Case Study Title: Development of an effective Resource Mobilisation Process using Lean Thinking

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DPS Engineering is a global Project Management and Engineering company providing project and programme management, procurement, design, construction management, health and safety management, commissioning, qualification, and start-up. Our sector expertise spans many markets including Biotechnology, Pharmaceutical, Medical Technologies, Oil and Gas, Advanced Technology, Food & Beverage, Energy, Science & Education. DPS has more than 2,500 employees globally, with 18 offices located in Europe, Middle East, Asia, and the US.

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Overview & Background to the Lean Initiative

The impact of the Covid pandemic on the construction industry is a well-documented and quantified event. The consequence of a restricted labour market and the simultaneous restart of several large capital projects has led to a shortage of approximately 50,000 resources within the construction and engineering disciplines.

With these challenges in place, DPS's Advance Technology Group (ATG), and clients at program level, were faced with an almost perfect storm, to onboard a large semiconductor design and construction workforce during Covid, while also faced with the additional pressures of a scarcity of resources, due to a labour depressed construction workforce.

The speed at which resourcing was to be completed successfully, called for a rethink, and reset of current mobilisation, onboarding, and engagement systems. Utilising Kaizen processes (continuous improvement) and implementing the Jishuken methodology (cross functional team of managers with a goal of solving a problem), the ATG Mobilisation team used lean tools and systems to continuously review, refine and overhaul the current practices to allow them to successfully meet the resourcing requirements for all ongoing projects.

This paper will present the learnings and lean improvements made by the DPS Kaizen Mobilisation team, that have yielded a 94% Just in Time (JIT) onboarding success rate. The paper will review the Return on Investment (ROI) on the development of a mobilisation continuous improvement process, based on lean principles and outline how these processes are being continuously refined and implemented globally via DPS's new Global Program Development Group (PDG).

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

Whilst resourcing, onboarding, engaging, and retaining of staff and contractors may appear fundamentally different to that of lean construction, DPS's ATG Mobilisation group utilised the same principles used in engineering and lean manufacturing to improve efficiencies and productivity of the mobilisation processes for our teams, "to get the right people, engaged, in the right position, in the right time" globally.

DPS acknowledged early, the oncoming global challenges facing the resourcing of large project teams within the semiconductor industry, with a global shortage in this specialist field. Historically, mobilisation of large projects has always been a challenge, managed largely in a JIT environment by hiring managers cooperating with their HR teams. While the attraction and onboarding of resources is typically the hiring managers responsibility, they also must carry out their other roles and responsibilities.

It was determined that the traditional way of mobilisation would need to be reviewed for DPS's ATG to be successful in moving forward. To do this, a mobilisation team was set up and was given the sole responsibility to improve the mobilisation process, with the challenge to redevelop, improve and manage the mobilisation process.

In relation to the redevelopment of the mobilisation framework, the team determined that a Kaizen methodology would be utilised throughout the improvement stages and to develop a successful roadmap. The DMAIC process was agreed as the best methodology for the initial development of the framework from which the highest return on investment activities would be identified.

Define
While mobilisation can be improved in many stages across a project or projects, one of the first objectives needs to be the identification of what the current process is, and what role the stakeholders play in the process of attracting, forecasting, resourcing, onboarding, training,

and the retention of resources.

The newly formed mobilisation team completed brainstorming sessions and identified several areas where mobilisation opportunities lay as well as the ease of pre-implementation.

The two key areas that the team identified for improvement were:
- The early identification and onboarding of resources required.
- The reduction of the number of unsuitable candidates proposed for the roles.

To improve the identification of resources required, the team determined that a Q-3 forecasting process could be developed allowing for early identification of key roles.

For the reduction of unsuitable candidates, the team determined that a four-point plan would be needed as follows:

1. **Role justification and approval:** Departments had different methods of role approval. The team determined that a standardisation of this system was justified.
2. **Job descriptions and onboarding documentation:** A review of the job descriptions (JD's) and onboarding documentation identified that several JDs were being rewritten for each role. The team determined that a 5S exercise would be carried out to reduce the variability of the JDs.
3. **Centralised document storage:** The team determined that there was low compliance to the centralised storage of mobilisation documentation. The team resolved to complete an industry review and implement a centralised system for all departments. The team also determined to integrate and manage standardised reporting using an agreed system.
4. **Improving the relationship with resource providers:** The team decided that proactively improving the relationship with resourcing providing partners, would improve the ability to identify the required preferred resources more efficiently.

At this point the team subdivided the challenges and focused on measuring the current status.

Measure

To set the benchmark, the mobilisation team reviewed the current mobilisation process and determined the major Key Performance Indicators (KPI's) as being:
- The time to mobilise a resource from approval to onboarding.
- A measurable reduction in the handoffs required to mobilise a resource.
- A reduction in the variability of the number of documents required for the process.
- An improvement of Right-First Time (RFT) candidates for roles.

Any improvements made in the mobilisation process would need to result in an improvement of their KPI's.

