Lean Construction School Train the Facilitator Workshop
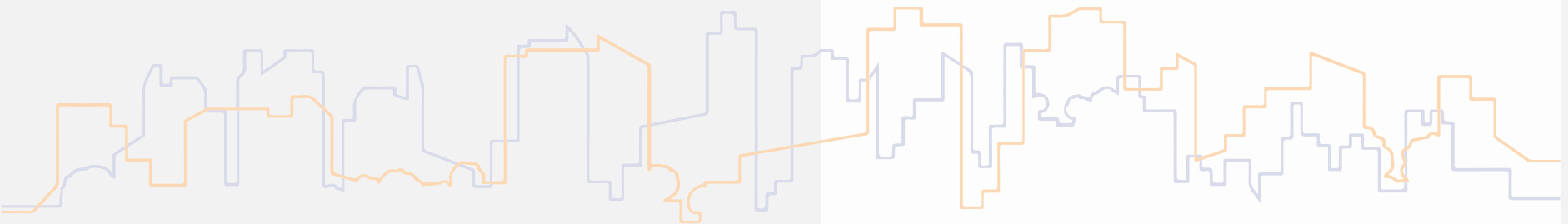
Measurement, Reporting and Lessons Learned

Host Partner:
Project:
Location:
Date:

- Welcome
- How to set meaningful metrics, KPIs and targets for Lean improvement projects
- Gathering, assessing and communicating lessons learned
- Break
- Exercise
- Reflection and wrap up

- …to provide training on:
  - how to set meaningful, SMART metrics, KPIs and targets and having realistic expectations
  - tracking progress, measuring outcomes / benefits; and
  - gathering, assessing and communicating lessons learned

- By the end of the workshop you should feel more confident and able to implement your own Lean improvement project and share lessons learned with other teams

- Take it in turns to describe times when you've had to gather performance data:
  - What were the barriers to doing this, why was it harder than you thought? What could've been better?
  - What were the benefits to your site from going through this process? What got better as a consequence?

- What are the common themes here?
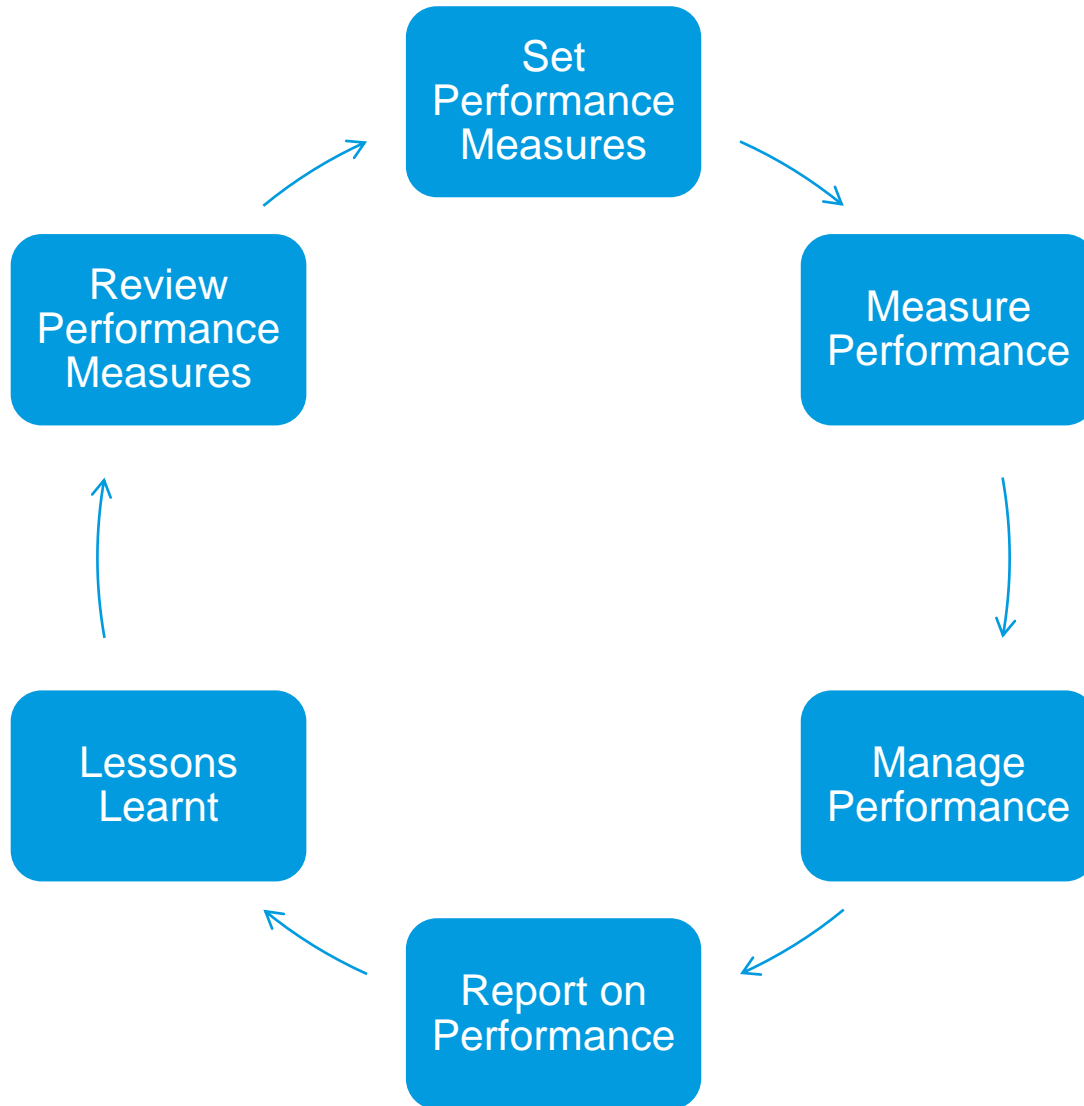- Why do we need to measure and manage performance?

