P^3 Profitable Product Performance

Target Costing inside

Methodology, tools and implementation

This manual has been edited by Siemens AG in cooperation with Seidenschwarz & Comp. GmbH,
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Table of abbreviations

AE	Alternatives Evaluation
AG	Alternatives Generation
APAC	Asia & Pacific
ARPU	Average Return Per Unit
ASP	Average Sales Price
BA	Business administration
BM	Basic Model
BOM	Bill Of Material
BSF	Basic System Framework
CC	Conversion Costs
COGS	Cost Of Goods Sold
CRP	Customer Requirements Priorization
CRP	Customer Realized Prize
EBIT	Earnings Before Income & Tax
EM	Enthusiasm Model
EMEA	Europe, Middle East, Africa
LAM	Latin America
M0	Milestone 0 (80% frozen product specification)
M1	Milestone 1 (frozen product specification)
M3	Milestone 3 (ready for launch)

MD	Siemens Com Mobile Devices
Moto	Motorola
Mα	Milestone α (detailed product concept)
Mβ	Milestone β (first detailed product idea)
NAM	North America
ODM	Original Design Manufacturer
OEM	Original Equipment Manufacturer
OH	Overhead
PG	Product Generation
PIM	Personal Information Management
PoC	"Push to talk functionality"
PP	Price Point
PPA	Price Performance Analysis
PPM	Partner Product Management
PRC	Product Related Costs
PSR	Product Status Review
PTS	Product Target Splitting
QQM	Quality Q Management
R&D	Research & Development
RC	Reverse Calculation
SCM	Supply Chain Management

SE	Sony Ericsson
SWOT	Strengths Weaknesses Opportunities Threats
TCG	Target Cost Gap
TCon	Target Controlling
TMO	T-mobile
TTM	Time To Market
UI	User Interface
USP	Unique Selling Proposition
Vod	Vodafone
WoO	Window of Opportunity

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1 Introduction

This manual provides an overview of the Target Costing methodology and how it is supposed to be applied at Siemens COM MD. It comprises an introduction and eight main chapters that describe the theory and the adaptation of Target Costing to Siemens MD:

1 Introduction

2 Window of Opportunity and Enthusiasm Model

3 Reverse Calculation

4 Product Target Splitting

5 Alternatives Generation

6 Alternatives Evaluation

7 Target Controlling

8 Process integration

9 Case Study

Notes

The Target Costing core themes

Four core themes of Target Costing

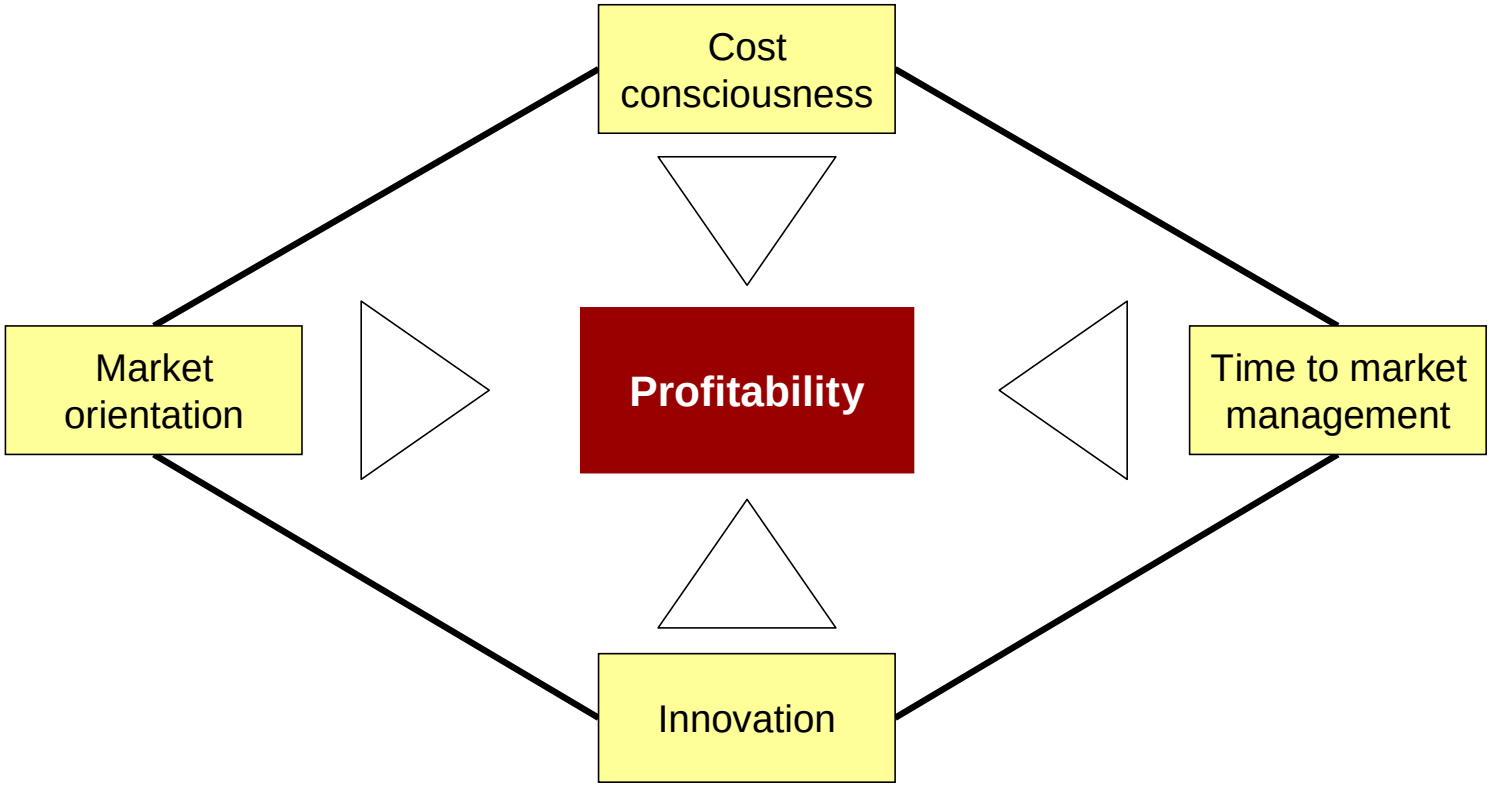

Illustration 1.1

Refer to Seidenschwarz & Comp: Marktgerechte Produktentwicklung – Die Integration von Target Costing und Earned Value Methode, Value Paper Nr. 2/2004, S. 5.

1 Introduction

The general goal of each Target Costing project is to strengthen profitability. This is ensured by market orientation, time to market management, cost consciousness and innovation.

Market orientation means analyzing and influencing markets and not to be driven by them. Prerequisite therefore is a clear definition of target groups and the target groups' price willingness and the focus on the customers' demands.

The goal is to develop tailor made product concepts, which contain enough innovations for the specific market segments. To fulfill these innovation requirements not only extensive market intelligence but also the instinct for upcoming technical trends are needed.

A systematic and structured procedure is therefore basic precondition for a successful product definition.

In today's dynamic competition time to market management gets more and more important. The early identification of innovation potentials and "time blockers" in the product development process are indispensable. According to the 80/20-rule, which means that 80% of later occurring costs are determined in the first 20% of the product development process, an early and secured product definition is necessary.

After fixing the product concept it has to be realized in a fast and consequent way. To avoid constant changes in the concept and thus assuring the time to market the implementation of an extensive Target Controlling is very important.

During the whole product development process cost consciousness may not be disregarded. Therefore clear cost targets as well as profit targets have to be determined. Last ones are untouchable and to be treated like a "sacred cow".

Prerequisite for an extensive cost consciousness is the implementation of tools for a persistent cost analysis as well as for the cost management.

By using technological synergies and optimal staffing of resources the process efficiency is secured.

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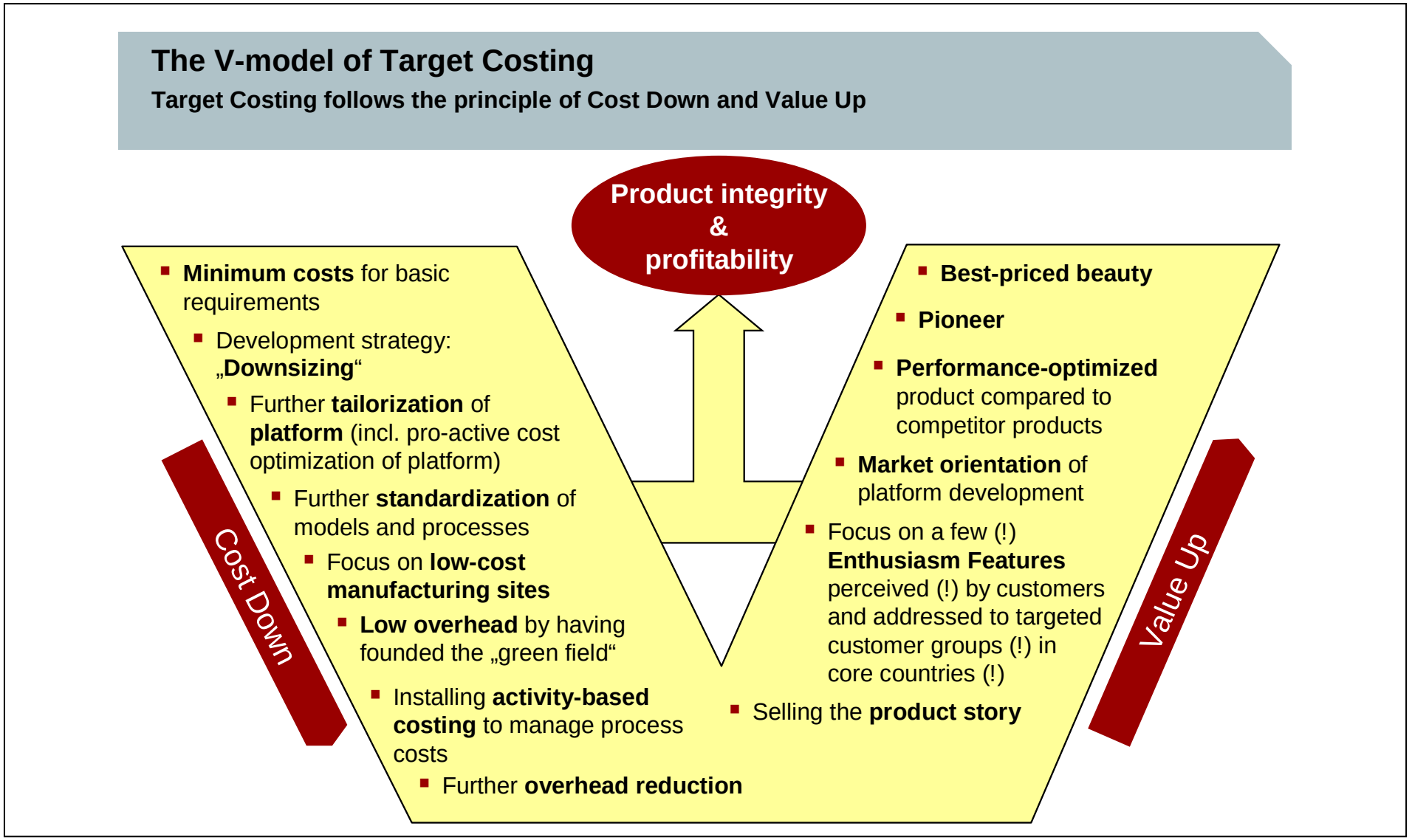

Illustration 1.2

Refer to Seidenschwarz & Comp: Marktgerechte Produktentwicklung – Die Integration von Target Costing und Earned Value Methode, Value Paper Nr. 2/2004, S. 4.

By following the principle of “Cost-Down” and “Value-Up” the product integrity and profitability will be maximized. Market-focused and cost-optimized products are the keys for creating sustainable profitability. The head is on creating perceived value for the end user and operator by innovative solutions reaching the market at the right point in time, supplemented by a cost orientation especially on those features that are not central for the end user and operator satisfaction.

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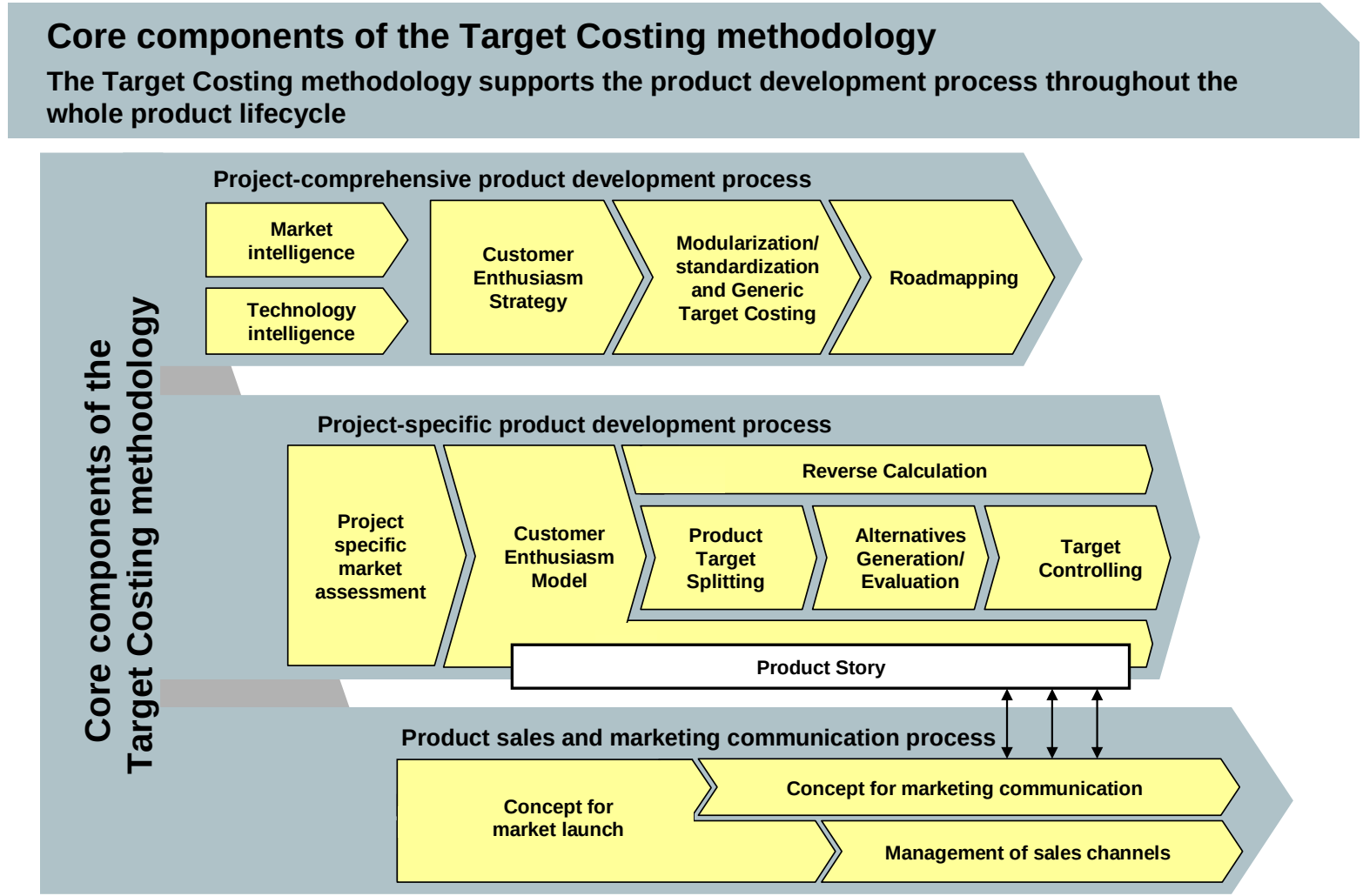

Illustration 1.3

Refer to Seidenschwarz & Comp: Marktgerechte Produktentwicklung – Die Integration von Target Costing und Earned Value Methode, Value Paper Nr. 2/2004, S. 6.

Target Costing is a market- and profitability-oriented management concept that guides the product development process on three levels:

- Project-comprehensive product development process
- Project-specific product development process
- Product sales and marketing communication process

The project-comprehensive product development process is seen as a basis for a market-oriented product definition. It translates technological and market information in a Customer Enthusiasm Strategy, pointing out the company's strategic alignment for products.

In the next step the modularization, the standardization as well as a generic Target Costing is conducted. At the end roadmapping provides a product roadmap as a basis for the ignition of specific projects.

This general process regularly provides data to single projects and thus ensures the clear focus on core competences.

A further component of the Target Costing methodology – often understood as the single content of Target Costing – is the project-specific product development process. This process comprises the core tools of Target Costing that are described in this manual.

The product sales and marketing communication process complements the mentioned processes. Here, the marketing communication strategy for the product is determined.

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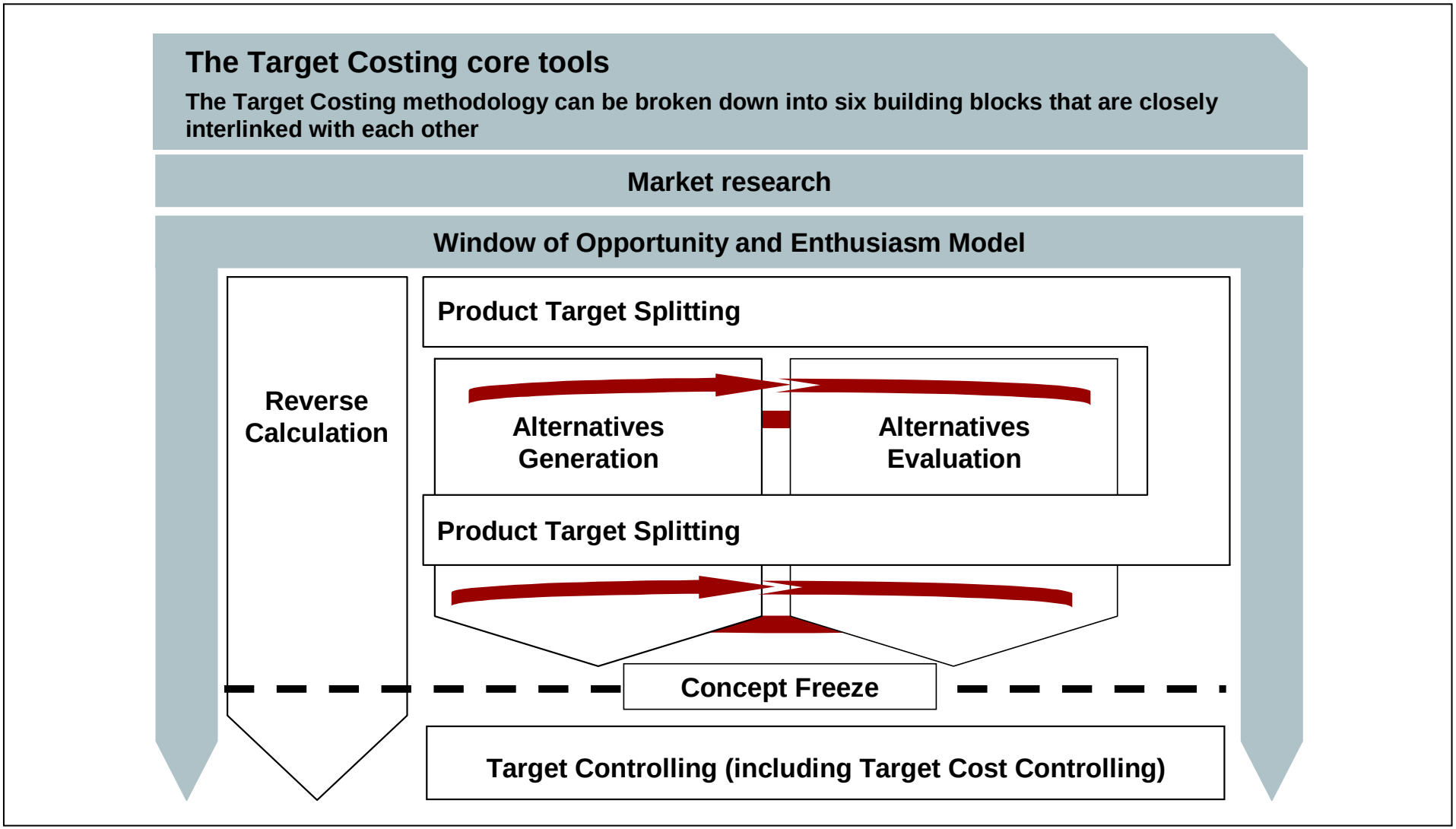

Illustration 1.4 Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

The six Target Costing core tools introduced at Siemens MD are based on an extensive market research and are interlinked starting with the Enthusiasm Model and ending with Target Controlling.

- The Enthusiasm Model (EM) differentiates between Basic, Performance and Enthusiasm Requirements and triggers a sharp product positioning for a well defined Windows of Opportunity (WoO) and thus enhances the company's market-focus.
- The Reverse Calculation (RC) allows a market-oriented product calculation. Therefore it starts with the relevant market data defined in the Window of Opportunity and profit targets to derive the Allowable Costs. This overall cost target is then split into cost categories that are structured according to their influenceability.
- The Product Target Splitting (PTS) provides a methodology to translate a Target BOM for a product at a given Window of Opportunity into Target Cost corridors for product modules according to operator and end-user requirements.
- The Alternatives Generation (AG) aims at identifying favorable product, module and component alternatives which do not only satisfy the requirements set by the predefined Window of Opportunity but also meet the cost guidelines set by Reverse Calculation and Product Target Splitting.
- The Alternatives Evaluation (AE) performs a standardized analysis of generated alternatives. Based on measurable criteria different alternatives are evaluated and ranked using a scoring model.
- The Target Controlling finally ensures an adequate implementation of product concepts – defined by the use of the Target Costing methodology – after concept freeze.

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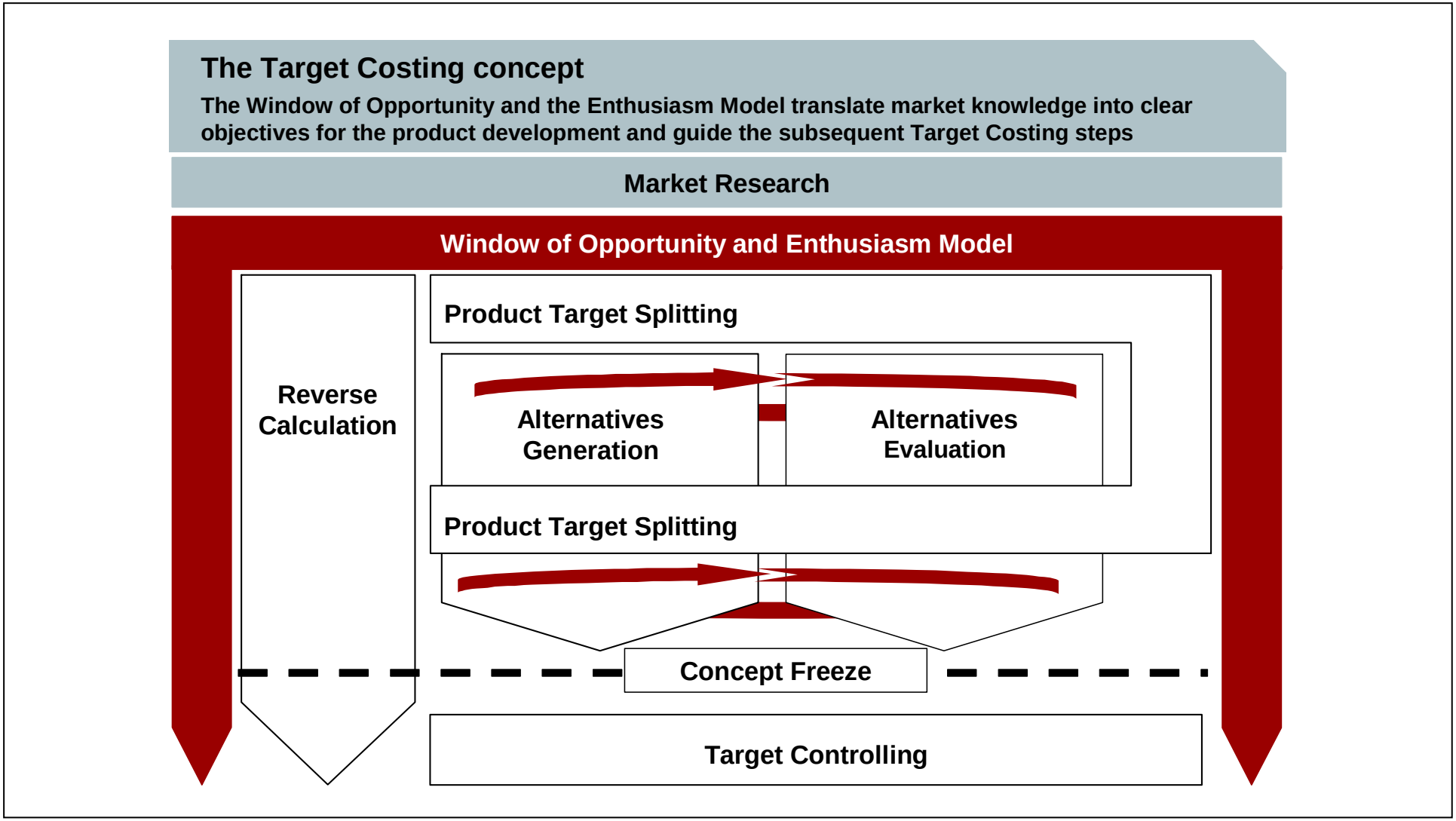

Illustration 2.1

Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

2 Window of Opportunity and Enthusiasm Model

The purpose of this chapter is to explain the approach of the Window of Opportunity and the Enthusiasm Model within the Target Costing methodology.

The chapter is divided into 2 parts:

- The first part gives a methodological overview of the tools.
- The second part provides a view on how the Window of Opportunity and the Enthusiasm Model are customized to the specific situation of MD.

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Window of Opportunity and Enthusiasm Model as basis for product definition

The WoO and the EM trigger AG and AE and become more precise during the product development process until it steers focused product sales and communication

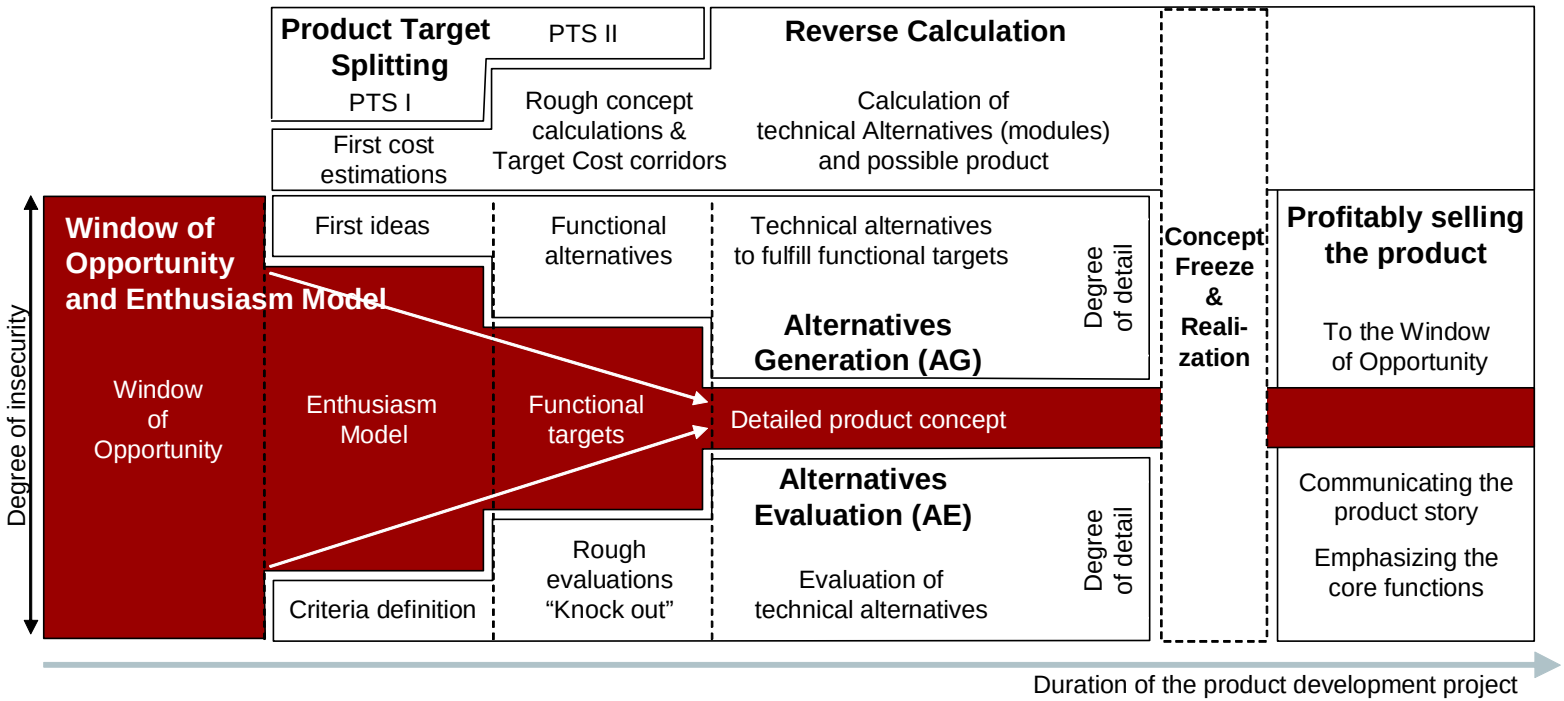

Illustration 2.2

2.1 Methodology of the Window of Opportunity and the Enthusiasm Model

The Window of Opportunity (WoO) and the Enthusiasm Model (EM) represent the first tools to be used within the Target Costing approach.

The main objective of both is the implementation of a market oriented view at very early stages of the product development. They provide a solid basis for “cost-down” and “value-up” measures and thus drive the profit maximization.

In a first step the Window of Opportunity defines within the total market environment and portfolio what proposition the product has for the company. At this stage, the Window of Opportunity describes a first product idea that still bears a high degree of insecurity.

The Enthusiasm Model indicates the positioning and the relative importance of the functions in a more detailed way as it is being detailed into a target profile and later into functional targets, TTM insecurity decreases and the Enthusiasm Model gets to a very detailed level that leads into the Concept Freeze.

The objectives set by the Window of Opportunity and the Enthusiasm Model must not be lost after the Concept Freeze. Product marketing will have to base all of its activities on the essentials of both in order to assure maximum product integrity.

Notes

The Window of Opportunity

To ensure a target oriented product definition the Window of Opportunity has to be sharply described for each product to ensure market orientation and cost consciousness

Pro-position	▪ **Why are we making this product:** …
Target market (retail-user and operator)	▪ **End-user (sub-)segment:** A, sub-segment A2 ▪ **Regional market focus:** w% EMEA, x% NAM, y% LAM, z% APAC ▪ **Sales channel split:** Operator x% vs. retail y% ▪ **Key operators addressed**: A, B, C ▪ **Main reference/competitor products**: product A /product B, C, D
Target positioning in portfolio	▪ **Story/technical successor to:** Product A/product A ▪ **Price Point:** Launch at x € falling to y € (EOL) ▪ **Launch date/lifecycle:** mm.yy. **/** 12 months ▪ **Addressable Market:** x Mio. units in the markets ▪ **Planned volume/ market share:** xy Mio. Units ▪ **Target Profit:** x %, approximately y Mio. €
Product idea	▪ **Product idea:** "…" (slogan) ▪ **Key theme:** ▪ **Use cases:** A) …, B)…, C)… ▪ **Dedicated innovation:**

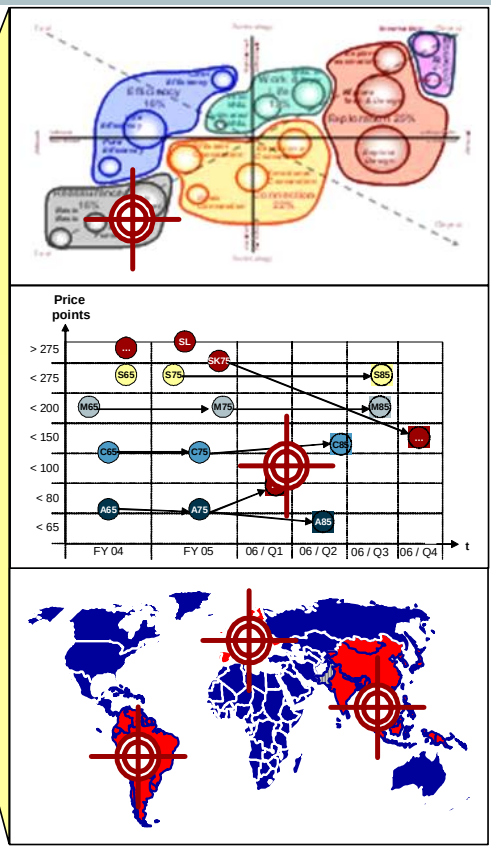

Illustration 2.3

2.1.1 The Window of Opportunity

The Window of Opportunity is always based on the imperatives derived from corporate strategy as it strives to translate the company's vision, mission and guidelines into consistent concepts and action areas for product development. As a result from the Roadmapping process it represents the assignment for the product definition team to start with explicit actions.

The definition sheet for a Window of Opportunity describes the results of the rolling portfolio and the corporate strategy process and therefore defines the core targets for the product specific development process.

Its major role is to describe as precisely as possible a clear focus for the entire product development team and define commonly accepted goals.

The Window of Opportunity consists of four fields: Proposition in the understanding of the product's mission, target market, target positioning and product idea. These four categories are detailed further by key underlying questions.

The product idea shows the first and rough definition, how we suppose to realize and meet the targets defined in the proposition, the target market and target positioning.

The Window of Opportunity guides the product development from idea to value in order to ensure consistency and to lead the product definition to measurable results.

Notes

The Enthusiasm Model

To secure an optimal product definition the Enthusiasm Model structures product characteristics and functionalities into the categories basic, performance and enthusiasm

1. An Enthusiasm Functionality that is **precisely fitting** to the Target Group and **perceived by them as innovative and well solved** – plus, is **sold in an emotional way -** outperforms all other functionalities in contribution to satisfaction

2. The **mere existence** of an Enthusiasm Functionality that **fits to the Target Groups' needs** can cause the same degree of satisfaction as a complete fulfillment of all Performance Functionalities does.

3. A partial **existence** of Performance Functionality ensures a **neutral degree of satisfaction**. Only **full compliance** with the market standard of the Performance Functionalities will reach to the **rim of triggering enthusiasm.**

4. Even the **existence** of a **full set of Basic Functionalities** does **not drive positive satisfaction**. Only an **additional combination of Performance Functionalities and an Enthusiasm Functionality** causes the product to take part in the eventual buying decision of the respective customer (with his preferences)

5. The **lack of a Basic Functionality causes negative satisfaction** and even a full set of Basic Functionalties does not yet assure positive satisfaction and market acceptance: "Basic is simply not enough."

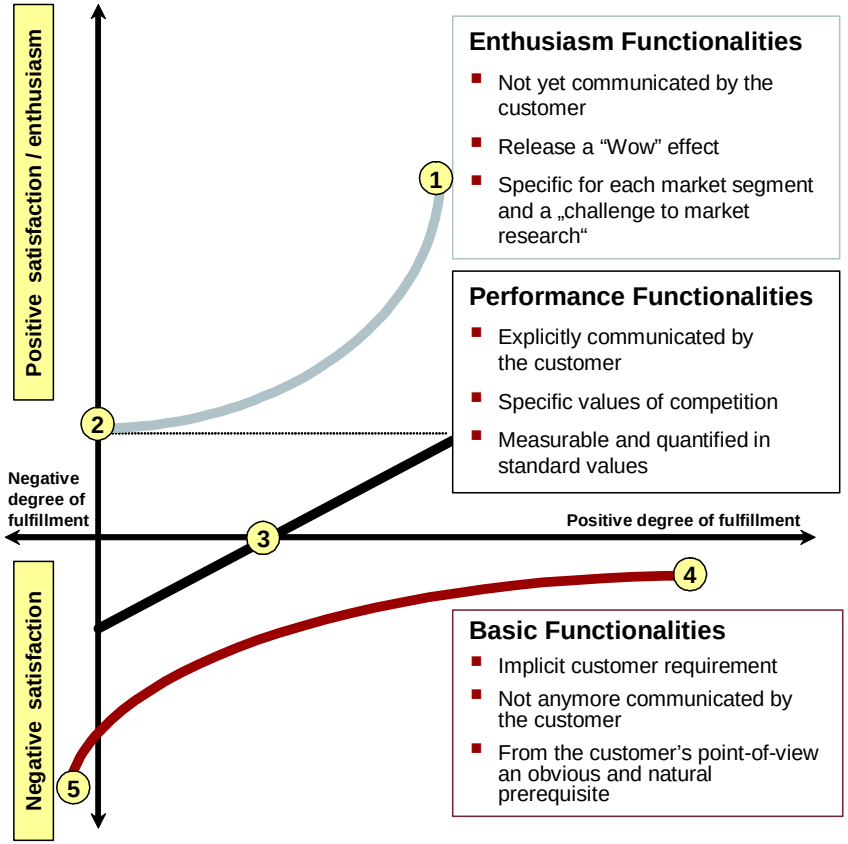

Illustration 2.4

Refer to SEIDENSCHWARZ , W.: Nie wieder zu teuer! 10 Schritte zum Marktorientierten Kostenmanagement, Stuttgart 1997, S. 62.

2.1.2 The Enthusiasm Model

By differentiating between Basic, Performance and Enthusiasm Functionalities the Enthusiasm Model triggers a sharp positioning ofwell defined product concept while determining how certain functionalities will contribute to customer satisfaction.

The three categories of the Enthusiasm Model strongly differ in the extent of their contribution to customer satisfaction/enthusiasm:

- A Basic Functionality can be explained by a graph that has a decreasing marginal rate of utility/satisfaction. For example the more Basic Functionalities are included in a product, the less additional value to the customer is caused by each additional functionality.
- A Performance Functionality follows a linear graph which means every additional Performance Functionality triggers the same amount of positively perceived recognition by the customer.
- An Enthusiasm Functionality is characterized by an increasing marginal rate of satisfaction. Each additional functionality or even each functionality improvement causes an over-proportional additional degree of satisfaction that is higher than the effort put into the realization.

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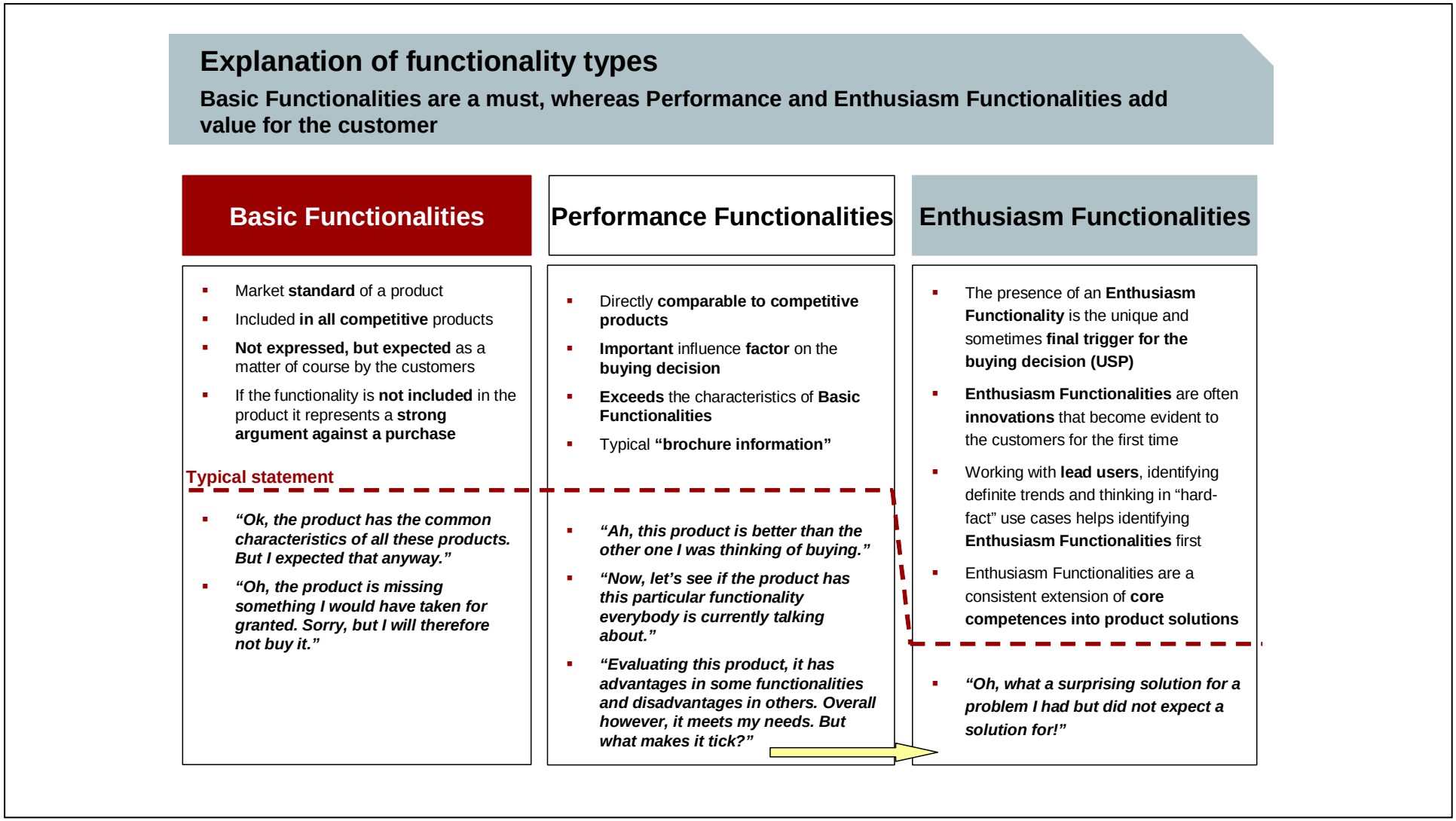


Illustration 2.5

2.1.3 Explanation of functionality types

The Enthusiasm Model gives additional structure to product development thoughts because it strictly differentiates between the three categories of functionality types.

These functionality categories must be understood in relation to time and therefore functionalities normally decline over time from being Enthusiasm to being Performance and at last to being basic:

- Basic Functionalities can be seen as the functionalities that have developed into being market standard.
- Performance Functionalities are those functionalities that are currently (or at the time of product launch) in the center of the customers' attention. These functionalities will be the "battle field" of competition where every company will try to present the best value for money of a single functionality or a functionality package to the customers.
- Enthusiasm Functionalities are the new and innovative product characteristics. The particular difficulty lays in identifying and realizing these functionalities earlier than the competitors and to present them in a target group focused way.

Notes

Building an Enthusiasm Model pyramid

The three different categories of the Enthusiasm Model depend on answering various general and some category specific questions

Which questions have to be answered for the EM in total?

- Where do we want to go with our future products: **Strategy, i.e portfolio, brand, design etc.**!
- How will different **functionalities apply in different price classes** and how will they fall into lower segments over time **(functional roadmaps)**?
- Which **competition is present in the catered regions** and **how do they address their markets**?
- Which **technologies influence** the respective business **(convergence)**?
- Profound **understanding of the addressed consumer segments** (incl. regional/cultural differences) through **stable global market intelligence**
- Detailed understanding of the customers' **(operators') motivations / strategies mid- and long-term**

Input

Which questions have to be answered for the different categories?

- Which **technological innovations** are coming up and **could be used at what time**?
- Which **underlying customer / consumer needs are developing** and have **not been addressed**?

- Which **functionalities (-quality)** can be **expected from the competition today and** in the future?
- Which **functionalities (-quality) from adjacent industries** has an influencing factor on the buying decisions (substitution)?

- Which **functionalities** will be perceived to be **basic in the price class** and **when** in the future?
- Which **functionalities will become obsolete,** are not or negatively perceived by the consumer?

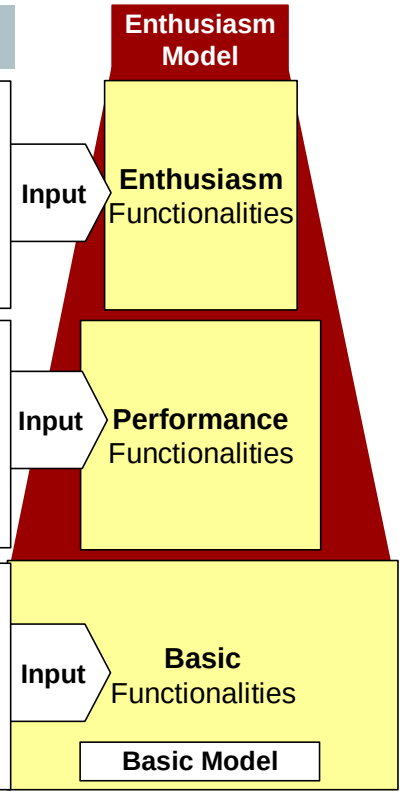


Illustration 2.6

2.1.4 Building an Enthusiasm Model depends on high quality input

The three different categories of the Enthusiasm Model have different needs concerning market and technology intelligence as they are referring to different points of time.

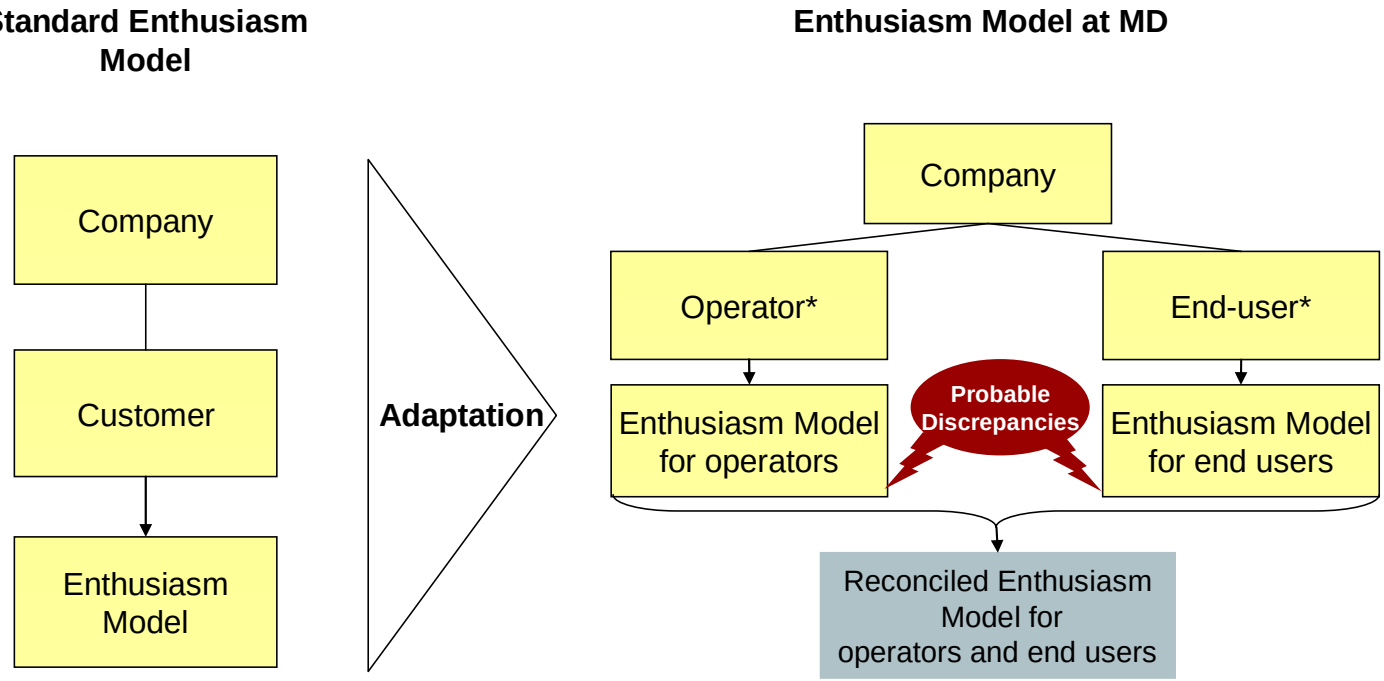
- The basic category has to ask for confirmation if all Basic Functionalities will still exist in the future or can be substituted through other technologies.
- The performance category particularly depends on knowing what the competition is about to present and what the “hot technical topics” will be.
- The enthusiasm category is the most challenging one as it depends on knowing what not yet existent could best trigger customer delight in the future and how this could be solved technically.

Apart from category specific questions, general topics about market and technology need to be provided to set the Enthusiasm Model into an overall perspective.

Notes

Adaptation of the Enthusiasm Model

The standard Enthusiasm Model has to be adapted for MD to take differences in operator and end user demands into account



*Note: The notion of “operator” comprises all B2B customers. Specific retailer / distributor needs are seen to be same as end-user requirements.

Illustration 2.7

2.2 The Window of Opportunity and the Enthusiasm Model at MD

Due to its generic approach and its division in the four categories proposition, target market, target positioning in the portfolio and product idea the Window of Opportunity does not have to be adjusted to MD's specific demands. A detailed "fill-in" guide is given later in this chapter.

2.2.1 Adaptation of the Enthusiasm Model

In the MD specific case, the Enthusiasm Model faces the particular challenge that two target groups have to be addressed at the same time: The end-user and the operator.

These discrepancies are solved by separately evaluating both groups.

In the reconciliation of the Enthusiasm Model, only the separately analyzed technical target volumes of both groups are reconciled. The Enthusiasm Model categories of operators and end-users are separately used in latter tools without reconciliation.

Overall, the Enthusiasm Model will put its focus on defining the best (i.e. ARPU driving) solution for the operator and the most value- and emotions-creating concept for the end-user depending on the product market focus.

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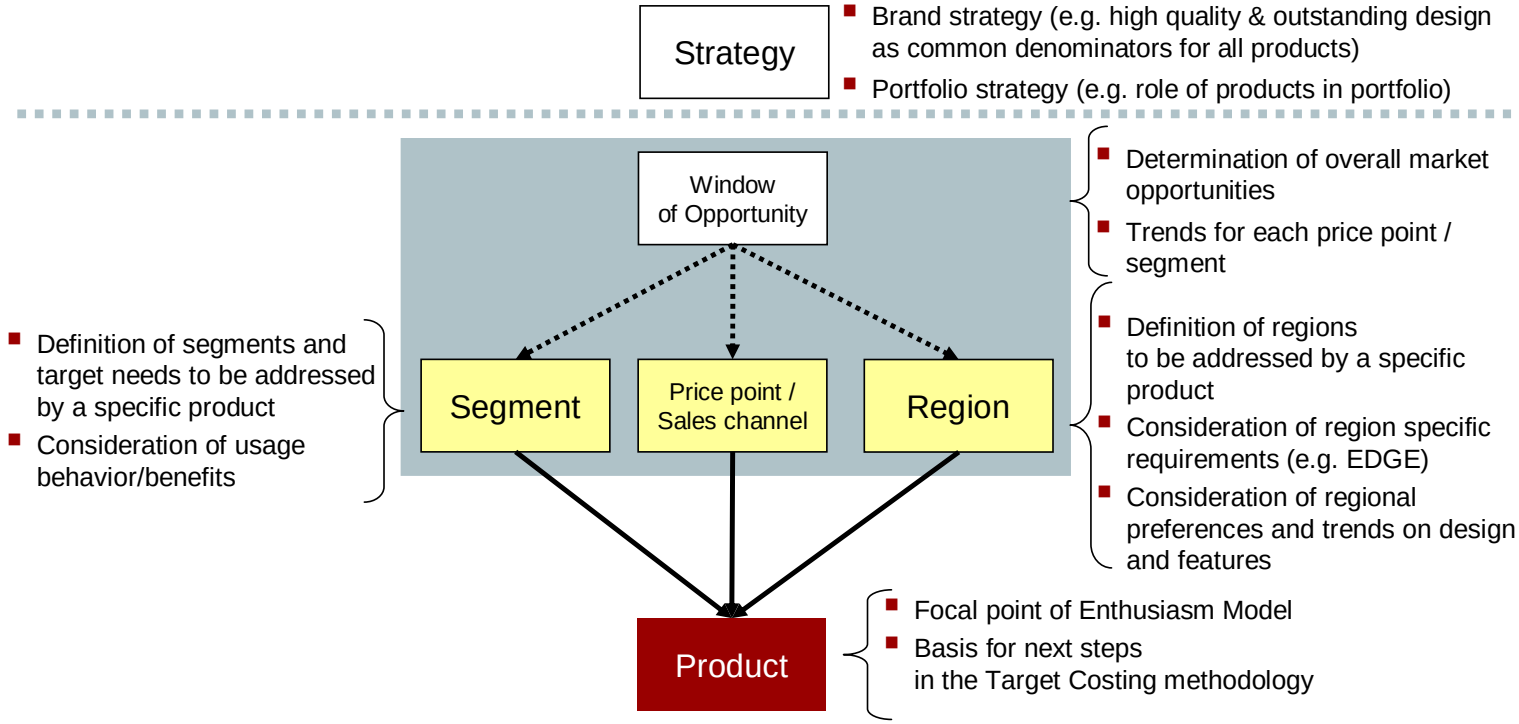
Environment and focus of the Enthusiasm Model

Based on the identified Window of Opportunity the Enthusiasm Model is developed for every single product



In the **long run**, the Enthusiasm Models on **portfolio level** can be designed in order to achieve a **„common enthusiasm identity“** and **recognition** of **all products of MD**.

Illustration 2.8

2.2.2 Environment and focus of the Enthusiasm Model

MD's business is global, addressing all varieties of target groups through different sales channels and at different price points in order to fulfill the overall corporate strategy. These targets are defined for each product in the Window of Opportunity. Therefore, each EM for a specific product will have to consider the defined targets in the Window of Opportunity.

This implicates that the quality of an Enthusiasm Model strongly depends again on the quality of the input provided. In this case there is a particular necessity of segmentation input that thoroughly describes the end-users' motivations and needs, the knowledge of sales channels and their needs (requirements engineering and distributor relations), a precise monitoring of price points and their development over time and for a constant integration of regional market and technology knowledge into the product definition and strategy process.

If all this information is provided, MD's products should be a perfect expression of MD's corporate strategy (overall aim, portfolio strategy, design guidelines, etc.)

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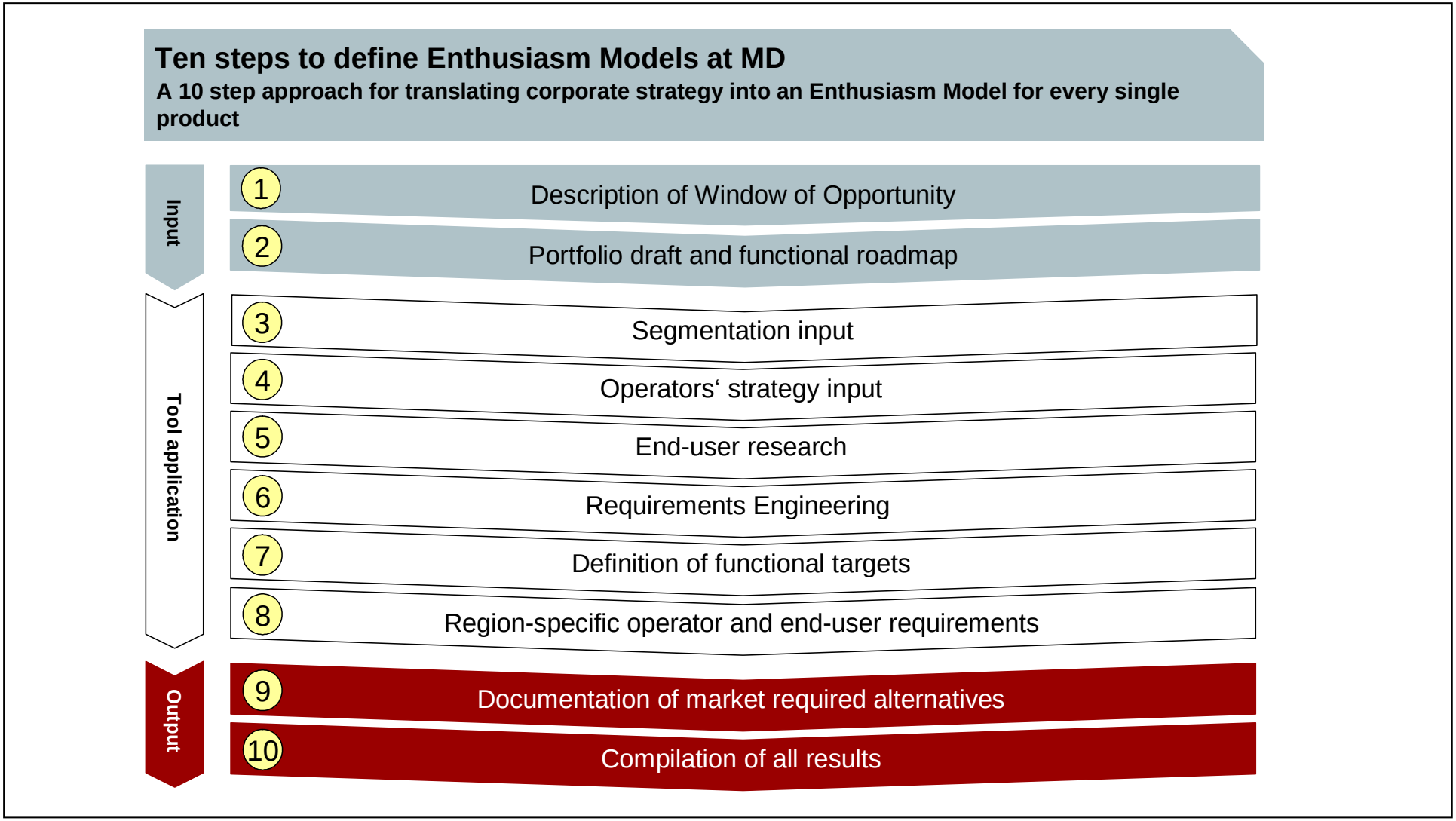

Illustration 2.9

2.2.3 Ten steps to define Enthusiasm Models at MD

Steps 1 and 2 assure that all work is consistent with MD's corporate strategy (and thus also brand strategy), implemented in the rolling portfolio draft. Thus, it is taken care that the execution of the subsequent Target Costing tools is briefed perfectly.

The Window of Opportunity is the first step towards defining a new product. If no obvious Window of Opportunity can be developed, further steps in the product development process should be canceled right away. Such opportunities need to be identified based on the concept of a rolling portfolio as they are the first step of translating strategy into products.

Steps 3-8 are conducted to supply the Enthusiasm Model with in-depth market and technology input in order to precisely derive what could and should be done to address the Window of Opportunity.

Steps 9 and 10 help to define functional requirements the product will have to fulfill and which solutions shall be the key functionality of the concept.

Notes

The Window of Opportunity for Product A

1

To ensure a target oriented product definition the Window of Opportunity has to be sharply described for each product to ensure market orientation and cost consciousness

Pro-position

- **Why are we making this product:** Create a top 3 seller for the S-class segment in order to secure MD's position within the price class during 2004

Target market (retail-user and operator)

- **End-user (sub-)segment:** expressive Connection
- **Regional market focus:** 60% EMEA, 0% NAM, 0% LAM, 40% APAC
- **Sales channel split:** Operator 70% vs. retail 30%
- **Key operators addressed**: Vodafone, T-Mobile
- **Main reference/competitor products**: S55/Nokia 6230

Target positioning in portfolio

- **Story / technical successor to:** S 55
- **Price Point:** 260 € falling to 165 € (EOL)
- **Launch date/lifecycle:** July 2004 – June 2005**/**12 months
- **Addressable Market:** 35 Mio. units in the markets
- **Planned volume/ market share:** 4,5 Mio. Units/22%
- **Target Profit:** 10 %, approximately 90 Mio. €

Product idea

- **Product idea:** "Your everyday business companion"
- **Key theme:** Business
- **Use cases:** A,B,C
- **Dedicated innovation:** none

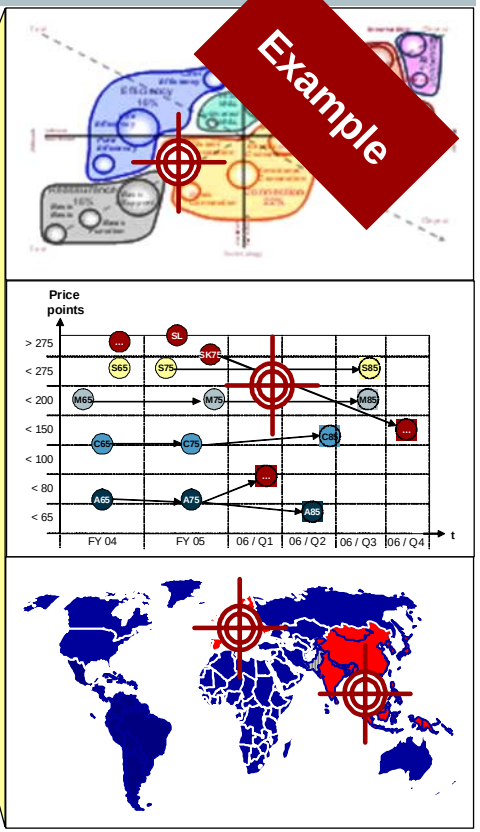

Illustration 2.10

Step 1a: Definition of the Window of Opportunity for a product

To achieve appropriate results when defining the product the following “fill-in” guidelines have to be regarded:

- Proposition: Describe market objective, market opportunity and MD’s motivation to launch this product.
- End-user (sub-segment): Name core sub-segment and additional relevant sub-segments in product focus.
- Regional market focus: Provide calculated global sales split.
- Sales channel split: Provide expected split of sales channels.
- Key operators addressed: Name most important operators for this product.
- Competitor products: Name competitor products in same prices class or same theme.
- Story successor to: Describe continuity of market story.
- Price point: Name price point and ASP.
- Launch date/lifecycle: Name start and end of lifecycle and its duration in months.
- Addressable market: Calculate units of target market regarding segments, countries and price classes.
- Planned market volume/market share: Name absolute and relative volume.
- Target profit: Fill in margin rate from Group Profit Target Structure.
- Product idea: Create Marketing slogan.
- Key theme: Describe focus of the product.
- Key use cases: Describe the most important use cases of planned phone, under lied by special template.
- Dedicated innovation: Describe technical or market innovation.