Current Status of Mobilisation: A review of the existing time to resource and onboard a candidate through the various phases was competed and a duration of 17 weeks was identified.

Figure 1: Typical resourcing timeline (Pre-improvements)

Current Status Handoffs: A process map of the handoffs required to mobilise a resource showed that up to 8 stakeholders were involved in the process with up to 28 handoffs needed to identify a resource and an additional 22 handoffs in the mobilisation needs.
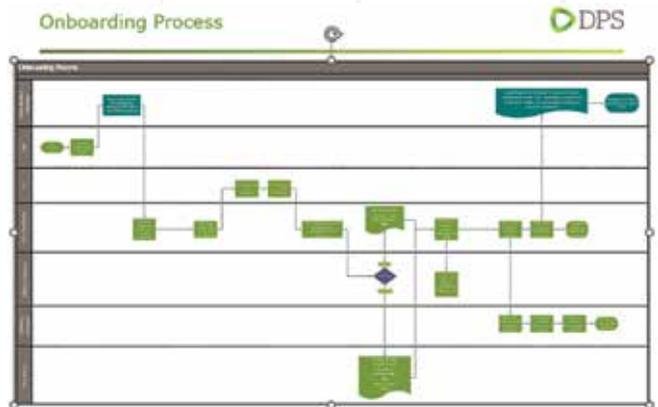

Figure 2: Previous Onboarding process swim lanes

Current Status Documentation: A review of the number of Job Descriptions (JDs) identified a total of 228 unique JDs, many of which were for similar if not the same positions. A review of mobilisation documentation identified 12 unique mobilisation documents used in various departments.

Current Status RFT candidates: The team reviewed the ratio of CV's submitted to the number of candidates hired and determined that a 34:1 Ratio was the highest ratio for the most difficult roles. This resulted in a total of 30-80 hours of time (3-8 working days) required for the hiring managers to hire a candidate for a position. Any reduction in this time would be considered a significant improvement. This led to the establishment of the following KPI's to improve on in Table 1.

Improvement	Current State
Overall Mobilisation time	17 weeks
Stakeholder reduction	8 Stakeholders
Resourcing handoffs	28 steps
Mobilisation Handoffs	22 steps
Unique Job descriptions	228
Unique Mobilisation documents	12
Hiring Manager Time per candidate	30-80 hr's

Table 1: Initial Current state

Analyse

The ATG mobilisation team dived deeper into the root causes for the variability and determined that the overall cause was the independent nature of the hiring processes within each department and the autonomy given to each hiring manager to determine their own requirements. The mobilisation team determined that any output generated from the exercise would result in a Standardised Operating Procedure (SOP) with control of mobilisation being owned by the mobilisation team. The team determined their target goals as being those outlined in Table 2 and set about with the required improvement process.

Improve

For documentation and hand off improvements, a 5S process was used. An example of its use was the analysis of the existing tracking process to determine what items could be improved to collaborate

Improvement	Current State	Target Future State
Overall Mobilisation time	17 weeks	8 weeks
Stakeholder reduction	8 Stakeholders	4 Stakeholders
Resourcing handoffs	28 steps	12 Steps
Mobilisation Handoffs	22 steps	12 Steps
Unique Job descriptions	228	60
Unique Mobilisation documents	12	1
Hiring Manager Time per candidate	30-80 hr's	7-15 hr's

Table 2: Initial Target Future State

and communicate current resourcing status faster. A project to clean up the JDs was initialised by sorting the global JDs from each group globally, into a centralised storage location. All roles were then reviewed and standardised, removing specifics to clients, project terminology and requirements. A clean-up of all the resourcing stages and applicant tracking was improved and overhauled using the 5S process, to standardise the process globally, eliminating waste processes, and serialise systems for greater transparency of status and for monitoring of progress in real time.

Automated and expert systems and electronic forms (e-forms) are now being used throughout the resourcing process to simplify and monitor responses and requests. Examples include resource requisition form, candidate screening and detail forms etc. Manual process movement of all the stages and applicant tracking, is now centralised, and standardised using a Kanban system. This system

allows for roles and applicant status to be pulled and moved through a more efficient process, with greater visual transparency for all parties in real time. Using Jishuken methodology, the mobilisation team have reviewed all steps in the mobilisation process and allocated continuous improvement actions under groups. See Table 3 for an example. It was observed that a lot of time wastage can occur if "the right candidates" are not presented by the resourcing partners for a specific role to hiring managers, particularly the more specialist and hard to resource roles. The Voice of Customer (VOC) assessments were completed with suppliers, where problems were stated, and actions were identified.

