



Even a Perfect Cut Does Not Last Forever – Permanent Success Demands Constant Care of the Product Portfolio

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Schuh & Company offers a holistic approach to structure product complexity: ranging from defining strategic objectives, to managing the life cycle performance and the involvement and intrinsic motivation of all employees. Managing variety is comparable to getting a haircut. Once a year or just for special occasions is simply not enough. Not staying on top, leads to lost opportunities.

Every manufacturer wants to serve its customers by providing them with new products that they want. At the same time, new products allow companies to enter new markets. Manufacturers often consider even the most exotic customer requests when developing new products. Consequently, the product diversity in a company's traditional business segments increases steadily and eventually becomes almost unmanageable. The tendency towards more frequent design changes and shorter life cycles makes the situation worse.

When taking a look at the history of business ventures, most often a picture of a healthy company with stable growth and balanced product portfolio will emerge. On closer examination of the more recent history and the current state of the company, it becomes obvious that growth slowed and eventually came to a halt. Company management then tried to penetrate niche markets with

new products in order to generate more revenues. In addition, the product portfolio was expanded (new products, additional services, etc.). In the past the number of production facilities and sales organizations increased through mergers and acquisitions, as well as through sales growth. Furthermore, rising quality requirements induced complicated technical solutions. Ultimately the complexity increased without apparent consideration for the implications such changes would have on the overall performance of the company.

Time and again attempts are made to minimize the increased product complexity with classical approaches such as ABC-analyses of individual product lines, standardization and modularization approaches, product profitability analyses (which do not normally account for the true costs of product variants), etc.

Over the years, Schuh & Company has accompanied a large number of projects to optimize product complexity. We repeatedly notice that the classical approaches are neither profound enough, nor do they generate permanent results. To stick with the analogy: after receiving a haircut, the hair is shorter but the styling is still not right. Both, the client and the stylist are not entirely satisfied.

Holistic Views Are Required

All efforts are in vain if a holistic view and approach are not applied. Based on our project experience over the past years, as well as current surveys on the topic of product complexity, we have developed an approach that surpasses the successes of previous methods.

Our approach consists of four dimensions that build onto and complement each other (Fig. 1).

The core dimensions of the approach are:

1. **Product strategy:** The goals and visions, which can be deduced from strategic business objectives and will have effects on the design of products, processes and organizational structures.
2. **Product differentiation:** The product differentiation can be deduced from external and internal design options and provides the basis for the design of the product architecture.
3. **Product architecture:** The product architecture is the implementation of external and internal design options into producible and economically successful units.
4. **Corporate Culture and Employees:** Change projects have to be supported by those affected. New approaches, self-supporting decisions, and the strong desire for successful transformation are important success factors for a long-term and effective optimization of the product complexity.

