DeLaval is the market leader in milking equipment employing 4 500 people in more than 100 markets around the world. Our dairy farming partners benefit from 150 years industry experience, sharing complete solutions with trusted local support and service. Our research and development programmes ensure that farmers can rely on DeLaval to help them preserve cow health and support the production of quality milk. For more information, please visit www.delaval.com ***DeLaval is a company of the Tetra Laval Group.***

Thesis Project at DeLaval International – Supply Chain Planning

Headline: Supply chain planning policy for predictive maintenance

Background:

Robotics and automation are becoming increasingly fundamental in the dairy industry, which is typically affected by workforce shortages. This concern is heightened by ongoing geopolitical incidents and the impacts on the established trade relations between countries.

At the same time, in today's challenging environment, where dairy supply chains are disrupted by fluctuating utility costs and inflation rates, maintaining business continuity is paramount. Hence, equipment used by farmers in the sector are expected to be highly reliable, ensure high service levels and order fulfilment rates.

To counteract machines breakdowns, DeLaval needs to establish robust supply chains of spare parts to ensure high reliability while minimizing costs. Demand and supply need to be matched accurately to ensure that spare parts will be available in the right place, at the right time and quality. Workforce and tools have to be available and optimally scheduled to perform the maintenance or repair.
However, there are several concerns to be addressed, i.e. how to accurately forecast the demand? What inventory levels should be kept and in which parts of the network? How should the suppliers be diversified and contracted in order to avoid stock-outs and machines downtime? By addressing these elements, DeLaval could maintain high equipment reliability and minimize downtime.

These concerns have already be addressed by previous literature, however, the on-going digitalization process in the sector, and consequent implementation of an IoT infrastructure has increased the possibility for operators to collect historical data, as well as monitor equipment in real-time. The digitalization of the dairy sector allows for predictive maintenance, thereby enhancing efficiency and minimizing downtime. By using advanced technologies and data analytics to monitor the condition of machinery, dairy producers can identify potential issues before they escalate into costly breakdowns.

This proactive approach not only minimizes repair costs and extends the lifespan of equipment but also maintains consistent product quality and safety. Additionally, predictive maintenance contributes to sustainability efforts by optimizing resource usage and minimizing waste.

Your main tasks will be to:

- Project plan development: project objective, methodology, work packages (deliverables), time schedule, resource plan;
- Conduct a systematic literature review of supply chain planning, encompassing predictive maintenance applied to dairy business, including smart farming, IoT and data analytics;
- Design a supply chain planning framework on predictive maintenance applied to dairy business, considering real time data usage to support the replenishment decision-making process;
- Describe the major research findings;
- Final report.

Your qualifications:

- Student at KTH master program at INDEK

Number of students:
The position is located at DeLaval headquarters in Tumba, in the southern Stockholm. DeLaval expects to host 2 students.

Interested?

Send an email including your CV, a short 1-2 A4 pages thesis proposal, in your application until October 31st – 2025.

Contact persons:

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