

Endless Debate or Quick Action? Or: How Variant Management Can Help the Manufacturing Industry

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It should not come as a surprise that many American manufacturers are experiencing serious declines in sales revenue during the current recession. Undoubtedly, the sales volumes of the previous series of record years are going to be a fact of the past for a while. Many of the more than 2 million American manufacturing companies are experiencing life-threatening cost and liquidity problems, Chrysler and GM just being the most prominent examples, but by far not the only model cases. In this article we will discuss methods of variant management that can help do both, mastering short term cost and liquidity problems, as well as setting the path for the time after the crisis, when revenue growth will inevitably kick in again.

Most likely you are now thinking: “Not another article on crisis management”, “These guys are yet another company claiming to be competent in crisis management!”, “Yet another company claiming to be competent in crisis management”, or “This is all old news”. And YES, you are right, but what we are proclaiming here are things that we have been implementing successfully and sustainably together with our clients over the past twenty years. The current upbeat tone during this recession should not fool you; it is still imperative to deal with appropriate product planning and design that considers variant management. Because even when the first signs of recovery begin to emerge, this might not be a fast one.

With classical mass manufacturing shifting to low labor countries and foreign locations over the past few years, many domestic manufacturers now have a rather high product diversity coupled with relatively high value creation. Trying to satisfy individual customer requirements typically increases the number of variants and drives down the average manufacturing lot size. The current crisis is adding momentum to this trend as it gives more power to the few remaining buyers.

Of course, most entrepreneurs have already reduced their manufacturing and personnel costs over the course of the years. Along with a higher need for customization in a downturn market, reduced staffing can lead to significant bottlenecks along the engineering and manufacturing processes. To overcome them and ensure

the profitability of shipped products, stringent product variant and complexity management can be of greatest benefit.

Variant Management Controls the Positioning of Products

In order to optimize the future profitability of products, a continuous review of all products and processes is required. In the short run and as long as the market remains in a downturn, there may be no avoiding offering your entire product line for sale in order to cover your fixed costs and keep your entire labor force busy. However, now is also the time to think about what to offer in the mid and long-term.

The first step is to quickly identify those markets, customers and products that are clearly profitable. This also means identifying which markets to exit, which customers to cut, which products to eliminate out of the portfolio, and which products to strategically develop further. This may even include adjustments to the sales and distribution channel, i.e. getting rid of dealers and agents not contributing a good share of sales. In a second step, the company growth can be planned and developed based on a consolidated cost and revenue basis that is founded on sustainable products (Fig. 1).

For both steps a practical and lean methodological framework is necessary in order to consequently do the

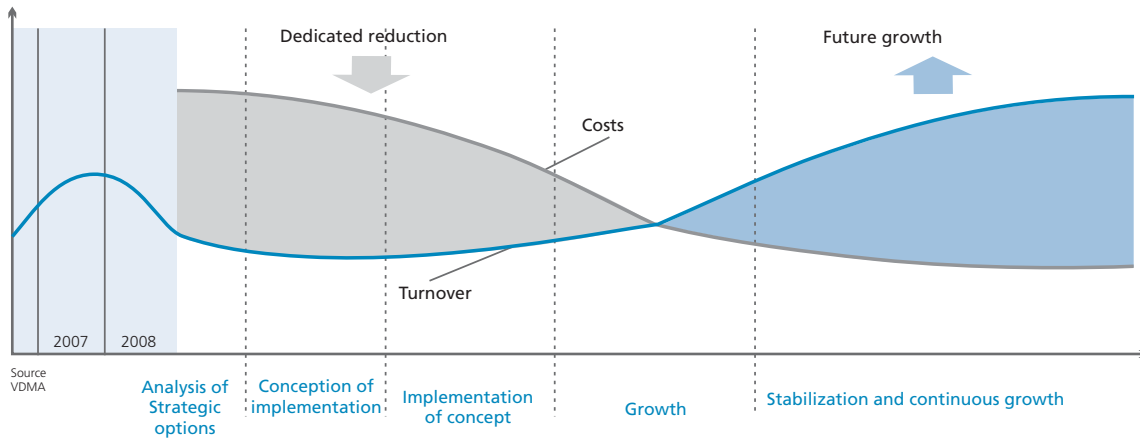


Figure 1: Steps for product and process positioning

right things. Our vast experience in working with and implementing these topics can help you hit the mark and gain a deciding timely advantage in comparison to your competition.

