Competitive Advantage in the Corrugated Board Industry through Operations Management

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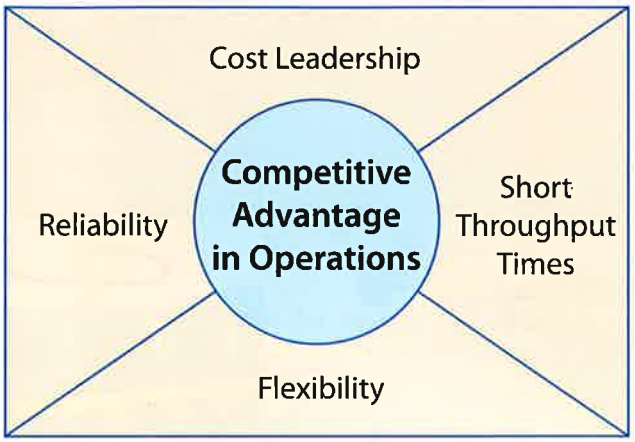
In recent years there has been a lot of talk about competitive advantage, something that every business seeks. Many debates more specifically focus on how operations management can deliver competitive advantage in different environments.

Competitive advantage in operations is normally defined around 4 major concepts:

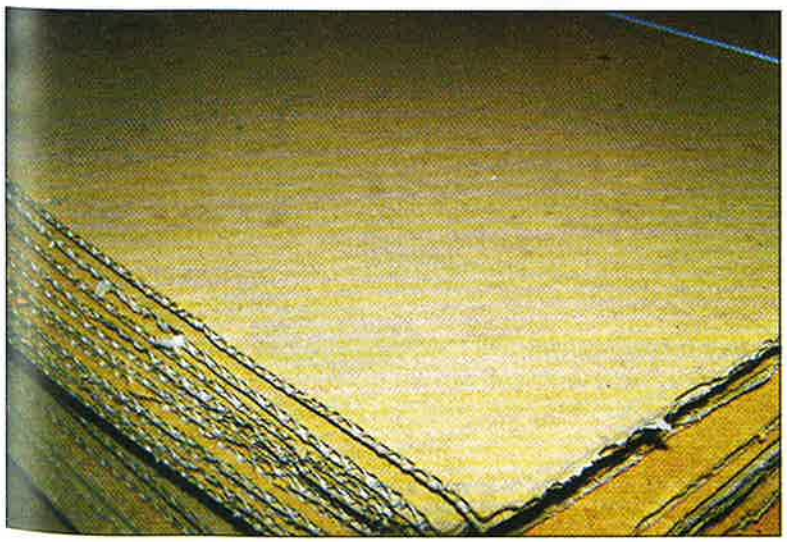


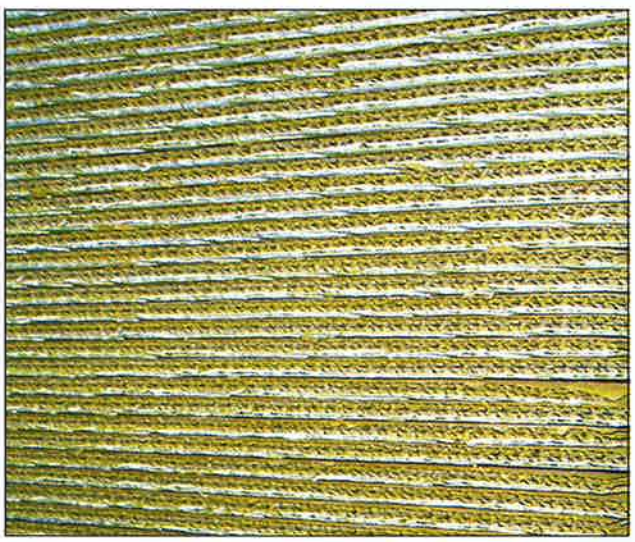
This article explains how to gain competitive advantages by using an advanced production planning and control system in the corrugated board industry.

