

LEAN CONSTRUCTION IRELAND

DELIVER PROJECTS BETTER, FASTER, TOGETHER

LCI WEBINAR NO.13 (13TH DECEMBER 2017)

“LAST PLANNER® SYSTEM - THE PRACTICAL
APPLICATION AND BENEFITS OF AN EFFECTIVE PULL
PLAN SESSION”

PRESENTED BY EDDIE QUINN & WILLIAM POWER

Topic : Last Planner® System - The Practical Application and Benefits of an Effective Pull Plan Session

This Webinar will commence @ 15.00

LCI Ireland Webinar

Date : 13th December 2017

Presenters : Eddie Quinn & William Power.

Moderated by : Susan Doyle (Box Media)

Opening Introduction by: Richard Fitzpatrick – Chair, Lean Construction Ireland



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TODAY'S PRESENTATION

Today's session follows on from Webinar no. 11 "The 5 Levels of the Last Planner® System: Should, Can, Will, Did and Learn", presented by Paul Ebbs and special guest Dave Umstot;

<http://leanconstructionireland.ie/events/past-webinars/lean-construction-ireland-webinar-11-5-levels-last-planner-system -can-will-learn-presented-paul-ebbs-special-guest-dave-umstot/>

and Webinar no.12 ""Last Planner® System - The Practical Application and Benefits of the 6-Week Look Ahead", Presented by Niall Stone.

<http://leanconstructionireland.ie/last-planner-system-practical-application-benefits-6-week-look-ahead/>



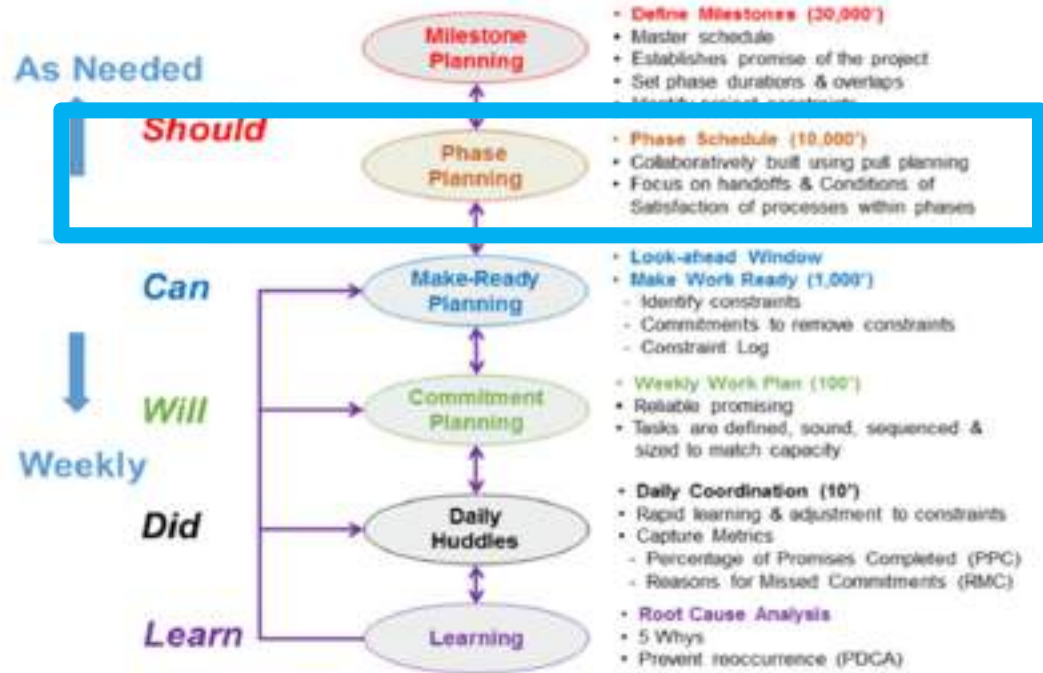
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PRESENTATION SUMMARY

1. What is a pullplan? Where does pullplan fit into Last Planner System (LPS)?
2. Advantages of using a pullplan -Traditional V LPS methods
3. What are key enablers for an effective pullplan ?
4. Example of a bungalow pull plan
5. Why LPS is critical for Lean Construction
6. Case study benefits of pursuing LPS principles

LAST PLANNER™ SYSTEM/PULL PLAN



Creating and maintaining reliable workflow

After Glenn Ballard, Greg Howell & Hal Macomber

WHAT IS A PULL PLAN?