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Template for use cases – product name

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The description of key use cases of the planned product regarding key theme, price point, segment and region help to emphasize on daily usage scenarios

Key theme:	Price point:	Segment:	Region:
xxx	xxx	xxx	xxx

Use case	Use case description	Importance	
		End-user	MNO
Use case 1	▪ **Situation***: xxx ▪ **Frequencies of use case**: xxx ▪ **Typical course of action**: xxx ▪ **Related use cases**: xxx	**L M H no**	**L M H no**
Use case 2	▪ **Situation***: xxx ▪ **Frequencies of use case**: xxx ▪ **Typical course of action**: xxx ▪ **Related use cases**: xxx	**L M H no**	**L M H no**
Use case 3	▪ **Situation***: xxx ▪ **Frequencies of use case**: xxx ▪ **Typical course of action**: xxx ▪ **Related use cases**: xxx	**L M H no**	**L M H no**

Illustration 2.11

1b: Description of key use cases of a product

In order to put more emphasis on daily usage scenarios key use cases have to be described for the planned product.

Use cases describe the typical usage of different functionalities of a product. They are not described in technical terms but with the subjective words of the user and thus establish a link between market demands

The shown template categorizes each use case in four characteristics: situation, frequencies of use case, typical course of action and related use cases.

The situation comprises the time, place as well as the circumstances that cause the use case to begin.

The frequency gives indications of how often the functionality is used.

The typical course of action describes the steps of the process defined by the use case. The course of action should only document the best case scenario of the process.

The related use cases can be separated in including and extending use cases. Thereby a reader of the use case description is made aware of other uses cases in order to understand all optional or conditional processes.

On the right hand side a first indication of the importance for end-user and operators should be given. The classification in low (L), mid (M), high (H) or no gives first indications for the later Product Target Splitting.

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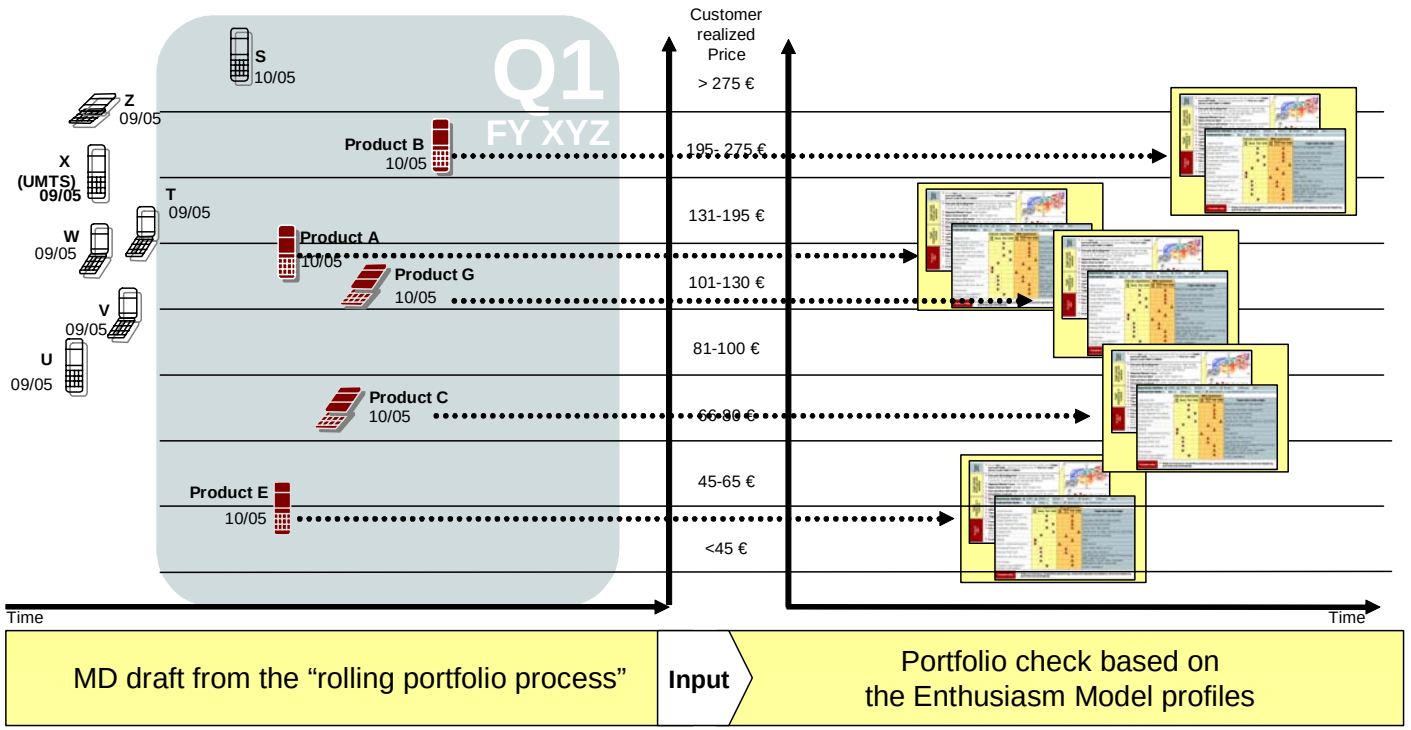
The linkage of Enthusiasm Model and portfolio draft

2a

For every envisaged phone in the portfolio draft, an Enthusiasm Model as well as a dedicated Window of Opportunity have to be completed



*) Customer Realized Price

Illustration 2.12

Step 2a: The linkage of Enthusiasm Model and Portfolio draft

Every single Enthusiasm Model will be linked with the other products' Windows of Opportunity and Enthusiasm Models in the existing portfolios and the draft of future portfolios.

Once the Window of Opportunity and the Enthusiasm Model is established as a constant tool for product development efforts it will also assist in continuing portfolio structures consistently over time.

A target profile for example will then migrate from being a top-class product at first launch towards becoming a mass market product in the later stages of the product life cycle (or in a second edition of its lifecycle) and eventually moving into the low end as design to cost or refresh product.

Additionally the aggregation of some segment-specific target profiles or all target profiles of the Enthusiasm Model will help to verify the overall enthusiasm strategy in the defined MD portfolio. (E.g.: If MD wants to be perceived as the most reliable mobile phone brand, then those functions supporting a reliable impression (e.g. telephony and robustness) will always rank in the performance or enthusiasm categories of the different products.)

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Enthusiasm Model uses input from a functional roadmap

2b

The Enthusiasm Model is benchmarked against a functional roadmap that – derived from corporate strategy - sets the functional goals for different price classes

- At a given price point and a given launch date (◎)the functional roadmap raises attention to what will by then be the approximate technical Target Value for the respective categories of the Enthusiasm Model
- Certain qualities of e.g. the display will at the launch date be Performance and fall to Basic over the lifecycle. Accordingly, a functionalitiy quality (e.g. Epson 4 vertical alignment) will be Enthusiasm and fall into the Performance category over time.
- The functional roadmap will therefore be a guideline to Alternatives Generation and tune the Enthusiasm Model filter.
- The Enthusiasm Model Filter will narrow the morphologic case to a limited amount of Alternatives.
- Market and competitor benchmarks supplement the analysis and make sure that the functional roadmap is not only an internal goal setting but also assures recognition of the market trends and newly developing industry standards.

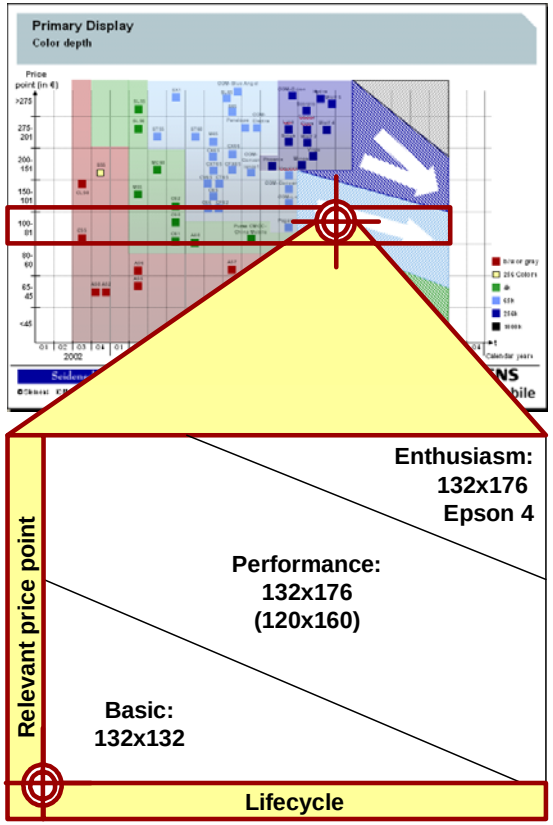

Illustration 2.13

Step 2b: The Enthusiasm Model and its link to functional roadmaps

Beside the linkage of the Enthusiasm Model and the portfolio draft an alignment with the functional roadmap has to be considered. The results of the portfolio enthusiasm strategy have to be benchmarked with the functional roadmaps and then define the relevant technical value ranges for a product's Enthusiasm Model.

To successfully define the functional roadmaps end-user and operator requirements as well as competitor benchmarks and price estimation for components have to be used as input. The functional roadmap is then to be used for:

- The components of a mobile phone. These have to be interpreted in the Enthusiasm Model depending on the theme the phone is addressing.
- The definition of the Enthusiasm Models by showing the functional target values at each price point for the three enthusiasm categories "Basic", "Performance" and "Enthusiasm".

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The Enthusiasm Model and its link to the need-based segmentation

3

Through the development of EM Target Profiles for each segment a clear target group focus and thus a sharp product positioning will be supported

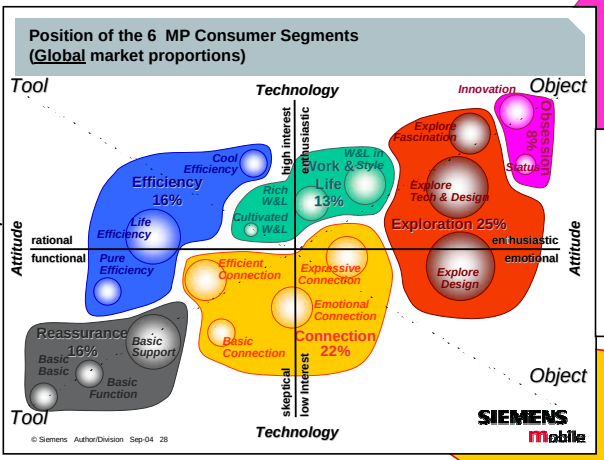
Why ?

What ?

Where ?

When ?

A one certain price point!



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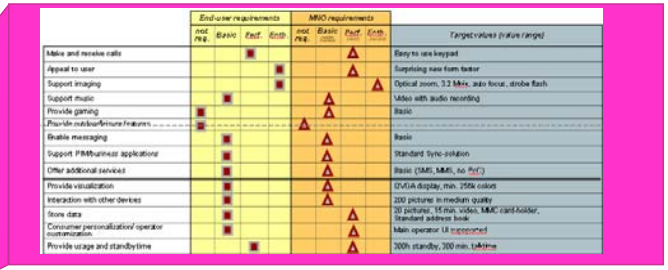

Different segments call for clearly **differentiated product concepts**.

Thus, the **Enthusiasm Models as an ex ante profile of the product idea vary naturally**. Their **structure reflects what matters most to the consumers of the respective segment. It thus** determinates what **be Basic, Performance or Enthusiasm** requirements of a product.

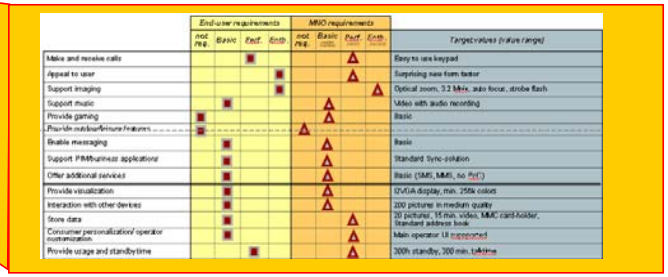

Illustration 2.14

Step 3: Translation of need-based segmentation input into the Enthusiasm Model structure

Every Enthusiasm Model for a product is a tailored construct particularly aiming at one end-user target group. Therefore it is essential that the Enthusiasm Model makes use of all information provided by the segmentation once the target segments are defined (by the Window of Opportunity).

The need based segmentation answers the four key questions of

- why a end-user buys a product,
- what he/she wants to use it for,
- where it will be used and
- when it will be used.

A processing of this input in combination with the goals set by the Window of Opportunity results in a target profile of the product.

By developing the target profile the product team decides in which of the 14 key functionalities of a mobile device the particular product shall be basic, performance or enthusiasm.

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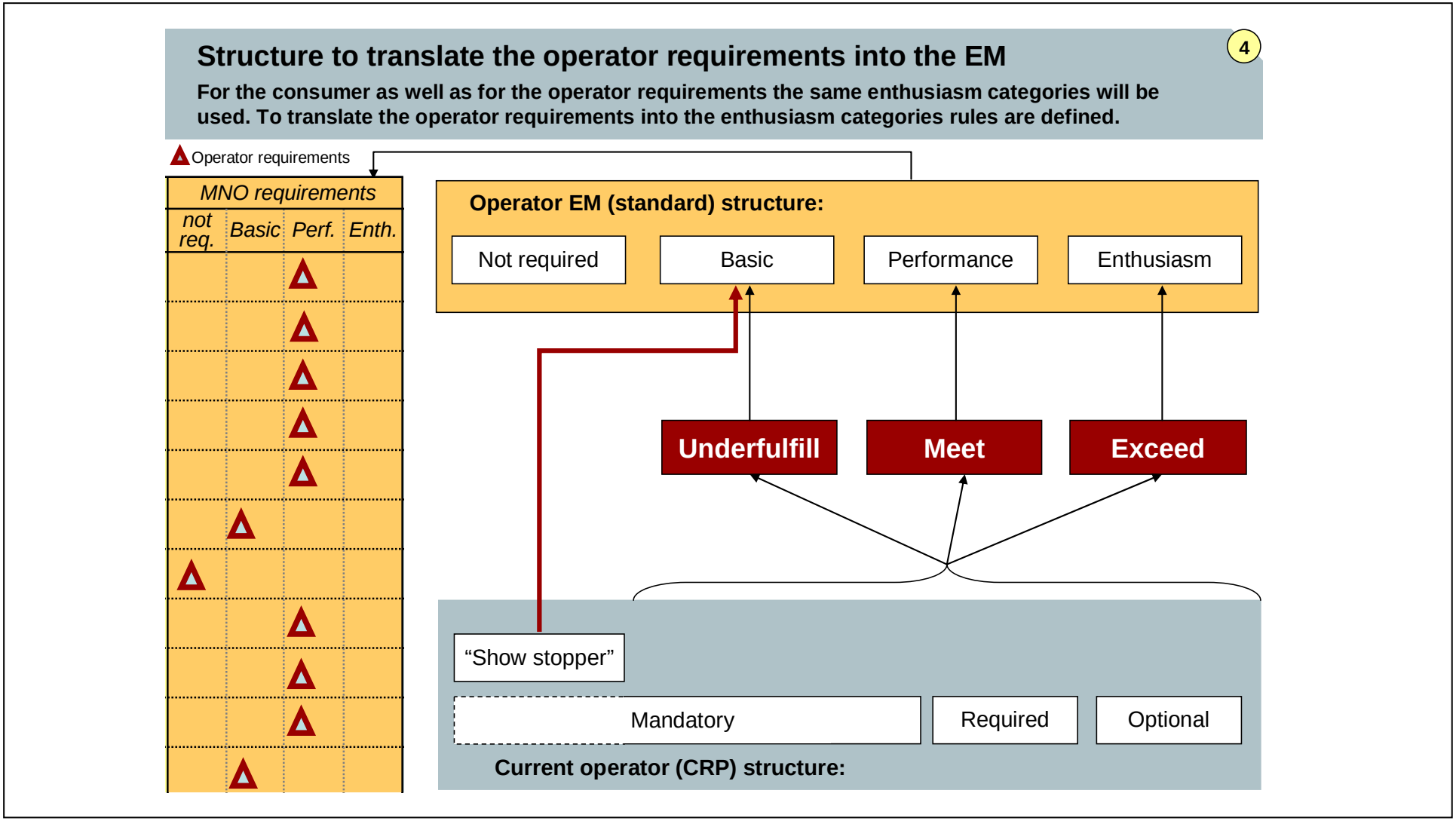

Illustration 2.15

Step 4: Translation of operator requirements input into the Enthusiasm Model structure

Every Enthusiasm Model for a product is in addition to the end-user tailored to an operator target group. Therefore, it is essential that the Enthusiasm Model makes use of all information provided by the target operators once they are defined by the Window of Opportunity.

The operator requirements and their worldwide aggregation are provided by the existing "Customer Requirement Prioritization" tool. Based on these results a translation into the enthusiasm categories – not required, basic, performance and enthusiasm – has to be done. This is necessary because only then a comparison to the end-user structure is possible. At the same time the defined operator requirements – mandatory, required and optional – have to be verified.

The degree of fulfillment of the requirements such as meet, underfulfil or exceed will support the translation into the EM categories. One exception is the translation of the real mandatory show stoppers, which have to be translated into "Basic Requirements". Show stoppers are defined as basic because they have to be fulfilled, or otherwise the product will definitely not be accepted by the operator.

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EM relevant inputs from end-user research & requirements engineering

5 6

Causing enthusiasm is the result of a structured and ongoing thinking in market needs and innovation capabilities – thereby the verification with the Product Target Splitting is necessary

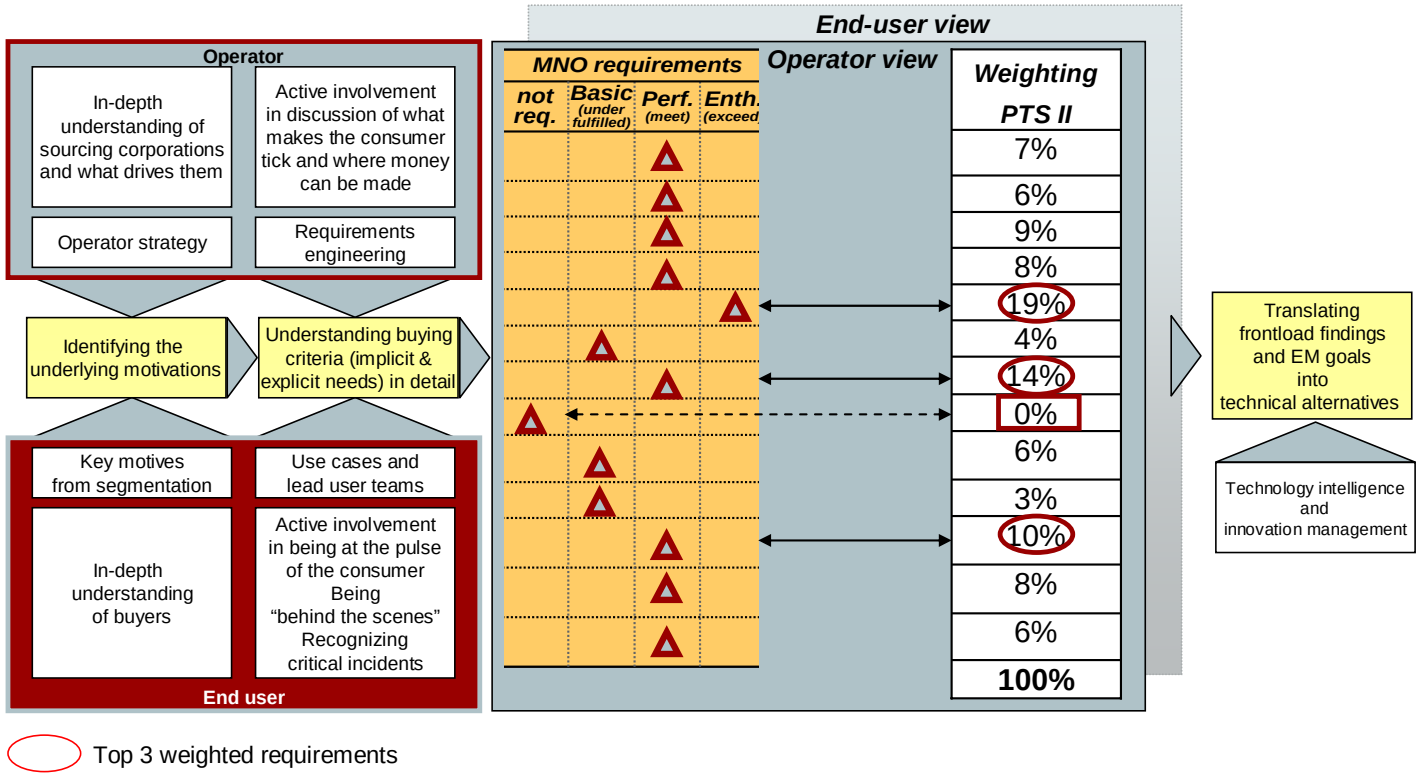

Illustration 2.16

Steps 5+6: Incorporation of inputs from end-user research and requirements engineering

At the beginning of the Enthusiasm Model definition process only the Enthusiasm Model categories are to be defined. All possible inputs from the end-user research or the operator requirements engineering (such as “Price Performance Analysis”, buying criteria’ and their weighting) have to be used for the definition and verification of the Enthusiasm Model.

The weighting of the functional requirements, resulting of the Product Target Splitting (I), uses partly the same inputs as the EM. Therefore the results of the PTS and the EM must be compared before using them in further Target Costing tools.

In the alignment of both tools the EM category per function is compared with the weighting per function of the PTS I, following certain rules:

- One or more of the highest weighted functions (in the optimum this is one of the top 3 functions) should be defined as functions where enthusiasm will be delivered.
- The lowest weighted functional requirements normally should only fulfill Basic Requirements. Differences need a clear argumentation.
- Not required functions need a weighting of 0%.

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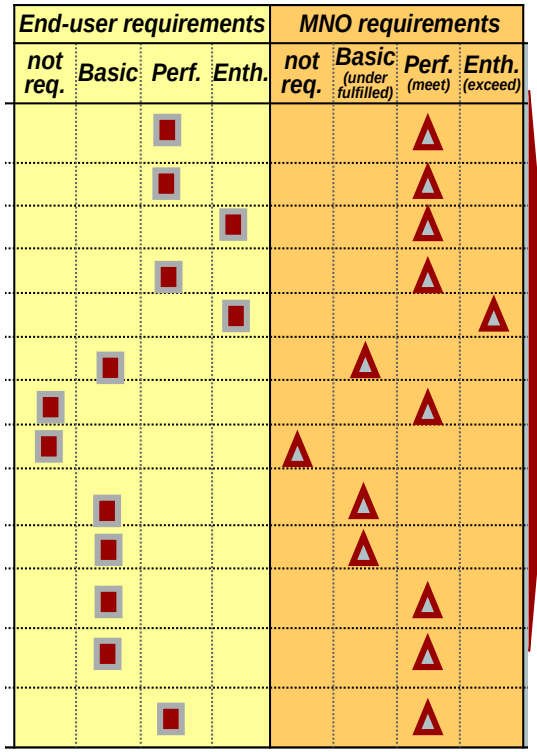
Translating the target profile into target values

7a

After the target profile has been defined for end-users and operators, the target values describe the targeted for solution in detail



- End-user and Operator profile can vary and if so have to be separately augmented or combined.
- Goals can still be “debatable” at this stage.
- Conscious exclusion of functions in accordance with the positioning is possible.
- If categories can be interpreted differently, assure clear comments.
- Enthusiasm positions can be marked with a lightning bolt if feasibility is yet to be clarified.

Example

Target values (value range)

3 band, 850/1800/ 1900 mHz , RF perfor.

MP3 daytime 2h, standby 300h

Simple, matt haptics, slider pref.

Be b.i.c. in 120x160 (132x176) display

No camera

MP3 decoding for ring tones

Standard 2 D gaming

None

Basic

P. e. phoneb, b. orga, SMS, MMS, PoC

Basic, no IrDa)

4 MB

UI, ID and 1 USP per operator

Illustration 2.17

Step 7a: Translating the target profile into target value

After the target profile has been defined, functional targets have to be set. They explain the driving functions of the product in the language of the end-user and operator. To define these functional targets more clear, technical target values should be added, as for example:

- Enthusiasm positions will typically be described as: “Outstanding RF performance”, “Most innovative solution for stereo loudspeakers” or “Be the first to introduce display resolution xy”.
- Performance positions will read: “Be best in class for 120x160 display”, “Ensure a competitive solution for PIM” or “Meet the competitive standards concerning usage time with 250 h”.
- Basic positions will be defined as: “Provide the standard functionality set for messaging with SMS, MMS ...”, “Include a design to cost solution for design/material” or “Assure including a VGA camera with the least possible effort”.

As operator and end-user positions might vary, there can also be required two different functional targets. But in case that no product variants are planned, finally only one target value has to be defined.

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Predefined standard template for the Enthusiasm Model at MD

7b

To secure MD-overall comparable Enthusiasm Models a standard template with predefined functional categories as shown is committed

Required air interface: [X] GSM [X] GPRS [ ] EDGE [ ] UMTS [X] WLAN [ ] VoIP (WLAN) [ ] other: "…"

Preferred form factor: [ ] Bar [ ] Slider [ ] Clam [X] New/ others: "… e.g. swivel-clam"

	End-user requirements				*MNO requirements*				
	not req.	*Basic*	*Perf.*	*Enth.*	*not req.*	*Basic (under fulfilled)*	*Perf. (meet)*	*Enth. (exceed)*	*Target values (value range)*
Make and receive calls			■				△		Easy to use keypad
Appeal to user				■			△		Surprising new form factor
Support imaging				■				△	Optical zoom, 3.2 Mpix, auto focus, strobe flash
Support music		■				△			Video with audio recording
Provide gaming	■					△			Basic
Provide outdoor/leisure features	■				△				
Enable messaging		■				△			Basic
Support PIM/business applications		■				△			Standard Sync-solution
Offer additional services		■				△			Basic (SMS, MMS, no PoC)
Provide visualization		■				△			QVGA display, min. 256k colors
Interaction with other devices		■				△			200 pictures in medium quality
Store data		■					△		20 pictures, 15 min. video, MMC card-holder, Standard address book
Consumer personalization/ operator customization		■					△		Main operator UI suppported
Provide usage and standby time			■				△		300h standby, 300 min. talktime

Possible risks

- **Risks according to competitive positioning, consumer/ operator acceptance, technical feasibility and financial/ profitability**

Illustration 2.18

Step 7b: The standard template for the Enthusiasm Model at MD

The Enthusiasm Model shows the profile of necessary functionalities to address our target market (end-user and operator) successfully. To keep this structure and the definition of the Enthusiasm Model comparable, the shown template is set as standard for MD.

Following issues are relevant for this template:

- The air interface/network standards will be set based on the definition of the target markets in the Window of Opportunity.
- The predefined categories are focusing on the required functionalities.
- The overall required functionalities of a mobile phone are described by …
    - … the core telephone functionalities as I/O keypad & voice/UI/RF performance, usage/ standby time and visualization (display/ lighting).
    - … the relevant additional themes or applications starting with imaging/video and ending with business/PIM/sync.
    - … the connectivity and data storage functionalities.
    - … at least the required personalization and customization functions.
- End-user or operator requirements on component level such as accessory devices are indirect part of the Enthusiasm Model. They have to be derived from the defined themes and set as functional target values.

The structure for the EM categories for end-users and operators is identical.

For each of the functional requirements target values or ranges have to be described.

Notes

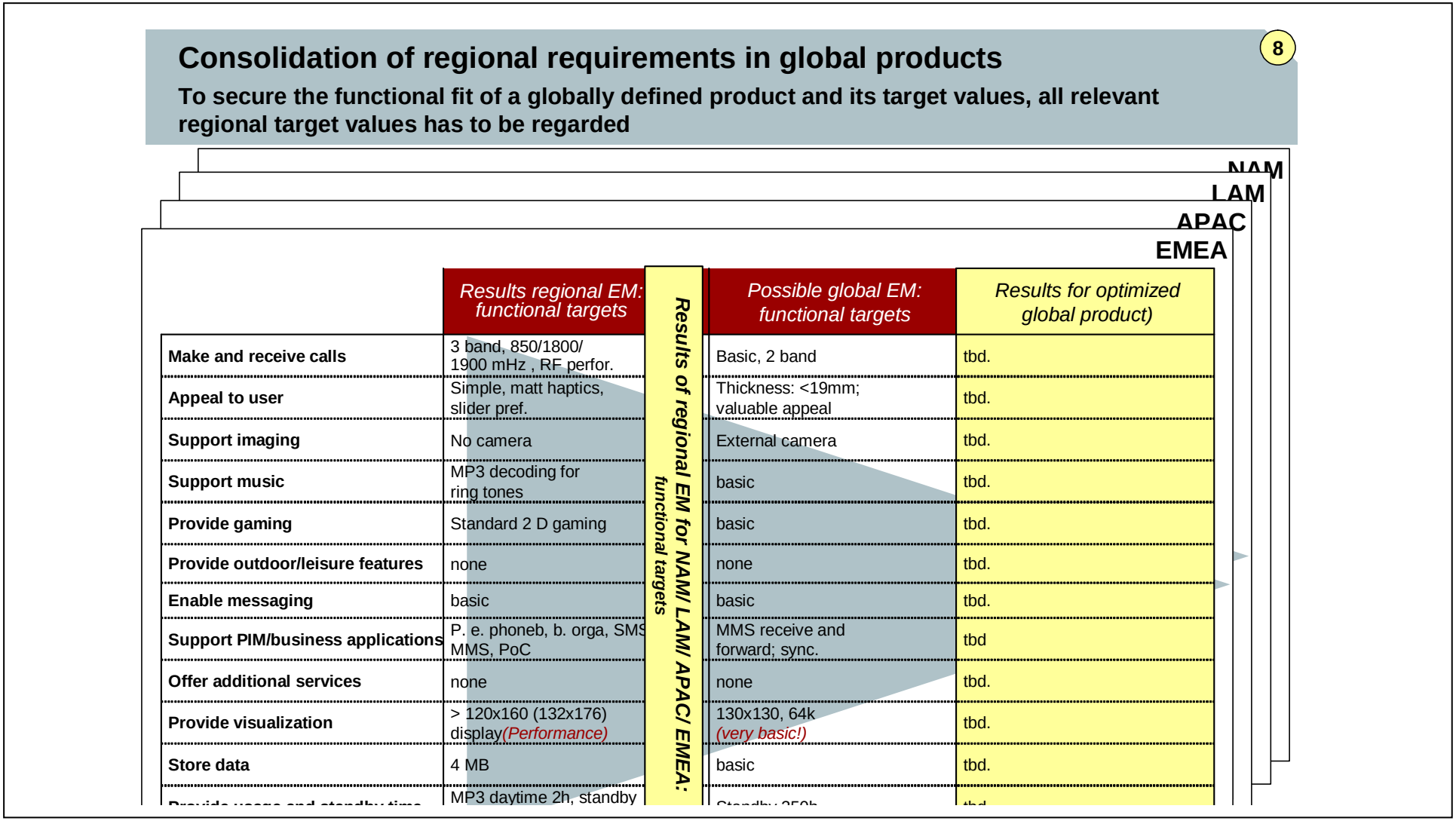

Illustration 2.19

Step 8: Recognition of region-specific end-user and operator requirements

As defined before different end-user and operator requirements have to be combined to one final target value for each functional requirement. The same has to be checked for region-specific requirements.

As long as the target values do not differ too much and therefore an overall fitting cost position meeting the project target is achievable, they should be combined into one Enthusiasm Model with combined target values. Otherwise region-specific product variants have to be discussed, each with a separate Enthusiasm Model. This depends on the regional split of the Window of Opportunity.

To support this process the structure of the provided template should be used, as it:

- helps to make the variations transparent and therefore support the decision process,
- documents the decision and shows clearly which region-specific requirements will not be met and
- in the end helps to verify the targets for the target market, price points, launch dates/lifecycle or planned volumes which are defined in the Window of Opportunity.

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Documentation of discussed alternatives

9

Within the definition of the overall target values for one product discrepancies between end-user and operator or regional target values have to be discussed and documented

	Basic scenario *target values*	***A1: Operator*** *target values*	***A2: End-user*** *target values*	***A3: region xy*** *target values*
Make and receive calls	Voice centric, volume adjustments			
Appeal to user	Bar phone, robust, quality			No bar phone
Support imaging	No camera	VGA		VGA
Support music	40 poly			
Provide gaming	basic			
Provide outdoor/leisure features	Water resistance			
Enable messaging	basic			
Support PIM/business applications	basic			
Offer additional services				
Provide visualization	Comprehensive size, high brilliance		Bigger display	Bigger display
Store data	basic			
Provide usage and standby time				
Interaction with other devices				
Consumer personalization/operator customization				

Illustration 2.20

Step 9: Documentation of market required alternatives

Due to different operator, end-user and regional input, different requirements and functional target values have to be discussed.

As far as only one product and no group specific product variants will be defined, one preferred (80% fitting product for all addressed groups) Enthusiasm Model and the preferred target values have to be defined. This should be called the “Basic EM scenario”.

Additionally to this “Basic EM scenario” the other relevant possibilities to improve the Enthusiasm Model have to be documented. Therefore the shown template will document only the differences for the operator, end-user group or region specific functional targets.

The hereby defined market required alternatives are one main input for the Alternatives Generation, but are not evaluated yet.

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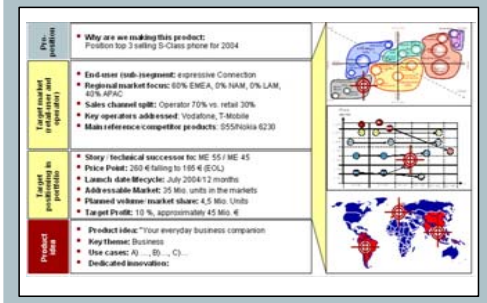
Translation of the EM goals into precise maxims for all TC-tools

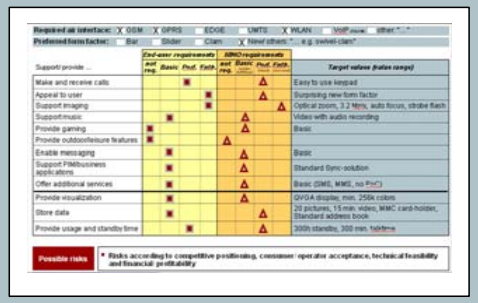
10

The defined templates that are used in the Enthusiasm Model process are documenting the final results.

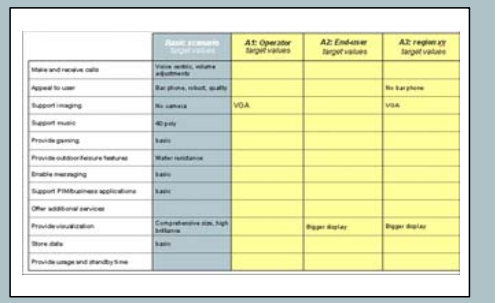
Window of Opportunity



Enthusiasm Model



Region-/ end-user/ operator specific Alternatives



Reverse Calculation

Product Target Splitting

Alternatives Generation

Alternatives Evaluation

Product Target Splitting

Concept Freeze

Target Controlling

Illustration 2.21

Step 10: Documentation of the EM, as input for all further Target Costing tools

Finally all results of the Enthusiasm Model have to be documented and forwarded as input to all other Target Costing tools.

Therefore three relevant results have to be delivered:

- The Window of Opportunity with the overall targets of the product with regard to the "Target Market", the "Target Positioning" and the "Product Idea" (cp. template Window of Opportunity).
- The Enthusiasm Model with defined enthusiasm categories and all target values (cp. template Enthusiasm Model).
- The documentation of all discussed and relevant alternatives with the different target values (cp. template above).

All these results of the Enthusiasm Model process have to be committed before they are used as input for the exact process steps.

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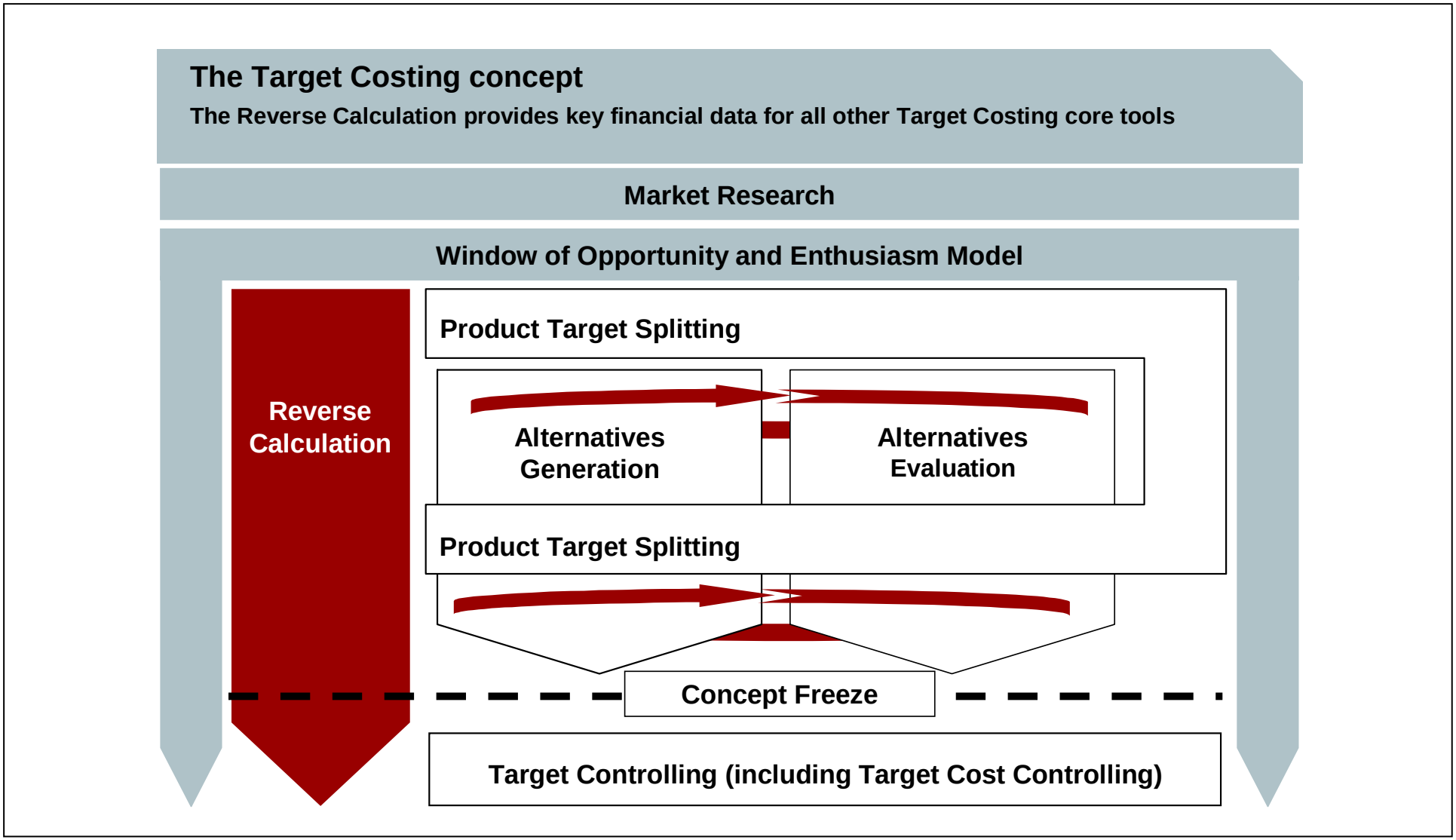

Illustration 3.1

Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

3 Reverse Calculation

This chapter introduces the Reverse Calculation, one of six core tools of Target Costing.

The chapter is divided into two parts.

- Part one describes the Reverse Calculation in theory and how it establishes a product calculation tool that better reflects the actual challenges of a highly competitive market environment.
- The second part adapts the theory to the specific MD situation. Starting with the existing Business Case calculation structure, the Reverse Calculation is established in parallel to the existing financial data.

Notes

3.1 Methodology of the Reverse Calculation

3.1.1 Definition Reverse Calculation

The Reverse Calculation is a tool to allow a market-oriented product calculation. Therefore it starts with the relevant market data (target price and target volume) as well as profit targets to derive the Allowable Costs. This overall cost target is then split into costs categories that are structured according to their influenceability.

The result is a cost structure that has the focus on influenceable costs and shows the gap between the actual cost situation and the Target Costs (Target Cost Gap).

Benefits of the Reverse Calculation in the product development process:

- The Reverse Calculation supports the change from a cost-oriented price policy to a market-oriented cost management by starting with market defined prices and volumes.
- Due to its market orientation the Reverse Calculation offers an improved acceptance of management targets.
- The fixation of a necessary Target Profit secures the commitment to profitability.
- The Reverse Calculation shows a transparent cost structure for a product allowing the identification of optimization potentials.
- The Reverse Calculation allows to reveal possible cost gaps even at very early stages of the product development process and thus secures the necessary profit orientation.

Notes

Reverse Calculation versus traditional calculation

In comparison to the Cost Plus calculation which uses given product costs to calculate a sales price, the Reverse Calculation calculates allowable product costs based on a given price and volume

Cost Plus calculation
(period-oriented)

Material costs
Material overhead
Direct labor
Production overhead

PRODUCTION COSTS

Development overhead
Administration overhead
Sales overhead

TOTAL COSTS

Profit margin

SALES PRICE

How much will a product cost?
(And how can we transfer the cost to the customer?)

Reverse Calculation
(product lifecycle-related and before start of development)

Target Turnover
./. Target Profit (for each product)

= Allowable Costs

./. Target Overhead

./. Target Product Related Costs

= Target Directly Influenceable Costs

extended to the product lifecycle

What should the product cost?
(And how can we achieve these costs?)

according to: Seidenschwarz, W.: Nie wieder zu teuer!, Stuttgart 1997

Illustration 3.2

Refer to SEIDENSCHWARZ , W.: Nie wieder zu teuer! 10 Schritte zum Marktorientierten Kostenmanagement, Stuttgart 1997, S. 38.

3.1.2 Reverse Calculation versus traditional Calculation

In a traditional Cost Plus calculation the sales price is calculated starting with the production costs, adding overhead costs and the desirable profit margin. The sales department has then the function to sell the product at that price.

In a highly competitive market situation this price is often not enforceable (only for the cost/innovation leader). Consequently the profit targets will be missed.

Contrary to the traditional Cost Plus Calculation the Reverse Calculation does not start with internal costs, but with the price and volumes given from the market (=Target Turnover). After subtracting the Target Profit, the Allowable Costs for a product are known. These costs reflect the amount available to develop, produce and market the product. The Allowable Costs are split into three main cost categories: Overhead Costs, Product Related Costs and Directly Influenceable Costs. They are sorted regarding their influenceability.

As Overhead Costs and Product Related Costs are defined outside the reach of the product team they are subtracted from the Allowable Costs. The result are the so called Directly Influenceable Costs as these costs can be impacted by the product team.

The Directly Influenceable Costs reflect the amount available for the product and that can be directly influenced by the product team.

Notes

The structure of Reverse Calculation

Reverse Calculation structures the target cost categories according to their influenceability and calculates a Target Cost Gap

	Target Turnover	
./.	Target Profit	
=	**Allowable Costs**	
./.	Target Overhead I	Comprises of costs allocated to the division from corporate functions.
./.	Target Overhead II	Comprises of costs related to the division that accrue for processes not directly associated with the product.
./.	Target Product Related Costs	Comprises of costs that accrue by decisions of the product manager and his team but can only be influenced by joint effort with the relevant functional department.
=	Target Directly Influenceable Costs	Made up of all costs that can be influenced by the product team if a Target Costing-friendly organizational structure exists.
	TARGET COST GAP	
	Actual cost projections	Product costs are calculated based on the assumed solution and actual conditions.

Target Cost categories

Reverse Calculation considers lifecycle information

Illustration 3.3

Refer to SEIDENSCHWARZ , W.: Nie wieder zu teuer! 10 Schritte zum Marktorientierten Kostenmanagement, Stuttgart 1997, S. 41.

3.1.3 The structure of Reverse Calculation

The Reverse Calculation delivers three major results. These are the Allowable Costs, the Target Directly Influenceable Costs and the Target Cost Gap.

The Allowable Cost are derived from:

- The Target Turnover reflects the market derived volume and prices. Target volumes are calculated using the market volume for the segment addressed by the product and taking the target market share into account. The target price is derived by competitor analysis, a Price Performance Analysis (What is the customer willing to pay for certain functions?) or by using generally accepted price points for certain product concepts.
- The Target Profit is set by the management and reflects e.g. the Target EBIT of the corporation.

The Target Directly Influenceable Costs are derived from the Allowable Costs minus all less influenceable cost such as Target Overhead I and II.

The Target Cost Gap is the difference between the targeted Directly Influenceable Costs and the actual projected costs for the product. The aim of the project team is to close the Target Cost Gap.

Notes

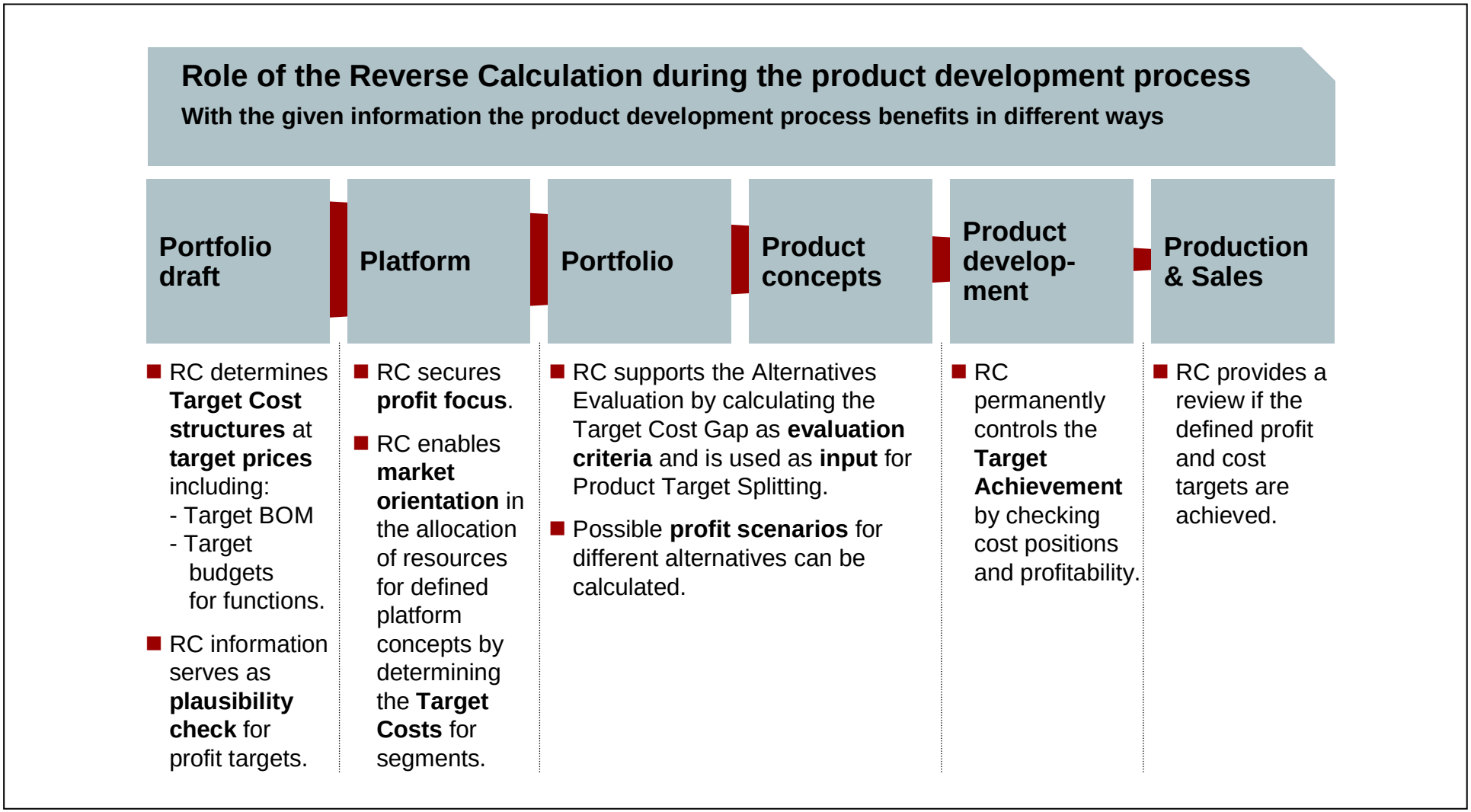

Illustration 3.4

3.1.4 Role of the Reverse Calculation during the product development process

The function of the Reverse Calculation differs along the product development process.

At the beginning when no BOM estimations are available the Reverse Calculation can use planned or historical figures for prices, volumes, Overhead Costs and Product Related Costs to calculate Target Costs, e.g. Target Manufacturing Costs or a Target BOM.

When subsequently more cost information is available a Target Cost Gap and scenarios for product alternatives are calculated.

After the product definition, the Reverse Calculation helps to control product profitability up to the end of the product's lifecycle.

Notes

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Actual MD Business Case

The Reverse Calculation is based on the existing Business Case structure

Business Case tool structure

Units
Units cumulated
Turn Over
Turn Over per unit
Manufacturing Costs
Manufacturing Costs per Unit
Sales Margin
Sales Margin %
Sales Margin per Unit
COGS
COGS %
COGS per Unit
Gross Margin
Gross Margin %
Gross Margin per unit
Overhead
Overhead %
Overhead per unit

EBIT
EBIT Cumulated
EBIT%
EBIT per unit

The MD calculation starts with market derived targets (price, volume and EBIT targets).

Costs are mainly directly budgeted (around 90% of all costs)
For all remaining cost categories the turnover is used as an overhead rate base.

These preconditions are taken into account for the design of the MD Reverse Calculation to align both, Business Case Tool and MD Reverse Calculation.

In addition to the Business Case Tool the MD Reverse Calculation structures costs according to their ability to be influenced and calculates a Target Cost Gap.

Illustration 3.5

3.2 The Reverse Calculation at MD

3.2.1 Actual MD Business Case

The current BC tool is not based on the mentioned traditional Cost Plus methodology. Market derived price, planned sales volumes, various overheads and planned costs are fed into the current Business Case tool to calculate the EBIT.

Around 90% of all costs are directly budgeted. Certain cost reduction targets are also included in the tool.

These preconditions are taken into account for the design of the MD Reverse Calculation to align both, Business Case tool and MD Reverse Calculation.

Therefore the main target of the Reverse Calculation at MD is to increase the market focus and the transparency of the calculation.

Notes

Transition of the Business Case to the Reverse Calculation

By rearranging the cost categories and considering a Target Profit, the Reverse Calculation provides a clear cost reduction target

Business Case tool structure

Units	2.000.000
Units cumulated	2.000.000
Turn Over	200.000.000
Turn Over per unit	100,00
Manufacturing Costs	130.000.000
Manufacturing Costs per Unit	65,00
Sales Margin	70.000.000
Sales Margin %	35,00%
Sales Margin per Unit	35,00
COGS	14.000.000
Other COGS	2.000.000
SCM Costs	4.000.000
Service Costs	8.000.000
COGS %	7,00%
COGS per Unit	7,00
Gross Margin	56.000.000
Gross Margin %	28,00%
Gross Margin per unit	28,00
Overhead	45.600.000
Administration	2.600.000
Development (direct)	7.000.000
Development (indirect)	6.000.000
Marketing (direct)	10.000.000
Marketing (indirect)	8.000.000
Selling Expenses	12.000.000
Overhead %	22,80%
Overhead per unit	22,80
EBIT	10.400.000
EBIT Cumulated	10.400.000
EBIT%	5,20%
EBIT per unit	5,20

MD Reverse Calculation

Units	2.000.000
Target Turnover	200.000.000
Price (average)	100
Target Profit Total	15.000.000
Allowable Costs	185.000.000
Overhead I	2.600.000
Administration	2.600.000
Overhead II	32.000.000
Development (indirect)	6.000.000
Marketing (indirect)	8.000.000
Selling Expense	12.000.000
SCM Costs	4.000.000
Other COGS	2.000.000
Directly Influenceable Costs (DIC)	150.400.000
Product Related Costs (PRC)	25.000.000
Development (direct)	7.000.000
Marketing (direct)	10.000.000
Service Costs	8.000.000
Manufacturing Costs per unit	65,00
BOM per unit	50,00
Variant Adder per unit	0,00
CC per unit	10,00
Licences per unit	5,00
Target Cost Gap	-4.600.000
Target Cost Gap per unit	-2,30
EBIT (for comparison purpose)	10.400.000

Illustration 3.6

3.2.2 Transition of the Business Case to the Reverse Calculation

The Reverse Calculation uses the existing categories and figures of the MD calculation scheme, just adds the Target Profit and re-sorts them.

For reasons of comparison the EBIT is added as a position in the MD Reverse Calculation. The EBIT is the sum out of the necessary Target Profit and the Target Cost Gap.

In the example, the product team knows exactly that the costs have to be reduced by 2,30 EUR/unit or 4,6 Mio EUR in total to reach the Target Profit. The product team will therefore start with the costs at the bottom of the Reverse Calculation (Manufacturing Costs) and move upwards (Product Related Costs) to identify saving potentials in other cost categories.

Contrary to theory, the Product Related Costs are part of the Directly Influenceable Cost. This is due to the fact that at MD the product team can influence the product along the whole lifecycle and the Product Related Costs are directly budgeted instead of being calculated on an overhead rate base.

In addition the Target Cost Gap is re-positioned to the bottom of the calculation.

Notes

Possible actions to close the Target Cost Gap at MD

To close the Target Cost Gap the MP product team should focus on Product Related Costs and Manufacturing Costs

	Target Turnover	▪ With an efficient time to market and lifecycle management the product teams can influence volume developments and the price erosion of a product with the help of Marketing and Sales.
./.	**Target Profit**	
=	**Allowable Costs**	
./.	**Overhead I**	
./.	**Overhead II**	▪ MP management can influence the OH II costs by infrastructural changes (e.g. reorganization of global sales structures)
=	**Directly Influenceable Costs**	▪ **Direct R&D** costs can be influenced by the technical product concept (e.g. reuse of components) ▪ **Service costs** can be influenced by the product specifications & warranty ▪ **Marketing costs** can be influenced by the advertising approach
./.	**Product Related Costs (PRC)**	
./.	**Manufacturing Costs** Bill of Material (BOM) Conversion Costs (CC) Licenses Costs	▪ **BOM** can be influenced by component specifications (e.g. display brilliance guarantee) ▪ **Conversion Costs** can be influenced by the product construction concept (e.g. number of components) ▪ **Licenses** can be influenced by feature changes or own developments
=	**TARGET COST GAPS**	

Illustration 3.7

3.2.3 Possible actions to close the Target Cost Gap at MD

Following the Target Costing philosophy the reduction of the Target Costing Gap can be achieved by an increased product value (value up) or lower costs (cost down).

The “value up” is achieved by other Target Costing core tools, like the Enthusiasm Model and ensures the defined launch price/volumes and decreases the price pressure (higher ASP).

For the “cost down” process, the product team follows the structure of the Reverse Calculation:

- Overhead I and the Target Profit per product class can not be influenced by the product team and has to be accepted. Overhead II can only be changed by larger process changes. A product team can trigger such changes, but will have no direct influence on them.
- Therefore the product team can focus on Product Related Costs and Manufacturing Costs. Both can be directly influenced by different product concepts or feature changes. Indirectly the team can force the responsible departments (e.g. PD, Marketing, CCQ, CPPC) to rethink their processes and structures in order to influence the product profitability. To ensure this, employees from these departments should be included in the cross functional product team from the beginning.

Notes

Reverse Calculation for Target BOM

The Target BOM is calculated by setting the Target Cost Gap to zero

Target BOM ⟷ Reverse Calculation ⟷ Target Cost Gap

	Target BOM		Target Cost Gap	
	2.000.000	Units	2.000.000	
	200.000.000	Target Turnover	200.000.000	
	100	Price (average)	100	
./.	15.000.000	Target Profit Total	15.000.000	./.
=	185.000.000	Allowable Costs	185.000.000	=
	2.600.000	Overhead I	2.600.000	
	2.600.000	Administration	2.600.000	
	32.000.000	Overhead II	32.000.000	
	6.000.000	Development (indirect)	6.000.000	
	8.000.000	Marketing (indirect)	8.000.000	
	12.000.000	Selling Expense	12.000.000	
	4.000.000	SCM Costs	4.000.000	
./.	2.000.000	Other COGS	2.000.000	./.
	150.400.000	Directly Influenceable Costs (DIC)	150.400.000	
	25.000.000	Product Related Costs (PRC)	25.000.000	
	7.000.000	Development (direct)	7.000.000	
	10.000.000	Marketing (direct)	10.000.000	
	8.000.000	Service Costs	8.000.000	
	62,70	Manufacturing Costs per unit	65,00	
=	48,08	BOM per unit	50,00	
	0,00	Variant Adder per unit	0,00	
	9,62	CC per unit	10,00	
./.	5,00	Licences per unit	5,00	
	0	Target Cost Gap	-4.600.000	=
	0,00	Target Cost Gap per unit	-2,30	
	15.000.000	EBIT (for comparison purpose)	10.400.000	

- The **same calculation scheme** and cost positions are used.
- The **target value** changes from the Target Cost Gap to the **Manufacturing Cost and (Target) BOM**.
- The **Target Cost Gap** is set to **zero** (the point where the product reaches exactly its Target Profit).

Illustration 3.8

3.2.4 Reverse Calculation for Target BOM

In addition to the calculation of the Target Cost Gap, the Reverse Calculation is used to calculate Target Manufacturing Costs and a Target BOM.

The Target Manufacturing Costs reflect the maximum amount available for manufacturing the product considering the given cost structure and under the assumption that the product reaches exactly the given Target Profit.

To calculate the Target Manufacturing Costs, the Target Cost Gap is set to zero (= the point, where the product exactly reaches its given Target Profit). Target Turnover less Target Profit, less Overhead and Product Related Costs is the amount available for the Manufacturing Cost (MC). The Target BOM is calculated by additionally deducing the Variant Adder (VA), Conversion Costs (CC) and Licences from the Target Manufacturing Costs. To calculate Target MC / BOM for prices, volumes, Overhead Costs, Product Related Costs, VA, CC and Licenses have to be market-derived or based on MD business planning/historical experience.

Target Manufacturing and Target BOM are used in different phases of the product development process. The Target MCs are calculated simultaneously to the WoO creation. An alignment between the two will be the first financial check. The second major financial check will be done between the distributed Target BOM (as a result of the PTS process: Target Costs per modules) and the actual module costs of the product concept (result of WoO/EM/AG). Thus the Target BOM has to be calculated before the Product Target Splitting process starts.

