

White Paper

## How to manage supplier development costs

Determination and control of target values in the automotive industry

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## Introduction

Does your company spent its supplier development costs efficiently? Many companies are lacking fundamental experience regarding an effective, separated control of supplier development costs (SDC). Furthermore, SDC are often assigned to individual part prices, which is discussed controversially. The main challenges regarding SDC are as follows:

- » Definition of ambitious, but realistic SDC target values
- » Argumentation of SDC target values in front of suppliers, based on a comprehensive documentation of target value derivations and connected assumptions
- » Ongoing reconciliation of SDC with period and project budgets to avoid excessive costs

In case of ongoing development contracts and/ or a high number of suppliers, an efficient, prioritised procedure is considered to be essential.

Strategy Engineers has developed an SDC toolbox to support our clients in successfully meeting this challenge. The toolbox combines our fundamental knowledge of development processes, structures and tools applied at OEMs<sup>1</sup> or suppliers and our calculatory as well as technical expertise derived from various cost down projects.

In this white paper, we will introduce our approach and the basic methodology for implementing an SDC toolbox.

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<sup>1</sup> Original Equipment Manufacturer

## Prioritisation of upcoming procurements enables the identification and efficient processing of SDC levers

Before SDC targets can be derived, the transparency phase has to be accomplished. In this phase, all SDC procurements of the company are consolidated and linked to relevant basis data, by which the most urgent and important research and development procurements can be identified and supplied with target values on time. This basis data could be:

SDC benchmarking, using key criteria and Strategy Engineers database, quickly leads to first insights. Procurement volumes with the highest costs and saving potentials are further detailed by a second approach.

- » Timing of SDC procurement
- » Amount of SDC procurement, if a first monetary estimation is provided, as well as procurement frequency
- » Component type, development/ technology area or group of materials
- » Complexity of research and development task
- » Planned quantity

Quite often, a first estimation concerning the amount of the procurement is provided by the client, which can be verified by our benchmark-based approach. For this purpose, the procurements are segmented according to their development content, their complexity and the purchase quantity. In the next step, the resulting procurement groups are assigned to development cost rates from our database. Thereby, we are able to generate a first understanding of the amount of the supplier development costs, shortly after the project has started (see Exhibit 1).

### Benchmark based SDC target value derivation

EXAMPLE

Vehicle project	Development area	Component/ part	Planned quantity	R&D complexity	R&D factor	Manufacturing cost	SDC
Leadmodel medium-sized vehicle architecture	Body and equipment	Door hinge	1,080,000	SE scope	5.0%	3 €	135,000 €
		Headlight (Variante 1/2)	180,000	SE scope	8.5%	195 €	2,983,500 €
		Seat (variant 1/3)	90,000	SE scope	10.5%	90 €	850,500 €
			...	...	...	...	...
	Electrics/ electronics and interior	A/C	270,000	SE scope	8.5%	121 €	2,776,950 €
		Lighting footwell	540,000	Build-to-print	1.5%	2 €	16,200 €
		Reversing camera	40,500	Highly innovative products	18.0%	33 €	240,570 €
		Door sill	540,000	Build-to-print	1.5%	1 €	8,100 €
		Speaker front door	180,000	SE scope	8.5%	4 €	61,200 €
		Passenger airbag	270,000	SE scope	8.5%	25 €	573,750 €
		...	...	...	...	...	...
	Driving dynamics	Tire (variant 1/5)	216,000	Build-to-print	2.5%	45 €	244,350 €
		Steering wheel (Variante 1/15)	18,000	SE scope	10.5%	30 €	56,700 €
			...	...	...	...	...
	Propulsion	Transmission (manual)	135,000	SE scope	8.5%	758 €	8,698,050 €
...		...	...	...	...	...	...

R&D factor based on Strategy Engineers benchmark data on manufacturing costs

Exhibit 1: Application of Strategy Engineers benchmark approach to calculate SDC target values in the automotive industry (Source: Strategy Engineers)

Since the benchmark-based approach enables a quick connection of SDC target values to urgent procurements, it is applied in all cases. Even if there is no comparative data in terms of a first estimation provided by the client, the approach helps to prioritize. Simultaneously, the SDC tool is developed to provide more accurate target values.

