

**COMPANY OVERVIEW**

**CLANCY**  
Built on Partnership

COMPANY WEBSITE  
<https://clancy.ie/>

Founded by Mr. John Clancy in 1947, Clancy is an indigenous Irish company that enjoys three generations of continual development. Today the company has developed into a strong and innovative organisation, with vast experience in all sectors of the construction industry throughout Ireland. Safety is paramount to all work

we engage in and we are proud to be Safe T Certified. Investment and implementation in areas such as BIM and Lean Construction have propelled Clancy forward, and have given the company the platform to become one of the leading contractors in the country.

**OVERVIEW & BACKGROUND TO THE LEAN INITIATIVE****AUTHORS**

Aidan Maher



Aidan Clancy

Clancy has been in the construction business since 1947 and has constantly evolved over the years. Lean thinking, tools and techniques have been introduced to the Clancy team since 2014. This transformation happened gradually at first and it has now expanded to the point where it is generating its own momentum. Lean Construction is now a core part of how we approach each project.

Part of our mission is to continuously improve and adapt to the newest industry standards and technologies

available to the construction industry. This is driven by the young and energetic team within the company and guided by the excellent resources provided by Lean Construction Ireland.

Change can be hard to implement successfully and at Clancy the change management focusses on three key elements: People, Process, and Technology (PPT). We recognise that focus needs to be put on these three areas in order to continuously improve our processes.

**LEAN INITIATIVE UNDERTAKEN – LEAN THINKING, TOOLS, TECHNIQUES**

Over the past number of years, Clancy has been looking for ways to reduce waste across all its construction sites to improve overall project outcomes. Recent Lean initiatives include:

*People*

- Creation of the Continuous Improvement Committee
- Introduction of BIM, Lean and Last Planner Champions throughout the company

*Process*

- Overhaul of the Content Management System
- Improved internal auditing of processes, improved “lessons learned” procedures
- Improved visual communication

*Technology*

- Rollout of new software systems, including: “BIM 360”, “Conquest”, “Bluebeam” Hilti “On!Track”
- Additional hardware including robotic total stations, and mobile devices.

All of these initiatives are designed to improve collaboration and minimise waste, thus allowing us to deliver projects better, faster, together.

*The Current Issue*

While many improvements have been made in recent years, internal research from the Continuous Improvement Committee showed that programme over-runs remained a

significant contributory factor to poor project performance. In particular, the committee zoned in on some key performance indicators (KPIs) across the projects, namely:

- Project Type
- Project Value
- Project Planned PC date
- Project Actual PC date
- Requests for Further Information (RFIs) generated per project quartile
- Number of defects identified by the project architect

The committee analysed these KPIs, wastes, and the various root causes across multiple projects and concluded that the existing forward planning techniques were no longer sufficient to meet performance targets.

Traditionally, projects had been managed using a top-down hierarchical approach to resource allocation and planning. The project manager on each site would create a fortnightly look-ahead programme outlining what each subcontractor was to deliver in a given period. This meant that resources weren't always allocated appropriately, and milestones weren't always met on time. If a subcontractor didn't achieve their targets it often led to waiting and rework waste.

The traditional template used did not encourage the planner to review the resources required or to confirm what percentage of the overall task was to be complete at any given time. The template also failed to prompt the question for “Make Ready Needs” which is fundamental to any planned task being completed. While this is a simple question, it is one that may be overlooked amidst the many tasks that a

project manager must carry out on any given day. The template also lacked an adequate review function, where a project manager must “look back” and assess if planned works were completed on time.

Another area identified for improvement was the timely issuing of RFIs to the design team. The traditional project management techniques generated waiting waste and poor workflow.

### The Proposal

This analysis, combined with recent successful trials of the Last Planner System (LPS), lead to the committee recommending the roll out of LPS on all sites. LPS is an alternative to the traditional method of project planning. Traditional methods of construction were driven on productivity versus time where critical path tasks were monitored closely and stakeholders working on the project worked in silos.

LPS takes a holistic approach to a project where stakeholders are asked to work in collaboration to ensure workflow and better transitions between each trade. Words such as Plan, Do, Check, and Act are used to describe a process within the LPS system where these actions are required on a continuous basis during the project duration.