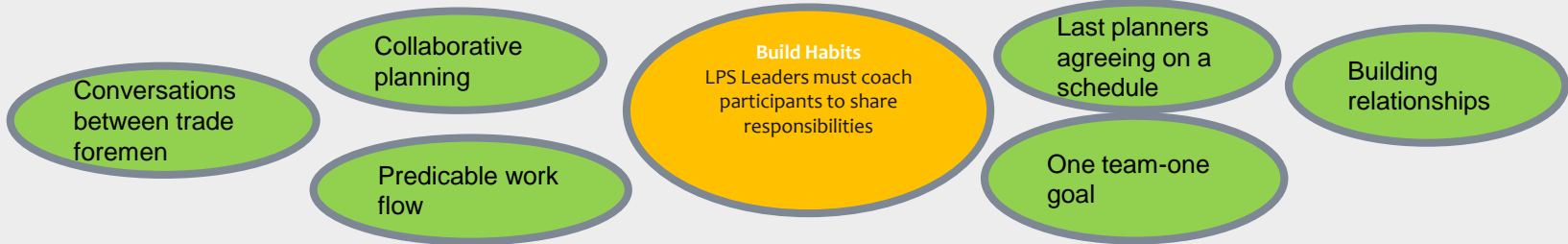
Pull Planning, in simple terms, is a technique that is used as part of the Last Planner® System to develop a coordinated plan for one phase of a project and primarily focused on handoffs

Key Question

HOW WILL WE WORK TOGETHER TO MEET THE PROJECT MILESTONE?

Answer

By using the Last Planner® System using pullplan we can promote



The Last Planner is the last person to assign work to the journey men in the field.

ADVANTAGES OF USING PULLPLAN

COMPARISON BETWEEN TRADITIONAL V LPS METHODS

Traditional Method

Conflict

Reactive

Unreliable workflow

Pushing work to commence

Unaware of other trades

No learning from failure

LPS Method

Collaboration

Proactive

Predictable and balanced workflow

Work planned and prepared

Active coordination with others

Constant reviewing of variance

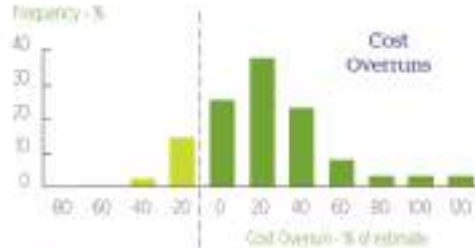


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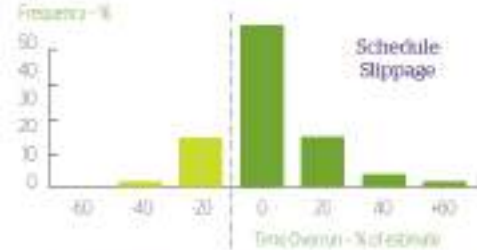
TRADITIONAL PROJECT DELIVERY

COST OVERRUNS



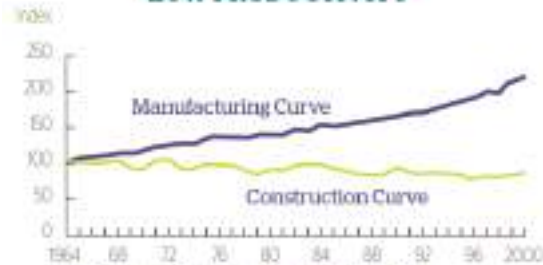
• 89% of mega projects have cost overruns