Notes

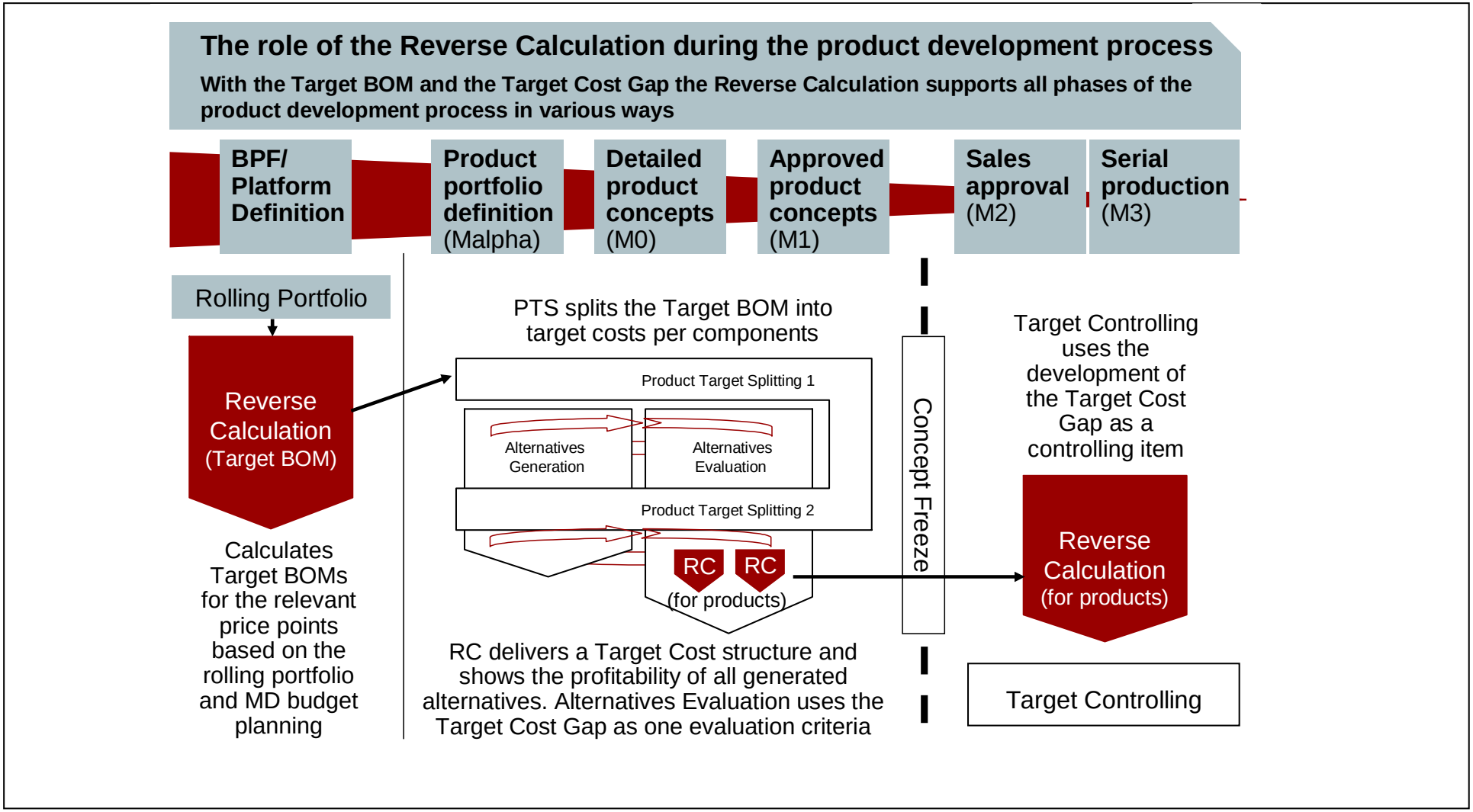


Illustration 3.9

3.2.5 The role of the Reverse Calculation within the Target Costing tools set

The Reverse Calculation adapts its function during the development process.

In the phase of BPF and Platform definition no detailed product information including an exact launch price or BOM estimation exists. Therefore the Reverse Calculation starts with given price points (“Reverse Calculation for price points”) and calculates the Target Manufacturing Costs and BOM.

After the defining of product concepts Manufacturing Costs and BOM estimations are available. Thus a Target Cost Gap can be calculated showing the product profitability (“Reverse Calculation per product”). The product management team then has the duty to redefine the product and challenge the costs as long as the Target Cost Gap is still negative.

The derived Target BOM is handed over to the Product Target Splitting to split down the aggregated target value for the whole material costs of the product to module costs (see Product Target Splitting).

For the Alternatives Evaluation the Reverse Calculation calculates the profitability of different alternatives and thus provides important evaluation criteria.

In the later stages the Reverse Calculation is used to support the Target Controlling activities and shows the profitability development over time.

Notes

Management Templates of the Reverse Calculation I

The first management template shows the deviations between the original targets out of the Target BOM calculation and the actual status of the Reverse Calculation

Nestor

	Target BOM Reverse Calculation	M1 Reverse Calculation	M3 Reverse Calculation	Actual	Life-Cycle to Date	Deviation Analysis
Life Cycle (months)	**13**			**13**		• The actual Reverse Calculation can not yet meet the set targets. • The deviation in the Target Cost Gap has to be closed by the product team.
Units	3.500.000			3.500.000		
Target Turnover *ASP*	603.000.000 *172,29*			603.000.000 *172,29*		
Target Profit Total	45.225.000			45.225.000		
Allowable Costs	557.775.000			557.775.000		
Overhead I *Administration*	7.839.000 *7.839.000*			7.839.000 *7.839.000*		
Overhead II *Development (indirect)* *Marketing (indirect)* *Selling Expense* *SCM Costs* *Other COGS*	83.376.500 *7.700.000* *24.662.700* *28.160.100* *16.642.800* *6.210.900*			83.376.500 *7.700.000* *24.662.700* *28.160.100* *16.642.800* *6.210.900*		
Directly Influenceable Costs	466.559.500			466.559.500		
Product Related Costs *Development (direct)* *Marketing (direct)* *Service Costs*	30.870.000 *7.000.000* *8.575.000* *15.295.000*			30.870.000 *7.000.000* *8.575.000* *15.295.000*		
Manufacturing Costs per unit *thereof (Target) BOM*	120,36 *99,49*			120,36 *95,56*		
Target Cost Gap *per unit*	0 *0,00*			14.437.900 *4,13*		
EBIT	45.225.000			59.662.900		

Illustration 3.10

3.2.6 Management templates of the Reverse Calculation I

For management presentations three templates exist. The templates are presented on the following pages.

Template I shows the actual Reverse Calculation structure with the current TCG and compares it with the first calculation from beginning of the portfolio process “RC for Target BOM”.

- In the column “RC for Target BOM”, the first Target MC calculation is entered, thus the Target Cost Gap is zero.
- The column “Actual” comprises the latest Reverse Calculation available.
- The values before the first RC and the actual RC are compared and deviations become visible.
- When milestones are reached, the agreed RC are entered in the M1 and M3 column.

Notes

Management Templates of the Reverse Calculation II

The second management template shows the measure taken to close the deviations and the respective Target Cost Gap shown in the first management template

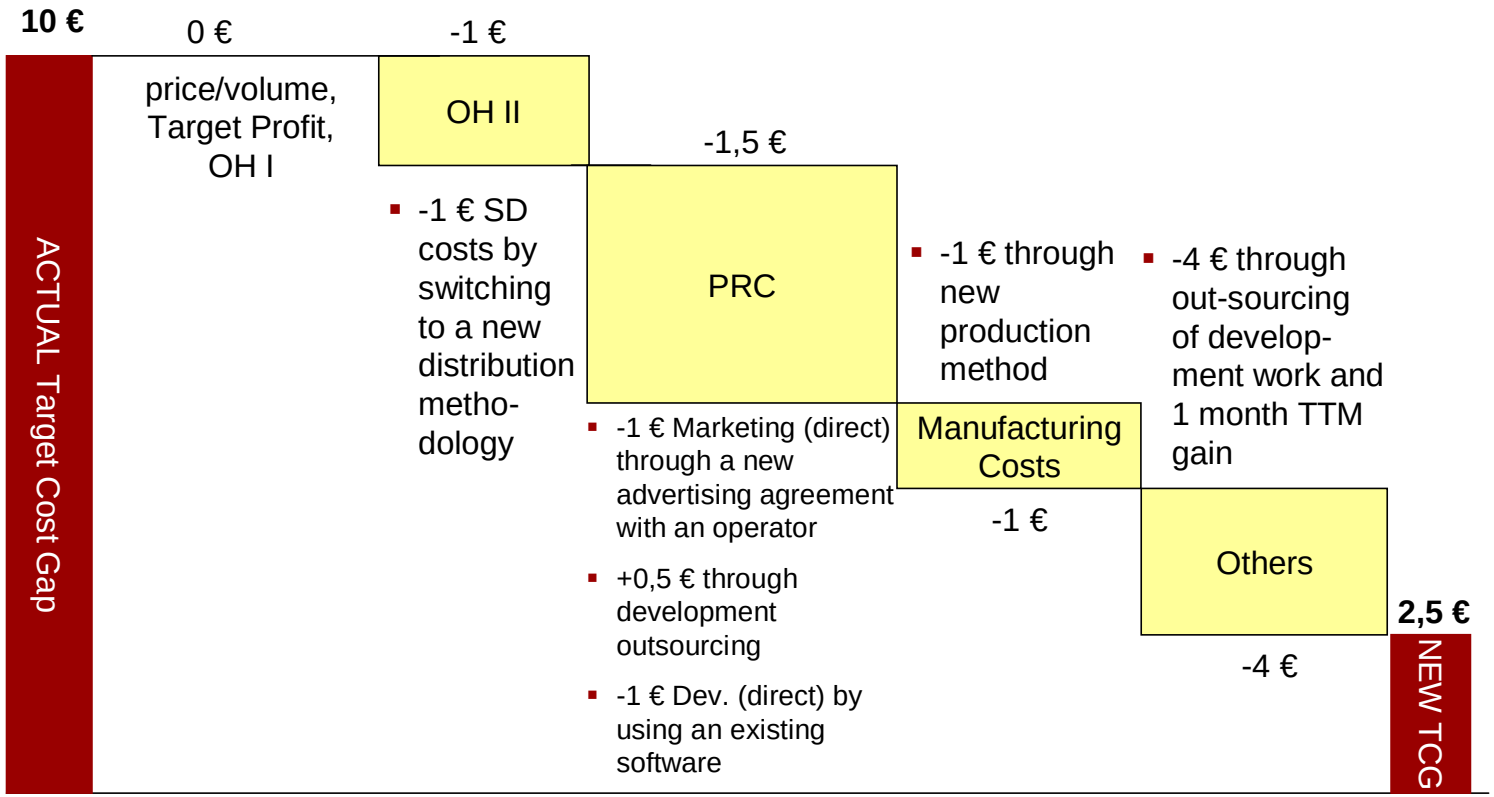


Illustration 3.11

3.2.7 Management templates of the Reverse Calculation II

The second management template shows the measure taken to close the deviations and the respective Target Cost Gap shown in the first management template.

Every TCG should be analyzed in detail andcost problems should be addressed, e.g. quality specifications, cost structure, technical specification of long lead modules as well as the procurement strategy.

The second management template shows the measures taken to close the existing deltas shown in the first template.

- Each measure is shortly described and the value per unit is calculated. Thus the measures help to reduce the Target Cost Gap.
- Aim is to reduce the Target Cost Gap to zero.
- In the example, the cost reduction is realized by the Overhead II, Product Related and Manufacturing Costs. In addition a TTM gain adds another 4 EUR to close the Target Cost Gap.
- The example the Target Cost Gap is not yet closed. If the team does not see further saving potentials either the management approves the product, without reaching the Target Profit or cancels the product. Overheads II can be addressed by the management and Overheads I by the central board.

Notes

Management templates of the Reverse Calculation III

The third template shows six standard simulations

Reverse Calculation - Standard Simulations -	Base Case Finch Music	TCG = 0	EBIT = 0	Hist. ASP 0 €	TTM delay 1 month	Volume -10%	Volume +10%	Volume -30%	Volume +30%
	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total
Units	**2.285.000**	**2.285.000**	**2.285.000**	**2.285.000**	**1.985.000**	**2.056.500**	**2.513.500**	**1.599.500**	**2.970.500**
Target Turnover	**173.350.000**	**181.787.606**	**173.823.198**	**0**	**155.350.000**	**156.015.000**	**190.685.000**	**121.345.000**	**225.355.000**
Price (average)	**75,86**	**79,56**	**76,07**	**0,00**	**78,26**	**75,86**	**75,86**	**75,86**	**75,86**
Target Profit Total 4,0%	**6.934.000**	**7.271.504**	**6.952.928**	**0**	**6.214.000**	**6.240.600**	**7.627.400**	**4.853.800**	**9.014.200**
Allowable Costs	**166.416.000**	**174.516.102**	**166.870.270**	**0**	**149.136.000**	**149.774.400**	**183.057.600**	**116.491.200**	**216.340.800**
Overhead I	**2.080.200**	**2.181.451**	**2.085.878**	**0**	**1.864.200**	**1.872.180**	**2.288.220**	**1.456.140**	**2.704.260**
Administration	2.080.200	2.181.451	2.085.878	0	1.864.200	1.872.180	2.288.220	1.456.140	2.704.260
Overhead II	**20.051.250**	**20.684.070**	**20.086.740**	**7.050.000**	**18.701.250**	**18.751.125**	**21.351.375**	**16.150.875**	**23.951.625**
Development (indirect)	7.050.000	7.050.000	7.050.000	7.050.000	7.050.000	7.050.000	7.050.000	7.050.000	7.050.000
Marketing (Pull + SF)	2.080.200	2.181.451	2.085.878	0	1.864.200	1.872.180	2.288.220	1.456.140	2.704.260
Selling Expense	5.200.500	5.453.628	5.214.696	0	4.660.500	4.680.450	5.720.550	3.640.350	6.760.650
SCM Costs	3.467.000	3.635.752	3.476.464	0	3.107.000	3.120.300	3.813.700	2.426.900	4.507.100
Other COGS	2.253.550	2.363.239	2.259.702	0	2.019.550	2.028.195	2.478.905	1.577.485	2.929.615
Directly Influenceable Costs (DIC)	**144.284.550**	**151.650.580**	**144.697.652**	**-7.050.000**	**128.570.550**	**129.151.095**	**159.418.005**	**98.884.185**	**189.684.915**
Product Related Costs (PRC)	**20.082.600**	**20.082.600**	**20.082.600**	**20.082.600**	**18.430.618**	**18.824.340**	**21.340.860**	**16.307.820**	**23.857.380**
Development (direct)	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000	7.500.000
Marketing (Push + HQ)	6.342.000	6.342.000	6.342.000	6.342.000	5.509.352	5.707.800	6.976.200	4.439.400	8.244.600
Service Costs	6.240.600	6.240.600	6.240.600	6.240.600	5.421.265	5.616.540	6.864.660	4.368.420	8.112.780
Manufacturing Costs	**131.567.980**	**131.567.980**	**131.567.980**	**131.567.980**	**114.294.285**	**118.411.182**	**144.724.778**	**92.097.586**	**171.038.374**
Manufacturing Costs per unit	**57,58**	**57,58**	**57,58**	**57,58**	**57,58**	**57,58**	**57,58**	**57,58**	**57,58**
BOM per unit	52,79	52,79	52,79	52,79	52,79	52,79	52,79	52,79	52,79
Variant Adder per unit	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63	0,63
CC per unit	4,16	4,16	4,16	4,16	4,16	4,16	4,16	4,16	4,16
Licences per unit	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Target Cost Gap	**-7.366.030**	**0**	**-6.952.928**	**-158.700.580**	**-4.154.352**	**-8.084.427**	**-6.647.633**	**-9.521.221**	**-5.210.839**
Target Cost Gap per unit	**-3,22**	**0,00**	**-3,04**	**-69,45**	**-2,09**	**-3,93**	**-2,64**	**-5,95**	**-1,75**
EBIT (for comparison purpose)	**-432.030**	**7.271.504**	**0**	**-158.700.580**	**2.059.648**	**-1.843.827**	**979.767**	**-4.667.421**	**3.803.361**
EBIT in % of T/O	**-0,25%**	**4,00%**	**0,00%**	**0,00%**	**1,33%**	**-1,18%**	**0,51%**	**-3,85%**	**1,69%**

Illustration 3.12

3.2.8 Management templates of the Reverse Calculation III

The third template shows the actual RC and five standard simulations.

- Base Case: Shows the result of the Reverse Calculation for a product.
- TCG = 0: Shows the price which has to be realized if the product exactly reaches its given Target Profit.
- EBIT = 0: Shows the price which has to be realized when the product reaches its break-even point.
- Historical ASP: Shows the TCG which is realized with the historical ASP. Sales has to verify the difference between historical and actual ASP, otherwise a downsize risk is given.
- TTM delay of one month: Shows the TCG which is realized with a time to market delay of one month. Given the risk of a TTM delay product management can decide between reaching the original launch time at extra costs or losing money through the TTM delay.

Volume changes: Shows the TCG which is realized with different volume scenarios. The first scenario is fixed and calculates a 10% change. The second volume calculates by default with a 30% change. This figure should reflect maximal historical deviations and can be amended if necessary.

Notes

Standard graphs for the Reverse Calculation

The standard graphs for the Reverse Calculation for price points and products are used for management presentations at MD

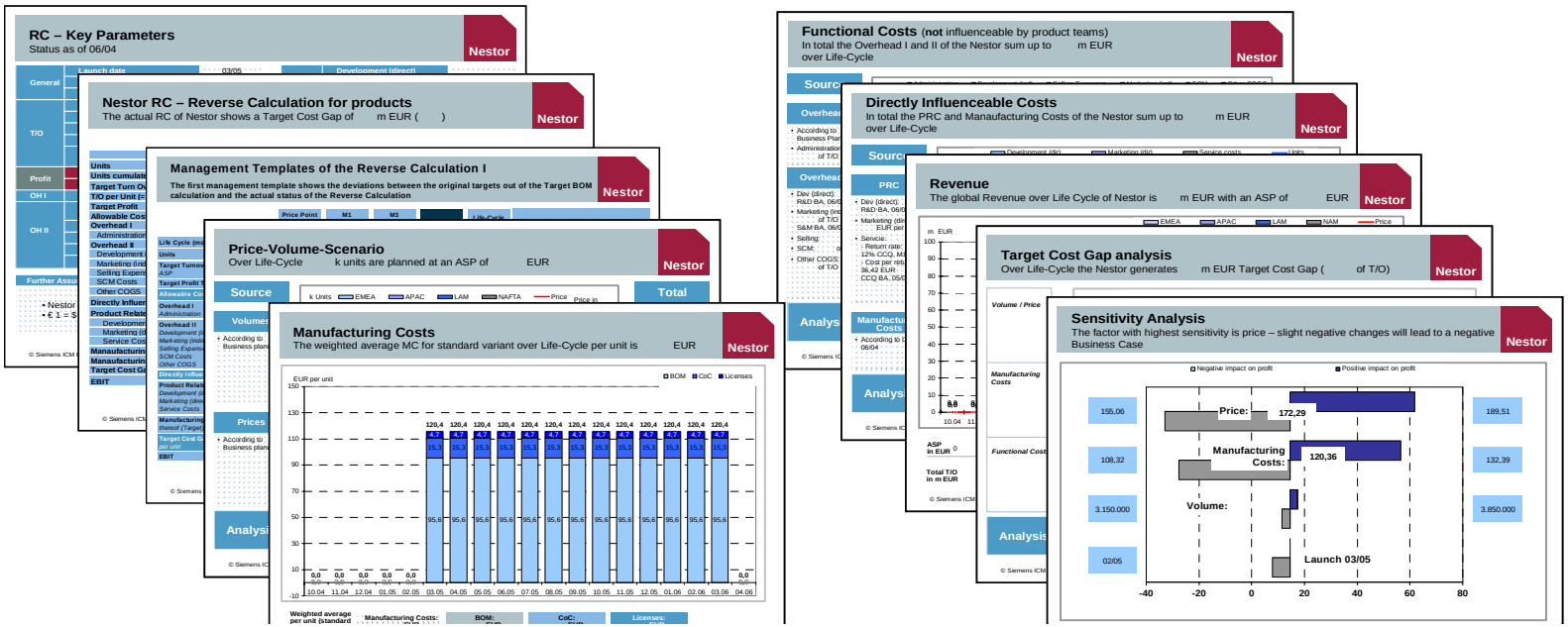


Illustration 3.13

3.2.9 Standard graphs at Siemens MD

The standard graphs present the results of the Reverse Calculation in an aggregated manner.

The graphs follow the logic of the existing Business Case standard graphs and were only changed when the Reverse Calculation adds additional information to the existing standard graphs.

Due to the fact, that a Target Cost Gap presentation is not applicable for the price point graphs, the graphs of the Reverse Calculation for price points and products differ in one slide.

Notes

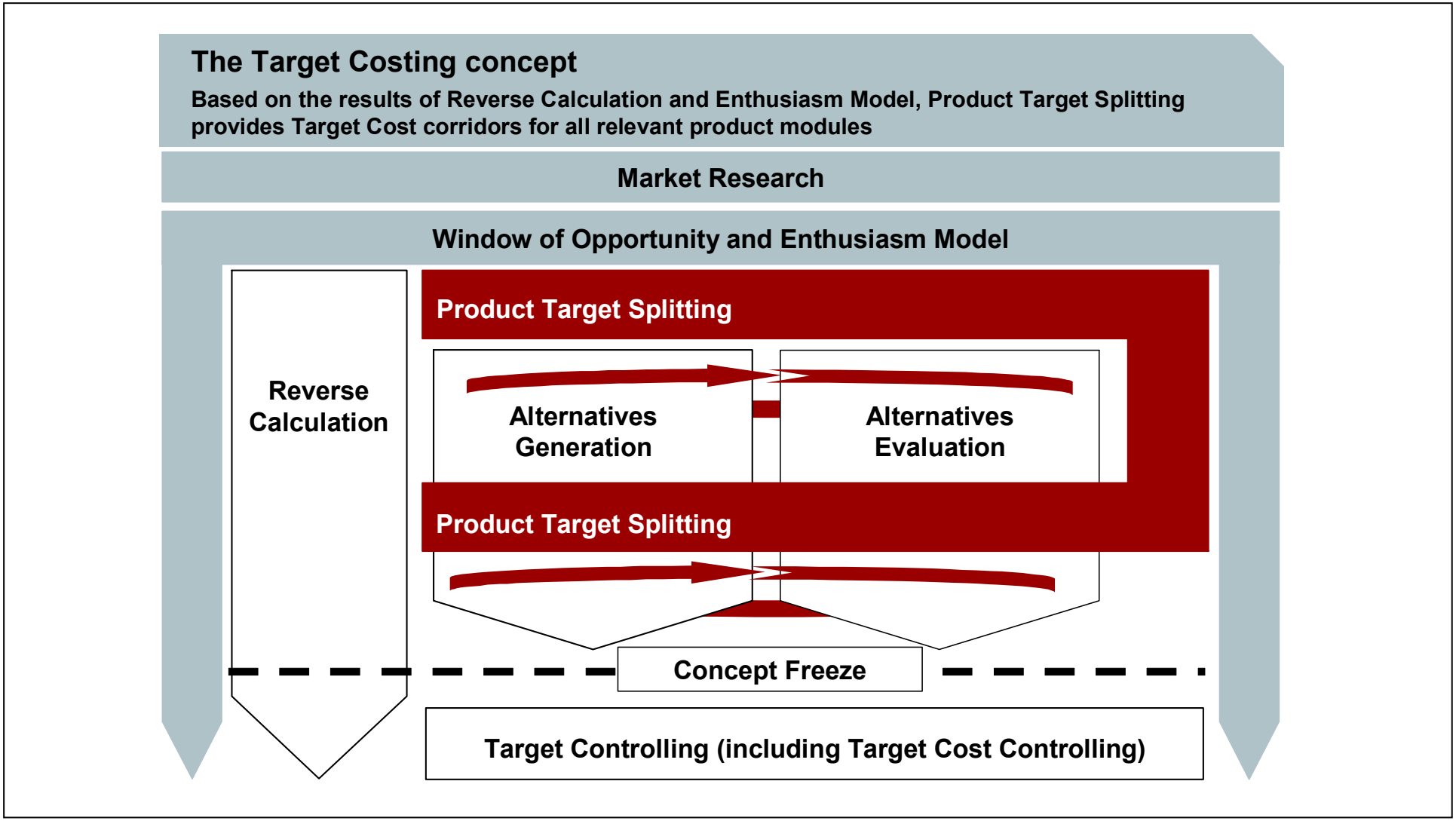


Illustration 4.1 Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

4 Product Target Splitting

The chapter introduces Product Target Splitting, a Target Costing tool focusing on deriving a target cost corridor per module from the total Target Costs.

The chapter is divided into two parts.

- The first part describes Product Target Splitting in theory and how the costs are split into modules based on market requirements and historical, competitor/supplier information.
- The second part adapts the theory to the specific requirements at MD. To cover the different customer groups at MD, operators and end-users, the methodology is modified. The link between the Target Costing tools is described.

Notes

4.1 Methodology of Product Target Splitting

4.1.1 Definition of Product Target Splitting

Product Target Splitting provides a methodology to break down a Target BOM of a product at a given Window of Opportunity into a Target Cost corridor for product modules according to operator and end-user requirements as well as historical, competitor and supplier information. The Target Cost corridor gives clear cost guidelines for the generation of possible module alternatives as it reflects the existing market demands of the envisaged product.

4.1.2 Benefits of Product Target Splitting

Product Target Splitting provides various benefits during the product definition process:

- Product Target Splitting translates unspecific market requirements into a Target Cost corridor for modules. This enables a market-oriented cost allocation of the BOM (balanced products).
- It forces the organization to provide vital product and market information at an early stage of the product definition process, e.g. a Window of Opportunity with the Target Costs, Enthusiasm Model and weighted customer requirements as well as technical trends and competitor information.
- Product Target Splitting initiates the Target Cost discussion regarding the value/importance of different features at an early stage of the product development process and is hence an important communication tool. This helps to reduce time and cost consuming changes at later stages.

Notes

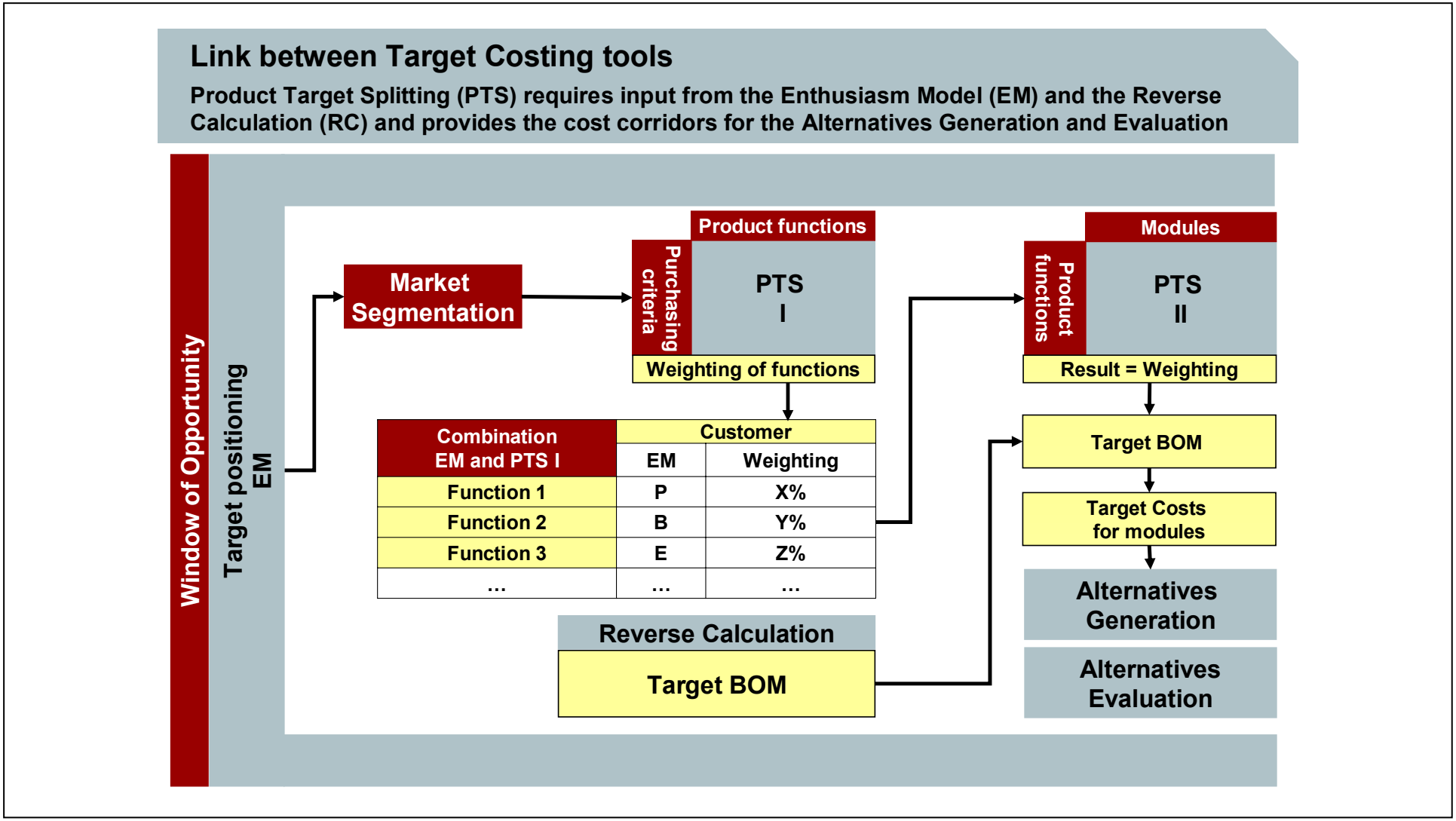


Illustration 4.2

4.1.3 Link between Product Target Splitting and the other Target Costing tools

Product Target Splitting …

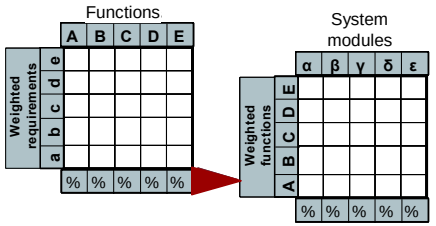
- … is embedded in the Target Costing toolset. It utilizes the information from Enthusiasm Model and Reverse Calculation and provides vital cost input for the Alternatives Generation and Evaluation.
- … requires a detailed product idea from the Enthusiasm Model highlighting the Window of Opportunity as well as the weighted purchasing criteria.
- … requires the Target BOM from the Reverse Calculation which is – after reducing the Basic Model – distributed onto product modules.
- … offers clear cost guidelines for the Alternatives Generation and Evaluation.

Notes

Overall concept of Product Target Splitting

Three different methodologies complement each other to derive detailed cost information for modules during the product and module definition process

Market view
(to support product definition)



Accepted Target Cost corridors for modules

Internal products view
(to support module definition)

- Cost structures for each product segment/class are derived from current product data and predicted into the future.

Competitor/supplier view
(to support module definition)

- Trend analysis and extrapolation derived from supplier information.
- Competitor cost structures derived from Product Reverse Engineering.

Internal and **competitor information supplement** the market-oriented view of Product Target Splitting and serves as **benchmark**. The internal and competitor/supplier view project Target Costs for modules that have long development lead times when market information is not available.

Illustration 4.3

4.1.4 Overall concept of Product Target Splitting

There are three ways to derive Target Costs for product modules. Each has a different focus and gets the input data from different sources:

- **Market view:**
  This is the classic Product Target Splitting based on the QFD (Quality Function Deployment) concept introduced by the Japanese car industry in the late seventies. It translates the market requirements into costs for components using a 2 step approach.
- **Internal view:**
  Historic cost structures and cost shares of main product modules are used as a benchmark for Target Costs of future modules. The internal view gives cost guidelines for products with long development lead times. The internal cost structure should only be used if the product concept used as a reference has proved to be competitive.
- **Competitor and supplier view:**
  Product Target Splitting competitor view aims at benchmarking competitor products. This Product Target Splitting approach uses information from suppliers and analyses competitor products through Product Reverse Engineering. Product Reverse Engineering is therefore not only a vital input source for R&D to understand how the competition works, but also provides input for Product Target Splitting.

The following pages describe the three concepts in more detail.

Notes

Visualization of Product Target Splitting (market view)

To calculate Target Cost corridors for modules the Product Target Splitting uses a two step approach

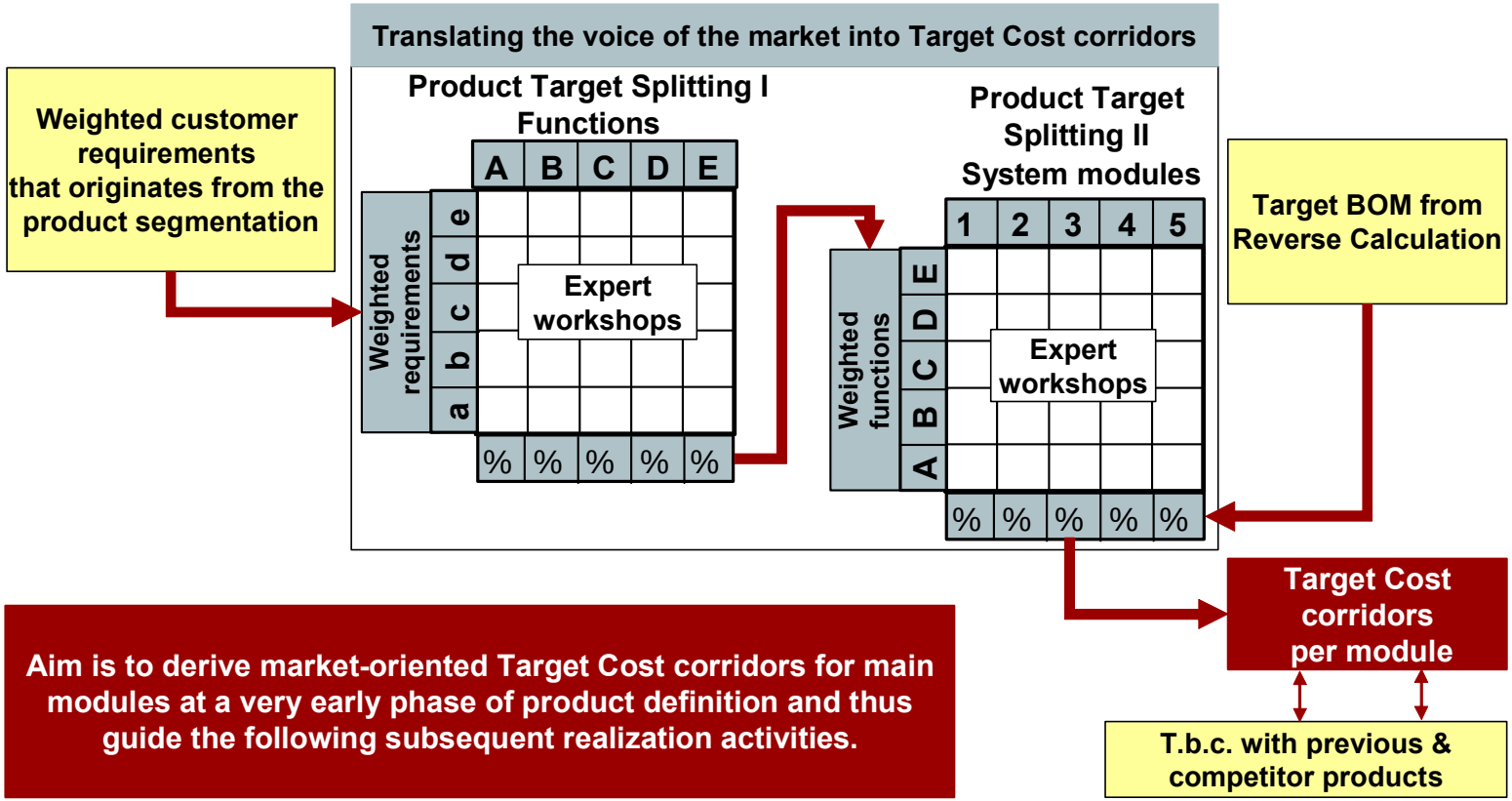


Illustration 4.4

Refer to SEIDENSCHWARZ , W.: Nie wieder zu teuer! 10 Schritte zum Marktorientierten Kostenmanagement, Stuttgart 1997, S. 69.

4.1.4.1 Product Target Splitting (market view)

In order to translate market requirements into Target Costs for product modules a two step approach is required:

- In the first step the relative importance of customer requirements (weighting of buying criteria), derived from market segmentation and market survey, is translated into a weighting of product functions.
- In the second step the weighted product functions are translated into a relative importance weighting of product modules.

The Target BOM is broken down to Target Costs for modules according to the relative importance of weighting of product modules.

Notes

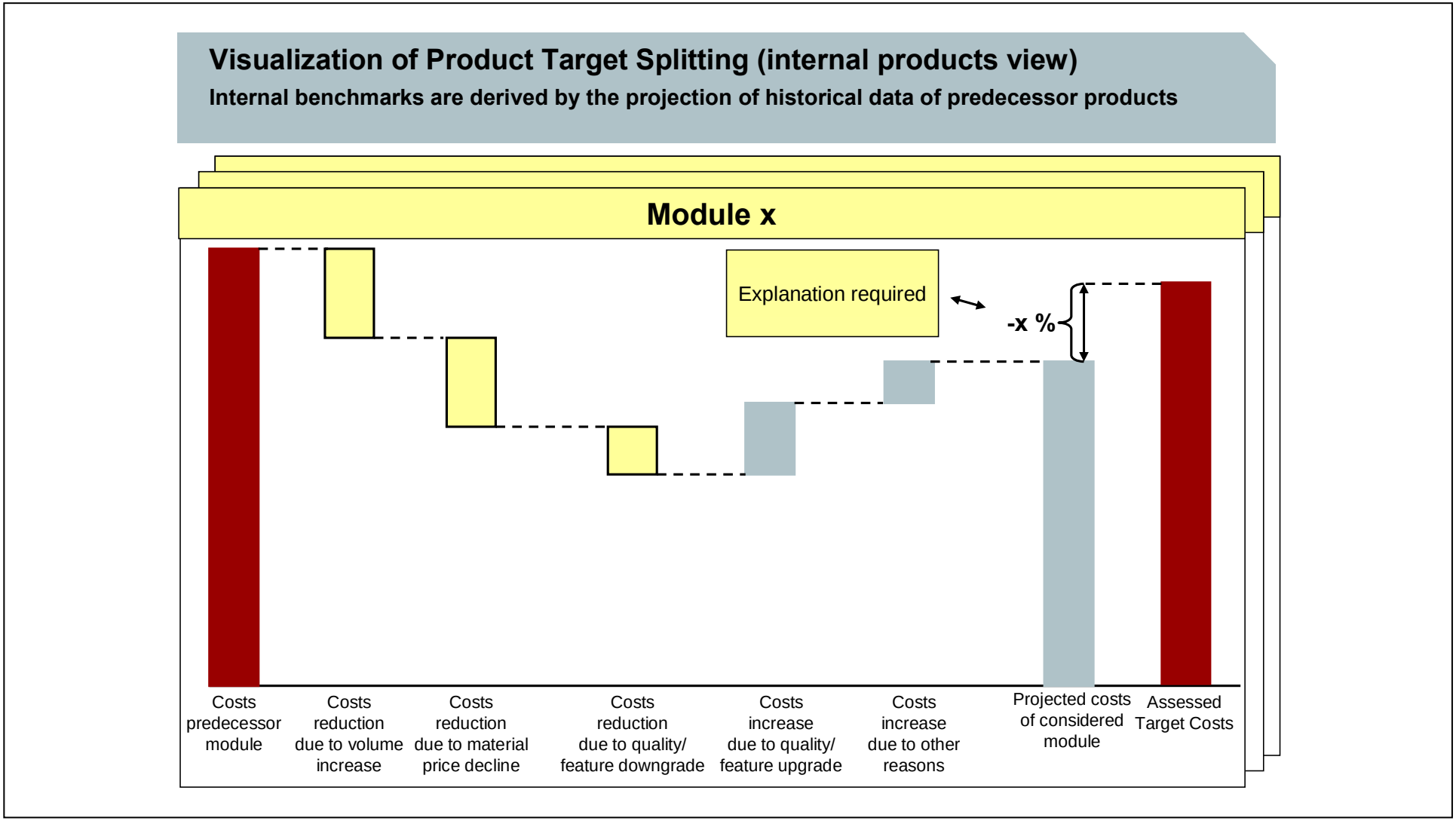


Illustration 4.5

4.1.4.2 Product Target Splitting (internal products view)

In the internal Product Target Splitting the costs of existing modules are projected into the future. It takes the volume changes, production and product improvements, input from external sources as well as general cost developments into account to estimate the Target Costs.

In order to derive the Target Costs a series of calculation steps are conducted:

- In a first step economy of scale effects as well as reductions in procurement prices and quality/function downgrades are subtracted from the original module cost.
- In a second step additional costs of feature upgrade or of a quality increase as well as of other reasons such as a short term scarcity of goods are added.

The result is then compared to the assessed Target Costs in order to cross-check the plausibility of the results.

In case discrepancies between the Target Costs per module derived from the Product Target Splitting (market view) and the assessed Target Cost calculated in Product Target Splitting (internal products view) occur, these deviations have to be analyzed and explained.

Notes

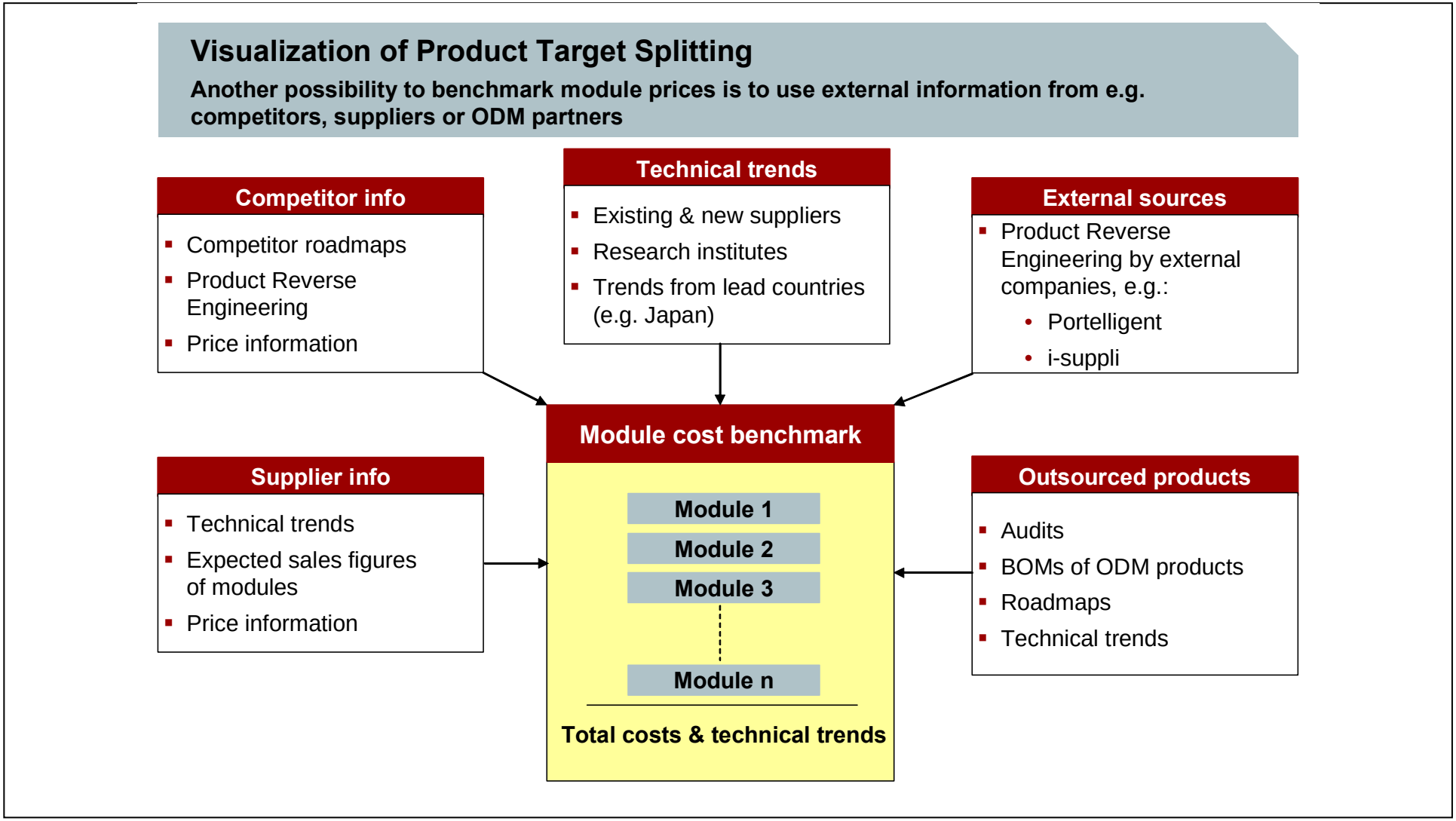


Illustration 4.6

4.1.4.3 Product Target Splitting (competitor view)

To verify the cost targets for main modules, supplier and competitor information is used to benchmark the assessed Target Costs.

For a benchmark, a variety of sources are consulted:

- **Supplier information** is used to benchmark technical specifications as well as volume and price targets.
- **Competitive information** is used to assess the cost structures and the pricing schemes of the competition. An extensive insight regarding the cost structure of competitive products can be best achieved by Product Reverse Engineering.
- **Information from suppliers** and **ODM products** is used to benchmark low costs manufacturing targets and to apply these implications on the respective production processes.
- **Technical market information** gives clear indications about upcoming trends and technologies as well as their future cost share and structure.

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Results from Product Target Splitting

Target Costs from the Product Target Splitting define a cost corridor that limit the bandwidth of costs for modules

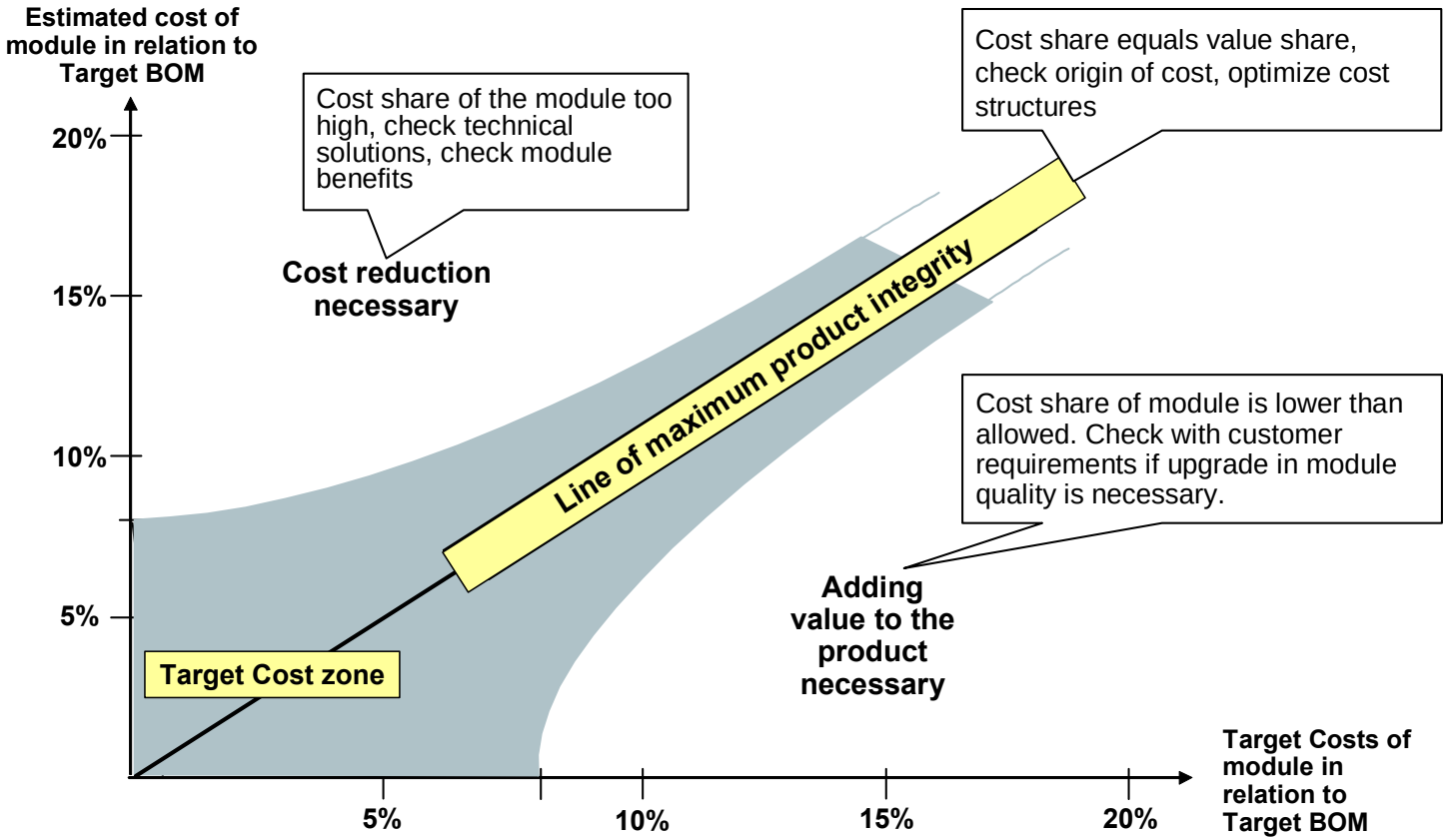


Illustration 4.7

Refer to SEIDENSCHWARZ , W.: Nie wieder zu teuer! 10 Schritte zum Marktorientierten Kostenmanagement, Stuttgart 1997, S. 87.

4.1.5 Results from Product Target Splitting

Target Costs from the generic Product Target Splitting define a cost corridor that limits the bandwidth of costs for modules. The line where the cost share of planned modules equals the value share (willingness to pay) is called “line of maximum product integrity.”

The determined cost corridor offers a cost filter functionality for the module options used in the Alternatives Generation.

Due to the fact that lower cost modules have less impact on the total costs, the Target Cost corridor allows higher deviation for modules with a lower costs share.

If the cost share of a module is below the lower level of the Target Cost zone, it holds less value than the value required by the market. In this case a value increase of the module should be considered if the functional requirements are not fulfilled.

On the other hand, if the cost share of a module is above the upper level of the Target Cost zone the cost for the planned module is higher than the market is willing to pay. To match the value share of the respective component with the market requirements, its cost should be decreased, through reengineering, lower procurement costs or lower specification that decreases the costs.

Notes

4.2 Product Target Splitting at MD

4.2.1 Link between Product Target Splitting and the other Target Costing tools

MD has two sets of customers, end users and operators, each group having different buying motivations. This has already been taken into account in the Window of Opportunity and Enthusiasm Model and is also considered during the Product Target Splitting. The product idea and anticipated sales split described in the Window of Opportunity is used when the translation of the purchasing criteria into product functions and the translation of the product functions into product modules is performed.

In addition, the product segmentation delivers the weighted end-user requirements based on the purchasing criteria for the Product Target Splitting. The operators or expert workshops (consisting also of account managers from the regions) weigh the product functions, which are also fed into the process.

The Reverse Calculation delivers the Target BOM for the Product Target Splitting.

Before the Target BOM is fed into the Product Target Splitting the cost of the Basic Model that is described later that chapter are subtracted from the Target BOM. The Basic Model describes all the functionalities of a mobile phone for a given price point that are considered by the customer to be basic and hence not weighted (minimum set of features at a given price point).

The Alternatives Generation and the Alternatives Evaluation are the “customers” of Product Target Splitting. In congruence with part I, the Target Cost corridor for main modules acts as a guideline for module definition and selection during the Alternatives Generation.

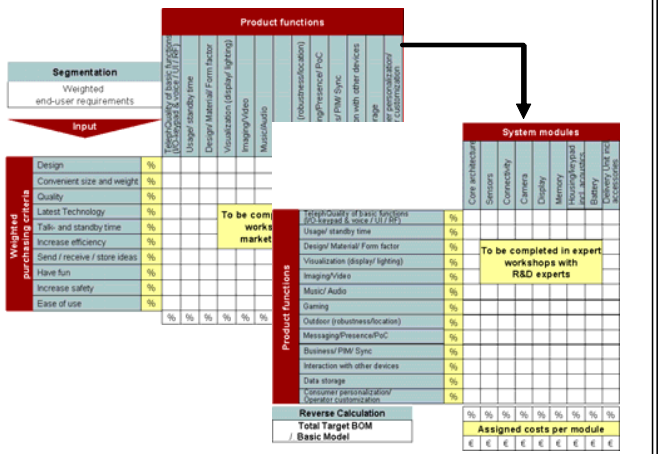
Notes

Two alternatives have been created to conduct the PTS market view at MD

In case no Price Performance Analysis results (evaluation of purchasing criteria) is available, a use case approach offers an effective alternative calculation method

Product Target Splitting market view

Traditional two step approach



Adapted use case approach

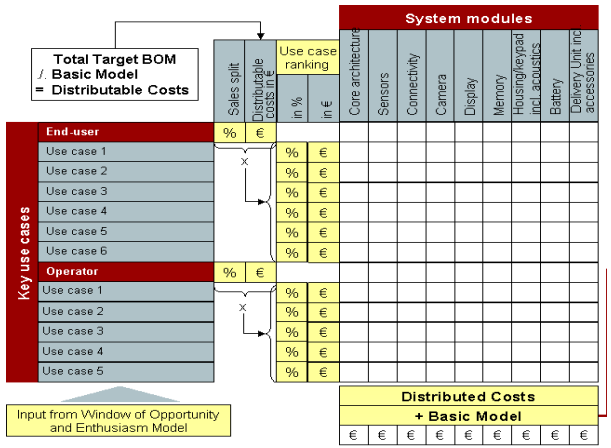


Illustration 4.8

4.2.2 Two different options to perform Product Target Splitting (Market View)

In parallel to the traditional Product Target Splitting methodology, which was presented in the theory part, there is a second option offered, considering the current MD needs. Before the Product Target Splitting is performed by the product definition team, the project manager shall decide which option to follow:

- **Traditional Product Target Splitting**
  In first option (Traditional Product Target Splitting) the purchasing criteria are translated in a two step approach first into product functions and then the functions into product modules.
- **Use Case based Product Target Splitting**
  The second option features only a one step approach. The team uses the weighted key use cases as input (separate for end users and operators) that are supplied by the Window of Opportunity and the Enthusiasm Model. The key use cases are mapped to the product modules.

Both processes lead to a weighting of product modules. This weighing is multiplied with the distributable costs. In a second step the costs for the Basic Model are added. The results are the Target Costs for modules.

Both approaches are described in detail in the following chapters.

Notes

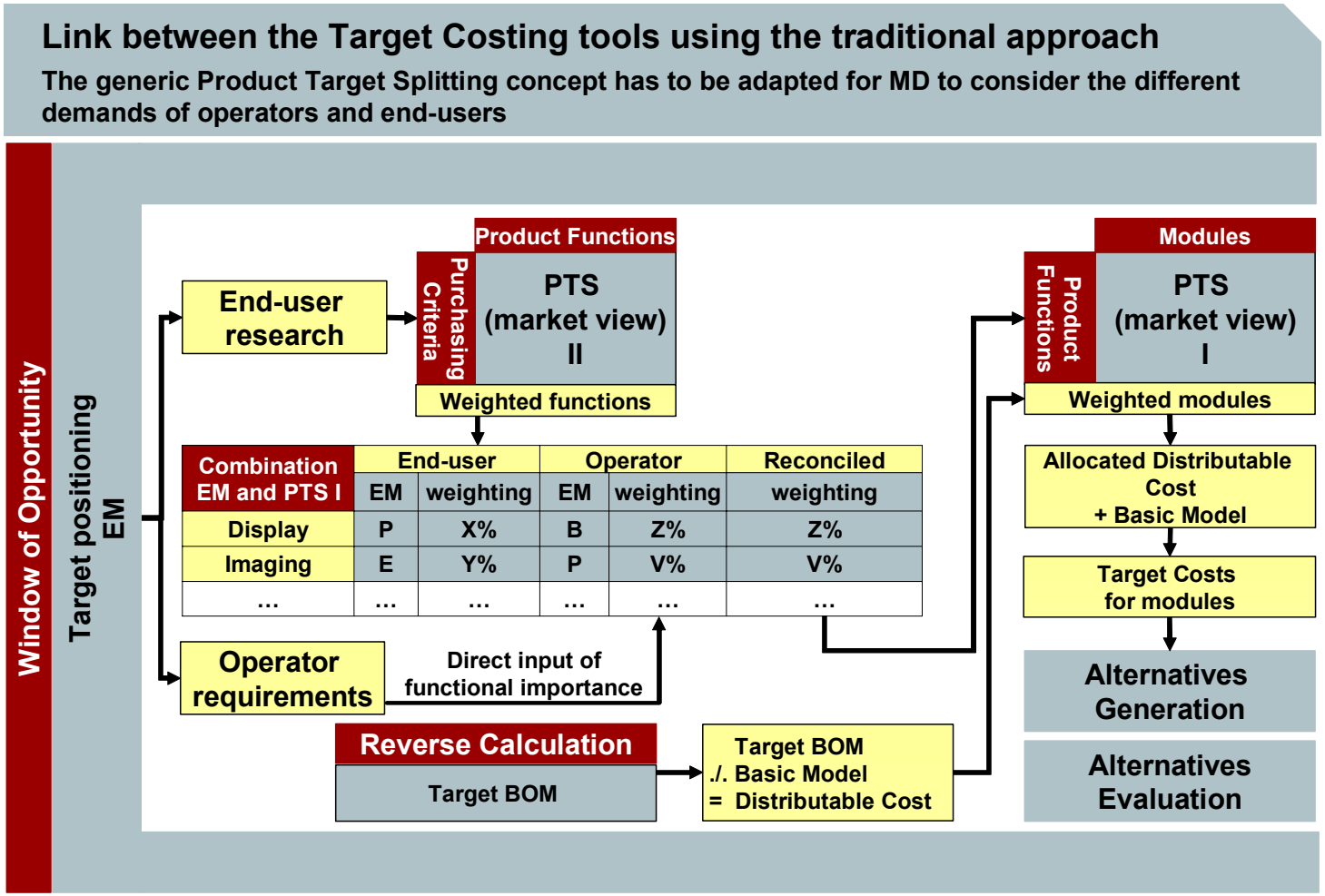


Illustration 4.9

4.2.3 Traditional Product Target Splitting at MD

As mentioned above, MD has two sets of customers whose requirements have to be taken into account when defining a mobile phone. In Product Target Splitting this is achieved in the first step, i.e. the translation of the weighted customer requirements into product functions. The results of these individual steps are then merged applying the expected sales split between operators and the retail market.

The tables are filled in during expert workshops with the Window of Opportunity in mind focusing on the relation between purchasing criteria and product functions and then the relation between product functions and modules. The ideas and the assumptions put forward by the participants of the workshops are collected and fed into the Alternatives Generation process.

Notes

Traditional Product Target Splitting (market view) I for end-users

The Product Target Splitting (market view) I for end-users translates the relative importance of purchasing criteria into the relative importance of product functions

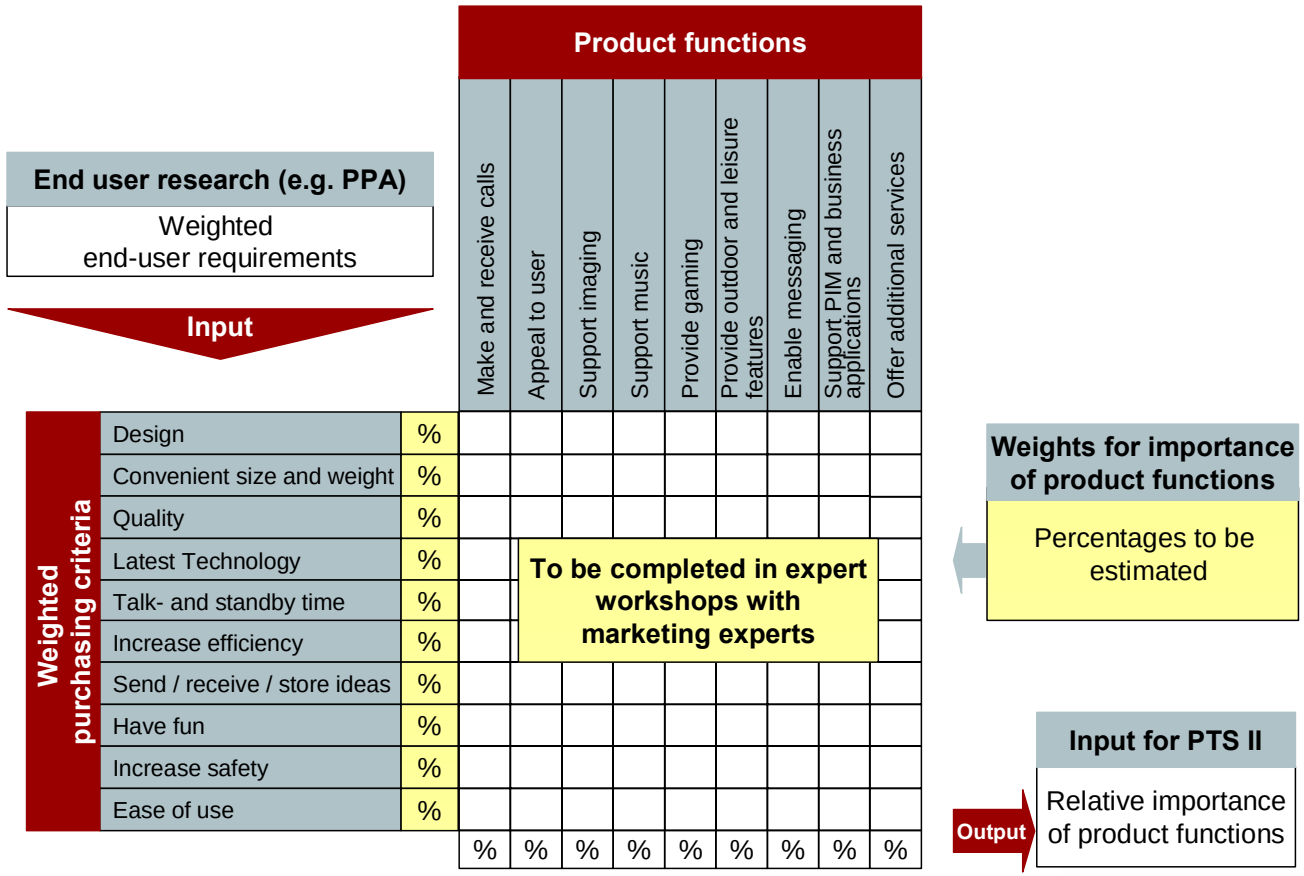


Illustration 4.10

4.2.3.1 Product Target Splitting (market view I) for end-users

The Product Target Splitting (market view) I for end-users follows fully the classic approach described in the theory part.

The product segmentation delivers the relative importance of the key buying criteria for each of the sub segments. The weighting is fed into the Product Target Splitting.

The translation step is completed in an expert workshop. The experts have to complete the table answering the question “how much does the function x contribute to the fulfillment of buying criterion y?”. Percentage values are entered into the cells so that each row adds up to 100%.

