Marcel Schlimme | 20.02.2014

PRODUCT VALUE DESIGN: AVOIDING COSTS IN THE CONCEPT PHASE.

Product value design in the early development phase as a strategic competitive advantage.

In the current positive economic climate, many companies are focusing intensively on bringing products to market as quickly as possible and, as a result, are neglecting measures to ensure that cost-effective value design is anchored in the early development phase of each of these products; this trend is strengthened by capacity shortages and sub-optimal resource use. **At the same time, up to 80% of the final product costs are caused during the development process and signed off at this early point.**

POLARIXPARTNER excels at supporting clients in this decisive phase, offering professional, efficient product value design to help secure ambitious costs savings targets. Our consultants apply their experience of numerous project and management situations to examining current processes and optimizing them for future projects, without requiring more than 20% of your organization's capacity. Customer-orientated value design projects successfully completed in the concept phase by polariXpartner to date have shown that our clients can expect a return on investment as early as three months down the line.

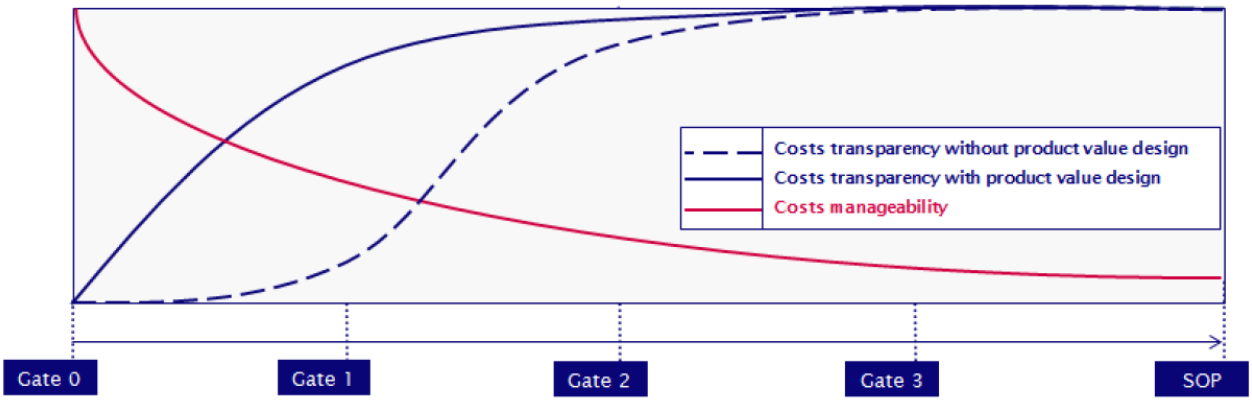


Figure 1: To what extent costs can be influenced during the product life cycle

Start taking preventive measures now: the later on in the production cycle you try to reduce your costs, the greater the expenditure and capacity you will need to invest in so doing!

1| INITIAL SITUATION

In our experience, the following situation applies to many companies in the manufacturing industry:

- In the early construction phases, preliminary solution concepts are developed without any detailed costs transparency, despite the fact that 80% to 90% of product costs are created at this point.
- The driving force behind the product is generally to be found in new technical concepts either born of steps forward in innovation or developed from benchmarking competing models; at this point, costs further down the line are not the main concern.
- The potential for influencing costs gets lower as product development advances, while costs and outlay for changes to the product get higher at a disproportionate rate.

These deficits hold a high potential for optimisation, and it is crucial to engage with them in order to make sure that the product development and manufacturing costs are in proportion to the income the product will later generate. What is all too often forgotten in companies is that costs which never occur (and which are not actually recorded) are costs which are never incurred by the company. In view of this, costs-optimised product value design is a clear solution.

WHAT IS PRODUCT VALUE DESIGN?

As a further development of the classic design-to-cost approach, **product value design** is primarily a matter of keeping to the costs goals set within a given timeframe. The process can be implemented creatively – e.g. by showing alternative concepts for construction and value streams – or by applying one of the traditional approaches which lead to evaluating make-or-buy scenarios.

