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The Cleansheet cost engineering function: Introduction

Cleansheet cost engineering is a central pillar of the Design to Value methodology, helping companies to control costs, boost margins and give customers more of what they want. Executing the approach at scale calls for some specific capabilities, processes and infrastructure

by Alexander Kienreich and Stephan Mohr

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This introduction to a four-part series on the Cleansheet cost engineering function provides the context for why this capability is essential, and outlines the main pillars that make it successful. The remaining parts of this series will be published in fourth quarter 2014 and first quarter 2015.

In recent years, the Design to Value (DTV) approach has transformed the way companies in a broad range of sectors make decisions about the design, manufacture, price and positioning of their products. Design to Value, or value engineering, works by helping companies understand exactly what their customers truly value about their products and services, and by helping deliver those features and capabilities at the lowest cost. Done right, this approach lifts sales, increases margins and helps differentiate products from the competition.

The modern Design to Value toolkit contains dozens of methods for understanding customer value perceptions, choosing specifications and positioning products. We've written about many of these techniques elsewhere[1]. In this article, we look at one specific aspect of DTV: the cost efficient delivery of product specifications. In particular, we discuss how companies can equip themselves with the people, tools, infrastructure and processes to conduct this activity at scale. Our experience comes from observing the development of DTV and cost engineering functions at a number of consumer goods, automotive, healthcare and high tech companies, as well as from running our own network of nine DTV labs worldwide.

Evolving capabilities

Finding the most cost-efficient way to deliver a product or service is an iterative process in which designs, manufacturing processes and supply chains are refined by repeating three basic steps.

[1] See: https://operations-extranet.mckinsey.com/content/function/Product+Development/view/20080507_design_to_value. https://operations-extranet.mckinsey.com/content/function/Product+Development/view/20111101_the_insight_trap

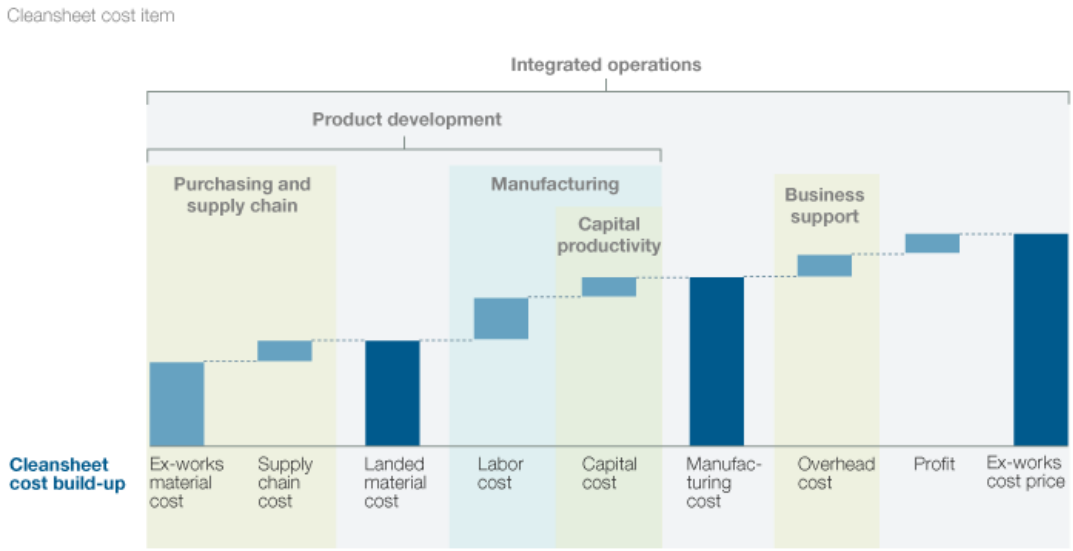
1. **Cleansheet cost modeling.** The bottom-up analysis of the cost of the material, labor, equipment and overhead inputs into a product or service, with the aim of identifying and understanding the main cost drivers.

2. **Cleansheet target costing.** Identification of the ideal, or "should" cost for each component and process used in the product, with the use of the most cost-efficient inputs and approaches available.

3. **Cost engineering.** The application of engineering, manufacturing, purchasing and supply chain skills to bring the actual cost of the product closer to the target cost.

Many companies find that developing a strong Cleansheet target costing and cost engineering function is a powerful stepping-stone along the journey towards comprehensive Design to Value capabilities. Not only are these techniques a vital element in DTV, they also encourage an organization to build many of the cross-functional links and interactions upon which DTV depends. The exhibit shows how the various cost elements revealed in the Cleansheet model are influenced by different operations functions. To achieve best possible performance across the entire value chain, the cost engineering department must be able to work effectively with each of them.

Exhibit: Target costing provides transparency on cost components, allowing key operations functions to prioritize their efforts



Source: McKinsey analysis

That interaction necessarily goes well beyond the calculation, analysis and sharing of Cleansheet target cost models. Other key activities in

cost engineering include teardown analyses to compare the organization's products with those of its competitors, and idea generation workshops to identify the most cost efficient way to deliver the required specifications. Along with target costing, these activities demand a broad range of capabilities and this in turn calls for a minimum critical mass. Most companies find that five to ten full-time cost engineers are required for their programs to achieve the necessary scale. In big companies, demand for cost engineering capabilities can become so great that these departments may grow to 100 people or more.

A successful cost engineering department is built on three pillars: people; infrastructure, tools and data; and integration into operations. In the following three parts of this series, we will look at each of these pillars in turn■

About the authors: Alexander Kienreich is a senior expert in McKinsey's Vienna office, and Stephan Mohr is a master expert in the Munich office.