



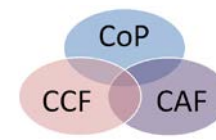
LCI Webinar #5

Direct Observation – Increasing productivity by eliminating interrupts to Trades

Barry Corbett & Richard Casey
9th November 2016



LCI Ireland Community of Practice (CoP)
LCI Construction Client Forum (CCF)
LCI Construction Academia Forum (CAF)





Introductions



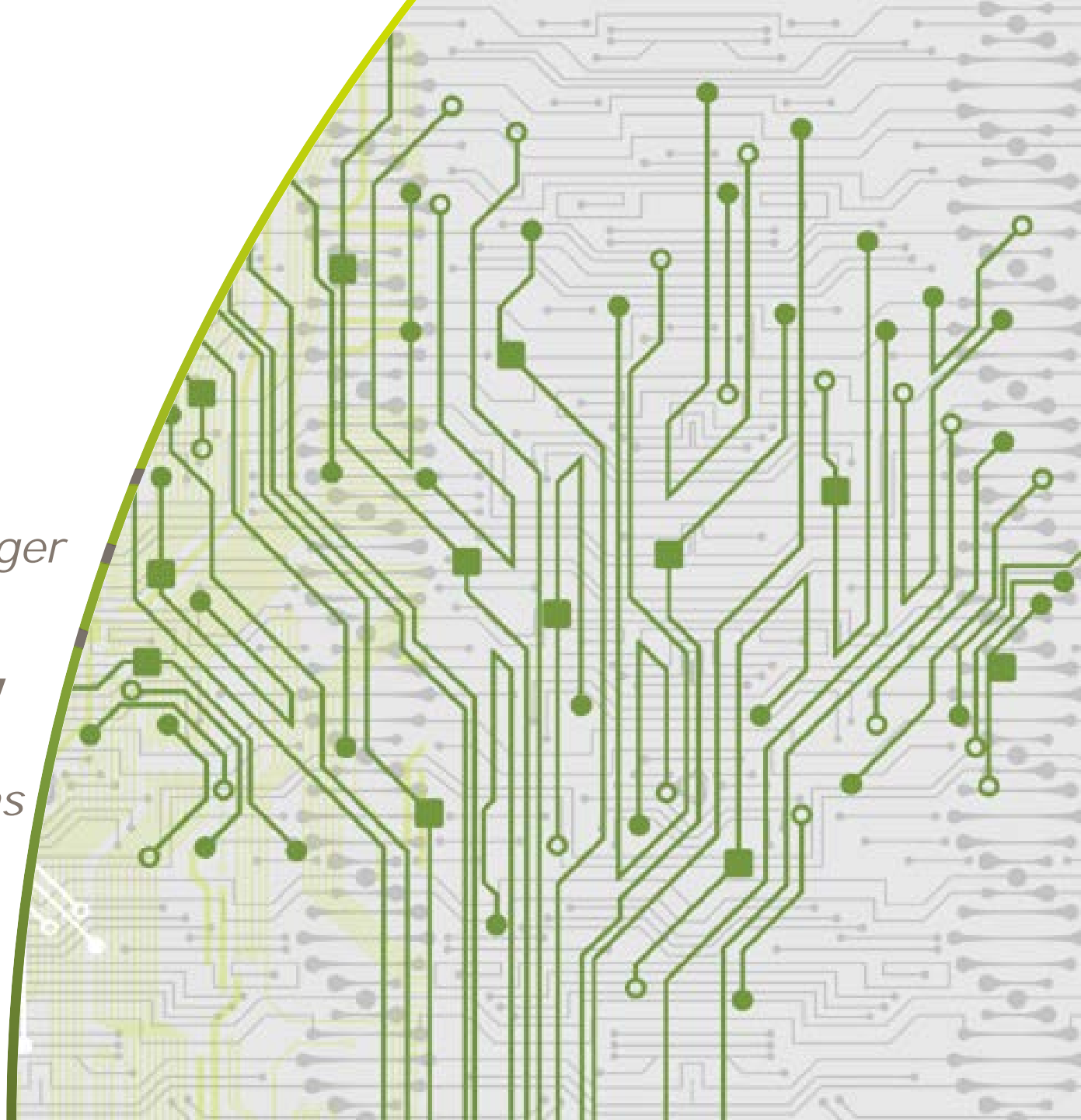
Barry Corbett

*Productivity
Improvement Manager*



Richard Casey

*ATG Ireland and
European Operations
Manager*



Global Organisation



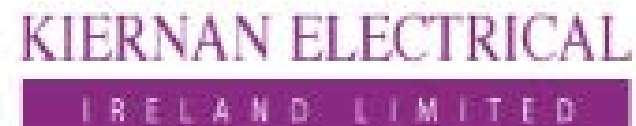
- \$112m turnover in 2016
- We enjoy a repeat business of >85%

DPS Engineering are an international provider of professional services in Process Engineering Design and Project Management.