SCHEDULE SLIPPAGE



• 80% of mega projects have Schedule Slippage

LOW PRODUCTIVITY



• 50 years of stagnating productivity

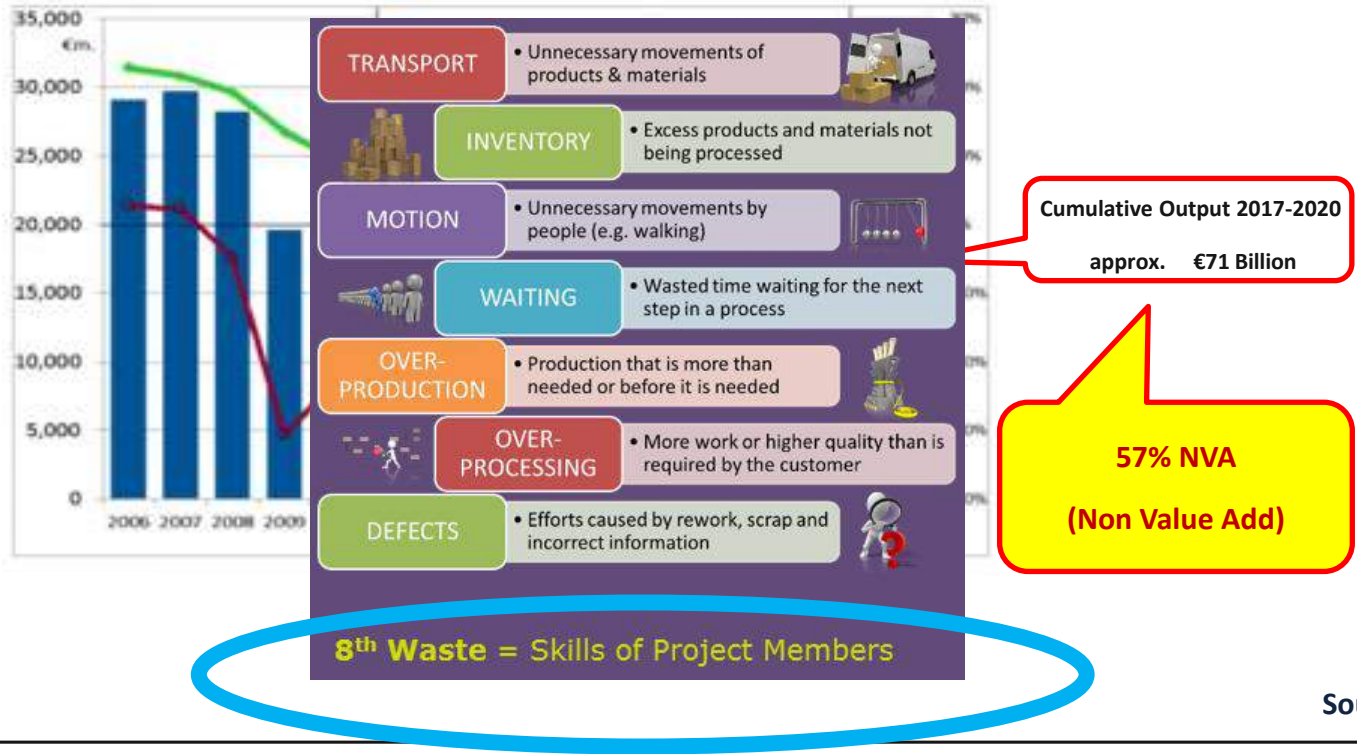
Manufacturing



Construction



IRISH CONSTRUCTION SECTOR



Source: CIF (2016)

KEY TO ENABLING PULLPLAN

What is the overall scope?

When do I start ?

When is the peak of my work ?

Can I make a profit on this project ?

Will all the prior work be done for me to start?

Plumber



Electrician



Scheduler



When will I be finished ?

Will all the prior work be done for me to start?

I don't like change .

Do I need to be inducted ?

I don't know the other members

Engage with all stakeholders

GC



Blocklayer



LPS facilitator



I don't want to be left waiting around !

I don't like conflict

Common goal statement: How can we do our work together to meet the project milestone

KEY ENABLERS FOR PULL PLAN

Preparation work prior:

- *Identify correct stakeholders*
- *Ensure that room is set up correctly .*
- *Ensure all attendees confirmed to be physically there*
- *Ensure materials are available*
- *Ensure prep work complete by all parties*
- *Meeting scheduled 2 weeks in advance with follow up 3 days prior*

On invites clearly state:

- *Objectives of meeting*
- *Expectations from stakeholders*
- *Defined time duration*
- *Relevant documents sent out*

KEY ENABLERS FOR PULL PLAN

During pullplan:

Do Focus on Hand-offs- Do not get bogged down in detail **physically**

pre Reliable promise/commitments – Avoid “I hope to”
“Perhaps”

Int “We” are a team and only as good as our weakest
player.

• Give yourself and your team the opportunity to behave
as beginners

• Don't pretend that you already do the LPS practices

• Don't be concerned with understanding right away.
Practice, Practice

Don't be concerned with looking good- Engage &
Ask questions

Notes

PULL PLANNING STEPS WITH IRISH BUNGALOW EXAMPLE



PULL PLANNING STEPS WITH IRISH BUNGALOW EXAMPLE



PULL PLANNING STEPS WITH IRISH BUNGALOW EXAMPLE

Step 1

Introductions and ground rules

Define the Scope of Work that the team is going to plan

Set the key milestone dates on the Pull Plan

Assign colour post-it to all stakeholders and record keys on pull plan

Trade:	Trade Company Name
Task:	Clearly identify Task to be completed
Duration:	Precise Duration to complete Task
Predecessor:	What task needs to happen BEFORE I can start
Predecessor trade	Who is the owner of the predecessor.

