



Network Site Visit Case Study

Tumblar

Mining for Data at Tumblar Products Ltd.

INDUSTRY 4.0
Network

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About Tumblar

Tumblar Products are a leading chemical contract and private label manufacturing company specialising in the household, pesticide, and agricultural industries. The products manufactured by Tumblar range from FMCG products for large corporate organisations to small volume orders for local or start-up businesses.

Tumblar was founded in 1981 by John Smith who started the business to manufacture antistatic fabric softeners for Fisher & Paykel tumble dryers. They have developed a strong reputation by modernising their manufacturing facility, diversifying their product range, and have expanded their customer base globally.

Background

Tumblar began contract manufacturing for a well-known household multinational in 1985. Since then, they have continued to welcome other large FMCG corporations and have accumulated a variety of products over the years due to their reputation for quality.

The rise of overseas contract manufacturers has driven Tumblar to become more and more competitive on pricing but without readily available and detailed information on the cost to manufacture their various products.

The Earthquake in 2011 pushed Tumblar to be even more competitive and it was acknowledged that often the manufacturing information they would use to set pricing was inaccurate or incomplete. Collecting the information and data manually was time consuming, often included inaccuracies due to human error, and was hard to compile from paper.

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The opportunity that emerged was around the implementation of a system to help Tumblar understand their manufacturing performance at a granular level, and to use this to increase their competitiveness in the market. Their idea was to centralise the data collected and allow more rapid movement of information within the business as well as increasing visibility of their production progress through the availability of real time data.

This was an important opportunity, as it would support the team's decision-making by providing the necessary information to make a case for renegotiating pricing with customers where required, as well as identifying opportunities for them to increase their capacity.

Solution

The option of installing a manufacturing execution system (MES) was identified by the management team, and a business case was developed for this. A MES is a system that manages, monitors and synchronizes the execution of real-time, physical processes involved in transforming raw materials into finished goods.

A project team was formed, and the following were identified as key requirements for the system:

- The ability to integrate with their current ERP system
- Need for visibility of real-time data on the shop floor
- Digitalisation of the production schedule
- Digitalisation of quality assurance processes
- A proven system with tried and tested external SME support in NZ

Once a system was selected according to the above criteria, the implementation began. This initially included a site visit from the selected MES provider. They reviewed the existing processes and conducted an initial engagement activity with key stakeholders including the production teams, ERP vendor representative, IT rep, and electrician. Some minor tweaks to the current ERP system were also required, such as separating out work centres that include multiple machines.

The next steps taken to establish the system included:

- Finalising integration between the ERP and MES systems
- Determining site-specific parameters such as common downtime reasons, reject reasons, quality check tasks, and user codes
- The purchase and install of hardware such as PLC, server, cabling, tablets, TVs etc.



An example of one of the shop floor data terminals

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To accomplish the change and make it more manageable for the teams who would be using the systems, Tumblar broke the implementation process into 3 stages:

Stage 1

Introduce how to start / stop production, begin recording yield and downtimes, and start reporting on associated losses

Stage 2

Introduce QA Tests, material batches, Job Comments

Stage 3

Integrate rejects into the information capture and reporting processes

Stage 1 was completed in three months with Stage 2 and 3 both taking six months to implement.

Challenges and Lessons Learned

Several challenges were encountered and lessons learned through the implementation process.

ROI calculations were based on assumptions of potential process efficiencies as well as some intangible benefits. We assessed these on a worst, average, and best-case basis to ensure the right decisions were being made.

The introduction of the technology to sometimes untechnical staff was an important consideration

for us, and we would recommend using a 'dummy tablet' for training before the integration as well as allowing enough time to do this effectively. Engaging training experts to support this is also something we would recommend.

The key next step for Tumblar is to carry out a more detailed analysis of the insights being provided by the system. This will be used to support decision making on the shop floor and enable further improvements to be realised.

