Company Overview | SUIR ENGINEERING | suireng.ie

Established in Ireland in 1984, Suir Engineering is an Irish-based European provider of Mechanical & Electrical services to high-profile clients in the data centre, life sciences, manufacturing, commercial, substation, and renewables sectors. Suir Engineering has offices in Waterford, Dublin, London, Sweden, Denmark, and across the UK, and directly employs over 1,000 highly skilled staff. Suir Engineering has developed a reputation for delivering cost-effective solutions for its clients whilst ensuring an uncompromised approach to safety, quality, and project delivery. Suir Engineering is a wholly-owned subsidiary of EDF Energy Services, a JV between EDF Energy & Dalkia.

Author

Elaine Harrington

Overview & Background to the Lean Initiative

Since 2015, Suir Engineering has invested in its strategic and company-wide improvement initiative entitled "Suir Way". Since April 2018, the company has rolled out new processes for managing the entire organisation based on Lean principles and PDCA. As part of the Suir Way, and the drive to constantly improve, we wanted to transform our services into a centre of excellence with the client as our core focus. We started discussions with a client in the pharmaceutical industry and they highlighted an issue with our dayworks process, namely that it was prolonged and occasionally contained errors. The existing dayworks process was based on a manual daily worksheet requiring a Suir Engineering foreperson to record time and materials used for the works completed, and then for the client to sign the daily worksheet to confirm works were completed (see Figure 1). Once signed, the quantity surveyor would then scan and update values to the client's computerised account. This case study details the examination and improvement of this process in eliminating waste via the application of the core Lean principles: identify value, map the value stream, create flow, establish pull, and seek perfection.

Suir Engineering had no conclusive records of how long the dayworks process actually took. The improvement initiative entailed us connecting several site teams working across different sites in Ireland for the same client, to become a "Suir Engineering Network Team". Firstly, we set out to make visible the entire process for the daily worksheet journey, and the initial step was to map our current state, identify waste, improve efficiency, and adopt Lean problem solving and thinking.

DAILY WORK SHEET

SUIR ENGINEERING LIMITED

No. 137552

CLIENT NAME: DATE:

ADDRESS: ACTUAL DAY:

PROJECT No P: WEEK ENDING:

DESCRIPTION OF WORK	MATERIAL AND PLANT		
	Quantity	Description	Value €

LABOUR COST DETAIL — MATERIAL TOTAL €

NAME	GRADE	BASIC HOURS		O/T HOURS X 1 1/2		O/T HOURS X 2		
		HOURS	RATE	HOURS	RATE	HOURS	RATE	VALUE €

CLIENT ORDER No: LABOUR TOTAL €

Signed on behalf of above named client GRAND TOTAL €

PRINT NAME: DATE:

Figure 1. (Then) Manual Daily Worksheet (extracted sheet from dayworks book)

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

A consensus within Suir Engineering was that the dayworks process had worked for 35 years and it didn't need changing. Our challenge was to identify the lead time for the dayworks process and eliminate errors. Across several sites, we carried out quantitative surveys to establish the lead time and waiting times, and then added a layer for suggestions to identify improvements. The creation of the Suir Engineering Network Team provided the difference. Later in the project, we could prove that the data was not just restricted to the pharmaceutical sector, but rather the data came from various sectors. We wanted to improve the dayworks process not just on pharmaceutical sites but across the organisation. The dayworks survey reflected the exact timings of the process, and we used the data for our value

stream calculations. As shown in Figure 2, the current state had 10 steps in the process, consisting of a lead time (start to finish) of 17 hours 55 minutes and a process time (time spent working on task) of 34 minutes. We identified 17 hours 20 minutes of waiting time which involved waiting for signatures or looking for people.

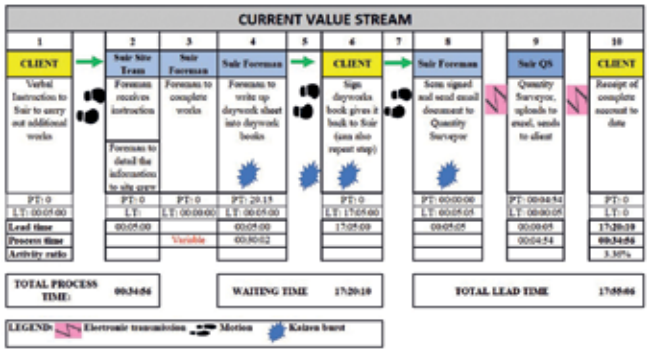

Figure 2. (Then) Current State Value Stream

Now, we could visually see the process steps and we had the data for the actual times involved. In steps four, five, six, and seven, we could target improvements and opportunities identified as Kaizen bursts (Figure 2).

