



P³ Profitable Product Performance Target Costing inside
Essentials of Target Costing

Introduction

This paper provides an overview of the Target Costing methodology for MD's management and all employees concerned with Target Costing at their daily work

What?

This paper provides an overview of the Target Costing methodology at Siemens MD. It complements the P³ handbook which provides a detailed description of Target Costing.

Who?

This paper is relevant for all employees concerned with the application of Target Costing at their daily work. It additionally gives management an overview of the results they can expect from Target Costing.

How?

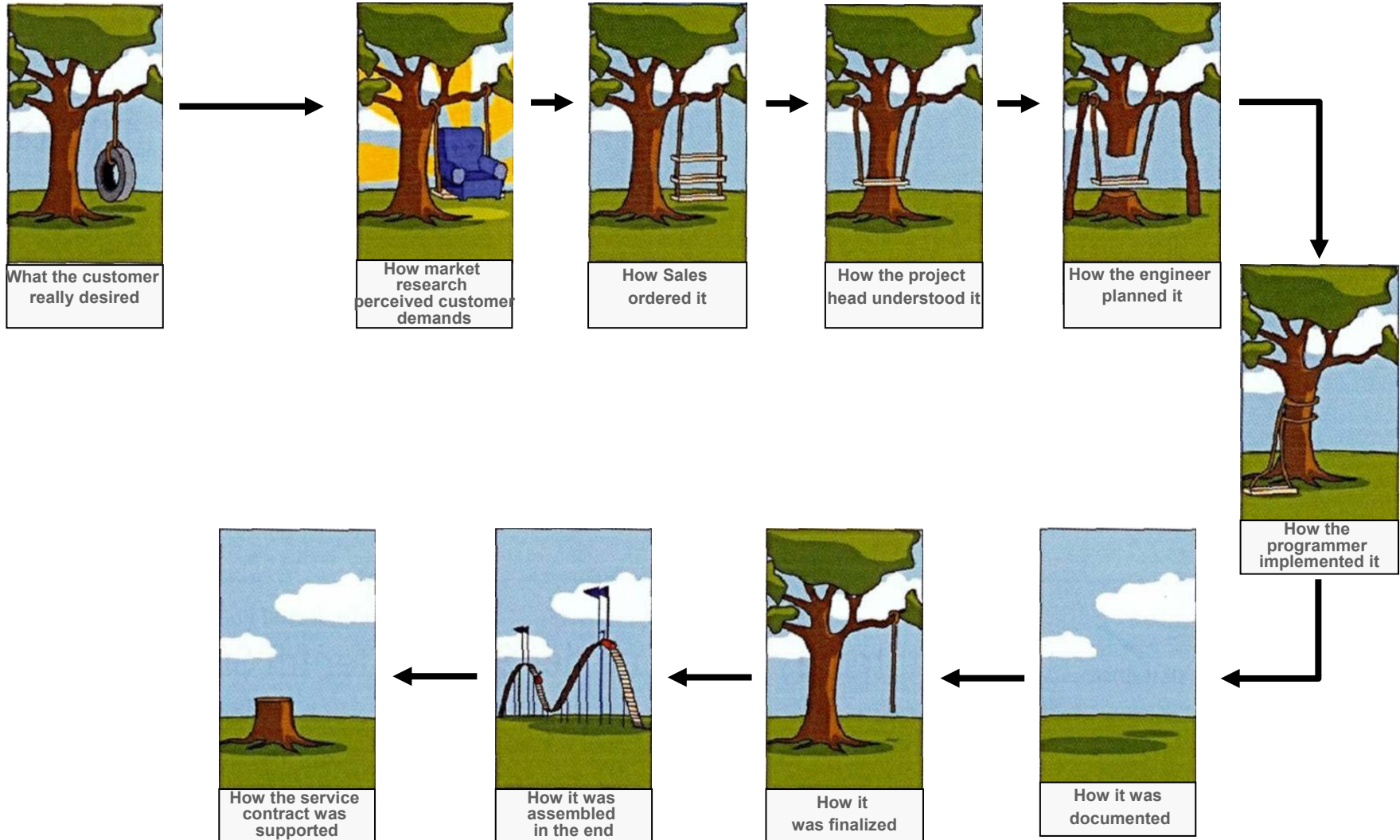
All six Target Costing tools are introduced with their approach and expected results. Finally, the integration of Target Costing in the current development process is illustrated. All examples are fictive to demonstrate possible results and do not represent existing or planned products.

References

Further references such as the P³ handbook and the IT tool handbook can be found on the Intranet, the IMS or directly in the P³ office.

Typical misunderstandings in the product development process

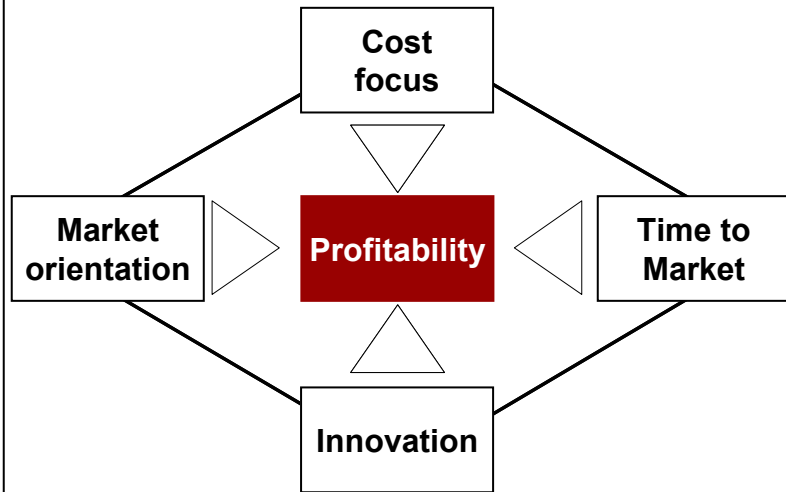
To meet customer demands a common understanding of these demands throughout the organization is required



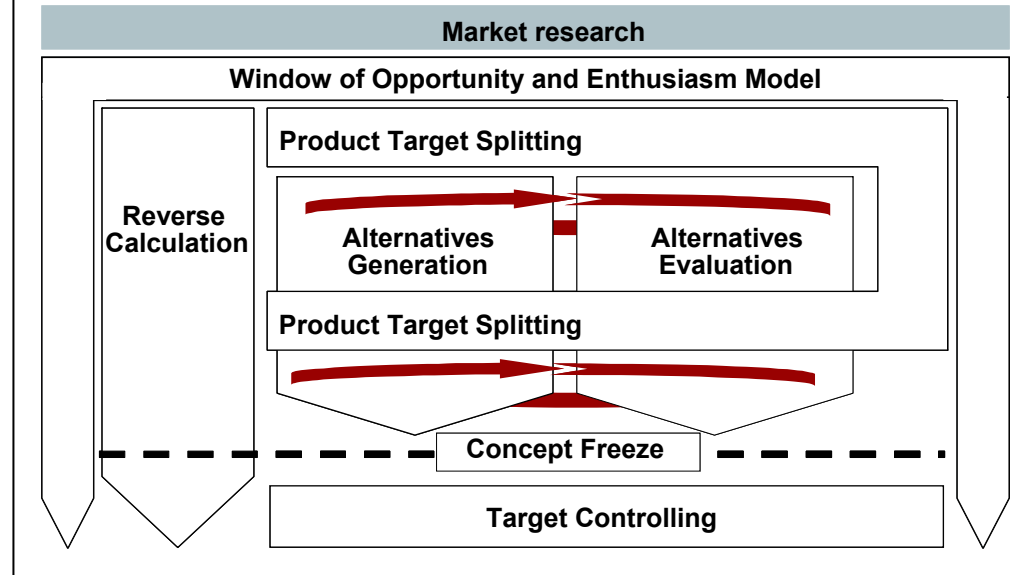
The objectives and tools of Target Costing

Target Costing is a methodology to increase profitability by defining market-oriented and cost-conscious products

Main objective of Target Costing @ MD



Target Costing toolset



■ The ultimate goal of the Target Costing methodology is to strengthen profitability by ...

- ... consequently enhancing the market focus of MD's product definition process.
- ... deriving Target Costs for all products directly from the market.
- ... constantly securing the targeted time to market of the product.
- ... pushing intelligent innovation at all times.

