



Piloting the Deployment of ISO18404 in the Construction Sector

PROJECT REPORT



Project Dates:

2017 to 30th April 2019

Project Partners:

Gilbert & Goode Construction, Cornwall
Construction Training Group and
Acorn Blue

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PROJECT SUMMARY

Background to the project

Gilbert and Goode was established in 1972 and is based in Cornwall UK. They deliver a range of contracts from major projects to minor works and maintenance. In 2005 they were acquired by a registered social landlord, Ocean Group to expand their traditional and contracting business, and also to construct the group's housing developments. They are a commercially focused contractor but with a social purpose, returning any surplus profit to the parent group for re-investment for the public good.

In 2018 turnover was approximately £25million with around 70 employees. Growth to £40million is forecast in the next two years.

Acorn Blue is an independent development and regeneration specialist that has, for many years, successfully created a range of residential-led refurbishment and new build schemes.

In recent years in Cornwall it has also began to undertake main contractor responsibilities for its own developments.

The Motivation for Lean Transformation

At Gilbert and Goode there was a need to attack the cost base of new build housing and drive both qualitative and quantitative improvement in a structured manner. They saw the opportunity to improve the productivity of the business by driving out the inherent waste in construction operations thus increasing the company's competitive advantage and delivering greater returns to the parent Group, Ocean Housing. Furthermore Cornwall, like most of the UK, suffers from a lack of skills and capacity and by working with the supply chain and offering them a platform on which they could perform and make money, more could be gained from the limited resources available and the best talent could be attracted to the company's sites. They began to encourage the adoption of lean techniques within the company via knowledge transfer and in 2016 appointed a consultant, to help accelerate these efforts. An initial Lean awareness workshop was held with about 20 staff. This was followed by two pilot projects predominantly using the Last Planner® System. The pilot projects yielded good results with lead time gains of around 15%. The company's staff and supply chain willingly adopted collaborative planning techniques as all involved could see the benefit.

After the pilot projects the company's approach to production control using elements of the Last Planner® System was standardised and applied on every live project.

Following this initial stage, they wanted to go further to fully embed the culture of lean but were unsure of the best approach. A number of options were investigated including pursuit of the new ISO18404:2015 international standard for lean and six sigma and this route was agreed.

Implementation of ISO 18404

No company had done this before, and the path was unclear, also, accreditation to the new lean standard might provide a useful path for wider industry to follow. Therefore, they

approached the Construction Industry Training Board (CITB) for help. An application was made to CITB's Flexible Fund which was successful and then CITB staff worked with Gilbert & Goode to help put measurable deliverables in place and also to ensure the project would benefit wider industry. A plan for the deployment project was formed and work started in earnest in December 2017.

Key project stakeholders included Gilbert and Goode, Acorn Blue, The Cornish CITB Training Group, Constructing Excellence, The Royal Statistical Society (RSS) and The British Standards Institute (BSI).

Gilbert and Goode were already certified to other management standards such as ISO 9001, 14001 and 18001. These cover quality systems, environmental and health and safety standards respectively. They wished to create a single integrated management system, based on lean principles using the new 18404 standard.

Certification to the ISO18404 requires a company to employ internal staff resources that meet the competences detailed in the standard and so key personnel received training. The MD, the Head of Development, the Head of Construction and a dedicated Project Manager to oversee initial implementation were trained to Lean Leader level. Eight other key staff covering project management, site management, sales and aftercare undertook Lean Practitioner training. In addition, three staff from Acorn Blue were trained to Lean Leader and Lean Practitioner levels.

External resources employed included: Prof T. Bendell who chaired the committee that authored the standard and could provide strategic guidance. Dr Steven Ward provided lean construction specific training and acted in the capacity of certified Lean Expert under the standard. Also, Robert Meldrum of Quality Aspects advised on ISO related issues and helped with the creation of the integrated management system manual.

A strategy was formed that clearly linked the lean improvement efforts back to the company's corporate strategy with metrics that could be tracked. This appears in Figure 1.

