SNAPSHOT

Meat Industry Efficiency and Innovation Capacity Enhancement; Benchmarking Technologies and Systems from Automotive Industry

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Project Description

This project will focus on accelerating the adoption of new technologies by benchmarking the competitive and sustainable automotive manufacturing industry.

Automotive industry, as a high volume-low margin sector, is the pioneer in automating manual tasks, by developing the most advanced and cost-effective systems. Development of innovative manufacturing, processing, materials handling solutions and technologies as well as management systems and appropriate culture have helped the automotive industry to stay efficient and sustainable for many years. This makes the need for an extensive research in adapting and using the already existing technologies, strategies and systems in the automotive industry inevitable. This research project was proposed to study the possibilities and potentials for the red meat industry to adapt technologies and solutions from automotive industry in the field of automation, materials handling solutions, management of processes and procedures.

Project Content

- Investigation and study of already existing processing technologies and systems in the atomotive indutry and the meat industry.
- Mapping all the meat industry processes across to the automotive industry to find similarities in the fields of facilities, processes, manufacturing procedures, and production engineering.
- Identifying the automotive industry technologies and solutions with a potential to be used in the red meat industry and offer suggestions to ease the adaptation and implementation process to minimize manual tasks in the red meat industry.

Project Outcome

Major improvement ideas were shorlisted and reported to the visited plant and to AMPC. Below are the suggestions as the first step toward the plant efficiency improvement:

- **Lean Manufacturing mindset:** Implementing lean manufacturing principles will greatly help improving the plant efficiency by reducing waste and improving the cycle time. All staff in different levels shall be trained to fully understand the lean manufacturing concepts and try to implement them in their own tasks.
- **Layout:** Developing a detailed layout of the processing lines, including the correct dimension of each station, head counts, facilities, etc. is a crucial step to improve the plant efficiency.
- **Material Handling:** One of the very first and obvious challenges observed in the plant was the material handling and logistics issues. This cannot be looked at as an isolated issue. Some of the below explained actions are required to be done initially to then enable the team to come up with the best solution for a smooth material handling solution.
- **Process Documentation:** The processes shall be documented for each station. This is called process illustration or Station Information Sheet. This document usually includes a description of the process for the station, illustrations to fully clarify the defined process, a list of the tools required to do the job, the cycle time, the number of operators in the station, and finally a simplified snapshot of the layout to show where in the line this process happens.
- **Throughput Simulation:** Throughput simulation is a type of discrete event simulation to use technical realization of one layout to prove concept is sufficient to meet planned production capacities. Material flow, system availabilities and bottle necks will be identified and optimized in simulation. Though this is something usually done at the plant design phase but we highly recommend this analysis to be done for the Swan Hill plant.
- **Safety & Ergo assessments:** Safety and ergonomic assessment of the processes is a key to improve the processes. This will help to identify the issues which will impact the operators' performance and consequently the product quality.
- **Automation:** In the Swan Hill plant, it was observed that there are many opportunities to improve the efficiency of the processes by the means of automation, throughout the process from the animal stunning to the flat box folding and final packaging of the product. Automation surely will require more initial investment compared to manual operation but it delivers huge benefits such as long term labour cost save, high level of

safety, and also the product quality improvement. To study if the investment for automation is worth financially, a TARR study shall be done for each case. This study will show the financial aspect of manual vs auto process and possible saves or losses over time. The quality improvement benefits shall be reviewed in conjunction with the sales and marketing team as quality cannot be always converted to dollars easily.

Benefit to the meat Industry

A guideline for the red meat industry to identify and adapt automotive industry's leading global capability in the research, development, application and commercialization of technologies in every aspect of the manufacturing process.

Summary

This study focused on studying the processes in the meat industry and aiming to improve processes through mapping processes across from the automotive industry as a benchmark. Investigation and study of already existing processes, technologies, and systems in the meat industry was conducted through visit to the red meat processing plant and interviews with the processing managers and staff to find out the potential or required alterations for improvement. Mapping all these activities across to the automotive industry to find similarities in the fields of processes, manufacturing procedures, facilities, and production engineering was conducted. Automotive industry technologies and solutions with a potential to be used in the red meat industry were studied and suggestions to ease the adaptation and implementation process to minimize manual tasks in the red meat industry were identified. A list of suggested actions (as explained above) has been provided to the plant team.

We strongly believe a noticeable improvement can be achieved by implementing the suggested actions. We appreciate this can be a significant change to the long-established meat industry, though the industry will surely benefit from the outcome if it opens the doors to the well proven technologies from the automotive industry.