Company Overview | MODUBUILD | modubuild.net

Headquartered in Kilkenny, with regional offices across Europe, Modubuild is an engineering, design, and construction company. Modubuild provide volumetric, turnkey modular construction, to Life Science & Data Storage customers across EMEA. The company employs 400 people. Operations are underpinned by Lean, using analytics, CI, and ISO to create a positive and collaborative environment for excellence. In recognition for its commitment to excellence, Modubuild was named in Deloitte's Best Managed Companies for 2021, and in 2020 Large Pharma Project of the Year at the Pharma Industry Awards. In 2019, the company won Kilkenny employer of the year, and in 2021, MD, Kevin Brennan, was nominated for EY Entrepreneur of the Year.

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Overview & Background to the Lean Initiative

Change and continuous improvement (CI) can be difficult to achieve, particularly in fast-paced environments like Modubuild. This coupled with company growth can make implementation of tangible CI even more difficult to achieve. Modubuild has pivoted in recent years and is leading the way in Turnkey, Off-Site Manufacturing, and 3D Volumetric Construction. However, behind the scenes and through a successful CI campaign, Modubuild is endeavouring to improve and continue to improve its support system and processes to reflect both the company's future growth plan but also the demands of today's construction sector.

As a fast-growth company, one of the issues was that systems and process became static. As the company grew, its SOPs remained the same and in many cases did not reflect the current state; and in other cases the SOPs were essentially a redundant document that was no longer followed.

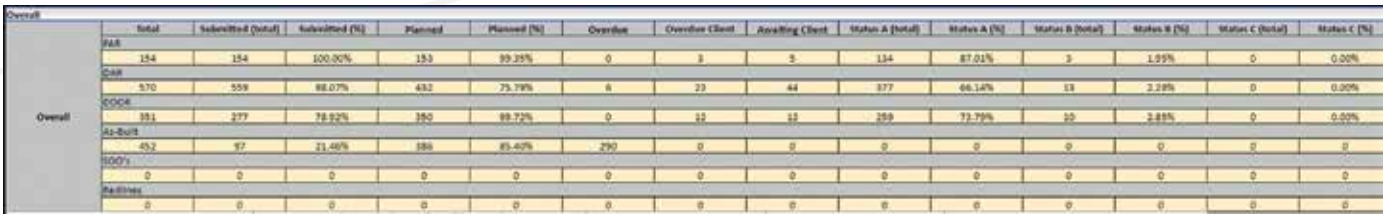
Recognising the issues and the need for CI, the team began to strip down operations to create a clear understanding of the issues. It was key that analysis was obtained of the then current state and that this was used to create an environment focused on collaborative and tangible change. The analysis needed to tell the story of the current state and highlight where the issues lay. It was prudent that data did the talking and not assumption. To achieve the required outcome, the company recruited Data Analytics Lead, Alanas Jakonis, to drive the analytic stage of the investigation.

The objective was to gather data and to graph operational performance of each department. We measured input, pinch points, failure points, communication and collaboration flow, dates, and more. A set of KPI dashboards were introduced, and the team sought to use the data to become unstuck, improve efficiency, increase collaboration, increase decision making, and improve the overall company business cycle.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

From the beginning, the team took a hybrid approach of both quantitative and qualitative data collection. To obtain a clear understanding, it was essential that the quantitative elements were underpinned by narrative that was accumulated directly from the users or inputters into the applicable process. To understand the numbers, it was imperative to understand the how and why behind them.

To begin, the Operations & Analytics team focused their attention on Modubuild's design department. This was a purposeful move as the design team had experienced significant increase in demand and personnel. Additionally, it had become apparent that the design process was an area where the company was beginning to get most stuck. Efficient and accurate design, happening in close collaboration with programming, is the first step to enable successful project procurement, mobilisation, and completion.