IRISH BUNGALOW EXAMPLE

Step 2

As a stakeholder, list the activities that you require to satisfy each milestone.

Transfer your activities on to post-its.

Apply durations to each activity with no contingency or float in the estimates.

Trade:	Trade Company Name
Task:	Clearly identify Task to be completed
Duration:	Precise Duration to complete Task
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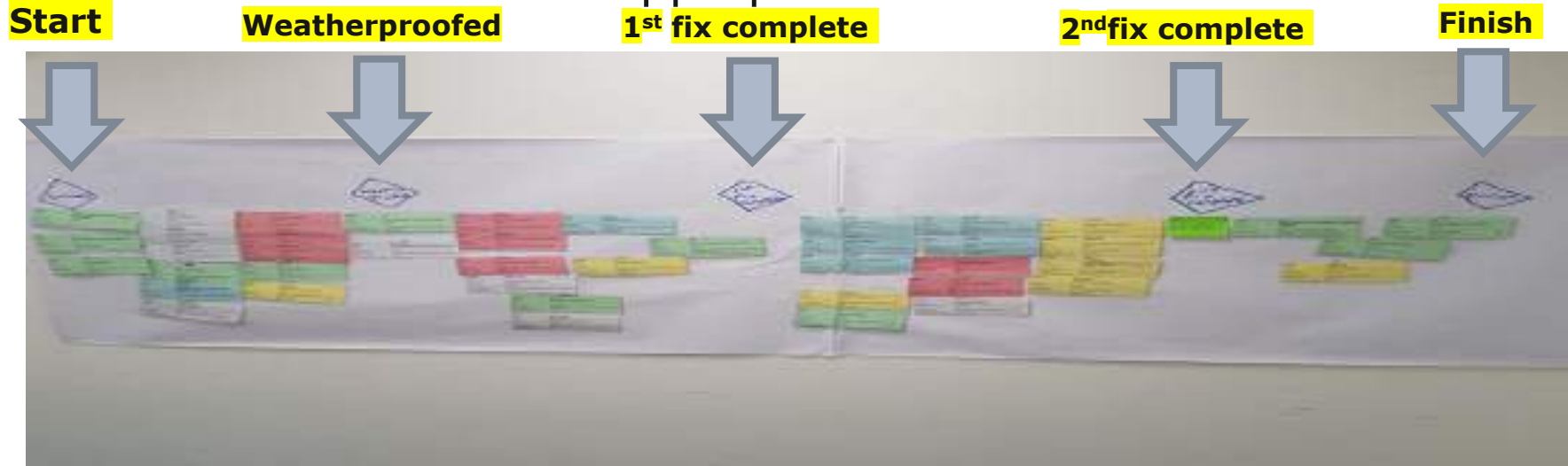


Trade:	Carpenter
Task:	Install internal stud wall partitions
Duration:	8 days
Predecessor:	QA Inspection of weather building
Predecessor trade	GC

IRISH BUNGALOW EXAMPLE

Step 3 To the wall Pull Plan

Fix Post-its to the wall appropriate to each Phase.



IRISH BUNGALOW EXAMPLE

Step 4

Using team scheduling, collaboration with all stakeholders, and Post-it on a wall; develop the sequence of activities required to complete the activities working backwards from the completion date.