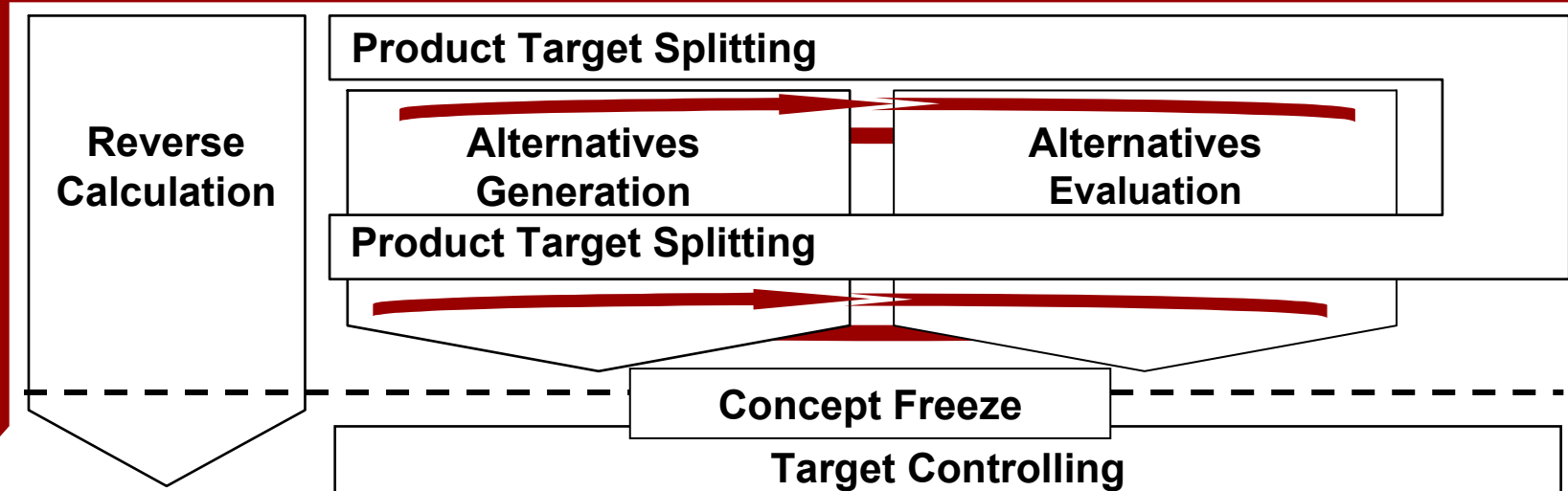
■ To secure this goal a toolset of six Target Costing core tools is applied at MD.

The Target Costing toolset: Window of Opportunity and Enthusiasm Model

The Window of Opportunity and the Enthusiasm Model translate market knowledge into clear objectives for product development and guide the subsequent Target Costing steps

Market Research

Window of Opportunity and Enthusiasm Model



The Window of Opportunity ...

- ... provides the framework for a consistent product definition, for a certain point of time.
- ... defines the proposition of the product, the target market, the target positioning in the portfolio and a first product idea.

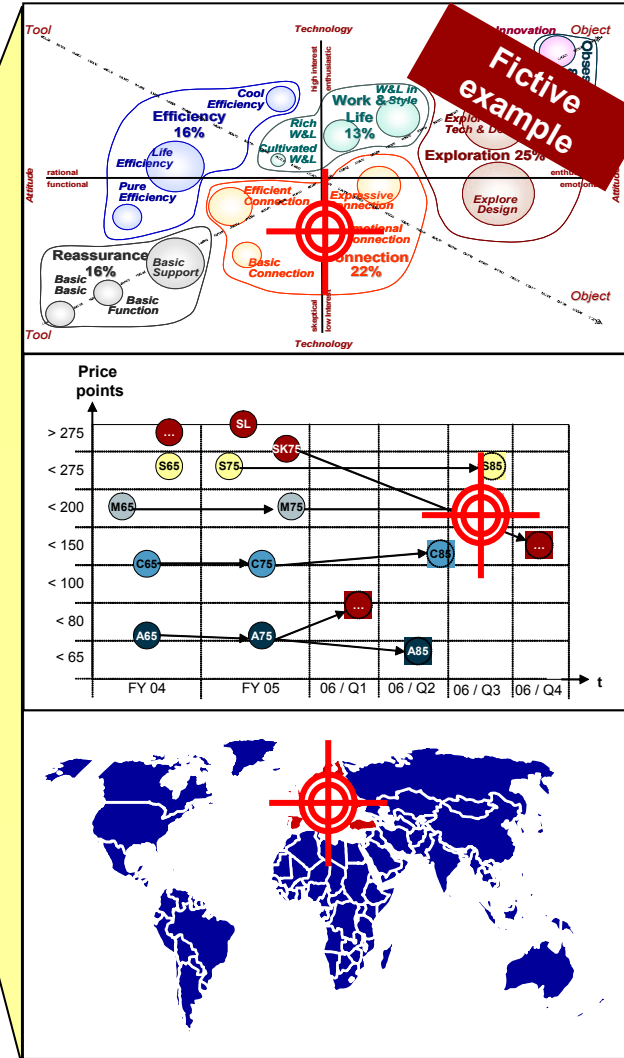
The Enthusiasm Model ...

- ... triggers a sharp product positioning for a given Window of Opportunity.
- ... describes market requirements for all relevant product functions.

The Window of Opportunity

The Window of Opportunity aims at describing a product concept with the four categories proposition, target market, target positioning and product idea

Propo- sition	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Story successor to: Cerberus Price Point: Launch at EUR 190 falling to EUR 140 Launch date/ 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	<ul style="list-style-type: none"> 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



The Enthusiasm Model

In the Enthusiasm Model end-user and operator requirements for each product function are identified

Required air interface: ☒ GSM ☒ GPRS ☐ EDGE ☐ UMTS ☒ WLAN ☐ VoIP (WLAN) ☐ other: "..."

Preferred form factor: ☐ Bar ☐ Slider ☐ Clam ☒ New/ others: "... e.g. swivel-clam"

	End-user requirements				MNO requirements				Target values (value range)
	not req.	Basic ¹	Perf. ²	Enth. ³	not req.	Basic (under fulfilled)	Perf. (meet)	Enth. (exceed)	
									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
									20 pictures, 15 min. video, MMC card-holder, Standard address book
Consumer personalization/ operator customization									Main operator UI supported
Provide usage and standby time									300h standby, 300 min. talktime

Fictive example

Possible risks

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

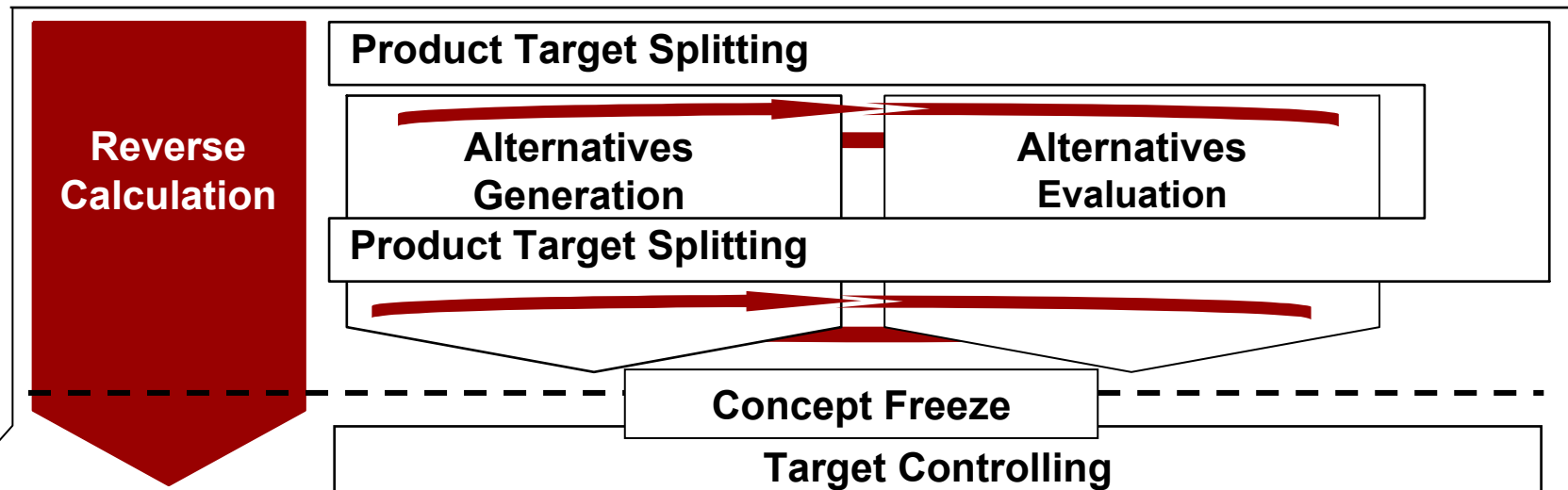
- 1) **Basic Functionality:** Functions are taken for granted by the customer
- 2) **Performance Functionality:** Functions are directly compared with competitors
- 3) **Enthusiasm Functionality:** Unexpected by the customer and creating enthusiasm

The Target Costing toolset: Reverse Calculation

The Reverse Calculation provides financial key data for all other Target Costing core tools

Market Research

Window of Opportunity and Enthusiasm Model



The Reverse Calculation ...