The result is a relative importance weighting of product functions for end-users.

In case a product function is defined as “not wanted” by the Enthusiasm Model the column of this function is to be left blank and thus shows no contribution to the fulfillment of the respective buying criterion.

Notes

Traditional Product Target Splitting (market view) I for operators

As operators can evaluate the relative importance of product functions directly, the translation of purchasing criteria into product functions (PTS I) is not required for operators

Product Functions	Importance for Operators	Comment
Make and receive calls	k%	
Appeal to user	m%	
Support imaging/video	n%	
Support music/audio	l%	
Provide gaming	0%	
Provide outdoor/leisure features	n/a	
Enable messaging	y%	
Support business applications (incl. PIM/sync)	z%	
Provide additional services	n/a	
Sum Check	100%	

Results from the discussions shall be added in the comment field. These results are used in the Alternative Generation

Expert workshop determines relative importance of functions based on:

- Pair wise comparison of operator requirements
- Product positioning
- Regional segmentation
- etc.

Illustration 4.11

4.2.3.2 Product Target Splitting (Market view I) for operators

The operators define product functions that they want to be included in their products. Based on the Window of Opportunity for the product the weighting of the product functions are assessed directly by the operator or in expert workshops. Experts are e.g. key account managers of the main operators and the regions that are addressed in the Window of Opportunity. Large operators even list the specification of individual modules. Any specifications published by the operators are fed into the Alternatives Generation.

A pair-wise comparison aids the weighting of the product functions. The result is combined with the result of the Product Target Splitting for end-users and passed on to the Product Target Splitting (market view) II.

Experts participating in the workshop have to bear in mind that a Basic Model already exists. Thus evaluations are to comprise the functionalities on top of the Basic Model.

Beware: Functions used to describe the mobile device are main functions of the device, not supporting functions, e.g. “provide telephony” or “provide music” are main functions, whereas “storing data” or “displaying content” are supporting functions since a device needs to store data or visualize content when calls are being made or photos taken.

Notes

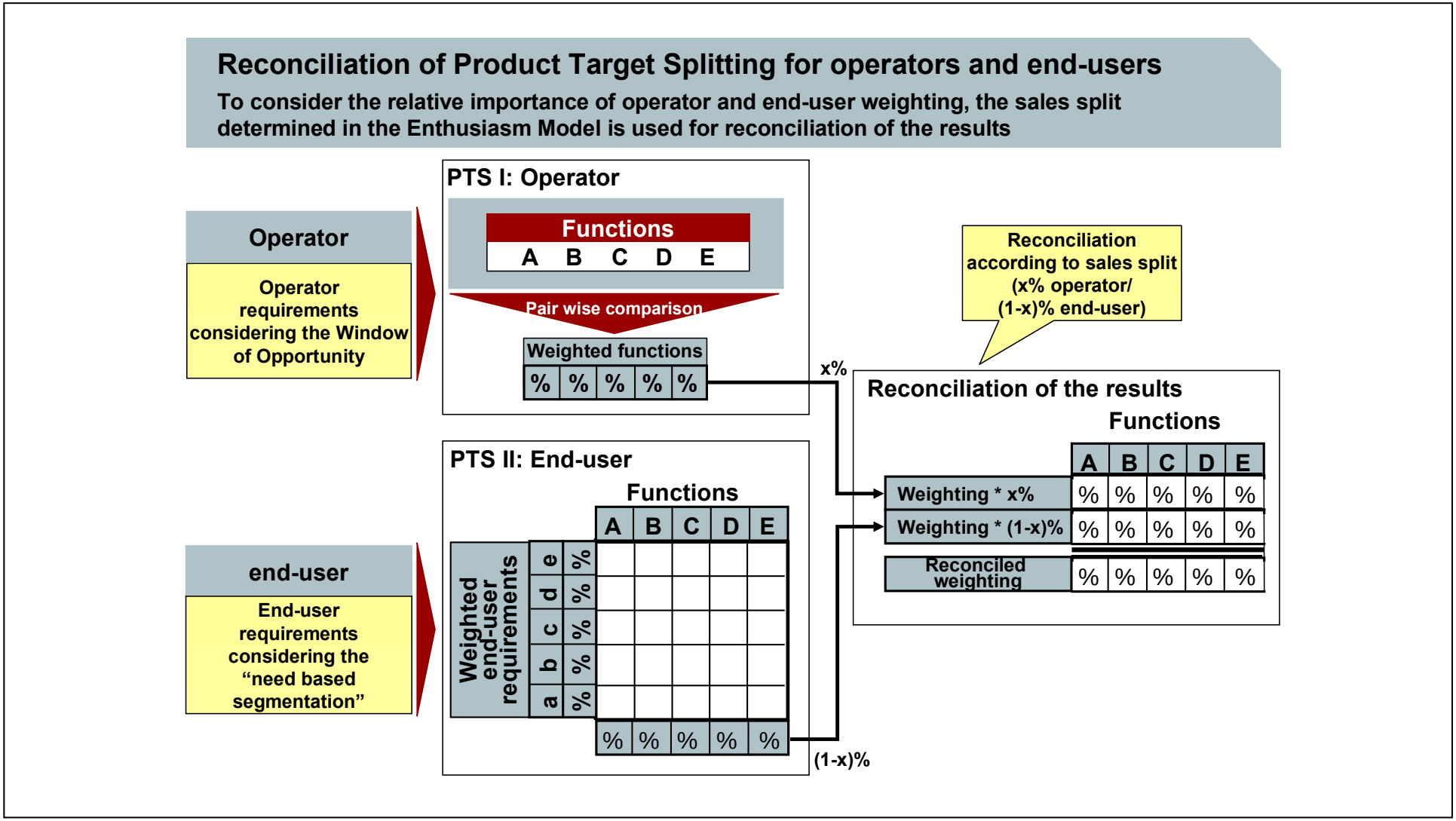


Illustration 4.12

4.2.3.3 Reconciliation of Product Target Splitting for operators and end-users

The reconciliation of the operator weighting of the product functions and the weighting from end-users is done by using the expected sales split. E.g. if 80% of the planned product are to be sold through the operator, the operator result is weighted with 80%, while the end-user weighting only gets 20%.

The reconciled values act as input for the Product Target Splitting (market view) II at MD.

The consolidated result is crosschecked with the results of the Enthusiasm Model before Product Target Splitting (market view) II is started. The percentage values should be compared to the Basic/Performance/Enthusiasm weighting of the Enthusiasm Model. A critical analysis of both the Enthusiasm Model as well as the Product Target Splitting (market view) II should be conducted if any discrepancies occur.

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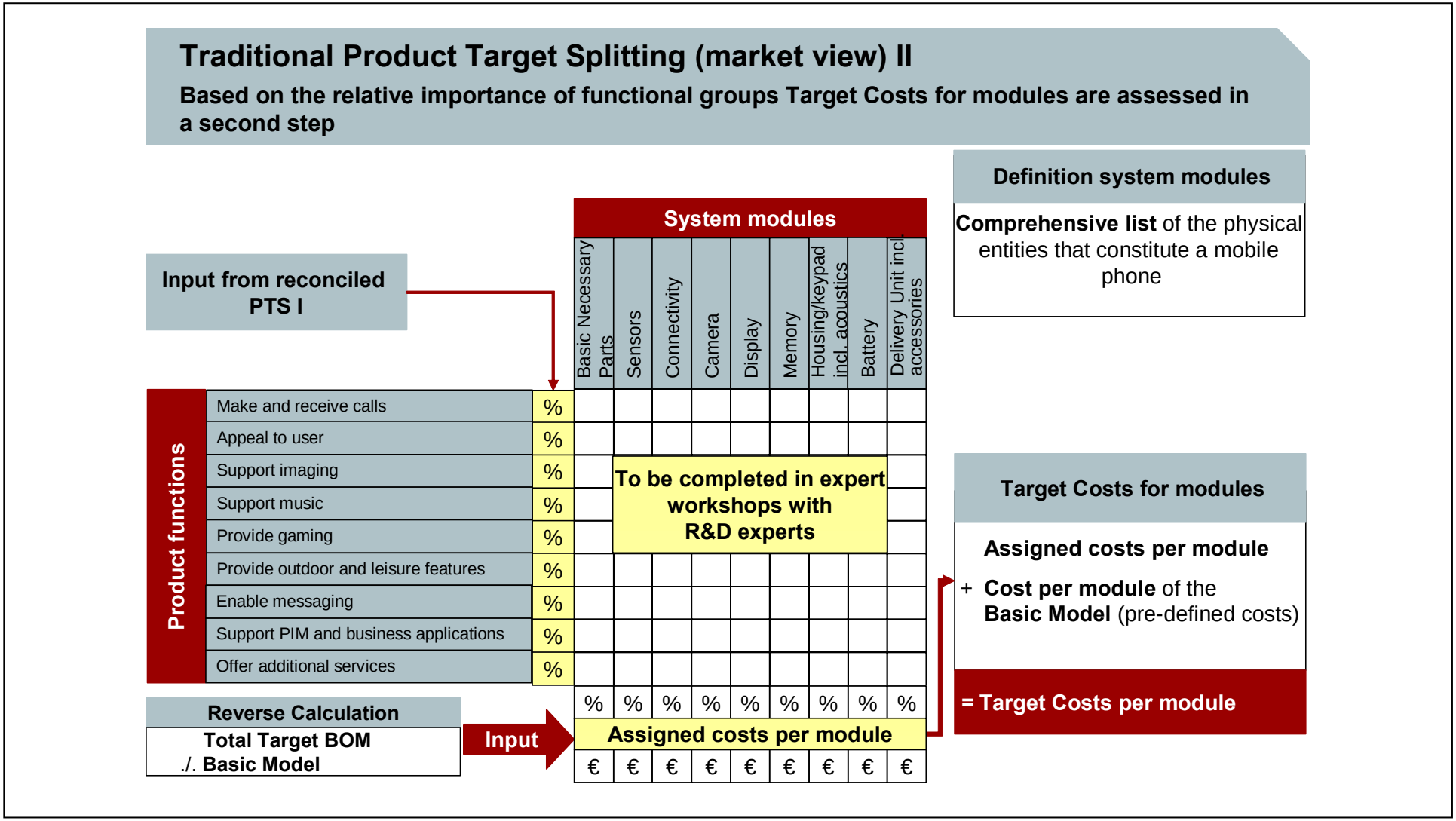


Illustration 4.13

4.2.3.4 Product Target Splitting II (market view)

In Product Target Splitting II (market view) at MD the relative importance of the mobile phone functions is translated into a relative importance weighting of modules of a mobile phone.

The translation step is completed in an expert workshop with participants from different functions. The matrix is completed by answering the following question: “How does the system module z contribute to the fulfillment of the product function x?”

If a product module such as a camera is defined as not wanted in the Enthusiasm Model, the respective column has to be left blank.

Identical to the Product Target Splitting I (market view) for end-users percentages are filled into each field so that each row adds up to 100%. How the result is calculated is already described in PTS I.

The result is the relative importance of the product module for the fulfillment of the customer (operator and end-user) requirement.

The weighting is multiplied with the distributable costs and the costs for the Basic Model added. The results are the Target Costs for the individual modules.

Notes

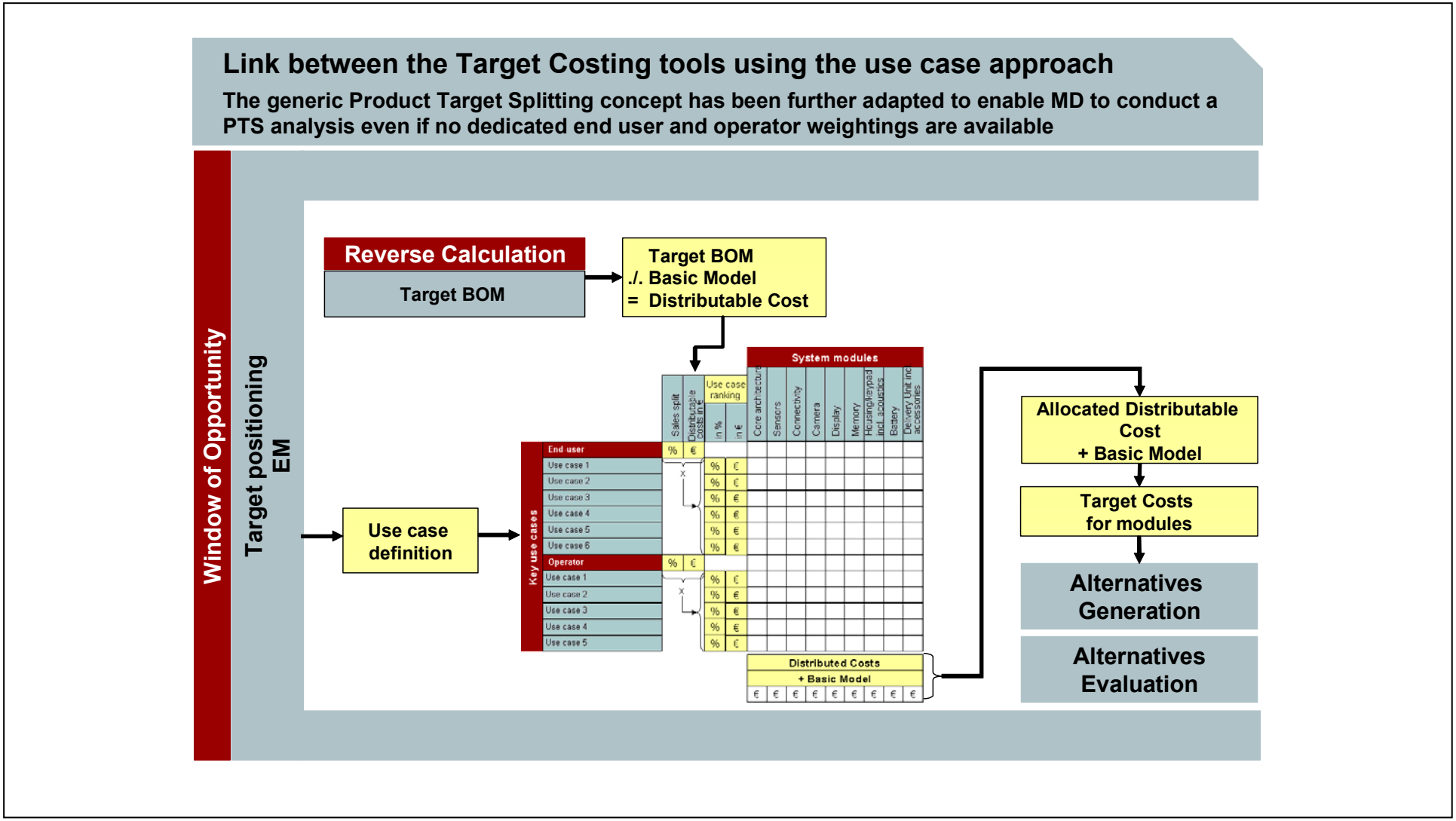


Illustration 4.14

4.2.4 Product Target Splitting use case approach

In this method the Target Costs for modules are established by translating the weighting of the use cases into the weighting for components.

From the Window of Opportunity and the Enthusiasm Model, where the team defines the key use cases for the envisaged product, use cases can be described which cover functionalities that fit the product story and go beyond the use case of the Basic Model.

In a first step these uses cases are weighted according to their relative importance, separate for operators and end users. Each sum shall add up to 100%. The sales split is added to the calculation sheet.

In the translation workshop to fill the table, the use cases are distributed to the product modules. The following question has to be asked: “How much does the component x contribute beyond the feature set of the Basic Model to the fulfillment of the use case y?” The feature listing of the Basic Model has to be taken into account. The sum for each use case again has to add up to 100%.

The participants of the workshop shall be experts from the technical department as well as representatives for operators and end users.

The result of this exercise is the weighting of the modules to support the given use cases. The weighting is multiplied with the total Distributable Cost to calculate how much of the Distributable Costs are allocated in addition to the module costs of the Basic Model. The results are the Target Costs per module for the envisaged device.

Notes

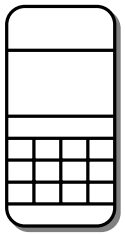
Basic Model for price points

To ensure accurate Target Costs, a Basic Model has to be defined for each price point

The **Basic Model** is a **virtual phone** that only satisfies the minimum **requirements** and has the **minimum set of features** for a **given price point**. It **represents the cost that can not be influenced**.

Basic Models change over time:

What is being considered basic changes over time as the expectations of the market change. (e.g. GPRS was once considered as being an Enthusiasm Feature…)
Thus the Basic Model needs to be revised on a regular basis.



Basic Models are price dependent:

The set of features that are considered to be basic depends on the price of the mobile device. For this reason Basic Models for the various price points have to be defined.

The Basic Model should include all features that are basic in its price class, but shall not include any extras

Illustration 4.15

4.2.5 The Basic Model

The result of Product Target Splitting II (market view)is the relative importance of product modules to the fulfillment of operator and end-user requirements. Experience has shown that customers take certain functionalities for granted when purchasing a product and hence do not weight them.

These functionalities are called minimal and the mobile device describing these virtual minimal functionalities is called “Basic Model”.

To achieve a correct Target Cost corridor for main product modules the costs for the Basic Model have to be taken into account.

The Basic Model is price dependent as the functionalities that are considered basic change with regard to the price point.

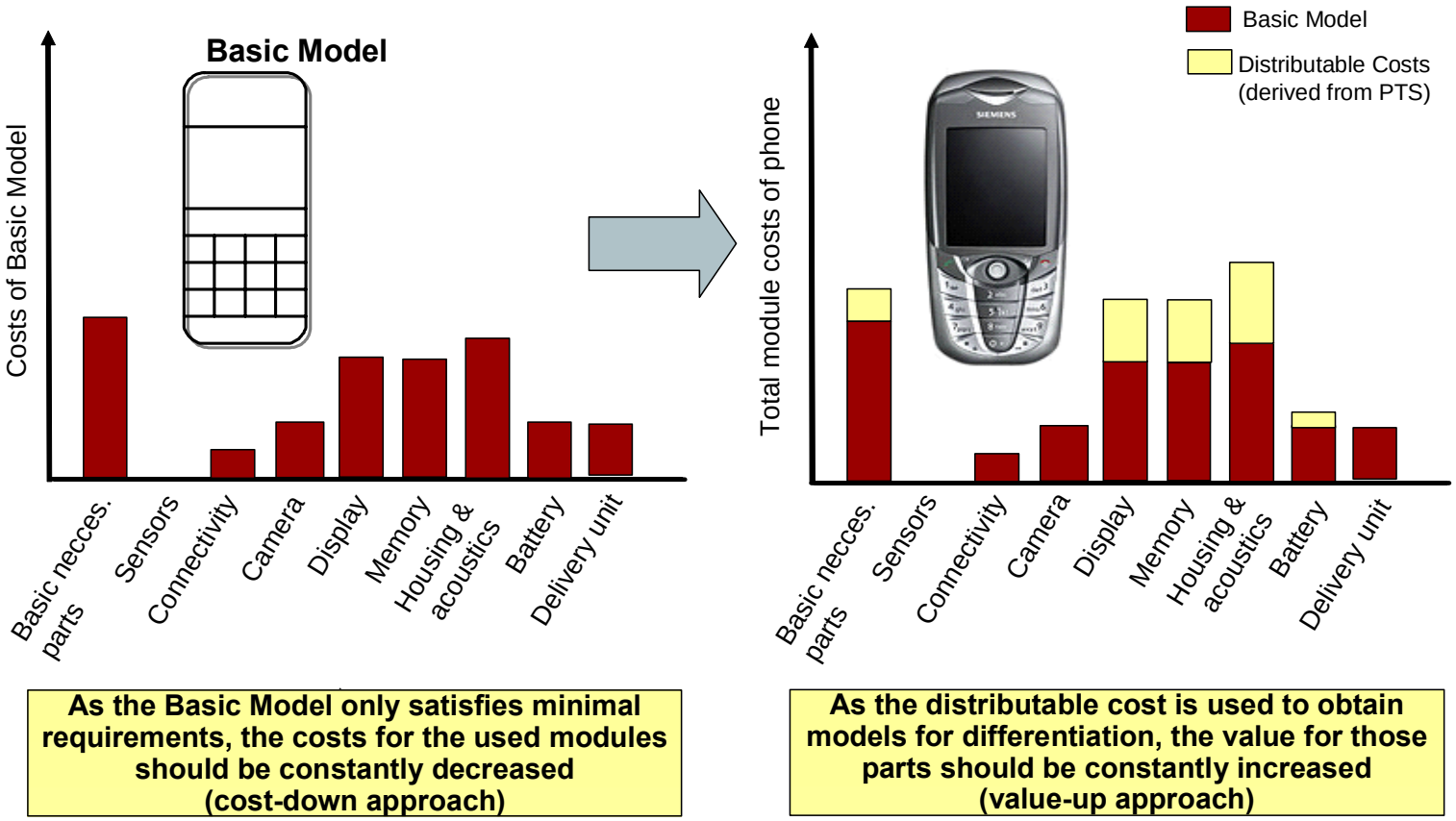
As customer demands change over time, the selected module characteristics and their respective cost assessment is subject to change in regular intervals. The Basic Model is therefore to be updated on a regular basis.

The Basic Model is defined by picking the lowest specification of each feature of all mobile devices on the market for the given price point. The result undergoes a plausibility check.

Notes

From Basic Model to customer specific product

Additional expenditures have to be conducted to support Performance and Enthusiasm Features



As the Basic Model only satisfies minimal requirements, the costs for the used modules should be constantly decreased (cost-down approach)

As the distributable cost is used to obtain models for differentiation, the value for those parts should be constantly increased (value-up approach)

Illustration 4.16

To calculate the Target Costs the Distributable Costs from Product Target Splitting are added to the module costs of the Basic Model to define the costs for the phone.

For more details regarding the Basic Model please refer to a separate presentation.

Being one of the lacks of detailed competitor information, the Basic Model is calculated based on Siemens' core architecture and housing. When the PTS II tables are filled out the envisaged phone should always refer to the specifications of the Basic Model.

Notes

The Basic Model and Product Target Splitting

The costs for the Basic Model are subtracted from the Target BOM before the distributable costs per module can be determined

Various functionalities and features are seen by the customer to be **basic** and hence **not weighted** by the methods of market research. As these functionalities are not weighted, they need to be **subtracted** before the Product Target Splitting is performed.

The Basic Model is integrated into the calculation through the following means:

1. A Basic Model is defined and the costs for the modules established (predefined costs)
2. The total costs for the Basic Model is subtracted from the Target BOM leading to Distributable Costs that is fed into Product Target Splitting.
3. Product Target Splitting weighs the Distributable Costs according customer requirements.
4. The module costs of the Basic Model are added to the Distributed Costs.
5. The result is the guideline for the Target Costs per module.

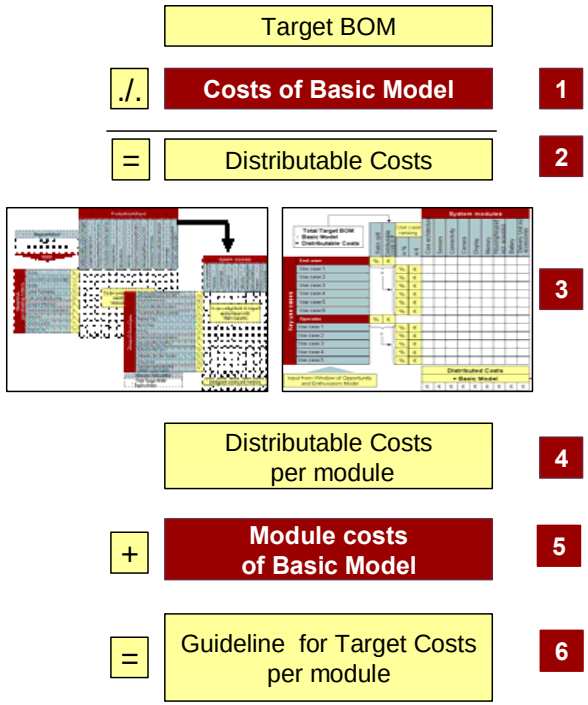


Illustration 4.17

4.2.6 The calculation of the Target Costs per module

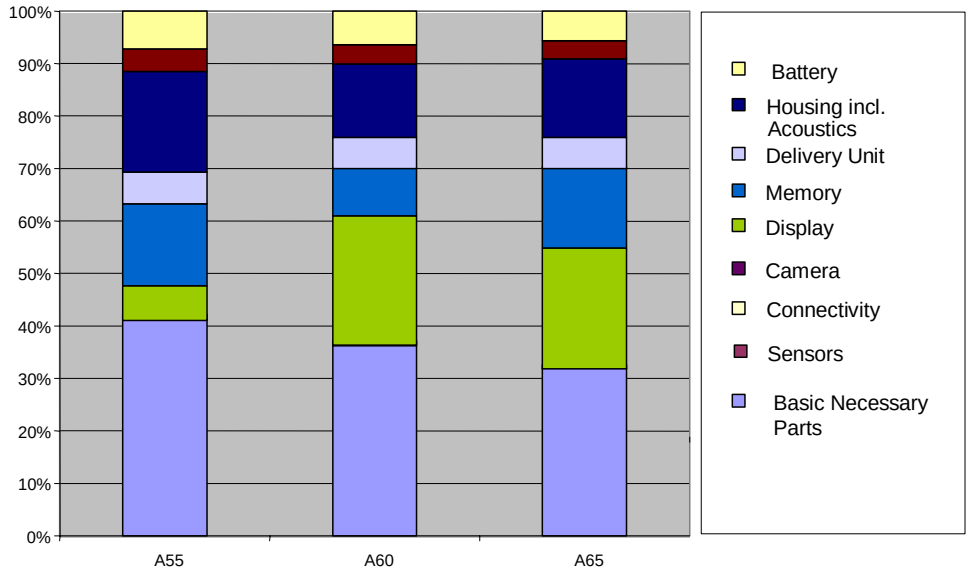
In order to facilitate a distribution of the Target BOM according to operator and end-user input the following calculation algorithm should be followed:

- Before multiplying the weighting with a monetary value, the total costs of the Basic Model (1) have to be subtracted from the total Target BOM derived from the Reverse Calculation.
- The resulting Distributable Costs (2) are then multiplied with the factor determined in the Product Target Splitting (market view) II. This calculation results in Distributable Costs per module (3).
- The module costs of the Basic Model (4) are added to the Distributable Costs per module. The result constitutes the Target Cost corridor per product module (5).

Notes

Internal products view

Projected cost shares from historical data of internal products are used to check the assessed Target Costs for modules



Analysis of historic data

Historic relative cost shares of main modules are **analyzed over the past product classes** and thus future cost shares are predicted.

Illustration 4.18

4.2.7 Product Target Splitting internal view and competitor view

As stated before the results from the Product Target Splitting market view have to be verified with the planned costs, historical costs and costs from external sources.

Historical data and in addition data from external sources help to give cost guidelines for long lead time components such as within the Basis Platform Framework.

4.2.7.1 Product Target Splitting (internal product view)

To crosscheck the results of Product Target Splitting (market view) and to give Target Cost indications for the Basis Platform Framework and the platform definition at MD the data of historic products is used to estimate main module developments.

This analysis is conducted over all product classes to give clear indications for future products and modules, esp. the Basis Platform Framework.

Historical data has to be scrutinized and analysed critically to prevent cost and performance deficits to be carried into the future. Performance enhancements and cost reductions have to be taken into account.

Notes

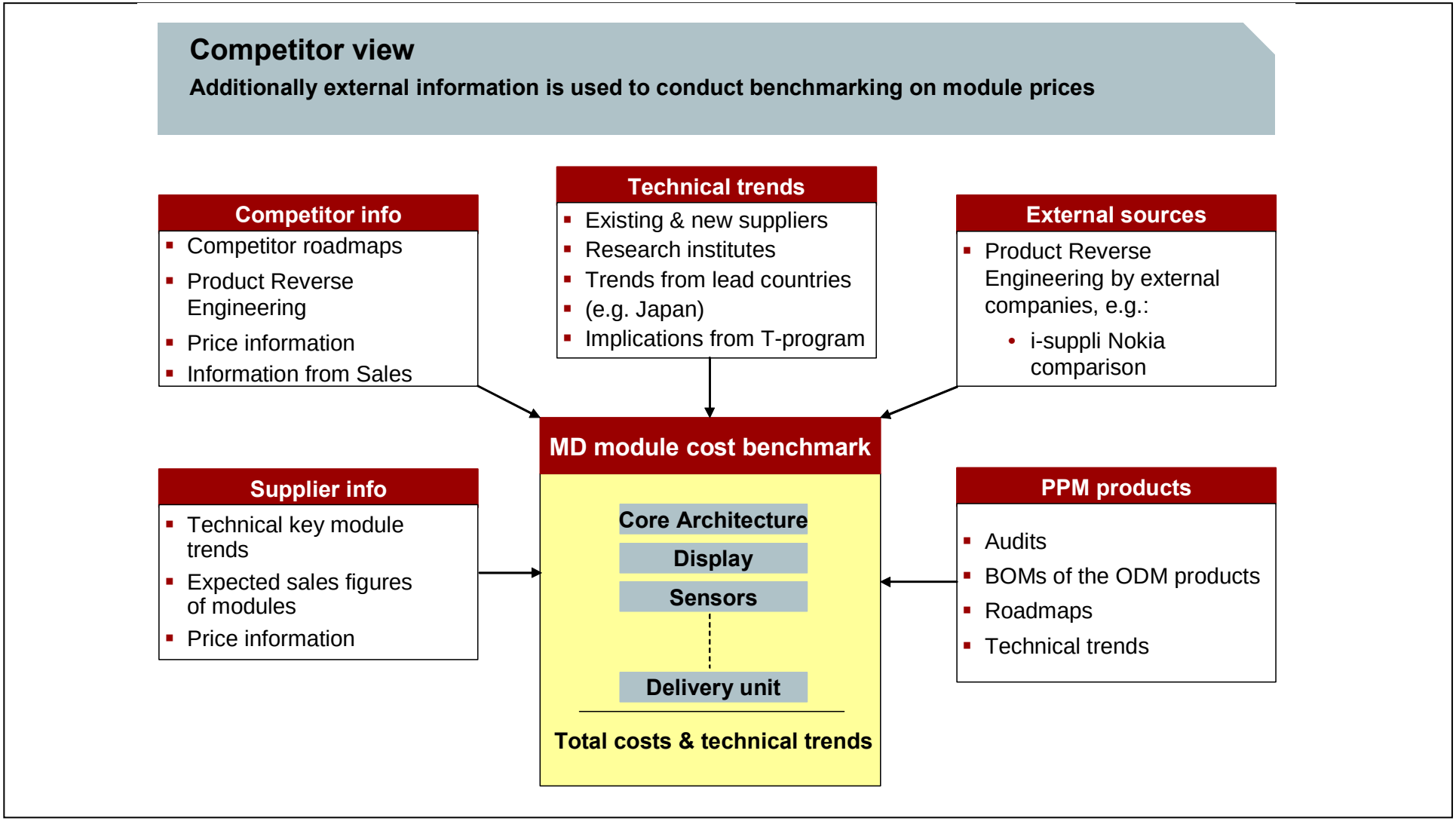


Illustration 4.19

4.2.7.2 Product Target Splitting (competitor/supplier view)

As the mobile phone business is highly competitive and fast moving, there is a high need for:

- Product Reverse Engineering of competitor products,
- Evaluation of technical trends,
- Suppliers interviews on market trends and
- ODM benchmarks

Especially for re-use products, where a large share of the BOM is already determined, a competitive benchmark supports the MD organization to set clear cost targets and structures.

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Results from the Product Target Splitting

Target Costs from the Product Target Splitting define a cost corridor that limit the bandwidth of costs for modules

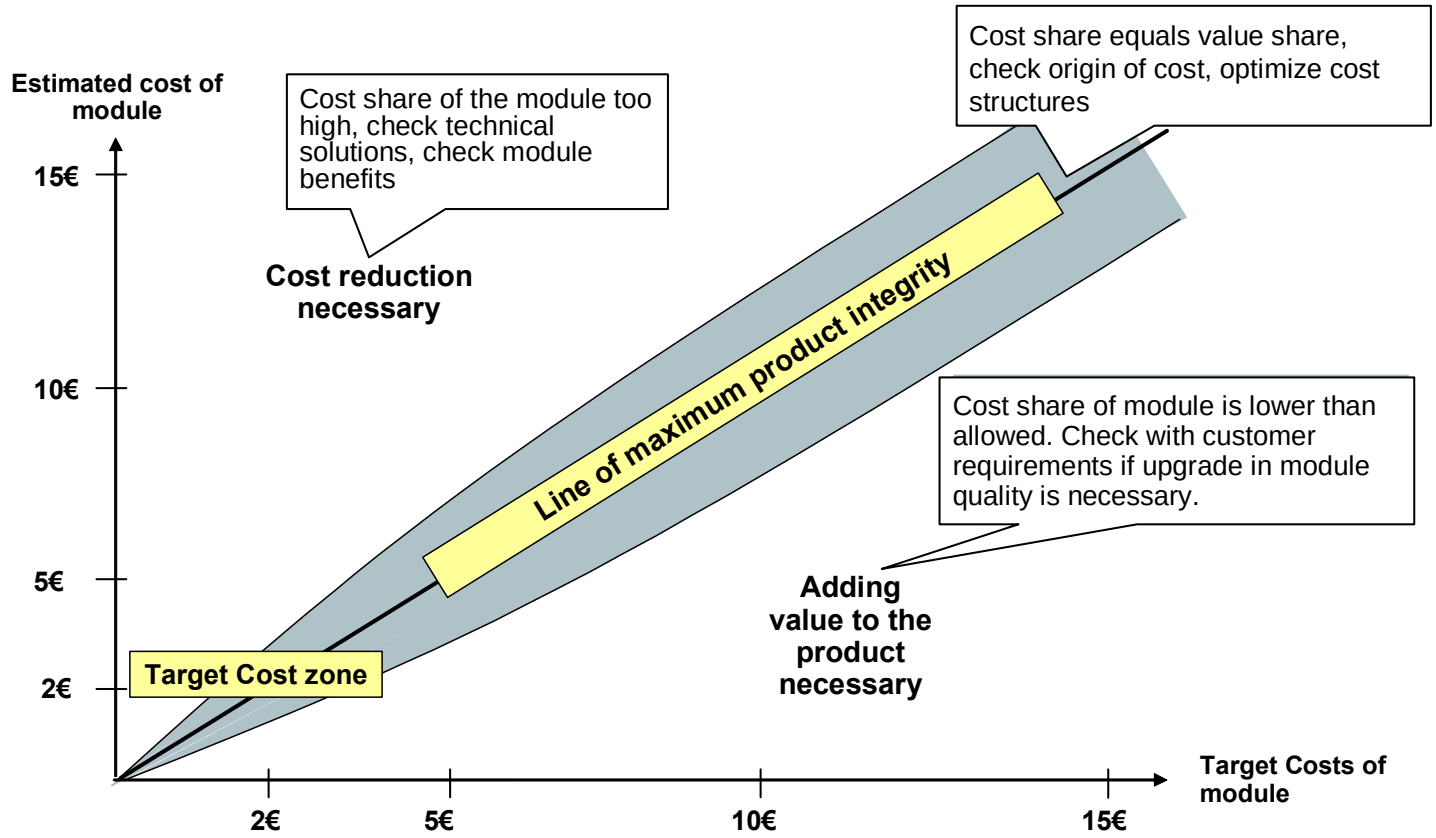

Illustration 4.20

4.2.8 Results from the Product Target Splitting

The results from the Product Target Splitting can only give a guideline on the costs for the modules. At MD predetermined modules are used to design a mobile device. The costs for these cannot be matched exactly to the calculated Target Costs and the Target Cost can only give an indication of the costs. A Target Cost corridor defines the boundary in which the costs are recommended to be.

The cost corridor allows a larger relative deviation for modules which have a low cost share than for modules that have a high cost share. This is due to the fact that the total cost impact of the modules with the low cost share is smaller.

As described in the theory part, the modules that have a cost share below the Target Cost corridor should be increased in value and for those modules that have a cost share higher than the upper Target Cost corridor the costs or specifications should be decreased.

Notes

Key purchasing criteria of a mobile device

Aggregated description of key purchasing criteria

- **Design**
  - Heptics
  - Colors
  - Materials
  - Special effects / elements
- **Convenient size and weight**
  - Size
  - Weight
  - Form factor
- **Quality**
  - Durability
  - Water and dust resistance
  - SW-stability
  - Low need of service
- **Latest technology**
  - Perceived to be latest by that point of time (e.g. color display, 1 Mpix camera, WLAN)
- **Talk- and standby time**
  - Talk time
  - Standby time
  - Usage time – play "games", see videos etc
- **Increase efficiency**
  - Fast connection / download (UMTS, EDGE..)
  - Organization and synchronization of PIM
  - Easy transfer (Bluetooth, IrDA…)
  - Access corporate mail, servers etc
- **Send -/ Receive -/ Store ideas**
  - SMS, MMS, Video conference…
  - E-mails, Instant messaging, Blogging…
  - Size and Flexibility (exchangeable) memory
- **Have fun**
  - Play music, videos,
  - Play games
  - Listen to radio, see TV
- **Increase safety**
  - To be located, or to locate persons
  - To find a location
  - To have coverage, and to contact persons
- **Ease of use**
  - Intuition driven
  - Minimum of key strokes (for key functions)
  - Time to enter/ start application

Illustration 4.21

4.2.9 Purchasing Criteria, Product Functions & Modules of a mobile device

Product Target Splitting translates in two steps buying criteria into product functions (PTS I) followed by the translation of product functions into product modules (PTS II). The aim is to calculate Target Costs for Modules.

Buying criteria, product functions & product modules are considering different angles of the same product. The translation steps are needed as an end user is not be able to define his willingness to pay for a certain module directly.

4.2.9.1 Purchasing Criteria

The purchasing criteria describe the mobile device from the end user perspective. The weighting of the purchasing criteria depends on the specific market segment that is targeted. It is established through market research.

Notes

Functions of a mobile device

Aggregated description of main functions

- **Make and receive calls**
  - Provide connections using various standards
  - Provide ring tones
  - Display menu, telephone book, calling party, …
  - Store telephone numbers
  - Usage & standby time for telephony
- **Appeal to user**
  - Attractive design
  - Adequate size
  - Qualitative material
- **Support imaging**
  - Make photo / video
  - Download / stream / show video
  - Display images
  - Store images
  - Usage time for imaging
- **Support music**
  - Download / play music
  - Store music
  - Listen to radio
  - Sound quality
  - Usage time for music
- **Provide gaming**
  - Download games
  - Multi playing games
  - Display games
  - Store games
  - Usage time for gaming
- **Provide outdoor/leisure features**
  - Protect from environmental impact
  - Innovative /outdoor and leisure features
- **Enable messaging**
  - Various messaging standards (e.g. SMS, MMS, IM, POC,…)
  - Various protocols (e.g. IP, SIP,..)
  - View & Store messages
- **Support business applications**
  - PDA functionality
  - PIM
  - Document viewing and editing
  - View & Store business applications
- **Offer additional services**
  - New innovative services/features
  - E.g. Location Based services

Illustration 4.22

4.2.9.2 Product functions

Product functions are a neutral functional view of the mobile device. They describe all the functionalities that can currently be included.

The functions listed are ONLY main functions and not supporting functions. An example: Provide telephony or provide music are main function of a mobile device as the activities are unique. Store data or display content are supporting functions. The storing of data or the display of content are required both for storing or viewing telephone numbers as well as for storing music or displaying tracks.

Product functions have already been introduced in the Enthusiasm Model so that the results from the PTS can be verified with the results of the Enthusiasm Model.

Notes

Modules of a mobile device

Aggregated description of modules

- **Basic Necessary Parts (BNP)**
  - BPF (Base Band, RF, Power Management,…)
  - PCB
  - PS Connector (Lumberg)
  - Connecting Parts to other modules
  - Shielding
  - B-Components
  - Application processor
- **Sensors**
  - Various sensors (e.g. temperature, tilt, acceleration, heart, altimeter, barometer, compass, proximity, …)
- **Connectivity**
  - IrDA
  - BT
  - WLAN
  - AGPS
  - FMRADIO
  - TV
- **Camera**
  - Camera Module
  - Flash
- **Display Module**
- **Memory**
  - Flash
  - RAM
  - MMC card holder or equivalent
  - MMC card or equivalent
- **Housing. Keypad, acoustics**
  - Upper & Lower case
  - Mounting frame
  - Key pad including lighting
  - Microphone
  - Loudspeaker
  - Antenna
- **Battery**
- **Delivery unit and accessories**
  - Packaging
  - User Manual
  - CD
  - Added accessories

Illustration 4.23

4.2.10 Product modules

Product Modules describe the hardware of the mobile device. Various module groups are formed to describe the full mobile device and to be able to distinguish them from a functional point of view. Aim of the Product Target Splitting is to derive the willingness to pay for these modules.

The Basic Necessary Parts (BNP) describe the core of the mobile device and includes all the electronic components of the device such as the Base Band, RF & Power Management Chip as well as the shielding, the PCB and all the B-Components and connecting components.

Notes

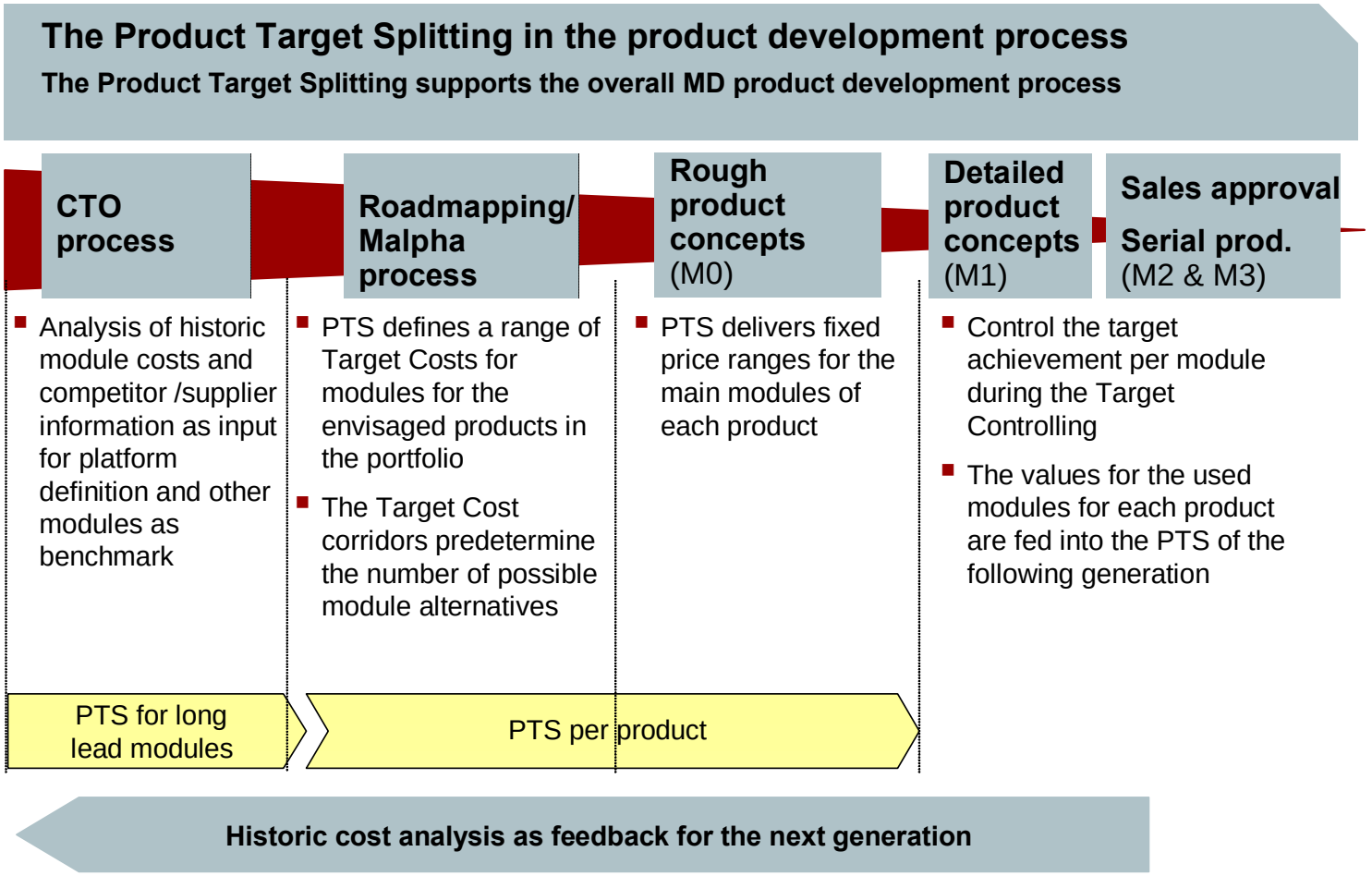

Illustration 4.24

4.2.11 The Product Target Splitting in the product development process

Product Target Splitting activities should be performed at all stages of the product definition process:

- For the Basis Platform Framework and platform definition process, historic cost projections are used to derive cost targets for main modules.
- During the product definition phase Product Target Splitting defines – as described above – Target Cost corridors for main modules enabling a more focused and market-oriented choice of possible modules in the Alternatives Generation.
- During the stage of product concept planning and serial production module cost data is gathered, analyzed and projected into the future to aid the Basis Platform Framework and platform definition for the next product generation.

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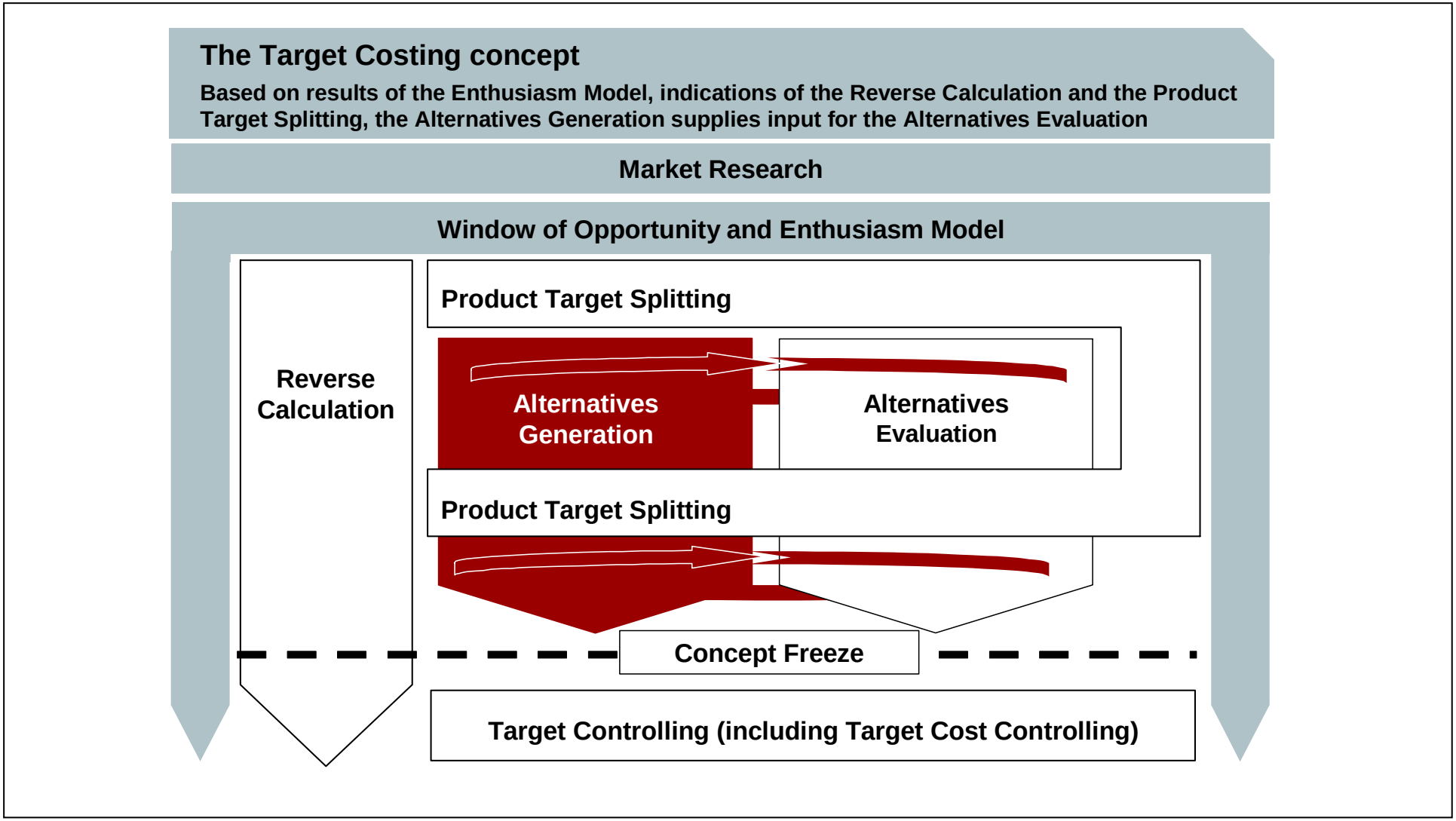

Illustration 5.1

Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

5 Alternatives Generation

This chapter introduces the Alternatives Generation, one of the six core tools of Target Costing, a methodology introduced at MD to improve the product development process.

The chapter is divided into two parts:

- The first part describes the general approach of the Alternatives Generation.
- The second part shows the adaptation of Alternatives Generation to MD´s organization.

Notes

Translating set goals into products by using the Alternatives Generation

The Alternatives Generation translates Enthusiasm Model goals into specific solution options and, with Alternatives Evaluation as a "sparring partner", assures a structured product detailing

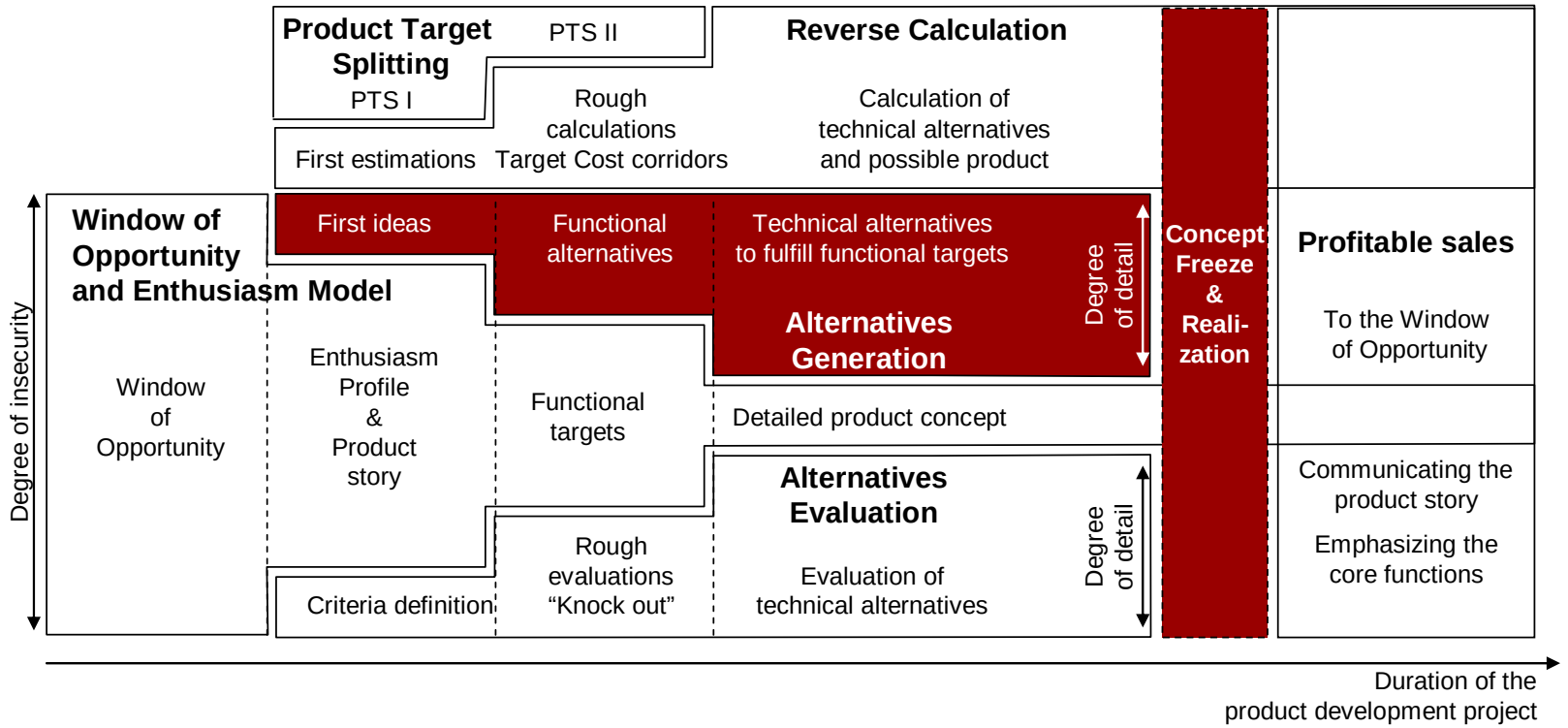

Illustration 5.2

5.1 Methodology of the Alternatives Generation

5.1.1 Definition and benefits of the Alternatives Generation

The Alternatives Generation (AG) defines possible options and in-depth technical solutions for the development of platform, product, module/component concepts (see illustration 5.2).

The Alternatives Generation aims at identifying favorable platform, product concepts and module/component alternatives which do not only satisfy the requirements set by the predefined Window of Opportunity and the EM but also meet the cost guidelines set by Reverse Calculation and Product Target Splitting.

The benefit of using the Alternatives Generation lies in guiding a structured and systematic generation of different platform, concept and module/component options. By describing the different alternatives to reach a desired cost and market position a fact-based decision making in the Alternatives Evaluation is supported. The Cost-Module Matrix as input for the AG supports a cost-focused decision at an early stage of the product development process. Due to its structure Alternatives Generation enables a reuse of documented decisions and information and speeds up future decision processes.

Notes

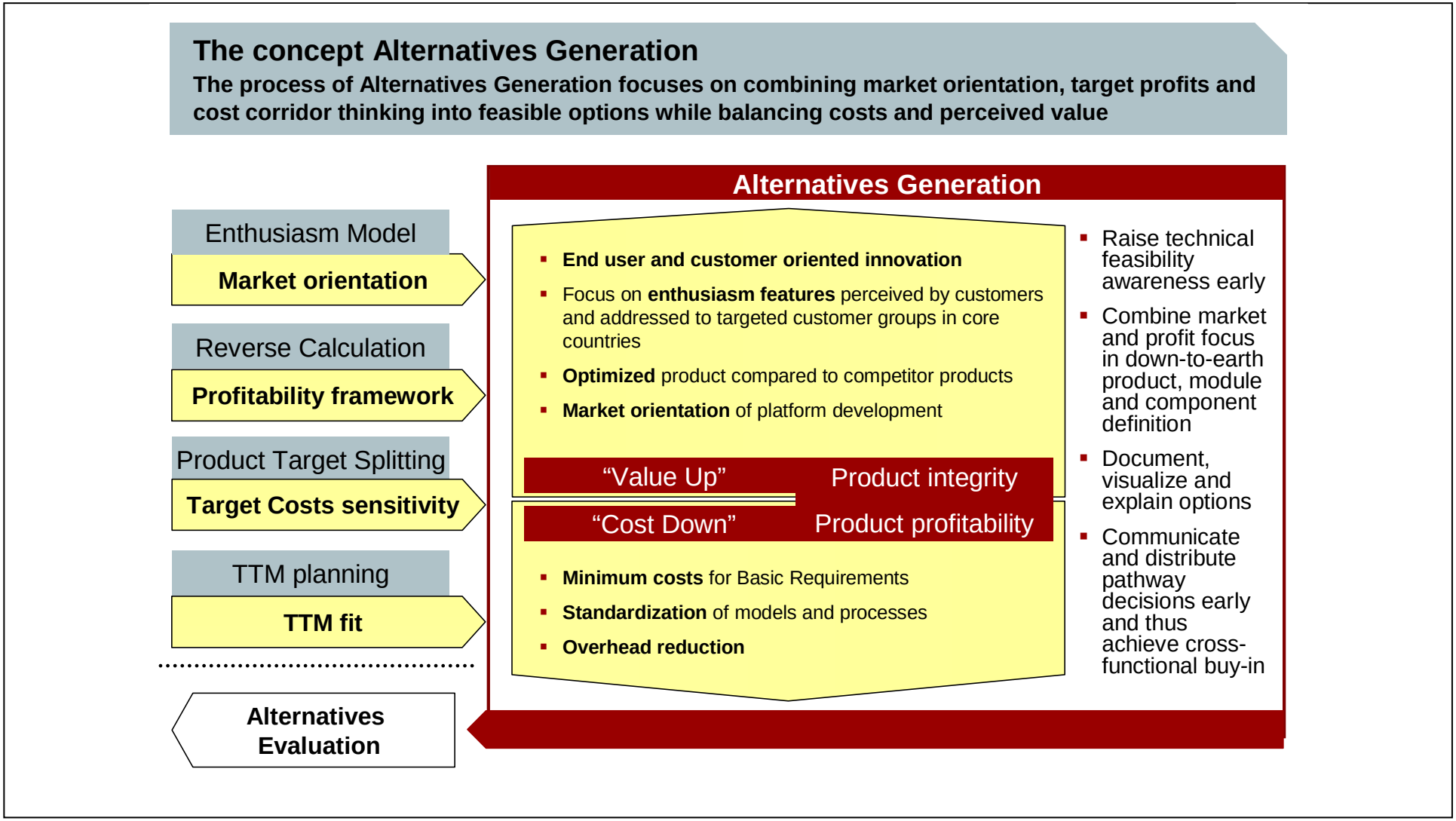

Illustration 5.3

5.1.2 The concept of Alternatives Generation

The Alternatives Generation is an embedded part of the whole Target Costing tool set. As inputs the Alternatives Generation requires:

1. End-user and operator requirements of the Enthusiasm Model as well as additional market information (e.g. a Price Performance Analysis),
2. Target Costs for products and components derived from the Reverse Calculation and the Product Target Splitting and
3. Time to Market planning.

Based on the input the Alternatives Generation balances market requirements with the company's technically feasible possibilities by optimizing "value up" and/or "cost down" for all relevant features of the product concept.

The result is different alternatives that serve as an input for the Alternatives Evaluation.

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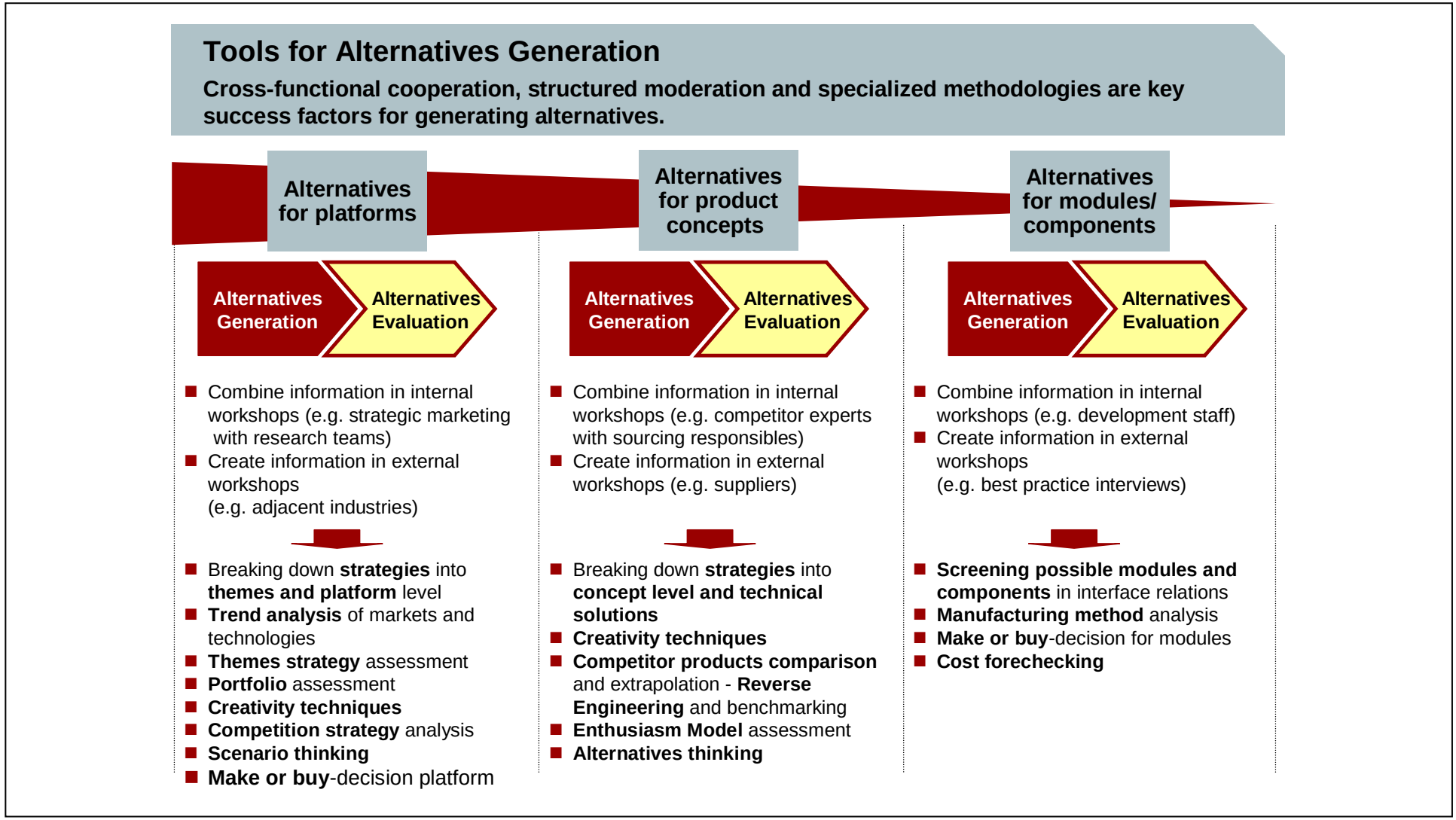


Illustration 5.4

5.1.3 Relevant toolset for the different Alternatives Generation stages

The Alternatives Generation can be supported with different tools, depending on the related product development stages.