Identifying Lean Waste

We highlighted areas in red under the headings: transport, inventory, motion, waiting, over-processing, over-production, defects, and skills. We used the associated acronym of TIMWOODS, and it was a great way to get the team to use it as the identification tool for waste in the processes. The team enjoyed this process and it enhanced engagement as we teased out the different types of waste. As shown in Figure 3, we defined whether the steps were value-add, necessary non-value-add, or non-value-add items.

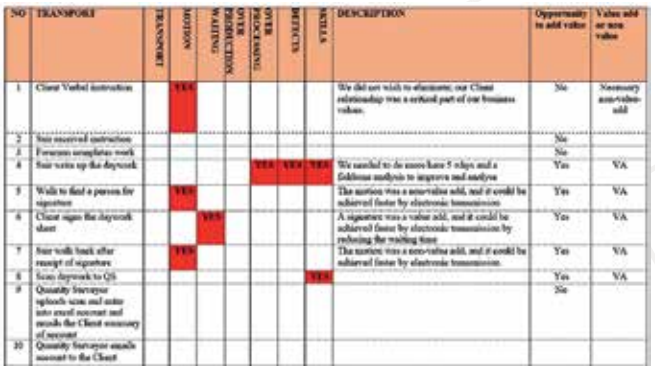

Figure 3. Identification of Waste

We crucially ensured that waste was labelled as a process and not a person, thus eliminating any finger-pointing or blame culture (see Figure 3). Physically writing up the dayworks was labour intensive and involved over-processing, defects, and non-utilisation of skills as it was later retyped. Defects were mistakes in calculations and illegible writing. Skills not utilised were using a computer to do up the calculations, the use of drop-down menus for repetitive information, and the lack of copy and paste in the manual process. The motion identified in three steps was the walking around on site trying to find the person for signatures – noting that this live site was a 33-hectare site which accumulated to a significant number of wasted miles of motion. Furthermore, specific sites are hazardous environments wherein mobile phones are not allowed and only specific personnel carry walkie-talkies. Once you leave the compound you must wear complete safety attire, and thus if you were looking for a personal signature in a cleanroom environment you had to gown up to do so. We needed to establish what we do, how long it takes, where the inefficiencies were occurring, and how could we get to our root cause. Again, with emphasis importantly placed on it being about the process and not about the person.

5 Why Analysis

The 5 Why analysis questioned why the dayworks took so long and why it happened again (see Figure 4). Following on from the standard answer of "there was no other way", we focused on the cause and effect of the problem.

Figure 4. 5 Why Analysis

Fishbone Analysis

The fishbone analysis established that we could only complete the dayworks process manually as no other method was available, thus prompting us to identify another level of the problem, namely that we had no other method available. Did we look at our environment? The project was a hazardous site. We asked if we had correct staffing and were we using the correct machinery. We always did the process the same way as there was no other method present in Suir Engineering. The analysis showed that only site and commercial staff were part of the existing process.

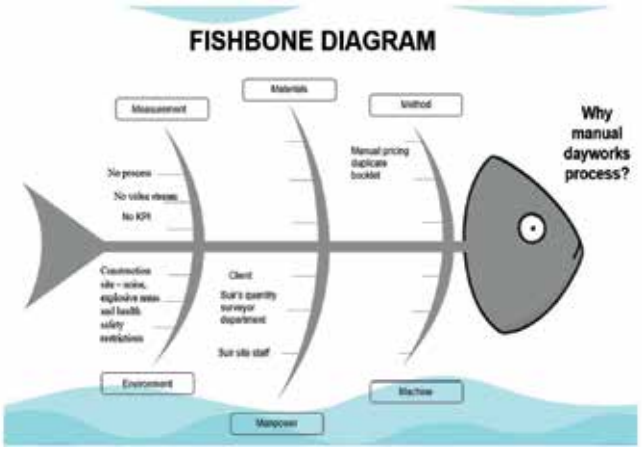

Figure 5. Fishbone Analysis

Step one was where the client initiated the contact; we did not want this step to move to an electronic request as this was instrumental

to building our client relationships. We moved to steps two and three, not identifying any improvements. In steps four to eight, we saw waste in the form of motion and over-processing. Our proposed value stream incorporated the improvement targets to eliminate waste, but we could not identify the projected lead times.