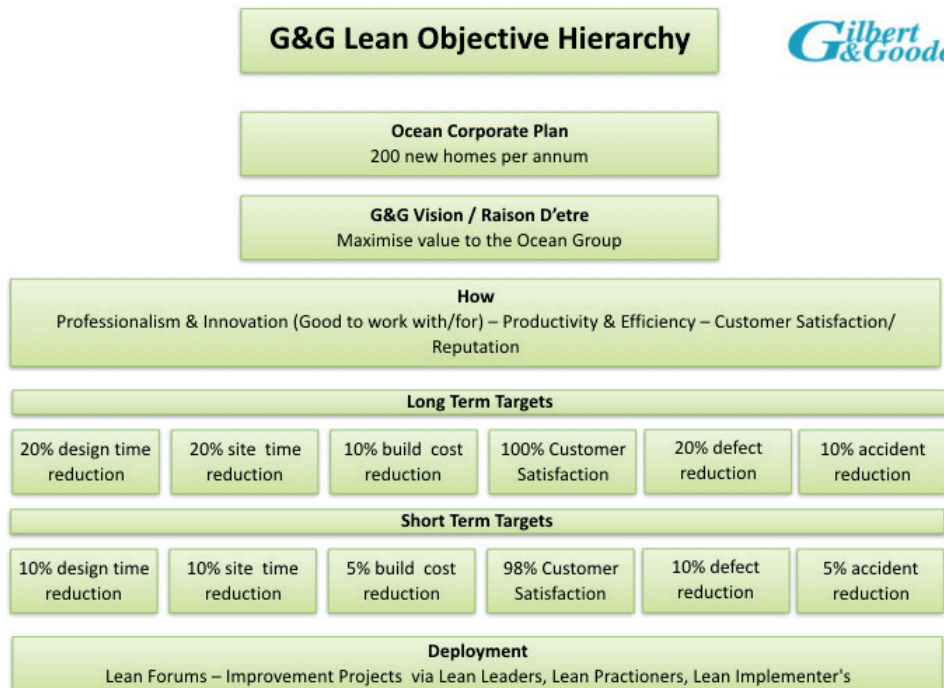


Figure 1. Lean Strategy Summary

During training a wide range of lean improvement projects were agreed covering the end to end value stream from design development and acquisition to sales and aftercare. These projects were prioritised on a single page plan and implemented according to capacity constraints, with some projects agreed but “queued”. The business case for each project was weighed against its likely ability to deliver against the headline KPIs in the strategy document.

A Lean Management team, made up of the company’s Lead Leaders, was created to oversee the delivery of the strategy. Five Lean improvement forums were established to support each of the KPIs and manage the improvement projects, each one being led by a Lean Practitioner and sponsored by a Lean Leader. This structure formed the basis of the company’s continuous improvement architecture and is shown in Figure 2.