Overall	Total	Submitted (total)	Submitted (%)	Planned	Planned (%)	Overdue	Overdue Client	Awaiting Client	Status A (total)	Status A (%)	Status B (total)	Status B (%)	Status C (total)	Status C (%)
Overall	P&R													
	154	154	100.00%	153	99.35%	0	1	5	134	87.01%	3	1.95%	0	0.00%
	D&R													
	570	559	98.07%	432	75.79%	6	23	44	377	66.14%	13	2.28%	0	0.00%
	EOCR													
	351	277	78.92%	350	99.72%	0	12	12	259	73.79%	10	2.85%	0	0.00%
	As-Built													
	452	97	21.46%	186	85.40%	290	0	0	0	0	0	0	0	0
	100's													
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Redlines													
	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 1. Design Workload Forecast

To tackle this, the team used various methods and techniques to obtain usable and tangible information that could be used to measure incremental improvements that could be continuously measured. Firstly, it was important that the non-design personnel understood the true process. To do this, the operations team placed themselves at the Gemba, where, using direct observation and dialogue, the design process and input was observed. Throughout this process, the operations team recorded observations and challenged, in a constructive fashion, any deviations from the SOP and any apparent wastes that were observed. Furthermore, questioning the causation for the deviation or waste created collaboration and discussion that enabled people to understand the reasoning behind the task. Direct observation has been maintained through the improvement process, and this allowed for the change process and its improvements to be noticed, celebrated, made to stick, and be further improved within the CI cycle. To categorise this stage of the data collection, it was considered as a qualitative stage.

In a further bid to gather quantitative data, the Design & Operations team collaborated with the Quality Department to undertake a root and branch review of the documentation and standard forms that were in place to support the design process. This provided a clear understanding of which documents added value and which documents did not. It also enabled the realisation that some documents created an element of duplication within the process. For instance, similar information was being inputted into separate documents for issue to different stakeholders. This enabled the creation of a streamlined design checklist and an appended folder of value-adding documentation and standard forms used to support the design process.

In an unexpected stage, and stemming from the successful outcome of the documentation review, the team completed a gap analysis on existing documentation and standard forms for completion that were contained within the process. It was noticed that some documents added value and others did not, whilst there was an opinion that some documents needed to be added. In terms of Lean, to some it may be considered wasteful or cumbersome to add more documents or forms for completion to a process; however, the introduction of the additional forms and documentation created an environment where more robust checklists, supporting documentation, and responsibility matrix dictated the process. This created less reworks, improved decision making, and subsequently enabled faster completion of the design stage.

In 2020, Modubuild introduced a new HRM system called "Timepoint". This HRM system provides a fast and automated system for management of staff lifecycle. Critically, in the context of the improvement, Timepoint gives access to useful and insightful data, dashboards, and reports regarding every aspect of a department's running costs and performance. Essentially, through measurement and recording of the workforce, Modubuild is able to monitor performance against KPIs and gather data whilst also providing greater management of budgets.

Through logging project tasks, durations, and inputs into the system, Modubuild is able to see the duration of time taken to complete each task and the design input into each task. This provides a platform for various improvements and offers many wider impacts.

It allows the finance department to monitor project staff costs accurately based on actual hours allocated as opposed to a previously used estimation of hours. It also enhances risk management and autonomous decision making as it allows the tendering team to accurately cost projects and make accurate design allowances at estimating stage. With a clear understanding of the actual input or baseline, the tendering team are empowered to accurately make assessments and decisions on design allowances for the next job. This allows for less ambiguity and commercial risk, and removes various wastes, particularly waiting in the tendering process.