Key benefits:

Intangibles

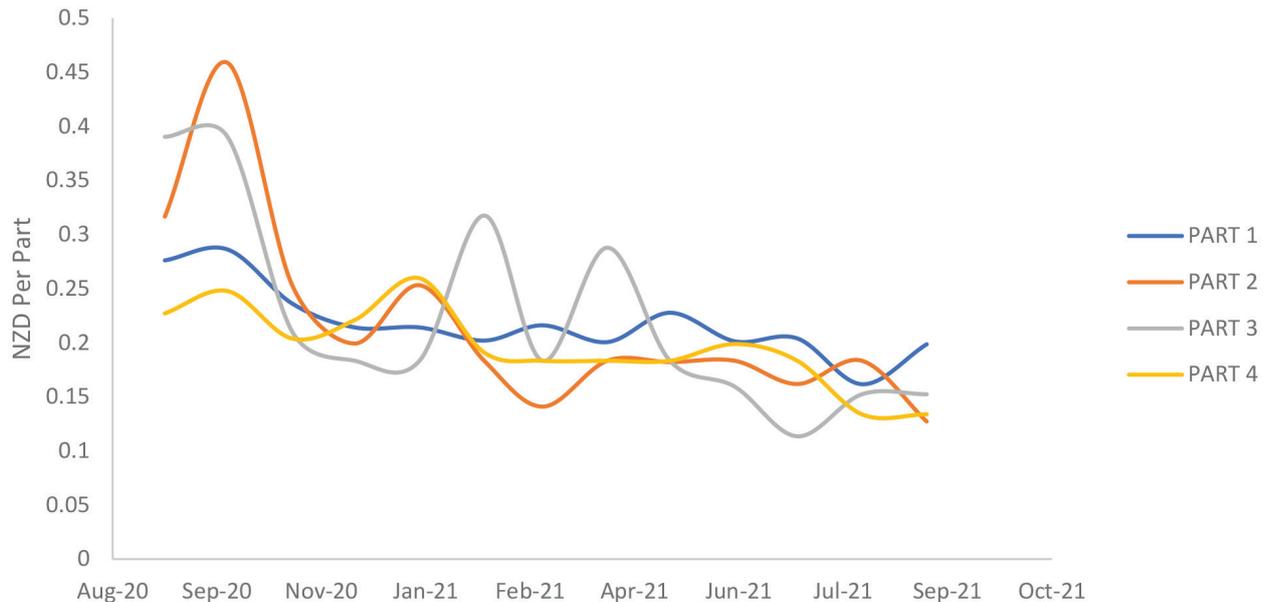
- Improved employee engagement – production leaders can now display production performance easily as there is a centralised system for analysis.
- Improvement in employee morale – most production staff perceived the change as a result of company success.

Tangible Benefits

- Improved product costing accuracy – this allowed us to renegotiate prices, use more accurate information for tendering, and identify low 'hanging fruits' for targeted efficiencies improvement.
- Accurate reporting for justification of production projects as well as quantification of results.
- Time saved as a result of having a fully integrated system, reducing burden to capture information manually and allowing streamlined planning and scheduling processes.
- Improved product traceability – time saved finding information on released products as the information is centralised on the one system benefiting both Tumblar and our customers.
- Reduction in paperwork – Less information is collected on paper improving accuracy and reducing the risk of it being lost.

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Change in Direct Labour to Produce Parts on a Work Centre that was Identified as a Low-Hanging Fruit



Example of the improvement in product cost through targeted activity by the Tumblar team using the information provided by their new MES system to target and measure the improvement projects

Key takeaways:

- Remember to get 'buy-in' early – involve the key stakeholders in the system selection process
- Use a change management framework to support the implementation – the whole team needs to get on board and consider what quick wins are available and can be widely celebrated
- Don't rush implementation, take time to plan, and consider a staged approach – don't try to cover off too much all at once
- Resource the programme effectively. Consider dedicating a part or full resource to co-ordinate the activity internally
- Time to train staff is important particularly at the implementation stage, but it is also important to maintain with regular training sessions moving forward and to include in the onboarding of new staff.

About the site visits and 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?

To find out more please contact the EMA or Frank Phillips at LMAC

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