OVERALL IMPROVEMENTS

Improvement	Current State	Target Future State	Current progressed state
Overall Mobilisation time	17 weeks	8 weeks	14 weeks
Stakeholder reduction	8 Stakeholders	4 Stakeholders	6 Stakeholders
Resourcing handoffs	28 steps	12 Steps	17 Steps
Mobilisation Handoffs	22 steps	10 Steps	15 Steps
Unique Job descriptions	228	60	146
Unique Mobilisation documents	12	1	7
Hiring Manager Time per candidate	30-80 hr's	7-15 hr's	15-30 hr's

Table 4: Current progressed state

Control

DPS compiled several improvement and standardised workshops to ensure roles and responsibilities, deliverables and work methods could be aligned between the capability to resource the clients or hiring managers requirements and the project needs. Table 4 shows current progress to date. This resulted in the development of controlling mobilisation specific documentation and systems consisting of:

- Standard Operating Procedures and Work Instructions: Step-by-step instructions compiled by the team to ensure the repeatability of the mobilisation process.
- Standard Work Documentation: Containing detailed definition of the current best practices for performing an activity or process.
- Kanban Centralised Tracking systems: Containing storage of all resourcing process flows for candidates, managers, resourcing partners information, opportunities, placements, and reporting.
- Supplier integration processes: Supplier score card and Continuous improvement.

Table 3: Typical Jishuken worksheet for quick improvements with Resourcing Partners

Lean Initiative Improvements & Impact

In the construction industry, resourcing of workers for fast-track projects has always been a challenge in Ireland. With the increased pressures of an almost fully employed workforce, combined with several major projects in Ireland, and other political and geographical issues such as Brexit, getting the right people into the company at the right time, and retaining them, has become a major challenge facing industries.

This case study has shown that by using similar lean processes and systems used in the construction industry in the past, the mobilisation team at DPS have been able to continuously develop a more efficient and improved mobilisation framework in comparison to the traditional methods.

The initial target on the project was to identify mobilisation opportunities and reduce time to resource and onboard a candidate by 20% by removing waste and speeding up the conversion rate, with the corresponding billability gains of approx. 120 hours (3 weeks) per placed person through greater turnaround times, including onboarding times. Successfully using lean improvements, the "resourcing" phase was reduced from 4 weeks to 2.5 weeks, via automation and continuously improving of processes.

Through the standardisation and tidy up of job descriptions (reduced by approx. 35% to date) and improving the setting up of a role, we were able to reduce the time for approving the role and initial resourcing from 5 days to 12 hours. This quicker turnaround

allows the resourcing partners to get to the market faster, which is extremely important in a highly competitive industry.

The hiring process has also been improved through continuous improvements to enhance the quality of candidate options, turnaround of screening processes and collective offering and contract processes. This has occurred largely through increased automation, improved team collaboration and the introduction of a dedicated mobilisation team improving, controlling, and pulling of the process with the onboarding teams. Saving made from these vast improvements have allowed the hiring process to be now completed in one week, a saving of 50% on the initial 2 weeks, originally required. Referring to Figure 3, excluding onboarding and training, the average combined gains were achieved with a reduction in the mobilisation period from 11 weeks to 8 weeks. This, however, does include an average notice period of 4 weeks. Therefore, a real time mobilisation activity saving from 7 weeks to 4 weeks for the mobilisation team has so far been achieved with approximately 40% saving of influential activities gained.

These improvements to date since the middle of 2021, have helped three local Irish programs to save conservatively over 20,000 hours in gainful productivity from earlier start dates and savings in hiring manager times alone.
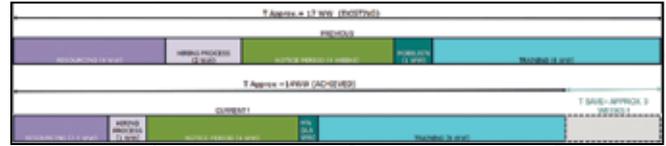
Figure 3: Resourcing timeline comparison

Next Steps

DPS's Project Development Group (PDG) is focused on continuously improving the mobilisation process and are currently transferring our systems, knowledge, and practises globally. As our systems improve, more real time tracking can be monitored. With this, KPI's are becoming more accurate as controls are examined, which further allows the Mobilisation team to focus on future areas of improvement to help us reach our "Target Future State" goals for all stakeholders. Training and employee engagement is also an area we are concurrently working on, and improving, which is helping us in another challenge currently facing in our industry, the retention of our resources.

Summary and Lessons Learned

This case study successfully demonstration how lean techniques, commonly used in the construction industry, can also be used in the establishment of a framework for change in the mobilisation of resources. Success for this framework is largely welcomed on the accurate approval of forecasts, and the swift resourcing, onboarding, engaging, and training of the right candidates, in the right time, for the hiring managers.

DMAIC processes were used to identify all steps, and led to the identification, management and control of typical roadblocks and opportunities within the resourcing value streams and supply chains. These processes also identified many areas where continuous improvements could be made now and in the future.

Stakeholder management was revealed to be critically important for successful resourcing flow. Using Kaizen and Jishuken methodology, the dedicated Mobilisation teams were able to save tens of thousands of hours to date locally, directing value towards the hiring managers, exploring opportunities, and make further improvements for a smoother flow of resources and information.

Lessons have been continuously learned throughout the entire process, and tracked, and have paved the way for future improvements to value streams and stakeholder management, as the Mobilisation teams strive towards their designated future "target states" and further resourcing perfection, globally.