At the stage “alternatives for platform”, a more strategic technological input is required. As a potential source of input technical workshops and themes strategies are essential.

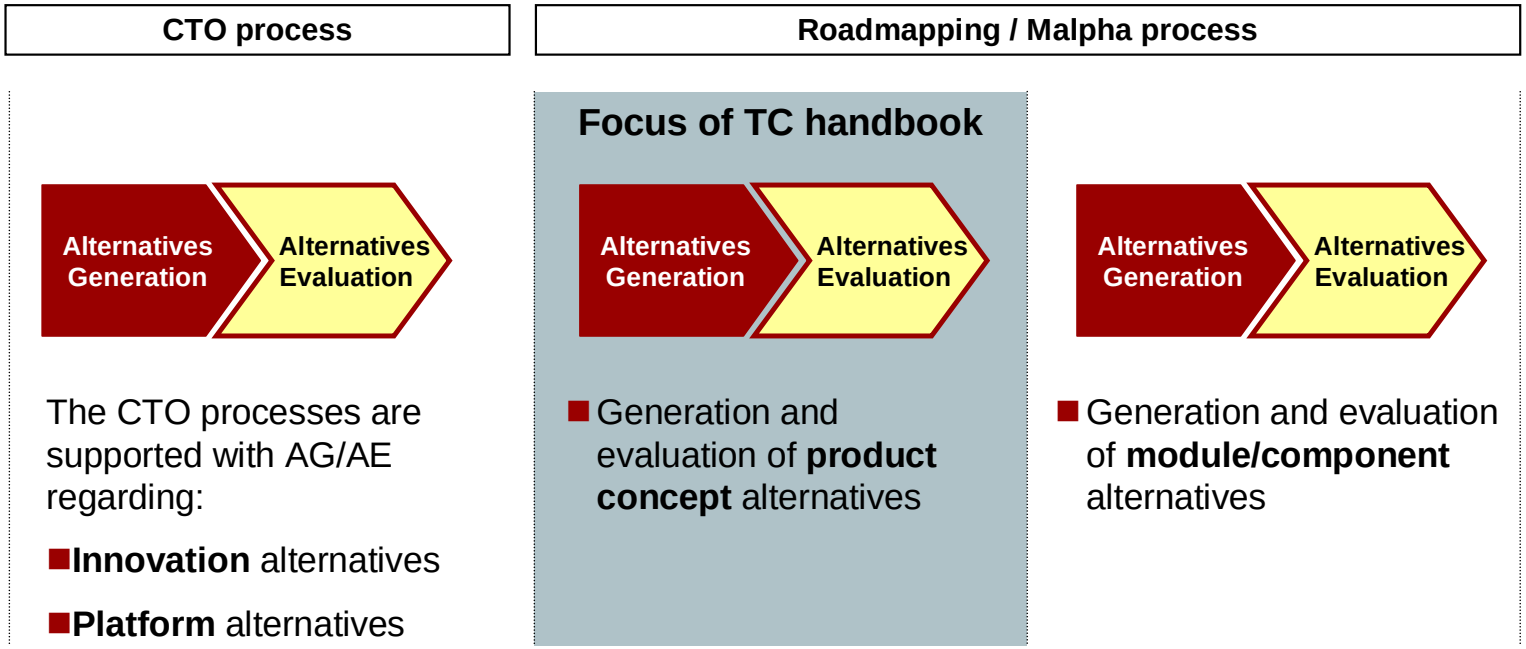
At the stage “alternatives for product concepts” creativity itself is in the focus. The possible technical feature set and the product positioning within the defined portfolio framework are the relevant issues.

At last the Alternatives Generation for modules and components offers the chance to optimize the cost situation by searching for possible different technical solutions. In Target Costing this phase is named “cost squeezing“ and is very similar to the Design to cost (DTC) approach.

Notes

Alternatives Generation throughout the product development process

As the level of detail along the product development process increases, the Alternatives Generation has to be conducted with a different scope for each stage



After each generation and evaluation the decision is **frozen and handed over** to the next decision process.

Illustration 5.5

5.2 The Alternatives Generation at MD

5.2.1 Adaptation of the Alternatives Generation to MD

As the mobile device business is a very fast moving and innovation driven business, the Alternatives Generation and the correlated Alternatives Evaluation need to be adapted to the different stages of the MD development process.

In this overall process two main definition or development levels have to be distinguished.

1. The platform definition processes with all innovation, Basis System Framework and platform issues and
2. the “product related definition processes” that include the product roadmapping and product definition issues.

For details of the differentiation and an overview over the respective related features or components see the following two pages.

As the focus of this handbook is on the product related issues, only the Alternatives Generation for product concepts will be described. However, the methodological approach could be used for all processes.

Notes

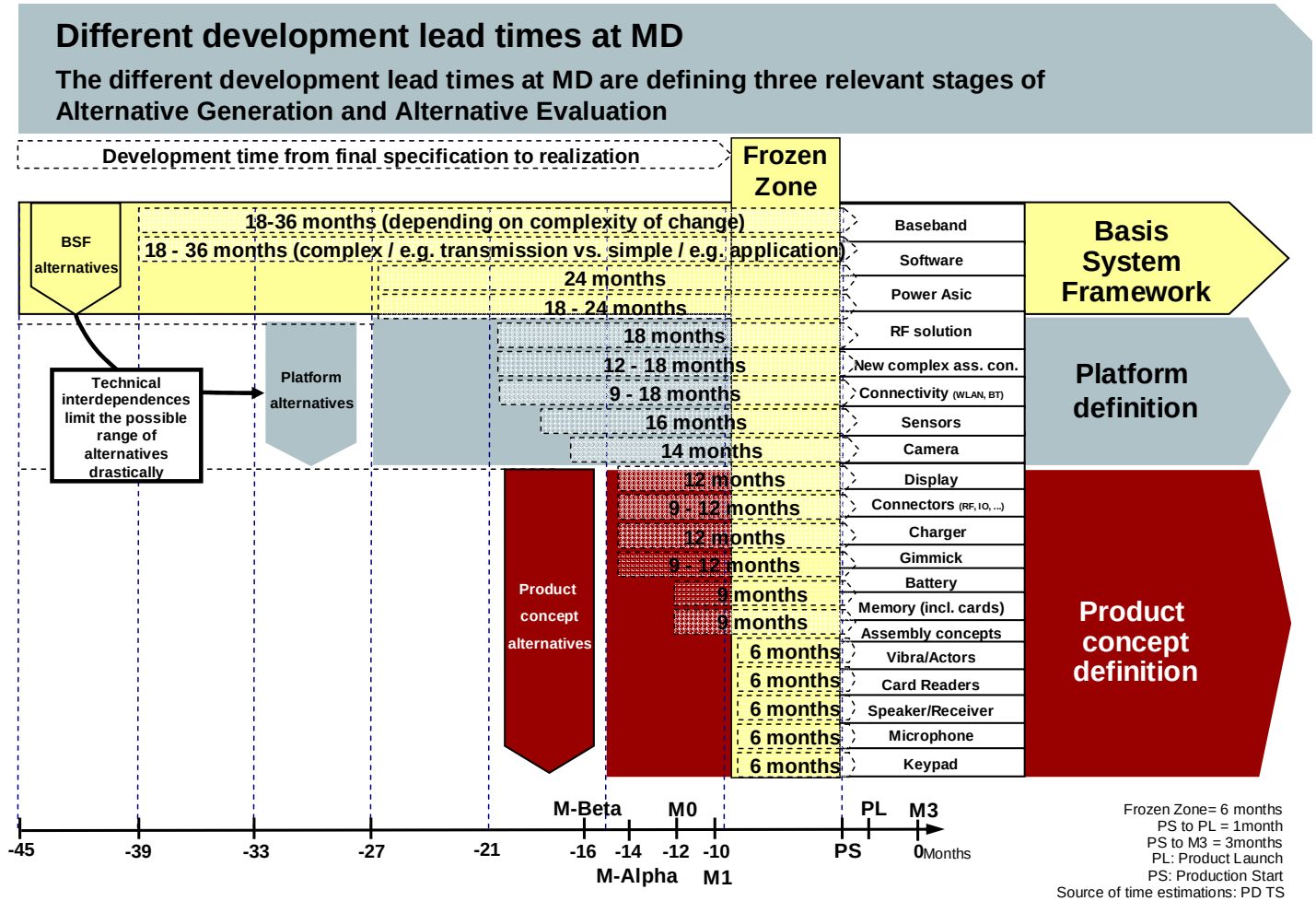


Illustration 5.6

5.2.2 Differentiation of Alternatives Generation at MD

Due to the different development lead times of the modules or components of a mobile device, MD clusters three relevant stages for the development process that are all relevant for the Alternatives Generation.

1. The Basis System Framework is the first and leading decision that has to be made and therefore represents the first stage of Alternatives Generation at MD.
2. Due to the required development and procurement lead times the platform is an own AG stage within the set borders of the BSF. These do not fit to the timing of the rest of the product definition process.
3. Within the set borders of BSF and platform decisions the product alternatives are generated as late as possible before the final concept freeze. For the generation of product alternatives two levels should be regarded: The generation of alternatives for product concepts and the generation of alternatives for single modules or components. Since the product concept alternatives allow a wider scope the following pages concentrate on this topic.

Notes

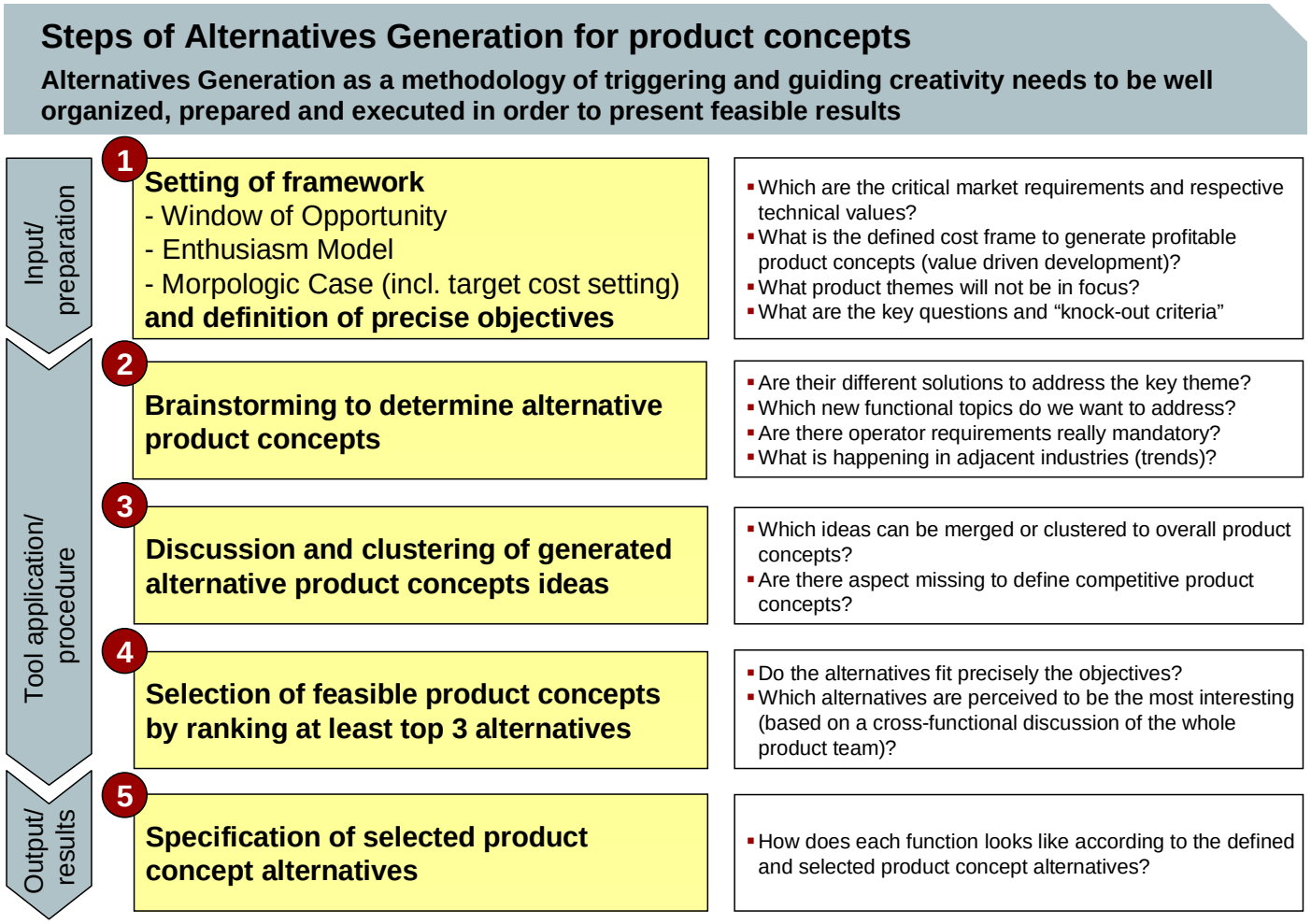


Illustration 5.7

5.2.3 Steps of Alternatives Generation for product concepts at MD

By defining product concept alternatives with the Target Costing toolset 5 steps have to be implemented.

- At first, a clear defined framework has to be set by the already defined Target Costing tools. Thereby the Window of Opportunity, the Enthusiasm Model and the Cost-Module Matrix support the definition of precise objectives. These defined objectives help to set the defined boundaries during the Alternatives Generation process.
- From step 2 up to step 4 a workshop approach supports the generation, discussion, clustering and selection of product concept alternatives. Starting with step 2 a functional, open-minded thinking helps to go beyond the already known technical boundaries. Therefore step 2 is the most important one. Step 3 and 4 are then structuring and combining the output of the creative phase.
- In step 5 the final alternatives are defined in detail and agreed upon before being handed over to the Alternatives Evaluation.

The following pages within that chapter describe the 5 step approach in detail.

Notes

Alternatives Generation implementation for product concepts (I)

1a

Besides the Window of Opportunity and the Enthusiasm Model the Cost-Module Matrix provides a mask of remaining alternatives

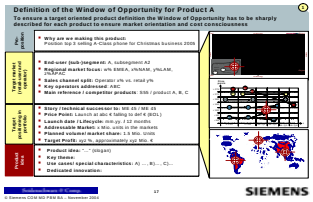
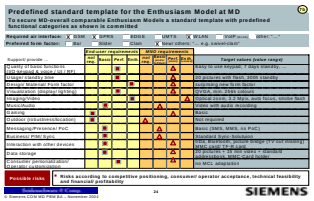
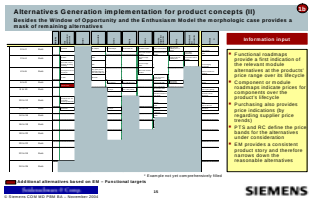
Setting of framework		Definition of precise objectives
Window of Opportunity		Definition of precise objectives concerning ▪ the target market ▪ the target portfolio positioning ▪ the product idea
Enthusiasm Model		Definition of precise objectives concerning ▪ the innovation and themes roadmaps ▪ the real mandatory operator requirements ▪ other
Cost-Module Matrix		Definition of precise objectives concerning ▪ the defined target costs on module level, ▪ possible cost reduction issues, ▪ other
“Knockout criteria”		▪ Technological aspect ▪ Other

Illustration 5.8

5.2.4 Setting the framework for the Alternatives Generation of product concepts

As mentioned before the Alternatives Generation needs a clearly defined framework. By using the Target Costing tools, which are already defined at that stage, all necessary boundaries and precise objectives can be defined.

First, the Windows of Opportunity give an overview over the targeted market focus, the targeted positioning in the product portfolio and the first product idea.

Second, the link to the Enthusiasm Model has to be established. If operator and end user requirements cannot be harmonized, both requirements must be documented, as they can represent possible alternatives later on. Additionally, regional requirement differences should be clarified and documented as possible alternatives. Thus, the discussion itself, which led to the committed Enthusiasm Model is an important source for alternatives.

Then, the implementation of the Cost-Module Matrix supports the Alternatives Generation for product concepts with the possible range of technical feasible alternatives. In detail you can see which component combinations can be realized within the derived Target Costs.

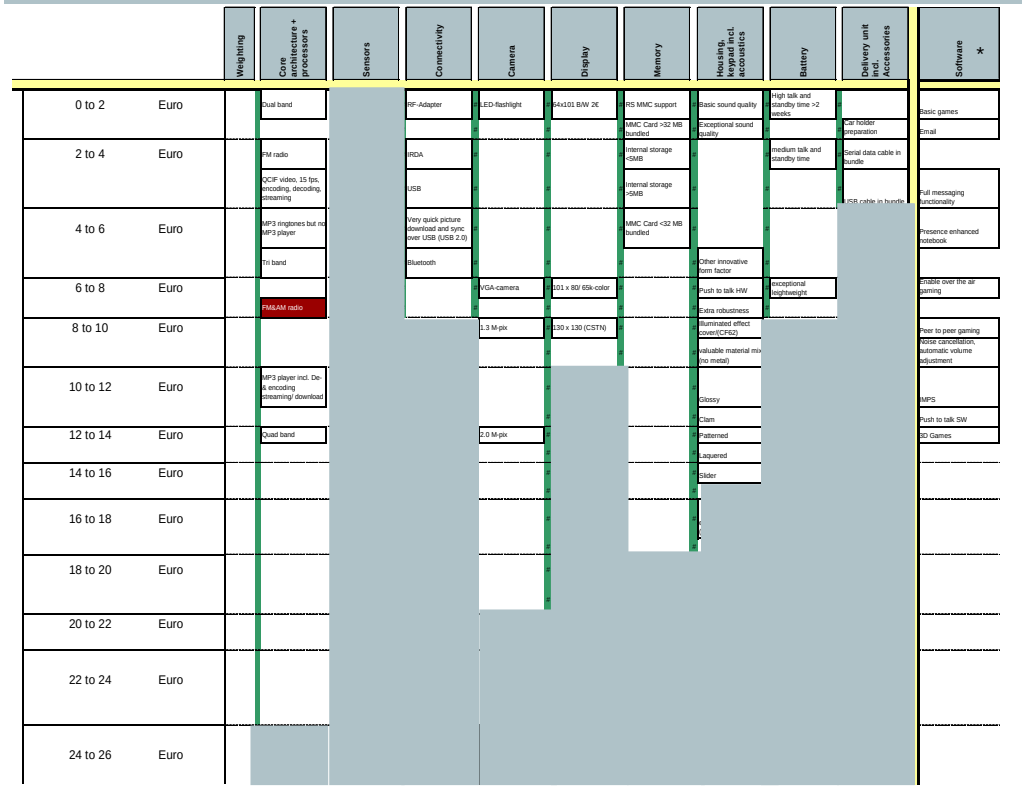
Last, the definition of “knockout criteria” helps to streamline the Alternatives Evaluation by eliminating unfeasible ideas early.

Notes

Alternatives Generation implementation for product concepts (II)

1b

A filter derived from EM and RC is laid upon a Cost-Module Matrix of alternatives and provides a mask of remaining alternatives



* Example not yet comprehensively filled

Additional alternatives based on EM – Functional targets

Procedure

- Functional roadmaps give a first indication which alternatives are relevant at the products' price range over its lifecycle
- PTS and RC define the price band in which the alternative can be chosen.
- The EM provides a consistent product story and narrows the filter down even further.
- Alternatives Generation therefore becomes more efficient and precise the clearer the filter derived from RC and EM is described. Therefore, the better the results of the front end of innovation, the easier and quicker alternatives are generated.

Illustration 5.9

5.2.5 Alternatives Generation of products by using the Cost-Module Matrix

One main tool to support the generation of feasible product alternatives is the Cost-Module Matrix. The Cost-Module Matrix contains all possible solutions for components and features of a mobile phone (e.g. VGA, 1 Mpix, 2 Mpix, flash, zoom or auto focus solutions) sorted in 9 different module groups plus software.

In order to have a complete and actual input the set of components should be cross-checked with the Enthusiasm Model, missing components should be added and the prices for components as well as component trend indications have to be constantly actualized by MD strategic procurement.

The Product Target Splitting toolset delivers a target price corridor for modules shown in the Value Control Chart. This given cost limit per module is applied to the Cost-Module Matrix and thus reduces the possible choice of components/solutions. The clear boundaries support the focused generation of profitable and target-oriented product concepts.

In this phase of the Alternatives Generation the creativity of the interdisciplinary team is the key success factor. All possible different combinations within a module (e.g. 2,0 Mpix camera without flash and optical zoom vs. 1,3 Mpix camera incl. LED flash and optical zoom) have to be discussed and checked with the market requirements.

Notes

Alternatives Generation implementation for product concepts (III)

2-4

After the review of the relevant framework various conceptual alternatives have to be generated, selected and specified during an AG workshop

Concept brainstorming	Concept Discussion & Clustering	Concept ranking	Concept detailing
Objective ▪ Pool of creative ideas for product concepts	**Objective** ▪ Structuring of concept ideas in clusters ▪ Slogan for each cluster	**Objective** ▪ Pre-selection of concept ideas for in-depth evaluation	**Objective** ▪ Description of functional characteristics for each alternative
Success factors ▪ Good preparation and clear objectives ▪ No discussions ▪ Big picture thinking in concepts, not in details ▪ Experienced cross-functional teams	**Success factors** ▪ Stay open-minded even if concepts do not seem feasible on the first sight ▪ Set up alternatives clusters that base on market needs and/ or technical reach	**Success factors** ▪ Encourage diversity of selected alternatives ▪ Mix of common and exceptional ideas ▪ Rational-based selection	**Success factors** ▪ Availability of experts ▪ Detailed documentation of results

PDM as facilitator
(Structured approach of workshop)

Illustration 5.10

5.2.6 The creative part of Alternatives Generation

After setting the framework the ultimate part of the Alternatives Generation, the creative part, can be realized. Three stages of it must be separated:

- At first, by using the methodology of brainstorming all upcoming ideas and/or alternatives should be gathered and written down. One of the most important issues is to generate completely different concept alternatives by varying not only one major component to its extremes (e.g. 2 Mpix instead of VGA camera). Thinking in product concepts and true end-user/customer benefits and not in technical details and components helps to come to real concept alternatives.
- Then, by discussing the generated alternatives, duplications can be eliminated and similar alternatives can be clustered.
- Finally, before detailing the generated product concept alternatives the “knock-out criteria” should be checked and a first ranking of the product concepts helps to focus on the most important ones.

Notes

Alternatives Generation implementation for product concepts (IV)

5

The results of the Alternatives Generation have to be specified in a structured way to pass on to the Alternative Evaluation

Product functions	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
Make and receive calls (Quality of basic function – I/O/ UI/ RF)	**Tri band / high talk & standby time**			
Appeal to user (Design/ Material / Form factor)	classic & elegant metal housing	Thinnest (17mm) metal housing & leather/ rubber		Thicker housing than base case (21 mm)
Support imaging and video	VGA camera, no Flash, 2x digital zoom			1.3 Mpix camera with 3x optical zoom
Support music and audio	Common music files supported	MP3 ringtones supported	Surround sound speaker system	
Provide gaming	Provide gaming			
Provide outdoor/ leisure features (e.g. sensors)	Not wanted			
Enable messaging	Enable messaging			
Support business applications (incl. PIM and Sync)	Standard organizer functionality			
Provide additional services (e.g. location services)	Not wanted			
Provide visualization (Display)	176x220, TFT 2,1', 256k	132x176, TFT, 1,8', 265k	176x220, TFT 2,1', 256k	176x220, TFT 2,1', 256k
Provide usage-/ standby time	300 h (Li-Ion 750 mAh)			400 h (Li-ion 900 mAh)
Interaction with devices	Slim Lumberg, IrDa	New Lumberg solution	**IrDa**	
Store data	32MB, MMC slot		MMC card 32MB bundled	MMC card 32MB bundled
Consumer personalization/ Operator customization	**Main operator UI supported**			clubbers wristband

Responsibles for Alternatives Evaluation

Strategic and Portfolio fit	Financial fit	Competitiveness Operators	Competitiveness End-Users	Technical Feasibility	Resource fit	Time to Market fit
N.N.	N.N.	N.N.	N.N.	N.N.	N.N.	N.N.

Illustration 5.11

5.2.7 Detailing of generated product concept alternatives

The last step of the Alternatives Generation is the detailing and documentation of the generated product concepts and their respective technical solutions and components. The results will be handed over to the Alternatives Evaluation

In case more than five alternative concepts are defined, it is sufficient to describe the five highest ranked alternatives in detail.

Finally the responsibilities for the different categories of the Alternatives Evaluation should be defined in order to start the Alternatives Evaluation with a proper preparation.

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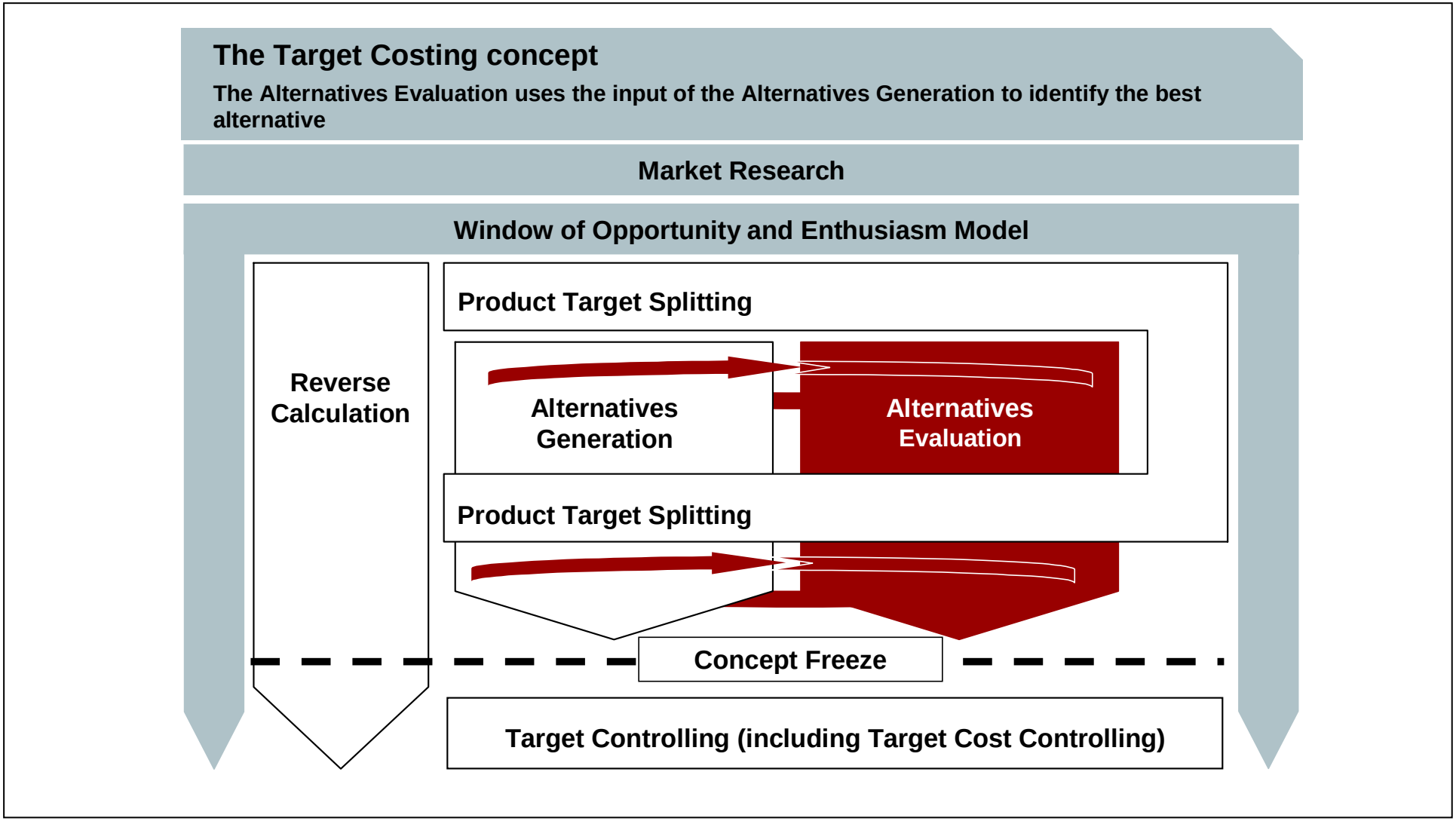


Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

Illustration 6.1

6 Alternatives Evaluation

This chapter introduces the Alternatives Evaluation, one of six core tools of Target Costing, that are implemented at MD to improve the product development process.

The chapter is divided into two parts:

- Part one describes the Alternatives Evaluation in theory and how it supports a structured and transparent evaluation.
- The second part adapts the theory to the specific MD situation. It introduces a standard evaluation process together with standardized criteria catalogues.

Notes

6.1 Methodology of the Alternatives Evaluation

6.1.1 Definition Alternatives Evaluation

The Alternatives Evaluation is a tool to perform a standardized analysis of generated alternatives. Based on measurable criteria different alternatives are evaluated and ranked using a scoring model.

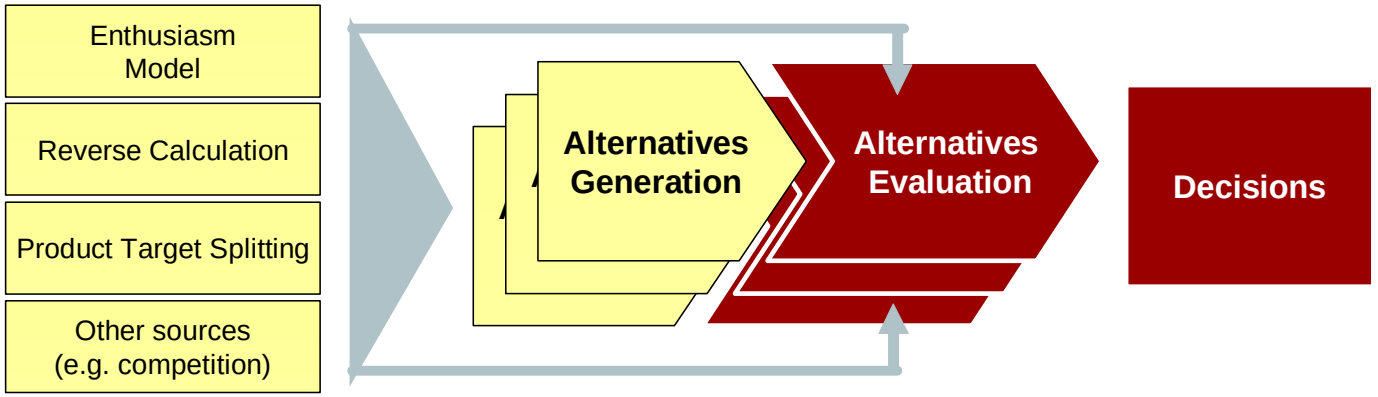
An organization benefits from a standardized Alternatives Evaluation in various ways:

- The Alternatives Evaluation structures, arranges and documents the evaluation process along a given criteria catalogue.
- It improves the transparency in decision making for the management as the process is clearly defined.
- It increases the objectivity of individually performed analysis due to involvement of cross-functional experts and an interdisciplinary criteria catalogue (financial, technical, market, strategy criteria).
- It optimizes the decision making based on a consistent scoring model.
- It guarantees future commitment of all parties involved by a team that drives the decision process.

Notes

Concept of Alternatives Evaluation

The input of other Target Costing tools and various other sources is used to assist the decision making process throughout the development process



- The output of the Alternatives Generation is evaluated applying a fixed criteria catalogue using **input** from different sources.
- The combination of Alternatives Generation and Alternatives Evaluation can be applied at **different stages** (product concept, module and component) in the product development process.
- Each Alternatives Evaluation is carried out following standardized **working steps**.
- The **output is an identification** on the best alternative.

Illustration 6.2

6.1.2 Concept of the Alternatives Evaluation

The Alternatives Evaluation is used solely after an Alternatives Generation was conducted.

To evaluate the alternatives, input from different sources is necessary. The Reverse Calculation measures the financial strengths of each alternative. The Enthusiasm Model provides the Window of Opportunity with which the alternatives are compared. The Product Target Splitting supplies a cost corridor of the product modules. Other sources like information on competitors' strength also provide input.

The combination of Alternatives Generation and Alternatives Evaluation can be applied at different stages in the product development process. For example different product concepts or later in the development process different component alternatives for a product can be evaluated.

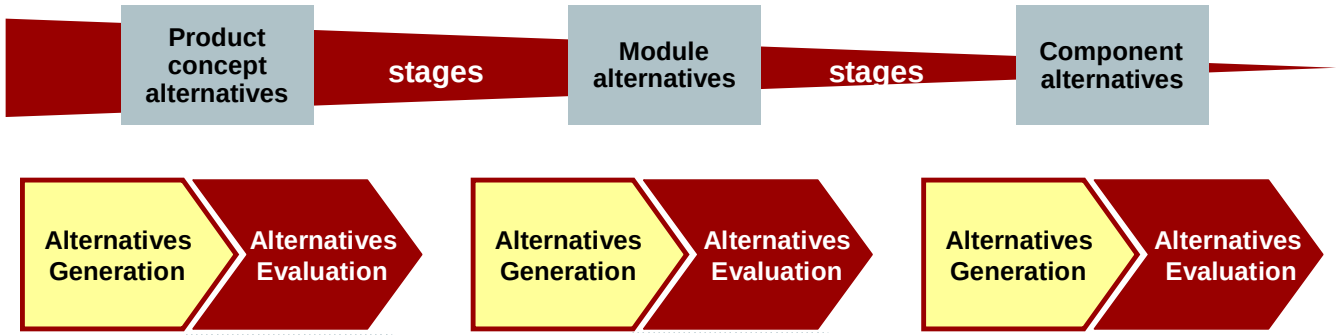
Independently of the stage in which the Alternatives Evaluation is carried out, it always follows the same standardized working steps.

Critical to the success of the Alternatives Evaluation is the identification of the best alternative. No team member should question the evaluation after finishing the process.

Notes

Methodology of the Alternatives Evaluation (I)

Each Alternatives Evaluation comprises 5 working steps, from the criteria selection to the decision making



Steps

1	**Selection** & description of a set of evaluation criteria
2	Definition of **dimensions** with corresponding explanation
3	**Evaluation** of all alternatives including explanation
4	**Weighting** of the criteria
5	**Decision** making

Illustration 6.3

6.1.3 Methodology of the Alternatives Evaluation

For each stage of the product development process the Alternatives Evaluation follows the same five working steps.

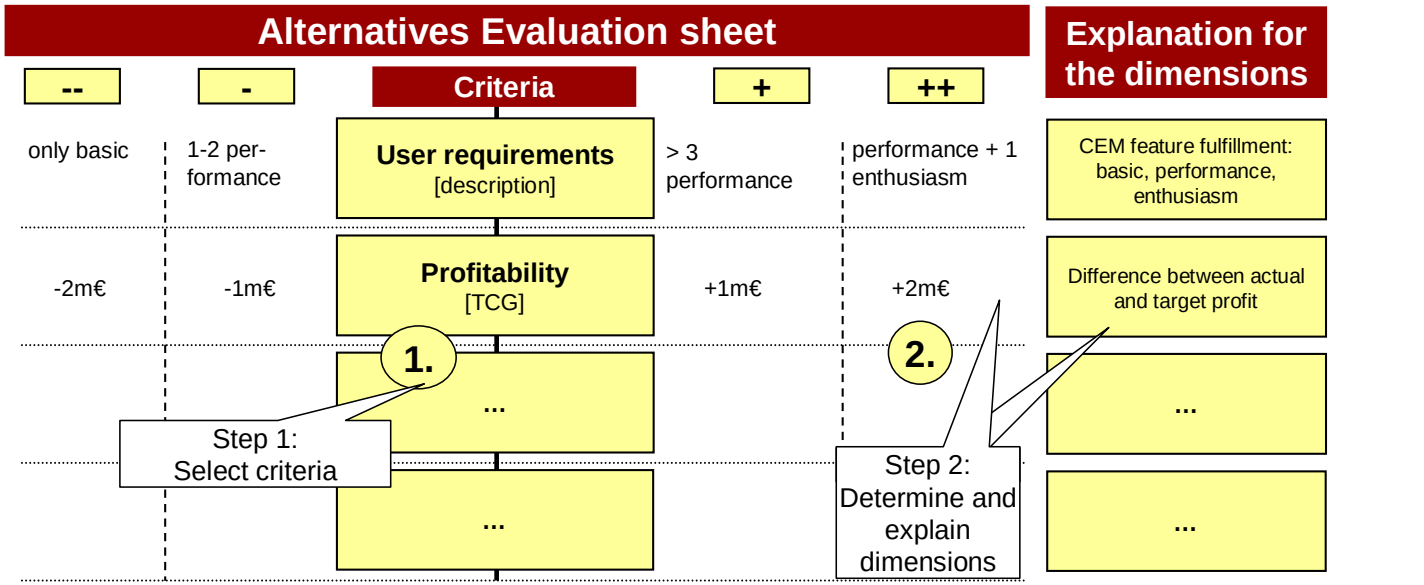
The steps are chosen in such a way that the objectivity of the decision is supported.

- The evaluation criteria (step 1) and corresponding dimensions (step 2) are fixed prior to the evaluation.
- The weighting (step 4) is performed after the evaluation as an upfront weighting might influence the decision making within the evaluation (e.g. a team member could increase the score of a highly weighted criterion of his favorite alternative).
- The decision (step 5) is based on the score of the alternatives.

Notes

Methodology of the Alternatives Evaluation (II)

Evaluation criteria are selected in step one and have to be complemented by dimensions in step 2



- Criteria and dimensions are **fixed prior to evaluation**.
- The criteria are listed in the centre together with a short description.
- Each criterion is evaluated on a scale from -- to ++.
- The dimensions provide an exact definition of the -- to ++ scale.

*Target Cost Gap

Illustration 6.4

Steps 1 and 2: Selection & description of a set of evaluation criteria and definition of dimensions

Step 1 and 2 are prerequisites for an evaluation. Both criteria and dimensions need to be defined and fixed prior to the evaluation.

The criteria should include all important evaluation factors covering different functional areas (e.g. financial, market, strategic & technical issues). They are listed in the centre (see illustration 4) together with a short description. Each criterion is evaluated on a scale from "--" to "++".

Dimensions with respect to the Alternatives Evaluation provide an exact definition of the "--" to "++" scale. The whole team fixes the dimensions and gets an approval by the responsible manager. The experts then gather the information and evaluate the alternatives applying these dimensions.

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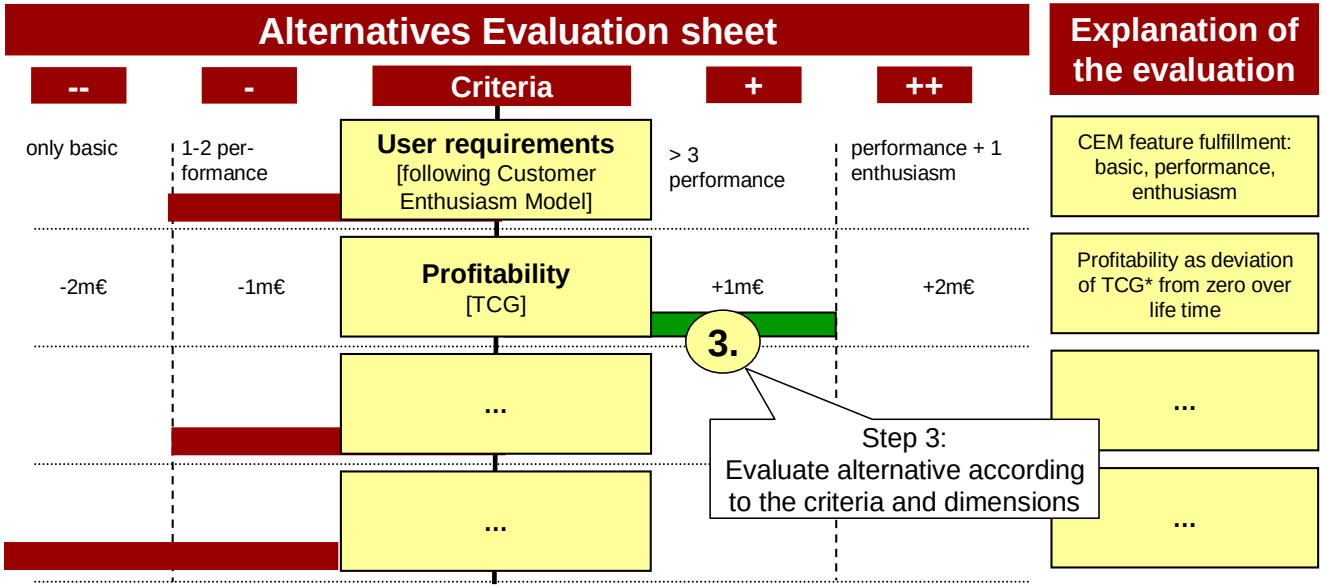
Methodology of the Alternatives Evaluation (III)

In step 3 each alternative is separately evaluated according to the defined criteria and dimensions



- Each sheet covers one alternative.
  The result of the evaluation is visualized by **bar graphs** in
  - **red** for **negative** fulfillment and
  - **green** for **positive** fulfillment of the chosen criteria.

Illustration 6.5

Step 3: Evaluation

After criteria and dimensions are fixed the evaluation itself starts.

All functional experts are asked to provide the necessary information and the corresponding scoring for each criterion. In the given example of the slide, the product fulfills only two performance requirements. Therefore the criterion “User requirements” is evaluated with “-“. An explanation is given for the scoring of each criterion.

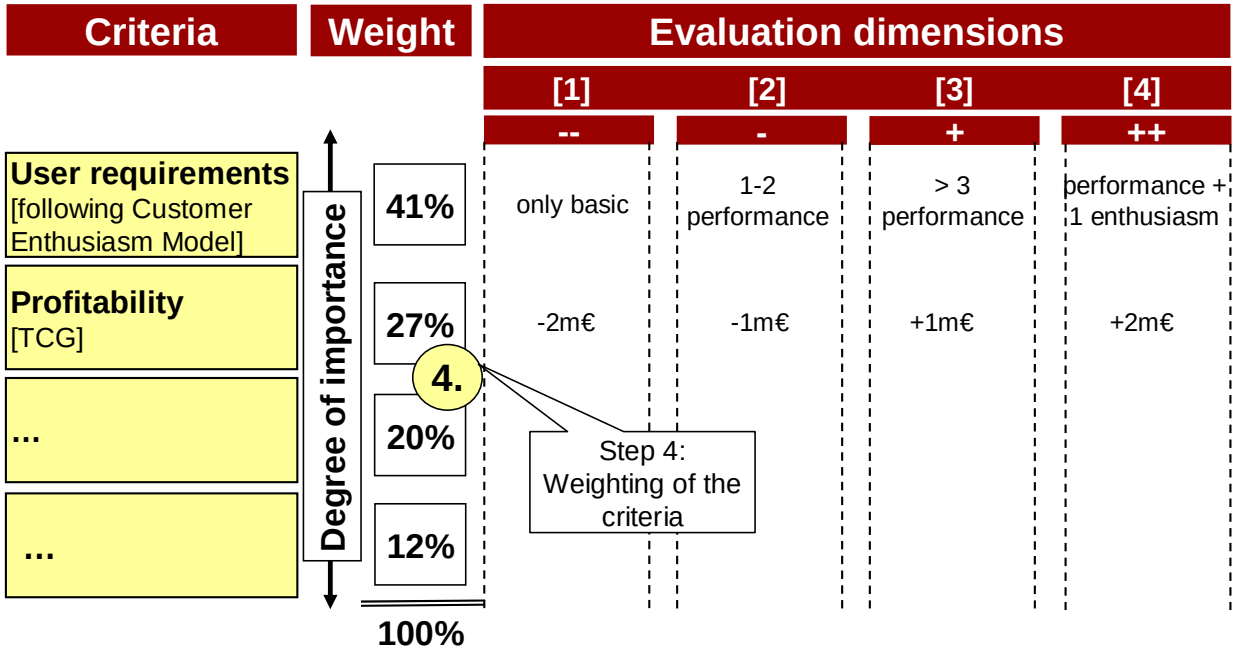
To support the evaluation process, an evaluation sheet is used. Each sheet covers one alternative and the result of the evaluation is visualized by bar graphs in

- red for negative fulfillment and in
- green for positive fulfillment of the chosen criteria.

Notes

Methodology of the Alternatives Evaluation (IV)

In step 4 the criteria are weighted according to their importance



- The **weighting** of the criteria is optional supported by **pair wise comparison**.
- From this step onwards a comparison chart is used instead of the Alternatives Evaluation sheet.
- The weighting is done after the evaluation to support a more objective process.

Illustration 6.6

Step 4: Weighting

As described before, the weighting is done after the evaluation in order to secure a more objective decision.

The weighting is done in percentages adding up to 100%.

With five and more criteria it is difficult to distribute 100% directly. Therefore a pair wise comparison is used (for additional description please read the Nestor Case Study.

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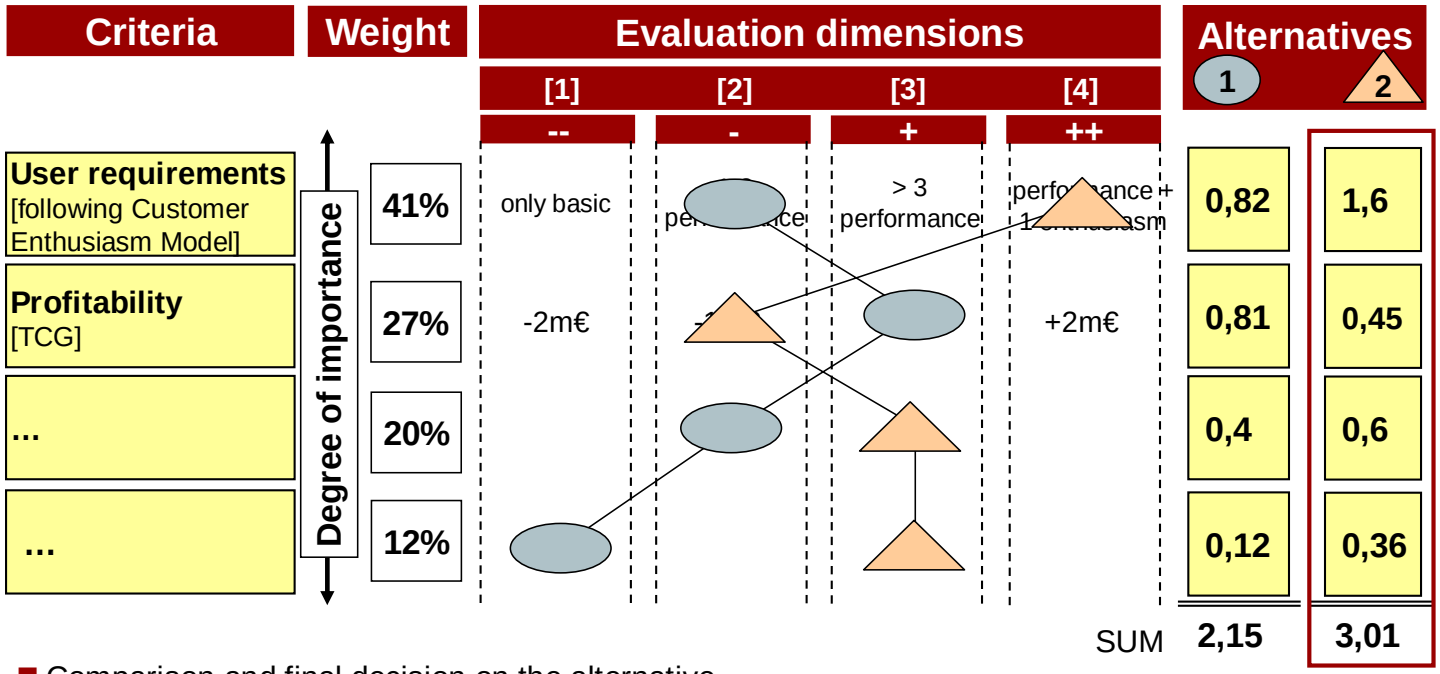
Methodology of the Alternatives Evaluation (V)

In step 5 all alternatives are mapped into one chart, scored and ranked, to decide on the best alternative



- Comparison and final decision on the alternative with the highest ranking.
- When various alternatives are closely scored, the fever curve can help in the decision process.
- Scoring by **multiplying dimensions** (-- =1 to ++ =4) with **weights** (0 to 100%)
- Ranking by **summing all scores** per alternative

Illustration 6.7

Step 5: Decision

In the final step the alternatives are scored, ranked and a decision is made.

The overall score is calculated by multiplying the score of each criterion (-- =1 to ++ =4) with the corresponding weighting (0 to 100%).

The alternatives are then ranked by adding up all scores per alternative.

When various alternatives are similarly scored, the fever curve can help in the decision process.

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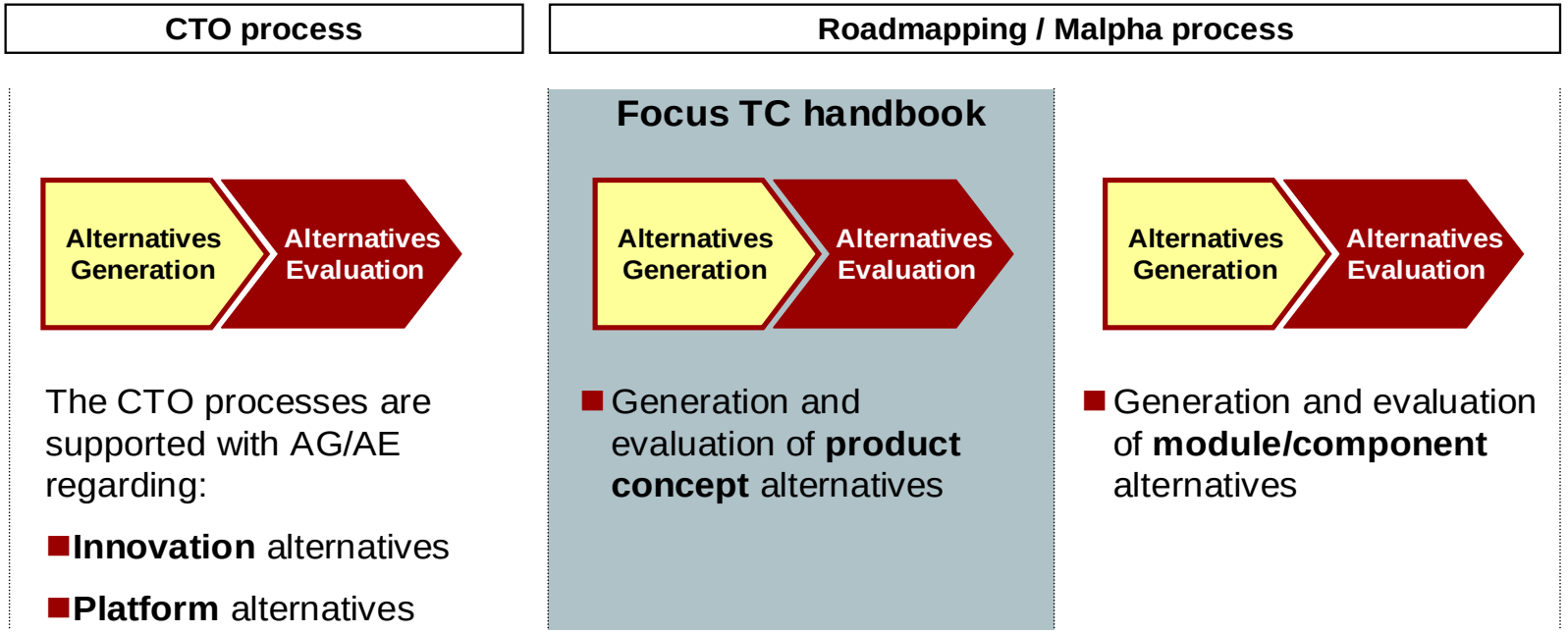
Alternatives Evaluation throughout the product development process

As the level of detail along the product development process increases, the Alternatives Evaluation has to be conducted with a different scope for each stage



After each generation and evaluation the decision is **frozen and handed over** to the next decision process.

Illustration 6.8

6.2 The Alternatives Evaluation at MD

6.2.1 The three types of Alternatives Evaluation at MD

Within the whole development process, many alternatives are generated and evaluated. As described before the Target Costing methodology focuses only on the early phase of the product definition process. Thus, the structure of the AG and AE process of Target Costing concentrate on product concept alternatives. Later decisions on modules and components, like specific designs or the exact keypad outline are not supported by the Alternatives Evaluation as the process would be too time-consuming. These decisions are left in the hand of functional experts.

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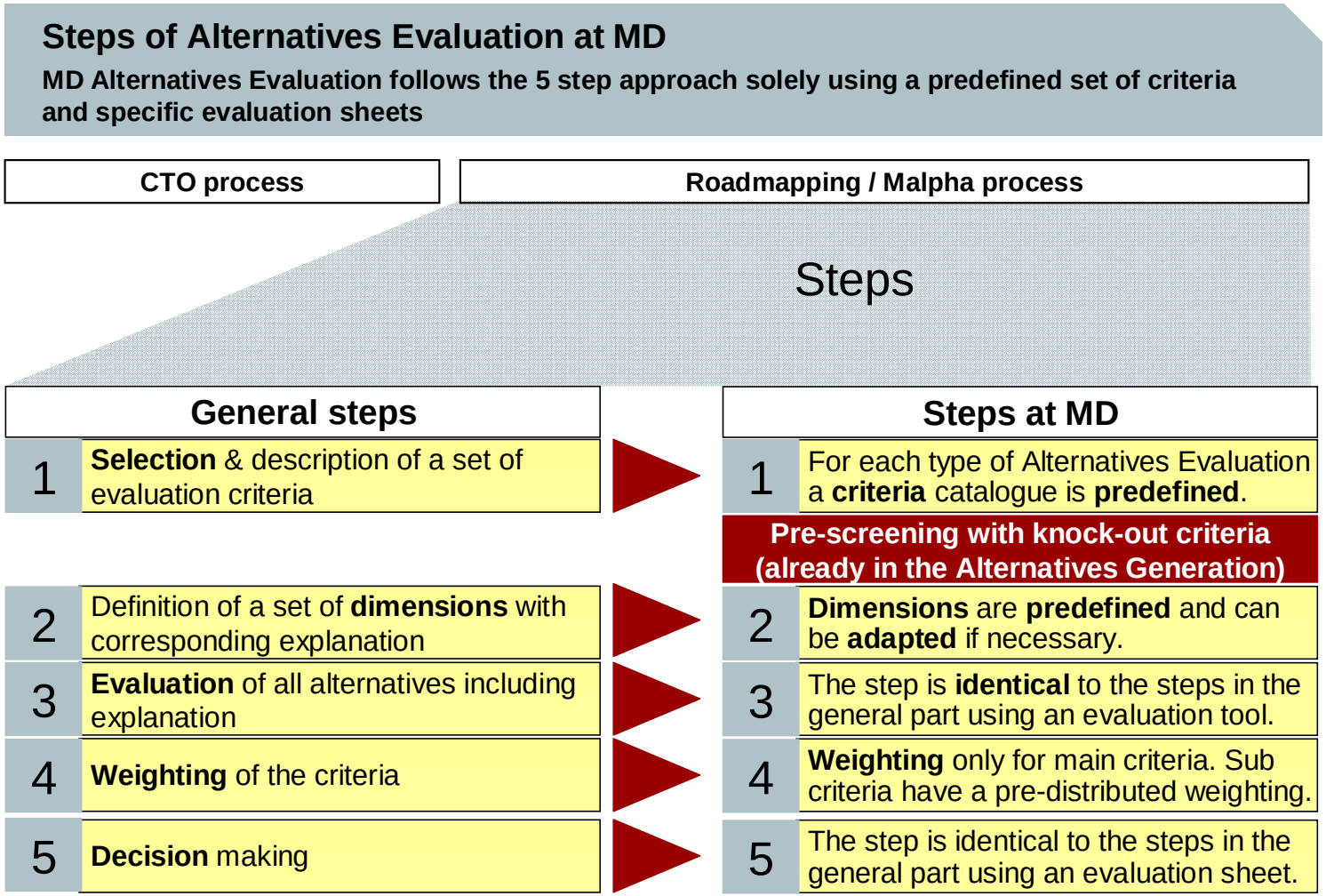

Illustration 6.9

6.2.2 Steps of Alternatives Evaluation at MD

The working steps of the Alternatives Evaluation at MD closely follow the steps of the theoretical part:

- For step 1 criteria catalogues are already predefined to secure a standardized evaluation in one generation and across generations. The predefined criteria catalogues can be found in the IT tool “P3_alternatives_evaluation_tool.xls”. This criteria catalogue is handed over to the Alternatives Generation before starting with the generation itself. With the catalogue in mind obviously unsuitable alternatives can be excluded prior to the evaluation. For example an alternative with a bar form factor could be instantly removed if a decision by the management only allows a clam for the targeted market .
- For step 2 a dimension catalogue is already predefined.
- Step 3 is identical to the theoretical part.
- The weighting in step 4 is also identical to theory with sub-criteria already pre-weighted.
- The decision in step 5 is supported by templates and a SWOT analysis.

Notes

Criteria catalogue at MD

Predefined sets of criteria in step 1 support a more transparent evaluation process and a better comparability of the different Alternatives Evaluations

Main criteria	Sub-criteria (example)	Dimensions (example)
Financial fit	Development manpower	
Strategic fit	**Technology / competences available**	- - New, not yet available - Externally available + In-house pre-development experience + + In-house production experience
Market requirements' fit	Production capacity	
Resource feasibility fit	Development incl. production preparation time	
Technical solutions' fit	External resources	
Time To Market fit		

For each type of Alternatives Evaluation a pre-defined criteria catalogue is available. The **6 main criteria are fixed**. The **sub-criteria can be adapted,** but only **prior** to evaluation.

Illustration 6.10

Step 1: Criteria catalogue at MD

This catalogue has two levels. The six main criteria are fixed and have to be used in every type of evaluation.

They cover all aspects necessary for a decision making, from various internal (e.g. Strategy fit or resource feasibility fit) to external requirements (e.g. market requirements fit). “Time to Market” fit is an important criterion, as past experience showed this to be a weak point of MD.

The main criteria are not evaluated directly. Instead, manageable sub-criteria per main criteria are defined and evaluated in step 3.

The sub-criteria are also predefined but vary for the three predefined catalogues. Contrary to the main criteria they can be adapted if necessary, but only prior to the start of the evaluation. The adaptation should be reduced to a minimum as otherwise the comparability of different evaluations is not guaranteed. Furthermore the subjectivity might increase and the adaptation of criteria including their dimensions will be extremely time consuming.

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Dimensions at MD

In step 2 the predefined MD dimensions are used

- **For each MD criteria catalogue a set of** dimension **is predefined.**
- **The fixed set of dimensions guarantees** objective **and** comparable results **and creates a** common understanding **of the scope of the evaluation.**
- **Due to changing expectations and strategic requirements,** dimensions might have to be adapted**. For this process expert workshops assure reasonable adaptations. This is done prior to the evaluation.**
- **The dimensions can be updated following the** same format **as the pre-defined ones.**

	Criteria	Weight	Alternative 1	Alternative 2	Alternative 3	Alternative 4
1	**Financial fit**					
	Overall score / weight	**24%**	**2,6**	**2,3**	**2,0**	**2,5**
1.1	Target Cost Gap per unit (% deviation of average)	100%	4	3	2	3
-- = 1	TCG < 0 and TCG < 50% of Target Profit		Target profit 44,5 Mio Eur; TCG -18 Mio Eur = 40%	-1 mio dev. Costs, 0 Eur licence costs, -2 Eur display and -0,5 inductive attena and -0,3 for IRDA and 0,5 for speaker and +7 design	-0 mio dev. Costs, 1 Eur licence costs for souround sound, + 1,5 speaker and 4 Eur memory and + 2,5 USB cable + 1,9 BT	+1 mio dev. Costs, 0 Eur licence costs, + 4,5 camera Eur
- = 2	TCG < 0 and TCG > 50% of Target Profit					
+ = 3	TCG ± 0					
++ = 4	TCG > 0					
1.2	Target volume achievement	70%	2	2	2	3
-- = 1	<-20%		high volume pressure through missing enthusiasm feature: -15%	some volume pressure through portfolio canabilization: -5%	high volume pressure through low enthusiasm feature: -10%	no volume pressure: + 5,5%
- = 2	-20% to -0%					
+ = 3	0% to 20%					
++ = 4	>20%					

The table shows a dimension example from an Alternatives Evaluation.

Illustration 6.11

Step 2: Dimensions at MD

For all predefined criteria the corresponding dimensions are also predefined.

The fixed dimensions guarantee objective and comparable results and create a common understanding before the evaluation is executed.

