



Network Site Visit Case Study

Northpine
Felling the old ways
of timber tracking

INDUSTRY 4.0
Network

POWERED BY

CallaghanInnovation
New Zealand's Innovation Agency

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The profile

Northpine Ltd is a multi-award-winning, privately-owned timber manufacturer based in Waipu with a distribution centre in Silverdale, Auckland. Northpine was established in 1999 by Keith Reay, Richard Wilson, and Bruce Larsen from the rundown assets of the defunct Waipu Timber Company.

Northpine timber products come only from sustainably managed, high-density Northern pine forests because reliable academic research shows that pine grown in the North is stronger and firmer than anywhere else in New Zealand.

Northpine is a relatively small sawmill in terms of production, but with over 60 people on the payroll it is a significant employer in a tight-knit community. Northpine invests heavily in staff training and development.

Northpine trains and retains the best people, encouraging individuals to achieve their full potential, and takes pride in recognising outstanding individual and company

achievements. Senior management are degree qualified, and employees hold a wide variety of technical qualifications specific to the industry.

The background

Work in progress (WIP) Timber from the sawmill at Northpine is stacked in 'packets' of similar profiles for transport between process steps including shaving wood to dimension and treatment. These packets had traditionally been identified by tag numbers stapled to the side of the packet. Being a natural product and construction being the final customer, there are clear industry regulations around traceability and conformance of products. The ability to be able to identify packets and their locations is therefore essential to meeting these requirements.

Historically, the tracking of packets and WIP have been done through individuals, however, it has always posed a challenge for various reasons: the workflow for packets is not always first-in-first-out; the process is not linear with different

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process streams for different products, and combinations of products being put through treatment at the same time. Further, the natural raw material does not always lend itself to being broken down perfectly into the required WIP, and recent improvements through their 'faster, flex and flow' programme had increased workforce flexibility meaning operators were interacting with material throughout the process. In summary, a significant amount of time therefore was spent by the workforce searching for and identifying packets required by the planning team for the next process.

Overall, the time spent identifying packets and the industry compliance regulation for product traceability, meant Northpine had to think outside the box for how to track their packets.

The Solution

Although multiple off the shelf solutions exist for tracking and tracing WIP with barcodes and scanners, Northpine has recently brought in new capability to the business in the IT space which afforded them a more cost-effective approach.

They initially engaged with their existing software provider to understand what had been done elsewhere and if they were able to develop the solution alongside their requirements to avoid new integrations. These conversations were not initially successful and Northpine developed their own mobile app through freelance developers to trial the concept and prove how it would work, however, they encountered challenges with hosting the app and its capability to operate effectively across the whole site.

Ultimately, the team learnt a significant amount about how the system needed to operate to give optimum functionality to operators. This additional insight allowed them to have more effective

conversations with their existing software provider and establish a project plan that met the needs of both parties.

The clever aspect of how Northpine have developed their system is their cost-effective use of hardware.

With the requirements for several tablets, phones, and scanners around site, the hardware capital could have escalated quickly. To avoid this, Northpine made use of their recently installed on-site server. By emulating a desktop on each tablet driven from their on-site server, the team were able to avoid needing to run multiple apps and a full operating suite on the tablets, which meant the specification for the tablets could be dramatically reduced. Using \$100 tablets and phones that perform the required tasks perfectly means that hardware capital was significantly reduced as well as future maintenance and upgrades. A spend of \$20,000 on hardware was significantly less than originally anticipated in the project plan. The approach of not being tied to specific software and hardware meant they were free to identify more cost-effective scanning hardware on the market as well. The implementation of long-range 20' scanners costing around \$80 improved system efficiency, as fork-lift drivers no longer have to get on and off a fork-lift multiple times.

Having developed their own system, they have avoided subscription fees, meaning their return on investment was improved.

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Key Learnings and Benefits

- Mobile app development served a purpose in terms of understanding the problem and possible solutions, but they believe could have 'failed faster' here and avoided some sunk cost.
- Knowing their audience and truly understanding the problem they needed to solve would have avoided lost time in discussion with their existing software supplier. Once they truly understood the simplicity of what needed to be achieved, they were able to ask the right questions.
- Not all manufacturing software providers are set up to develop bespoke solutions, so have not necessarily got the skills to distil exactly what customer requirements are in unique situations.
- This project acted as a catalyst for other opportunities around the business using software in different ways. Sometimes it can be one success that acts as the eye opener for what is possible, unlocking the potential in our teams to identify new and smarter ways of using technology.

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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