Procurements of paramount importance are identified by the following criteria: (see Exhibit 2):

- » High SDC volume according to our benchmark-based approach
- » High procurement frequency, exceeding the current financial year

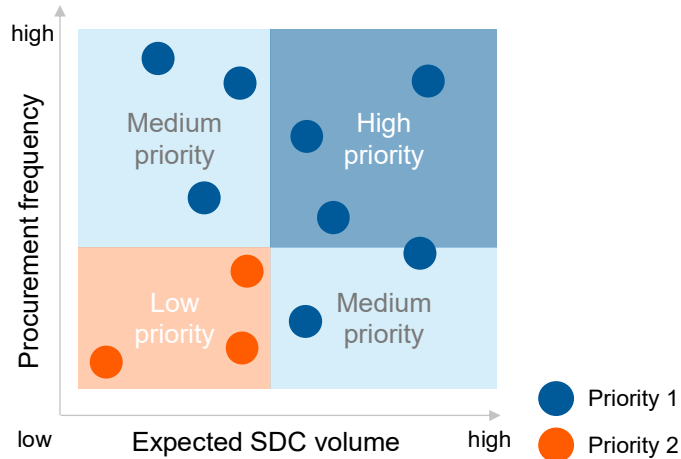


Exhibit 2: Segmentation of procurement scope in priority matrix (Source: Strategy Engineers)

For procurements with priority 1, the target values are calculated by the SDC tool. The same applies to “expensive outliers” with lower priority (priority 2). These represent procurements of lower importance, which are showing high discrepancy in terms of costs compared to the SDC estimation of the client. An accurate calculation, using our tool, allows a realistic increase of the target for the negotiations with the supplier.

To provide target values for the procurements with highest priority and “expensive outliers” on time, they have to be scheduled into a detailed procurement plan according to their urgency.

## The SDC tool is procurement group-specific, considers target budgets and includes an actualisation concept

To identify the required amount of data for the SDC tool, Strategy Engineers groups all procurements according to their technology sector and development requirements – e.g. interior covering parts made by plastic injection moulding. Data from former development procurements are assigned to the procurement groups and segmented by the SDC drivers.

Typical drivers for development costs are:

- » Novelty of development
- » Complexity of component
- » Manufacturing technology
- » Material
- » Safety-relevance
- » Visible parts/ surface
- » etc.

These SDC drivers are essential parameters to adapt the tool individually to future SDC procurements. Additionally, our tool is able to include potential development changes as well as efficiency expectations/ demands and takes specific development costs for different regions into account (Europe, Asia, North America, etc.). Exhibit 3 shows schematically the structure of such a SDC tool for the derivation of target values.

The calculation logic of the SDC tool is determined by cost drivers per procurement group, consideration of potential development changes, efficiency requirements and country-specific costs.