- ... provides a market driven product calculation.
- ... calculates a Target Cost Gap.
- ... provides Allowable Costs for a product.
- ... structures the product's cost categories according to their influencability.

The structure of the Reverse Calculation

The Reverse Calculation structures all cost categories according to the level of their influenceability

<div>Target Turnover</div> <div>./. Target Profit</div>	<ul style="list-style-type: none"> 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
<div>=</div> <div>Allowable Costs</div>	
<div>./. Overhead I</div>	<ul style="list-style-type: none"> Cannot be influenced by MD
<div>./. Overhead II</div>	<ul style="list-style-type: none"> MD management can influence the OH II costs by infrastructural changes
<div>=</div> <div>Directly Influenceable Costs</div>	
<div>./. Product Related Costs (PRC)</div>	<ul style="list-style-type: none"> 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
<div>./. Manufacturing Costs</div> <div>Bill of Material (BOM)</div> <div>Conversion Costs (CC)</div> <div>Licenses Costs</div>	<ul style="list-style-type: none"> 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
<div>=</div> <div>TARGET COST GAP</div>	

Uses of the Reverse Calculation

The Reverse Calculation is used to calculate a Target BOM of a product in the early phase of the product definition process and to calculate the Target Cost Gap later on

- The Target BOM is used as input for Product Target Splitting in order to calculate Target Cost corridors for main modules.
- In order to give a first assessment of the allowable BOM costs, 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.
- The Target BOM represents the allowable BOM costs to realize the Target Profit (TCG=0).

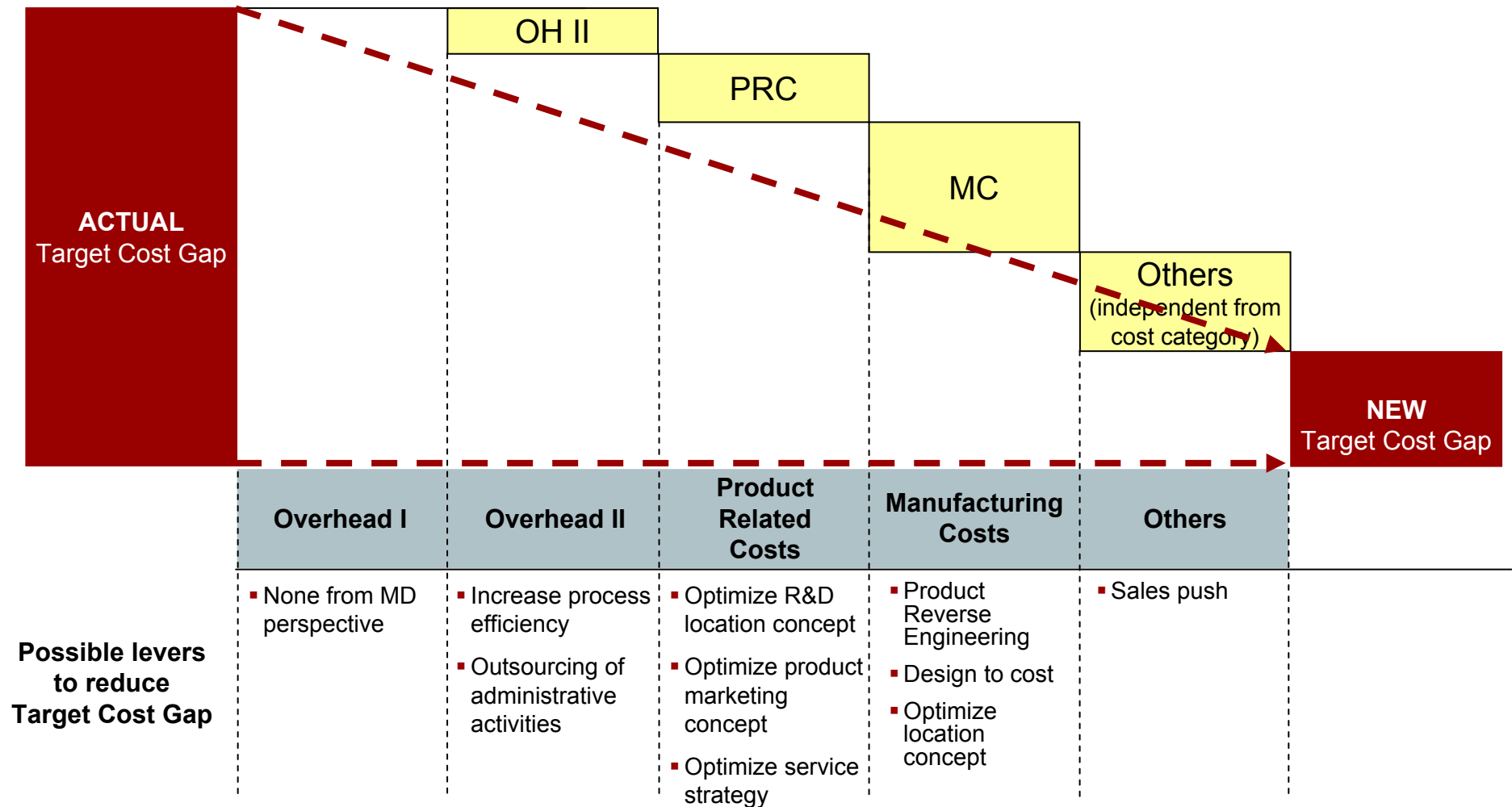
Target BOM		Reverse Calculation	Target Cost Gap	
2.000.000	Units		2.000.000	
200.000.000	Target Turnover		200.000.000	
100	Price (average)		100	
15.000.000	Target Profit Total		15.000.000	
185.000.000	Allowable Costs		185.000.000	
2.600.000	Overhead I		2.600.000	
2.600.000	Administration		2.600.000	
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	

Fictive example

- The Target Cost Gap represents the existing discrepancy of the current Business Case to the defined profit for a product.
- In order to give a first indication about the conformity of the envisaged product with the costs derived from the market, a Target Cost Gap is calculated.
- The Target Cost Gap is the primary indicator for the financial compliance of the product.