Planning refers to a review of the master programme, a six week look-ahead programme, pull planning sessions, and finally the fortnightly programme. Once these are in place,

the requirement to complete the works as planned can take place and agreed milestones can be met. It is critical to review the plan to ensure compliance and close out any incomplete works.

Constant review of future works allows project teams look ahead and identify potential stumbling blocks in time to address them. By issuing RFIs early in the project cycle, waiting and reworking can be minimised. When this review process is in place it allows design teams and clients to keep ahead of the construction works. It also fosters a better working relationship between the design team and contractor, which in turn allows a project run smoother.

### Implementation

The LPS system has now been rolled out across all Clancy sites. LPS training was completed by several senior managers who now act as champions within the company. A standard wish list to implement the Clancy LPS system was created to simplify the set-up stage for each project. New templates such as the fortnightly programme and daily white board meetings were created, and site teams have been trained to use these successfully.

The LPS system has been backed by Clancy senior management and its significance for the overall functioning of the company has been highlighted during company management meetings. This has been another effective element for the implementation process.

## LEAN INITIATIVE IMPROVEMENTS & IMPACT

Following the company wide rollout of LPS, research was undertaken to quantify the impacts on project outcomes and the specific impact on programme and defect performance. The research covers data from the 15 most recent projects completed.

These projects vary in scope, size, and location, but when aggregated, allow us to assess the impact of LPS under a number of headings. Each construction project has its own unique challenges but by controlling for project value we can make meaningful comparisons across different projects. Four of these were completed using LPS and the remainder were completed using traditional project management techniques.

The analysis shows that LPS contributed to:

- 27% reduction in programme over runs; and
- 32% reduction in defects.

### RFIs

One of the benefits of LPS is that all stakeholders are involved. This allows the right people to raise queries at the earliest possible time. To assess the impact of this, we divided each project into quartiles. This allowed us to understand what stages queries were generated on site and if LPS was leading to earlier answers. The results are shown in Figure 1.

Analysis of the data shows that the actual quantum of RFIs generated has increased on the four LPS projects. The critical finding here though is not the volume of RFIs, but the timing of them. There is a clear shift towards submitting more RFIs and submitting them earlier in the project cycle.

This graph is evidence of a clear shift in the mindset of the construction teams. By increasing the forward planning in the earlier stages of a project, more resources are freed up to

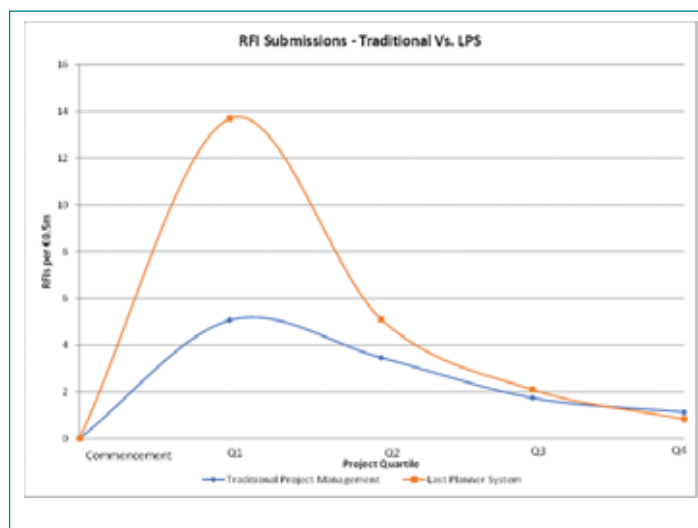


Figure 1. Impact of LPS on RFI Timing

focus on programme and quality as the project reaches conclusion. This is also very positive for design teams and clients as they receive queries ahead of time for the most part, so it allows them time to get answers or make decisions.

This directly contributes to a reduction in waiting, rework and over-processing. The impact of this is further seen in the following results.

### Programme

Programme was analysed by comparing the planned Practical Completion (PC) date to the actual PC date. Figure 2 shows that the introduction of LPS contributed to a 27% reduction in programme delays across all projects.