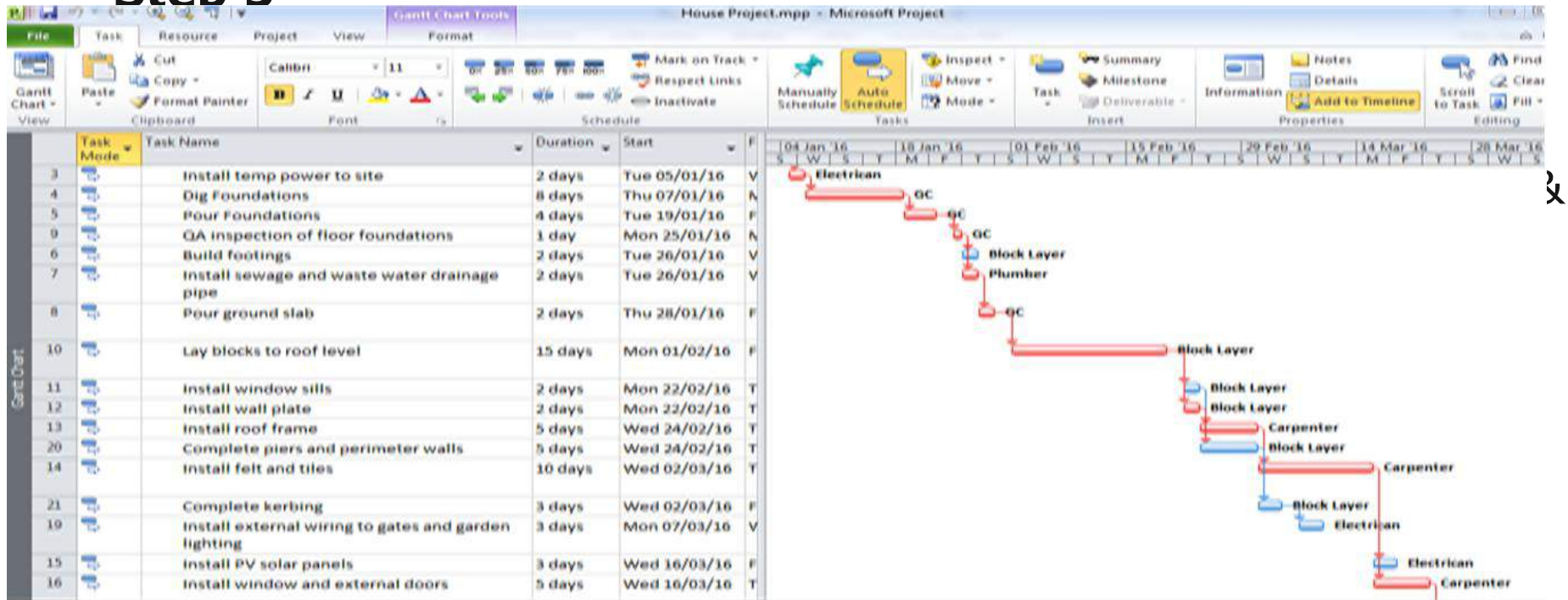
HOW DOES PULL PLANNING WORK?

Pull Planning uses the Backward-pass

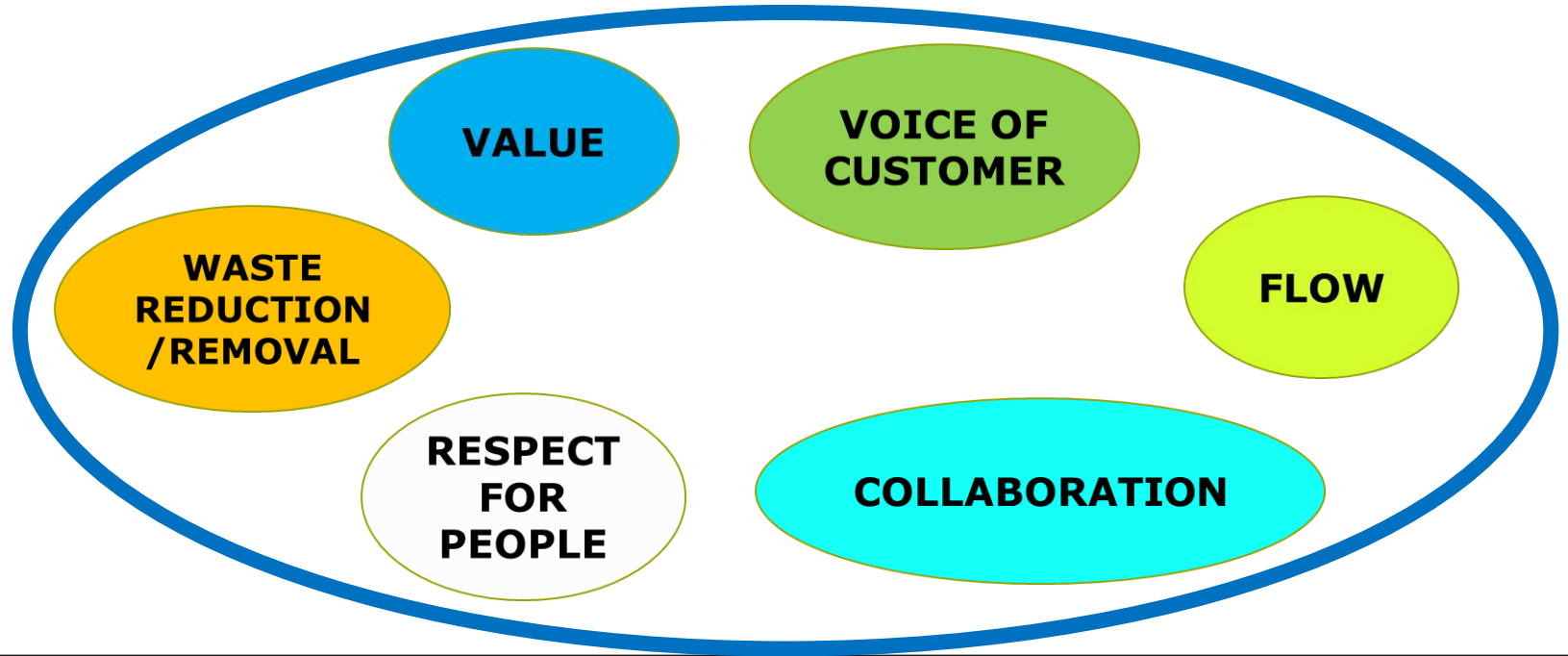
- Work tasks, information flow, and material deliveries are planned based on the request/pull of downstream customers
- Pull planning will often expose the need for smaller batches, just in time delivery, improved levelling of resources, and reduced lead times
- Workflow becomes more reliable and efficient as the waste of waiting, redundancy, and over-processing are eliminated

