

## Case Study Title: Make the Change and Implement Lean

### Company Overview | DUGGAN BROTHERS | dugganbrothers.ie

Duggan Brothers (Contractors) Ltd was founded in 1923 and is one of Ireland's leading general building contractors with over 120 managerial staff. Construction Excellence is at the heart of everything we do, and we are proud to continue to deliver high value and high-quality projects for our clients. As a medium to large sized

construction company, we have successfully completed circa 1,000 projects in both the public and private sectors. These projects range in value from €5m to €80m across commercial, pharmaceutical, educational, healthcare, residential and industrial sectors.

#### Author



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## Overview & Background to the Lean Initiative

It is important for every business to continuously review and improve how their business operates. Duggan Brothers (Contractors) Ltd continuously review our systems and processes to assess how we can implement change in our organisation for the benefit of our internal and external customers. This includes our direct staff, our subcontractors, supply chain, design team members, clients, and end users across all projects. Implementing change in any organisation or business can be challenging in many ways, however the benefits of making change must be understood before initiating. There will always be resistance to implementing change in one way or

another. For change to take place, it is important that the correct strategy is selected when bringing in new systems or processes in any businesses. Our continuous improvement and lean approach include assessing and implementing many lean initiatives to create more efficient ways of working, by removing waste from systems and processes that impact our stakeholders. This case study is based on the continued implementation of lean in our organisation through lean workshops across 8 departments with key senior managers in our company.

## Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

The purpose of this initiative is to outline our lean journey from 2014 to present. Since 2014, we have been continuously improving our processes across all departments within our organisation, to become a leaner company in 2022 and beyond.

The aim of undertaking and implementing lean at Duggan Brothers was simply to improve what we do by working smarter and more efficiently, by removing waste from our processes and systems. We started our lean journey in 2014 by reviewing what we do and how we can make change happen. To do this, it is important to take a step back from the fast-paced industry we work in and look at how we operate each day and assess what systems and processes we work with. It is also especially important to allow time for staff to discuss how they feel about our systems, processes, and steps to complete a task when they are responsible to complete the works. Providing an opportunity to think and discuss how we operate on our projects, is an approach that Duggan Brothers implemented to make change happen for the benefit of those doing the work. Taking a step back and thinking in a lean way, allows for ideas to flow amongst our teams and for ideas to be tried and tested. We use various lean tools to allow this to take place, including holding lean whiteboard meetings. We have found that this provides a good opportunity for our teams to select an idea each month to improve how we work across our projects. Figure 1 illustrates our Continuous Improvement

Lean board, which is used to select one of the 8 Lean Wastes each month, where ideas are discussed for implementing and improving. This simple approach provides an opportunity for our teams to look at how they operate and make change to remove waste in a process for the benefit of all.



Figure 1: Duggan Brothers Lean Thinking Whiteboard

We also identify waste by implementing various other lean tools such as Value Stream Mapping, Fishbone Analysis, Pareto Charts and Failure Mode Effects Analysis (FMEA). Other tools include Last Planner, Action Plans, PICK Charts (Possible, Implement, Challenge

and Kill) and A3 Projects. These lean tools are used when we take a deeper dive into our processes to assess where and how we can make a change. Through the introduction of innovative technology and digital systems over the past 10 years, we now can assess and measure areas to select for a deeper review and then identify opportunities to reduce waste. Investment in time, technology and people is critical to successfully implementing lean in any organisation. As with any of these lean tools, implementing the Deming Cycle (Plan Do Check Act) approach, allows for a dynamic and flexible outcome, when it comes to implementing change. Figure 2 illustrates the stages in the Deming Cycle which include identifying the opportunity, testing the change, assessing the outcome, and implementing the best approach.

