



Case Study

Identifying 'pure waste' in working processes – finding time-saving solutions

› UK-Based Construction and Services Group

Summary

➤ Challenge

Company wanted to increase the number of service inspections completed daily for clients.

➤ Root Cause

Generation of non-income-earning 'pure waste', i.e. non-value-adding time which needed to be eliminated

➤ Output

Minimise 'pure waste' by overhauling working practices.

➤ Results

Increased working efficiency – more service inspections completed daily.



➤ Case Study

Lean six sigma



Identifying 'pure waste' in working processes – finding time-saving solutions

Overview

The most profitable businesses thrive because they have taken time to streamline their operations by maximising production-line processes and employee efficiency. In this case study, we consider how, using *Lean* techniques, in-depth observation and analysis of employee activities can indicate where current processes are insufficiently well planned, overly time-consuming and therefore inefficient – ultimately reducing bottom-line profitability.

By further using *Lean* processes, personnel working procedures can be altered and enhanced in order to improve efficiency, increase productivity, and make a significant contribution to healthy profit margins.

Define

- The customer(s), mobile phone companies, required repairs to base stations and general maintenance.
- They wanted to increase daily number of service inspections and repairs undertaken by engineer operatives.
- This would reduce our client's costs and increasing their productivity.

Our client, a leading construction and services group, wanted to increase the number of service inspections and repairs that they completed per day.

Their customers were three of the most well-known mobile phone companies in the UK – and these three organisations sought two services from our client:

If a mobile phone base station stopped working or was in need of repair, our client was responsible for repairing it.

Our client was also required to carry out general maintenance and routine or running repairs to various sites.

Facing pressure to reduce costs and increase productivity, our client wanted to increase the number of reactive tasks completed per day by each engineer. In the manner of an emergency call, one of the mobile phone companies created a reactive task by informing our client of both the requirement and its priority.



Measure

- To assess how many tasks could be completed daily, it was necessary to measure time taken for each task + effectiveness of operatives' planning.
- These assessments were undertaken via Gemba Walks, in which business leaders accompanied operatives in their daily tasks.
- Business leaders categorised operatives' working actions as 'Value Add', 'Necessary Waste' and 'Pure Waste'.

To solve problems and improve processes, Lean Leaders need to interact with their people while those individuals are performing their work. This is the only way that Lean Leaders can truly understand what their employees are up against and how they can be helped.

To fully understand how many tasks per day could be completed by each engineer, it was necessary to establish:

How long each task was likely to take (the '*value-adding time*')

How effective the engineers' planning was - and whether or not their planning cycle was efficient.

To find out the answers to these questions, the organisation carried out a series of Gemba Walks, commonly referred to as '*Insight Stars*' or '*Day-In the-Life-Of*' (DILO). The purpose of completing Gemba Walks is 'To be at the **Real Place**, to see the **Real Thing**, to **Understand the Real Fact** and **Address the Real Problem**'.

Having made sure that our sampling strategy would cover all regions, we asked the business leaders to spend the day shadowing an engineer at their workplace. Leaders were also asked to categorise their observations as '*Value Add*', '*Necessary Waste*' and '*Pure Waste*'. In a separate activity, the engineers were asked to complete a record of the time taken to complete each task.

Analyse

- Precise 'pure waste' (in terms of hours) per day was assessed, so that it was possible to estimate the number of additional tasks that could be achieved every day.
- 'Pure waste' therefore needed to be eliminated.
- Some 'necessary waste' (i.e. travelling time) also needed to be eliminated so that the number of daily tasks could be sufficiently increased.

Since the cycle time for each engineering task had been determined, the casual reader might think that assessing the number of tasks an engineer could complete per day simply required: dividing the available time by the time taken to complete each task. However, given the fact that engineers needed to travel between each piece of work, the answer was not so simple.