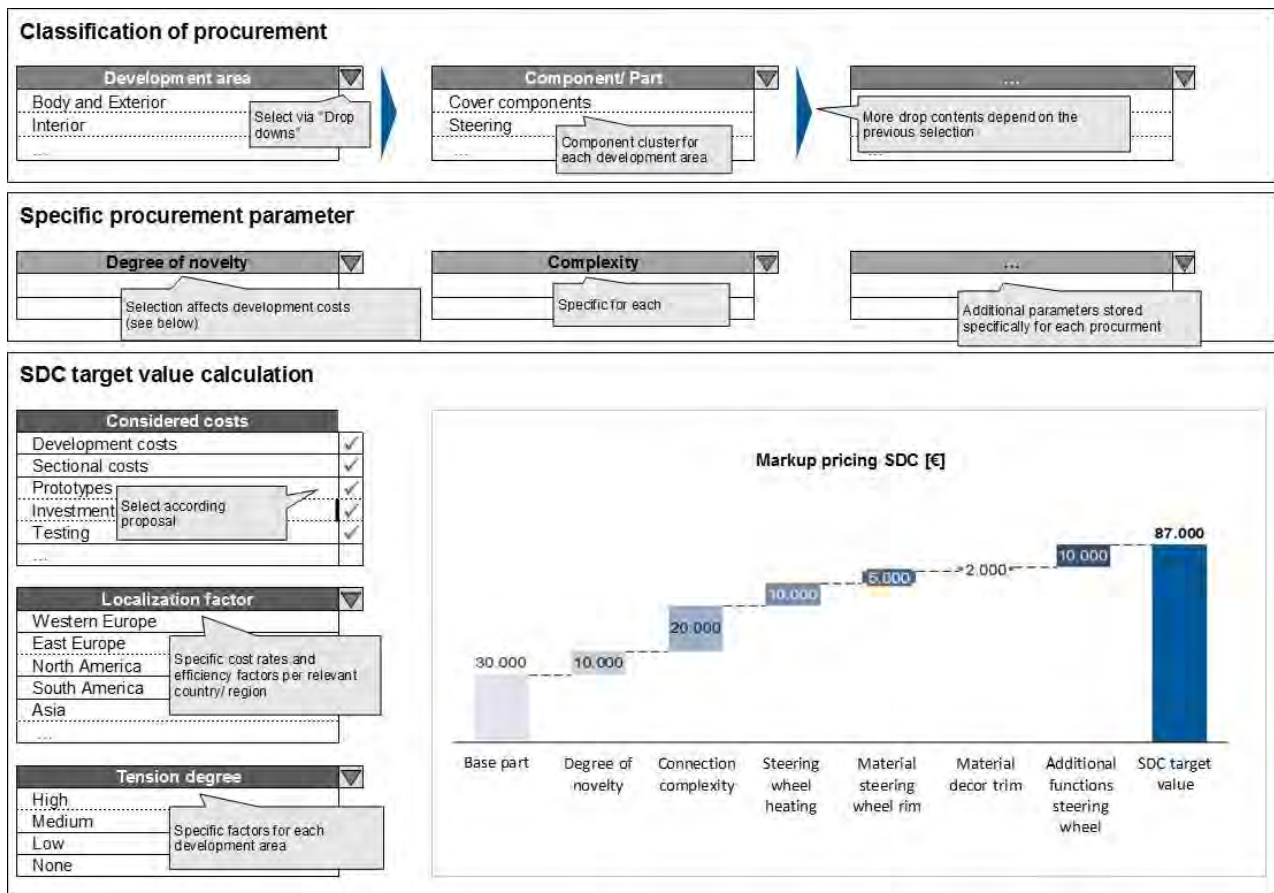


Exhibit 3: Possible structure of SDC tool for the derivation of target values (Source: Strategy Engineers)

The calculated SDC target value for a procurement is always reconciled with the target budget, which has usually been included in the target value for a particular vehicle project. Consequently, the tool breaks down the target budget to the according procurement. In case of an exceeding target value, the tool returns the reduction potential and in case of a target value under the budget, it gives back the available buffer (see Exhibit 4). This helps to identify required actions at an early stage, e.g. the increase of efficiency requirements, if a cost reduction is required.

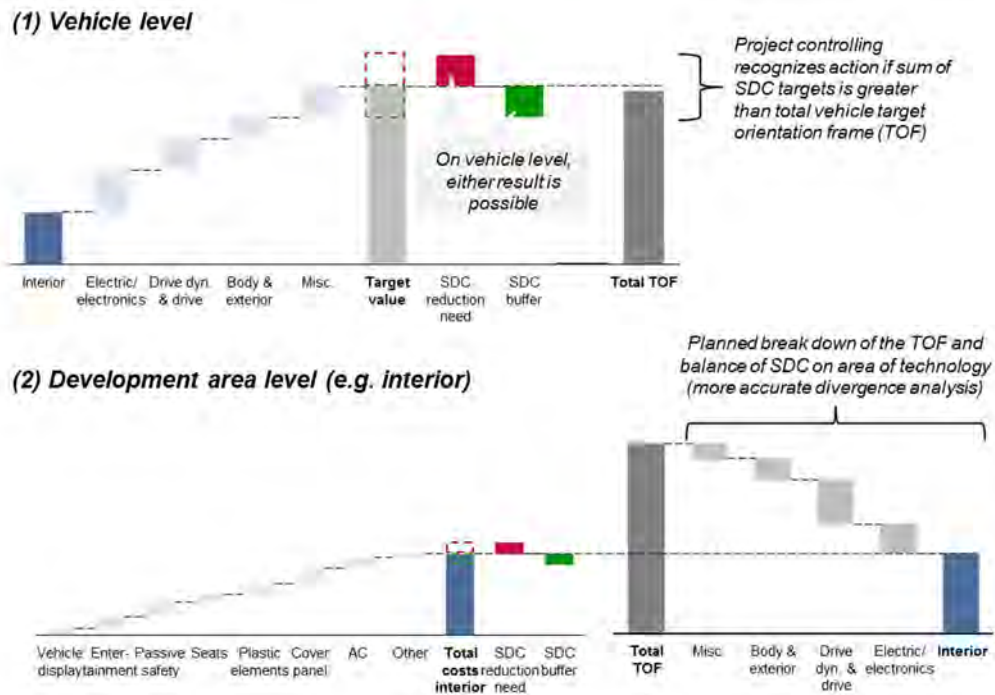


Exhibit 4: Reconciliation of target values and target budget based on the target orientation frame (Source: Strategy Engineers)