Reduction of Target Cost Gap

If a Target Cost Gap exists actions have to be defined to reduce or close this gap

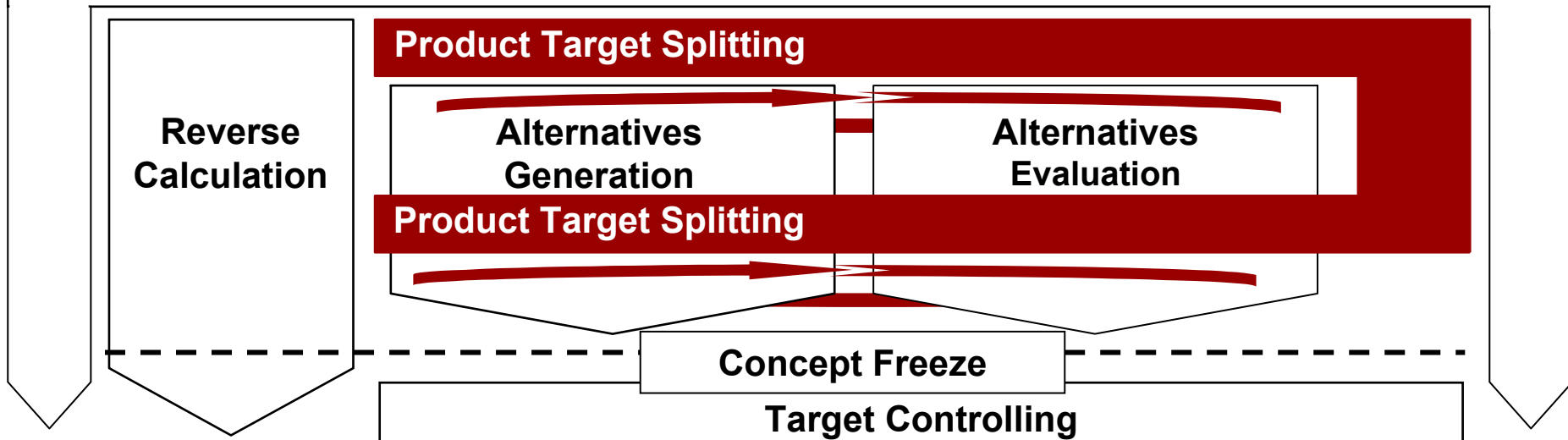


The Target Costing toolset: Product Target Splitting

Based on the results of previous core tools the Product Target Splitting breaks down Target BOM into Target Costs for all relevant product modules

Market Research

Window of Opportunity and Enthusiasm Model

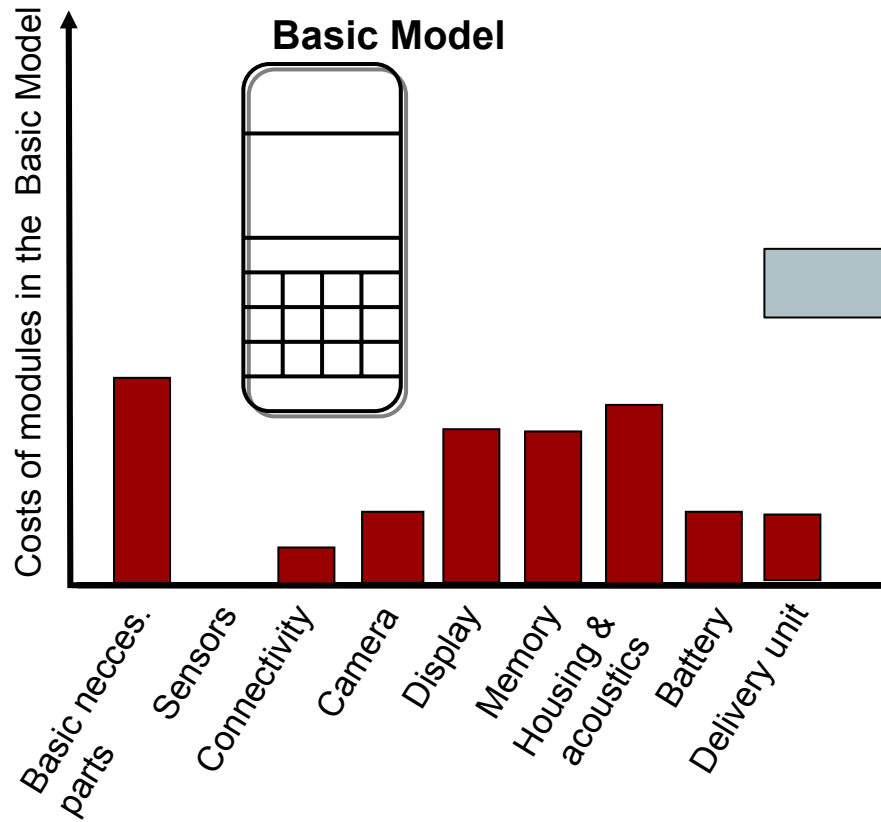


The Product Target Splitting ...

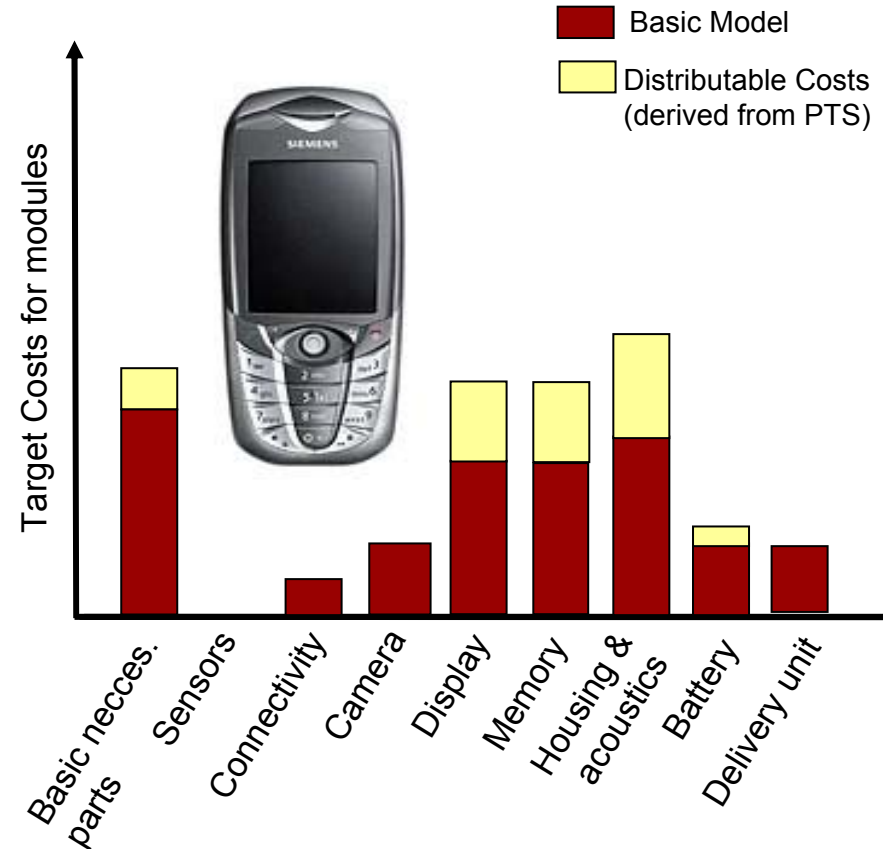
- ... provides a methodology to break down a Target BOM for a product at a given Window of Opportunity into Target Costs for product modules according to operator and end-user requirements.
- ... gives clear cost guidelines for the Alternatives Generation on a module basis

Approach of Product Target Splitting

Target Costs for modules consist of fixed costs for a Basic Model and additional Distributable Costs allocated according to customers demands



The Basic Model only satisfies minimal requirements of a given price class



Distributable cost are additionally spend to add value to the product that it particularly fits to target market

Procedure of Product Target Splitting

Two approaches exist to determine Distributable Costs of product modules

1

A Basic Model is selected that fits to the price class of the product

2

The total costs for the Basic Model are subtracted from the Target BOM leading to Distributable Costs

3

Distributable Costs are allocated to product modules according to market requirements and technical characteristics.

4

The module costs of the Basic Model are added to the Distributable Costs.

5

The results are the Target Costs for each module. These are used as guideline for the product definition team.

1

./.