Our sector expertise spans many markets including Biotechnology, Pharmaceutical, Medical Technologies, Oil and Gas, Advanced Technology, Food & Beverage, Energy and Science & Education.

- Advanced Technologies
- Semiconductor
- Solar
- LED
- Biopharmaceuticals
- Chemical API
- Pilot Plants
- R&D and QC Labs

Lean Services



Albany

Dublin

Kiryat Gat

Our Lean Journey

All DPS staff
trained on Lean
principles

Implementation of
LPS® and DO on 1st
Client site

Proliferation of our
Service offering
across our current
Clients

Achievements

1

DPS introduction to
Lean

2

Focused Value Add of
DPS Products and
Services

3

4

Developed
structures,
processes and
procedures to
standardise
offerings

5

6

Formal
implementation
of Productivity
Improvement
Manager role

7

2013

2014

2015

2016



LCI Webinar #5

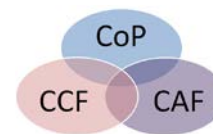
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Hours of lost
productivity!
Why?

First you have to understand





DO allows you to
understand the
causes

What is Value Added / What is Waste?

Value Added (VA) vs **Non Value Added (NVA)** + **(NNVA)**

What is Value Added (The criteria)

- Customer must be willing to pay for it, and finds it valuable
- Changes the form, fit and function of the product/service
- Right First Time

✓ INCREASE	✗ ELIMINATE	↓ REDUCE
Value Added	Non Value Added	Necessary Non Value Added
Welding a pipe	Re-welding a pipe	Safety
Fitting a pipe in place	Discussion about re-work	Measuring a pipe
Pulling a cable	Re-pulling a cable	Uploading a file
Fitting brackets	Waiting on materials	Quality check
Populating a doc field	Changing field information	Retrieving materials

What is the goal of Direct Observation?

- To identify **waste** in a process
- To identify how that **waste** can be reduced or eliminated
- To aid the Trade companies to implement the corrective actions



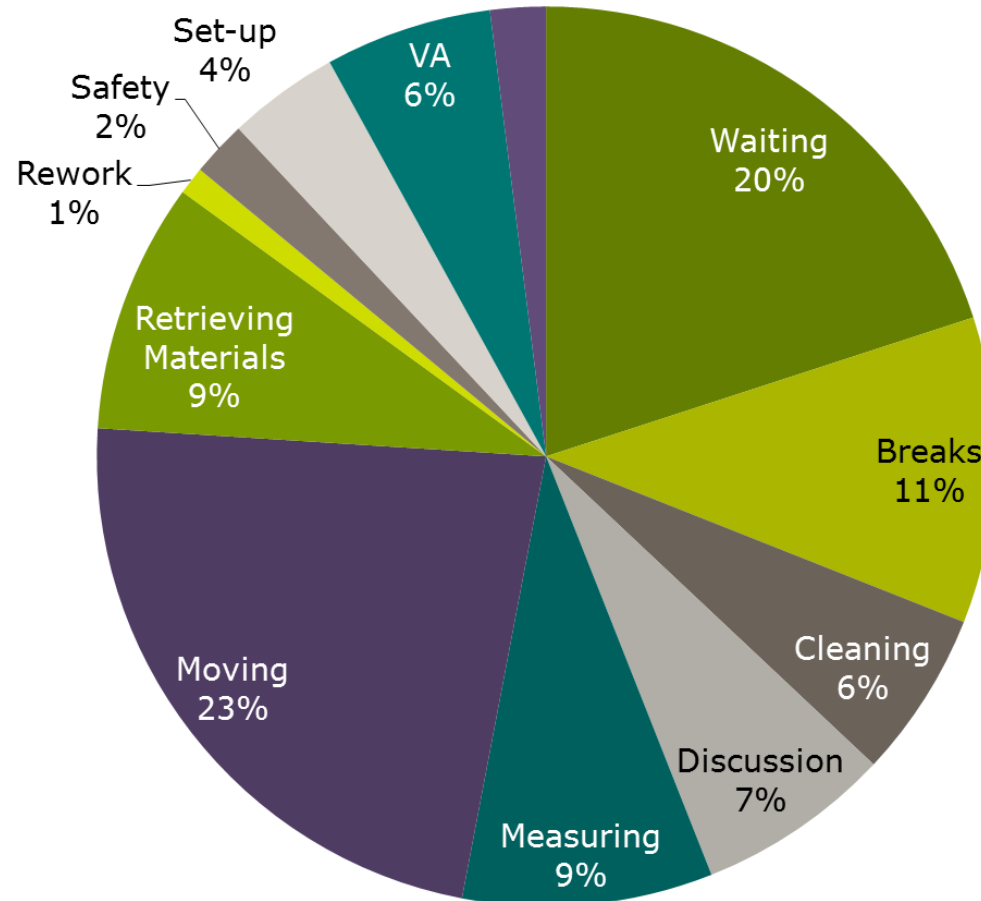
How do we perform Direct Observations?