IRISH BUNGALOW EXAMPLE

Step 5



PULL PLAN IS A CRITICAL ENABLER OF LEAN CONSTRUCTION



CASE STUDIES

Productivity improvement

"Results show a 30% improvement in the rebuilding times for runways since Last Planner was introduced and predictability is greatly improved."

Gerry Chick, formerly Supply Chain Development Manager, BAA, UK

Schedule improvement

Implementation of pullplans and LPS systems in 2015 allowed a large capital investments company in West Dublin to achieve 100% target on a time project milestone for a consistent period of 30 weeks. (Richard Casey, DPS)

Safety improvement

Danish research on like-for-like project comparisons within a single company showed 65% fewer accidents and up to 70% less sickness absence on Last Planner managed construction sites. (Mossman, 2013)

SUMMARY

Pull planning involves deep collaboration and commitment amongst all participants and this reaches to the very heart of Lean.

Last Planner and its components thus becomes a key enabler of the advancement of Value, next-customer awareness, and the development of social networks within construction projects.

SUGGESTED READING:

***Dan Fauchier and Dr. Thais Alves' IGLC21 Paper
"Last Planner is the Gateway to Lean Behaviours";***

[http://alves.sdsu.edu/Papers/Fauchier-Alves-2013-LPS Is The Gateway To Lean Behaviors.pdf](http://alves.sdsu.edu/Papers/Fauchier-Alves-2013-LPS%20Is%20The%20Gateway%20To%20Lean%20Behaviors.pdf)

***Mossman, Alan (2013) Last Planner®: 5 + 1 crucial
& collaborative conversations for predictable design
& construction delivery.***

[https://www.researchgate.net/publication/264785207 Last Planner 5 1 crucial collaborative conversations for predictable design construction delivery](https://www.researchgate.net/publication/264785207_Last_Planner_5_1_crucial_collaborative_conversations_for_predictable_design_construction_delivery)

FURTHER INFORMATION:

“It is our hope that everyone can take away something beneficial from this presentation; with our combined years of experience in using both LPS and traditional methods we cannot understand why LPS would not be used on a project as a System of Choice”.

If you should have any further queries please contact either Eddie or William on:

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Trademark of the Last Planner® System

According to the Lean Construction Institute (2015, p. 149):
The LCI holds a registered trademark (®) on Last Planner®. The purpose of trademarking the term is to take care of the use and meaning of Last Planner and the Last Planner System of Production Control®. There is no intent to prevent people and companies from using LPS® to deliver their projects. All LCI asks is for people to include the registered trademark ® once in any document, to note that the Lean Construction Institute is the owner of the trademark and to include LCI's website with the attribution. (www.leanconstruction.org)

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Further Information

Current Process Benchmark for the
Last Planner System

GLENN BALLARD¹ & IRIS TOMMELEIN²



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