PAN PAC
FOREST PRODUCTS LTD

Network Site Visit
Case Study

Pan Pac

Company Profile

Pan Pac Forest Products was established in 1971 at Whirinaki, 16km north of Napier. Part of Oji Group, Pan Pac Whirinaki processes locally grown Hawke's Bay radiata logs into appearance grade timber for export around the world, as does its site in Milburn, Otago. This case study focuses on the sawmill operations at the Whirinaki site.

Problem or Opportunity

Pan Pac Forest Products strives for exceptional safety performance across its business. As an industry, it has a wide range of high-risk activities occurring throughout its operations. Alongside continuously improving their safety culture and reporting using common best practice methods, the engineering team has spent time looking at how they can adopt Industry 4.0 technologies in their day-to-day operations to keep the team safe.

The site has a high degree of automation that allows operators to largely remain in lower risk areas. However, this situation reverses when a breakdown occurs. The engineering team now must interact directly in areas with high energy equipment. With such a high complexity of equipment, numerous contractors, new staff and a constantly changing environment, the team needed effective methods to communicate the correct isolation procedures

Key Objectives:

Develop a solution in which any operator, maintainer or contractor, even with limited experience, can identify and correctly isolate all energy sources associated with any asset, and surrounding assets when necessary to carry out safe repairs or upgrades.
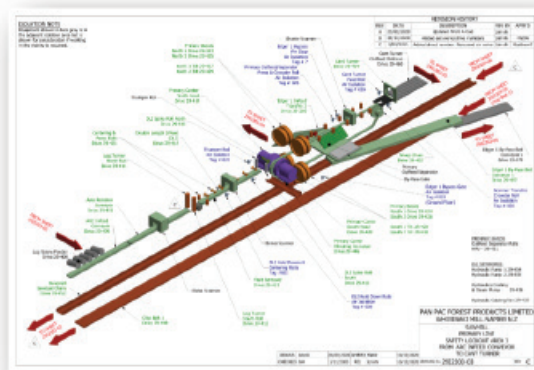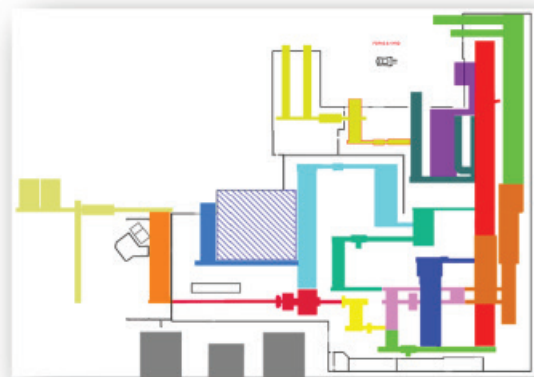
The Solution

Hosted on Microsoft 365 SharePoint, the Pan Pac engineering team developed a simple block representation of the entire sawmill facility, colour coding and applying hover over labels to show the major parts of the facility. This representation links directly to documents associated with each area, including Isolation Master Lists incorporating CAD images of the area and electrical drive numbers.

Hosted on the company's SharePoint, the tool is accessible remotely throughout the network so teams can access the required information without leaving the work area, delivering a solid time saving. In addition, the revision level of the digital material can be accurately controlled to ensure that engineers are always looking at the latest information.

Once the relevant equipment has been rapidly identified and located, there are clear instructions identifying the isolation method and how to lock it out to ensure the safety of personnel. This includes directions as to what

other surrounding equipment is recommended to be at 'zero energy'.