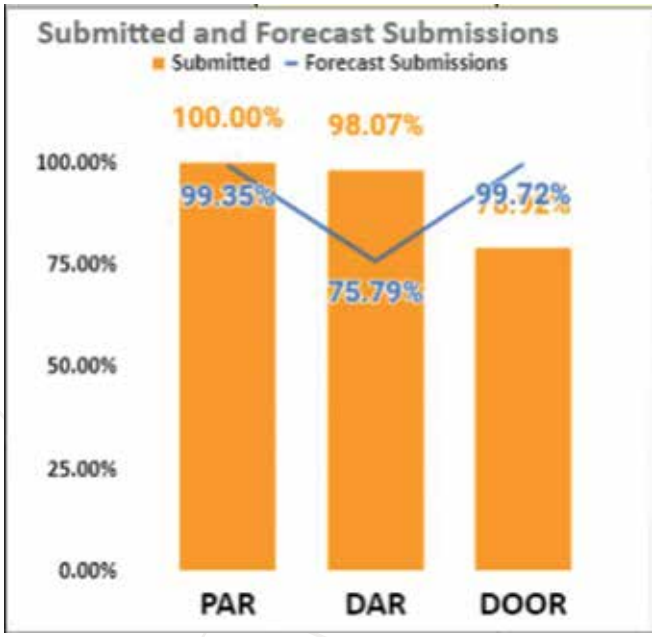


Figure 2. Submitted v Forecast

With the data collected through Timepoint, Alanis created a project design dashboard where the design and operations teams populated the dashboard with a set of key milestones, project drivers, productivity metrics, time productivity gauges, and KPIs. This included dates for specific tasks, anticipated input, typical design deliverables, estimated input hours versus actual input hours, and more. A dashboard was created for each project which ensured that the design, planning, and construction teams all had visibility of progress and a clear understanding of the key project drivers and integration into the critical path.

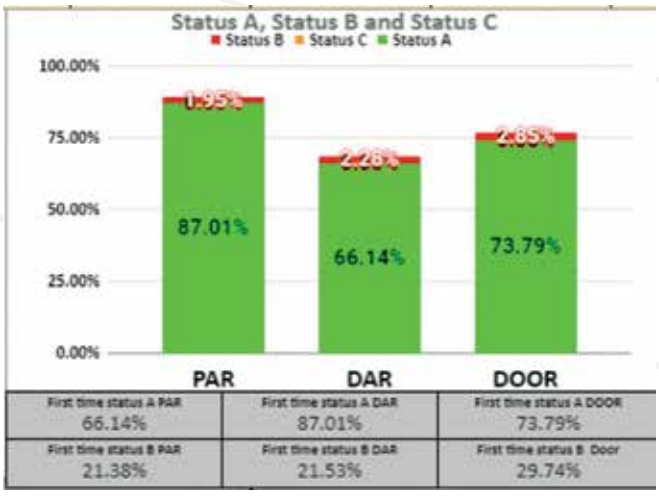


Figure 3. Submittal Right First Time Tracker

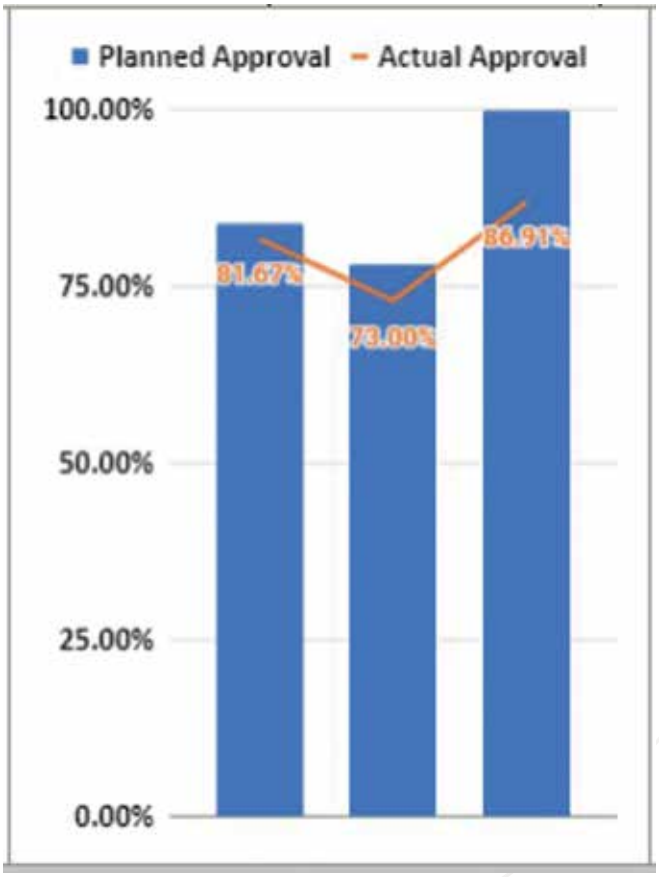


Figure 4. Forecast Approval v Actual Approvals

The next step was the integration of the dashboard into the overall project master schedule. By having a data-based metric for design, the planning team was empowered to accurately plan the design stage and subsequently provide clients with certainty and confirmation that their hand-over would not be affected by inefficient activities. Integration of the dashboard into the schedule provided a compressed overview of the project, intended and actual performance, and brought up red flags, potential pinch points, and other issues at an early stage. This allowed for energies to be focused on the right areas to find solutions to issues before they became insurmountable problems. It also provided a platform for successes, wins, and outstanding items to be recognised and celebrated.

