



Supermarkets and Lean

In LEAN Times 26 back in May 2015 we spoke about how the founder of Lean, Taiicho Ohno developed his shop floor production line based on the "Supermarket" system. Supermarkets in manufacturing are actually named after retail supermarkets, or more precisely self-service grocery stores. Before, whenever you went shopping, you told the shop-keeper what you wanted, and he or she got you the items from the back of the store, quite like many modern pharmacies. The breakthrough in supermarkets was that the customer picked up the items themselves and paid at the check out. The company that pioneered this was Piggly Wiggly, opening its first store in



Memphis in 1916, but the idea soon spread due to the savings being significantly greater than the occasional theft. One small aspect of these supermarkets was the reordering principle. While not a completely novel concept, they simply reordered whatever quantity they sold to the customer. It is this aspect that defines modern supermarkets in manufacturing. The first implementation of these supermarkets was by Taiichi Ohno at Toyota in 1948. Back then there were no supermarkets in Japan, but Ohno had heard about them and seen pictures taken by a classmate. Hence he named his inventories *supermarkets*. Only ten years later, in 1956, did Ohno visit the US, where he made sure to stop by some real retail supermarkets.

What are the requirements of a Supermarket?

A supermarket is not just any inventory. Instead, a supermarket is an inventory organised according to some rules. The three primary conditions that define a supermarket are:

1) The products are split by part type: In a supermarket, parts are stored in groups according to their part type. Ideally they are stored in physical groups, which allows easy observation of the current state (visual management). Alternatively, they could also be merely digitally arranged within a Data Management system, (Isoserve), although in this case you would need to dig through the data to see if you are running out of stock.

2) FiFo (First-in-first-out) is maintained:

The first part of one type that went into the supermarket is also the first part that is taken out if that part type is required. The FiFo principle ensures that the oldest part is always used first.

3) A part leaving the supermarket gives a signal for re-production or delivery of more goods:

The requirement for pull production is that any part leaving the last inventory (the supermarket) gives a signal (e.g., a kanban card) to replenish the part (s). If the supermarket is at the end of a production line, the signal is to produce more. If the supermarket is at the end of a logistic chain, the signal is to order more. Hence, it is a requirement for a functioning supermarket to give exactly such a signal. Only having a part type specific FiFo (the first two conditions) is not a supermarket, but merely a nice inventory.

Christopher Roser AllAboutLean.com

The Supermarket system has great relevance to us during Off-site Pre-fabrication. Alerts are used to tell us when the different phases of a project should be started and carried out, such as:

- Pre-fabrication Start
- Bracket Install

These alerts signal when it's time to start fabrication processes. Only supplies required for each fabrication stage should be bought and only when a piece is required on site should it be delivered.



LEAN Times

Monthly Update of JEG Lean Information

Lean showcase visit to UK Visual management in Little Island Orbitalum—rotating it's way to the top

Visual Management



"Quick recognition of information by using visual signals" is one simple technique that can be used to great effect in any part of our business. Pat Maher and the team currently managing the piping pre-fabrication workshop in Little Island, Cork can be seen using this to great effect in the picture above.

Multiple projects are in progress at the same time which means folders with the same titles (Weld logs, 100% Shipped etc.) are needed for each one.

To simplify finding the correct folder, save time and avoid incorrect filing, the team have colour coded each project

Janssen, Cork	Grifols
Pfizer, Dublin	Alexion, Athlone
Sherlock, Wexford	MSD, Swords

Catch-up Corner

New electrical ideas on Hospital sites
Paul Lynch - pipe fitting tools from USA

QSP12—Control of Plant

lean@joneseng.com

GOT A STORY TO TELL?WELL, WHAT'S THE STORY BUD?

If anyone has information or news they want to share regarding innovations or Lean Principles on their site, or maybe you have an article or story you want to share. Please feel free to contact the LEAN Development Group at the email address below and we will be delighted to help.



lean@joneseng.com

Lean Development
Jones Engineering Group
Mespil Court,
Mespil Road,
Dublin 4,
D04 E516

rcurley@joneseng.com swatson@joneseng.com

www.joneseng.com



<http://leanconstructionireland.ie/>

info@leanconstructionireland.ie



Participants recently at the Centre for Lean Projects 4th Annual Showcase Day at Nottingham Trent University

The Construction Industry in Ireland is embracing new technology and adapting its methods to help it become more efficient. Increasingly more and more contractors are attending Lean Construction Ireland events and sharing the stories of their progression.

However, it is useful to find out what construction folks from different countries are doing so that we can stay ahead of the curve at home. With this in mind, both Ray Curley and Simon Watson from JEG Lean Department, recently attended the Centre for Lean Projects 4th Annual Showcase event in Nottingham.

The event was run by Professor Christine Pasquire from Nottingham Trent University and Paul Ebbs, research fellow also with the university.

There was some good discussion around the topics presented on the day, which included:-

- "Target Value Design"
- "Procurement as a source of waste in construction"
- "A framework to guide collaborative costing process in the UK"
- "Commercial Project first thinking"
- "The invisible skills for success - language, moods and motivation"
- "Pull systems to improve production flow stability"
- "A facilitators guide to the Last Planner system"
- "Integrating project production risk with Planning & control"

We will elaborate on some of these topics in the LEAN Times in the future.

The trip reinforced that there are significant advantages to be gained for any company, in any sector, that promotes following Lean principles as part of its daily routine.



Orbitalum—industry partner with a great approach

“Is each step or action producing value for the customer?”

