

Keeping the Family Peace - a Planning Problem

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Imagine being in charge of organising an entire small city's family life. That is the context Alfa Laval is trying to manage where mastering production planning is similar to ensuring a well-organised family life. Ultimately, good planning is the backbone of a happy and smoothly-running household!

Master scheduling is like planning the family's weekly activities to keep everyone on track and stress-free. Material and capacity planning in a family context means ensuring groceries are bought, meals are prepped, and everyone has what they need for school or work. Production activity control (PAC) is like planning daily routines, and deciding who does what and when.

Alfa Laval is a leading global manufacturer of energy-efficient solutions. In their assembly factory in Lund, they manufacture gasketed heat exchangers that come in various sizes, shapes and forms with multiple customisation options. This master's thesis will explore the issues related to production planning at the company by finding areas for improvement to ease the strain on resources and make it more time-efficient. The planning stages analysed according to known theories were Master Schedule, material and capacity plan, and PAC. Much like in a family life where strategic planning is key to keeping everything running smoothly, effective production planning is crucial for success in manufacturing.

At the master scheduling level, the goal is to align market demand with production capabilities and involve forecasting activities. At Alfa Laval, this is done in two main parts: material and capacity. Material forecasts rely on historical usage. Capacity, however, is based on estimations from the sales departments. This creates a mismatch between purchased material and sourced capacity.

The theme of disconnecting material and capacity continues in the next planning stage; material and capacity planning. This stage aims to balance supply and demand which is challenging to plan without the link between material and capacity. The analysis in this thesis showed that there exists no material and capacity plan today at the company.

The next planning stage is PAC. Here, the transition from planning to execution occurs. Critical decisions regarding the release and sequencing of orders are made at this stage, to determine in which order the products are to be produced. It is at this stage that Alfa Laval experiences symptoms of the lack of a material and capacity plan. Even though the alignment is generally strong, the different perspectives concerning shop planning methods, particularly regarding sequencing ownership, created problems. However, at this stage, the issues are resolved through collaboration and experience.

In a family context, these problems ultimately mean scheduling daily activities and preparing for upcoming events based on predictions. It is like having only three pairs of shoes, four children and no picnic ready for an outing. Luckily, it is easy to go and get more shoes from storage, and picnics are your speciality. Collaboration and experience led to all four children being ready for the outing. The recommendation at the master scheduling level is to refine the planning processes to ensure consistency. Implementing a suitable material and capacity plan is advised, as it was not identified. Lastly, the recommendation at the PAC level was to refine existing routines by aligning decisions on sequencing. By implementing these improvements, the planning processes will lead the way to a harmonious and smoothly running household.