What is essential in this process is that the **target costs** are clearly defined using a consistently applied top-down approach (e.g. using target costing processes); at the same time, in the early development stage, permanent bottom-up evaluations should be applied to every single construction unit to verify it against the target costs. This holistic approach ensures that costs **transparency** is provided, which in turn is used to hem the tendency to over-engineering frequently observed in the development stage caused by market or customer requirements: standardization, modulisation, and value stream analyses are carried out, providing a transparent basis on which to take decisions and communicate and implement them through cross-functional teams.

2| COMPLICATION

While product value design and target costs calculation offer high commercial potential, they also entail operative challenges. In the early phase – i.e. in the phase with the most significant potential for avoiding costs – product value design is difficult to measure. The products in question are not clearly defined, which means that the costs successfully avoided cannot be quantified and calculated as they can be in negotiations with suppliers, for example. Investments

in product value design in the early concept phase are therefore more difficult both to justify and to implement within a company environment.

Further to this, there is a genuine challenge in creating and establishing costs transparency and in instilling knowledge which may be lacking with regard to the methods required to evaluate costs in the product development stage within an organisation and to sensitize the departments involved in development.

The temporal and sometimes spatial distance between where costs are caused and where they occur increases impediments to structured product value design.

Yet none of these complications is insurmountable: in fact, the take-home in the final analysis is that a "culture" needs to be created in the company to introduce a systematic product value design strategy – and this can often be achieved by just one or very few champions for the idea within an organisation who are able to show the advantages it brings and win everyone involved over to the idea. If all participants work together toward the same goal, success comes quickly and becomes visible throughout the entire product development process, reducing pressure on the organisation as a whole and becoming visible later at purchasing negotiations.

3| SUCCESS

How does POLARIXPARTNER carry out a successful product value design process which can be used within a client company?

In the early phase, the aim is not to predict costs, but to develop the product to its best possible form with regard to customer and market requirements, as well as to the capacities required.

Over-engineering due to unrealistic specification documents needs to be avoided, as do product complexity or a multiplication of versions beyond customer requirements: both can only be changed down the line at considerable material and human-resource cost and are therefore the first issues in product value design.

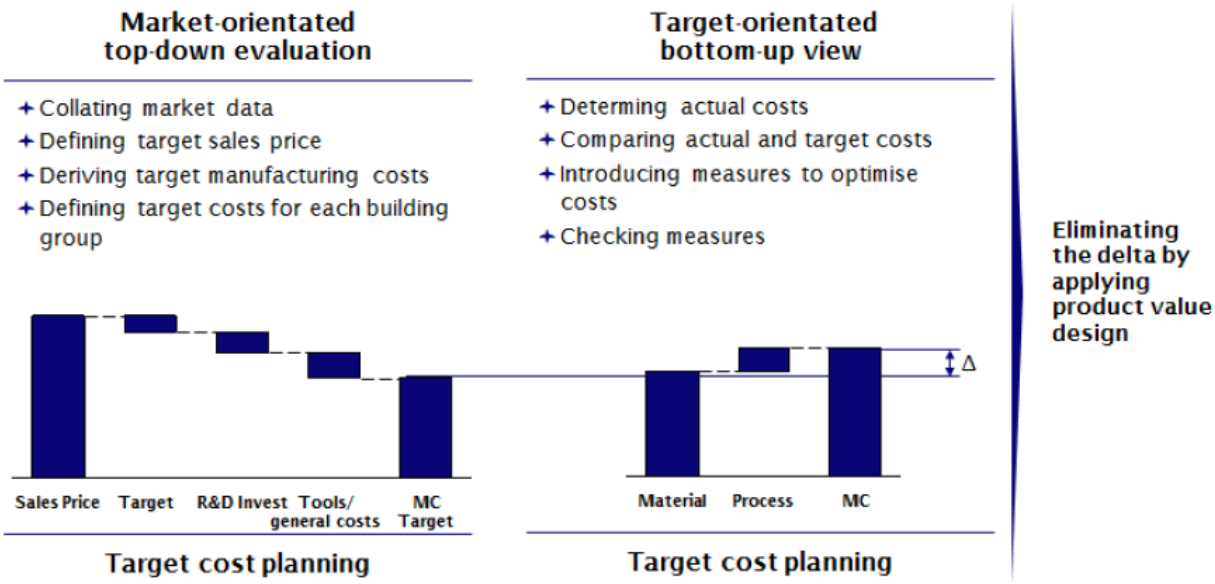
For this reason, POLARIXPARTNER applies a range of support methods in this early phase, including:

- target Costing
- bottom-up calculation
- value engineering
- value stream analysis
- benchmarking and analysis of competition
- design for manufacture and assembly

1 | USING TARGET COSTING TO BREAK DOWN THE OVERALL COSTS

Target costing is used to provide systematic support for product value design by continuously and transparently juxtaposing top-down and bottom-up calculations in order to reach target costs.

- Calculating overall target costs with reference to customer requirements stated.
- Breaking down and assigning cost targets to function and part costs.
- Continuous comparison of actual costs for construction units with the corresponding target costs.



Target costing in product value design by comparing top-down and bottom-up

2 | DETAILED ANALYSIS AND SHOWING MEASURES AVAILABLE

It is absolutely imperative to examine all components in each construction unit in detail in order to guarantee a consistent and transparent costs structure. This process reveals the relevant costs drivers and allows for measures to be implemented by applying the appropriate tools and methods, which include:

- creative workshops
- supplier workshops
- benchmarking
- bottom-up costing calculations
- make-or-buy strategies

There is a range of factors which influence the costs and concept decisions, and the fundamental challenge is to filter out the factors relevant for each product, document, and then systematise them for concept decisions. Applicable methods include:

- modulisation / standardising
- time to market
- differentiation from competition
- intellectual property rights and patents
- development depth
- investments
- variations

This phase requires a constant exchange of information in cross-functional teams composed of development, purchasing, internal auditing, quality, and marketing in order to instil a sensitivity for costs and to guarantee acceptance for the decisions taken. This is a key factor in product value design because, if the various departments are not all shooting at the same goal, the desired effect of reducing costs significantly will not be achieved.

3 | DECISIONS AND IMPLEMENTATION

These inter-departmental teams are where the measures derived from the analyses are decided on and then fed back into the development process. In order to make sure this occurs, polariXpartner recommends stringent tracking procedures using levels of maturity so that the entire product value design effect can actually be implemented.

YOUR BENEFIT WITH POLARIXPARTNER

Thanks to a proactive approach to recognising the relevant costs drivers and to taking corrective measures, POLARIXPARTNER makes it possible to avoid significant costs and, in so doing, guarantees that you reach your costs goals. In the earliest development phase, product value design leads to costs being avoided which can only be reduced at considerable expenditure down the line. POLARIXPARTNER stays with its clients throughout the early product development processes, as well as offering support in providing systematic costs transparency, evaluating a full range of concept variants as a decision-making basis, and instilling constant costs sensitivity in the relevant parts of the organisation. In addition to this, product value design has a positive side effect inasmuch as the product in question will have been designed expressly to fit customer requirements and that the frequent tendency to over-engineering will have been avoided.

THE GUIDING STAR FOR THE MANUFACTURING INDUSTRY

AUTHOR & YOUR EXPERIENCED CONTACT AT POLARIXPARTNER.

Marcel Schlimme – Partner

- Several years' experience in defining and optimising processes, outsourcing, and product costing at DURA Automotive. Focus on building up process-compliant series production in Eastern Europe.
- Working as a consultant on a range of successful benchmarking and cost reduction projects with clients including BMW, VW, Daimler, MAN, Bosch, Liebherr and Siemens VOD, mainly in chassis, gears, and motors.
- Other areas of expertise include negotiations with suppliers, and developing training concepts for costs analysts.

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MANAGEMENT. CONSULTANCY. IMPLEMENTATION. POLARIXPARTNER is the management consultancy for the manufacturing industry. As industry insiders with many years of experience, we guide you on your way to success, just as the North Star, Polaris, has offered generations of seafarers orientation. Our approach is holistic, our philosophy focussed on implementation: we analyse and strategically evaluate your core processes while remaining active on your shop floor to make sure that optimal improvements are implemented up and down your value creation chain. **THINKING AHEAD. OPTIMISING. IMPLEMENTING.**