- Why do you think it's important to measure and manage performance?
  - Write down your ideas
  - 5 minutes, then feed back
  - Tell us your thoughts, stick them on the wall
  - Next person to group theirs with previous comments

- What are the **common themes?**

Drivers	Benefits
Establish a baseline	Know and understand current performance
Client expectation	Meet client expectation and contractual terms
Analyse performance: any deviations from baseline, plan or target	Proactively manage performance; Spot risks early & take action
Identify best practice and emulate	Recognition; Communication/PR materials and case studies; savings
Engage with contractors on performance	Proactive conversations, collaborative approach and continuous improvement (how can we improve). Two way performance review. Savings
Use results to engage with internal stakeholders & decision makers	Drive Lean agenda and ensure correct decisions are made
Avoid non-compliance and rework	Cost and time savings
Identify opportunities for improvement	Cost and time savings

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Drivers	Benefits
Stakeholders: clients, regulators, industry bodies, NGOs	Meeting reporting requirements or expectations, gaining reputation
Compliance	Legal and regulatory adherence
Transparency	Reduced reputational risk; satisfying institutional investor requirements
Benchmarking	Competitive advantage through comparing to peers, leaders and competitors
Demonstrate best practice	Improved reputation, better market share

Set Performance Measures

Measure Performance

Manage Performance

Report on Performance

Lessons Learnt

Review Performance Measures

SMART targets / goals

