



RAISING STANDARDS • OPTIMISING ORGANISATIONS

Briefing Paper

Easy Meat? Cutting the Fat in Construction



“We invented management; it’s now up to us to re-invent it”
Dr W. Edwards Deming



© Copyright 2018

You may use the text in this document, which may be reproduced free of charge in any format or medium providing that it is reproduced accurately and not used in a misleading context. The material must be acknowledged as Copyright and the title of the document specified. Any enquiries relating to the copyright in this document should be addressed to Status Management Services Ltd, Harlequin House, Bickley Crescent, Bromley, BR1 2DW. Tel: 020 8460 3345 Fax: 020 3417 4897 or e-mail: info@stadius.co.uk

Contents	Page
About the authors	2
From the authors	2
Introduction	3
What is Lean?	4
What is Lean Construction?	5
Purpose, Value, Waste, Capacity & Cost Reduction	6
The Five Lean Principles	8
Conclusion	10
Taking action	11
Benefits	12
References	13
Additional Resources	14



About the authors

Stuart Swalwell worked in education and training design and then joined Rolls-Royce plc where he specialised in management development, lean production and process improvement. He has a master's degree in Organisational Behaviour from the University of London. He joined Status as an Associate in 2009. The approach he brings to training and coaching is rooted in the thinking of Dr W. Edwards Deming.



Mark Woods is an apprentice served, degree qualified, engineer with masters degrees in engineering and management. Mark is a consultant and trainer who specialises in raising standards and optimising organisations using a range of tools, techniques and standards, the core of which is systems thinking.

Mark has presented on a variety of subjects throughout the UK and internationally and is a regular contributor to a range of publications, usually contributing under the banner of "Management Matters".

He is founder and managing director of Status Management Services Limited.

From the authors

Thank you for downloading this free briefing. This series of briefing papers represents the culmination of consultancy findings and research effort. Our hope is to educate and inform so that you can become both familiar and comfortable with ideas that may be new to you or simply to re-acquaint you with forgotten ideas. After reading, you will have, hopefully, set up strong foundations from which you will be in a position to move forward with your aims and ambitions.

Finally, I would greatly appreciate any feedback to mwoods@status.co.uk

Introduction

Since the invention of management over a century ago, management has become detached from both the day to day operation of the organisation and from delivering value to the customers who pay for it.

Conventional wisdom is that managers set targets and then create systems to monitor, measure and control the execution of these targets. These systems include budgets, performance management, incentives and appraisals, which are used to exercise control and ensure that targets are met. Simple, obvious and wrong!

We need a change in management thinking.

What is Lean?

Arguably the world's most efficient car manufacturer (at least until recently), Toyota developed the famed Toyota Production System to drive productivity and quality. This manufacturing system was branded "Lean" by Womack, Roos and Jones in their publication "The Machine That Changed The World".

The objective of the Toyota Production System is to make cars with increasing efficiency and effectiveness. This means minimising waste and effort and working in real partnership with suppliers to manage the flow of work through the system over the long-term.

"All we are doing is looking at the timeline from the moment the customer gives us an order to the point when we collect the cash."

Taiichi Ohno

Taiichi Ohno, architect of the Toyota system said "All we are doing is looking at the timeline from the moment the customer gives us an order to the point when we collect the cash. And we are reducing that timeline by removing the non-value added wastes."

This approach starts with a focus on the purpose of the system, for the long-term. The results of this approach are low cost, low inventory, astonishingly high productivity and deliverable continual improvement over the long-term.

However, it has been suggested that:

- 1 Branding the system as "lean" has led to a focus on tools and techniques, i.e. "how you **do** things"
- 1 This is to the detriment of the context of the system and its purpose, i.e. "how you **think about** things", specifically, management.

The 'tools' are the slave, not the master; we need to understand the system first.

What is Lean Construction?

Oddly, there is as yet no agreed definition of Lean Construction even within the Lean Construction Institute!