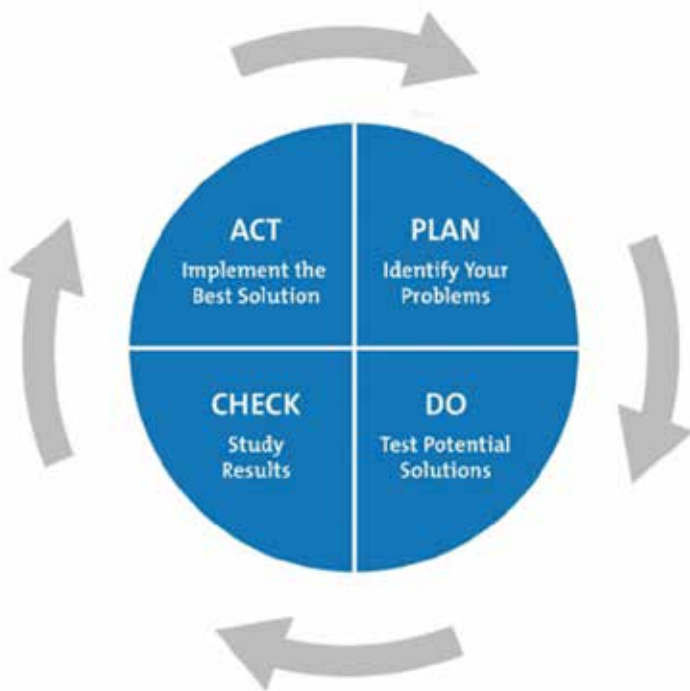


Figure 2: Deming Cycle

As with any lean initiative, we approach all initiatives in a sequential manner through adopting the Define, Measure, Analyse, Improve and Control (DMAIC) approach. We firstly define the opportunity or problem, then measure through data collection, analyse why the issue has arisen, and set out on how to improve the opportunity or problem. We then implement control measures to ensure that the problem is addressed and is not repeated. The PDCA approach is then monitored to assess if changes are needed to ensure our processes and systems are embedded in our organisation.

One major project that we undertook in 2022 was to assess processes and procedures across different departments within our organisation including EHS, Quality Management, Purchasing, Accounts, Estimating, Planning & Programming and Commercial.

The initial approach we decided to use included lean workshops with each department. These workshops provided an opportunity to assess the status of systems and processes and to identify areas that we could implement improvements. These workshops provided an opportunity for the Voice of the Customer to be heard through feedback and open discussions.

As many of our departments cross over in terms of interacting with systems and processes, it was important to ensure that we had the right people at each workshop. Each group consisted of senior management and key stakeholders that could make decisions in terms of implementing change, where we could identify a benefit for our organisation. 27 senior key managers in our organisation attended these workshops. The number of opportunities that came from these workshops varied from each department. Figure 3 outlines a total of 109 items identified.

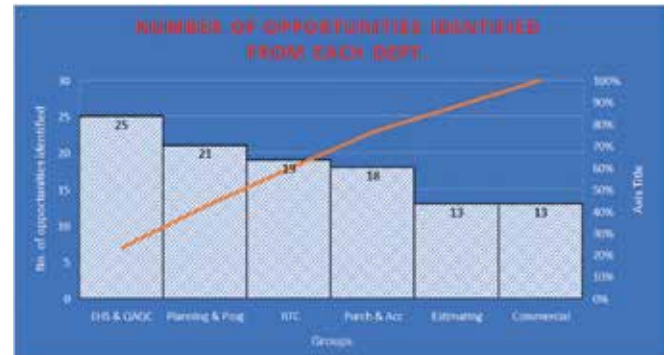


Figure 3: Pareto Chart outlining the number of tasks in each group

Through the development of our dashboards, we also take a deep dive into specific areas of our company and carry out a 'DMAIC' approach to identify and address issues. Once this is done for each item raised, we then set out training for our customers both internally and externally to our organisation. The following is an example of our many dashboards that we use to assess areas of the business that we need to focus on in order to implement change for the benefit of all. Our dashboards are developed from our auditing systems. See figure 4 below.

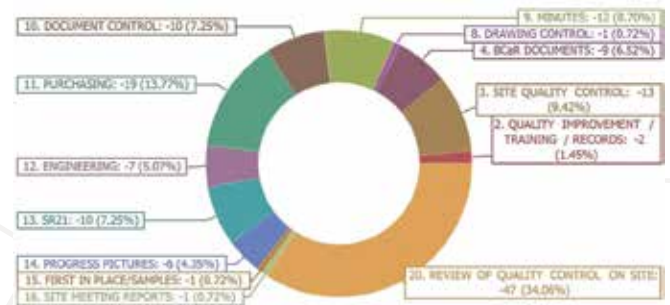


Figure 4: Dashboard with findings from across 7 projects over 9 months throughout 2022

Our dashboards help identify why tasks may not be carried out in accordance with our processes and procedures. These dashboards also provide an opportunity to prioritise our findings and ensure there are no repeat items across our projects. This lean approach prevents repeatable issues from being raised through our internal auditing system.