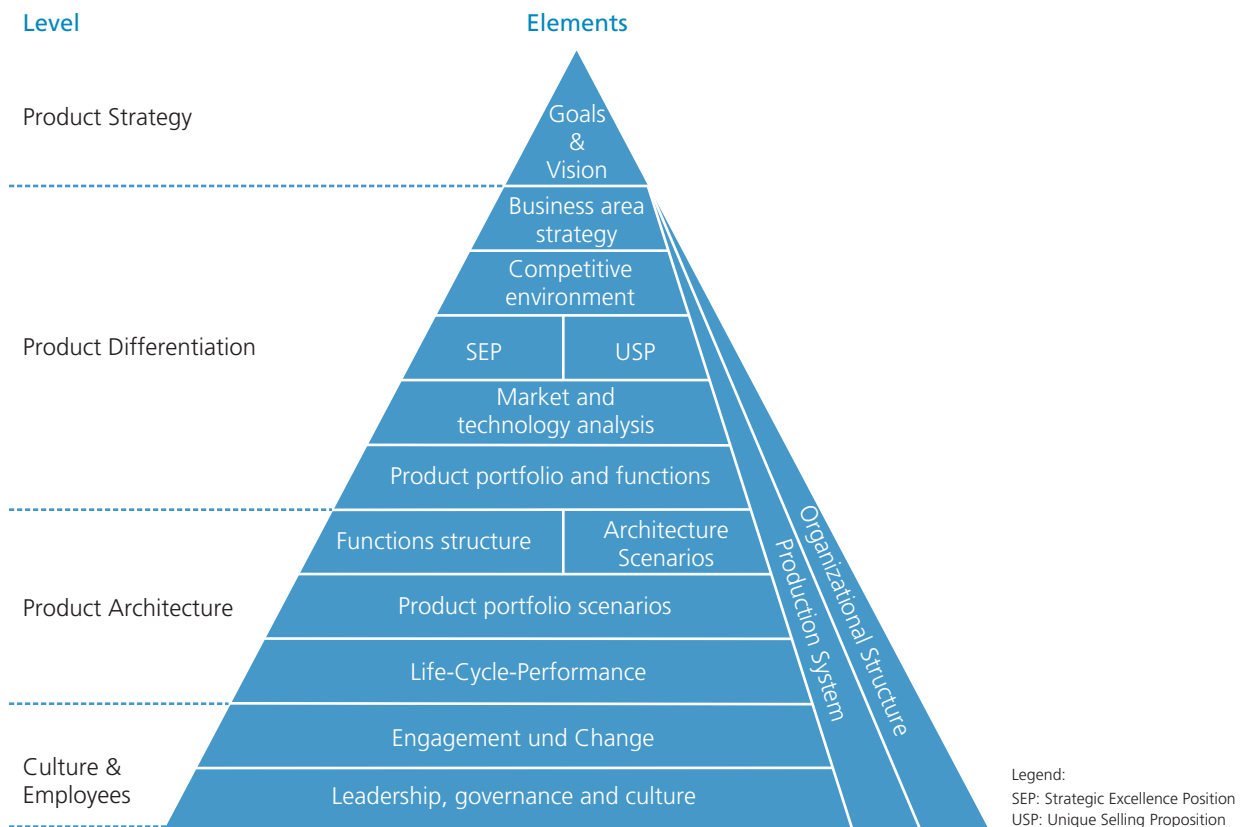


Figure 1: Levels to Ideally Shape the Product Complexity

An aligned organizational structure and an adequate production system form the framework.

1. Derive and Shape the Product Strategy

The product strategy has to be derived directly from the business strategy. Over the mid- and long-term it should determine how the products are to be positioned in the market in order to be successful. For this reason the product strategy has a strong influence over all product differentiation activities, the design of the production system, and the organizational structure. Thus, it has to be the starting point of all considerations.

The deduction of the product strategy from the business strategy calls for particular diligence. The building blocks of the St. Gallen Management Concept provide valuable support for this task. Using the model's three management levels (normative, strategic, and operative), it is possible to derive a product strategy that is as consistent as possible with the business strategy, thereby adequately, considering the aspects of an appropriate complexity strategy.

2. Product Differentiation as a Prerequisite for an Ideally Designed Product Complexity

The served markets have different product requirements. Thus a suitable approach is necessary when determining the product differentiation (Fig. 2)

Schuh & Company, together with the University of Aachen developed a workshop series for that purpose. Using these workshops including some necessary preparatory analyses, the prerequisites for a complexity-optimized product differentiation are available. The main goal is to completely match the product variety demanded by the market.

3. The Product Architecture

When designing the complexity-optimized product architecture, four additional steps are employed:

- Defining the functional structure
- Configuring architecture scenarios
- Defining of product portfolio commonalities
- Ensuring the life-cycle-performance

It is important to stick to the basics for the product architecture design. The goal is the implementation of the market-required product programs and functions. However, in many cases the industry tends to lean towards "Happy Engineering", meaning there is no implementation that could not be realized in a more elegant and polished way. Therefore, a clear focus on true requirements as well as continuous monitoring of the engineering task using quantitative instruments such as the utility analysis is necessary.