Target BOM

Costs of Basic Model

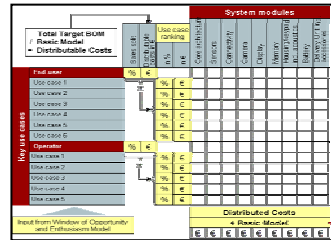
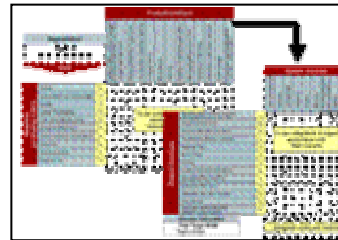
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Distributable Costs

Traditional approach

Use case approach



3

Distributable Costs per module

4

+

Module costs of Basic Model

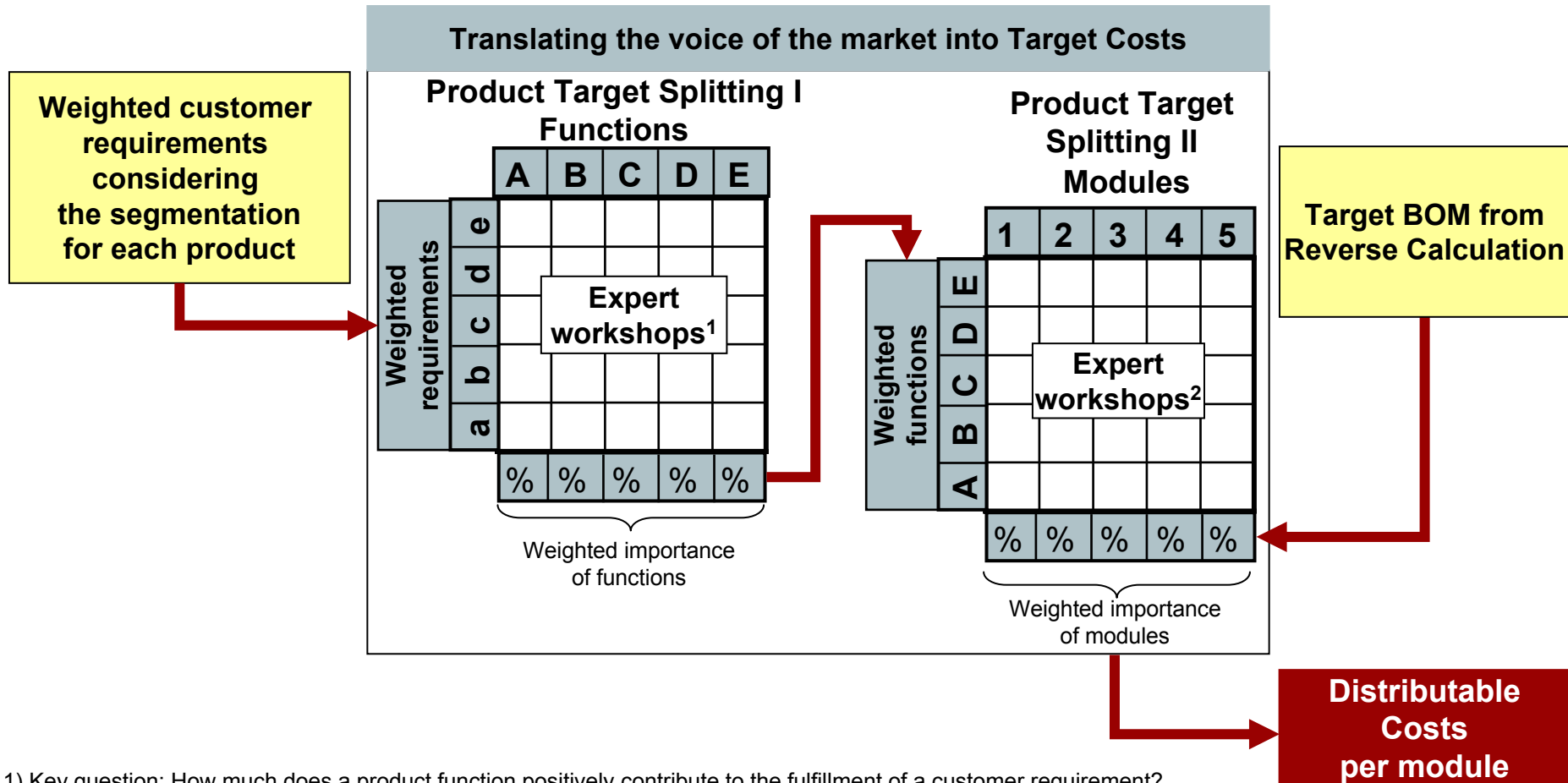
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Target Costs for modules

Determination of Distributable Costs: Traditional approach

In the traditional approach customer requirements are translated into product functions which are consecutively transformed into product modules



1) Key question: How much does a product function positively contribute to the fulfillment of a customer requirement?

2) Key question: How much does a module positively contribute to the fulfillment of a product function?

Determination of Distributable Costs: Use case approach

In an alternative approach use cases are the basis for the determination of Distributable Costs for product modules

						System modules								
		Sales split	Distributable costs in €	Use case ranking		Core architecture	Sensors	Connectivity	Camera	Display	Memory	Housing/keypad incl. acoustics	Battery	Delivery Unit incl. accessories
				in %	in €									
Key use cases	End-user	%	€											
	Use case 1	x		%	€									
	Use case 2			%	€									
	Use case 3			%	€									
	Use case 4			%	€									
	Use case 5			%	€									
	Use case 6			%	€									
	Operator	%	€											
	Use case 1	x		%	€									
	Use case 2			%	€									
	Use case 3			%	€									
	Use case 4			%	€									
	Use case 5			%	€									
						€	€	€	€	€	€	€	€	€
	Distributable Costs per module													

Expert workshops¹

1) Key question: How much does a module positively contribute to the fulfillment of a use case?

Results of Product Target Splitting

The output of Product Target Splitting are Target Costs for all relevant product modules as well as acceptable cost corridors

Fictive example

Target Costs per module

Relative Importance from PTS II	15,8%	0,0%	13,0%	12,3%	18,4%	17,7%	21,1%	0,0%	1,7%
	Basic needed parts (BSF, PCB, B-components)	Sensors & others	Connectivity	Camera	Display	Memory	Housing, keypad, acoustics	Battery	Delivery unit
Target BOM from RC	98,97 €								
Basic Model	59,72 €	18,60 €	0,00 €	3,20 €	4,42 €	16,45 €	4,88 €	8,27 €	1,93 €
Results from PTS	39,25 €	6,20 €	0,00 €	5,11 €	4,84 €	7,22 €	6,93 €	8,28 €	0,68 €
Target Costs per module	98,97 €	24,80 €	0,00 €	8,31 €	9,26 €	23,67 €	11,81 €	16,55 €	1,97 €
	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 €

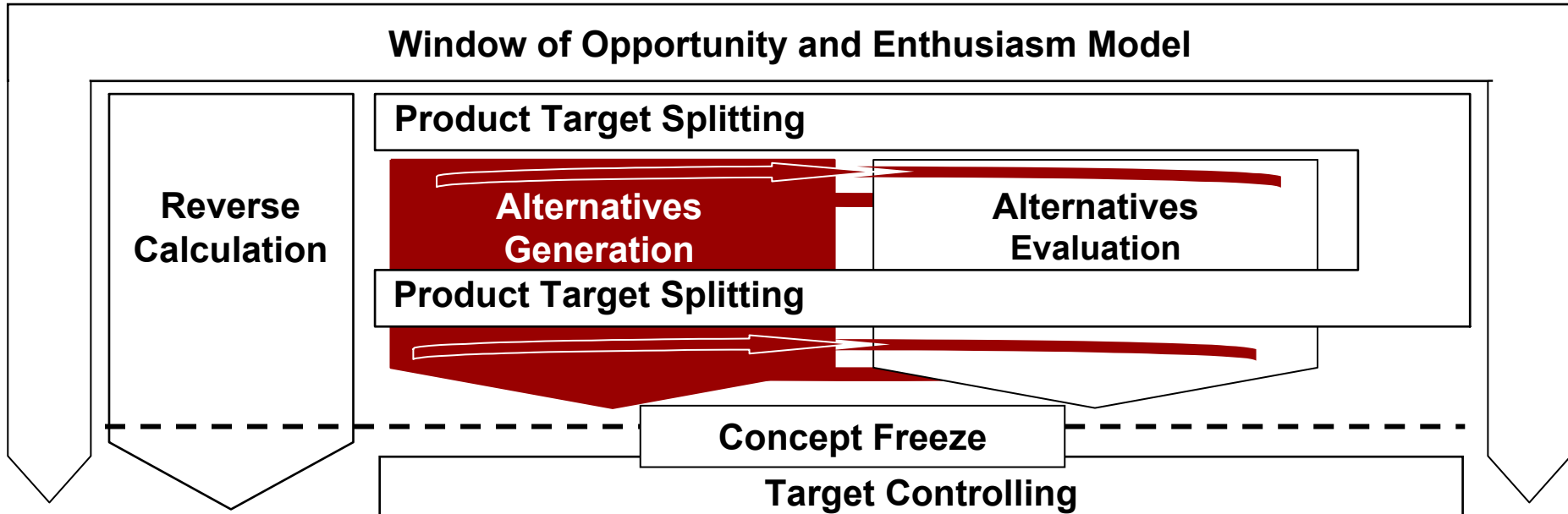
Internal and competitor information supplement the market-oriented view of Product Target Splitting and serve as benchmark.

