Concern, Countermeasure) with effective mitigation measures	3C tracker shown
1.5	Constraints are clearly indicated and follow up actions identified	Constraints management PPC boards up to date with owners and status shown

2	Governance	Possible Evidence
2.1	Meeting attendance appropriate and timely (with dial in options available)	
2.2	Meetings held weekly	Record of meetings
2.3	Meeting keeping to time	Occasional meeting feedback collected
2.4	Meeting flow in accordance with visualisation flow/content.	Board set up in flow of meeting
2.5	Data and actions status is up to date for Performance Measure	Board owners and updated dates marked

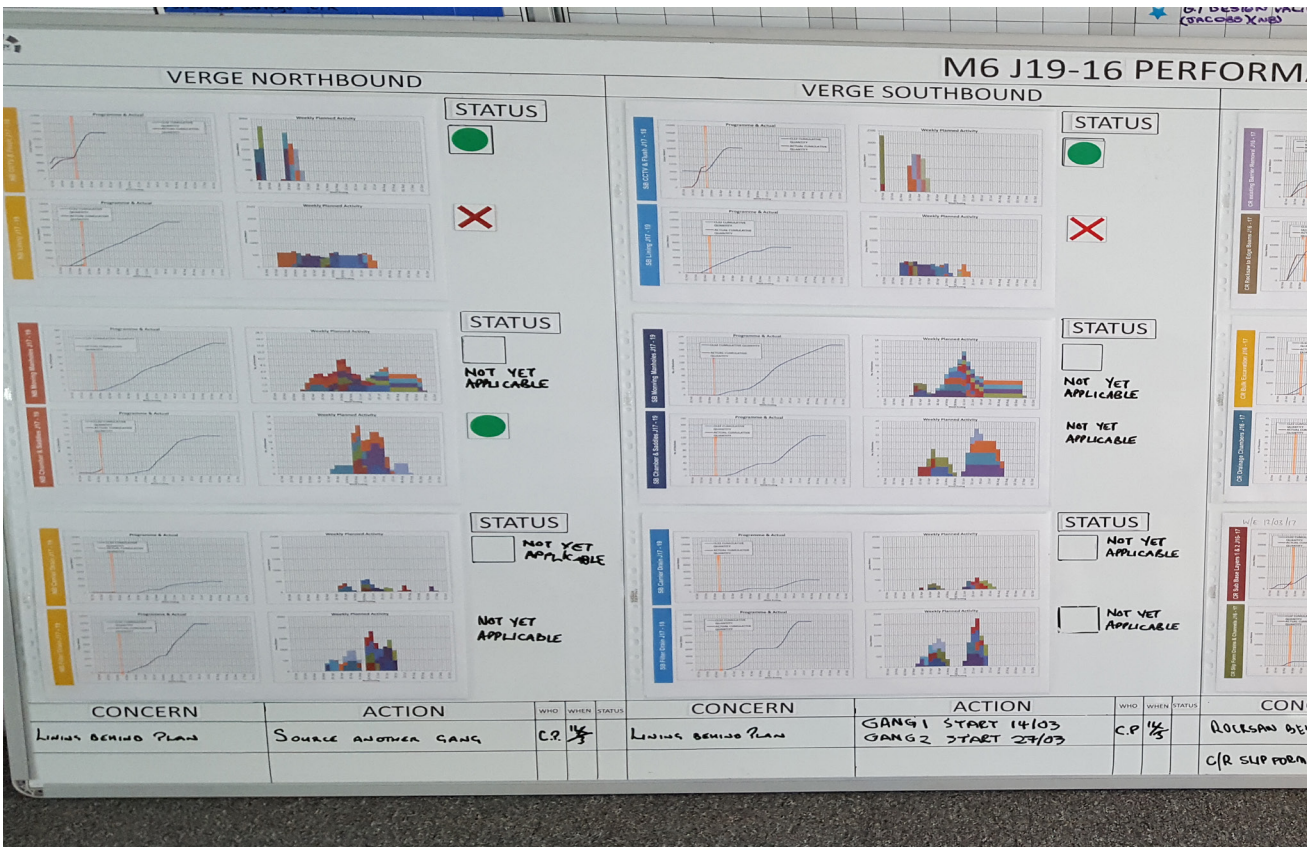
<b>3</b>	<b>Meeting behaviour</b>	<b>Possible Evidence</b>
3.1	Questions raised appropriately and drives solutions.	Opportunities and Benefits tracker
3.2	Actions are captured during the meeting including owner and due dates.	Actions tracker
3.3	After the meeting follow-up actions identified to ensure ownership of tasks	Owners listed on actions tracker
3.4	Overdue actions are challenged to get resolved / escalated.	Status shown on actions tracker
3.5	The project / business status is clear and weekly updates sent to SLT and Stakeholders.	Evidence of updates sent

<b>4</b>	<b>Leadership</b>	<b>Possible Evidence</b>
4.1	Closure dates are challenged.	Weekly plan analysis
4.2	Objectively lead the meeting	Use of standard agenda
4.3	Confront misaligned behaviour	3C Tracker
4.4	Disciplines are strongly re-enforced.	Evidence of using the guidance and standards
4.5	Key points summarised to close review.	Evidence of review



# 10. Examples of current practice

## 10.1 Visual Displays



10. Examples of current practice



## Glossary

**Andon:** A device that calls attention to defects, equipment abnormalities, other problems, or reports the status and needs of a system typically by means of lights – red light for failure mode, amber light to show marginal performance, and a green light for normal operation mode.

**Collaborative Planning (Last Planner®):** The structured approach to planning, monitoring, controlling and improving work activities.

**DMAIC:** Define, measure, analyse, improve, and control is a data-driven quality strategy used to improve processes.

**Five whys:** The practice of asking “why” five times whenever a problem is encountered; repeated questioning helps identify the root cause of a problem so that effective countermeasures can be developed and implemented.

**Flow:** The progressive achievement of tasks and/or information as it proceeds along the value stream, flow challenges us to reorganize the Value Stream to be continuous... “one by one, non-stop”.

**Key Performance Indicators (K.P.I.):** A method of tracking or monitoring the progress of existing daily management systems.

**P.D.C.A. Cycle:** Plan-Do-Check-Act. An iterative four-step problem solving process typically used in quality control. It is also known as the Deming Cycle, Shewhart Cycle, Deming Wheel, or Plan-Do-Study-Act.

**Pull:** Principle the no one upstream function or department should produce a good or service until the customer downstream asks for it.

**Root Cause:** The ultimate reason for an event or condition.

**Standard Work:** An agreed upon set of work procedures that effectively combines people, materials, and machines to maintain quality, efficiency, safety, and predictability; establishes a routine for repetitive tasks, provides a basis for improvement by defining the normal and highlight.

**Value:** When a product or service has been perceived or appraised to fulfil a need or desire, as defined by the customer, the product or service may be said to have value or worth.

**Visual Management:** The connection between people, project and data. It is where information is provided in a simple format that is easy to understand and available in the workplace. It enables teams to view their performance and provide information on what they need to action and where they can improve.

**Voice of the Customer:** The desires and expectations of the customer, which are of primary importance in the development of new products, services, and the daily conduct of the business.

**Waste:** Any operation or activity that takes time and resources but does not add value to the product or service sold to the customer.

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