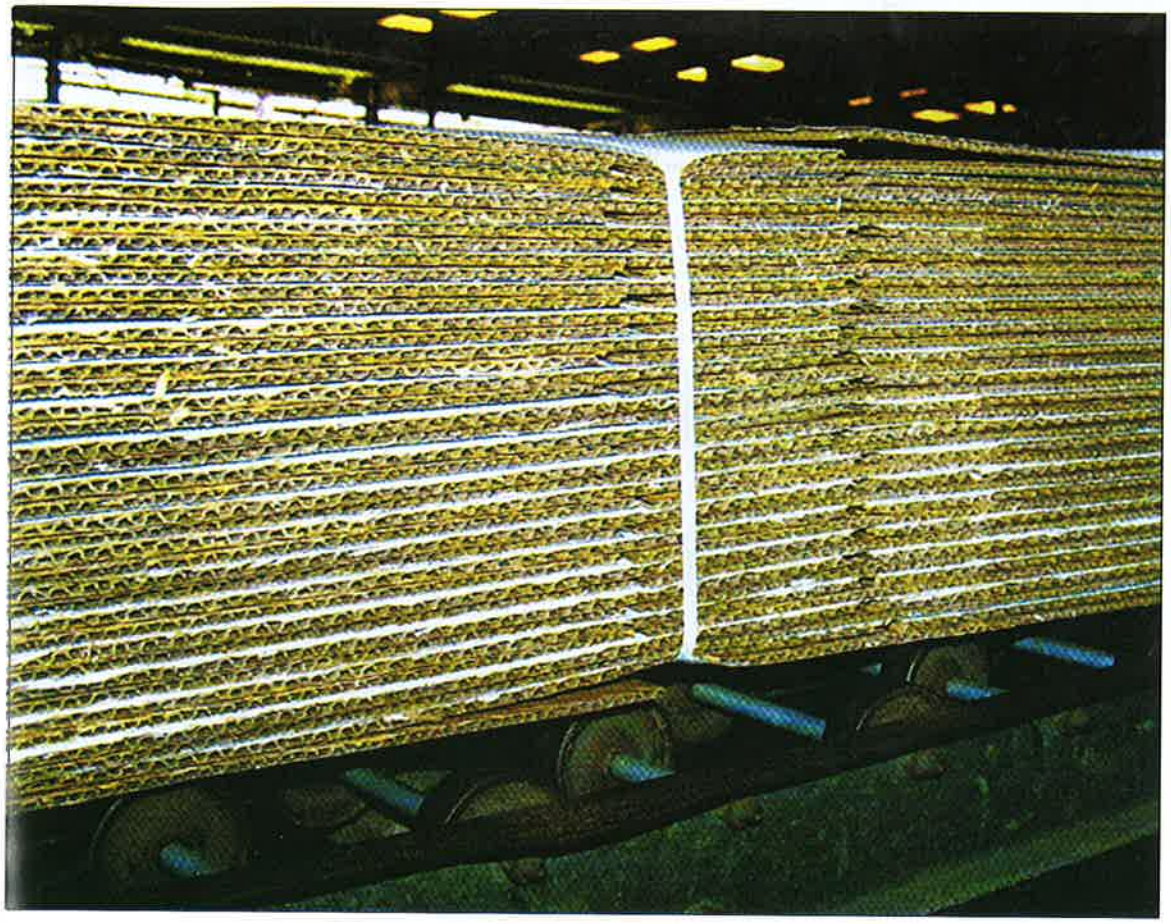
Cost leadership does not mean that you need to be the cheapest in the market. It is about giving the best price for the right kind of product/service. It can only be achieved when you know - and are able to maintain - the right cost for the right product. In this context, you should not only think about the cost of the box itself, but also about the service around it. Cost leadership can only be achieved through an efficient planning and control process.

Although many people think that the production of a corrugated box is a simple process, the planning of it is quite complicated. Planning a corrugated box plant requires taking into account customer priorities, production constraints, setup costs on various machines, trying to get as much throughput through the factory without overloading machines, looking at efficiency of transport, checking availability of raw materials, and so on. For a human being it is impossible to oversee all of these factors and their interactions. This causes that a planner always produces a sub-optimal plan.

A modern advanced planning system will, at the push of a button find the overall cheapest solution, based on a mathematical model. In contrast to a human planner, a mathematical solver is able to take into account all constraints. However, it is important that a user can at any point interfere, manually fix a part of the planning, and then ask the system to find







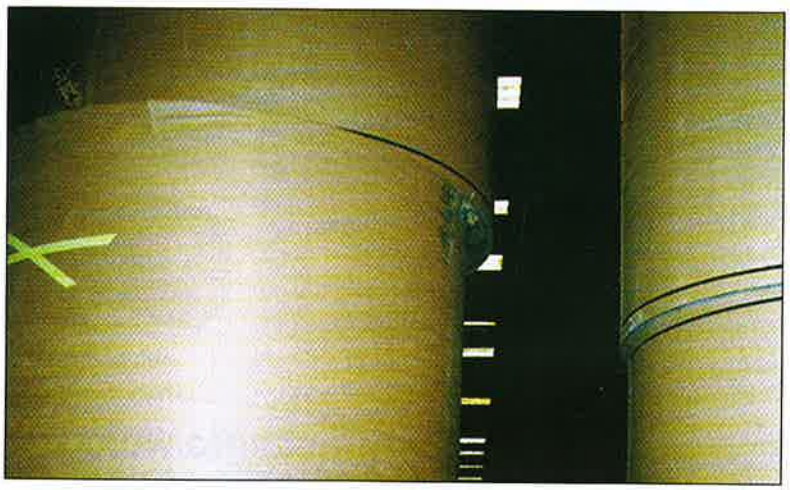
the best solution, taking into account his manual decisions.