After discussions, we decided to upload an electronic dayworks sheet into Excel for a trial period of one month on numerous sites. The results would give us the data for the proposed value stream calculations. Our colleagues gave additional suggestions in the trial and research period, like, for example, identifying electronic calculations, copy facilities, and drop-down menus. This research was hugely beneficial as it provided a holistic view, and we made several adaptations following on from the suggested improvements. Our research also highlighted a significant risk to our project: could our clients view and action the electronic version? We had overlooked this initially, but the added layer of research in the trial period picked this up, which proved beneficial. We proceeded to ask this of all our clients, and they confirmed they could receive and action this through the proposed route of Adobe.

In our project charter, we had defined our project controls to eliminate scope creep. Change management was a prominent aspect of this project, and the team's knowledge of change management was an area identified for improvement. The dayworks project change from manual to electronic was a significant undertaking as the existing manual process has been in existence for over 35 years. We identified that we would likely encounter some resistance to this new way, and thus change management became critical for adapting the process improvements along the way, and we maintained this through use of the Change Kaleidoscope. Additionally, training was a significant element of this project and Management committed extra system support analysts, which proved critical for the success of this project.

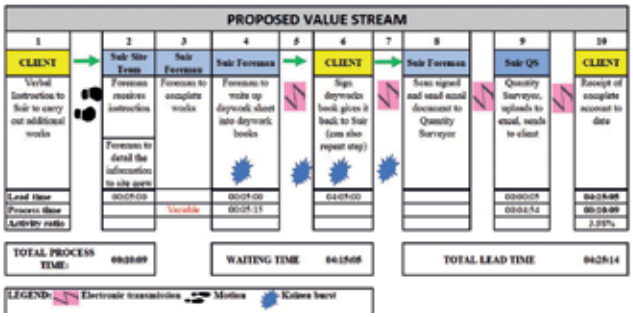

Figure 6. Proposed Value Stream

Lean Initiative Improvements & Impact

In March 2021, discussions and meetings took place over the projected metrics in this project. We projected a 70% reduction in the lead time and a 67% reduction in the process times. Management saw the potential savings for the company if reproduced on all sites. In April 2021, our proposal went to the Board of Management where it secured successful sign-off along with the budget and support to continuously improve and implement across the company.

Lessons learned included the need to present an A3 early-on in the project to highlight the potential improvements. Presenting early had a significant impact on our project as all the team members worked full-time and the project was taking too long to implement. We explained this to Management, and it became a critical turning point for us. Management assigned two system analysts to us to test, implement, and train teams quicker. We informed Management how the Suir Engineering Network Team approach had contributed to the project's success. The team focused on the Suir Way, had a diverse background, mutual respect for each other, and had fun in the process. The plan is to build more projects together as a team. Sending the presentation to Management in week six rather than week sixteen accelerated this project. Feedback from clients has been fantastic, and we have since trained two external clients personally on the system as they want to adopt this on other sites themselves.

We have already adjusted for future improvements as this is an ongoing project. Suir Engineering currently runs a system called a "T2 APP" dashboard which compiles a site's information. Management thus have a collective view of the project labour, quality, health and safety, commercial, continuous improvement, operations, and planning. With this in mind, we have since begun to move the electronic dayworks from Excel into the T2 APP dashboard. We have developed the same structure to implement this move into the T2 APP platform. At the initial meeting for the T2 APP, we were presented with several different screens to add information, and we reverted to the process which states one-screen-one-click and no multiple screens were allowed.

We also applied the 5S technique when discussing this new process: sort it, eliminate waste, standardise for company-wide use, perfect it and make it sustainable. Trials are currently running on the T2 APP dashboard, with presentations to the entire workforce planned for the end of November 2021. In preparations to roll this out across the company, we encountered an issue regarding colleagues who are not literate with computers. This issue highlighted an additional requirement for two types of training: one computerised, and one computer-aided – and our timelines on training were accordingly adjusted.

Knowing what we do, how long it takes, identifying waste, adding value, creating a pull system, improving efficiency, perfection, and problem-solving will be part of all future projects. The results for the downtime project are a significant improvement in lead times and process times, thus strengthening the Suir Way culture of the business. There has been elimination of bottlenecks in the department, flow introduced to the process, KPIs and measurements in place, waste eliminated, and risk identified. Lean tools and techniques are applied and normalised, and value-add has been achieved with the dayworks process. This is a tribute to the collegiality amongst Suir Engineering colleagues seeking to enhance value-add for the company and its clients, and is a further example of the purpose and impact of the Suir Way.