In a typical project as described in the Baldwin case study (see article Success through Renunciation), we re-evaluate your product and market strategy in the first weeks and identify exact measures for improvement. Your company's strategic positioning and core competences along with the value stream of all market segments are examined. At the same time market demand in conjunction with internal projects for new product development and innovation is examined. In addition, we verify whether procurement alliances are a possibility resulting in further optimization of the profit by using economies of scale for standardized products and services. This strategy also helps to reduce investment risk and at the same time give the company a chance of being actively involved in shaping sustainable trends.

Reassessments Are the Basis for Decisions

A thorough analysis of your product portfolio in the form of a Feature Tree provides a good evaluation of the market performance of your products. Scenario techniques are then applied to derive decision-relevant information (Fig. 2) that avoids eliminating products across the board instead, those products and vari-

ants that will perform above average in the future are identified. At the end of this process, all products are classified as either "sustainable", "questionable" or "eliminate".

By making a quick and precise selection of a reassessment scenario with tangible measures, an implementation can free-up capacities right away and immediately lower inventory in production.

Special attention is then paid to product variants marked for elimination that will return no profits in the short-term (e.g. new product launches), but may potentially mutate into profit-makers over a certain period of time. To analyze them further, a cost adjusted assessment is performed on both, the product and process-level, employing methods like value analysis, product comparisons or creativity techniques. Of course, an important prerequisite for the product assessment is a realistic target price, comprehensively determined based on market characteristics and customer requirements.

Once the future range of products is determined, the following step optimizes the remaining products and variants in order to allow for maximum customizability at minimum cost. In other words, to implement an overall product architecture that provides the necessary level of flexibility to adapt to customer needs while keeping the internal complexity (i.e. number of SKU's and different process flows) under control. The typical tools to be

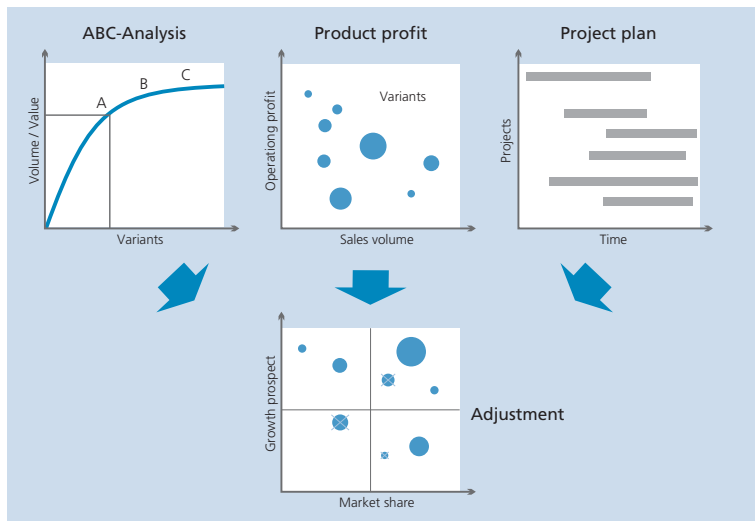


Figure 2: Systematic adjustment of the product portfolio ensures profit

used in this phase are functional analysis, modularization, optimization of pre-assemblies, and change of the assembly sequence. Using a model showing the technical implementation of all product variants, a Variant Tree, along with some simulations, usually is most beneficial for streamlining the technical complexity of a given product family. The resulting development and manufacturing costs are usually analyzed using costing methods that provide a cause-fair assignment of cost to each variant, e.g. activity based costing tools.

To exploit the full potential of improvements of the product structure, usually some adjustments of the processes are necessary as well. Thereby the focus lays on a purposeful orientation along the value creation chain. Following Lean Management principles, the goal is to eliminate waste by removing processes that are not well structured or inefficient. Such processes may exist in both, the direct labor area as well as in the business processes, e.g. custom engineering, administrative order processing, etc. The clearly stated goal for all optimizations is always the production and delivery of economically sound products to ensure the long-term success of the company. Typical methods used for process optimization include value stream analysis and the examination of drivers of unnecessary process variants. All necessary activities of sales, purchasing, product engineering, production planning, logistics, manufacturing and assembly, shipping, and other administrative task can be leaner, e.g. by eliminating unnecessary loop-backs and idle time.

Well optimized processes provide a further reduction of proportional as well as fixed costs. Furthermore, a significant acceleration of order processing is likely achieved. This results in reduced order lead time, possibly higher on time delivery rate as well as a higher level of liquidity due to less capital employed in raw materials and semi-products.