This is being supplemented by a library of video tutorials supporting specialist or common tasks. Traditionally, with libraries of information like this, it is challenging to store and locate the relevant files rapidly when needed, as to do so could require significant and expensive administration time. Using smart functionalities that come as standard through the Microsoft Stream service, the audio on every video is automatically transcribed, meaning detailed searches of metadata can quickly deliver the correct content. Creating this internal library has involved a necessary shift in operation from the team. With a number of highly experienced team members retiring from the business soon, this repository will be invaluable to ensure information is quickly and effectively transferred. This is being added to by capturing video information when contractors or subject matter experts are on site, potentially reducing the need for costly call outs and travel expenses.
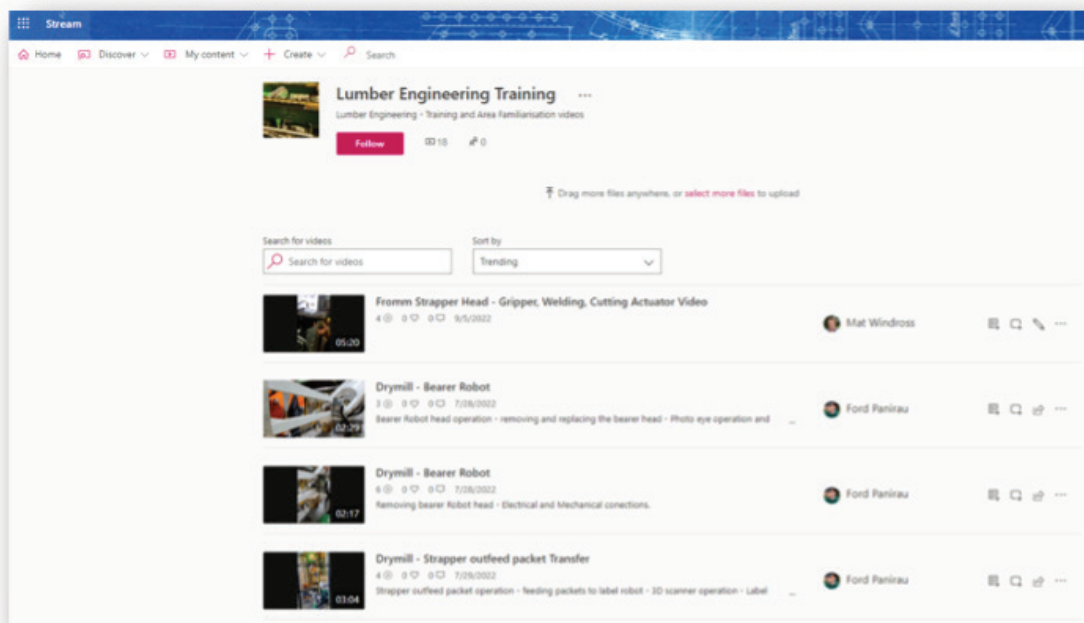
Managing Fire Hazards

At particular locations in the automated sawmills cutting processes, it is possible for significant heat build up to greatly increase the risk of fire. While processes are highly automated, monitored and optimised by operators, it is virtually impossible for operators to identify these risks escalating due to the location of their control room. The Pan Pac team is using a thermal imaging setup and is in the process of developing solutions that will allow the process to automatically identify when fire risk arises and alert this to operators.

This process is a good example of an iterative deployment of technology. Rather than build and deploy the solution all in one, the team has first installed the thermal imaging system, and connected this to live view for the operators. This is followed by applying a machine vision algorithm to identify when temperatures exceed a threshold and creating a visible flag to the team. Theoretically, it would be possible to close this safety loop by controlling machine behaviour following this event, although this is not yet being explored. This iterative approach has meant step change improvement in the identification of an event, with minimal 'project management delay'.

Key takeaways

- Existing subscriptions to services such as Microsoft 365 offer a range of functionalities, such as automation, low code app development and metadata tagged library building that many manufacturers could benefit from. Online tutorials often make the required skill acquisition cheap and manageable inhouse.

- The required culture shift for transferring knowledge from experienced operators and engineers will be fundamental to many manufacturers and primary processors. Technology can assist with this capture and transfer of knowledge.

- Technologies that would have previously required bespoke development, are now able to be managed through existing platforms, limited minimal training required, great value can be leveraged from them.
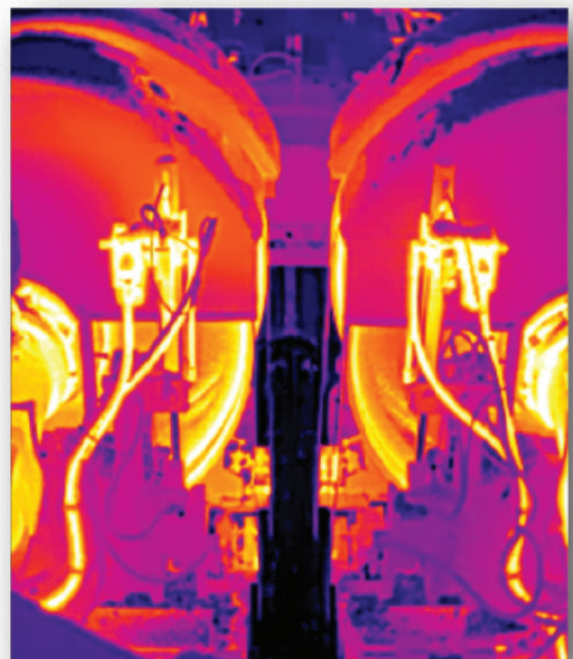
About the site visits and Industry 4.0

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

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