The Strategy Engineers SDC tool is designed to be easily updated by the client

A tool can only be used permanently if it is updated constantly. Due to this, Strategy Engineers developed an concept for actualisation (see Exhibit 5), which provides the required data for the actualisation, assigns responsibilities and determines the specific update approach. The concept for actualisation ensures that stored data is always up-to-date and that the target values can be correctly derived from the data.



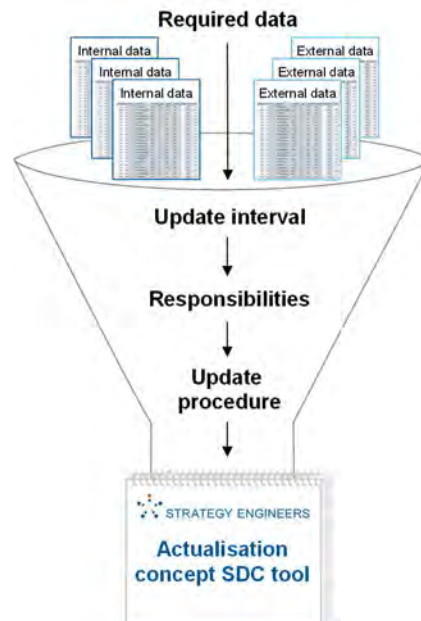


Exhibit 5: Actualisation concept (Source: Strategy Engineers)

## Tool application in business practice

The standardised approach defined by Strategy Engineers to derive targets values for SDC and place accordant orders is applicable to various companies. The decision making process for the scope of a procurement is independent from industry sectors and typically consists of three stages (see Exhibit 6):

- » **Definition and calculation phase** – Future procurements are segmented by their SDC relevance:
  - » Priority 1 procurements with high SDC relevance, which are individually evaluated based on Strategy Engineers' target cost tool
  - » Priority 2 procurements, which can be derived by applying Strategy Engineers' benchmarking database. Only "expensive outliers" are additionally examined with the SDC target cost tool
- » **Communication and clarification phase** – Results of the previous phase are documented in standardised profiles, submitted to the decision-makers of the client and discussed. The profiles include – additionally to the SDC target values – the main assumptions and technical information to serve as a basis for the argumentation in the next phase
- » **Negotiation phase** – The SDC profiles lay the foundation for development cost negotiations with the suppliers

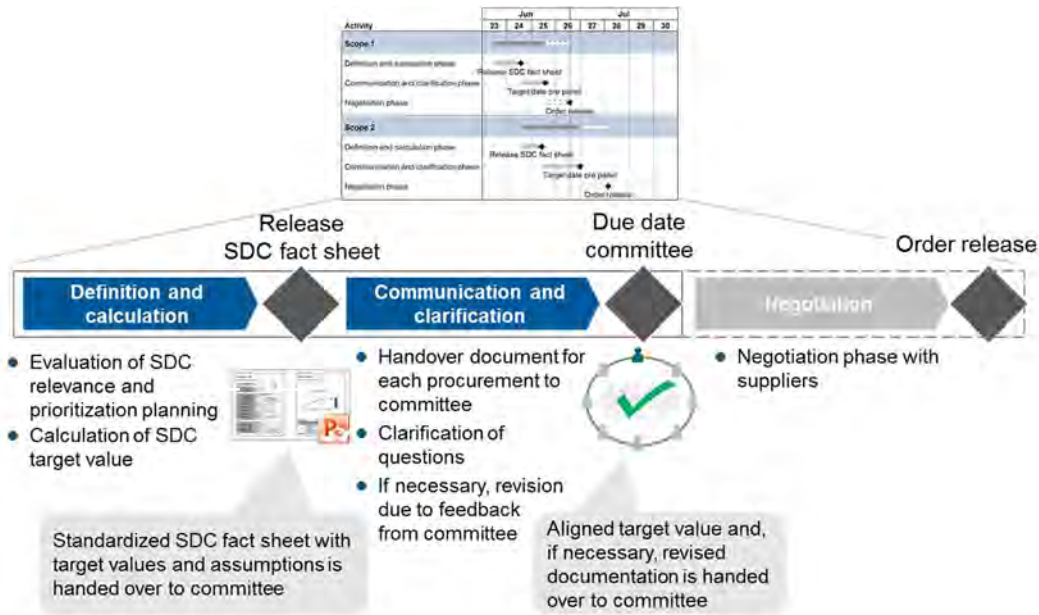


Exhibit 6: Scheduling of procurement handlings and detailed contracting process of a development volumes (Source: Strategy Engineers)