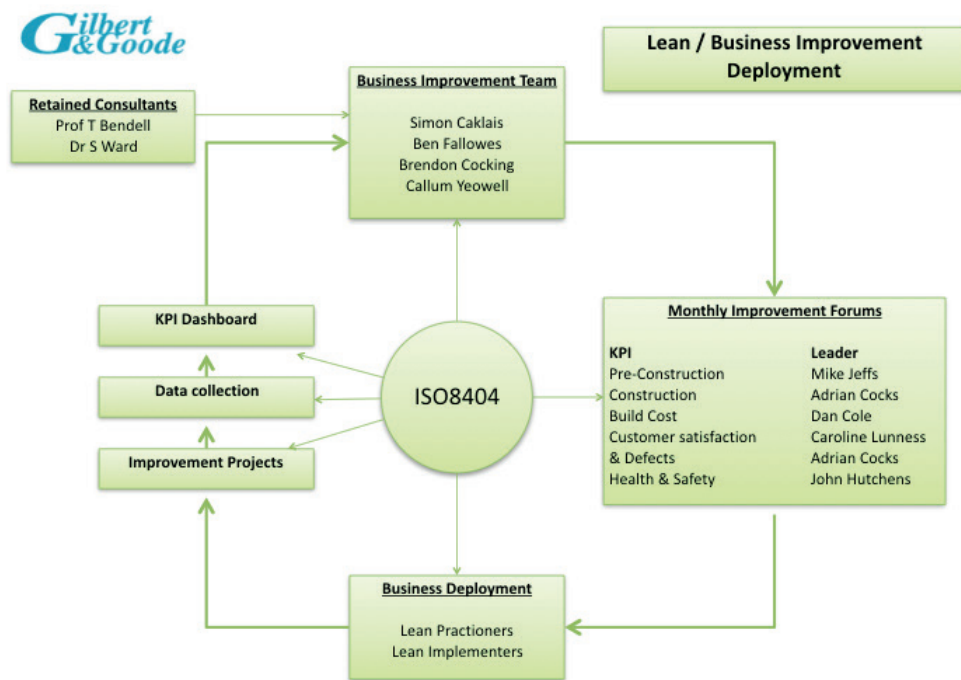


Figure 2. Architecture for Continuous Improvement

It was found that a further level of competence was required that did not exist in the standard. This level required fewer skills than Lean Practitioner, but measurable competence was sought so the competencies of Lean Practitioner were refined to a more basic level and “Lean Implementers” were trained. This served to widen the net in terms of who and how many people got directly involved in improvement efforts. A further 100 people in the business including key suppliers also received training at a basic level. During 2018, virtually all the company’s staff contributed to business improvements in some way.

Certification by The Royal Statistical Society and British Standards Institute

Throughout 2018 the company continued to execute the agreed plan. This was led directly by the senior leadership team with consultant support. Lean Practitioners and Lean Leaders were coached in the development of their portfolios of evidence required and were examined for competence by the Royal Statistical Society, the sector scheme owners, during

October 2018. The British Standards Institute was invited to audit against the ISO Standard and carried out stage one and two audits during December 2018. The registered scope of assessment was “The management and maintenance of Lean programmes when delivering construction services.”

On the 9th of January 2019 the company received certification to the new standard, the first company worldwide to achieve this.

In terms of transformation, it is not the case that every single action or process by Gilbert and Goode is guaranteed to be lean, or that they now perform better than any other company of their kind. Rather it is the case that the majority of people working in the business understand the key concept of value for the customer, are supportive to continuously improving this and have a realistic methodology for doing so.

Results for the pilot – the bottom line

“In addition to the training and upskilling of individuals and the marketable kudos of the certification of the business, Gilbert & Goode are realising value to both their bottom line and also that of their clients. The primary value add is on time saving across the design and delivery of schemes through improved collaborative planning techniques, thus reducing management & site preliminary costs and accelerating the income streams from the completed homes, whether for sale or rent. Based on projected future volumes, this could equate to a circa. 10% improvement on the bottom line.

Beyond the time related financial benefits, there has also been a number of one off savings, that have come from improvement projects which have been informed by the analysis of the data presented at the monthly improvement forums, such as changing components, increased levels of off-site production and utilising new technologies. There are also many qualitative improvements, often as a result of using simple visual management techniques, that make sites look more professional, which in turn will make them safer and more efficient, albeit, this may be hard to measure directly.

The process has also identified a challenge around getting accurate baseline data upon which to set targets and the data maturity journey that a business is likely to face, making accurate measurements of improvement, particularly at a macro level, difficult in the short to medium term.”

(Simon Caklais – Managing Director)

Results for Wider Industry

Proof of Concept – The first construction company to achieve ISO 18404 certification

Guidance on how to approach certification on the form of assessment tools, example ISO manuals and case study documents.

Training materials for Lean Leader and Practitioner Levels developed and available.

Published academic paper at the International Group for Lean Construction Conference (IGLC 2019) Dublin and dissemination via the Constructing Excellence Network in the UK.