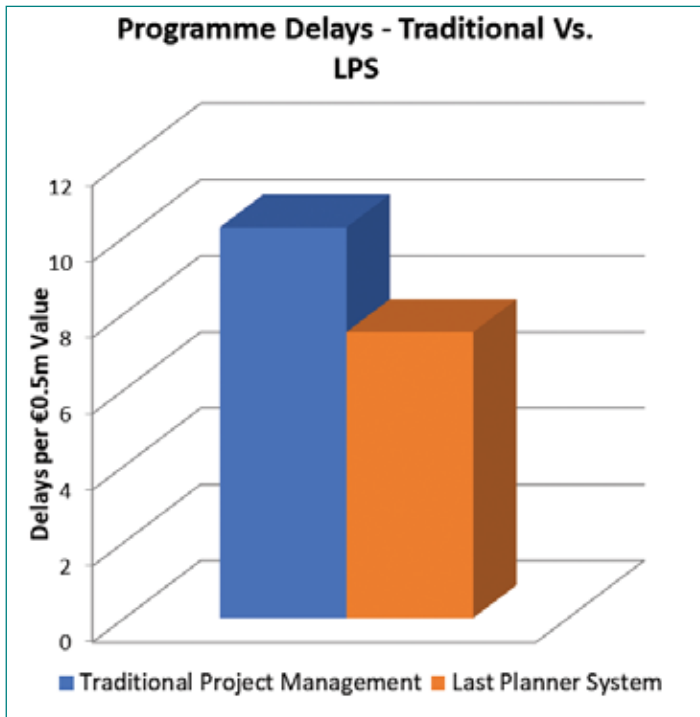


Figure 2. Impact of LPS on Programme

While there are still delays, it is clear that there has been a significant improvement within the projects using LPS. It should also be stated that no continuous improvement project occurs in isolation, so one would expect that this improvement is also generated in part by improved procedures and systems generally, particularly increased use of BIM360 by project teams.

#### Defects

The final metric examined was the number of defects, in the form of snags, identified by the lead architect. This is a wide-ranging metric that helps us understand how well a project was managed throughout. Commitment to getting a task done right first time (RFT) is a key element in minimising waste in any project.

Figure 3 demonstrates a 32% reduction in defects across all projects. As with the programme impact, this cannot be said to be solely due to LPS, however, it is undoubtedly a

significant contributory factor. BIM360 has been used on all LPS projects and this also helps to more efficiently identify actions and close-out on quality issues as early as possible. This, in conjunction with the fortnightly programme, has had a huge impact on defects. Site teams must report on percentage complete and make ready needs which ensures that ongoing works are only removed from the programme when they are 100% complete. These reports are reviewed by senior managers within the company to track each site's progress.

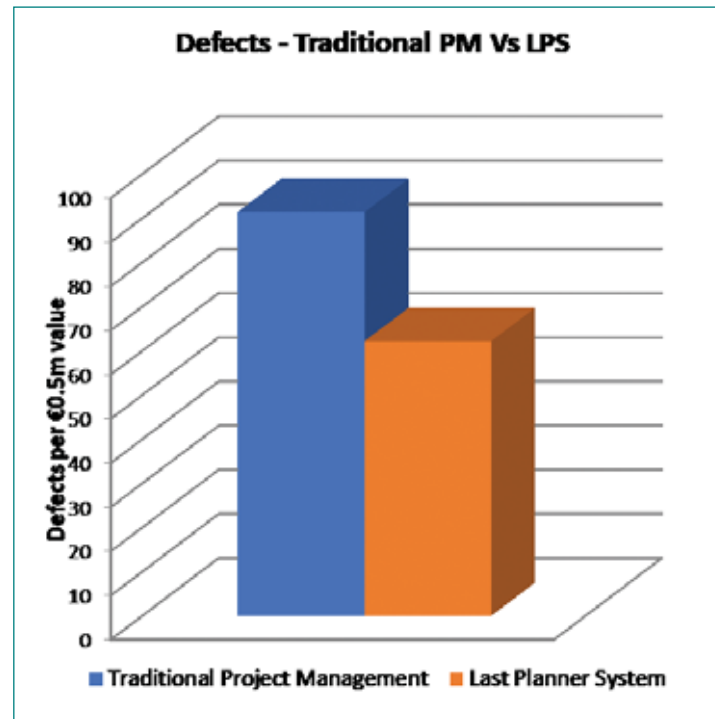


Figure 3. Impact of LPS on Defects

#### Conclusion

The metrics and outcomes presented show a clear justification for the continued use of LPS within the company. As more contractors embrace the system, and as more subcontractors become familiar with it, there is scope for ongoing gains for all stakeholders.