Looking at corrugator production costs, trim is not the only, and in many cases not even the most important cost factor. Other costs linked to upgrading, over- and under production, paper changes or capacity utilization, need to be included when evaluating a corrugator plan. An advanced corrugator optimizer takes into account all kinds of cost on – or generated by – the corrugator to create a cost optimal corrugators plan. A user analyses the result based on a set of KPI's. Again, the user should be able to manually change a part of the plan, and optimize the rest around it.

An important way to get costs under control is the measurement of production performance, based on production feedback captured by a production control system. Such systems show performance info to the operator for current order and shift. You can stimulate production people by constantly showing them their actual performance (both speed and waste), and comparing this to historical values, such as the best speed at which the product has ever run.

Advanced reporting tools on captured production events help you to identify the major cost factors and zoom into the details.

Short delivery times are not only important to give good service to your customers, but they are also important in cost reduction. Reducing the time between order intake and delivery to customer will help you in eliminating waste and getting your procedures under control.



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A good planning process, both on the long term and the short term, starts with a sharp definition of demand. It is important to understand that there might be different types of demand, and that they all need their own approach. There is a clear link between the kind of service level you can give to your customers, the average utilization of the production facilities and the variability of demand (or the possibility to predict the demand). One can not promise 24 hours delivery to all customers, never have stock-outs and at the same time run an efficient shop where all machines are constantly planned for 100%.

A good forecaster tool will help you in analyzing and recognizing these types of demand. It allows forecasting your demand at several levels, by individual product, or per family or product type. Forecasts can be based on history to which you apply statistical techniques, or on marketing intelligence, gathered by your sales people. In many cases you will need a mixture of these two.

An advanced planning tool allows you to manage a mixture of make to order and make to stock business in an efficient way. It gives you on-line the shortest possible delivery time, based on your demand policies. During order intake, this information allows you to formulate the earliest possible delivery date without compromising production efficiency or service levels to other customers. Thereafter, the planning system is your best guarantee to be able to come up to the commitments made towards your customers.

Flexibility is a buzzword that is often misunderstood. Flexibility does not mean that anything is possible, at no cost. The result would be chaos, and would create lots of hidden costs.

It is important to understand the cost of flexibility at each point in the logistic process. As long as you haven't for example made a detailed planning on the corrugator, order changes won't cost much. On the other hand, adding an extra wet-end setup for a short run on the corrugator can generate quite some cost, although the trim of the setup by itself might be low.

The basic idea is to be very flexible up to a certain point, and then be very inflexible in order to guarantee reliability and keep costs under control. An advanced planning tool will allow you to set the right policies, and quickly evaluate the costs of a change.

For an advanced planning system to be able to support a flexible organization, a tight integration between the different planning functions is required. This allows the user to quickly create or modify a plan, and see its consequences throughout the entire organization. The user needs a view on the long term planning (all known orders) as well as on the detailed schedule. When a plan needs to be changed, for example because an urgent new order comes in, or an order gets cancelled, he can immediately see the impact of the change in a visual way, and he will see the cost consequences.

Reliability has to do both with the product and the process. Your customers must be sure that they can get the correct quantity and the correct quality of their product in the expected time, and this in a consistent way.

A production control system shows the operators all information required to produce the correct product. Using on-line visualization you avoid that people work with outdated product specs or drawings. In order to guarantee spotless quality to your customers, a good production control system comes with and embedded quality tracing system, which asks operators to perform quality check and follows up the results.

About OM Partners

The number one European production planning and control solution is provided by OM Partners. OM Partners is an international software and consultancy company, which has been active in the corrugated and solid board industry for almost 25 years. OMP offers a comprehensive and fully integrated production planning and control solution – the OMP Corrugated and Solid Board System. This system is built around the concepts explained in this article and is currently implemented in over 125 sites.

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We express our thanks for his immediate positive response and cooperation through this magazine.

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