However, a bit more helpfully, lean thinking is defined in terms of 5 principles:

- ι Value;
- ι Value stream;
- ι Flow;
- ι Pull; and
- ι Pursuit of perfection.

The best definition of Lean Construction we have found is that drafted in 2005 by English Partnerships, a UK Government Agency. It is:

...the continuous process of eliminating waste, meeting or exceeding all customer requirements, focusing on the entire value stream and the pursuit of perfection in the execution of a constructed project. Lean construction philosophy requires a continuous improvement focused on a value stream which responds directly to the needs of the customer. Improvement is, in part, accomplished by eliminating waste in the process. Lean construction can therefore apply right across design, procurement and production processes.

Purpose

The purpose of an organisation is to create and deliver value to customers and end users.

Value

Value is defined as a “capability defined by the customer and provided to them at the right time and cost”.

Waste

Waste is anything that creates no value for the customer.

Capacity

Capacity is value work plus the waste work.

Traditionally, if we want to increase capacity, we add more resources. This adds cost without removing waste. In a lean approach, capacity is increased by reducing waste.

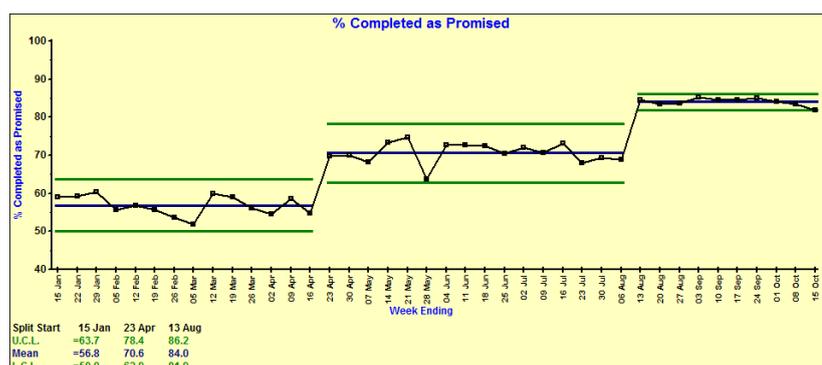
In a lean approach, capacity is increased by reducing waste.

Many major projects are managed with weekly meetings at which the planned activities for the following week are discussed and deliverables agreed. A paper on the Lean Construction Institute website highlights three opportunities for lean construction; the capacity issue being described as follows:

"Impeccable coordination" creates predictable workflow within and across trades and disciplines. Currently, projects are nearly chaotic, with an average of 55% of work promised in a week actually being completed as promised. This is like driving at rush hour behind a car that keeps jamming on the gas and slamming on the brakes. Taking action to create predictable workflow stabilizes the project environment and reduces both time and cost without sacrificing quality. It also frees up human capacity to focus on innovation and continuous improvement.

In the example process prediction chart™ shown below we can see, for the first part of the year, the natural variation between the green lines around the weekly job close out average of 56.8%. We can then see that, after taking action in accordance with lean principles, the average has increased, firstly to 70.6% and then, after a second round of improvement, to 84%. This is a significant improvement in efficiency and a dramatic reduction in chaos which will increase capacity and filter straight to the bottom line.

....which will increase capacity and filter straight to the bottom line.



However, extreme care needs to be taken: be careful about eliminating waste per se as reducing waste does not necessarily lead to the creation of value. As an example, in order to address the need to reduce CO₂ emissions we could stop people using cars. Instant success! But what we value in the car is not the car itself but mobility.

Cost reduction

Cost reduction results from the application of lean thinking, but it is not the purpose. The purpose of lean is to increase capacity by designing a system that optimally responds to customer demand.

The Five Lean Principles

Number 1: Specify what does, and does not, **create value** from the customer's perspective.

This means identifying the processes within your organisation, your system, that:

- a. create value
- b. support value creation
- c. are waste

Question: "What do you mean by value creation?"

Answer: "Value is what the customer wants to receive and is willing to pay for."