Due to changing expectations and strategic requirements, dimensions might have to be adapted. For example the dimensions for the sub-criterion “1.1 Target Cost Gap per unit” (see illustration 6.12) might be adapted if a decision is taken that all products with a negative Target Cost Gap will not be further evaluated (knock-out criterion). Thus a negative Target Cost Gap will not be accepted as a dimension anymore and the dimension of “--“ must then be changed for example to “TCG =0” and “-“ to “0<TCG<+5% of Target Profit”.

For the change process expert workshops assure reasonable adaptations.

Quantifiable dimensions should be used. If this is difficult (e.g. for the criterion “Strategic fit”), the dimension should be described in such a way that little space for interpretation is given, to secure the objectivity of the evaluation.

Notes

Evaluation at MD

Step 3 "Evaluation" represents the heart of Alternatives Evaluation and has to be conducted by experts

	Criteria	Weight	Alternative 1
1	Financial fit		
	Overall score / weight	24%	2,6
1.1	Target Cost Gap per unit (% deviation of average)	100%	4
-- = 1	TCG < 0 and TCG < 50% of Target Profit		Target profit 44,5 Mio Eur; TCG -18 Mio Eur = 40%
- = 2	TCG < 0 and TCG > 50% of Target Profit		
+ = 3	TCG ± 0		
++ = 4	TCG > 0		

- **For** each criteria **on the** dimensions **the necessary data has to be collected from members of the product team.**
- **The evaluation tool is then filled with this information (the corresponding value) and a** short, fact based reasoning **for the posted value is given.**
- **If an alternative does not fulfill a main criteria by large, the evaluation team** should not carry forward with evaluating this alternative **and concentrate on the remaining alternatives.**

The responsible person for the Alternatives Evaluation has to ensure that each evaluation is done with a **thorough analysis** through experts instead of using subjective opinions!

Illustration 6.12

Step 3: Evaluation at MD

The evaluation follows the same logic as in the theoretical part.

First different members of the product team are chosen to gather the necessary data.

The responsible person subsequently evaluates each criterion for each alternative in the evaluation tool. The right dimension (from "--" to "++") is chosen and a short, fact based reason for the posted value is given.

In the example (see illustration 6.13), the alternative "Nestor Base Case" is evaluated for the sub-criterion "1.1 Target Cost Gap per unit" with "++". A short reason is given, so that other parties can understand the decision. In the example the calculated Target Cost Gap is inserted.

If an alternative does not fulfill a main criterion by large, the evaluation team should disregard this alternative and concentrate on the remaining alternatives

The responsible person for the Alternatives Evaluation has to ensure that each evaluation is done by a thorough analysis instead of using subjective opinions!

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Weighting at MD

The weighting of criteria at MD in step 4 focuses on the 6 main criteria

Weighting Table

Criteria	Pos	1 Financial fit	2 Strategic fit	3 Market requirements' fit	4 Resource feasibility fit	5 Technical solutions' fit	6 Time To Market fit	Ranking	Enter Weighting
Financial fit	1							1	23,8%
Strategic fit	2	1						4	[illegible]%
Market requirements' fit	3	1	3					1	[illegible]%
Resource feasibility fit	4	1	2	3				6	4,8%
Technical solutions' fit	5	1	2	3	5			5	9,5%
Time To Market fit	6	6	6	3	6	6		1	23,8%
									100%

1. The available 100% are distributed among the main evaluation criteria.
2. To support the weighting a pairwise comparison can be used

5	**Technical solutions' fit**	
	Overall score / weight	**10%**
5.2	Applied ReUse (existing SAP number)	**100%**
-- = 1	0% - 25% of main components are reused	
- = 2	25% - 50% of main components are reused	
+ = 3	50% - 75% of main components are reused	
++ = 4	>75% of main components are reused	
5.3	Future sustainability (ReUse potential)	**100%**
-- = 1	no potential	

- Generally the pre-adjusted weighting of sub-criteria is to be used.
  If necessary, sub-criteria can be adjusted separately in addition to the main criteria.
- The importance hereby varies using a scale from 0% (none) to 100% (full count).

Illustration 6.13

Step 4: Weighting at MD

Each main criterion is weighted in accordance to their importance.

For the sub-criteria the predefined weighting should be used. If necessary, the weighting can be adjusted with the approval of the responsible manager (e.g. Product Manager).

The importance of each sub criterion hereby varies using a scale from 0% (sub-criterion is not important for the fulfillment of the main criterion) to 100% (sub-criterion does influence the main criterion to full extend). It is important to know that the weighting of the sub-criteria do not need to add up to 100% if summed up.

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Decision taking at MD

The scoring, comparing, ranking as well as the decision taking in step 5 follow a predefined process using standard comparison sheet

- The first result after the evaluation and weighting is the **ranking of each alternative** based on the quantitative analysis.
  (The **calculation** of the scores follows the same process as described in the general part.)
- The alternative with the highest score is to be recommended to the responsible decision makers.
- A SWOT analysis is done for the leading alternatives

Criteria	Weighting	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Financial fit	24%	+	-	-	+
Strategic fit	14%	+	-	+	+
Market requirements' fit	24%	+	-	+	++
Resource feasibility fit	5%	++	+	++	+
Technical solutions' fit	10%	+	+	-	-
Time To Market fit	24%	+	-	+	+
Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1

Illustration 6.14

Step 5: Decision making at MD

The first result after the evaluation and weighting is the score and subsequently the rank of each alternative, based on the quantitative analysis (see illustration 6.15). The calculation of the scores follows the same process as described in the theoretical part.

The alternative with the highest score is to be recommended to the responsible decision makers.

A SWOT analysis is done for the top alternatives if no alternative prevails as a clear winner. At this point all involved persons can include information not covered by the evaluation. It therefore serves as a risk pool.

A graph of the outcome of the Alternatives Evaluation supports the SWOT analysis (see illustration 16 in the management summary).

The template used for the analysis and the presentation to decision makers is described next.

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Management Summary for the Alternatives Generation I

The possible alternatives of the Morphologic Case are narrowed down with respect to the market situation and the objectives defined in the Enthusiasm Model

Product functions support/ provide ...	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
Make and receive calls (Quality of basic function – I/O/ UI/ RF)	Tri band / high talk & standby time			
Appeal to user (Design/ Material / Form factor)	classic & elegant metal housing	Thinnest (17mm) metal housing & leather/ rubber		Thicker housing than base case (21 mm)
Imaging and video	VGA camera, no Flash, 2x digital zoom			1.3 Mpix camera with 3x optical zoom
Music and audio	Common music files supported	MP3 ringtones supported	Surround sound speaker system	
Gaming	Provide gaming			
Outdoor and leisure features (e.g. sensors)	Not wanted			
Enable messaging	Enable messaging			
Business applications (incl. PIM and Sync)	Standard organizer functionality			
Additional services (e.g. location services)	Not wanted			
Visualization (Display)	176x220, TFT 2,1', 256k	132x176, TFT, 1,8', 265k	176x220, TFT 2,1', 256k	176x220, TFT 2,1', 256k
Usage- and standby time	300 h (Li-Ion 750 mAh)			400 h (Li-ion 900 mAh)
Interaction with devices	Slim Lumberg, IrDa	New Lumberg solution		
Store data	32MB, MMC slot		MMC card 32MB bundled	MMC card 32MB bundled
Consumer personalization/ Operator customization	Main operator UI supported			clubbers wristband

Responsibles for Alternatives Evaluation

Strategic and Portfolio fit	Financial fit	Competitiveness Operators	Competitiveness End-Users	Technical Feasibility	Resource fit	Time to Market fit

Illustration 6.15

6.2.3 Management Summary for the Alternatives Evaluation

The Management Summary consists of three different templates.

- Page one describes the alternatives coming from the Alternatives Generation.
- Page two shows the SWOT analysis for the leading alternatives (optional).
- Page three describes the recommended alternative in more detail and gives reasoning for the decision.

Management Summary for the Alternatives Evaluation – sheet 1:

The first page uses the output of the Alternatives Generation and presents it on one slide.

It is important that all differences between the alternatives are clearly addressed, so that management understands the different value propositions of each alternative.

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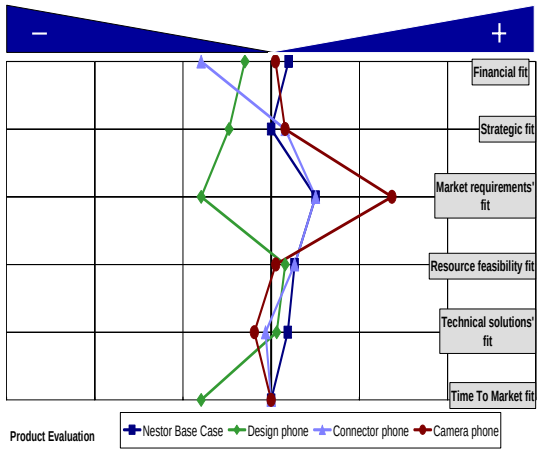
Management Summary for the Alternatives Evaluation II

On the second page the strengths and weaknesses of the recommended alternative are presented

Criteria	Weighting	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Financial fit	24%	+	-	-	+
Strategic fit	14%	+	-	+	+
Market requirements' fit	24%	+	-	+	++
Resource feasibility fit	5%	++	+	++	+
Technical solutions' fit	10%	+	+	-	-
Time To Market fit	24%	+	-	+	+
Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1



Strengths/Opportunities

- XXX

Weaknesses/Threats

- XXX

In case of close performance of alternatives this sheet has to be filled out for those leading alternatives.

The strengths and weakness are then applied to determine one alternative.

Illustration 6.16

Management Summary for the Alternatives Evaluation – sheet 2:

The second sheet shows the SWOT analysis.

It includes open topics not yet addressed by the evaluation and again highlights important facts from the evaluation.

Two graphs support the SWOT analysis:

- The upper graph shows the score per criterion of each alternative.
- However, to compare alternatives, the score of each criterion is not valid without the weighting. Therefore the lower graph is added with weighted scores. This is reflected in the amplitude of each criterion. For example alternative four is scored with "+" for "Financial fit" as well as "Strategic fit". However in graph 2 the dots for these two criteria (dark blue line – most right in the first criterion) are not at the same amplitude. This is the result of the weighting: "Financial fit" is weighted nearly five times higher than the "Strategic fit".

A SWOT analysis is done for the top scoring alternatives. If needed it can be done for all alternatives.

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Management summary for Alternatives Evaluation III

The "Camera Phone" is recommended

Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1

Product functions	Camera Phone
Make and receive calls (Quality of basic function – I/O/ UI/ RF)	Tri band / high talk & standby time
Appeal to user (Design/ Material / Form factor)	Thicker housing than base case (21 mm)
Support imaging and video	1.3 Mpix camera with 3x optical zoom
Suppoprt music and audio	As base case
Provide gaming	Standard Gaming
Provide outdoor and leisure features (e.g. sensors)	As base case
Enable messaging	As base case
Provide business applications (incl. PIM and Sync)	As base case
Provide additional services (e.g. location services)	As base case
Provide visualization (Display)	176x220, TFT 2,1', 256k
Provide usage-/standby time	400 h (Li-ion 900 mAh)
Interaction with devices	As base case
Store data	MMC card 32MB bundled
Consumer personalization/ Operator customization	clubbers wristband

Description of the recommended alternative

- The "Camera Phone" follows the idea of a classical CX phone that addresses a mass market, but with a focus on more technically oriented users who prefer to have a high end camera included.
- It succeeds the predecessor "Cerberus" and additionally creates customer enthusiasm by enlarging the multi-media functionalities with a higher camera resolution and enlarged video functions.

Reasoning

- The 1,3 Mpix camera (optical zoom) offers a clear USP in the targeted price segment and thus allows additional market differentiation and reduces the price pressure risk.
- Camera and video functionalities complement each other very well.
- The technical risk due to the new camera should be minimized by increasing the development budget for the camera integration.
- The "Nestor Camera Phone" still has a Target Cost Gap of -1 EUR that should be closed by cost management measures.

Risk

- The standard video functionality / camera limits the potential for differentiation and risks to offer a "me too" product and thus expose it to high price pressure in the Christmas period.

Illustration 6.17

Management Summary for the Alternatives Evaluation – sheet 3:

The third page gives a recommendation together with the reasoning.

The “Description” should mention all main attributes of the alternative including the main functions and the main value proposition of the alternative.

The “Reasoning” summarizes the main arguments for the recommended alternative. At the same time the main downsize risk should be mentioned.

The “Reasoning” could also contain open issues that could not be addressed by the evaluation team and therefore have not be taken into account by the evaluation team.

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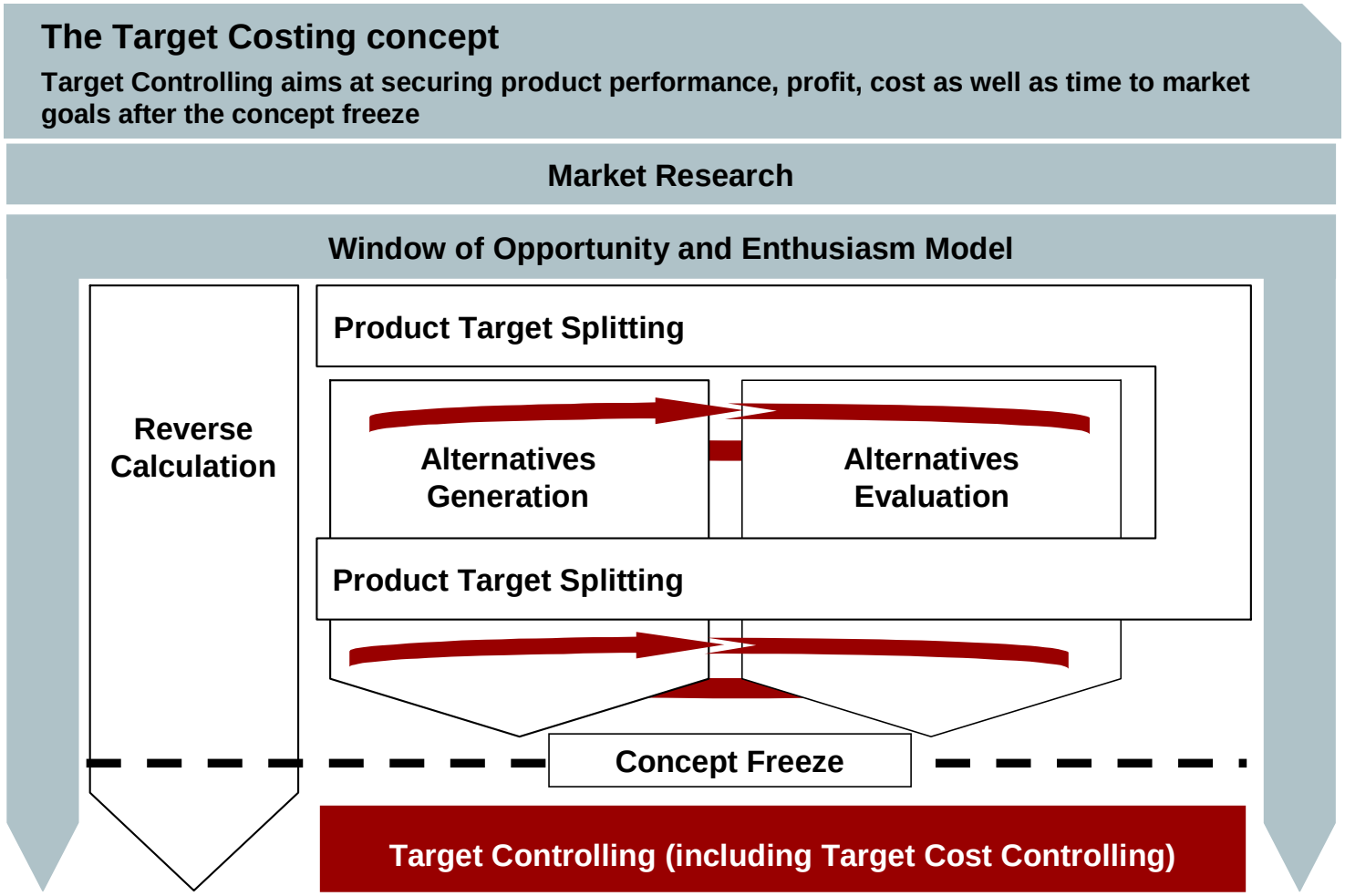

Illustration 7.1

Refer to SEIDENSCHWARZ , W.: Target Costing, in: KÜPPER, H.-U./WAGENHOFER, A. (Hrsg.): Handwörterbuch Unternehmensrechnung und Controlling, Stuttgart 2002.

7 Target Controlling

This chapter introduces Target Controlling, one of six core tools of Target Costing. Target Controlling ensures the agreed implementation of Target Costing results after concept freeze. This comprises the fit of the realized product concept to market requirements, profit and cost targets as well as to time to market objectives. Target Controlling is implemented by the use of the Target Costing tools Enthusiasm Model, Reverse Calculation and Value Control Chart.

The chapter contains two parts:

- The first part provides a methodological overview on Target Controlling.
- The second part shows how Target Controlling is adapted to the specific situation at MD.

Notes

7.1 Methodology of Target Controlling

7.1.1 Definition

Target Controlling ensures an adequate implementation of product concepts – defined by the use of the Target Costing methodology – after the concept freeze.

This comprises a consequent controlling of the defined market fit of the product concepts, a monitoring of key business data at predefined intervals and a crosscheck of the congruence between module valuation and market demands. These activities are supported by a change request process.

7.1.2 Benefits of Target Controlling

- Target Controlling reviews the compliance of the product concept to market demands.
- Target Controlling visualizes and quantifies the effects of deviations from the original module/product concept after concept freeze.
- Target Controlling leads to transparent decisions on modifications of the original product concept.
- Target Controlling provides the management with a focused overview on the key topics of product realization.

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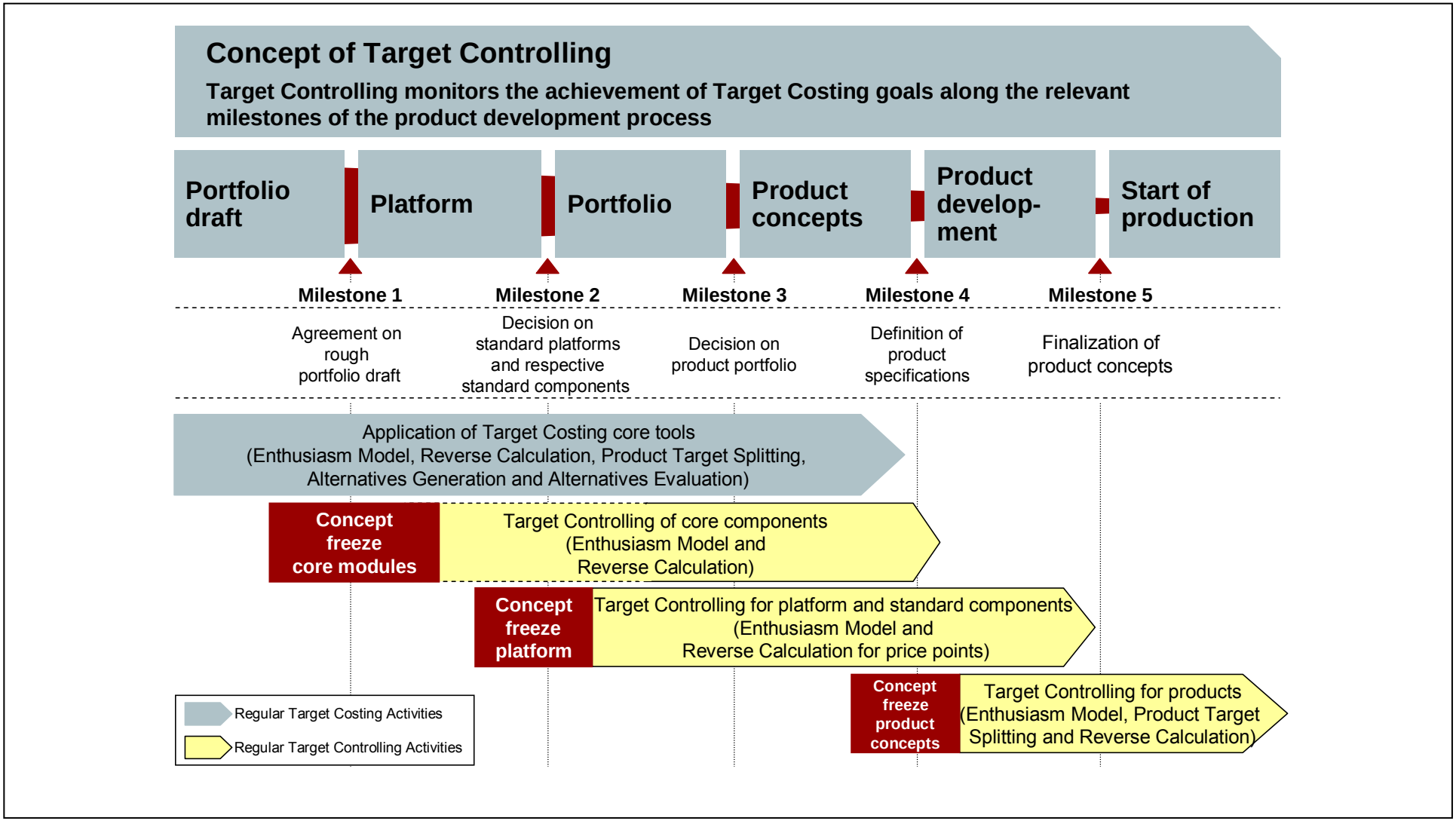

Illustration 7.2

7.1.3 The concept of Target Controlling

The regular Target Costing activities are supplemented by Target Controlling activities along the product realization process. It monitors the achievement of Target Costing goals at the defined milestones of the development and realization process. To cover the complete product development process, three different types of Target Controlling activities can be distinguished: Controlling for core modules, platforms and product concepts.

After the concept freeze of core modules the actual usage of the defined core modules has to be checked.

Once agreement on platform and standard components has been reached their application has to be controlled as well.

At the time product specifications are defined the compliance of the actual product to the specifications has to be controlled. This activity constitutes the main task of Target Controlling. Therefore, the following explanations will mainly focus on Target Controlling for products.

Notes

Instruments of Target Controlling

Target Controlling is based on the Target Costing tools Customer Enthusiasm Model, Reverse Calculation and Value Control Chart as well as a dedicated change request process

	Controlling objectives	Tasks in Target Controlling
Customer Enthusiasm Model	■ Implementation of the defined product concept ■ Fit to market requirements if changes in market demands or competitive environment occur	■ Frequent check of operator requirements ■ Frequent and standardized check of end-user requirements ■ Continuous monitoring of competitor activities
Reverse Calculation	■ Monitoring of the set profit targets after concept freeze	■ Update of business cases to evaluate the financial impact of product modifications and market changes ■ Evaluation of possible changes of the product concept after the concept freeze
Value Control Chart	■ Securing the compliance of modules / core components to predefined cost corridors and thus to market requirements	■ Compare products' actual module cost structure to the defined targeted module cost structure according to market requirements
Change request process	■ Structured process for changes in the product concept considering Target Costing demands ■ Documentation of rationales and consequences of change requests	■ Approval process based on the assessment of rationales and consequences of proposed changes. These changes are to be evaluated in by the use of EM, PTS and RC

Illustration 7.3

7.1.4 Instruments of Target Controlling

Target Controlling is conducted by the usage of the Target Costing core tools Enthusiasm Model, Reverse Calculation and Value Control Chart (result of Product Target Splitting) as well as a change request process.

Whereas the Enthusiasm Model was used to deduct the appropriate product specifications before concept freeze, it is now used as a controlling tool to check the agreed implementation of the defined product concept. This is done by a frequent check of operator and end-user requirements and a continuous monitoring of competitor activities.

The Reverse Calculation helps to monitor the achievement of the given profit targets and to identify the causes for deviations. This requires a frequent update of the business case if major product modifications or market changes occur.

The Value Control Chart helps to secure the compliance of product modules and core components to the predefined cost corridors derived by Product Target Splitting. This is conducted by a comparison of the actual to the targeted module cost structure.

In addition to the extension of the usual Target Costing core tools a change request process has to be established. The approval process has to comprise an assessment of rationales and consequences of proposed changes. This requires an assessment of the impact of the change request on product's marketability (Enthusiasm Model), profit (Reverse Calculation) and resource allocation on modules (Product Target Splitting). Change requests may only be approved if these criteria are positively evaluated.

Notes

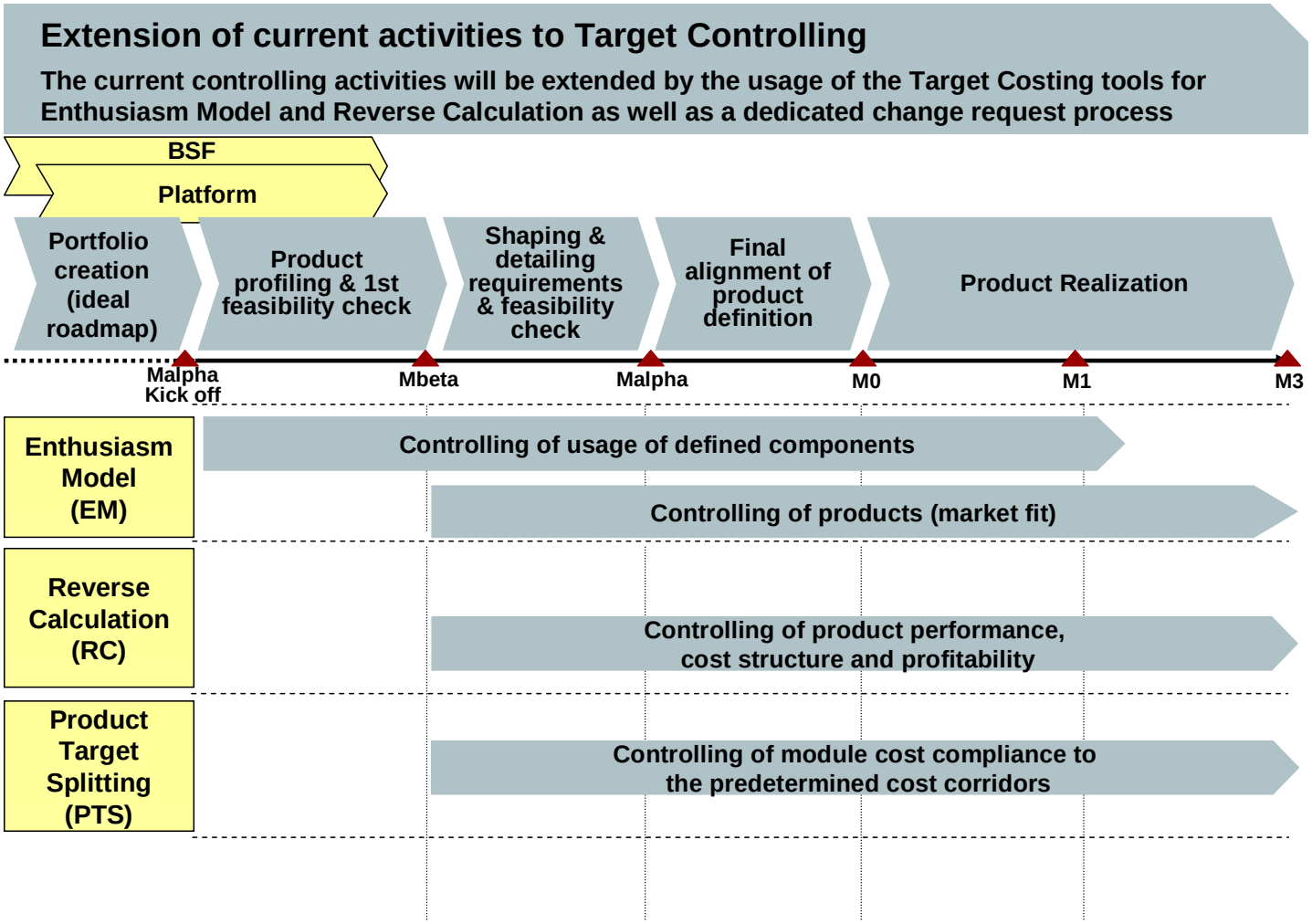

Illustration 7.4

7.2 Target Controlling at MD

7.2.1 Target Controlling activities

The current controlling activities which are mainly focused on the realization status and the product's Business Case are extended by the use of the Enthusiasm Model, the Reverse Calculation and the Value Control Chart as result of the Product Target Splitting.

- The Enthusiasm Model covers the controlling of the usage of the defined components and the controlling of the product's market fit.
- The Reverse Calculation tracks the product performance, cost structure and profitability.
- In addition to that the Value Control Chart is used to control the module cost compliance to predetermined cost corridors.

In addition to the Target Controlling core tools, the existing change request process has to reflect the impact of change requests on the product performance visualized by means of the three Target Controlling tools.

Notes

The Enthusiasm Model as a controlling tool for MD I

The defined product concept will be reviewed regularly using the Enthusiasm Model in the PSR and at defined milestones

Cells change colour, when number is entered

Please fill in	1=Target not reached	2=Target nearly reached	3=Target reached or exceeded

Functions	Operator require-ments	End-user require-ments	Mbeta	Malpha	M0	Comment	S0	M1	M3
Make and receive calls (quality of basic function)	B	B							
Appeal to user (design/ material/ form factor)	P	P							
Support imaging and video	E	E							
Support music and audio	P	P							
Provide gaming	B	B							
Provide outdoor/ leisure features (e.g. sensors)	NO	NO							
Enable messaging	B	P				PoC becomes market standard			
Support business applications (incl. PIM and sync)	B	B							
Provide additional services (e.g. location services)	NO	NO							
Usage and standby time	P	P				Improved battery performance added as new battery introduced by T-Program (no size impact)			
Provide visualization (display)	E	P							
Interaction with other devices	B	B							
Store data	P	P							

Illustration 7.5

7.2.2 Enthusiasm Model as a controlling tool

The Enthusiasm Model as a controlling tool checks the actual degree of fulfilment of the defined functional profile for operators and end-users at concept freeze. This check is conducted for each milestone until M3. The green colour visualizes that the functional profile is fulfilled for operators as well as for end-users or that the degree of fulfilment exceeds the target. Yellow implies a slight deviation from the target at concept freeze whereas red means a clear discrepancy between the actual values and the targeted functional profile.

Fulfilment of functional operator and end-user requirements will be updated for the defined milestones.

Notes

The Enthusiasm Model as a controlling tool for MD II

Starting from the detailed analysis, an aggregated view of the product is required

Cells change colour, when number is entered

Please fill in | 1=Target not reached | 2=Target nearly reached | 3=Target reached or exceeded

Functions	Optimale requirements	Minimale requirements	Mbeta	Malpha	M0	Comment	S0	M1	M3
Make and receive calls (quality of basic function)	B	B							
Appeal to user (design/ material/ form factor)	P	P							
Support imaging and video	E	E							
Support music and audio	P	P							
Provide gaming	B	B							
Provide outdoor/ leisure features (e.g. sensors)	NO	NO							
Enable messaging	B	P				PoC becomes market standard			
Support business applications (incl. PIM and sync)	B	B							
Provide additional services (e.g. location services)	NO	NO							
Usage and standby time	P	P				Improved battery performance added as new battery introduced by T-Program (no size impact)			
Provide visualization (display)	E	P							
Interaction with other devices	B	B							
Store data	P	P							
Consumer personalization / operator customization	P	B							

Aggregation of information

- The information regarding the degree of fulfillment of the functional targets need to be **aggregated** in order to **clearly show** how the Targets are met on Basic, Performance and Enthusiasm level.
- The thus **aggregated information** is then added to the **management cockpit.**

Aggregated view for Management Cockpit

	Product	Market fit: Functionality type B[1]	P[2]	E[3]	Trend
PG xx	Product 1	●	●	●	↗
	Product 2	●	●	●	→
	Product 3	●	●	●	→
	Product 4	●	●	●	↗
	Product 5	○	○	○	↘
	Product 6	○	○	○	→
PG xx	Product 7	●	●	●	→
	Product 8	●	●	●	→
PPM	Product 9	●	●	●	→

1) Basic
2) Performance
3) Enthusiasm

Illustration 7.6

7.2.3 Enthusiasm Model as a controlling tool – Input for the Management Cockpit

For top management reporting purposes an aggregated view on the products marketability is additionally required. For each product this view has to show how the targets are met on Basic, Performance and Enthusiasm level. For extracting this information the following guideline for the definition of traffic lights has to be applied.

For Basic Features a green light can be assigned to the product if all Basic Requirements are fulfilled. Yellow indicates that Basic Requirements are currently met but the possibility of an increasing standard endangers its fulfilment. The traffic light is red if Basic Requirements are violated.

For Performance Features the traffic light is green if the overall performance of the product is better than competition. Yellow indicates a similar overall performance to competition whereas red shows that the overall performance is worse than competition.

For Enthusiasm Features the traffic light is green if the product has a sustainable USP. Yellow indicates a currently existing USP that is endangered by a competitor product or a change in market requirements. Red shows that the product does not have any USP.

Within one level the worst status always defines the aggregated status. (E.g.: If one has five Basic criteria and thereof three are green, one is yellow and another one is red the overall status has to be red.)

The trend indicates in which direction the overall fulfilment of Basic, Performance and Enthusiasm Requirements developed since the last controlling milestone. This information is an essential part in the Management Cockpit at MD for all products in the product pipeline and has to be updated at all Product Status Reviews (PSR).

Notes

The Reverse Calculation as a controlling tool at MD I

The continuous usage of the Reverse Calculation along the product development process helps monitoring the key business figures

Target Controlling RC Nestor	Mbeta	Malpha	M0	S0		
	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Deviation to Mbeta	Description deviations
Units	**3.500.000**	**3.500.000**	**3.500.000**	**3.500.000**	0	
Target Turnover	**603.000.000**	**603.000.000**	**603.000.000**	**603.000.000**	0	
Price (average)	**172,29**	**172,29**	**172,29**	**172,29**	0,00	
Target Profit Total	**45.225.000**	**45.225.000**	**45.225.000**	**45.225.000**	0	
Allowable Costs	**557.775.000**	**557.775.000**	**557.775.000**	**557.775.000**	0	
Overhead I	**7.839.000**	**7.839.000**	**7.839.000**	**7.839.000**	0	
Administration	7.839.000	7.839.000	7.839.000	7.839.000	0	
Overhead II	**84.476.500**	**84.476.500**	**84.520.500**	**84.548.000**	71.500	
Development (indirect)	8.800.000	8.800.000	8.844.000	8.871.500	71.500	
Marketing (indirect)	24.662.700	24.662.700	24.662.700	24.662.700	0	
Selling Expense	28.160.100	28.160.100	28.160.100	28.160.100	0	
SCM Costs	16.642.800	16.642.800	16.642.800	16.642.800	0	
Other COGS	6.210.900	6.210.900	6.210.900	6.210.900	0	
Directly Influenceable Costs (DIC)	**465.459.500**	**465.459.500**	**465.415.500**	**465.388.000**	-71.500	
Product Related Costs (PRC)	**31.870.000**	**31.870.000**	**31.443.000**	**31.113.000**	-757.000	
Development (direct)	8.000.000	8.000.000	8.040.000	8.065.000	65.000	25.000 EUR extra expenditure to enable PoC in software
Marketing (direct)	8.575.000	8.575.000	8.108.000	8.108.000	-467.000	
Service Costs	15.295.000	15.295.000	15.295.000	14.940.000	-355.000	355.000 EUR less expenditure due to simplified stack up concept
Manufacturing Costs	**437.001.600**	**445.156.600**	**440.746.600**	**432.451.600**	-4.550.000	
Manufacturing Costs per unit	**124,86**	**127,19**	**125,93**	**123,56**	-1,30	
BOM per unit	100,06	102,14	100,88	100,31	0,25	5% decline in memory prices
Variant Adder per unit	4,78	4,78	4,78	4,78	0,00	
CC per unit	15,29	15,29	15,29	13,74	-1,55	1,55 EUR savings as product is mainly produced in China
Licences per unit	4,73	4,98	4,98	4,73	0,00	
Target Cost Gap	**-3.412.100**	**-11.567.100**	**-6.774.100**	**1.823.400**	5.235.500	
Target Cost Gap per unit	**-0,97**	**-3,30**	**-1,94**	**0,52**	**1,50**	
EBIT (for comparison purpose)	**41.812.900**	**33.657.900**	**38.450.900**	**47.048.400**	5.235.500	

- **Based on latest cost, volume and price information the business case has to be re-calculated at defined milestones**
- **Deviations from the original business case have to be identified and explained**
- **The impact of change requests for feature set can be financially evaluated**

Illustration 7.7

7.2.4 Reverse Calculation as a controlling tool

The Reverse Calculation is used continuously along the product realization process to monitor key business figures. For each milestone the Business Case has to be recalculated and deviations to the previous controlling milestones have to be explained.

Cost categories are structured according to the degree to which they can be influenced by the product team. The product team can only influence the Product Related Costs and the Manufacturing Costs in order to limit expenditures and to close the remaining Target Cost Gap.

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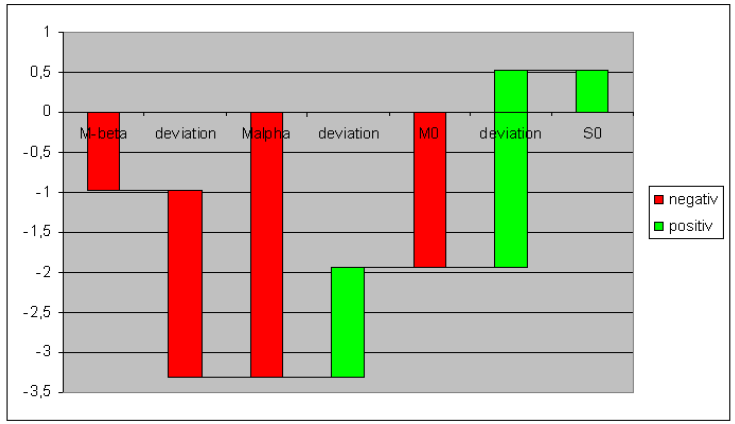
The Reverse Calculation as a controlling tool at MD II

To visualize the profitability of the envisaged product a graph has been developed which shows the changes of the Target Cost gap at the relevant milestones

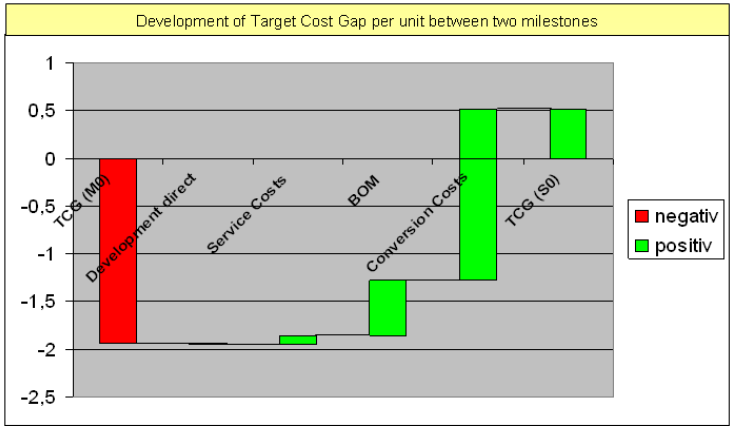


Explanation:

- Due to changes in the feature set and product design significant cost savings could be achieved from Malpha on

The Reverse Calculation as a controlling tool at MD II

In case deviations in the Target Cost Gap per unit occur between the relevant milestones, a detailed graphical explanation is required



Explanation:

- Due to an optimized design and reduction of personnel costs the negative TCG could be overcompensated

Illustration 7.8

7.2.5 Reverse Calculation as controlling tool – Target Cost Gap analysis

The Target Cost Gap per unit is the key metric of the Reverse Calculation which gains a special attention. Therefore two standard reporting charts are defined to illustrate its development.

The left illustration above shows the absolute Target Cost Gap per unit for each controlling milestone.

The right illustration above focuses on the development of the previous controlling milestone to the current milestone by explaining and quantifying the major reasons that caused a change in the profitability of the product.

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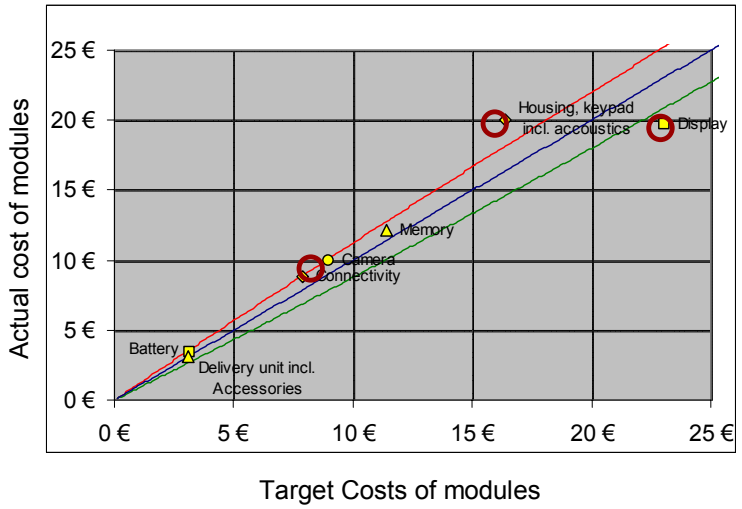
The Value Control Chart as a controlling tool at MD

Designated graphics clearly indicate the compliance of the individual modules to the designated Target Cost corridors

Defined milestones



- At **regular intervals** the **compliance** of the single **modules with the Target Cost corridors** has to be checked.
- In case any **deviations** occur, a **detailed explanation** about the reasoning is required and has to be given according to the change request process.

		S0				
Modules	Target BOM	Actual BOM	Δ to Target BOM	Confirmed (y/n)	Actions	Comments
Basic needed parts (BSF, PCB, B-components)	24,80 €	23,00 €	-1,80 €			
Sensors & others	0,00 €	0,00 €	0,00 €			
Connectivity	8,31 €	8,85 €	0,54 €			
Camera	9,26 €	10,00 €	0,74 €			
Display	23,67 €	19,72 €	-3,95 €			
Memory	11,81 €	12,12 €	0,31 €			
Housing, keypad, accoustics	16,55 €	19,99 €	3,44 €			
Battery	1,97 €	3,47 €	1,50 €			
Delivery unit	2,61 €	3,16 €	0,55 €			
Sum	98,97 €	100,31 €	1,34 €			
		= Actual BOM				

Illustration 7.9

7.2.6 Value Control Chart as controlling tool

At all controlling milestones the compliance of single modules with Target Cost corridors has to be checked. If all modules are positioned within the cost corridor the actual costs of each module are in line with the identified Target Costs per module derived by Product Target Splitting. In this case no deeper investigation is required.

Otherwise the reasons for deviations have to be explained. In this case specific actions for the modules outside the cost corridor have to be defined and the progress has to be reported regularly.

The shown template supports this kind of module cost controlling.

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The Target Controlling Cockpit at MD

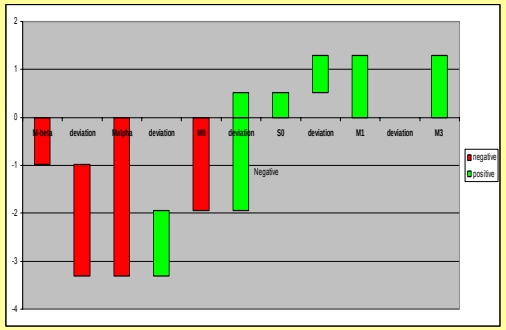
The Target Controlling Cockpit provides the MD management with a summary of the Target Controlling results

Enthusiasm Model

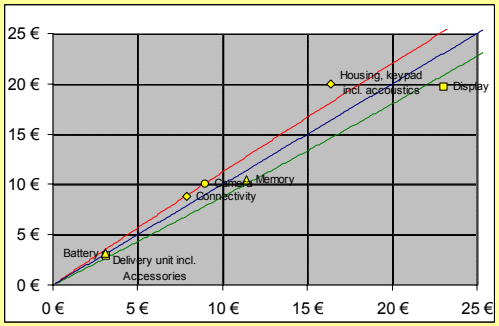
Cells change colour, when number is entered | Please fill in | 1=Target not reached | 2=Target nearly reached | 3=Target reached or exceeded

Functions	Operator require-ments	End-user require-ments	Mbeta	Malpha	M0	Comment	S0	M1	M3
Make and receive calls (quality of basic function)	B	B							
Appeal to user (design/ material/ form factor)	P	P							
Support imaging and video	E	E							
Support music and audio	P	P							
Provide gaming	B	B							
Provide outdoor/ leisure features (e.g. sensors)	NO	NO							
Enable messaging	B	P				PoC becomes market standard			
Support business applications (incl. PIM and sync)	B	B							
Provide additional services (e.g. location services)	NO	NO							
Usage and standby time	P	P				Improved battery performance added as new battery introduced by T-Program (no size impact)			
Provide visualization (display)	E	P							
Interaction with other devices	B	B							
Store data	P	P							
Consumer personalization / operator customization	P	B							

Reverse Calculation



Value Control Chart



Comments / Change Requests

- The increase of the sales volume by x% has an impact on profitability by + y%
- Adding of a new Enthusiasm Feature leads to an increased marketability
- Change Request A has to be decided upon on Milestone Y

Illustration 7.10

7.2.7 Target Controlling Cockpit

The Target Controlling Cockpit summarizes the essential results of Target Controlling for a single product. It contains an overview on the Enthusiasm Model, the deviation of the Target Cost Gap with respect to the previous controlling milestone and the current Value Control Chart. The lower right quadrant explains the most significant findings and lists change requests of major impact. The compilation of this information enables the management to keep track of the implementation of Target Costing results after concept freeze.

Notes

Target Costing process integration at MD

The Target Costing tools need to be integrated and used in the PLM-processes

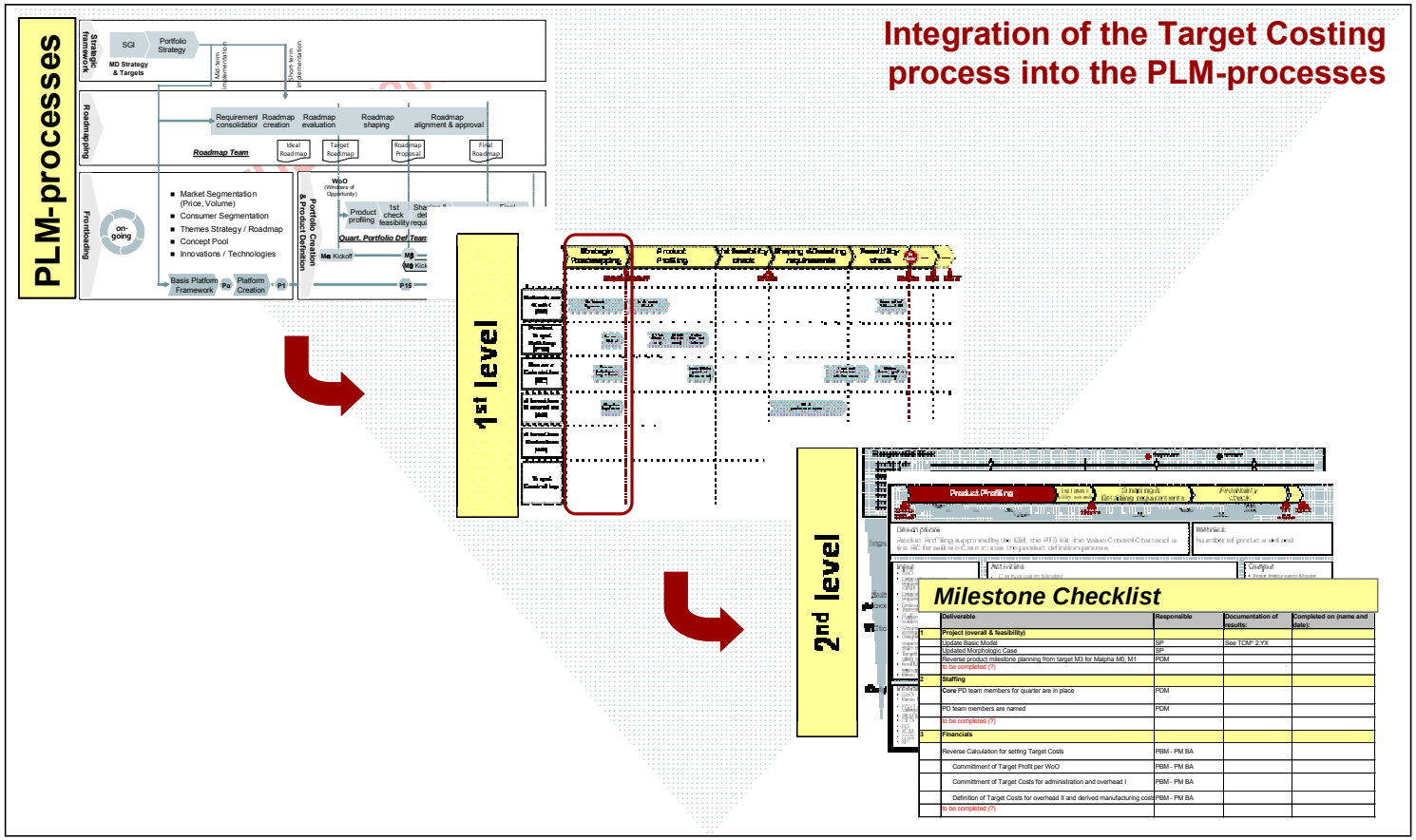


Illustration 8.1

8 The Target Costing process integration at MD

The chapter introduces the process integration of the six Target Costing tools at MD.

After a short description of the current defined product definition process (PLM processes) an overview describes the integration and timing of all six Target Costing tools (1st level) and their main steps according to the overall product definition process.

The following 2nd level description indicates in detail how each of the Target Costing tools has to be integrated. This is done with process description templates illustrating input, actions and output as well as the process responsibilities.

The focus of the handbook is to describe the tool integration. The process responsibilities, documented in the milestone checklists, are not described in detail. Furthermore the Target Costing process integration for the Basis Platform Framework and platform processes is not mentioned in this paper.

The chapter is divided into two parts:

- The first part gives an overview of the MD specific processes and the integration of the Target Costing tools.

The second part describes the integration of the Target Costing tools at MD in detail.

Notes

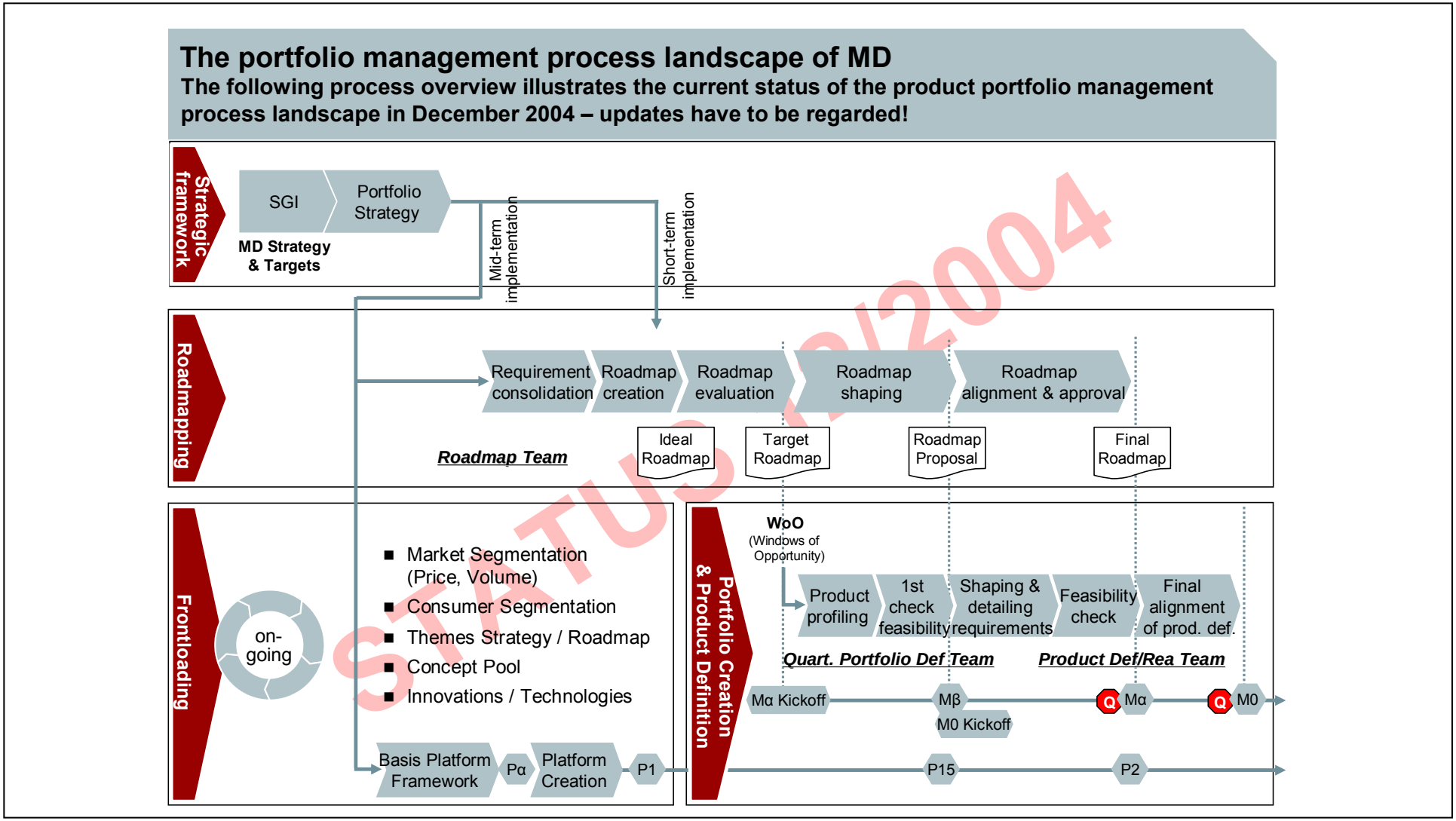


Illustration 8.2

8.1 Overview of the MD specific process integration

8.1.1 Description of the MD specific product development processes

The objective of the methodology and the Target Costing tools is to support the product definition process (PLM-processes).

The current description of the portfolio management processes, including the “Malpha” process, from December 2004 is used as a basis.

In order to optimize the integration of the Target Costing tools, it is essential to separate the ongoing “Roadmapping process” from the “Portfolio creation & Product definition process”.

Notes

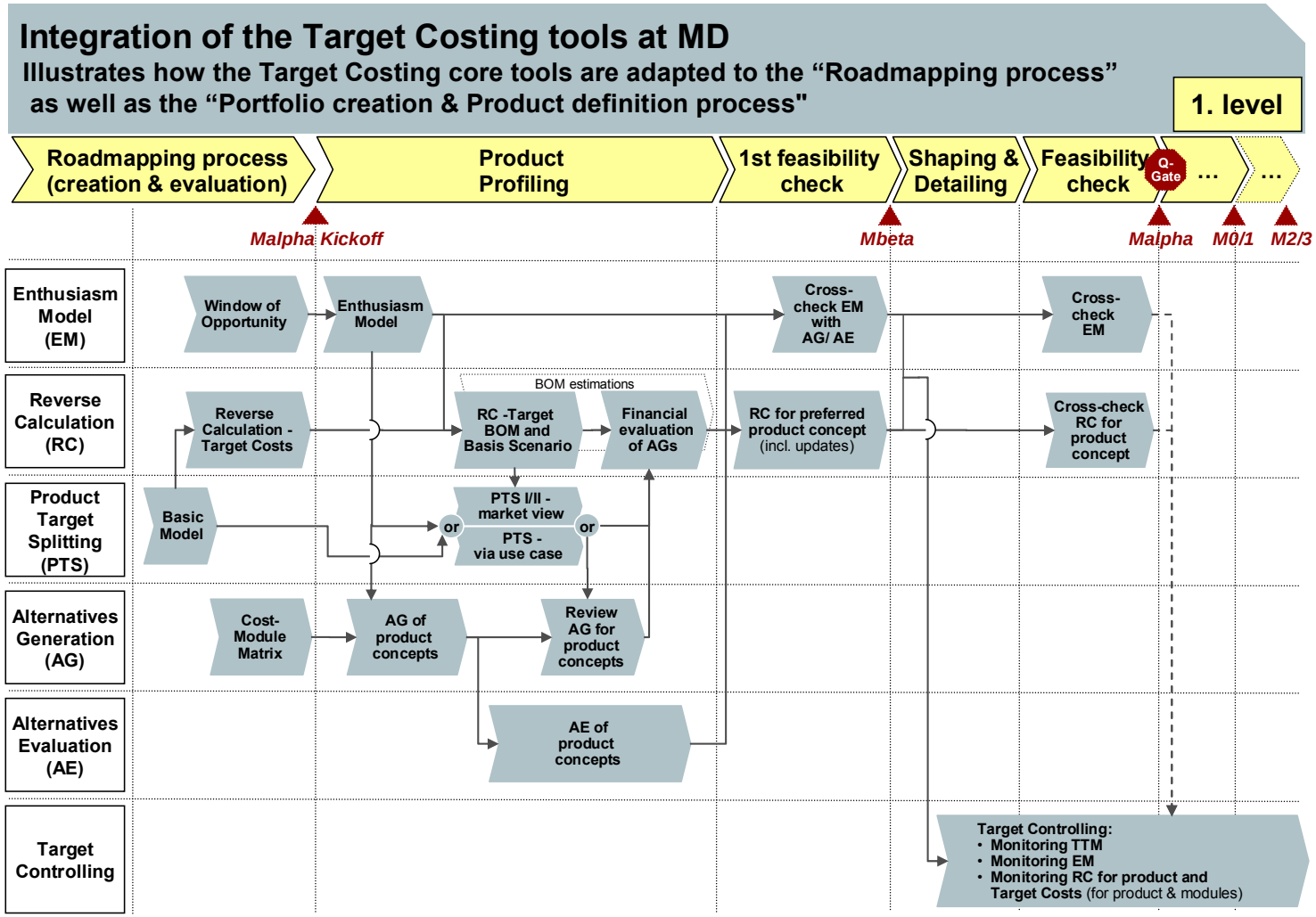


Illustration 8.3

8.1.2 Overview of the Target Costing process integration

Illustration 8.3 gives an overview of the sequential integration of the Target Costing tools into the “Roadmapping process” as well as the “Portfolio creation and Product definition process” at MD.

1. The “Roadmapping” process is initially supported by the Window of Opportunity and the Reverse Calculation for setting Target Costs. The Basic Model and the Cost Module Matrix should be regarded as supporting frontloading tools.
2. The following phases are the initial phase of the “Portfolio creation and Product definition process” and describe the “Product profiling” and the “1st feasibility check” phases also known as “Malpha kick-off to Mbeta. The objective of these phases is to decide if a product concept should be further developed or not. Therefore these phases are supported by most Target Costing tools; the Enthusiasm Model to define the market requirements as well as the Target Costing tools Reverse Calculation and Product Target Splitting to translate the market requirements into costs and functional targets. The Alternatives Generation and the Alternative Evaluation are then creating a systematic process for generating and selecting the best feasible product concept.
3. In the phase “Shaping & Detailing” of the chosen product systematic cross-checks of the defined Enthusiasm Model, Reverse Calculation should be done as well as to start the Target Controlling for all defined target settings.

For the implementation of all Target Costing tools it is necessary that always the latest version of the Target Costing tools is used.

Notes

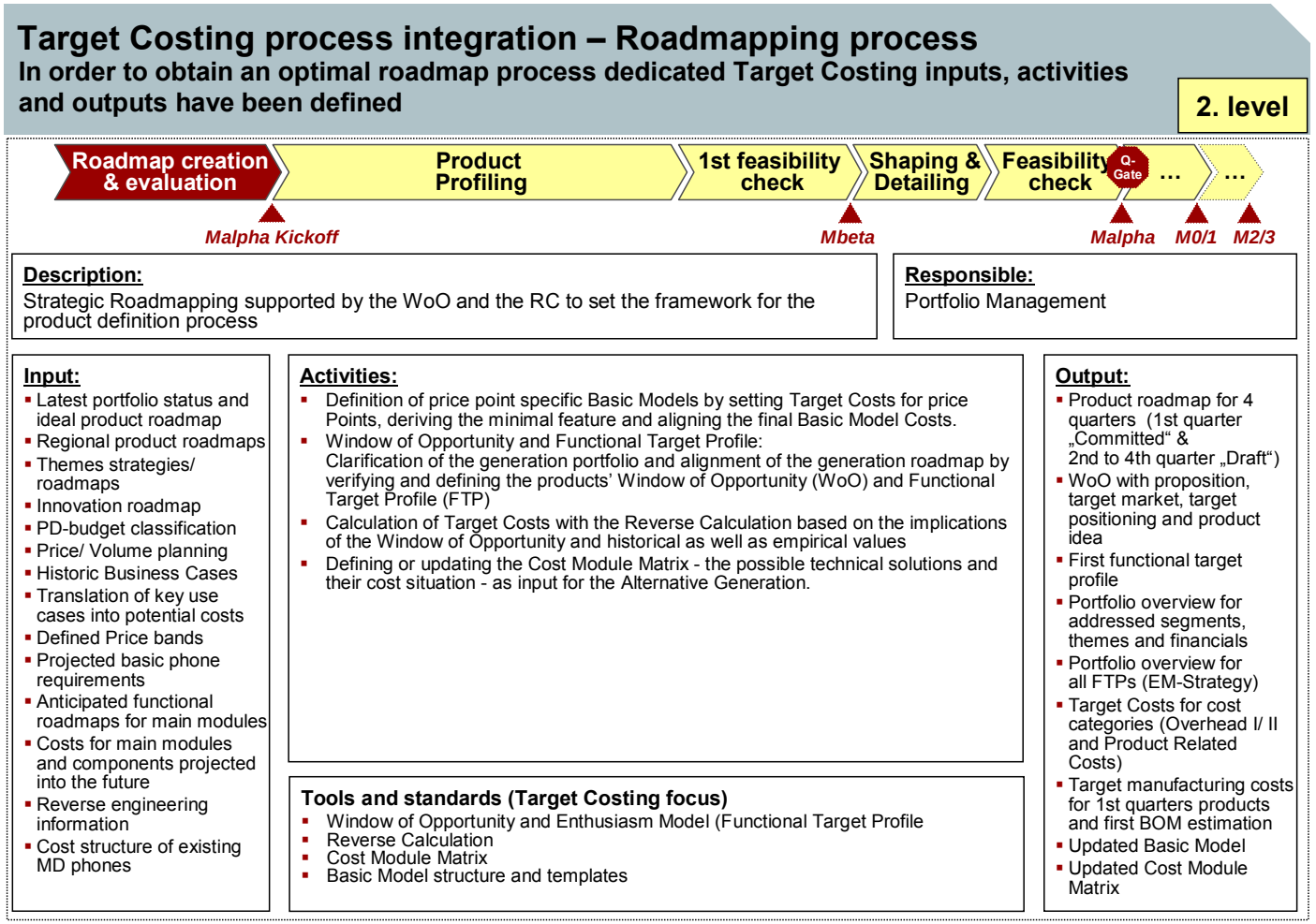


Illustration 8.4

8.2 Integration of the Target Costing tools at MD in detail

8.2.1 Target Costing in the "Roadmapping process"

The "Roadmap creation" and "Roadmap evaluation" phases are also the first steps of the "Portfolio creation & Product definition process".

