

Crime Scene: Complexity – A Thriller about Variety

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Abstract:

If you do not follow the standards of Ernest Hemingway, you can read in this article, which experiences were collected during a successful project to reduce the variety of product articles.

Author and Contact:

Norbert Große Entrup, Partner, Schuh & Co. GmbH
Phone: +49 (0)2405 459 02
norbert.grosse-entrup@schuh-group.com

Schuh & Company
Complexity Management

Crime Scene: Complexity – A Thriller about Variety

Norbert Große Entrup

This article does not claim to be a crime thriller to be leisurely read in the evening or weekend. Even though the handling of complexity in the business environment often creates the appearance that as many suspects as accomplices exist.

New products in partly new marketplaces serve customers and even very individual customer requests are considered. Over the time, the product complexity constantly increases in the traditional market segments until it is almost unmanageable. This situation is intensified by the phenomenon of more frequent product life cycle and the resulting quick releases of new product models. The analogy to a crime thriller holds true when taking into account that perpetrators and accomplices are victims at the same time.

The Suspicion

Looking far enough back at the history of enterprises, the picture of a healthy enterprise with stable growth and balanced product portfolio frequently emerges. Repeat this exercise for your own company. Coming closer to the present, it becomes obvious that growth slowed, until it finally seems to disappear. As a result, companies very often try to conquer niche markets and generate more business with new products. In addition, the portfolio was enlarged by adding services, promotions, etc. The number of production sites as well as the sales organization increased through mergers & acquisitions and the increase in sales. Increased demands on quality entice extensive solutions to the problem. In the end: the complexity grew!

In turn it is often noted in incidental analyses that while the sales volume doubled through the launch of some 30 articles for example the contribution to operating income remained constant. Even when inquiring about product differences within the sales department, a plausible explanation of the differences between the individual articles cannot be given.

An overview of the product portfolio is no longer available. Likewise, the complexity in order processing grew and the throughput time does not meet the expectations any more either. Controlling instruments (often in Excel format) reach a degree of complexity that leads to unexpected and no longer comprehensible error messages, which cannot be explained by Microsoft either.

Tracking down the Troublemaker

At this time the company started a project (which serves as an example), to track down the troublemaker.

During the analysis of the initial situation the following emerged:

- The product mix contained 224 products for domestic and foreign business
- 95% of the business and 98% of the DB2 are generated by the top 20 articles
- The product complexity had a negative effect on the production processes and cost structures
- Guidelines and processes for new product launch and product phase-outs were missing

The goals for the project were closely aligned with achieving a sustainable increase of the profitability and were defined as below:

- Reduction of the product mix and a simultaneous optimization of the production lines and common cost structures
- Introduction of a new product launch and product phase-out process to avoid a ballooning product line in the future

After several pre-analyses two approaches to achieve a complexity reduction were consulted. Step 1 included the reduction of products without profit margins and step 2 concluded to verify the functionality and product function integration.

Step 1 included the phase-out of the products without a considerable profit margin. In this case, the profit margin was not calculated along the traditional lines; rather costs were distributed cause-fair. A quick analysis of the efforts in the indirect and direct corporate divisions per product provided the necessary input to determine minimum turnover based on the established complexity costs and expected profit contribution.

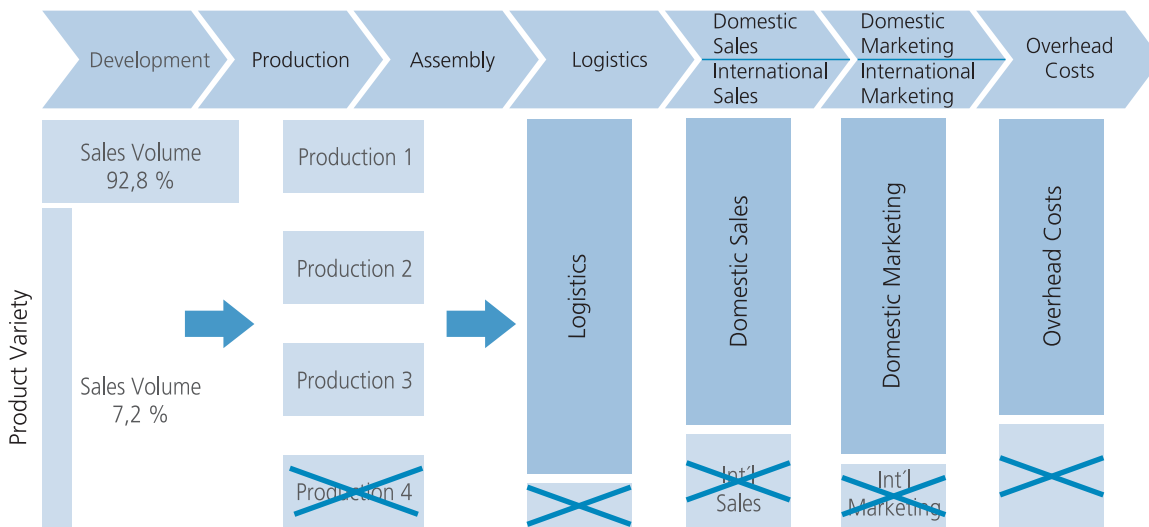


Figure 1: The Reduction of 17 Items Would Have Structural Changes as a Consequence

Step 2 comprised a detailed analysis of the product functions. The existing product variety became transparent and possible alternatives for the reduction of the product variety while still maintaining customer requirements were created. These scenarios were discussed with the sales districts and in some cases regional characteristics were temporarily allowed.