Clients and owners expect to pay for design, for the materials required to create the building or structure and for the assembly of those materials. If they knew, would they want to pay for the waiting, delays, multiple handling, rework and other wasteful activities that characterise much construction work?

Recent studies from the Lean Construction Institute give the following percentages to these three categories of work:

1. Value creating work (5-10%)
2. Work that is necessary to support the creation of value (30-35%)
3. Waste (55-65%)

Question: "What is this support work?"

Answer: Essentially "logistics". Getting materials and labour into position in order to create value. Customers don't want to pay for this and they certainly don't want to pay for inefficiency.

Question: "What is waste?"

Answer: There are seven key wastes. Remember the name TIM WOOD - Transportation, Inventory, Motion, Waiting, Over processing, Over production, Defects. It has also been argued that there is an eighth stream of waste covering people; or more specifically, when their potential is not being used or developed.

Number 2: Identify all the **steps** across the whole value stream

Question: "How do we do this?"

Answer: We involve the people working in the stream to develop flow charts.

Flow charts show both responsibilities and the sequence of events for the construction activities undertaken. It is from these flowcharts showing how the "work works" that waste can start to be identified and eliminated.

Number 3: Make these actions that create value, **flow**.

Question: “How do we do that? What do you mean by flow?”

Answer: We, firstly, look for the major constraint (bottleneck). We study the constraint and, using the Plan, Do, Study, Act (PDSA) model for learning and improvement, we work to reduce or eliminate the constraint. Of course, another constraint will surface somewhere else. We then go to work on that. And so on.

Number 4: Only do what is **pulled** by the customer

Question: “What is this?”

Answer: The customer here can be viewed as an internal customer in the build process. Don't make or build ahead of the schedule or slavishly stick to the schedule when it is clearly out of sync (e.g. the ceiling contractors come in at their allotted time but the electricians have not started the roof wiring so, when they come in, they have to dismantle part of the ceiling, and then replace it – waste!).

Number 5: Strive for **perfection**

Question: “What is this?”

Answer: Continually removing waste to become more efficient and effective.

....the ceiling
contractors come in at
their allotted time but
the electricians have
not started the roof
wiring so, when they
come in, they have to
dismantle part of the
ceiling, and then
replace it – waste!

Conclusion

So, is it easy meat cutting the fat in construction?

That's actually probably the wrong question. "Is it worthwhile?" is probably a better one. Absolutely.

If an organisation can cut even just small chunks from the 55-65% of capacity that the Lean Construction Institute estimate is used to produce waste, staggering results can be obtained:

- ι Better customer satisfaction;
- ι Better morale;
- ι Better processes;
- ι Reduced costs; and
- ι Better results.

Taking action

To paraphrase an observation from Deming: often, management know everything about their organisation except how to improve it. There are, however, systematic and structured methods with which to improve an organisation and Lean is one of them.

A key step in the process of adopting a Lean approach is likely to include the creation of a cross functional team from all the relevant levels of the hierarchy to:

- 1 Determine the purpose of the system i.e. what are the benefits and capabilities that you are looking to deliver; understood from the customer's point of view?
- 1 Flow chart the process and understand where waste occurs
- 1 Establish if the causes of waste are predictable: if they are predictable, they are preventable
- 1 Align performance measures to the purpose of the organisation
- 1 Present all performance data in a "time series" to show the full range of variation experienced (A "time series" is essentially a diary of events shown on a graph so it uses numbers instead of words.)
- 1 Focus the team on reducing waste and variation
- 1 Manage the flow of work through the system
- 1 Change roles and responsibilities to managing the flow

Benefits

Together, we can show you and your people how to understand and improve the construction processes within which you work.

If the system is designed to meet the work that the customer values, cost will fall as service improves - counterintuitive and proven.

Implemented properly, managing a lean enterprise can deliver staggering results.