The Target Costing methodology provides four relevant tools to support the "Roadmap creation" and "Roadmap evaluation" phases:

4. The first and most important one is the definition of the Window of Opportunity and the first Functional Target Profile for all products of the product roadmap.
5. The second one is a first rough check of the financial feasibility of the defined Window of Opportunity. Based on the turnover the Target Profit, Overhead I/II, partly the Product Related Costs (PRC) and the Target Manufacturing Costs can be defined.
6. Besides these core tools the update process of the Basic Models and the Cost Module Matrix has to be performed.

Note:

The integration of these Target Costing tools will help MD to support a more stable product roadmap definition and allows a clear project assignment with controllable targets for the "Product profiling" and "1st Feasibility check" phases.

Notes

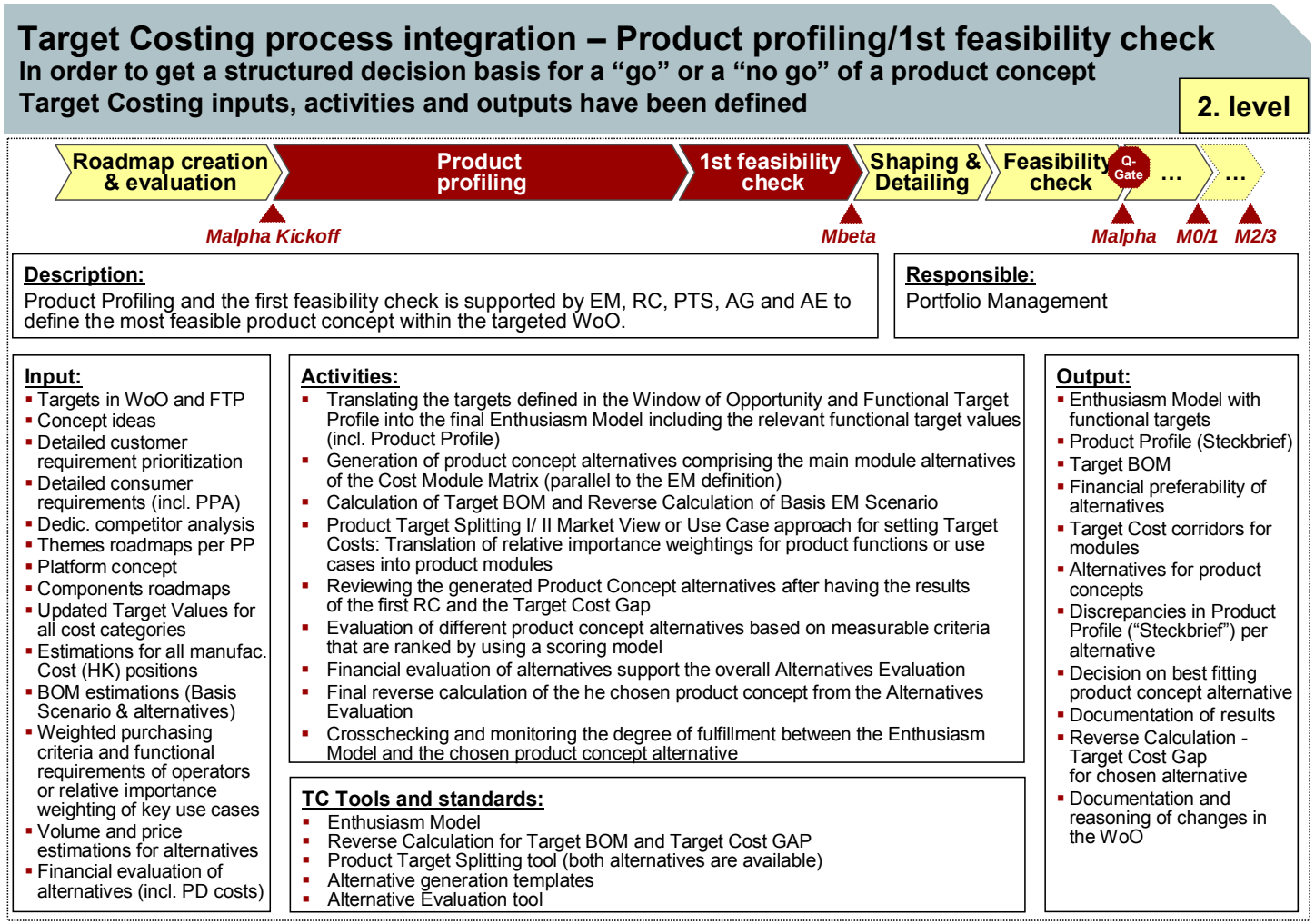


Illustration 8.5

8.2.2 Target Costing in the phases Product profiling and 1st feasibility check

Starting with the Malpha Kick-off, the product concept creation starts. Therefore this is the most relevant phase of Target Costing and the majority of Target Costing tools have to be systematically used.

At first a clear profile of the market requirements in the Enthusiasm Model has to be established. At the same time the generation of alternative product concepts should be started since the most relevant alternatives automatically be discussed within the Enthusiasm Model definition.

Based on the Enthusiasm Model a product profile ("Steckbrief") and an architecture list can be derived and the manufacturing costs (License Costs etc.) can be estimated. This enables a definition of the Target BOM. Parallel to this a first BOM estimation can be allocated.

Thereafter the Product Target Splitting toolset translates the market- and cost demands (results of the Enthusiasm Model and the Reverse Calculations' Target BOM) into Target Costs corridors for product modules.

This information is then the basis for checking the need of generating and estimating further product concept alternatives.

The evaluation of all pre-selected alternatives, including the financial evaluation of these alternatives, defines the preferred and most feasible product concept alternative.

For the selected product concept alternative, the fit to the Enthusiasm Model has to be cross-checked and the Reverse Calculation has to be updated.

Notes

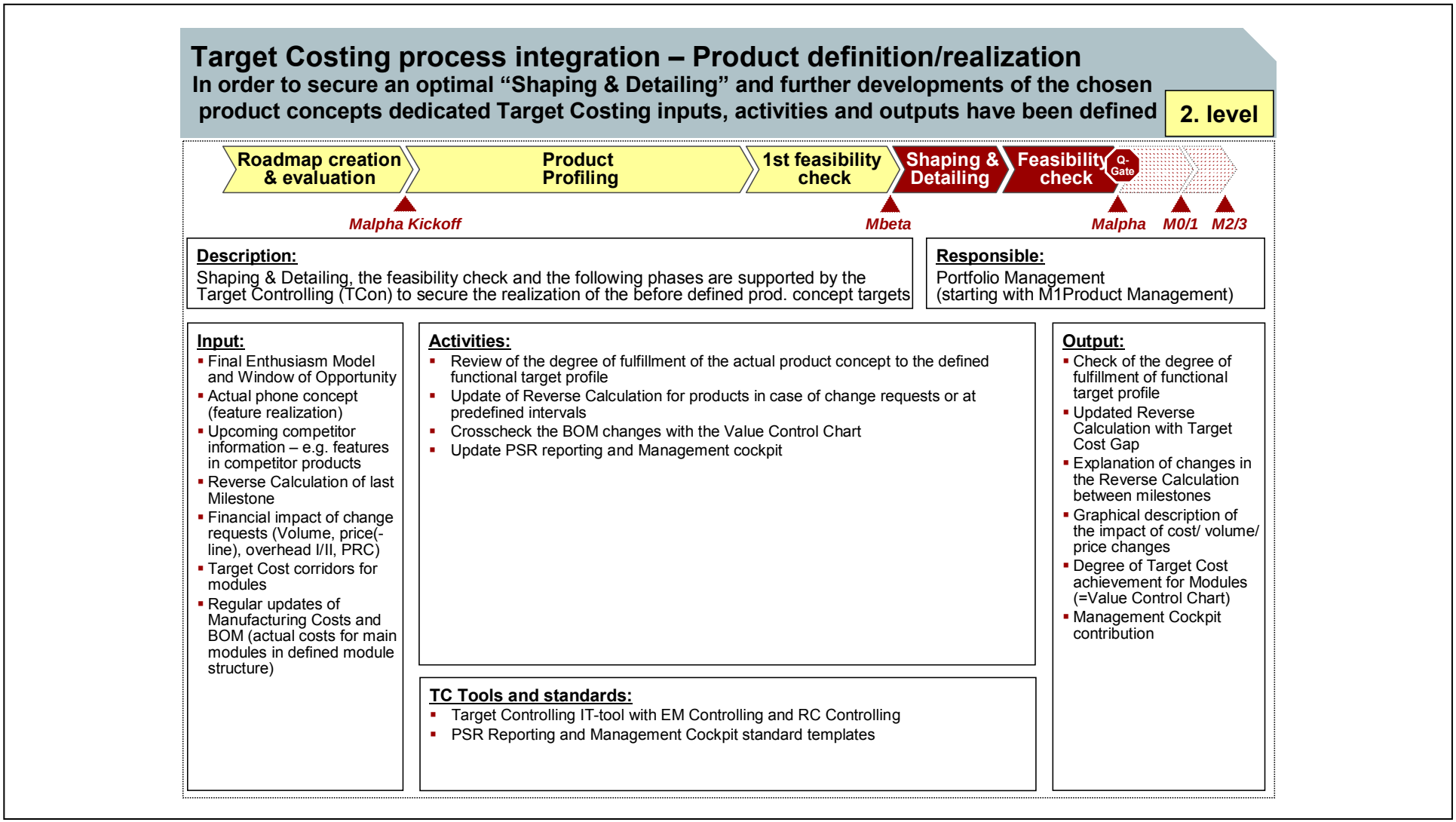


Illustration 8.6

8.2.3 Target Costing in the phase “Shaping & Detailing” and afterwards

With the decision on the chosen product concept at Mbeta, all product related targets have been committed. This comprises the products’ Window of Opportunity with its market, portfolio and product idea related targets as well as the Enthusiasm Model with all functional targets and the Target Costs for all cost categories (e.g. Target Profit, Target Overheads or Product related Costs, Target BOM).

Thus, after the 1st feasibility check and the Mbeta, the controlling of all these targets have to be started. This comprises in detail:

1. Monitoring and controlling of the products’ fit to the Window of Opportunity.
2. Monitoring and controlling of the degree of fulfillment of the functional targets defined in the Enthusiasm Model. Changes or deviations to the Functional Target Profile can also be indicated by a change of the requirements in the market (e.g. competitor product with new features)
3. Monitoring and controlling of the Target Cost Gap development and the more detailed analysis of the changes of the Target Costs on Module level.
4. Explanation and documentation of all changes.

The documentation of the results of the Target Controlling is to be used in the standard reporting templates, as e.g. the “PSR” milestone reporting and the Management “Cockpit” reporting.

Notes

9 Case Study – Nestor

9 Case Study – Nestor

This chapter introduces a case study covering all of the six core tools of Target Costing, a methodology introduced at MD to improve the product development process.

The following Case Study …

- aims at demonstrating the usage of the Target Costing toolset.
- uses a fictive mobile phone called Nestor which is positioned in the CX-class and shows no resemblance to any existing or planned phone concept.
- clearly shows how data is entered into the Target Costing IT tools by means of Excel screenshots.
- presents the output provided by the application of Target Costing using PowerPoint templates.
- gives an overview how the desired results can be read and understood.
- uses the fictive Product Definition Manager “D” to exemplify the completion of the relevant tools.
- shows cost positions and cost distributions. These values were deliberately chosen and do not resemble realistic values.

Notes

Window of Opportunity for Nestor

Nestor is targeted to be the first product with full video functionality priced below 200 EUR

Propo-sition	▪ Be the **top 1** selling product between 200 and 130 € in the **Easter business 2005** to address the opportunity of **"first full video device under 200€ in EMEA"**.
Target market (End-user and operator)	▪ **End-user (Sub-)Segment:** Emotional Connection; male, female (50:50); 22-40; full time job, low to mid education; strong social community, traditional values ▪ **Regional Market Focus:** 100% EMEA ▪ **Sales Channel Split:** Operator 90% / Retail 10% ▪ **Key operators addressed**: Main European operators (Vod/TMO) ▪ **Competitor products**: Nokia 3200, Samsung E300, SE T630
Target positioning in Portfolio	▪ **Story successor to:** Cerberus ▪ **Price Point:** Launch at **EUR 190** falling to **EUR 140, ASP 172 EUR** ▪ **Launchdates/ Lifecycle**: Mar. 2005 – Mar. 2006 ▪ **Addressable Market:** 12,5 Mill. units ▪ **Planned market share / Vol.:** 28% market share = 3,5 Mio units ▪ **Target Profit:** 7,5% = approx. 45 Mio.€
Product idea	▪ **Product Idea:** The "Video Device" for sharing personal moments ▪ **Key theme:** Video streaming and imaging story ▪ **Key use cases:** Operator enhanced traffic and download activities for users that are historically not only voice centric; explore messaging - sharing of info & emotions (videos / text / pictures) ▪ **Innovation:** Full video functionality in the sub 200 EUR price class

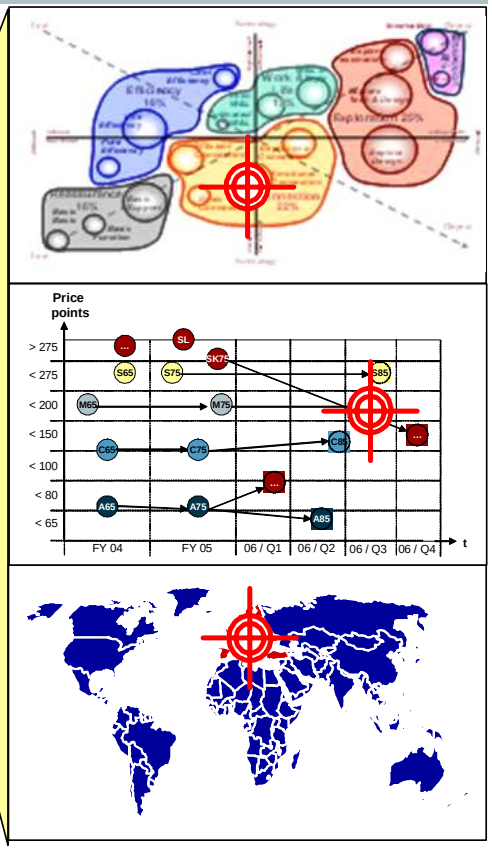


Illustration 9.1

9.1 Enthusiasm Model

9.1.1 Window of Opportunity for Nestor

Upon communication of the rolling portfolio draft and his assignment as product definition manager, Mr. D aims at gathering the relevant information to define a product for his targeted “white spot” in the portfolio.

To help his team to obtain a clear focus on the definition activities Mr. D invites his newly formed team to a workshop. The goal of the workshop is to update the Window of Opportunity for his product. This Window of Opportunity is supplied to Mr. D by the roadmapping team and contains the following information:

From portfolio strategy the team learns that the product should be launched in March 2005 and should have a one year lifecycle.

Portfolio strategy furthermore gives clear price, volume and consumer segment targets for the envisaged product. The mobile device should be launched at 190 EUR and is expected to fall to 140 EUR at the end of its lifecycle leading to an ASP of 172 EUR over lifecycle. As strategy aims for a market share of 28% in the targeted market, a total of 3,5 Mio. units are planned to be sold during the entire lifecycle mainly to the “emotional connection” sub-segment which represents the CX-class.

Based on the in depth knowledge of the target group and operator needs, the product idea is developed. The product idea bases on the key use cases for the product and the first ideas of how this product is innovating the defined market. To enable a facilitated communication, the roadmapping team agrees on Nestor as code name for the new product.

Notes

Enthusiasm Model: Exemplary target use cases for Nestor

A set of key use case has been identified for Nestor

Key theme:	**Price point:**	**Segment:**	**Region:**
Video and imaging	Launch at EUR 190 falling to EUR 140	Emotional Connection	100% EMEA

Use case	Use case description	Importance: End-user	Importance: MNO
Use case 1: Take snapshots in darkness	▪ **Situation***: Afternoon, evening / café, bars / meeting friends and nightlife ▪ **Frequencies of use case**: 1-3 times a week ▪ **Typical course of action**: Drinking, having fun and take snapshots in darkness ▪ **Related use cases**:	L M (H) no	L M (H) no
Use case 2: Download video clips	▪ **Situation***: Morning, evening / public transports / going to-from job or shopping ▪ **Frequencies of use case**: 2-4 times / day ▪ **Typical course of action**: Looking at downloaded video clips ▪ **Related use cases**: 2,3	L M (H) no	L M (H) no
Use case 3: Enjoy video streaming	▪ **Situation***: Mainly leisure time / seeing things spontaneously and share them ▪ **Frequencies of use case**: Twice a week ▪ **Typical course of action**: Take a video or stream some funny videos ▪ **Related use cases**:	L M (H) no	L M (H) no

* Describing time, place and circumstances

Illustration 9.2

9.1.2 Relevant use cases for Nestor

In order to facilitate the understanding of the targeted usage behavior of the envisaged phone concept Mr D. defines a set of key use cases for operators and end-users together with his colleagues from the marketing department. The group aims at describing the typical usage of the different functionalities of the product. The above slide only shows a selection of the relevant use cases for Nestor.

After assigning a descriptive name to every use case the group defined the typical user, his/her usage behavior as well as the usage frequency. To allow a rating of the respective use cases, the group determines the relative importance ranking of the identified use cases - separately for operators and end users. These use cases are used by the team to have a common understanding about the main roles of the mobile device. The identified use cases and their rating can also be used in the use case approach of the Product Target Splitting (market view).

Notes

Enthusiasm Model: Data input

According to the identified Window of Opportunity for Nestor the EM-categories have to be determined for operators and end-users

Required air interface: [X] GSM [X] GPRS [ ] EDGE [ ] UMTS [ ] WLAN/ UMA [ ] other: "…"

Preferred form factor: [X] Bar [ ] Slider [ ] Clam [ ] New/ others: "… e.g. swivel-clam"

	End-user requirements	Operator requirements
Suggest/ provide…	**EM-Category (No/B/P/E)**	**Operator specs** (No/B/P/E on top level; in detail pls. set "-" for possible incompliance, "0" for compliance, "+" for over performance")
Make and receive calls (quality of basic function)	B	B
Appeal to user (design/ material/ form factor)	P	P
Support imaging and video	E	E
Support music and audio	P	P
Provide gaming	B	B
Provide outdoor/ leisure features (e.g. sensors)	NO	NO
Enable messaging	P	B
Support business applications (incl. PIM and sync)	B	B
Provide additional services (e.g. location services)	NO	NO
Usage and standby time	P	P
Provide visualization (display)	E	P
Interaction with other devices	B	B
Store data	P	P
Consumer personalization / operator customization	B	P

Illustration 9.3

9.1.3 Data input

In a second workshop the product definition team aims at completing the functional target profile for Nestor. The roadmapping team has already supplied Mr. D with the Target EM sheet. This sheet already contains the first direction whether a functionality should be basic, performance or enthusiasm. The functional target values are now completed by Mr. D and his team. To keep the discussion in the second workshop strictly on a functional level, Mr. D solely shows the relevant phone functions in the definition tool and hides all component values. For all Basic and Performance Functionalities the team now decides whether the respective function should be modified for the targeted end-user and operator or if the functionality is not desired at all.

For the completion of the functional target profile the product definition team acts strictly and exclusively within the framework set by the Window of Opportunity. All changes in the functional target profile are then approved by the management team.

After the team jointly decided – based on the available market information – on the target functionalities, it aims at giving first indications of possible functional targets for later reference. To support this process, Mr. D opens all lines of the product definition sheet and jointly completes the column “Technical Target Value” with his team. The decision on functional target values has to be supported by the targeted and agreed functional profile, by the implications of component values of the technical predecessor as well as by the component characteristics of Nestor’s identified competitors.

Notes

Enthusiasm Model: Functional target profile

Nestor will create Customer Enthusiasm by offering an outstanding photo/video functionality for a price below 200 EUR

Required air interface: [X] GSM [X] GPRS [ ] EDGE [ ] UMTS [ ] WLAN/ UMA [ ] other: "…"

Preferred form factor: [X] Bar [ ] Slider [ ] Clam [ ] New/ others: "… e.g. swivel-clam"

	End-user requirements				*MNO requirements*				
	not req.	*Basic*	*Perf.*	*Enth.*	*not req.*	*Basic (under fulfilled)*	*Perf. (meet)*	*Enth. (exceed)*	*Target values (value range)*
Make and receive calls (quality of basic functions)		■				△			Tri Band
Appeal to user (design/ material/ form factor			■				△		Classic / high value / metal look and feel
Support imaging and video				■				△	Better than snapshot/ usable in darkness/ outstanding video performance
Support music and audio			■				△		Good acoustic quality supporting the playback of various video formats
Provide gaming		■				△			Standard gaming
Provide outdoor/ leisure features (e.g. sensors)	■				△				Not wanted
Enable messaging			■			△			Share friends and family related moments easily
Support business applications (incl. PIM and sync)		■				△			Organize private moments easily
Provide additional services (e.g. location services)	■				△				Not wanted
Provide visualization (display)				■			△		High quality for video experience
Provide usage and standby time			■				△		High talk & standby time (300/300), video usage
Interaction with other devices		■				△			Standard desktop PC communication
Store data			■				△		200 pictures in medium quality
Consumer personalization/ operator customization		■					△		Main operator UI supported

Possible risks

- Basic organizer functionality possibly not sufficient for the emotional connection user, who uses the mobile phone as a tool to organize his / her daily life

Illustration 9.4

9.1.4 Functional target profile

In order to facilitate the communication of the second workshop's results to the management level and all relevant stakeholders in the organization, Mr. D completes the master PowerPoint slide provided by the Target Costing toolset.

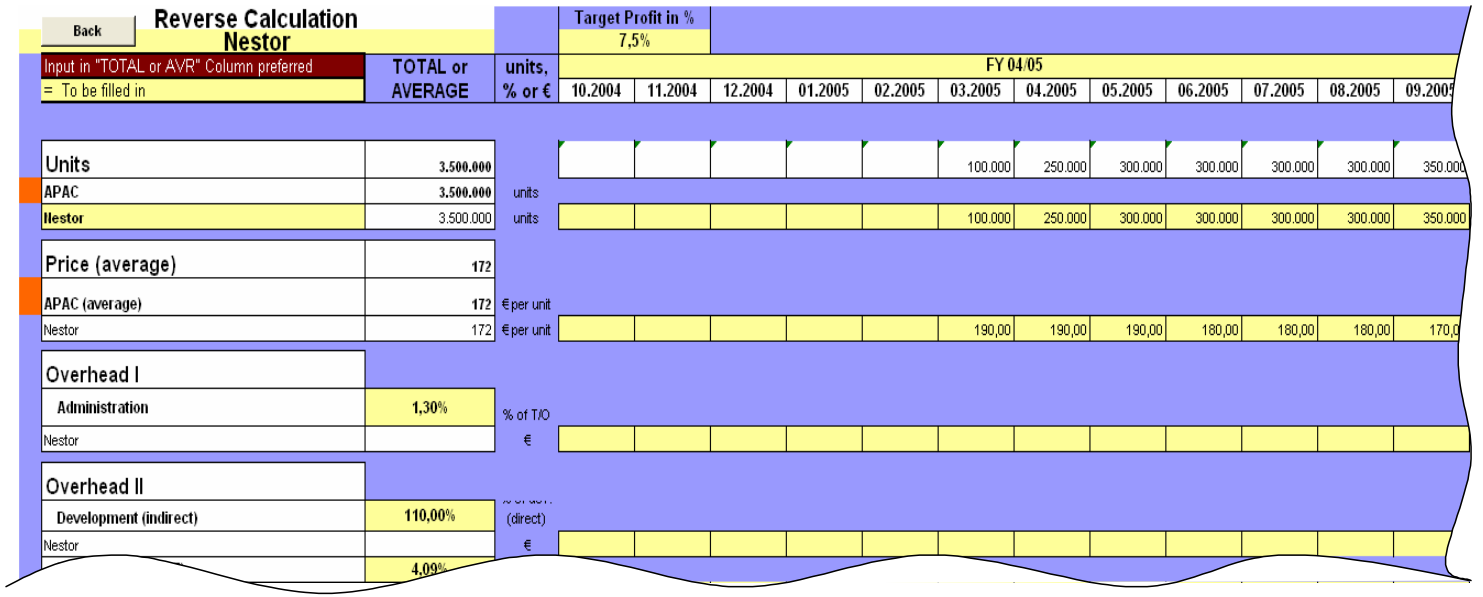
He furthermore points out debatable functional issues on this slide and shows potential risks.

With the available information the team can now define a market conform product and move on to the next tools of the Target Costing methodology.

Notes

Reverse Calculation: Data input

Nestor's Business Case data has to be entered into the input sheet of the Reverse Calculation tool



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Reverse Calculation Nestor

Target Profit in % 7,5%

Input in "TOTAL or AVR" Column preferred
= To be filled in

	TOTAL or AVERAGE	units, % or €	FY 04/05 10.2004	11.2004	12.2004	01.2005	02.2005	03.2005	04.2005	05.2005	06.2005	07.2005	08.2005	09.2005
Units	3.500.000							100.000	250.000	300.000	300.000	300.000	300.000	350.000
APAC	3.500.000	units												
Nestor	3.500.000	units						100.000	250.000	300.000	300.000	300.000	300.000	350.000
Price (average)	172													
APAC (average)	172	€ per unit												
Nestor	172	€ per unit						190,00	190,00	190,00	180,00	180,00	180,00	170,0
Overhead I														
Administration	1,30%	% of T/O												
Nestor		€												
Overhead II														
Development (indirect)	110,00%	(direct)												
Nestor		€												
	4,09%													

All **financial Target Costing input parameters** for Nestor are to be entered into the yellow cells above (these parameters comprise e.g. **Target Sales Volume, Target Price and Target Profit** as well as the dedicated Business Case data)

Illustration 9.5

9.2 Reverse Calculation

9.2.1 Data input

To have a clear indication of the Business Case figures considering the targeted profitability, Mr. D asks the BA of the definition team to complete the input sheet of the Reverse Calculation IT-tool for Nestor.

For the completion of the relevant cells the BA consults the Target Costing IT-tool handbook and completes the Excel sheet.

If no cost information for one category exists, the BA initially uses cost estimations by means of standard percentages that are based on experiences with historic products, and asks Mr. D to verify his assumptions.

Notes

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Reverse Calculation: Calculation of Target BOM

The Target BOM of 98,97 € for Nestor, which is required as input for Product Target Splitting is automatically calculated by the IT-tool

	Lifecycle Total
Units	**3.500.000**
Target Turnover	**603.000.000**
Price (average)	**172,29**
Target Profit Total	**45.225.000**
Allowable Costs	**557.775.000**
Overhead I	**7.839.000**
Administration	7.839.000
Overhead II	**83.376.500**
Development (indirect)	7.700.000
Marketing (Pull + SF)	24.662.700
Selling Expense	28.160.100
SCM Costs	16.642.800
Other COGS	6.210.900
Directly Influenceable Costs (DIC)	**466.559.500**
Product Related Costs (PRC)	**30.870.000**
Development (direct)	7.000.000
Marketing (Push + HQ)	8.575.000
Service Costs	15.295.000
Manufacturing Costs	**435.689.500**
Manufacturing Costs per unit	**124,48**
Target BOM per unit	98,97
Variant Adder per unit	4,95
CC per unit	15,84
Licences per unit	4,73
Target Cost Gap	**0**
Target Cost Gap per unit	**0,00**
EBIT (for comparison purpose)	**45.225.000**
EBIT in % of T/O	**7,50%**

- In order to give a first assessment of the allowable BOM costs for Nestor, the Reverse Calculation offers the possibility to deduce a Target BOM.
- This Target BOM is calculated using the targeted sales volume and price as well as overhead percentages which are based on experiences with historic products
- Nestor‘s Target BOM is used as input for Product Target Splitting (market view) II in order to calculate Target Cost corridors for Nestor‘s main modules

Illustration 9.6

9.2.2 Calculation of the Target BOM

As Mr. D asked for a first indication of a possible Target BOM, the BA consults the “Gap” sheet of the Reverse Calculation IT tool. This sheet already provides the calculation of the Target BOM for Nestor.

Nestor’s product definition team will need this Target BOM to complete the Product Target Splitting at a later phase of the product definition process.

Notes

Reverse Calculation: Data output

The positive Target Cost Gap of 4,13 EUR is identified for the Nestor. In addition the sensitivity of the Target Cost Gap is analyzed for standard scenarios

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Reverse Calculation
- Standard Simulations -

Re-Calculate Sheet

	Base Case Nestor	TCG = 0	EBIT = 0	Hist. ASP 165 €	TTM delay 1 month	Volume -10%	Volume +10%	Volume -30%	Volume +30%
	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total
Units	3.500.000	3.500.000	3.500.000	3.500.000	3.200.000	3.150.000	3.850.000	2.450.000	4.550.000
Target Turnover	603.000.000	584.642.848	533.745.328	577.500.000	546.000.000	542.700.000	663.300.000	422.100.000	783.900.000
Price (average)	172,29	167,04	152,50	165,00	170,63	172,29	172,29	172,29	172,29
Target Profit Total 7,5%	45.225.000	43.848.214	40.030.900	43.312.500	40.950.000	40.702.500	49.747.500	31.657.500	58.792.500
Allowable Costs	557.775.000	540.794.634	493.714.428	534.187.500	505.050.000	501.997.500	613.552.500	390.442.500	725.107.500
Overhead I	7.839.000	7.600.357	6.938.689	7.507.500	7.098.000	7.055.100	8.622.900	5.487.300	10.190.700
Administration	7.839.000	7.600.357	6.938.689	7.507.500	7.098.000	7.055.100	8.622.900	5.487.300	10.190.700
Overhead II	83.376.500	81.072.677	74.685.039	80.176.250	76.223.000	75.808.850	90.944.150	60.673.550	106.079.450
Development (indirect)	7.700.000	7.700.000	7.700.000	7.700.000	7.700.000	7.700.000	7.700.000	7.700.000	7.700.000
Marketing (Pull + SF)	24.662.700	23.911.892	21.830.184	23.619.750	22.331.400	22.196.430	27.128.970	17.263.890	32.061.510
Selling Expense	28.160.100	27.302.821	24.925.907	26.969.250	25.498.200	25.344.090	30.976.110	19.712.070	36.608.130
SCM Costs	16.642.800	16.136.143	14.731.371	15.939.000	15.069.600	14.978.520	18.307.080	11.649.960	21.635.640
Other COGS	6.210.900	6.021.821	5.497.577	5.948.250	5.623.800	5.589.810	6.831.990	4.347.630	8.074.170
Directly Influenceable Costs (DIC)	466.559.500	452.121.600	412.090.700	446.503.750	421.729.000	419.133.550	513.985.450	324.281.650	608.837.350
Product Related Costs (PRC)	30.870.000	30.870.000	30.870.000	30.870.000	28.824.000	28.483.000	33.257.000	23.709.000	38.031.000
Development (direct)	7.000.000	7.000.000	7.000.000	7.000.000	7.000.000	7.000.000	7.000.000	7.000.000	7.000.000
Marketing (Push + HQ)	8.575.000	8.575.000	8.575.000	8.575.000	7.840.000	7.717.500	9.432.500	6.002.500	11.147.500
Service Costs	15.295.000	15.295.000	15.295.000	15.295.000	13.984.000	13.765.500	16.824.500	10.706.500	19.883.500
Manufacturing Costs	421.251.600	421.251.600	421.251.600	421.251.600	385.144.320	379.126.440	463.376.760	294.876.120	547.627.080
Manufacturing Costs per unit	120,36	120,36	120,36	120,36	120,36	120,36	120,36	120,36	120,36
BOM per unit	95,56	95,56	95,56	95,56	95,56	95,56	95,56	95,56	95,56
Variant Adder per unit	4,78	4,78	4,78	4,78	4,78	4,78	4,78	4,78	4,78
CC per unit	15,29	15,29	15,29	15,29	15,29	15,29	15,29	15,29	15,29
Licences per unit	4,73	4,73	4,73	4,73	4,73	4,73	4,73	4,73	4,73
Target Cost Gap	14.437.900	0	-40.030.900	-5.617.850	7.760.680	11.524.110	17.351.690	5.696.530	23.179.270
Target Cost Gap per unit	4,13	0,00	-11,44	-1,61	2,43	3,66	4,51	2,33	5,09
EBIT (for comparison purpose)	59.662.900	43.848.214	0	37.694.650	48.710.680	52.226.610	67.099.190	37.354.030	81.971.770
EBIT in % of T/O	9,89%	7,50%	0,00%	6,53%	8,92%	9,62%	10,12%	8,85%	10,46%

Illustration 9.7

9.2.3 Data output

As the first indications of a Business Case are now available, the BA easily calculates a Reverse Calculation for the Nestor.

In the simulations sheet of the Reverse Calculation IT-tool he can see that the Base Case of Nestor shows a positive Target Cost Gap of 4,13 EUR. This indicates that the first product concept of Nestor shows a profitability about 14’5 EUR higher than the targeted profitability of about 45’ EUR.

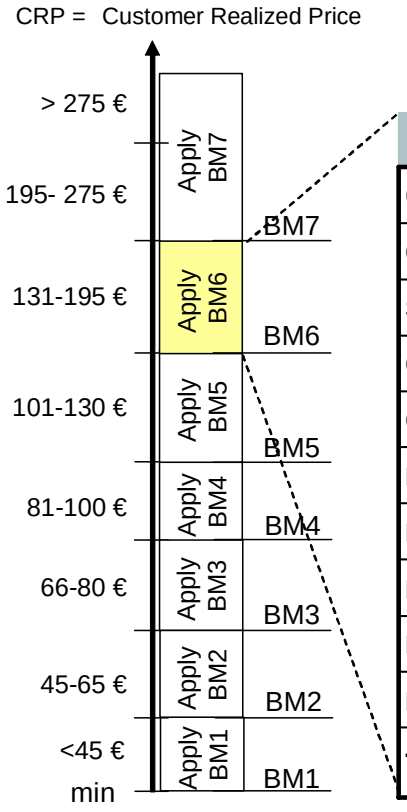
As the BA wants to give the product definition team first indications of sensitivities and simulations in the Base Case of Nestor, he can use the Reverse Calculation’s simulations chart:

- An average price over lifecycle of about 167 EUR is needed to fulfill the targeted profitability.
- In case the Nestor can only achieve an average price of 152,50 EUR over lifecycle its Business Case would – ceteris paribus – just break even.
- The team can furthermore see that, if Nestor would attain the historic ASP of 165 EUR of his technical predecessors he would miss his targeted profitability by about 5,6 Mio. EUR. Separately a detailed analysis is performed to clarify why Nestor is supposed to achieve a higher ASP than its predecessor.
- In addition to that, the team should also determine which impact a volume variation of +/- 10% and +/- 30% would have on the Business Case of the Nestor.

Notes

Product Target Splitting: Selection and description of Basic Model

As Nestor is launched at 190€ the corresponding Basic Model 6 (which covers the price range of 131 - 195 €) is used



Description of Basic Model 6

Component	Cost
Core architecture	18,60€
Sensors	0,00€
Connectivity	3,20€
Camera	4,42€
Display	16,45€
Memory	4,88€
Housing & acoustics	8,27€
Battery	1,97€
Delivery unit	1,93€
Total Costs	**59,72€**

Main Characteristics:

- Triband GPRS
- Bar phone painted surface Housing not exchangeable
- 65k color TFT display 120x160
- Java games integrated, downloadable
- VGA camera
- Battery 700mAh
- IrDA, Bluetooth, USB

Illustration 9.8

9.3 Product Target Splitting

9.3.1 Selection and description of Basic Model

In order to get indications about the allowable costs of Nestor's main modules, Mr. D prepares the execution of Product Target Splitting. To complete the necessary input sheets he schedules a series of workshops. To prepare the relevant data for the workshops Mr. D – having read the Target Costing handbook – chooses a Basic Model. As Nestor is targeted to be launched at 190 EUR he chooses the Basic Model 131-195 EUR and familiarizes himself with its module specifications. This is important as Product Target Splitting only covers functionalities in addition to the Basic Model.

To communicate the Basic Model functionality he uses the concept slide shown in illustration 9.8.

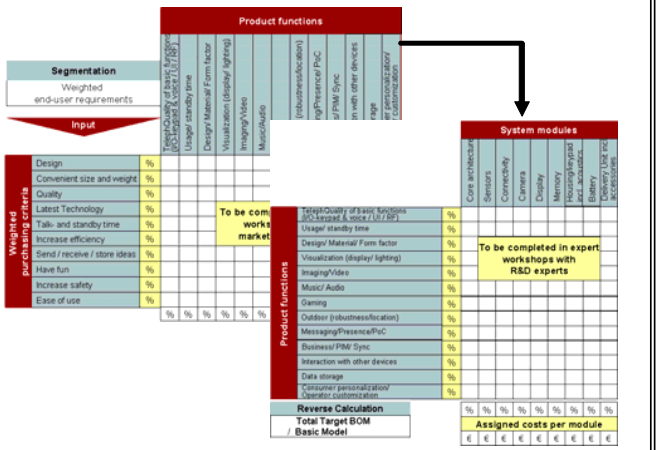
Notes

Product Target Splitting (market view) for Nestor

Two alternatives have been identified to derive Target Costs for Nestor's product modules

Product Target Splitting market view for Nestor

Traditional two step approach for Nestor



Adapted use case approach for Nestor

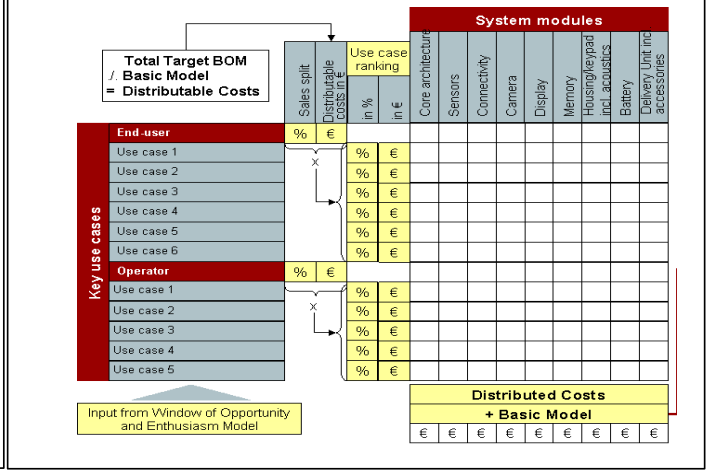


Illustration 9.9

9.3.2 Selection of the appropriate PTS approach

To conduct the planned Product Target Splitting workshops, Mr. D has the choice of using two different approaches to derive Target Costs for product modules. He can either choose the traditional approach or the adapted use case approach:

For the traditional approach Mr. D assigns three workshops:

- One workshop in cooperation with marketing staff to assess the relative importance of end-user purchasing criteria and to furthermore complete the first Product Target Splitting matrix.
- A second workshop in cooperation with experts regarding the operator to get first indications about a relative importance of product features for the key operators which are defined in the Window of Opportunity.
- A third workshop in cooperation with technical experts to complete the second Product Target Splitting matrix to translate product functionalities into product modules.

For the use case approach he assigns one workshop:

- In this workshop which is conducted with cross functional experts, Mr. D completes the use case matrix.

For exemplary reasons, both approaches are conducted in this case study.

Notes

Product Target Splitting: Traditional market view step 1 for end-users

Based on the weighted purchasing criteria of Nestor's target group the relative importance of functional requirements is calculated for Nestor's end-users

		please fill in	Functional requirements										
	All points below refer to the additional desire to improve the defined basic bar phone for this target group	Final weighting [%]	Make and receive calls (quality of basic function)	Appeal to user (design/ material/ form factor)	Support imaging and video	Support music and audio	Provide gaming	Provide outdoor/ leisure features (e.g. sensors)	Enable messaging	Support business applications (incl. PIM and sync)	Provide additional services (e.g. location services)	Sum
Design	touch & feel, first visual appearance, form factor	18,00%		50,00%	15,00%	35,00%						100,00%
Convenient size and weight	size & weight	8,00%	10,00%	60,00%	30,00%							100,00%
Quality	all quality related issues (display, housing, feel)	9,00%		50,00%	25,00%	25,00%						100,00%
State of the art technology, latest features	latest available / upcoming features / technologies, positioning, sensors, latest display	3,00%			100,00%							100,00%
Talk- and standby & usage time	additional battery life	12,00%	25,00%		50,00%	25,00%						100,00%
Increase efficiency in daily private / professional life	enhanced PIM / PDA functions plus connectivity, speed of data transfer	10,00%								100,00%		100,00%
Send / receive / store ideas, memories and emotions	take better photos & videos, enhanced MMS, extra storage memory	18,00%			25,00%				75,00%			100,00%
Fun & entertainment feartures	games, music, radio & TV	8,00%					100,00%					100,00%
Increase my / my family's safety	emergency calls, locate & call family members, reduce SAR (radiation)	4,00%	100,00%									100,00%
Easy to use	Usability of keypad & menu, size & quality of icons & display	10,00%	15,00%		20,00%	15,00%			50,00%			100,00%
Relative Importance [%] end-user		100%	9,30%	18,30%	22,85%	13,05%	8,00%	0,00%	18,50%	10,00%	0,00%	100,0%

Illustration 9.10

9.3.3 Product Target Splitting (market view I) for end-users

In the first workshop of Product Target Splitting, Mr. D completes the tab “PTS end-user” in the product definition tool. He then asks the participants from Marketing to provide their weighting of the end-user purchasing criteria which can be found on the left side of the tab. Marketing staff should give their weighting according to the implications from the end-user segmentation, the PPA and other sources from the M-Program.

In a second step Mr. D asks the Marketing experts to complete the matrix:

- He moderates the workshop by asking the following question: “How does function x contribute to the fulfillment of purchasing criterion y?”
- The experts should now enter a percentage weighting into each field. In case no relationship between the buying criteria and the functions can be identified, the respective fields are to be left blank.
- As the function “provide leisure features and location services” is defined as not wanted in the Window of Opportunity, Mr. D does not enter a value into this column for Nestor.
- Furthermore the experts keep in mind that only those functionalities on top of the minimal requirements (Basic Model) are to be evaluated for the Nestor concept.

Notes

Product Target Splitting: Traditional market view step 1 for operators

For operators the relative importance of functional requirements (in addition to the selected Basic Model) is filled in directly

Product Target Splitting I
Operator requirements from Sales point of view

Enthusiasm Model: Functional Requirements and relevant Details [1:1 in PTS]	Requirem. importance in % (from sales)	Comment
Make and receive calls (quality of basic function)	9,00%	
Appeal to user (design/ material/ form factor)	20,00%	
Support imaging and video	25,00%	
Support music and audio	17,00%	
Provide gaming	9,00%	
Provide outdoor/ leisure features (e.g. sensors)	0,00%	
Enable messaging	10,00%	
Support business applications (incl. PIM and sync)	10,00%	
Provide additional services (e.g. location services)	0,00%	
Sum Check	100,00%	

In case an explanation is required the team has the possibility to enter it directly into the tool

Illustration 9.11

9.3.4 Product Target Splitting (market view I) for operators

In the second workshop, this time conducted with experts regarding operator needs, Mr. D aims at completing the sheet “Product Target Splitting operator”.

To achieve this goal, the operators either directly assess the relative importance of product functions or – if no direct information exists – a pair wise comparison by internal experts can give first indications about an importance ranking. From that point the experts can easily conclude a percentage weighting of the respective product functionality of Nestor.

Notes

Product Target Splitting: Traditional market view step 1 reconciled

After filling in the expected sales split, reconciled weightings for the product functions are determined

to be filled out	90 Operator	Sales split	10 End-user

Nestor	Operator requirements			Reconciled		End-user requirements	
Enthusiasm Model: Functional Requirements and relevant Details [1:1 in PTS]	(No/B/P/E) from EM	Requirem. importance in % (from sales)	Requirement importance in % RECONCILED	Requirem. importance in %	Requirement importance in % RECONCILED	Requirem. importance in % (from PTS I)	(No/B/P/E) from EM
	Vodafone SBD (coporate channel)	--				XY	--
				%			
Make and receive calls (quality of basic function)	B	9,00%	8,10%	9,03%	0,93%	9,30%	B
Appeal to user (design/ material/ form factor)	P	20,00%	18,00%	19,83%	1,83%	18,30%	P
Support imaging and video	E	25,00%	22,50%	24,79%	2,29%	22,85%	E
Support music and audio	P	17,00%	15,30%	16,61%	1,31%	13,05%	P
Provide gaming	B	9,00%	8,10%	8,90%	0,80%	8,00%	B
Provide outdoor/ leisure features (e.g. sensors)	NO	0,00%	0,00%	0,00%	0,00%	0,00%	NO
Enable messaging	B	10,00%	9,00%	10,85%	1,85%	18,50%	P
Support business applications (incl. PIM and sync)	B	10,00%	9,00%	10,00%	1,00%	10,00%	B
Provide additional services (e.g. location services)	NO	0,00%	0,00%	0,00%	0,00%	0,00%	NO
	Sum Check	100,00%	90,00%	100,00%	10,00%	100,00%	

Illustration 9.12

9.3.5 Product Target Splitting (market view I) reconciled

After the first two workshops Mr. D aims at crosschecking the results of Product Target Splitting (market view) Step 1. To facilitate his efforts the tab “Reconciled EM & PTS” is provided in the Target Costing IT-tool. Here Mr. D can immediately see whether the respective functional target profile of the Enthusiasm Model is compliant with the results of Product Target Splitting Step 1 for end-users and operators.

In order to crosscheck the fit of the reconciled Enthusiasm Model with the reconciled Product Target Splitting weighting, Mr. D enters the targeted sales split from the Window of Opportunity into the corresponding tab of the IT-tool.

For Nestor he can thus clearly conclude that the targeted functional profile for operators, for end-users as well as for the reconciled profile is in line with the results of Product Target Splitting.

In case of any deviations, either the functional target profile has to be crosschecked and – if needed – adjusted or the Product Target Splitting input data has to be revised. In the latter case the end-user input sheet offers an extra revision column and the operator input sheet can easily be overruled.

Notes

Product Target Splitting: Traditional market view II

The information on product functions is translated into the relative importance of Nestor's modules

Product Target Splitting (market view II)

to be filled out	Weighting	Modules: Basic needed parts (BSF, PCB, B-components)	Sensors & others	Connectivity	Camera	Display	Memory	Housing, keypad, accoustics	Battery	Delivery unit	Sum
Make and receive calls (quality of basic function)	9,0%	20,00%		10,00%			20,00%	40,00%		10,00%	100,00%
Appeal to user (design/ material/ form factor)	19,8%	20,00%		10,00%	20,00%	20,00%		30,00%			100,00%
Support imaging and video	24,8%	20,00%		10,00%	25,00%	25,00%	20,00%				100,00%
Support music and audio	16,6%	5,00%					45,00%	45,00%		5,00%	100,00%
Provide gaming	8,9%	25,00%		10,00%		40,00%	15,00%	10,00%			100,00%
Provide outdoor/ leisure features (e.g. sensors)	0,0%										ok
Enable messaging	10,9%			30,00%	20,00%	20,00%	10,00%	20,00%			100,00%
Support business applications (incl. PIM and sync)	10,0%	20,00%		35,00%		25,00%	10,00%	10,00%			100,00%
Provide additional services (e.g. location services)	0,0%										ok

Total		Target Costs for modules									SUM
Relative importance from PTS II	%	15,78%	0,00%	13,01%	12,33%	18,39%	17,66%	21,09%	0,00%	1,73%	100,00%

Illustration 9.13

9.3.6 Product Target Splitting (market view II)

If the relative functional importance for Nestor is now congruent with the targeted functional profile, the third workshop can be conducted.

In this workshop Mr. D proceeds to the PTS II sheet of the Target Costing product definition IT-tool. In this sheet the functional target weighting from Product Target Splitting step 1 is already implemented.

He moderates the workshop again asking the question of “how module z contributes to the fulfillment of function x.” The technical experts have the same options for completing the second matrix as the Marketing experts have in the first one:

The experts can – as described above – enter a percentage weighting into each field. In case no relationship between the buying criteria and the functions can be identified, the respective fields are to be left blank.

After completion of the second matrix it becomes obvious that the modules housing, display and core architecture are allowed the highest cost share on top of the already determined minimal functionality of the Basic Model.

Notes

Product Target Splitting: Traditional market view results

Target Costs are determined for Nestor's modules, through applying the relative importance of the functions on the distributable costs

Cost-Module Matrix Nestor

		Basic needed parts (BSF, PCB, B-components)	Sensors & others	Connectivity	Camera	Display	Memory	Housing, keypad, accoustics	Battery	Delivery unit
Relative Importance from PTS II		**15,8%**	**0,0%**	**13,0%**	**12,3%**	**18,4%**	**17,7%**	**21,1%**	**0,0%**	**1,7%**
Target BOM from RC	**98,97 €**									
Basic Model	**59,72 €**	**18,60 €**	**0,00 €**	**3,20 €**	**4,42 €**	**16,45 €**	**4,88 €**	**8,27 €**	**1,97 €**	**1,93 €**
Results from PTS	39,25 €	6,20 €	0,00 €	5,11 €	4,84 €	7,22 €	6,93 €	8,28 €	0,00 €	0,68 €
Target Costs per module	**98,97 €**	**24,80 €**	**0,00 €**	**8,31 €**	**9,26 €**	**23,67 €**	**11,81 €**	**16,55 €**	**1,97 €**	**2,61 €**
		25%	0%	8%	9%	24%	12%	17%	2%	3%
Target Cost Range (min.)		**22,54 €**	**0,00 €**	**7,25 €**	**8,11 €**	**21,47 €**	**10,41 €**	**14,77 €**	**1,69 €**	**2,24 €**
Target Cost Range (max.)		**27,05 €**	**0,00 €**	**9,36 €**	**10,41 €**	**25,87 €**	**13,21 €**	**18,33 €**	**2,25 €**	**2,98 €**

Illustration 9.14

9.3.7 Results for Nestor

In the course of the wrap up of the last workshops Mr. D takes the Target BOM – which he received from his BA – and enters it into the IT-tool (example shown in illustration 9.14 above).

As he has already selected a Basic Model, the corresponding cost shares are automatically entered into the relevant lines.

As a result he can now easily see the Target Costs as well as the Target Cost range for each main module of Nestor. These Target Cost corridors are supposed to give clear cost guidelines for the following Alternatives Generation workshops.

Notes

Product Target Splitting: Market View use case approach

Target Costs for product modules are determined for Nestor by translating use cases into a relative importance weighting of product modules

Target Cost definition with use cases

to be filled out

Input from Window of Opportunity and Enthusiasm Model

Target BOM	99,0 €
BM	59,7 €
Headroom	39,3 €

	EU/ MNO Ranking		Use case Ranking			Modules									
			Total			Product in total	Basic needed parts (BSF, PCB, B-components)	Sensors & others	Connectivity	Camera	Display	Memory	Housing, keypad, accoustics	Battery	Delivery unit	Sum
						Sum	1.	2.	3.	4.	5.	6.	7.	8.	9.	
	in %	in €	in %		in €											
End user	10%	3,9 €														
Use case 1: Take snapshots in darkness			10%		0,4 €				100%							100,00%
Use case 2: Download video clips			30%		1,2 €	50%						30%	20%			100,00%
Use case 3: Enjoy video streaming			50%		2,0 €	50%				50%						100,00%
Use case 4: Show phone to other people			10%		0,4 €								100%			100,00%
Operator	90%	35 €														
Use case 1: Take snapshots in darkness			10%		3,5 €				100%							100,00%
Use case 2: Download video clips			40%		14,1 €	30%		20%			30%	20%				100,00%
Use case 3: Enjoy video streaming			40%		14,1 €	10%		20%		50%	20%					100,00%
Use case 4: Personalize the phone			10%		3,5 €							100%				100,00%
						18%	0%	14%	10%	21%	19%	18%	0%	0%	100,00%

Illustration 9.15

9.3.8 Completion of the use case approach for Product Target Splitting

Before the workshop to complete the use case approach of Product Target Splitting, Mr. D fills the use cases into the product definition tool. He then asks the participants from Product Marketing and the operator experts to assess the relative importance of each use case. The importance ranking should add up to 100% for each the operator and the end-user use cases. He then enters the sales split into the product definition tool to ensure a proper relative weighting of the use cases.

In a second step Mr. D asks the participants of the meeting to complete the matrix by asking the following question: “How does module x contribute to the fulfillment of use case taking into account the module characteristics of the Basic Model”. Those use cases that are covered by the Basic Model shall thus not be included. As in the traditional approach, the experts can now assign percentage weightings to the respective fields. In case no relationship can be identified between the respective modules and use cases, the fields are to be left blank.

After the completion of the matrix, Mr. D enters the Target BOM – which he received from his BA – into the product definition tool. As he has already selected a Basic Model, the corresponding cost shares are automatically entered into the relevant lines. He can now easily see which share of the distributable costs is assigned to the respective product modules.

Notes

Product Target Splitting: Results of the market view use case approach

Target Costs are determined for Nestor's modules, through applying the relative importance of the modules on the distributable costs

Results from PTS

		Basic needed parts (BSF, PCB, B-components)	Sensors & others	Connectivity	Camera	Display	Memory	Housing, keypad, accoustics	Battery	Delivery unit
Relative Importance from PTS II		16,0%	0,0%	13,5%	12,7%	17,9%	17,0%	21,2%	0,0%	1,8%
Target BOM from RC	98,97 €									
Basic Model (BM3)	59,72 €	18,60 €	0,00 €	3,20 €	4,42 €	16,45 €	4,88 €	8,27 €	1,97 €	1,93 €
Results from PTS	39,25 €	6,27 €	0,00 €	5,30 €	4,98 €	7,02 €	6,66 €	8,32 €	0,00 €	0,70 €
Target Costs per module	98,97 €	24,87 €	0,00 €	8,50 €	9,40 €	23,47 €	11,54 €	16,59 €	1,97 €	2,63 €
		25%	0%	9%	10%	24%	12%	17%	2%	3%
Target Cost Range (min.)		22,61 €	0,00 €	7,42 €	8,24 €	21,28 €	10,17 €	14,81 €	1,69 €	2,26 €
Target Cost Range (max.)		27,12 €	0,00 €	9,57 €	10,57 €	25,66 €	12,91 €	18,37 €	2,25 €	3,00 €

Illustration 9.16

9.3.9 Results of the use case approach for Product Target Splitting

In the course of the wrap up of the last workshop Mr. D takes the Target BOM – which he received from his BA – and enters it into the IT-tool (example shown in illustration 9.16 above).

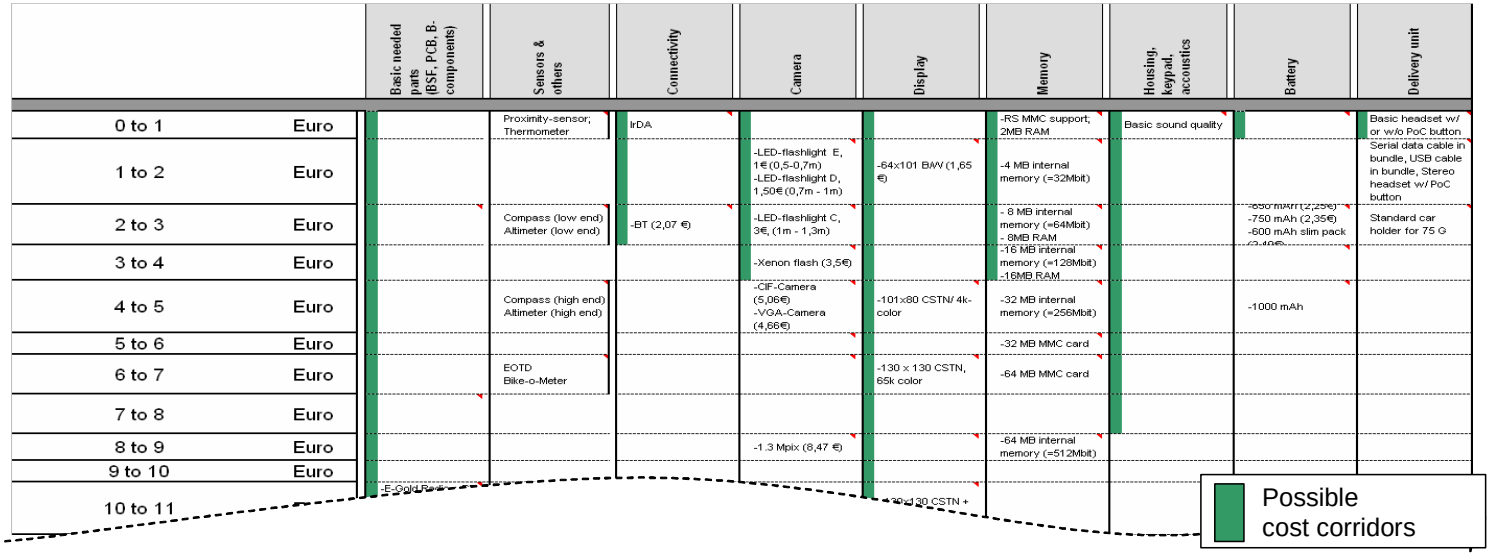
The module costs of the Basic Model are automatically entered into the relevant lines, after the Basic Model was selected.

As a result he can now – as in the traditional approach – easily see the Target Costs as well as the Target Cost range for each main module of Nestor. These Target Cost corridors are supposed to give clear cost guidelines for the following Alternatives Generation workshops.

Notes

Alternatives Generation: Filtered Cost-Module Matrix

Based on the derived Target Cost corridors for modules the possible range of alternatives is identified and presented in a Cost-Module Matrix



The Cost-Module Matrix provides a **clear overview** of the modules and the contained components. The components are vertically sorted by price. The **green bars mark the maximum allowable spending per module** based on the determined Target Costs for Nestor and thus, which feature alternatives are feasible from a cost point of view.

Illustration 9.17

9.4 Alternatives Generation

9.4.1 Filtered Cost-Module Matrix

In the next workshop the product definition team should focus on filtering and then selecting component alternatives for the design of the described main modules.

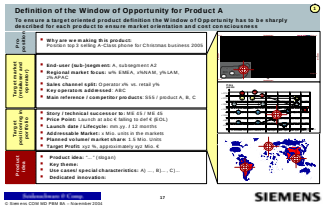
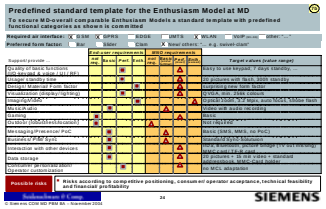
The tab “Cost-Module Matrix” of the Target Costing IT-toolset provides a clear and filtered overview of the component alternatives which are in relevant for Nestor considering the target group’s needs and the targeted product story. The team can now clearly see – indicated by the green lines shown below – which standard component alternatives are feasible from a cost point of view.

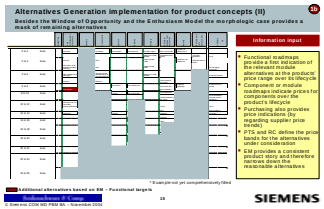
In order to facilitate the completion of the next steps in the dedicated IT-tool, Mr. D prints out the Cost-Module Matrix.

Notes

Alternatives Generation: Framework for the Alternatives Generation

All necessary framework information is supplied in a standard template to set clear guidelines for the following alternatives definition process for Nestor

Setting of framework		Definition of precise objectives
Window of Opportunity		▪ CX-class phone for Easter business 2005 ▪ Launch below 200€ falling to 140€ at end of life ▪ 100% EMEA target, sales split 90% operator/ 10% end user ▪ Video and imaging story
Enthusiasm Model		▪ Enthusiasm Functionalities video and imaging have to be kept ▪ No outdoor or additional functionalities wanted ▪ All performance requirements should be part of the Alternatives Generation

Cost-Module Matrix		▪ Based on the Product Target Splitting results the main focus of the Alternatives Generation should lie with:
		  ▪ Display
		  ▪ Memory

"Knock-out criteria"		▪ No auto focus possible

Illustration 9.18

9.4.2 Framework for the Alternatives Generation

To secure an adequate Alternatives Generation process, Mr. D completes the standard Alternatives Evaluation template. In this dedicated template he enters the most important information from the Window of Opportunity, the Enthusiasm Model and the just completed Cost-Module Matrix. To further focus the team he explicitly points out the most important knockout criteria.