This is the question asked by any company who has Lean principles as core values of their business.

A JEG delegation recently visited the Orbitalum factory in Singen, Germany following an invitation from our local agent “Walsh Engineering”.

Orbitalum are the manufacturer of the new orbital welding machines and rotary pipe cutting machines that JEG are now buying.

The purpose of the visit was twofold:-

- 1 Orbitalum wanted to showcase their latest product innovations
- 2 The orbital design team wanted to sit with it's customer and get some feedback on what changes we would make to it's welding equipment if we had the opportunity

Value must transform the product

The customer must be willing to "pay" for it

It must be done correctly the first time

Feedback was being sought from many of it's customers and will be evaluated and



incorporated into design improvements of future equipment.

Standardized storage trolleys with movable arms for flanges

Now that is value for the customer

Impressive assembly process

The environment within Orbitalum's factory was equally impressive. Following the 5S mantra of “A place for everything and everything in it's place”, you can tell that a great deal of thought has been put into the layout of the production and storage areas.



- Walkways are marked out and kept clear
- Modular storage racks are laid out locally to where they are needed to eliminate any wasted transport
- All racks use pallet storage for parts so the same pallet stacker can be used in all areas
- Assembly line processes have been planned and parts laid out in the correct sequence to eliminate any wasted movement
- Rubber matting is located on the floor at each assembly line to improve the comfort of the operator
- A slide rail is fitted to the bench for ease of movement of each rotary cutter during the assembly process (see photograph adjacent). This also minimises any manual handling of the unit.
- Battery chargers for cordless screwdrivers are mounted under the bench to avoid any wasted time or motion during battery change outs.
- A purpose built, sound proof testing bay is located near the end of the assembly line so each cutter can be operated under test conditions to verify it works correctly before being packed for shipping.



QSP-09 Subcontractor Selection & Control



Without any controls or guidelines in place, what kind of sub-contractors might we have working for us?

This procedure covers the initial evaluation and ongoing monitoring of all subcontractors employed by the group companies.

Responsibility lies with the Contracts Manager to select the most suitable subcontractor for his project.

Very few contracts can be completed without the use of subcontractors, whether they be specialists (insulation, painting, scaffolding etc.) or simply to help smooth the workload.



Regardless of who the subcontractor is, the client only sees JEG and therefore we need to make sure that these folks are given the same attention as our own employees (toolbox talks, PA testing, timekeeping, appearance of PPE etc.)

Subcontractor agreements must be in place before any subcontractors start on site and relevant insurance details and tax clearance certs will form part of this.

A register of all approved subcontractors is maintained on Sharepoint.

EHS approval is also required for any new subcontractors.

Ongoing monitoring of subcontractors' performance and quality standards is important and any found to be operating below JEG required level will be formally notified and may eventually be removed from the approved list if standards do not improve.

QSP-10 Planning and Site Management



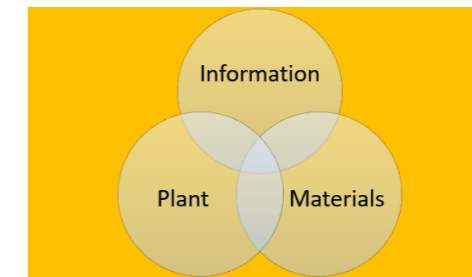
This procedure covers the ongoing management on site of all contracts handled by the company.

Overall responsibility for this procedure lies with the Contracts Manager on a project, but his/her site Supervision have day-to-day responsibility as they control the activities and operations on the site. On larger projects specific areas of responsibility may be broken out for efficiency ie. Document control, engineering, RFI's etc.



If you fail to plan, you plan to fail

Providing adequate manpower to site is not enough to get a job over the line. The three items below are critical and all interlinked with success.....missing one of these means you cannot complete your task first time and will have to revisit!



Records:-

Creating and maintaining project records also falls under this procedure. Filing of most records these days is done electronically and it is important that these can be located and retrieved in a timely manner when required.

As with all electronic record keeping, it is vital to back-up these files regularly to a safe location and avoid that feeling we all dread of losing large



amounts of work that have taken blood sweat and tears to pull together.

Drawings:-



Controlling current copies of design drawings and information can be challenging but is very important to ensure that all staff are working to the most up to date

details.

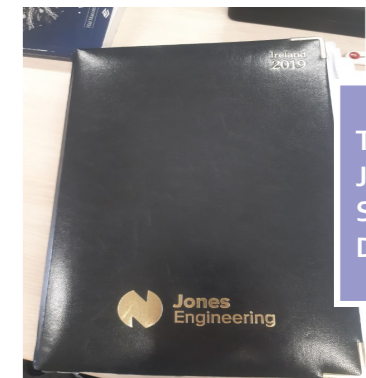
Work installed using wrong information really means the job has to be done three times

1. Initial install—time & material **wasted**
2. Strip out—time & material **wasted**
3. Correct install—**progress made**

Site Diary:-

Site Supervision should keep a daily record of important information for future reference.

- Number of operatives on their crew
- What subcontractors on site
- Any delays or disruptions
- Any instructions and variations received



Typical JEG Site Diary

Variations to Contract:-

Where changes or additional scope are requested, Supervision must confirm that JEG have received an official instruction before any work commences.

Delays:-

Supervision should try to be proactive to avoid any delays on site, but where these are unavoidable the Contracts Manager should be made aware.

General:-

JEG Supervision should monitor housekeeping on site and the image of the company through signage and PPE being in good condition is very important these days.