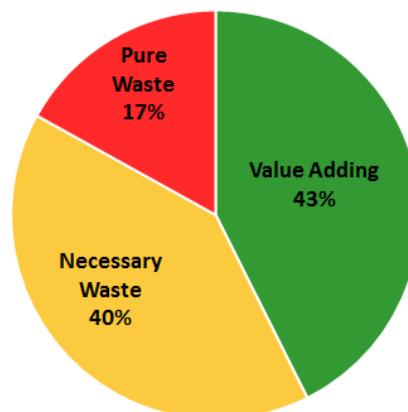
The '*cycle time*' (or time taken to complete the task) can be thought of as '*value-adding time*', for which the customer is usually willing to pay. However, within every business process, it is also usual to find '*necessary waste*' and '*pure waste*'. The latter adds no value and must therefore be eliminated, especially since the customer is unlikely to pay for this activity. However, it is conceivable that the customer will tolerate a certain amount of '*necessary waste*'.

This case study is an example of '*necessary waste*', so the customer is likely to accept that movement between each mobile phone mast is necessary; however, they will expect such movement to be kept to a minimum.



Analyse

Summary of Time Spent



By consolidating all the results and observations for each of the Gemba walks across the country, the size of the opportunity was properly assessed. The average duration of an engineering task was estimated to be an hour; furthermore, it was calculated that 43% of the working day was value-adding. Therefore the minimum number of tasks to be completed by each engineer was computed as 4 per day.

If 17% of their day was '*pure waste*', then the engineers were wasting 1.5hrs - or the equivalent of 1.5 tasks. Thus, by eradicating '*pure waste*', the current process should be capable of delivering 5.5 tasks per day.

Therefore a target of 6 tasks per engineer per day might be set; but how much of the '*necessary waste*' can be eliminated? In this example, '*necessary waste*' is much harder to eliminate - because that '*necessary waste*' is, essentially, travel. This problem pervades most other processes as well, so the current condition will tend to dictate a certain level of '*necessary waste*'.

The DILO illustrated below shows how a day was spent;

Time	Activity	VA	NVA	W
10.00 – 10.30 (30 min)	Drive from base to first task		30	
10.30 – 12.30 (120 min)	Complete task 1	120		
12.30 – 13.15 (45 Min)	Drive to task 2		45	
13.15 – 13.45 (30 min)	Wait at task 2 for keyholder to arrive			30
13.45 – 14.00 (15 min)	Complete task 2	45		
14.30 – 15.00 (30 min)	Drive to task 3		30	
15.00 – 15.20 (20 min)	Complete task 3 (repeat fault finding previously completed, identify switch type that needs replacing)			20
15.20 – 16.45 (85 min)	Drive to supplier to buy switch.			85
16.45 – 17.05 (20 min)	Complete task 3	20		
17.05 – 18.00 (55 min)	Return to base		55	
		185	160	135



Improve

- Understanding 'pure waste' allowed for proposal of solutions.
- 'Waiting for a key-holder' and 'using a skilled engineer to collect parts from a supplier' were two opportunities to remove 'pure waste' from process.
- Target of six tasks per day (previously, four tasks per day were being achieved).

Control

- Lean leaders must provide robust process that deliver measurable results.
- Leaders should visit work location and understand processes.
- Be 'hard on the process and easy on the people'.

By understanding the nature of '*pure waste*', it is possible to develop satisfactory solutions that address the problems at hand. The table above shows that **waiting for a key-holder** and **using a skilled engineer to collect parts from a supplier** are two opportunities that remove '*pure waste*' from the process.

By critically reviewing the process and using data to make their decisions, the client set a target of 6 tasks per day – and they were then able to manage engineer activities against this target.

As Lean Leaders, it is our job to provide robust, simple processes that have measurably beneficial results – so, for example, our conduct and assessments during Gemba Walks will have a major impact on the results of those Walks.

To see the 'real work' and understand the 'real problems', you should go to the work location with the attitude of an eager learner; furthermore, you should seek in-depth understanding by asking open questions. At this stage in the process, you shouldn't offer solutions or attempt to influence the process – but if you insist on doing so, your observations and conclusions may be flawed.

In essence, therefore, the emphasis should be '*hard on the process*' and '*easy on the people*'.