- Direct Observation is activity based
- Identify a process to observe with trade company
- Record the waste occurring over the working day
- Analyze the recorded data and communicate the biggest opportunities to remove waste
- DO cycle runs over 5 days (1 working week) - results in days, not weeks

What does Direct Observation tell us?

We focus on the biggest portions of waste and understand why they occur.



Displays standardised output of observations

Findings

- Agree with industry norms
- Common across all projects investigated

Look familiar?

What we have observed along the way..



Over the past 2 years DPS have worked with over 15 Trade companies, with over 5,000 process hours observed at crew level.

In that time DPS has observed **Value Added** baselines as low as **7%**.

Following interventions from the DPS Productivity Improvement Team, we have seen baselines improve by up to **200%**.

Total Hours	VA%	Hours of Productivity	Productivity Increase
40	5%	2 hours	Baseline
40	10%	4 hours	2x
40	15%	6 hours	3x
40	20%	8 hours	4x
40	25%	10 hours	5x

The Report Out – DO data

- Results of the findings are reviewed with the team
- Opportunities are communicated
- Owners are assigned
- Corrective actions implemented
- A follow up Direct Observation is scheduled



Case Study 1: Electrical Vendor Cable Pull



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Overview:

DPS requested to carry out an observation of the cable pulling process. Multiple cables pulled from A to B.

Process observed:

Electrical Vendor cable pull

Trades involved:

Vendor and Trade Contractor

No of people involved:

9

Expected duration:

4 days

Case Study 1: Electrical Vendor Cable Pull

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First Observation:

- Value Added – 23%

Main Wastes:

- Waiting
- Retrieving materials and set-up

Breakdown of 10 hours:

- 2 hours 18 minutes VA
- 6.6 hours of NVA and NNVA



Case Study 1: Electrical Vendor Cable Pull



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Recommendations to the Team:

- Agreement on start times
- Plan sequence of pulls
- Pre-planning visual management
- Map out new process and standardize

Improvements implemented by the Team:

- ✓ Alignment of start times
- ✓ All QA cable checks completed day before
- ✓ All elevated platforms in place

Case Study 1: Electrical Vendor Cable Pull

What we observed on follow-up observation:

- ✓ Start times agreed
- ✓ Planned sequence of pulls
- ✓ Visual management pre-planned
- ✓ New process mapped out and standardized

Results of follow-up observations:

- Cable pull reduced from 4 days to 2 days
- Waiting and retrieving materials significantly reduced
- Both Teams working to new standardized process



Case Study 2: Flexible Pipe Installation 6EEP



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Overview:

DPS requested to carry out an observation of the flexible pipe fitting process. Pipe fitted from A to B.

Process observed:

Mechanical flexible pipe fitting

Trades involved:

Trade Contractor

No of people involved:

2

Expected duration:

1 day

Case Study 2: Flexible Pipe Installation 6EEP

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First Observation:

- Value Added – 9%

Main Wastes:

- Waiting
- Retrieving materials and set-up

Breakdown of 9 hours:

- 48 minutes **VA**
- 8 hours 12 minutes of **NVA** and **NNVA**



Case Study 2: Flexible Pipe Installation 6EEP



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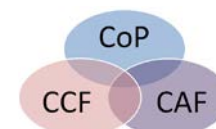


Recommendations to the Team:

- Bring required materials closer to point of use to reduce retrieving materials waste
- Training of the crew to develop understanding of value added work versus NVA
- Develop daily planning team huddle with crew

Improvements implemented by the Team:

- ✓ All planning requirements now take place the day before
- ✓ Prefabrication of the most frequently used unistrut lengths
- ✓ Rewards and recognition in place for all good Lean ideas from crew members



Case Study 2: Flexible Pipe Installation 6EEP

What we observed on follow-up observation:

- ✓Significantly reduced retrieving materials
- ✓5S completed on the material storage cage reducing time to select materials
- ✓Team aligned on the new expectations at crew level
- ✓Foreman engaged with setting team up for success

Results of follow-up observations:

- VA 17%
- Waiting and retrieving materials significantly reduced
- 5S completed on the storage area



Seeking opportunity in a small Country like Ireland



2016 estimated spend on construction projects in Ireland will be in excess of

- €16 Billion (Euros)
- 15% Labor => €2.4 Billion

Average **VA%** in construction is 12% - 15%

- €360 Million on **Value Added** work
- €2.04 Billion of **Non Value Added** + **Necessary Non Value Added** work



DO: Setting the perfect conditions for change



1. Dedicated role
2. No Blame approach is essential
3. Full engagement from management is essential
4. Demonstrate willingness to change
5. Demonstrate willingness to drive change
6. Remove roadblocks
7. Reward good change
8. Collaborate - no really, collaborate!
9. Try something new

Boundary Condition 7: Reward Good Change

Rewarding good change, encourages others to come up with good ideas.