The Target Costing toolset: Alternatives Generation

In the Alternatives Generation various concept alternatives for a product concept are defined

Market Research

Window of Opportunity and Enthusiasm Model

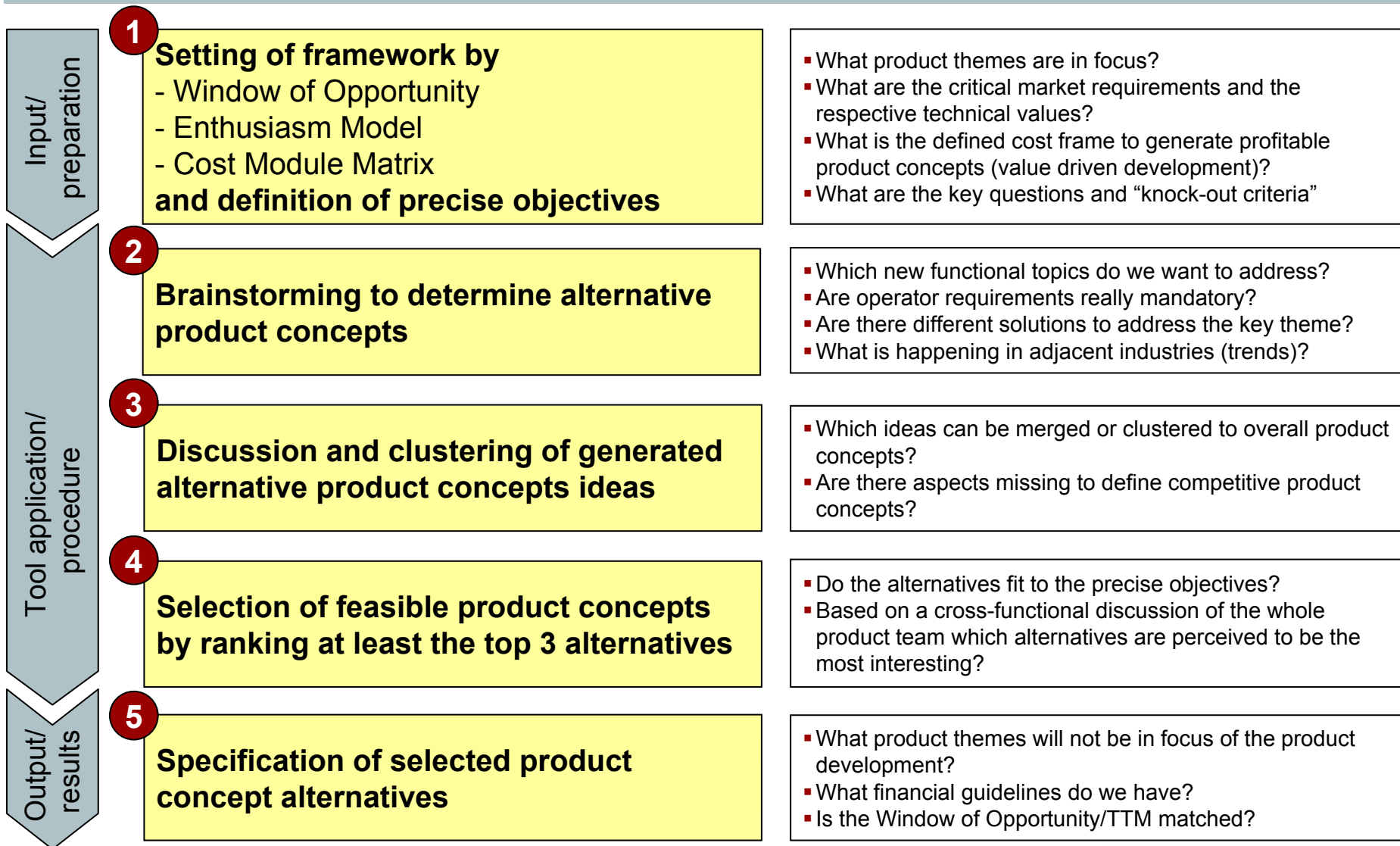


The Alternatives Generation ...

- ... aims at identifying favorable product concept alternatives which do not only satisfy the requirements set by the predefined Window of Opportunity but also meet the cost guidelines set by the Reverse Calculation and Product Target Splitting.

Procedure of Alternatives Generation

Based on the prepared input concept alternatives are defined, selected and described in detail



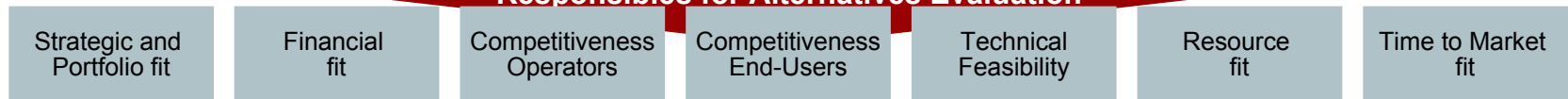
Results of Alternatives Generation

The results of the Alternatives Generation have to be described in a structured way to enable the evaluation of alternatives

Product functions	Base Case	Design Phone*	Connector Phone*	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 metal base case (20mm)
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

Fictive example

Responsibles for Alternatives Evaluation



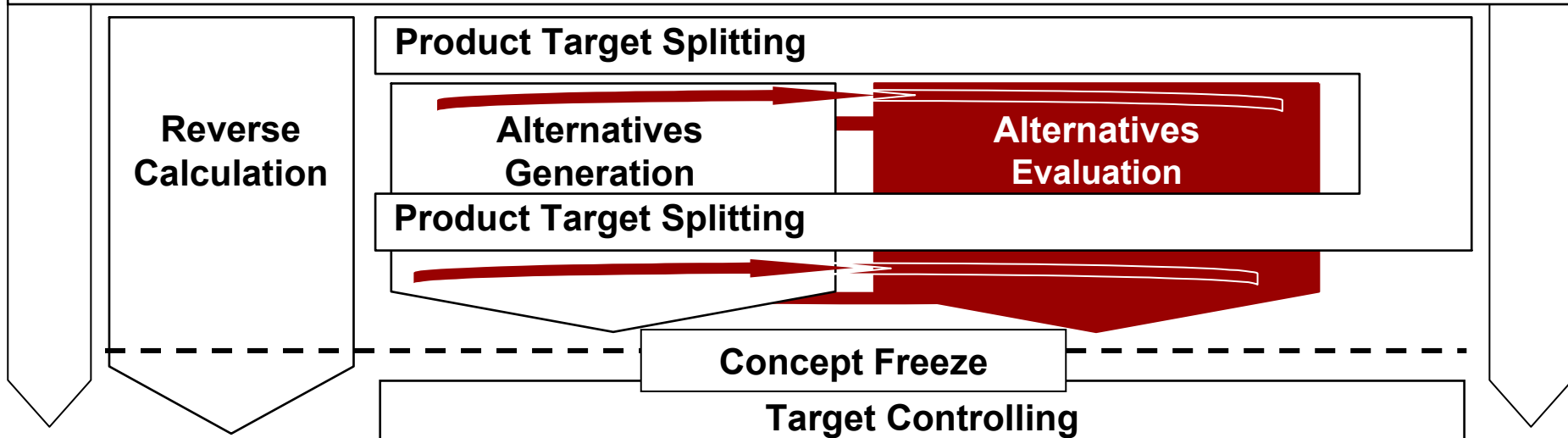
* Only changes with respect to Base Case are listed.

The Target Costing toolset: Alternatives Evaluation

The generated alternatives are assessed in the Alternatives Evaluation and the best alternative is identified

Market Research

Window of Opportunity & Enthusiasm Model



The Alternatives Evaluation ...

- ... performs a standardized analysis of generated alternatives.
- ... provides measurable criteria for the selection process.