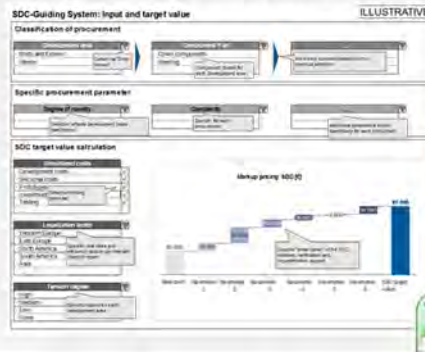
The SDC tool is set up and applied in the first phase. Additionally to the target value derivation, it serves for the final documentation – the standardised SDC profiles are developed on this base (see Exhibit 7).

Dependent on the development area, the client has to choose between different procurement groups. The calculation of the target values is further individualised to get a procurement parameter, which is as realistic and ambitious as possible. Thereby the database of the tool is built by industry-specific benchmarks in terms of development costs. In addition to the database, target values are calculated, e.g. on base of comparative calculations and risk premiums. Finally, an SDC profile with all target profiles and calculative assumptions is created.

**Data base (excerpt):**

- Benchmarks
- Comparative calculation
- Hourly rates
- Risk premiums
- Expert estimate
- „Normalization factor“ (country, date/ learning effects, etc.)

**Tool – „SDC guidance system“:**



**Target value documentation in „SDC fact sheets“:**



Exhibit 7: Scheduling and detailed process description of a development procurement (Source: Strategy Engineers)

An example for the application in the automotive industry is shown in Exhibit 8. In this case, the target value for the supplier development costs were determined for the procurement “steering wheel”. This SDC target value calculated by using a base development cost approach, which takes into account the pure development costs, cross section costs, prototype costs and investment costs. Here, test costs were not included, since tests were executed by the OEM. In order to calculate these costs, location-specific cost rates and efficiency factors were considered. Additionally, the complete target value was calculated by a specific parameter input using an overhead calculation. Thereby additional costs were taken into account, e.g. material development for the UV resistance of the steering wheel surface. Subsequently the tool compared the target value with the project budget to identify potential target deviations.

**Use case steering wheel**



Exhibit 8: Example for the application of SDC tool: (left), parameter input and target value calculation (right) SDC profile with detailed calculation documentation (Source: Strategy Engineers)

The described approach enables to achieve SDC savings of up to 15-20%

## Conclusion

Successful accomplished projects of Strategy Engineers proof that the described approach is capable to result in cost savings of up to 15% to 20%. For this purpose, the current supplier development costs are critically reviewed and target values are redefined. Furthermore, these values are traceable and can be accurately communicated towards the suppliers. In addition, the tool compares the current costs to the target cost frame, which is defined by the original project budget on vehicle level and development field level. Thereby it enables the client to have a constantly updated overview about the current cost situation. This ensures an early identification of eventually increasing costs and helps to derive and apply further cost reduction measures.

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## Strategy Engineers

Strategy Engineers is a leading strategy and management consultancy with a focus on the automotive sector and closely related industries.

From offices in Germany and China, Strategy Engineers supports its clients in business and growth strategies, product optimizations as well as in productivity improvements in the fields of research & development, operations management and sales, marketing & aftersales.

As a member of the AVL Group located in Graz, Austria, the largest independent engineering services provider to the automotive industry worldwide, Strategy Engineers offers a unique combination of distinct analytical consulting skills with comprehensive, in-depth technical and technological expertise.

Once again after 2014, Strategy Engineers has been awarded as “Beste Berater” (“Best Consultants”) in 2015 by Brand eins and Statista. In the categories “Automotive & Supplier” and “Operations Management”, Strategy Engineers was top ranked among German consultancies. Another top rank was gained in the third category “Machinery & Plant Engineering”.

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