- 1 Customer satisfaction significantly improves.
- 1 Staff motivation and productivity improve as people are allowed to:
 - o help customers solve problems,
 - o improve the way in which their work works.
- 1 Repetition, duplication and delay are reduced and wasted time and effort eliminated from the system.

Essentially, the focus shifts from “making the numbers” to “meeting the purpose, learning and improving”.

How much has this paper whetted your appetite for delivering increases in capacity and profits? Engage with us and become part of the story! For a consultative meeting or additional information, please contact Mark Woods on 07976 426 286 or email him at mwoods@stadius.co.uk.

References:

Deming, W. Edwards. Out of the Crisis. Cambridge MA: MIT Centre for Advance Engineering Study, 1986.

Joiner, Brian L. Fourth Generation Management. McGraw Hill Inc, 1994.

Hopper, Kenneth and Hopper, William. The Puritan Gift. Reclaiming the American dream amidst the Global Financial Chaos. I.B. Tauris, 2007.

Howell, Gregory & Lichtig, William. Three Opportunities created by Lean Construction. Lean Construction Institute, 2008

Seddon, John. Freedom from Command and Control. Vanguard Press, 2003.

Sherwood, Dennis. Seeing the Forest for the Trees: a Manager's guide to Systems Thinking. Nicholas Brealey Publishing, 2002.

Womack, Roos and Jones. The Machine that Changed the World. Macmillan, 1990.

Additional Resources:

Are you in chaos, clarity or confusion?
Review your organisation's performance;
take 10 minutes with the Status Coffee
Break Challenge at:



www.status.co.uk/coffeebreakchallenge

The Coffee Break Challenge is a questionnaire which been designed to provoke thinking about your organisation's current performance. Be honest with yourself. It is deliberate that there are no scores: the challenge is designed to make you think. There is no one looking or checking!

Additional Briefings:

It's broken – Housing repairs and other field service operations

An examination of systems thinking as applied to housing repairs and other field service operations. In the housing arena, a plethora of Government targets is actually hampering the effort to improve. This paper seeks to return to basics, that is, to define the "purpose" of the system and, from there, create management systems that deliver value to the tenant or client.

David and Goliath: Optimisation 3D™ and Six Sigma

Six Sigma has mixed reviews in the press. This paper seeks to examine the fundamental focus of Six Sigma and contrast it with the Status process, Optimisation 3D™, whose focus is to delight the customer.

Creating competitive and compassionate contact centres

Contact centres play a critical role in many firms and sectors. However, they are often labelled as the "sweatshops" of modern business industries offering repetitive, pressured and boring roles with little, if any, career progression for the staff employed there. This paper applies systems thinking to contact centres in order to create competitive and compassionate environments.

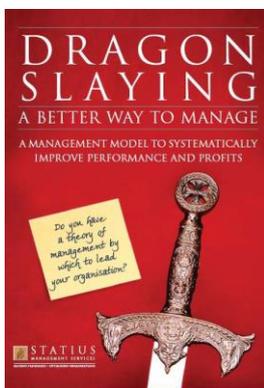
Targets, goals and other management myths

Conventional wisdom is that managers set targets and then create systems to monitor, measure and control the execution of these targets. These systems include budgets, performance management, incentives and appraisals, which are used to exercise control and ensure that targets are met. Simple, obvious and wrong! This paper sets out a "systems thinking" alternative.

Are you the lucky one?

This paper undertakes an examination of performance appraisal systems and of merit rating in particular. It uses "The Red Beads" thought experiment to highlight the issue of the "natural variation" that exists within any process and the folly of assigning good, or bad, results to individuals instead of to the system.

Dragon Slaying



Dragon Slaying is Mark's long-awaited book which picks apart a number of management myths. The benefits in adopting the ideas in the book are:

- 1 A more informed understanding of how an organisation delivers value to customers and stakeholders; how the work in an organisation works
- 1 The development of a strategy for "Listening to Customers and Stakeholders"
- 1 The development of the organisation in which everyone's efforts result in:
 - o Improved performance
 - o Less stress
 - o Improved profit