Industry 4.0 – Artificial Intelligence / Machine Learning Stage 1 (Machine Talking to Humans)

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Project Description

The Australian processing industry is acknowledged for its historical ability to continually conceptualise, evaluate and adopt new ideas (especially internally focused ideas and deployments). The recent Cost to Operate and Processing Cost Competitiveness report has further demonstrated that Australia is (1) the highest processing manufacturing country compared to its main competitors and (2) that the opportunities to reduce these costs required both a domestic and international large scale innovation driven solution to ensuring Australia can remain a competitive processing country and ideally lose the title of the world's most expensive country in which to process meat.

To address these cost to operate outcomes, Nolan Meats have significantly invested in many and varied improvements and technology implementation within their business. In their own individual right, each of these investments has resulted in improvements to the Nolan's business and its supply chain but sustaining these results is the driver for this project.

There is now an additional synergistic value add opportunity to implement an I.4.0 integration data piece that enables all these new solutions to be reported back to a central point via real-time production infographics data dashboards.

Comparing numbers presented in a flat table to find the top value is extremely difficult and takes a long time. Humans more easily grasp information through visualization. In a business context, visualization helps convey a story to decision makers, allowing them to act more quickly than if the data were presented as reports. This is the power of I.4.0, machines talk to machines and machines talking to humans.

The first phase of the large program is to focus on machines talking to humans, via a centralised infographics data dashboard.

A second phase may then be invoked to have machine learning (and AI) continually review all machine output data and report on problems and ideally report of pending problems and opportunities.

Project Content

This project was based around getting information to the people in the most efficient way possible without taking their focus away from getting the work done. This included getting raw data from multiple different sources and processing it in a way to allow the operators to understand how they or the process they are responsible for is performing.

Project Outcome

During the early process of trawling through the production data, it became evident that an operator would not be able to understand how they were performing without adversely affecting their ability to get the work done. It was decided that it would be necessary to combine this data into an operator 'Score'. This was derived by combining throughput, time and yield to give the operator a single number feedback to understand how they were performing. During performance reviews the operator could ask their leader for feedback as to why their individual score was low and where they may need to increase their performance.

Benefit for Industry

Whilst running this project and model it has proven that creating and collecting a lot of data alone does not improve throughput or quality of products. It is about providing and combining these data streams in a user-friendly format to allow the operators to buy-in to the overall goals or objectives.