Criteria catalogue

All alternatives are evaluated based on a standardized set of criteria

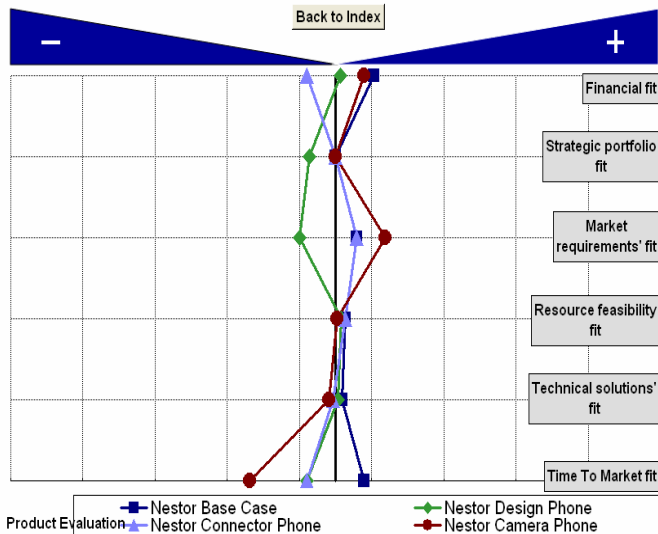
Main criteria	Sub-criteria (example)	Dimensions (example)
<ul style="list-style-type: none"> Financial fit Strategic fit Market requirements' fit 	<ul style="list-style-type: none"> Development manpower 	
<ul style="list-style-type: none"> Resource feasibility fit 	<ul style="list-style-type: none"> Technology / competences available 	<ul style="list-style-type: none"> - - New, not yet available - Externally available + In-house pre-development experience
<ul style="list-style-type: none"> Technical solutions' fit Time To Market fit 	<ul style="list-style-type: none"> Production capacity Development incl. production preparation time External resources 	<ul style="list-style-type: none"> + + In-house production experience

For evaluation of each alternative a pre-defined criteria catalogue is available. The 6 main criteria are pre-determined and can be weighted according to their importance. The sub-criteria can be adapted prior to evaluation. Then, each sub-criterion is evaluated according to the given dimensions.

Results of the Alternatives Evaluation (I)

The alternatives are described by two standard graphs and a SWOT analysis is provided for the best alternative

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** Nestor Base Case
- The **1,3 Mpix camera** (optical zoom) was **only used in the pre-development**, but well known supplier offers same standards like already used cameras.

Fictive example

Results of the Alternatives Evaluation (II)

The recommended alternative is described in detail and reasons for the selection are provided

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
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

Fictive example

- The “Camera Phone” follows the idea of a classical CX phone, 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

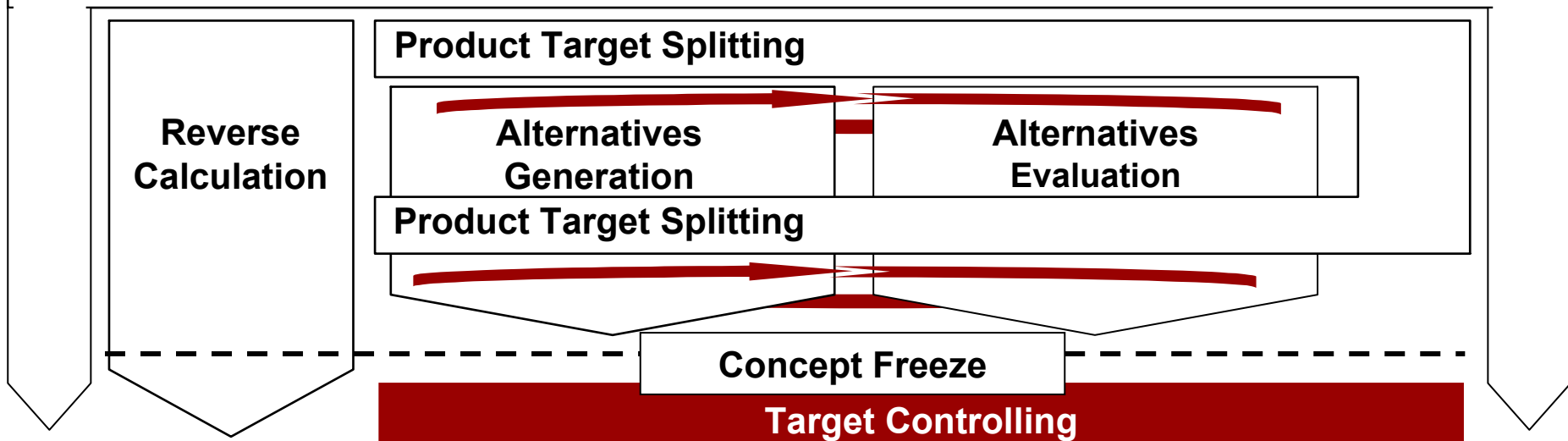
- The standard video functionality / camera limits the potential for differentiation and risks to offer a “me too” product and thus expose it to high price pressure in the Christmas period.

The Target Costing toolset: Target Controlling

Target Controlling aims at securing product performance, profit, cost as well as time to market goals after the concept freeze

Market Research

Window of Opportunity and Enthusiasm Model

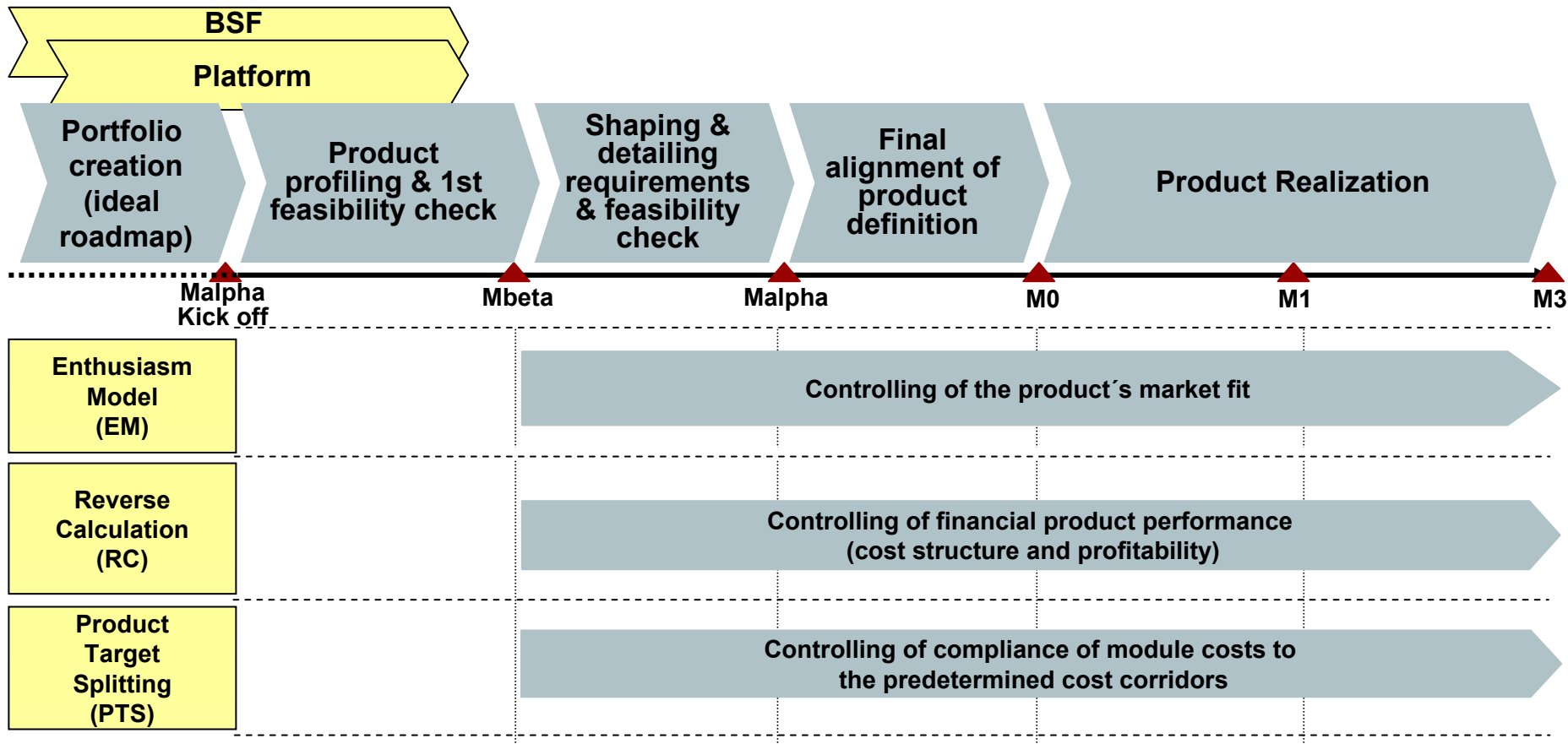


The Target Controlling ...