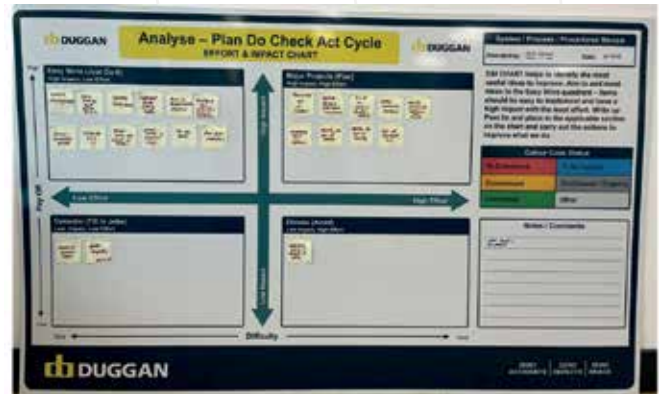
Some tasks that were identified during our lean workshops overlapped from department to department and therefore have been selected as a priority for implementation. Tasks within each individual groups were also allocated in a priority order.

An example of these opportunities is illustrated in figure 5 below.

A summary of opportunities identified from our list of 109 items

include the following:

- Email Management
- Training on IT systems
- Update company procedure manual with new systems
- Sharing findings from audits as KPI's
- Root Cause Analysis on internal EHS & Quality audits
- Develop Dashboards
- Implement better ordering system
- Roles and Responsibilities Matrix
- Feedback from internal & external customers
- Developing Lessons Learned
- Implementing Early Warning systems
- Identifying Predictable outcomes from trends



**Figure 5:** Analyse stage: Effort & Impact - PICK Chart to help prioritise opportunities

## Lean Initiative Improvements & Impact

As with any lean initiative, there will always be challenges and resistance to change. However, this lean initiative provided the opportunity for open workshops to be held with our senior managers across our organisation, which provided space and time for members of our team to discuss areas of the business that may need to be improved. This initiative tied in with our continuous improvement approach and therefore offered an important opportunity to openly discuss our systems and processes. One major impact this lean initiative has had, is that the implementation of lean is becoming embedded in our organisation year on year. Key members of our company are embracing the change as we continuously review how we manage our projects. The interest in doing things better, faster, cheaper, and smarter is spread across 8 separate departments in our company, which is not only beneficial to our organisation, but also to our external customers.

The list of items raised were allocated on an action plan and discussed in terms of their viability and whether they were worth implementing. A priority list was generated, and we now have key areas identified to focus on. Our cause and effect (Plan Do Check Act) whiteboard is used as a discussion tool and allows for the key tasks to be assigned to different categories such as EasyWins (which have a high impact and low effort), Major Project (high impact and high effort), Consider (low impact, low effort) or Eliminate (low impact, high effort).

## Summary and Lessons Learned

Our 2021 LCI Case Study focused on our Quality Department and our overall quality audit findings. This Quality Lean Project highlighted areas of our organisation where we could see a trend of items that we needed to focus on. Our average audit score in 2022 is now 96%.

Our 2022 lean initiative provided the opportunity for many other departments to take a step back and review what can be improved, for the benefit of all. In order for Duggan Brothers to continue our lean journey, it is critical that our people across our organisation see 'what's in it for them.' Training, education and seeing the benefits of what lean can do for staff are critical aspects to implementing lean in any organisation. Therefore, bringing customers along the journey

Some key noticeable improvements to date include:

- Savings associated with time due to better and more efficient digital systems.
- Improved data collection associated with developing software to collect data and develop real time dashboards.
- Reduced rework due to more focus on quality control.
- Continued development of our Right First-Time approach.
- Better records overall in terms of introducing more intelligent construction software.
- QR (quick response) codes allow for instant information to be available to our site teams.
- Better system in place to order materials from site to head office, saving time across many team members.
- Development of Roles and Responsibilities is a key factor in removing waste from systems and processes to ensure that tasks are getting done.
- Standardisation is now embedded in many areas of our company, therefore providing a leaner approach to what we do.

The improvements to our business grow year on year through looking at our systems, and since 2014, we have made many changes to improve how we operate.

of continuously improving what we do, can only be seen as a positive approach. It is particularly important that end users and customers see a benefit for them in terms of changes being implemented, otherwise it can be difficult for change to take place.

The benefits to our 2022 Lean Initiative are clear. 109 tasks were identified across 8 departments through discussions with 27 key senior managers. These tasks were then filtered throughout our teams to improve our lean journey. Making simple changes can really make a difference to the running of the day-to-day business. Start with the easy wins and build on that.