Metrics and KPIs to track progress

Savings to date: financial and other

METRIC

OBJECTIVE
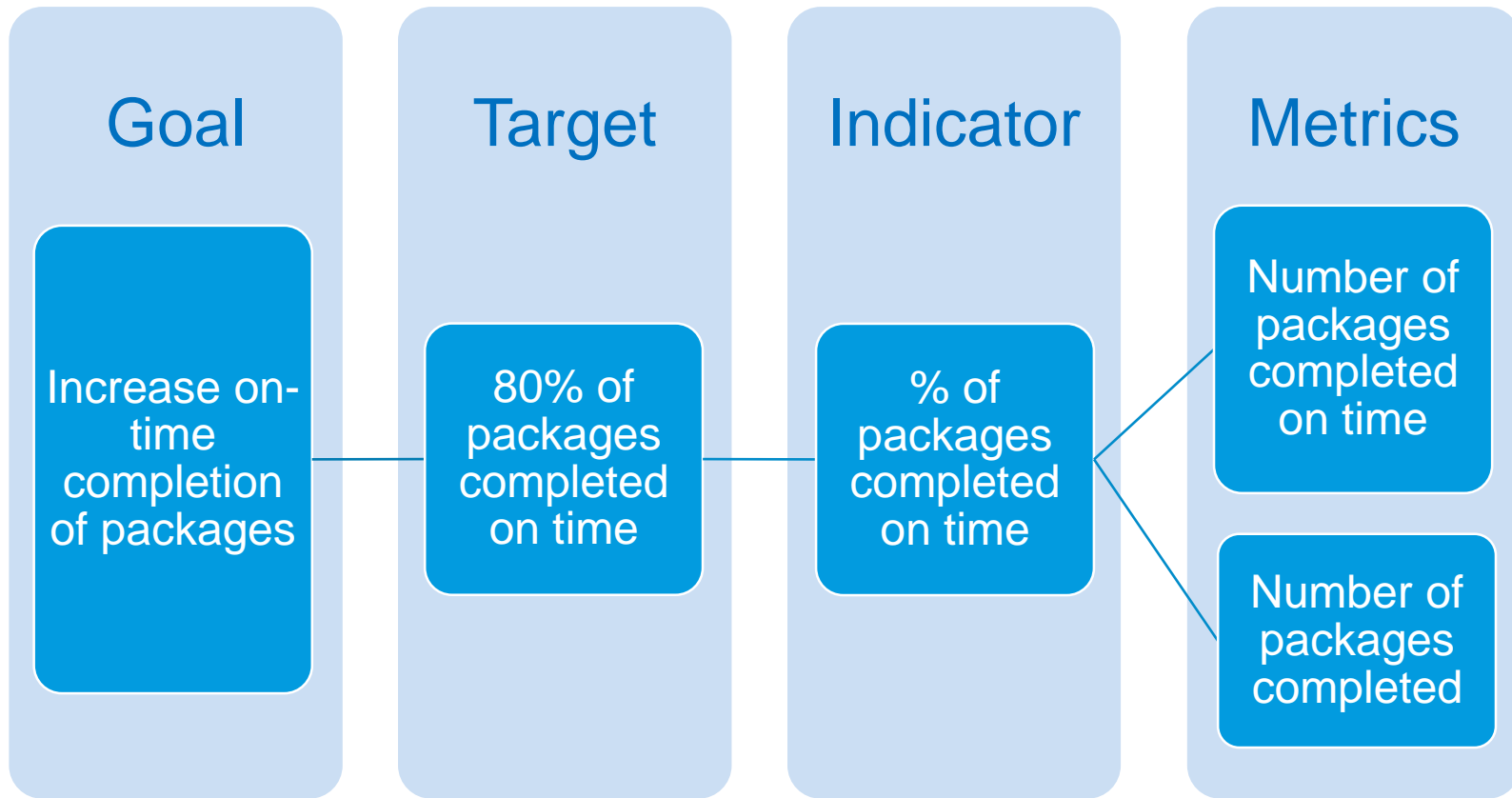
£

INDICATOR

TARGET

%

GOAL

UNIT OF MEASURE

KPI

- We've all heard of the terms metrics, KPIs and targets. But what do they mean?
  - Write down your ideas
  - 5 minutes, then feedback
  - Tell us your thoughts, stick them on the wall
  - Next person to group theirs with previous comments

Goal

Increase on-time completion of packages

Target

80% of packages completed on time

Indicator

% of packages completed on time

Metrics

Number of packages completed on time

Number of packages completed

Process Efficiency, for example

- **Overall equipment effectiveness (OEE)** is a performance metric or KPI that combines the measurement of plant availability, performance efficiency and quality of a specific plant, equipment or process. OEE is considered an overall metric of plant efficiency as well as plant performance and is commonly used by management as a KPI to compare performance among similar or identical production plants.

- **Production targets** are a very simple but common production process KPI. The production target usually sets out the amount of production in terms of tonnes, units, or other production volume unit for the plant, process or individual production line for a certain time period.

- **Labour productivity** is a key performance indicator which shows how well each unit of labour is used to make a unit of output. It is commonly used in operations management and strategic analysis to compare the productivity of workers in different ways such as in the same or different work sites within an industry or a company.