Typical results as realized in a large number of projects show:

- A 5% - 20% reduction of production costs of complex components
 - A 10% - 40% reduction of delivery times
 - A 20% - 50% increase of on-time deliveries
 - A 10% -30% reduction of inventory
 - A 5% - 20% reduction of overhead costs
- Thus, an overall improvement of the marginal return between 10% - 30% can normally be achieved

After implementing the above described methods, your company has an entirely new cost base that enables you to tackle the next steps in a more focused manner. Now the focus lies on aligning the internal complexity in a way to ensure your company's long-term success.

Attack Is the Best Defense

After implementing the above described building blocks, your company has an entirely new cost base that enables you to tackle the next steps in a more focused manner. This is the perfect starting point for aligning the internal complexity in a way that ensures your company's long-term success.

True to the slogan "Developing is like swimming against the stream, if you stop, you drift off course" it is now important to follow the course that is set for the future by continuously re-applying the above building blocks.

To generate additional growth, the product and services offering is expanded in a designated manner by selected positioning of new variants, products or services in existing markets and /or an introduction into new markets. The key here is to adjust the growing variety of your offerings efficiently and sustainably with the help of strategic product and process planning methods (e.g. market and technology scan, business segment planning) and "lean innovation" activities.

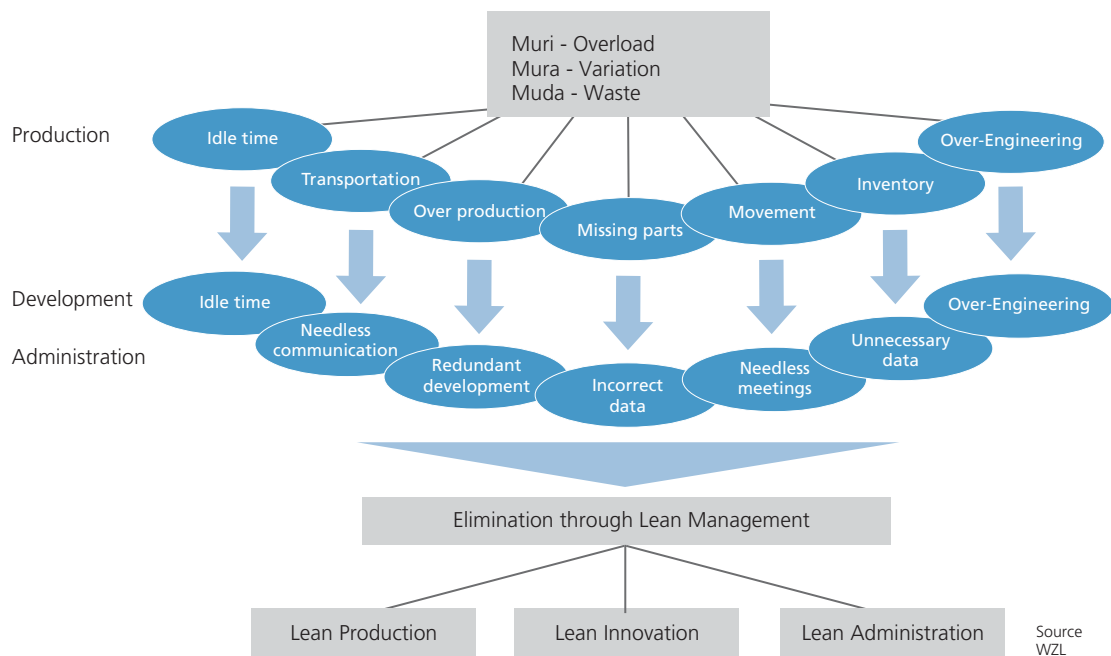


Figure 3: Nobody pays for your waste

Striving for Perfection

In conclusion, the goal is to keep the direct and indirect processes in your company simple and without waste despite growth and targeted variant build-up as well as continually improve them. Ultimately you want to do more than just survive this crisis. Against the background that no perfect solution exists, only the pursuit thereof, a constant questioning of existing solutions for improvement is achieved. Avoid falling back into self-defeating old habits and patterns.

A constant control of your implemented “lean” activities is a prerequisite for a sustainable, successful and strong firm (Fig. 3). Utilize the opportunity that a time of crisis offers to you by creating transparency of your products, processes and structures. The above introduced approaches and solutions make an implementation-oriented and pragmatic contribution to give your company the needed momentum to survive the current crisis.

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