The application of both steps led to a clear reduction of the variant variety.

The Proof: What Are the Savings?

Another challenge in the project was represented in quantifying the savings potentials. Thus, scenarios were created:

- Scenario 17: Only the top 17 products remain. Leading to a remaining sales volume of 93.6% and net yield of 93.7%.
- Scenario 25: Only 25 articles remain, corresponding to 96.5% of the sales volume and 95.3% of the net yields.
- Scenario 75: In that case 75 articles remain, equalling 98.9% of the sales volume and 99.2% of the net yields.

All scenarios were determined in detail. Scenario 17 should act as an example to illustrate the procedure.

Scenario 17 had important effects on the organization. Large parts of the production would have been closed and considerable changes in the indirect corporate areas would have been caused. Figure 1 shows the approximate extent of the considerations. Of course, this scenario provided for considerable discussions in the enterprise.

The effects of the scenarios were estimated and the lower net yields were compared to the savings in direct materials, production and logistics as well as marketing and sales.

Thus, all scenarios were evaluated and it was decided to proceed with Scenario 75. The potential effect of the individual scenarios are shown in Figure 2.

Pre-Trial Confinement

A second essential aim within the project was the introduction of a process for new product introductions and product phase-outs in order to avoid an explosion of the product in the future. For this purpose a process for the introduction of new items was defined. It contains a procedure that describes how the future decision making process should work. An inquiry to establish a new item by the sales department for example now had to contain an extended product cost and complexity cost analysis, a payback period and a

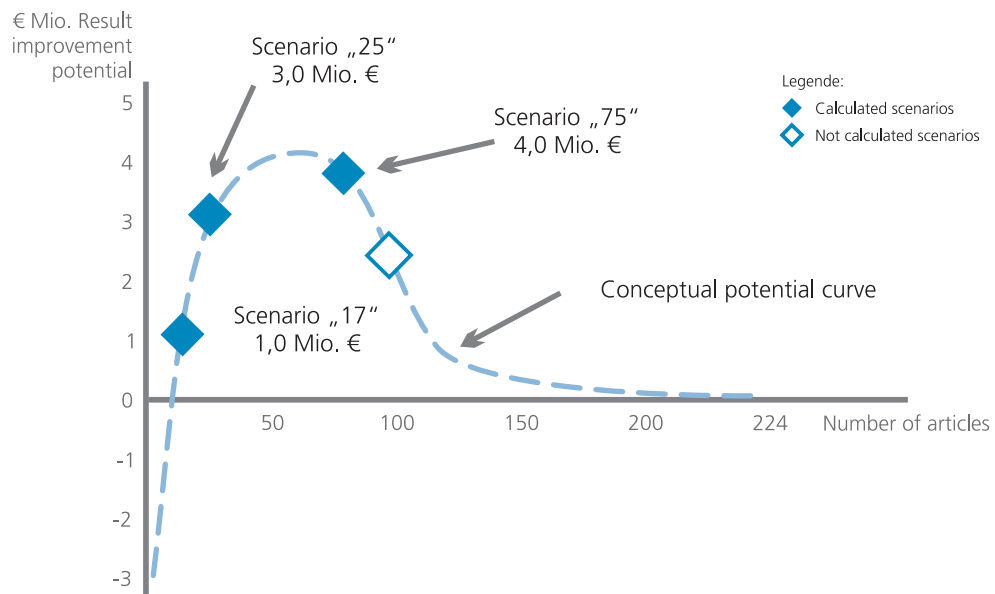


Figure 2: Potential Effect of the Scenarios

functional analysis. A distinctive feature of this project was that the decision making process was featured in the intranet and supported by documents.

To keep the existing item variety in-check, it is reviewed once a year:

- The minimum quantity of an item is defined on the base of the complexity costs and the expected contributions to operating income. Deviations are not permitted
- The limits regarding marginal contributions are documented in a form
- Based on these limits an article phase-out list is compiled
- The decision about the article phase-out is made by the controlling
- For deviations with the opinion of controlling, a written statement has to be submitted to management. The decision is then management's responsibility

Not always Law-Abiding

At present, theory and practice are not the same. Meetings between the customer and executives pose the largest "risk". Commitments made during such conversations can easily turn into facts. A feasibility analysis by controlling can then only point out flaws.

Even retroactively tailoring products to demands outside of the production areas circumvents the process since at first a standardized product is delivered.

But also here work is being done, allowing for an improvement during the next reporting period.

Conclusion

Through systematic analyses and consistent reasoning, the potentials of complexity management can be raised. A long search for initiators only delays the success. After all, an enterprise reacts as a whole, just blurring the line between perpetrators and victims.

Contact

Norbert Große Entrup

Phone: +49 (0)2405 459 02

norbert.große-entrup@schuh-group.com