

INDUSTRY 4.0 NETWORK SITE VISITS

Oasis Engineering

Oasis Engineering and its staff of 26 manufacture precision stainless steel machined and assembled components, primarily for the natural gas industry.

Business overview

The company began as the maintenance division of the Gisborne Oasis soft drink brand, before moving to Tauranga and becoming known for its close-tolerance machined parts in difficult to work materials including stainless steel and titanium. It now makes parts for every major compressed natural gas (CNG) company in more than 40 countries.

Background

Around 2010 Oasis Engineering's level of internal quality issues and customer complaints was too high. As part of their continuous improvement journey they decided to focus their offering by putting product development on hold for a year. This freed up capacity for the product and process development teams to build and standardise robust standard operating procedures (SOPs) for all processes, while at the same time introducing a robust feedback loop to resolve issues quickly and effectively.

The SOPs started to provide the consistency in quality, however time was being lost by operators locating the laminated, A4 SOPs filed close to the point of use. Having the SOPs in this format also meant loss of agility for regular rapid changeovers between products and operators using their memory instead, sometimes exacerbating customer service and product quality issues.

The other problem was that revision of these SOPs had become a mammoth task so a project had been created where all SOP updates would be completed every Christmas. This resulted in a significant delay in the feedback loop between identifying an issue and a reliable fix being in place.

Following some research and having seen a number of organisations start putting their SOPs on to electronic devices, the Senior Leadership Team also realised there was value in also transferring other information to tablets, and embarked on a larger 'paperless factory journey' project to pilot to gain maximum return.

The in-house team started experimenting, in their pilot zone, using their normal server folders as the source of SOPs. The initial trials encountered issues around accessibility across networks and potential security weaknesses, so they moved to a cloud-based solution. However, this introduced duplicate copies of each SOP being generated, doubling the revision workload overnight.

At this point feedback was sought from the assembly team, who noted that they were still having to locate the correct SOP by searching for different terms as they were not standardised, limiting the uptake and not achieving the overall goal of accessible and up-to-date standards directly to the fingertips of the shop floor team.

The solution

Oasis Engineering consequently changed its production system to Ostendo in 2017 and the in-house Process Development Team identified how they could associate different components with the necessary SOPs in the system. This combined with applications downloadable straight to the tablet allowing it to interface with the production system, provided the desired result. In addition, an upgrade to their WiFi infrastructure in 2017 enabled the speed and security for success.

After an audit against ISO9001:2015 and with a sustainability-conscious workforce the impetus was there to scale the new system across all document types. This has resulted in close to real time data capture on the shop floor of test results, with other data streams becoming available in the near future, providing visibility of the shop floor performance live. Finally, the engagement of the shopfloor team has led to suggestions for further waste reduction. A key example is the coming transition to QR codes for product specification and servicing manuals, instead of using printed copies.

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Conclusion

Bringing task instructions, SOPs, tests, certificates, and any other production documents effectively to the shopfloor is an example of dramatically increasing Oasis Engineering's Industry 4.0 Vertical Integration. The flow of data and updates between the shop floor and enterprise levels has improved productivity, sustainability and engagement from a workforce in need of better systems to adapt to more dynamic ways of working.

The journey followed by Oasis Engineering exemplifies the 'think big, start small and scale fast' philosophy. They identified a significant benefit and a level of flexibility for the future, proved the concept and recognised their knowledge and infrastructure gaps early, which prevented potential sunken costs.

Key learnings and benefits

- Look beyond the small change to the bigger picture of what it could do long term. This may support your business case for investment, where the initially smaller investment may not.
- Identify the enablers such as WiFi infrastructure capability and security, standardisation of SOP format and locations.
- Test quick and fail fast by starting small with a pilot to avoid excessive development costs.
- Have a robust process to identify and rectify issues with the system and allocate resource to complete these improvements.
- This agile approach - to run with newly developed systems that can be tuned to optimum rapidly - allows quicker implementation and a faster journey to ROI.
- Weekly Kaizen meetings worked to share progress and gather feedback in order to refine the approach.
- A cross functional team was essential to avoid a siloed approach to the project workload.
- There was a 95 per cent reduction in time saved on searching for SOPs.
- New staff can be trained and productive much more quickly with good quality SOPs at their fingertips.
- There is scope for future improvements such as transitioning to video formatted SOPs and real time data capture now the infrastructure is in place.
- Team engagement has given confidence in the accuracy of information and ultimately delivering the required quality.

About the site visits & Industry 4.0

The purpose of the Demonstration Network is to drive uptake of Industry 4.0 technologies among New Zealand manufacturers with the aim of increasing their productivity and global competitiveness. The Network of Site Visits (NSV) are part of the Industry 4.0 Demonstration Network, which also includes a mobile showcase and smart factory showing cutting-edge industry 4.0 technologies in action. The NSV takes selected companies through a fully-funded assessment process to help them accelerate their own journey towards Industry 4.0, and sees them share their knowledge with other manufacturers.

Further questions?

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