Notes

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Alternatives Generation: Functional Results

The possible alternatives of the Morphologic Case are narrowed down with respect to the market situation and the objectives defined in the Enthusiasm Model

Product functions	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
Make and receive calls (Quality of basic function – I/O/ UI/ RF)	Tri band / high talk & standby time			
Appeal to user (Design/ Material / Form factor)	classic & elegant metal housing	Thinnest (17mm) metal housing & leather/ rubber		Thicker housing than base case (21 mm)
Support imaging and video	VGA camera, no Flash, 2x digital zoom			1.3 Mpix camera with 3x optical zoom
Support music and audio	Common music files supported	MP3 ringtones supported	Surround sound speaker system	
Provide gaming	Provide gaming			
Provide outdoor and leisure features (e.g. sensors)	Not wanted			
Enable messaging	Enable messaging			
Provide business applications (incl. PIM and Sync)	Standard organizer functionality			
Additional services (e.g. location services)	Not wanted			
Provide visualization (Display)	176x220, TFT 2,1', 256k	132x176, TFT, 1,8', 265k	176x220, TFT 2,1', 256k	176x220, TFT 2,1', 256k
Provide usage-/standby time	300 h (Li-Ion 750 mAh)			400 h (Li-ion 900 mAh)
Interaction with devices	Slim Lumberg, IrDa	New Lumberg solution		
Store data	32MB, MMC slot		MMC card 32MB bundled	MMC card 32MB bundled
Consumer personalization/ Operator customization	Main operator UI supported			clubbers wristband

Responsibles for Alternatives Evaluation

Strategic and Portfolio fit | Financial fit | Competitiveness Operators | Competitiveness End-Users | Technical Feasibility | Resource fit | Time to Market fit

Illustration 9.19

9.4.3 Design of the different Nestor alternatives

In the next step the product definition team designs Nestor's alternatives. For simplicity reasons a Base Case is constructed first. Starting from here, the product definition team combines the most feasible component alternatives into possible functional product concept alternatives.

In case MD GP can already supply component prices they are entered into the cell below the description field.

For Nestor three additional product concept alternatives are added to the Base Case:

- Nestor Design
- Nestor Video Connection
- Nestor Camera

These three additional concepts have been created by means of a creative brainstorming which was limited by the cost and the conceptual boundaries set by the already applied Target Costing Tools.

Notes

Alternatives Generation: Financial results

A financial comparison of actual and Target BOM guarantee a cost conscious Alternatives Generation

		Nestor Base Case	Nestor Design Phone			Nestor Connector Phone		
Modules	Target BOM	projected BOM (direct entry)	? to Base Case	projected BOM (calculation from ? Base Case)	projected BOM (direct entry)	? to Base Case	projected BOM (calculation from ? Base Case)	projected BC (direct entry)
Basic needed parts (BSF, PCB, B-components)	24,80 €	25,56 €	1,00 €	26,56 €		1,00 €	26,56 €	
Sensors & others	0,00 €	0,00 €	1,00 €	1,00 €		1,00 €	1,00 €	
Connectivity	8,31 €	7,56 €	1,00 €	8,56 €		1,00 €	8,56 €	
Camera	9,26 €	8,53 €	1,00 €	9,53 €		1,00 €	9,53 €	
Display	23,67 €	19,72 €	1,00 €	20,72 €		1,00 €	20,72 €	
Memory	11,81 €	10,40 €	1,00 €	11,40 €		1,00 €	11,40 €	
Housing, keypad, accoustics	16,55 €	19,99 €	1,00 €	20,99 €		1,00 €	20,99 €	
Battery	1,97 €	1,20 €	1,00 €	2,20 €		1,00 €	2,20 €	
Delivery unit	2,61 €	2,60 €	1,00 €	3,60 €		1,00 €	3,60 €	
Sum	98,97 €	95,56 €	9,00 €	104,56 €	0,00 €	9,00 €	104,56 €	0,00 €
		= Actual BOM		= Actual BOM			= Actual BOM	

A BOM calculation is directly conducted upon describing the alternatives. Thus the BOM costs of the generated alternatives can immediately be compared to the Target BOM.

Illustration 9.20

9.4.4 First BOM indications for all of Nestor's alternatives

After the workshop Mr. Z, a member of the product definition team doubts the sensibility of the just created alternatives. So Mr. D asks Mr. P, the team member from procurement, about a first BOM indication.

Mr. D furthermore gives first indications – together with his BA and other sources – for license, development and conversion costs.

As the IT-tool provides the possibility to conduct a BOM calculation directly upon describing the alternatives, the team can directly see that the BOM costs of the Nestor Design alternative exceed the revised Target BOM.

Notes

Alternatives Generation: Congruence of Base Case to Target Cost corridors

After the alternatives have been generated, their module cost structure has to be mapped into the determined Target Cost corridors

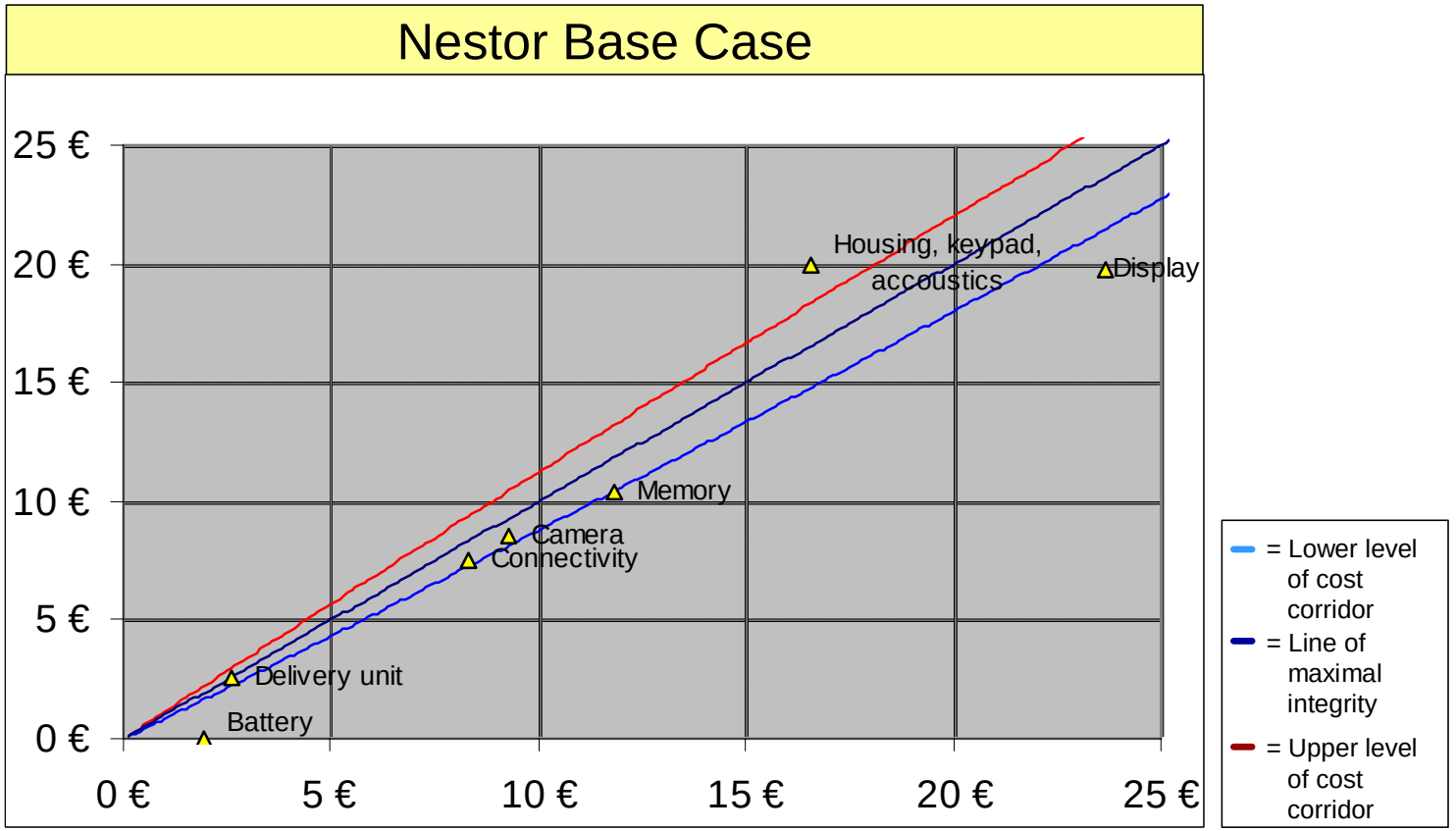

Illustration 9.21

9.4.5 Congruence of model costs to Target Cost corridors

In order to determine whether the cost structure of the Target BOM – especially the key cost drivers – is congruent with the Target Cost corridors determined in the Product Target Splitting, the IT tool automatically calculates a Value Control Chart.

In the Value Control Chart the product definition team can see whether every single component is compliant to its Target Cost corridor.

In case any deviations occur the team has either to choose a different module alternative or – in exceptional cases – give a detailed explanation of the rationale of why the module has a higher/ lower value share than allowed by the market.

Notes

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Alternatives Evaluation: Main criteria and respective sub-criteria

To conduct the evaluation of Nestor's alternatives every single relevant sub-criterion has to be evaluated for every singe alternative

Alternatives Evaluation for Product Concepts

to be filled in
contains wrong value

SIEMENS

Seidenschwarz & Comp.
MANAGEMENT CONSULTING

	Criteria	Weight	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
1	**Financial fit**					
	Overall score / weight	**24%**	**3,2**	**2,6**	**2,0**	**3,0**
1.1	Target Cost Gap per unit (% deviation of average)	100%	4	3	2	3
-- = 1	TCG < 0 and |TCG| > Target Profit		Target profit 45,2 Mio Eur; TCG 14,4 Mio Eur = 40%	Target profit 45,2 Mio Eur; TCG 87.900 Eur = 40%	Target profit 45,2 Mio Eur; TCG -17,1 Mio Eur = 40%	Target profit 45,2 Mio Eur; TCG 14,4 Mio Eur = 40%
- = 2	TCG < 0 and |TCG| b/w 30%-80% of Target Profit					
+ = 3	TCG < 0 and |TCG| > 80% of Target Profit					
++ = 4	TCG ± 0 or TCG > 0					
1.2	Target volume achievement (from WoO)	70%	2	2	2	3
-- = 1	volume not achievable		high volume pressure through missing enthusiasm feature: -7%	some volume pressure through portfolio canabilization: -3%	high volume pressure through low enthusiasm feature: -5%	no volume pressure: + 5,5%
- = 2	volume at risk					
+ = 3	volume achievable					
++ = 4	volume exceeded					
2	**Strategic portfolio fit**					
	Overall score / weight	**14%**	**2,5**	**1,8**	**2,5**	**2,5**
21.	Fit to selected price point (from WoO)	100%	4	4	4	4
-- = 1	more than 10% off		CX price point is at the upper mid class range of operators of 100-200 EUR	CX price point is at the upper mid class range of operators of 100-200 EUR	CX price point is at the upper mid class range of operators of 100-200 EUR	CX price point is at the upper mid class range of operators of 100-200 EUR
- = 2	up to ±5% off					
+ = 3	up to ±5% off					
++ = 4	exact fit					
2.2	Fit of product story/theme to segment (from WoO)	100%	3	2	3	2
-- = 1	contradicts target group		product targets subsegment emotional connection, but as many features are insert, other target groups could be partially addressed	product targets subsegment emotional connection, but as many features are insert, other target groups could be partially addressed	product targets subsegment emotional connection, but as many features are insert, other target groups could be partially addressed	product targets subsegment emotional connection, but as many features are insert, other target groups could be partially addressed
- = 2	fit not better than for any other group					
+ = 3	good fit					
++ = 4	[illegible]					
	[illegible] continuity			1		

Illustration 9.22

9.5 Alternatives Evaluation

9.5.1 Completion of the Alternatives Evaluation sheet

In the next workshop the product definition team aims at evaluating the generated alternatives for Nestor. For this workshop Mr. D prepares the Alternatives Evaluation sheet in the corresponding IT-tool. As the product generation manager defined the relevant set of sub-criteria as well as their respective importance beforehand, he prepares the relevant sheet with the defined information.

In the workshop all experts evaluate the score of the respective sub-criterion for all alternatives. The Nestor Base Case shows for example – as described above – a positive Target Cost Gap, the definition team awards this alternative with “4” which means that the Target Cost Gap is higher than 0.

In order to complete this entry, the team gives a short explanation for the score of the sub-criterion for the Nestor Base Case. (In the example above “Target Profit 44 Mio. EUR …”)

This procedure is now executed for every single sub-criterion of every single alternative.

Notes

Alternatives Evaluation: Financial evaluation of alternatives

The evaluation of the criterion Financial Fit is supported by a dedicated calculation by the Reverse Calculation tool

Reverse Calculation - Alternatives Evaluation -	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
	Lifecycle Total	Lifecycle Total	Lifecycle Total	Lifecycle Total
Units	**3.500.000**	**3.500.000**	**3.500.000**	**3.500.000**
Target Turnover	**603.000.000**	**603.000.000**	**603.000.000**	**603.000.000**
Price (average)	**172,29**	**172,29**	**172,29**	**172,29**
Target Profit Total	**45.225.000**	**45.225.000**	**45.225.000**	**45.225.000**
Allowable Costs	**557.775.000**	**557.775.000**	**557.775.000**	**557.775.000**
Overhead I	**7.839.000**	**7.839.000**	**7.839.000**	**7.839.000**
Administration	7.839.000	7.839.000	7.839.000	7.839.000
Overhead II	**83.376.500**	**82.276.500**	**83.376.500**	**84.476.500**
Development (indirect)	7.700.000	6.600.000	7.700.000	8.800.000
Marketing (indirect)	24.662.700	24.662.700	24.662.700	24.662.700
Selling Expense	28.160.100	28.160.100	28.160.100	28.160.100
SCM Costs	16.642.800	16.642.800	16.642.800	16.642.800
Other COGS	6.210.900	6.210.900	6.210.900	6.210.900
Directly Influenceable Costs (DIC)	**466.559.500**	**467.659.500**	**466.559.500**	**465.459.500**
Product Related Costs (PRC)	**30.870.000**	**29.870.000**	**30.870.000**	**31.870.000**
Development (direct)	7.000.000	6.000.000	7.000.000	8.000.000
Marketing (direct)	8.575.000	8.575.000	8.575.000	8.575.000
Service Costs	15.295.000	15.295.000	15.295.000	15.295.000
Manufacturing Costs	**421.251.600**	**437.701.600**	**452.751.600**	**437.001.600**
Manufacturing Costs per unit	**120,36**	**125,06**	**129,36**	**124,86**
BOM per unit	95,56	100,26	103,56	100,06
Variant Adder per unit	4,78	4,78	4,78	4,78
CC per unit	15,29	15,29	15,29	15,29
Licences per unit	4,73	4,73	5,73	4,73
Target Cost Gap	**14.437.900**	**87.900**	**-17.062.100**	**-3.412.100**
Target Cost Gap per unit	**4,13**	**0,03**	**-4,87**	**-0,97**
EBIT (for comparison purpose)	**59.662.900**	**45.312.900**	**28.162.900**	**41.812.900**

Illustration 9.23

9.5.2 Financial evaluation of the generated Nestor alternatives

To allow a profound completion of the financial Alternatives Evaluation, the Reverse Calculation tool provides an alternatives calculation sheet. As a preparation for the workshop, the BA completed the Reverse Calculation for every single alternative.

The financial analysis of all alternatives allows a swift and hassle free comparison of the profitability of all generated alternatives for Nestor.

The BA can thus communicate to the team that the Base Case has the highest profitability (showing a Target Cost Gap of +4,13 EUR per unit) followed by Nestor Design (showing a Target Cost Gap of +0,03 EUR per unit), Nestor Camera (Target Cost Gap of -0,97 EUR per unit) and the Nestor Connection (Target Cost Gap of -4,87 EUR per unit).

Notes

Alternatives Evaluation: Pair-wise comparison of criteria

The importance of the six main criteria can be determined before the alternatives can be evaluated in a scoring model

Product Concept Weighting Table

Back to Index

Continue to Summary

Criteria	Pos	1 Financial fit	2 Strategic fit	3 Market requirements' fit	4 Resource feasibility fit	5 Technical solutions' fit	6 Time To Market fit	Ranking	Enter Weighting
Financial fit	1							1	23,8%
Strategic fit	2	1						4	14,3%
Market requirements' fit	3	1	3					1	23,8%
Resource feasibility fit	4	1	2	3				6	4,8%
Technical solutions' fit	5	1	2	3	5			5	9,5%
Time To Market fit	6	6	6	3	6	6		1	23,8%
									100%

Illustration 9.24

9.5.3 Pair wise comparison of main criteria

After each individual sub-criterion for every single alternative has been evaluated, the main criteria have to be ranked and weighted.

To facilitate this weighting Mr. D opens the optional weighting table in the Alternatives Evaluation tool. This helps the team to rank the main criteria according their importance for the product realization.

The team completes the table asking the question whether criterion 1 is more important than criterion 2. As in this example the financial fit is more important for Nestor than the strategic fit and Mr. D enters a 1 into the table.

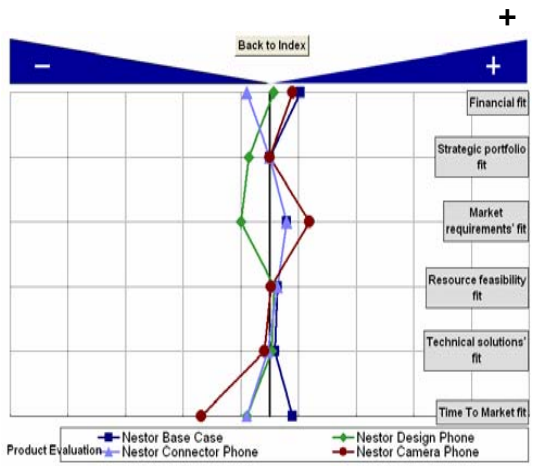
After completion of the whole matrix, the tool automatically generates the ranking. Starting from here, the team assigns a relative importance weighting to Nestor's evaluation criteria.

Notes

Alternatives Evaluation: Results I

The alternative "Nestor Camera" is superior to all other alternatives

Criteria	Weighting	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
Financial fit	24%	+	-	-	+
Strategic portfolio fit	14%	+	-	+	+
Market requirements' fit	24%	+	-	+	++
Resource feasibility fit	5%	++	+	++	+
Technical solutions' fit	10%	+	+	-	-
Time To Market fit	24%	+	-	+	+
Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1



Strengths/ Opportunities

- With the **1,3 Mpix camera** (optical zoom), the product provides a **clear Enthusiasm Functionality** for the price category below 200 EUR.
- The camera **enhances the video story even more**.
- **Better re-use possibilities** for future generations / other products

Weaknesses/ Threats

- **Less profitable** than Nestor Base Case.
- The **1,3 Mpix camera** (optical zoom) was **only tested in the pre-development**, but well known supplier already offers same standards in other camera phones.

Illustration 9.25

9.5.4 SWOT analysis for Nestor Camera

In the course of his wrap up activities after the last workshop, Mr. D interprets the results of the Alternatives Evaluation.

To communicate the results he completes the slide shown in illustration 9.25:

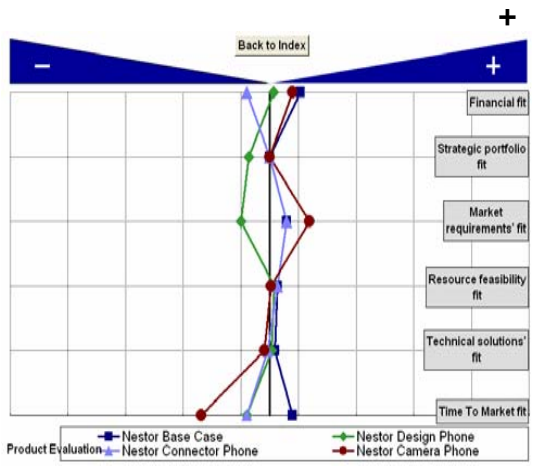
- In order to present the results of the weighting, he takes a screenshot of the results table and copies it into the presentation. In the example, the team can quickly see that the Nestor Camera alternative is preferred but ties closely with the Nestor Base Case.
- To give a graphical overview of the results, the IT-tool provides a graph, which indicates the relative advantages/disadvantages of the Nestor alternatives.
- As the two alternatives Nestor Camera and Nestor Base Case tie closely in their evaluation, Mr. D performs a SWOT analysis for Nestor Camera to determine the relative preferability of the two product concepts.
- In order to make the results easily legible and understandable, Mr. D adds them onto the standard slides.

Notes

Alternatives Evaluation: Results II

The alternative "Nestor Base Case" shows an inferior performance than the "Nestor Camera Phone"

Criteria	Weighting	Nestor Base Case	Nestor Design Phone	Nestor Connector Phone	Nestor Camera Phone
Financial fit	24%	+	-	-	+
Strategic portfolio fit	14%	+	-	+	+
Market requirements' fit	24%	+	-	+	++
Resource feasibility fit	5%	++	+	++	+
Technical solutions' fit	10%	+	+	-	-
Time To Market fit	24%	+	-	+	+
Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1



Strengths/ Opportunities

- The product **mainly uses components already used in the production** and thus reduces development and quality risks.
- Availability of **all components secured due to existing contracts** with suppliers.

Weaknesses/ Threats

- The **standard video functionality / camera limits the potential for differentiation** and risks to offer a "me too" product and thus expose it to high price pressure in the Christmas period.

Illustration 9.26

9.5.5 SWOT analysis for Nestor Base Case

In order to completely evaluate the situation, Mr. D also prepares a SWOT analysis for the Nestor Base Case.

Notes

Alternatives Evaluation: Results III

The “Nestor Camera Phone“ is recommended

Sum	100%	2,67	2,18	2,51	2,72
Ranking		2	4	3	1

Product functions	Nestor Camera Phone
Make and receive calls (Quality of basic function – I/O/ UI/ RF)	Tri band / high talk & standby time
Appeal to user (Design/ Material / Form factor)	Thicker housing than base case (21 mm)
Support imaging and video	1.3 Mpix camera with 3x optical zoom
Support music and audio	As base case
Provide gaming	Standard Gaming
Provide outdoor and leisure features (e.g. sensors)	As base case
Enable messaging	As base case
Provide business applications (incl. PIM and Sync)	As base case
Provide additional services (e.g. location services)	As base case
Provide visualization (Display)	176x220, TFT 2,1', 256k
Provide usage-/standby time	400 h (Li-ion 900 mAh)
Interaction with devices	As base case
Store data	MMC card 32MB bundled
Consumer personalization/ Operator customization	clubbers wristband

Description of the recommended alternative

- The “Nestor Camera Phone” follows the idea of a classical CX phone that addresses a mass market, but with a focus on more technically oriented users who prefer to have a high end camera included.
- It succeeds the predecessor “Cerberus” and additionally creates customer enthusiasm by enlarging the multi-media functionalities with a higher camera resolution and enlarged video functions.

Reasoning

- The 1,3 Mpix camera (optical zoom) offers a clear USP in the targeted price segment and thus allows additional market differentiation and reduces the price pressure risk.
- Camera and video functionalities complement each other very well.
- The technical risk due to the new camera should be minimized by increasing the development budget for the camera integration.
- The “Nestor Camera Phone” still has a Target Cost Gap of -1 EUR that should be closed by cost management measures.

Risk

- The standard video functionality / camera limits the potential for differentiation and risks to offer a “me too” product and thus expose it to high price pressure in the Christmas period.

Illustration 9.27

9.5.6 Overview on the selected Alternative Nestor Camera

To provide a simply overview of the evaluation and SWOT analysis results, Mr. D briefly describes again the chosen alternative and offers a quick reasoning to explain his choice. On top of the he also adds a short risk assessment of the chosen alternative.

Notes

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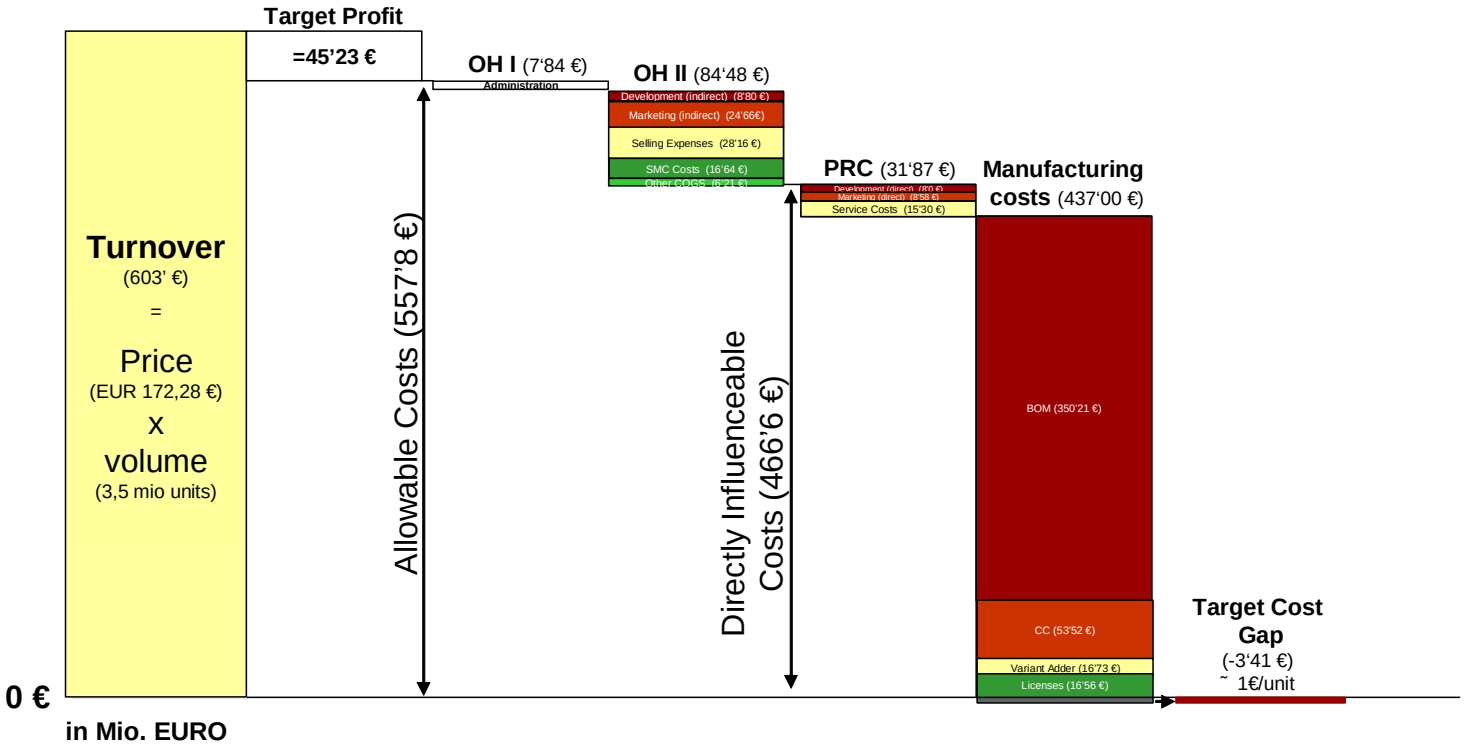
Measures to close the Target Cost Gap

In order to close the Target Cost Gap selected measures have to be taken by the product definition team



In order to close the Target Cost Gap, the product definition team has to initiate **cost savings in the cost categories Product Related Costs and Manufacturing Costs.**

Illustration 9.28

9.5.7 Implications on closing the Target Cost Gap

As Nestor Camera proves to be the most preferable alternative, but still shows a negative total Target Cost Gap the product definition team now has to start to save 3,41 Mio. EUR in order to reach the targeted profitability.

The product definition team has to consider different options to reduce the total costs of Nestor:

- The team can decrease the cost positions on the manufacturing costs level or
- discuss the determined product related costs with the relevant departments.

Notes

9.6 Target Controlling

After the freeze of the first product concept, Mr. D likes to control the fulfillment of the defined targets. As Mrs. P – the SPM – will be in charge later in the product realization process, the two work closely together in their controlling activities.

As both have read in the Target Controlling handbook, they can use the Reverse Calculation, the Enthusiasm Model and the Value Control Chart as instruments to control the targets set before the concept freeze.

Notes

Target Controlling: The Enthusiasm Model as controlling tool

In order to evaluate the degree of fulfillment between the targeted functional profile and the current phone concept, the Enthusiasm Model is used as controlling tool for Nestor

Target Controlling - Enthusiasm Model fulfillment

Please fill in		1=Target not reached	2=Target nearly reached	3=Target reached or exceeded	

Functions	Operator require-ments	End-user require-ments	Mbeta	Malpha	M0	Comment
Make and receive calls (quality of basic function)	B	B				
Appeal to user (design/ material/ form factor)	P	P				
Support imaging and video	E	E				
Support music and audio	P	P				
Provide gaming	B	B				
Provide outdoor/ leisure features (e.g. sensors)	NO	NO				
Enable messaging	B	P				PoC becomes market standard
Support business applications (incl. PIM and sync)	B	B				
Provide additional services (e.g. location services)	NO	NO				
Usage and standby time	P	P				Improved battery performance added as new battery introduced by T-Program (no size impact)
Provide visualization (display)	E	P				
Interaction with other devices	B	B				
Store data	P	P				
Consumer personalization / operator customization	P	B				

Illustration 9.29

9.6.1 The Enthusiasm Model as controlling tool

For each milestone the two managers evaluate, how the present product concept meets the functional requirements set by the Enthusiasm Model. In order to document the development in the compliance between the functional requirements and the actual values, the two use the “Target Controlling button” tab in the Target Costing IT-tool and proceed to the Enthusiasm Model controlling sheet.

Mr. D and Mrs. P have three possibilities to complete the template for each milestone:

- If they enter a 3 into the corresponding cell, it will automatically turn into green. Green implies that the actual module characteristics supporting the respective functions do meet the targeted functional profile.
- In case the actual module characteristics closely miss the targeted functional profile, Mr. D enters a 2 into the corresponding cell. The cell will then automatically turn into yellow.
- If the actual module characteristics miss the targeted functional profile by far, the team enters a 1 into the corresponding cell, which will automatically turn red.

These evaluations should reflect the updated market environment for Nestor. As it can be seen for the function “Business/PIM/Sync” at M0, the market environment has changed because PoC (Push to Talk) is likely to become a market standard when Nestor is launched. Due to this, a 2 is entered into the corresponding cell. To make this fact transparent for everyone in the product definition team, Mrs. P also adds a comment into the relevant cell, which is provided by the IT-tool.

This procedure is completed every time a change in compliance of the actual product modules to the functional targets occurs.

The goal is that all functions show a full compliance, which implies – as indicated – that the column of the corresponding milestone is green.

Notes

Target Controlling: The Reverse Calculation as controlling tool (data input)

In order to document and control changes in the Reverse Calculation a dedicated controlling sheet is provided in the IT-tool

2 Target Controlling RC Nestor	Mbeta	Malpha	M0			S0	M1	M3
Add actual status	Lifecycle Total	Lifecycle Total	Lifecycle Total	Deviation to Mbeta	Description deviations	Lifecycle Total	Lifecycle Total	Lifecycle Total
Units	3.500.000,00	3.500.000						
Target Turnover	603.000.000	603.000.000						
Price (average)	172,29	172,29	1					
Target Profit Total	45.225.000	45.225.000						
Allowable Costs	557.775.000	557.775.000						
Overhead I	7.839.000	7.839.000						
Administration	7.839.000	7.839.000						
Overhead II	84.476.500	84.476.500						
Development (indirect)	8.800.000	8.800.000						
Marketing (Pull + SF)	24.662.700	24.662.700						
Selling Expense	28.160.100	28.160.100						
SCM Costs	16.642.800	16.642.800						
Other COGS	6.210.900	6.210.900						
Directly Influenceable Costs (DIC)	465.459.500	465.459.500						
Product Related Costs (PRC)	31.870.000	31.870.000						
Development (direct)	8.000.000	8.000.000						
Marketing (Push + HQ)	8.575.000	8.575.000						
Service Costs	15.295.000	15.295.000						
Manufacturing Costs	437.010.000	445.165.000						
Manufacturing Costs per unit	124,86	127,19						
BOM per unit	100,06	102,14						
Variant Adder per unit	4,78	4,78						
CC per unit	15,29	15,29						
Licences per unit	4,73	4,98						
Target Cost Gap	-3.420.500	-11.575.500	0	3.420.500		0	0	0
Target Cost Gap per unit	-0,98	-3,31						
EBIT (for comparison purpose)	41.804.500	33.649.500	0	-41.804.500		0	0	0
EBIT in % of T/O	6,93%	5,58%	0,00%			0,00%	0,00%	0,00%

To add the **updated business case data** for the defined milestones, mark the **unit cell** under the **corresponding milestone (1)** and then press the **„Add actual status“ button (2).**

Illustration 9.30

9.6.2 The Reverse Calculation as controlling tool (data input)

As the product realization team does not only want to deliver a market compliant product, but also aims at meeting the targeted profitability, the Reverse Calculation IT-tool has to be constantly updated by the BA.

For each milestone the BA only marks the corresponding “unit” cell and clicks the “add actual status” button. The updated Reverse Calculation data is automatically copied into the controlling sheet.

Notes

Target Controlling: The Reverse Calculation as controlling tool (results)

The IT-tool does not only calculate deviations from the original Business Case but also requires additional explanations in case any deviations occur

Target Controlling RC Nestor	Mbeta	Malpha	M0			S0	M1	M3
	Lifecycle Total	Lifecycle Total	Lifecycle Total	Deviation to Mbeta	Description deviations	Lifecycle Total	Lifecycle Total	Lifecycle Total
Units	**3.500.000,00**	**3.500.000**	**3.500.000**	0		**3.500.000**	**3.500.000**	**3.500.000**
Target Turnover	**603.000.000**	**603.000.000**	**603.000.000**	0		**603.000.000**	**603.000.000**	**603.000.000**
Price (average)	**172,29**	**172,29**	**172,29**	0,00		**172,29**	**172,29**	**172,29**
Target Profit Total	**45.225.000**	**45.225.000**	**45.225.000**	0		**45.225.000**	**45.225.000**	**45.225.000**
Allowable Costs	**557.775.000**	**557.775.000**	**557.775.000**	0		**557.775.000**	**557.775.000**	**557.775.000**
Overhead I	**7.839.000**	**7.839.000**	**7.839.000**	0		**7.839.000**	**7.839.000**	**7.839.000**
Administration	7.839.000	7.839.000	7.839.000	0		7.839.000	7.839.000	7.839.000
Overhead II	**84.476.500**	**84.476.500**	**84.520.500**	44.000		**84.548.000**	**84.548.000**	**84.548.000**
Development (indirect)	8.800.000	8.800.000	8.844.000	44.000	Changes in direct R&D	8.871.500	8.871.500	8.871.500
Marketing (Pull + SF)	24.662.700	24.662.700	24.662.700	0		24.662.700	24.662.700	24.662.700
Selling Expense	28.160.100	28.160.100	28.160.100	0		28.160.100	28.160.100	28.160.100
SCM Costs	16.642.800	16.642.800	16.642.800	0		16.642.800	16.642.800	16.642.800
Other COGS	6.210.900	6.210.900	6.210.900	0		6.210.900	6.210.900	6.210.900
Directly Influenceable Costs (DIC)	**465.459.500**	**465.459.500**	**465.415.500**	-44.000		**465.388.000**	**465.388.000**	**465.388.000**
Product Related Costs (PRC)	**31.870.000**	**31.870.000**	**31.443.000**	-427.000		**31.113.000**	**31.113.000**	**31.113.000**
Development (direct)	8.000.000	8.000.000	8.040.000	40.000	40.000 EUR extra expenditure to enable JAVA gaming	8.065.000	8.065.000	8.065.000
Marketing (Push + HQ)	8.575.000	8.575.000	8.108.000	-467.000	467.000 EUR less marketing push expenditure because of joint campaign with operator	8.108.000	8.108.000	8.108.000
Service Costs	15.295.000	15.295.000	15.295.000	0		14.940.000	14.940.000	14.940.000
Manufacturing Costs	**437.010.000**	**445.165.000**	**440.755.000**	3.745.000		**432.460.000**	**429.765.000**	**429.765.000**
Manufacturing Costs per unit	**124,86**	**127,19**	**125,93**	1,07		**123,56**	**122,79**	**122,79**
BOM per unit	100,06	102,14	100,88	0,82	Bigger battery and price decline in chipset	100,31	99,44	99,44
Variant Adder per unit	4,78	4,78	4,78	0,00		4,78	4,78	4,78
CC per unit	15,29	15,29	15,29	0,00		13,74	13,74	13,74
Licences per unit	4,73	4,98	4,98	0,25		4,73	4,83	4,83
Target Cost Gap	**-3.420.500**	**-11.575.500**	**-6.782.500**	-3.362.000		**1.815.000**	**4.510.000**	**4.510.000**
Target Cost Gap per unit	**-0,98**	**-3,31**	**-1,94**	**-0,96**		**0,52**	**1,29**	**1,29**
EBIT (for comparison purpose)	**41.804.500**	**33.649.500**	**38.442.500**	-3.362.000		**47.040.000**	**49.735.000**	**49.735.000**
EBIT in % of T/O	**6,93%**	**5,58%**	**6,38%**			**7,80%**	**8,25%**	**8,25%**

Illustration 9.31

9.6.3 The Reverse Calculation as controlling tool (results)

The Target Controlling IT tool then automatically calculates the deviation between the actual Reverse Calculation and the Mbeta values.

In case any changes in the Reverse Calculation occurred, the BA enters a reason into the corresponding cell. This enables the product realization team to follow up each change and add a high degree of transparency to all of Nestor's stakeholders in the organization.

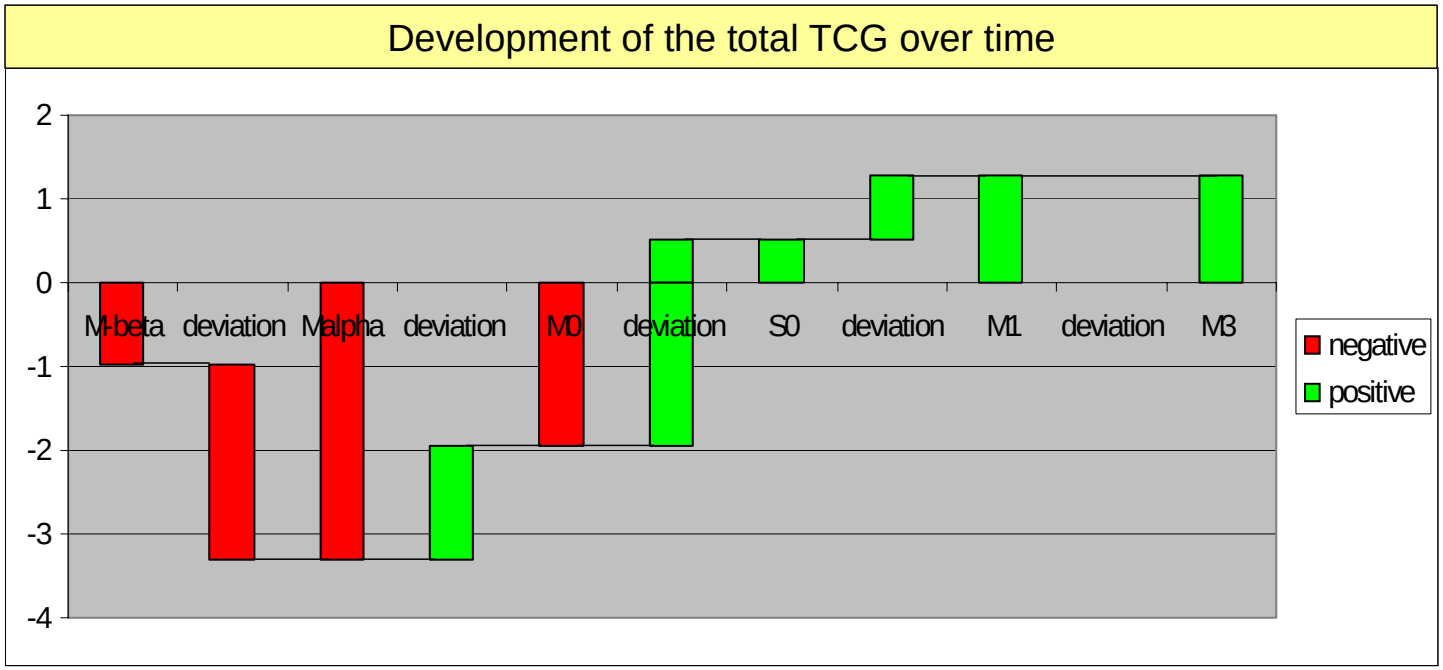
To close the Target Cost Gap of about 1 EUR of the Nestor Camera alternative at Mbeta, the product realization team initiates different measures. As the BA knows a lot about the influencability of the cost positions used in the Reverse Calculation, he proposes cost optimization measures not only on Manufacturing Cost level but also on the level of the Directly Influencable Costs.

As it can be seen in the example, the product realization team managed to close the Target Cost Gap by lowering e.g. Direct Marketing Costs significantly as a co-op campaign was initiated with an operator. After taking a series of similar measures, the Nestor Reverse Calculation now shows a profitability of 4,5 Mio. EUR over target.

Notes

Target Controlling: Development of the Target Cost Gap

A dedicated Graphic provides an easy to understand overview about the development of the Target Cost Gap



Explanation

- The team should give a detailed reasoning for changes in the Target Cost Gap over time.

Illustration 9.32

9.6.4 Development of the Target Cost Gap

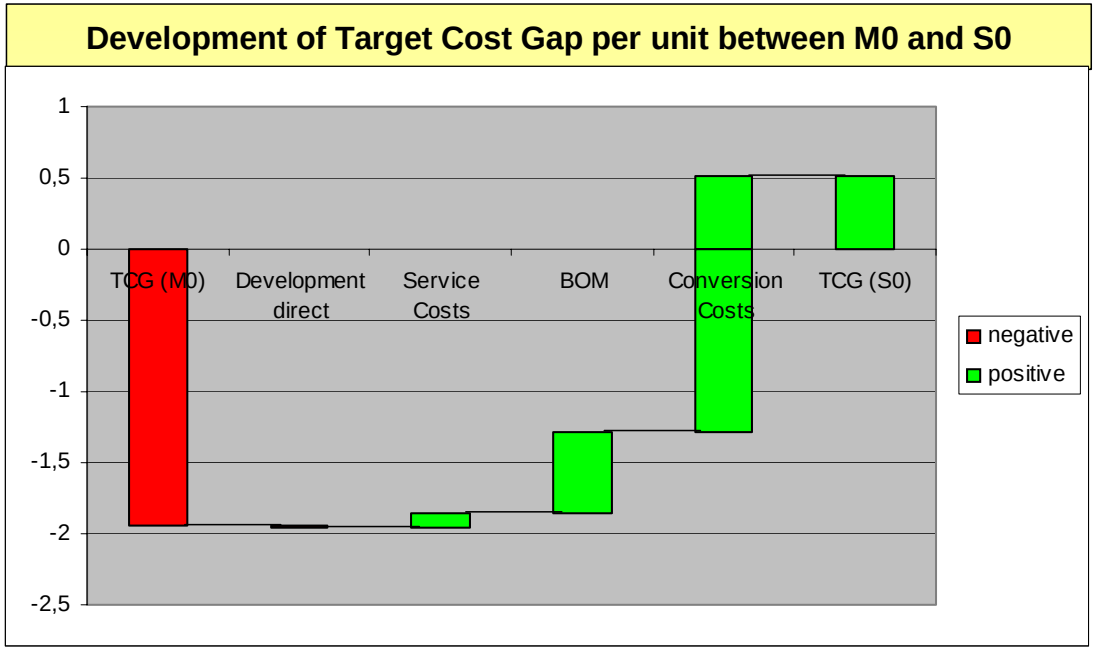
In order to clearly communicate the changes in the Target Cost Gap per unit, the BA uses a graph which shows the developments over time. In case the Target Cost Gap per unit is negative, a red bar indicates the under-fulfillment of the targeted profitability. In case the Target Cost Gap per unit is positive a respective green bar will indicate this development.

The same logic is applied on the deviations between the milestones. Here the team and the management can clearly see in which direction the product realization team managed to influence the profitability.

Notes

Target Controlling: Detailed changes in the Target Cost Gap per unit

A dedicated Graphic provides an easy to understand overview about the individual deviations in the Target Cost Gap per unit between the milestones



Explanation

- BOM decrease through introduction of a new battery and a price decline in the core architecture of the phone
- Through optimization of the phone concept, the conversion costs could be minimized

Illustration 9.33

9.6.5 Detailed changes in the Target Cost Gap per unit

As the BA likes to deliver the team additional information regarding the detailed reasoning behind the changes in the Target Cost Gap per unit between milestones, he completes another dedicated graph.

This graph enables the product realization team and the management to see the detailed developments in the Reverse Calculation at first sight. If the deviation from the original Target Cost Gap per unit is negative, a red bar indicates a negative impact of the change on the targeted profitability. If the deviation from last milestone's Target Cost Gap per unit is positive a respective yellow bar will indicate this development.

Notes

Target Controlling: Development of core components

The IT-tool provides the product definition team with the possibility to crosscheck whether the actual BOM structure is in line with the cost corridors set by the market

		Please fill in !		Mbeta	Malpha	M0	S0	M1	M3
Modules	Target BOM	PTS II rel. importance	range min.	range max.	actual BOM	actual BOM	actual BOM	actual BOM	actual BOM	actual BOM
(BSF, PCB, B-components)	24,80	15,78%	22,54	27,05	25,56	25,56	23,00	23,00	23,00	23,00
Sensors & others	0,00	0,00%	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Connectivity	8,31	13,01%	7,25	9,36	8,85	8,85	8,85	8,85	8,85	8,85
Camera	9,26	12,33%	8,11	10,41	10,00	10,00	10,00	10,00	9,84	9,84
Display	23,67	18,39%	21,47	25,87	19,72	19,72	19,72	19,72	19,72	19,72
Memory	11,81	17,66%	10,41	13,21	10,40	11,94	12,55	12,12	11,41	11,41
accoustics	16,55	21,09%	14,77	18,33	19,99	19,99	19,99	19,99	19,99	19,99
Battery	1,97	0,00%	1,69	2,25	2,92	2,92	3,61	3,47	3,47	6,47
Delivery unit	2,61	1,73%	2,24	2,98	3,16	3,16	3,16	3,16	3,16	3,16
Sum	98,97	100,00%	98,97		100,60	102,14	100,88	100,31	99,44	102,44
			Target BOM		= Actual BOM	= Actual BOM	= Actual BOM	= Actual BOM	= Actual BOM	= Actual BOM

Illustration 9.34

9.6.6 Development of core module costs

In order to assess whether the product concept meets its targets on BOM level, the IT-tool offers a functionality to compare the costs of each module with the Target Cost corridors determined by Product Target Splitting.

In case the actual module costs fall below or exceed the Target Cost corridors, the module value is automatically switches to red. The team can thus either increase or decrease the cost share of Nestor's modules.

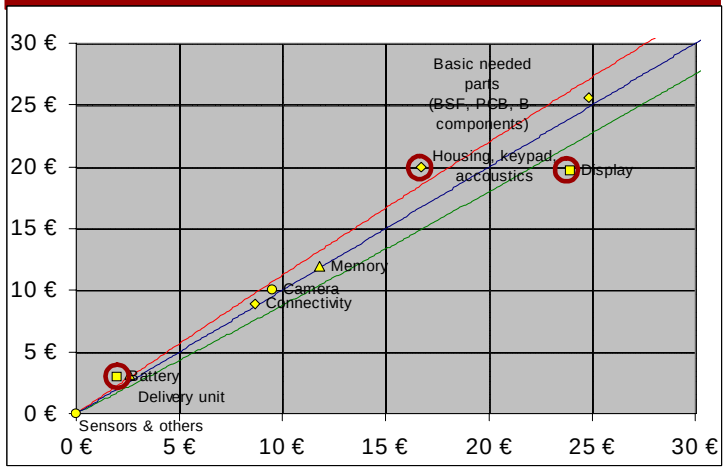
To enable a follow up of module price development, Mrs. P adds a comment if a deviation from the target occurs.

Notes

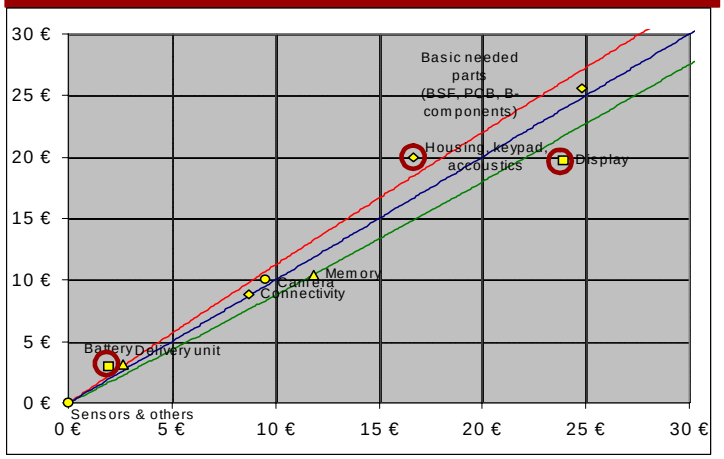
Target Controlling: Value Control Chart

In order to visualize the changes in the degree of compliance of the module structure of Nestor with the Target Cost corridors (shown for M1), a graphical evaluation is provided

S0



M1



Explanation

- Due to an 8% decline in camera prices (corresponding to a price decrease of 0,25 EUR) the module camera now meets its market requirements.
- As display prices are still low for MD due to scale effects in procurement the value share of this module is still below market requirements, whereas the display specifications meet market demands

Illustration 9.35

9.6.7 The Value Control Chart

The IT-tool automatically calculates the Value Control Chart. Mrs. P can thus easily communicate the actual results to her team and to the management whether Nestor's module costs are compliant to the Target Cost corridors.

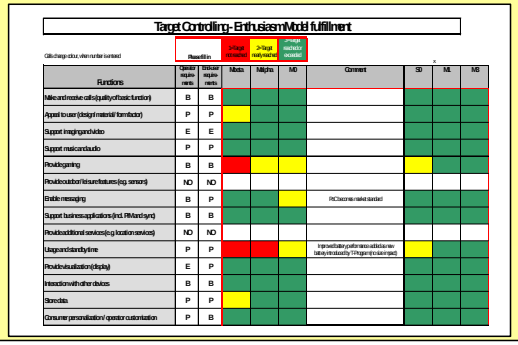
In case any violation of the corridors occurs, the corresponding values are marked with red circles by Mrs. P and are explained in detail on the bottom of the communication slide.

Notes

Target Controlling: The management cockpit per product

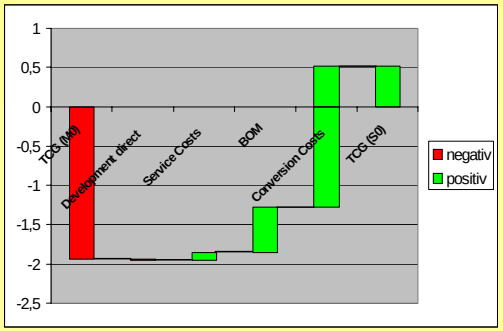
To facilitate the communication with the management, Nestor's key controlling implications (shown for M3) are aggregated into a management cockpit

Enthusiasm Model

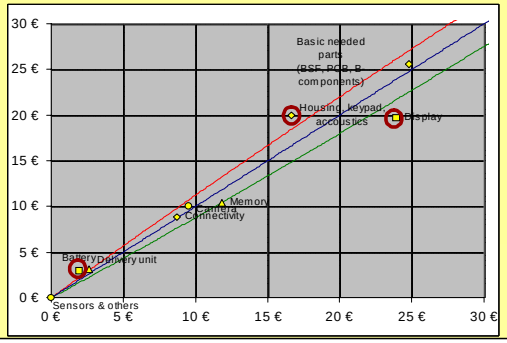


Functions	Optional / requirements	Basic / requirements	Meta	Mayha	MD	Comment	S0	M1	M3
Make and receive calls (quality of basic function)	B	B							
Appeal to user (design / material / form factor)	P	P							
Support imaging and video	E	E							
Support music and audio	P	P							
Provide gaming	B	B							
Provide outdoor / leisure features (eg. sensors)	ND	ND							
Enable messaging	B	P				PDC becomes market standard			
Support business applications (incl. PIM and sync)	B	B							
Provide additional services (e.g. location services)	ND	ND							
Usage on stand by time	P	P				Improved battery performance will be a new battery introduced by TI for gsm (no coverage)			
Provide visualization (display)	E	P							
Interaction with other devices	B	B							
Store data	P	P							
Consumer personalization / operator customization	P	B							

Reverse Calculation



Value Control Chart



Comments / Change Requests

- For S0 the product concept meets its functional requirements
- All Enthusiasm Features are in line with the market environment
- No change requests since the last status report
- Design well accepted in design test

Illustration 9.36

9.6.8 The Management Cockpit

In order to give a clear overview on the Target Controlling activities, Mrs. P prepares the Nestor's Management Cockpit for each milestone. There the management can see on first sight all relevant implications from the Enthusiasm Model, the Reverse Calculation and the Value Control Chart alongside the most relevant explanations and comments.

With the Management Cockpit Mrs. P can communicate her team's achievements transparently throughout the organization.

Notes

Terminology

Allowable Costs	The Allowable Costs are determined by subtracting the Target Profit from the targeted turnover. The Allowable Costs represent the ultimate cost limits on total expenditures for every planned product.
Alternatives Evaluation	The Alternatives Evaluation is a tool to perform a standardized analysis of generated alternatives. Based on measurable criteria different alternatives are evaluated and ranked using a scoring model.
Alternatives Generation	The Alternatives Generation (AG) aims at identifying favorable product, module and component alternatives which not only satisfy the requirements set by the predefined Window of Opportunity but also meet the cost guidelines set by Reverse Calculation and Product Target Splitting.
Average revenue per user	The average return per unit is the average amount of money the operator can earn per sold mobile phone.
Average sales price	The average sales price is calculated by multiplying the targeted monthly sales price with the targeted monthly sales volume. The thus calculated values are then summed up over the entire lifecycle and divided by the targeted lifecycle sales volume.
Basic Model	The Basic Model is a virtual phone only satisfying minimal requirements, providing a minimum set of features for a given price point that are not weighted by the operator nor end-user. The features have to be created as cost optimal as possible to increase the value share of Performance and Enthusiasm Features

Basic Requirement	A Basic Requirement is a feature which reflects the minimum market demands of a product. These features are included in all competitive products. A Basic Requirements is not explicitly demanded, but expected as a matter of course by customers. If a Basic Requirement is not included in the product it represents a strong argument against a purchase.
Basis System Framework (BSF)	The BSF includes a decision on chipset, software and baseband. Further, the BSF sets a clear range of what is technically feasible in the definition of the platform. The chipset comprises the application processor, video accelerator, sound ringer as well as the ICs concerning digital and analog baseband, RF transceiver and power management. The software comprises protocol stack [L1, L2, L3] the operating system, tools and test-SW as well as a SW-reference implementation.
Bill of Material (BOM)	The BOM is the sum of all components of the part list of a product.
Component	A component is the smallest physical entity that constitutes a mobile phone.
Target Costs for Modules	As result of the Product Target Splitting the Target Costs for modules are calculated. Therein for each module a Target Cost is given reflecting the market demands. These Target Costs are the highest allowed costs per module, which will be controlled by the Value Control Chart.
Directly Influenceable Costs	The Directly Influencable Costs are determined by subtracting the Target Profit and the Overhead I/II from the targeted turnover. This cost position can be directly influenced by the product definition and realization team.

Distributable costs The distributable costs are the difference between the Target BOM and the costs for a Basic Model of a specific price point. These costs can then be distributed by Product Target Splitting (market view).

Dummy roadmap The dummy roadmap orders the number of products per fiscal year. For every product the product description, the product focus, a price and volume range, product class, target group and the theme are indicated.

End-user The end-user in the case of Target Costing at MD comprises the consumer and the retailer.

Enthusiasm Model The Enthusiasm Model differentiates between Basic, Performance and Enthusiasm Requirements and thereby helps to get market-focused product concepts and to allocate resources respectively.

Enthusiasm Requirement An Enthusiasm Requirement is a feature which is unique and sometimes the final trigger for the buying decision (USP). Enthusiasm Features are often innovations which become evident to the customers for the first time. Working with lead users, identifying definite trends and thinking in “hard-fact” use cases helps identifying Enthusiasm Features. Enthusiasm Features are a consistent extension of core competences into product solutions.

Family The family definition includes the fixed decision on several mounting options.

- Electromechanics, antenna, speaker and microphone are fixed and specified.
- Connectivity features can be mounted optionally.

The definition of the family is the base for the definition of the final product.

Functional roadmap	The functional roadmap monitors the development of product functions (not products or single features) over time and thus links technological developments with market trends.
Functional Target Profile	The Functional Target Profile is a curve used in the Enthusiasm Model showing the characteristics of all product functions of a mobile phone. A functional characteristic can either be basic, performance or enthusiasm.
Module	A module is an integrated subassembly which comprises selected product components and has well defined interfaces to other modules.
Cost-Module Matrix	The Cost-Module Matrix defines the possible range of component alternatives for modules. The Target Cost corridors for product modules act as filter to determine the range of allowable component alternatives from the Cost-Module Matrix for every single product.
Overhead I	The Overhead I describes costs allocated to the division from corporate functions.
Overhead II	The Overhead II describes costs related to the division that accrue for processes which are not directly associated with the product. These costs are influencable by the business unit.
Pair wise comparison	In a pair wise comparison all elements in a set of criteria are ranked on a pair-by-pair basis, two at a time until all of the permutations have been exhausted.

Performance Requirement	A Performance Requirement is a feature which is directly comparable to competitive products and thus an important influence factor on the buying decision. A Performance Feature exceeds the characteristics of a Basic Feature and is thus a typical “brochure information”.
Platform	The Platform definition continues the set of modules defined by the BSF. In terms of form factor, display, camera, electromechanics and antenna, the platform definition sets a fixed selection of what will be supported by the respective platform. A range of electromechanics is defined, setting the limits for variation of the final choices on components. Furthermore a range of antennas is defined. Additionally the shielding is fixed, a fixed selection of batteries is set and a range for the charger is defined. The definition of the platform is the base for the definition of product families.
Price Performance Analysis	The main purpose of this kind of market research is to provide an in-depth insight into customer motivations involved in the purchasing decision for a mobile phone. This kind of study is furthermore used to obtain detailed information on relevant features and the users’ price willingness for future mobile phones.
Product function	The scope of potential uses of a mobile phone is clustered into different, independent elements/tasks (functional structure). Those elements/tasks of the functional structure are the functions of a mobile phone. These functions have to be mutually exclusive and collectively exhaustive and are not to include technical solutions.

Product idea	The product idea shows a very first and rough definition how to realize and meet the targets defined in the proposition, the target market and the target positioning in course of the Window of Opportunity.
Product Related Costs	Product Related Costs are costs that accrue by decisions of the product manager and his team. Cost transparency depends on the accuracy of cost allocation to processes.
Product roadmap	The product roadmap defines all products for a fiscal year and will be approved by the management at Malpha. The product is described in detail and the features of the product are finalized.
Product Target Splitting	The Product Target Splitting provides a methodology to break down a Target BOM for a product at a given Window of Opportunity into Target Cost corridors for product modules according to operator and end-user requirements.
Proposition	A proposition reflects the mission of the phone. The question “why are we making the product?” will be answered by stating the key story, the key timeframe and the key region of the phone.
Purchasing criteria	Purchasing criteria are the main criteria indicating the reasons why end-users purchase a mobile phone. This set of criteria has to be mutually exclusive and collectively exhaustive.
Reverse Calculation	The Reverse Calculation is a tool that enables a market-oriented product calculation. Therefore it starts with the relevant price, volume and profit targets to derive the Allowable Costs. This overall cost target is then split into cost categories that are structured according to their influenceability.

Target BOM	The Target BOM is calculated by the Reverse Calculation and reflects the maximum allowed BOM value for a product concept. It reflects a situation with a Target Cost Gap of zero.
Target Controlling	Target Controlling ensures an adequate implementation of product concepts after concept freeze. This comprises a consequent controlling of the defined market fit of the product concepts, a monitoring of key business data at predefined intervals as well as a crosscheck of the congruence between module valuations with market demands.
Target Controlling Cockpit	Overview slide comprising the most important Target Controlling information after concept freeze of a specific product.
Target Cost corridor	A Target Cost corridor describes the maximum and the minimum border of possible allowed costs for every module of a mobile phone.
Target Cost Gap	The Target Cost Gap shows the degree of congruence of the present financial product planning with the Target Profit. In case the Target Cost Gap is positive, the product earns more than its targeted margin, in case it is zero it earns exactly its Target Profit or if it is negative the product does not reach its targeted profitability.
Target Profit	In order to determine the profit targets for each individual product, a group profit target structure has been developed and agreed by the management. Based on this the Target Profit for each individual phone can easily be concluded.

Value Control Chart	A graph setting the framework for allowable costs of phone modules. This graph is characterized by an upper and a lower cost limit.
Window of Opportunity	The Window of Opportunity as part of the Enthusiasm Model is providing the framework for a consistent product definition in a certain period of time. Therefore it defines the proposition of the product, the target market, the target positioning in the portfolio and a first product idea.