Though the initiative is still developing, and with improvements and trial and error being applied, in the context of change management success the initiative is proving to be a success as it brings an amount of waste avoidance measures to the surface.

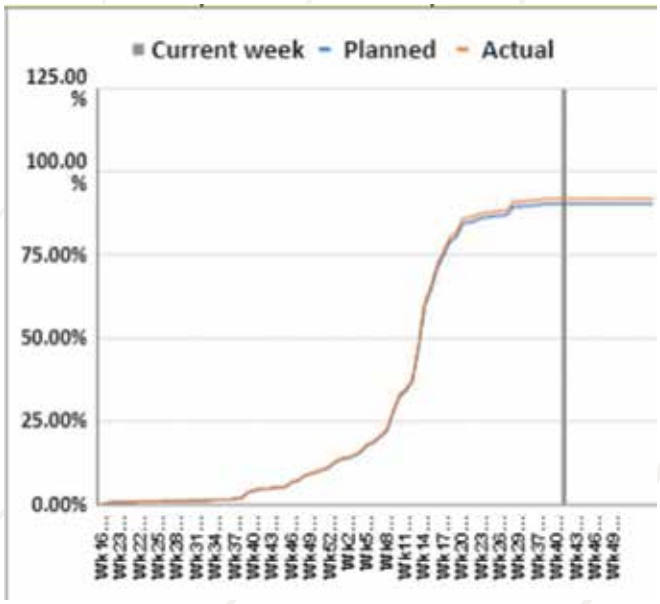


Figure 5. Overall Capacity Planned Vs. Actual

Lean Initiative Improvements & Impact

This initiative formed the basis for all tasks within the design department to be measured and tracked, with the intended outcome of enabling efficient design execution and removal of waste. As expected, it provided efficiency and accuracy within the design process, but also for the subsequent procurement stage and whilst also removing and surfacing various wastes from within the project cycle. Linking design priority and completion to key procurement dates ensured Modubuild could prioritise the design of specific design elements to integrate procurement and ensure material delivery did not affect the critical path of a project.

In an unexpected result, the big value-add for the clients was financial as it allowed Modubuild to provide accurate payment forecasting from the outset and empowered the client with certainty in cost planning.

Internally, the initiative offered significant benefit and waste reduction. Firstly, it created an environment for accurate planning and integration of the total project cycle. It helped remove siloed work patterns and isolated department planning, subsequently enabling the internal customers to be confident that each other was performing and not having any significant or negative impact on one another's activities, and thus not impacting on time milestones and project delivery. It allowed the design team to support the planning department with accurate metrics that could be used to plan and give clients full information and certainty.

It ensured that materials could only be purchased when actually needed, whilst ensuring long lead-time materials could be prioritised early. Through pull planning, the design department could prioritise design release and enable the commercial and procurement teams to order what was needed in line with lead times and schedule demand. This removed significant waste in inventory staging, thus allowing for JIT deliveries and further allowing the client to manage costs.

Additionally, it created an underpinning for the creation of a department resource planner, or resource forecaster, where future design workload could be planned months in advance based on tendered packages at a weighted probability of success. This gave the talent acquisition team latitude for forward recruitment and thus remove reactive recruitment. This was another unexpected impact as allowing for forward recruitment and on-boarding ensured that new personnel were embedded into the company culture and design process early, thus being able to understand the deliverables and expectations and not be thrown into the deep end. The success

of this in the design team has seen the data-based forward-forecast recruitment strategy be utilised across the wider business.

As a whole, the initiative is successful and it is hoped that future advances will allow for the development of further improvements within the business. Furthermore, the data being generated has created new data-based KPIs and targets for the company, with the end game of using the data to drive growth and create autonomous decision making, whilst helping to reduce waste through optimisation of inputs to maximise outputs.

MODUBUILD
LEADING THE WAY IN MODULAR CONSTRUCTION