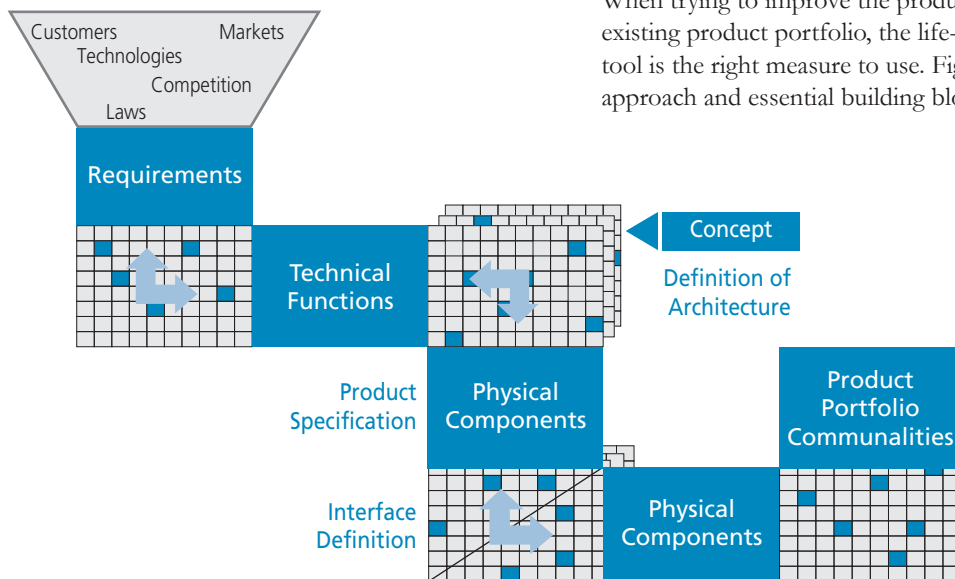


Figure 2: Six Steps to Product Differentiation



To design the appropriate functional structure and to create and evaluate architecture scenarios, Schuh & Company has developed unique software tools. At the start of the process, the required product functions are translated into physical components with the help of a matrix and under consideration of the architecture scenarios (Fig. 3). Here, the “Complexity Manager” software comes into play. The tool allows for matching the functional structure with modules for additional visualization and optimization. Once the optimum is reached during the planning stage, the next step requires the implementation of the physical components. In this phase, the Complexity Manager also provides support for visualization and optimization of the parts variety effects in production and the supply chain.

Based on these decisions the product portfolio commonalities are configured. These govern the utilization and re-use of components and modules in the overall product portfolio. Likewise, KPIs are determined that are necessary to achieve a high life-cycle performance.



When trying to improve the product complexity of an existing product portfolio, the life-cycle-performance tool is the right measure to use. Figure 4 depicts the approach and essential building blocks for this effort.

Figure 3: The rules of the product architecture have to be designed in accordance to customer requirements, without conflicts, and continuously maintained

4. Corporate Culture and Employees

Over and over we experienced that barriers in culture, cooperation, and leadership appear when developing a new product line or when increasing the life-cycle-performance of an existing one. These barriers tend to inhibit the development of a sustainable, complexity-optimized product portfolio.

Complexity optimization projects should be seen as change management projects at the same time. An active and sensible involvement of the organization and its employees is therefore of major importance in order to

overcome certain barriers such as: "The existing variety of products was developed for the good of the company," "Why should it now be optimized when all the money for development and implementation has already been spent?" "After all, there are always customers who are looking for those specialty products!"

Taking expert knowledge about the human and change situations into consideration, an approach was developed that can be adjusted for the cultural environment of each company. Only when this is achieved, a sustainable product complexity can be achieved.

