

# Seradex White Paper

*A Discussion of Issues in the Manufacturing OrderStream*

## **Product Line Configuration Management**

### **Management**

Your success depends on identifying the most profitable set of product variations that will satisfy customer demand. Seradex's Product Line Configuration and associated analytics provides analysis, and optimization to maximize the performance of your business.

### **Introduction**

There is an explosion of mass customization in the marketplace today. There are more features, options, sizes and colors. New product variations are introduced more rapidly than ever before.

While product offerings are increasing pricing has been decreasing. The challenge you face is shorter production runs, more setups that escalate costs.

A company's final set of product offerings is one of the strongest driving factors in the overall profitability. The product configurations offered by a company has an impact on revenue due to how well it satisfies customer demand, and an impact on cost due to the resources and materials required to build, deliver and support it. In most companies today the product configurations for a product line are derived manually, with little understanding of its implications to cost and revenue. To ensure profitability and to maintain a competitive position, companies need to address the core question of 'what is the most profitable set of product offerings for the customer?'

A company's success rests on the performance of its product lines. To compete effectively today, companies need a reliable way to determine the most profitable set of product offerings that will satisfy customer demand.

The Explosion of Product Offerings Sifting through the possibilities

Companies have been very quick to broaden their product offering with added products, features and options. A simple Vinyl Casement Window is offered in 10 widths, 10 heights, 5 colors, 16 types of insulated glass and 10 hardware locks. This amounts to 80,000 separate combinations!

### **How many Product Configurations should you offer?**

The speed of communication and the growing expectations of the customer drive mass customization. If you won't offer the choices your competitor will – and your customer can easily find a supplier with a simple search in Google.

While mass customization is the dream for every customer– it can translate into enormous costs on the make and deliver side. To process this economically requires automation from Estimating, Order Entry through Production, Purchasing and Inventory Control. On the services side, the companies would need the ability to service individualized product offerings economically.

## **Optimizing your Product**

**Configurations:** *Maximize profitability while satisfying customer demand*

The size of the product configuration explosion depends on the complexity of the product and the number of levels in its production and delivery cycle. In manufacturing, the more levels there are in the production cycle, the more opportunities for parts and component proliferation. Or, if the product has a very large number of features and options, parts proliferation can occur within a single sub-assembly process.

The proliferation of configurations results in additional cost and complexity of the process, which will eat away the profits – if it is not automated.

The critical factors that an ERP system must provide to support mass customization includes:

- Dynamic Bill of Materials generation
- Parametric components
- Control of Buy to Stock and Buy to Order parts

Seradex's technology can determine all the possible valid customer orderable configurations. Given cost, customer demand and revenue data, Seradex's technology can determine the optimal set of final configurations to maximize revenue while minimizing overall product cost across the enterprise. You can streamline your offerings on end-item configurations based on customer demand, price points, segment, and competitor's offerings.

The proliferation of configurations results in additional cost and complexity of the manufacturing and delivery process, which can eat away the profits. To address this, companies must evaluate the number of configurations that are being created/handled at each level of the process, and across the enterprise, with the goal

to satisfy the customer with the most economical set of configurations. This can be done at the parts level, component level, product level, services level and across the enterprise for an entire product line.

## **How can you Optimize Product Configurations to maximize profitability?**

The problem of streamlining product configurations across the enterprise is complex. The impact on costs of configuration "creep" is very high, and companies periodically attempt to control it. The most typical approach is to streamline configurations on the basis of low sales volume or low margins. Companies also streamline offerings by eliminating features and options. The problem with these approaches is that they typically sacrifice more market share than necessary. The result is reduced revenue and, invariably a company backlash of introducing more product configurations.

Streamlining configurations across the enterprise is complex because a complete solution approach needs to take into account:

1. Customer demand
2. All valid product configurations
3. Economics of make and deliver for the product, component or service. (Parts, non-parts cost and revenue)

Optimizing product configurations across the enterprise is a very complex problem that needs to address customer demand, product configurations, and the economics of make and deliver. Crude methods of solving this problem can result in loss of customer demand and market share and reduced profitability.

### ***The Seradex Product Configurator Solution***

Seradex's Product Configurator Solution builds a dynamic costing model of all available options and choices so you know your exact cost on every sale.

### ***Economics of manufacturing, delivery and support***

The most important part of the model is the economics that drive these decisions. The Seradex economic model takes into account the costs of making and delivering the product. These include the cost of parts, and other costs such as labor, inventory, warranty, and shipping. For services these costs include the costs of resources to deliver and support the services. The economic model also incorporates the revenue, in the form of a detailed pricing structure used to price the various product configurations.

Seradex simultaneously models and optimizes all three major components, enabling a company to be assured that the configurations chosen are the right configurations to satisfy the customer demand, while taking into account the economics that go into making and delivering it.

### ***The Pain of Status Quo - Do we need to do this? Now?***

Most segments of the manufacturing industry are experiencing an unprecedented capacity glut, with a softening of customer demand. Unfortunately, this period was preceded by a period of enormous growth, where companies aggressively expanded products lines through internal growth and/or mergers and acquisitions. As a result most companies are now faced with a ballooning cost structure, proliferation of parts and products, and a customer base that demands their ideal product at the lowest price.

Optimizing the configurations of products and services the company offers, and streamlining the material pipeline is a necessity for companies to ensure continued profitability and to maintain a competitive position in a world of ever increasing competition and profitability pressure.



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