Notice effort



Give rewards



Celebrate

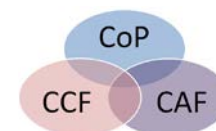
The benefits of Direct Observation

- ✓ It allows us reliably evaluate the Current Situation
- ✓ It is reality based
- ✓ It opens a direct dialogue with the ONLY source of **Value Added** work on the project
- ✓ It delivers a repeatable, reproducible measure of current performance and hence can measure improvement
- ✓ It provides direction when researching potential productivity improvements

In summary..

Direct Observation is about..

- Providing the customer with the reality of the current situation
- Enabling data driven decisions to improve productivity, by focusing on and eliminating the main sources of waste within a current process
- Enabling two-way communication with **VA** crews which provides on-the-job Lean training and encourages direct feedback of **VA** inhibitors at the work site





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QUESTIONS

Webinar # 6 7th December @ 3.00pm GMT

- **Theme: Sustainable Lean Transformations**
- **by** Seán McCarthy, Cluain - Lean, IDP & Project Management Consultant

The adoption of Lean presents many opportunities and Lean is so much more than Tools. To realise and sustain the optimum gain from Lean adoption, it is key that individuals, teams and organisations focus on the Purpose and Principles of Lean; establish a culture that supports and nurtures Lean; and lead on Lean by example. If this is not done, the Tools of Lean will not be applied correctly, and like all Tools will lose their edge over time and risk being discarded.

Seán has extensive and varied Project Management Experience in the heavy chemical, pharmaceutical and semiconductor industries, including over 10 years with Eli Lilly and over 20 years with Intel. During his time at Intel Seán held a number of positions including Regional Project Manager and Site Manager of Projects and Construction at the Leixlip campus. Since leaving Intel in 2013, Seán has been working directly with Project and Construction Management Companies on establishing, supporting and mentoring them on their Lean Journeys and Transformations.



Upcoming LCI Ireland Learning Events # 1

Lean Construction Ireland's Lean Morning, sponsored by PM Group, Thursday 17th November 2016, 07:45 - 09:30, at the WIT Arena

Lean Construction Ireland invite you to join it for its upcoming Lean Morning, sponsored by PM Group, to discuss the barriers to successfully implementing Lean Principles on Construction Projects, and realistic steps to overcoming them.

SPEAKER: Eoin Curham, Lean Champion for PM Group at MSD Brinny, is a Construction Manager and currently completing his Masters (Business) degree in Lean Practice at WIT. Having worked with both main Contractors and CM teams across a variety of sectors in Ireland, Canada, UK and Germany, he will present some challenges faced when implementing Lean initiatives on projects and open the floor to a wider discussion on overcoming these.

WHEN: Thursday 17th November 2016, 07:45 – 09:30

VENUE: WIT Arena, West Campus, Carriganore, Waterford

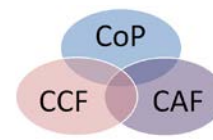
Lean Construction Ireland's Lean Mornings are brought to you with the support of PM GROUP.

Attendance is free; however places are limited to 60 and so you are encouraged to book early as attendance is strictly by reservation.

To reserve places please contact Fionnuala Murray at PM Group: fionnuala.murray@pmgroup-global.com; 021 - 452 2447.



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Upcoming LCI Ireland Learning Events # 2

- Lean Construction Ireland Community Event
- Sponsor – Designer Group
- Date : 23rd Nov 2016 18.45 – 21.15
- Location – Castleknock Hotel
- 19:00 – 19:10 Introduction – Michael Stone, Designer Group
- 19:10 – 19:30 Keynote 1 – Jim O’Sullivan, Assistant Chief Engineer, Mechanical & Electrical, OPW *“Supply Chain Collaboration within OPW”*
- 19:35 – 19:55
 - RED Breakout: CDE (Richard Harrison, Viewpoint)
 - BLUE Breakout: IT skills for site based workers (Joseph Little and Avril Behan; DIT)
 - YELLOW Breakout: Changing site culture (Eamon Devoy, of Educational Training & Organizational Services - ETOS)
 - GREEN Breakout: Lean Surveying Technologies (Jonathan Argue, Topcon)
- 20:25 – 20:45 Keynote 2: Steve Ward, Lean Construct
 - *“Enhancement of the last Planner System Methodology”*

REGISTER HERE: <https://lciireland-designergroup-event-november-2016.eventbrite.ie>



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