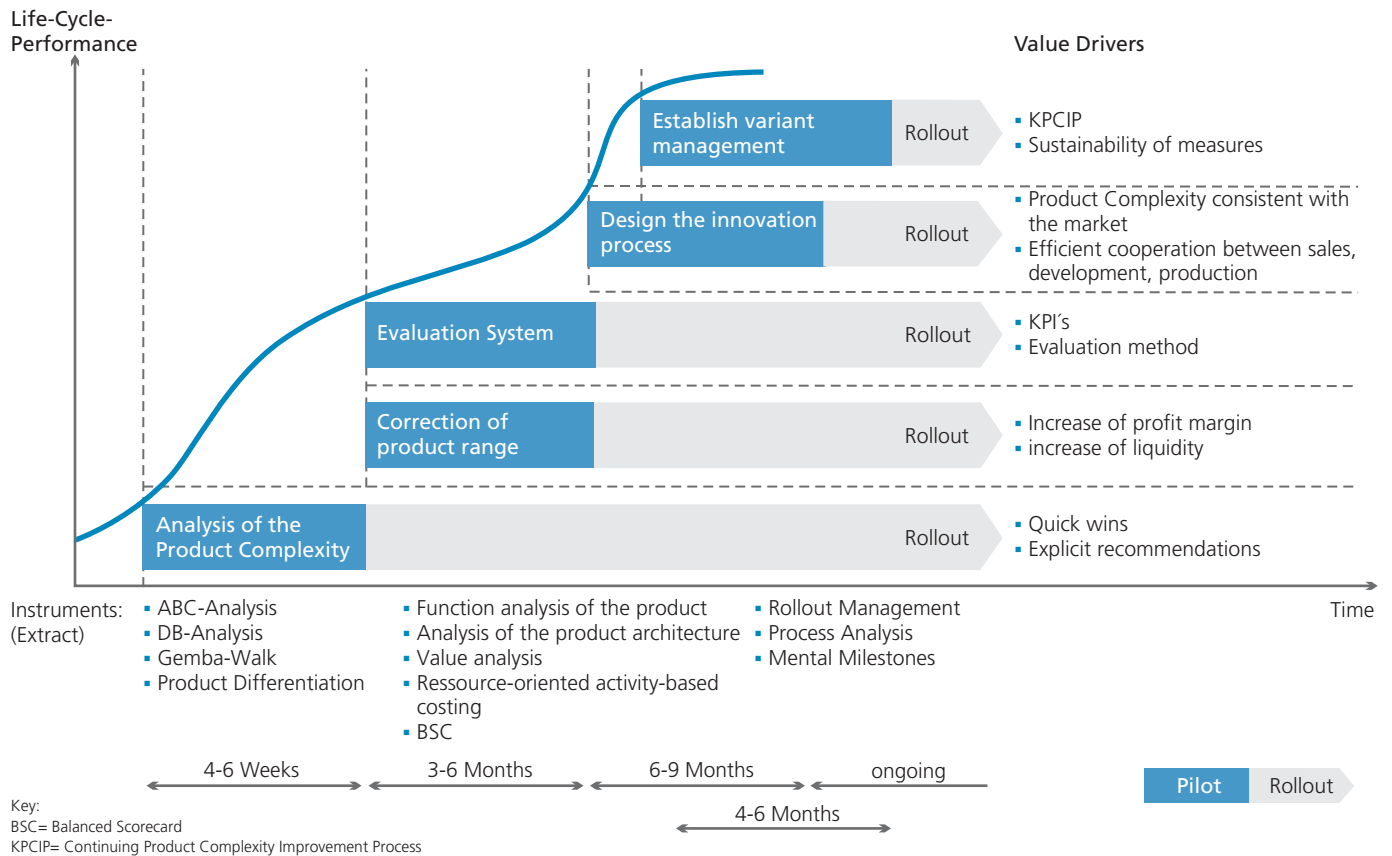


Figure 4: Building blocks to reach high performance life cycle management

The Scope

The product program complexity does not remain in an optimal state on its own, it is always growing. It is just like with your hairstyle: not getting a cut for a few weeks, or even months, leads to an unfavorable hairstyle. A new cut is necessary which overall requires more efforts than constant care. Furthermore, opportunities to meet interesting people might be missed because of the unfavorable look. For the product portfolio, it is necessary to create an appropriate management framework to keep it within scope. Responsibilities need to be assigned to carry out a continuous optimization. Some of the methods and organizational measures involved are described in the article “Endless Debate or Quick Action” in this issue of the Complexity Management Journal.

Being Sustainably Successful – Four Recommendations

For the product complexity to stay optimally configured over an extended period of time, four basic aspects should be considered:

1. The product strategy has to be in line with the business strategy.
2. The product complexity has to be clearly aligned with the market and customer requirements.
3. The transfer of product functions into physical components has to follow a logical system. The goal is to have a superior life-cycle-performance.
4. The corporate culture and employees are to be involved adequately.

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