- ... ensures an adequate implementation of product concepts – defined by the use of the Target Costing methodology – after concept freeze.
- ... controls the defined market fit of the respective product concept.
- ... monitors key business data at predefined intervals.
- ... crosschecks the congruence of module valuation with market demands.

Target Controlling in the definition and realization process

Target Controlling starts after the approval of a product concept defined by the application of Target Costing



All Target Controlling activities have to be integrated in the regular milestone reporting.

The Target Controlling cockpit

The Target Controlling cockpit provides management with a summary of the Target Controlling results for a specific product

Enthusiasm Model

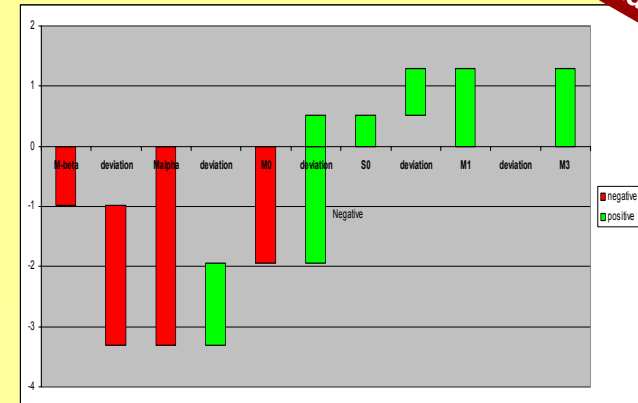
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Functions	Please fill in		1st Target not reached	2nd Target nearly reached	3rd Target reached or exceeded	Comment	S0	M1	M3
	Operator requirements	End-user requirements	Mibeta	Malpha	M0				
Make and receive calls (quality of basic function)	B	B							
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							

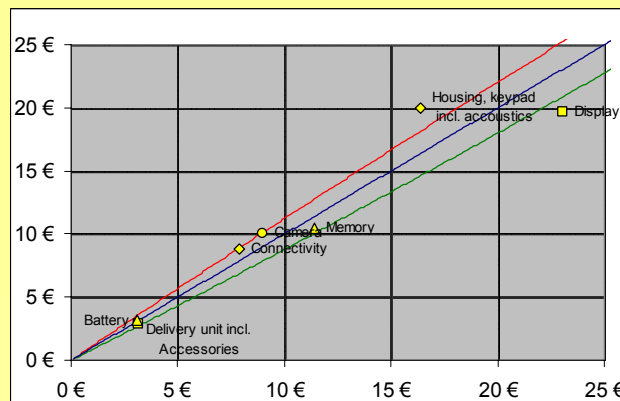
Functionality type: B: Basic Function, P: Performance Function, E: Enthusiasm Function

Reverse Calculation

Fictive example



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

Linkage of Target Controlling and Management Cockpit

Product specific information has to be aggregated for the description of the market fit of Management Cockpit

Cells change colour, when number is entered	Phase fill in		1=Target not reached	2=Target nearly reached	3=Target reached or exceeded				
Functions	Operator requirements	End-user 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							

Functionality type: B: Basic Function, P: Performance Function, E: Enthusiasm Function

Fictive example

Aggregation of information

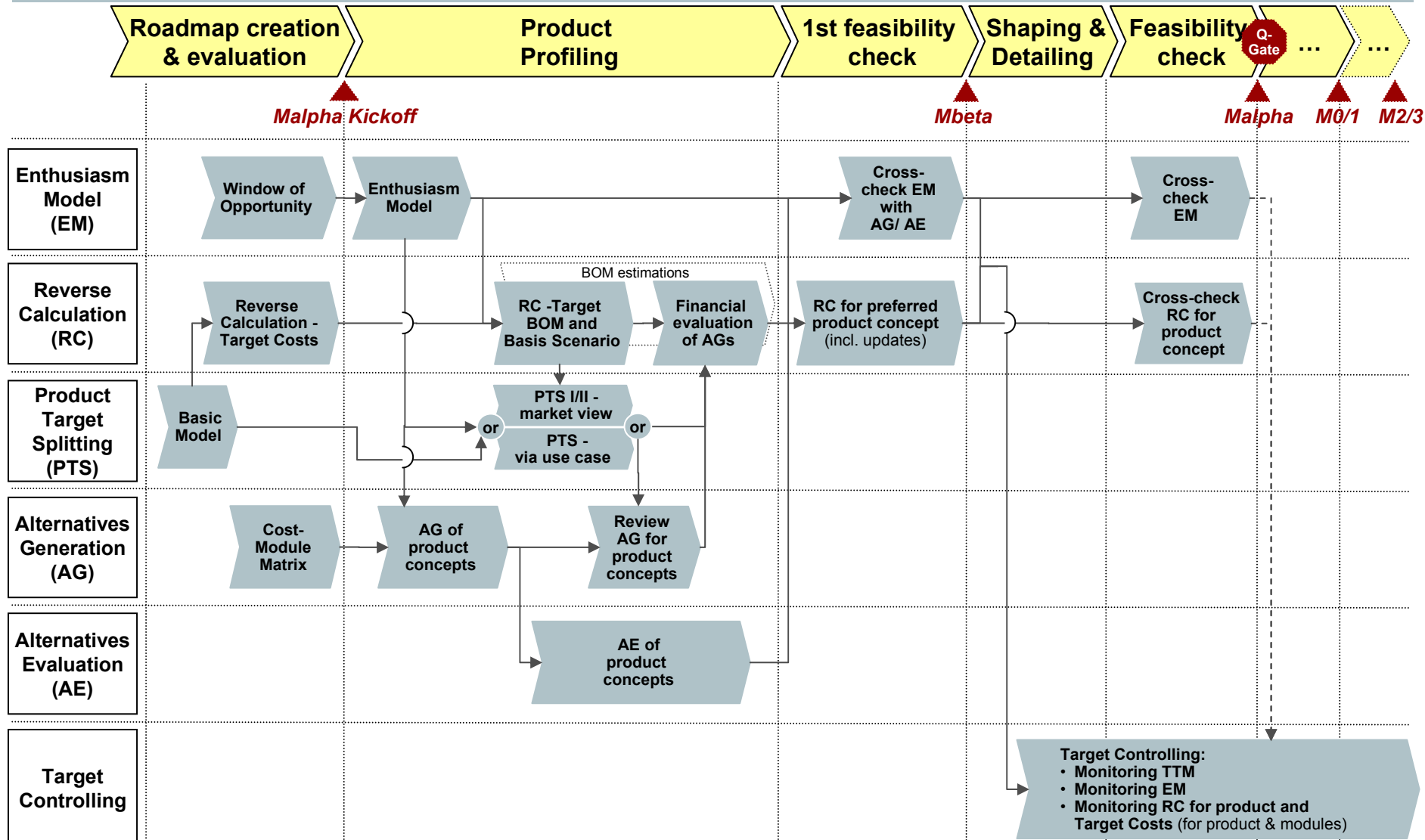
- The information regarding the degree of fulfillment of the functional targets need to be aggregated in order to clearly show how the Targets are met on basic, performance and enthusiasm level.
- The aggregated information is then added to the management cockpit.

Aggregated view for Management Cockpit

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

Process integration of the Target Costing tools at MD

All Target Costing tools are integrated in the product roadmapping and product definition process



Conclusion

The application of Target Costing initiated a “target-setting philosophy” for product positioning and for cost categories of products

Key Results at MD

- Methodology has been adapted to MD requirements and applied in the M-alpha process for the 75 and 85 generation
- Initiation of a “target-setting philosophy” for the product positioning (Window of Opportunity and Enthusiasm Model) and cost categories (Reverse Calculation and Product Target Splitting)
- Systematic consideration and selection of alternative product concepts that meet market and financial targets (Alternatives Generation and Evaluation)
- Comprehensive controlling of market targets in addition to financial targets (Target Controlling)

Success Factors at MD

- Provide clear and stable project assignments for the product definition teams
- Integrate Target Costing core tools and activities in product definition process
- Implement defined templates to ensure comparability and transparency in milestone decisions
- Align market intelligence with the information requirements of the Target Costing tools