- Comparing labour productivity between concrete plants:

Concrete plant A
Daily output: 120 cubic metres
Daily labour hours : 40 hrs
Labour Productivity = $120m^3/40hrs$ =
3 m^3 per labour hour

Concrete plant B
Daily output: 160 cubic metres
Daily labour hours : 68 hrs
Labour Productivity = $160m^3/68hrs$ =
2.35 m^3 per labour hour

Supply chain efficiency, for example:

- **On time delivery** is a measure of process and supply chain efficiency which measures the amount of finish goods or services delivered to customers on time and in full. It helps determine how efficiently we are meeting our customer's or agreed deadlines. If the figure is too low or below the benchmark it could be used as a signal that somewhere along the supply chain there are bottlenecks, inefficient or time consuming processes which are not adding value and warrant further investigation.

- **Inventory holding costs** are costs incurred while holding inventory or stock in storage or a warehouse and managing. Most of these costs can be quantified easily. Some common inventory holding costs include storage costs, insurance, spoilage/breakage losses, obsolete inventory write offs, and opportunity cost of tied up capital.

Quality, for example:

- **Defects (rework) per thousand.** A practical way of communicating the quality level of products produced is through the quantity of defects per thousand units. This KPI is easy to interpret and can be used to easily gauge increases in defects – and this can point to equipment or maintenance problems, production issues, and help point to skills deficiencies.

  - Metres of line laid this month: 15,816
  - Amount needing rework: 7
  - Rework per thousand = 0.44
  - 15,816 / 1,000 = 15.816
  - 7 / 15.816 = 0.44

Speed sort!

- Goal
- Target
- Metric
- Indicator

1. Reduce levels of rework (defects)
2. Reduce inventory storage costs
3. Cost of rework 5% or less of total cost
4. % cost of rework
5. Inventory storage costs 20% or less than value of the inventory
6. Cost of rework
7. Inventory storage costs (warehousing, damaged goods/ replacement)
8. Total cost
9. % of inventory costs
10. Inventory direct cost (price)

Goals: Reduce levels of rework (defects)   Reduce inventory storage costs

Targets: Cost of rework 5% or less of total cost   Inventory storage costs 20% or less than value of the inventory

Indicators: % cost of rework   % of inventory costs

Metrics: Cost of rework   Inventory storage costs (warehousing, damaged goods/ replacement)

Total cost

Inventory direct cost (price)

- Set SMART targets and indicators
  - S – Specific
  - M – Measurable
  - A – Achievable
  - R – Realistic
  - T – Timebound

- For **specific**, make sure they are relevant and aligned to the drivers and goals of your team, your project, your corporate targets – and your client's targets

SMART targets / goals

Specific	Reduce the amount of non-value added rework required after 1st fix electrical installation by 75%
Measurable	Baseline (current) rework rates are measured and recorded
Achievable	Goal rate (after 75% reduction) is achievable based on data from comparable projects
Realistic	The improvement plan is realistic based on achievements in other improvement projects
Timebound	e.g.: Project completion by 20 February 2019

- **Agree** targets and indicators with senior management / stakeholders
- **Communicate** and explain agreed targets and indicators to all relevant parties: colleagues, team members, contractors, suppliers and the client
- **Enable data collection** to be as easy as possible for anyone tasked with providing data

Refining metrics, KPIs, targets and goals

- Following the work in this section of the training, how would you now change your goals / targets, metrics and KPIs?

- Consider wider issues and align your goals / targets , metrics and KPIs to team, project/site, corporate and client goals

- Ensure they are SMART

Thames Tideway Improvement Project

Site/Project			
Action Plan Owner	**Team Members**	**Stakeholders (name/position/relevance)**	**Start Date**
			Planned End Date
Concern: problem statement, scope (Step 1)		**Countermeasure: solutions / mitigations, outcomes (Step 3)**	**SMART targets / goals**
			Metrics and KPIs to track progress
Cause: analyse Root Cause - Fishbone, 5 Whys (Step 2)		**Resources required to solve** People Equipment Materials Money Time	**Savings to date: financial and other**
Lessons Learnt (Step 4)			

- Any final comments or thoughts?

- Do you have any questions?

- Don't forget to sign the attendance sheet and fill in the feedback form