P^3 Profitable Product Performance

Target Costing inside

Concept for the Alternatives Evaluation at MD

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Introduction

- The purpose of this paper is to **explain the tool of Alternatives Evaluation** within the Target Costing methodology.
- The paper is **one of 6 concept papers** within the Target Costing compendium for MD.
- Alternatives Evaluation defines a process which **structures and guides every decision on alternatives** within the Target Costing framework.
- The paper is divided into **2 chapters**:
  - The first chapter gives a methodological overview of the tool.
  - The second chapter presents the adaptation of the Alternatives Evaluation to specific requirements of MD.

Agenda

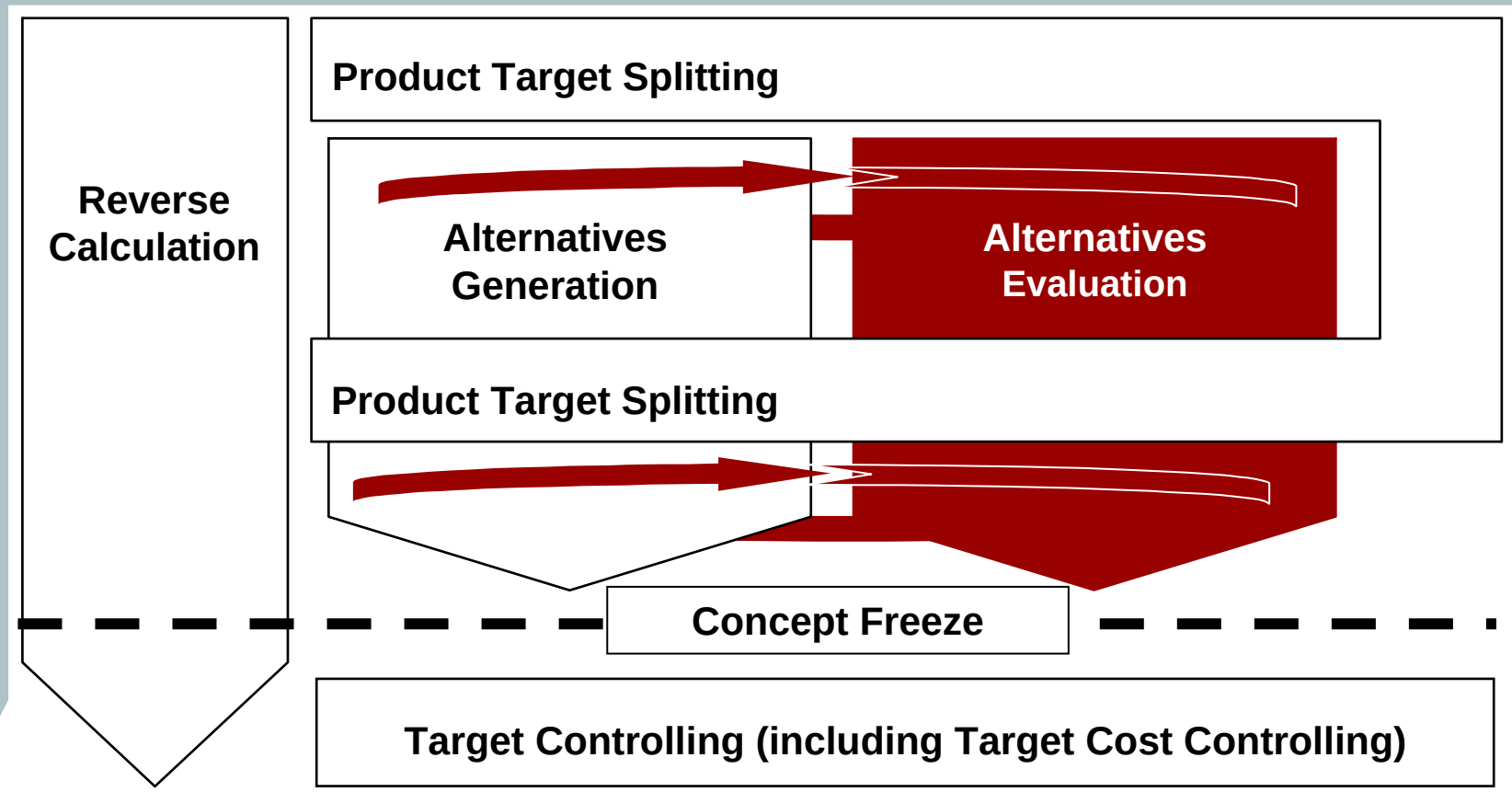
- **Methodology and benefits of the Alternatives Evaluation**
- The Alternatives Evaluation at Siemens MD

The Target Costing concept

The Alternatives Evaluation uses the input of the Alternatives Generation to identify the best alternative

Market Research

Window of Opportunity and Enthusiasm Model



Definition and benefits of Alternatives Evaluation

Alternatives Evaluation makes the decision process more transparent and documents it in a standard format

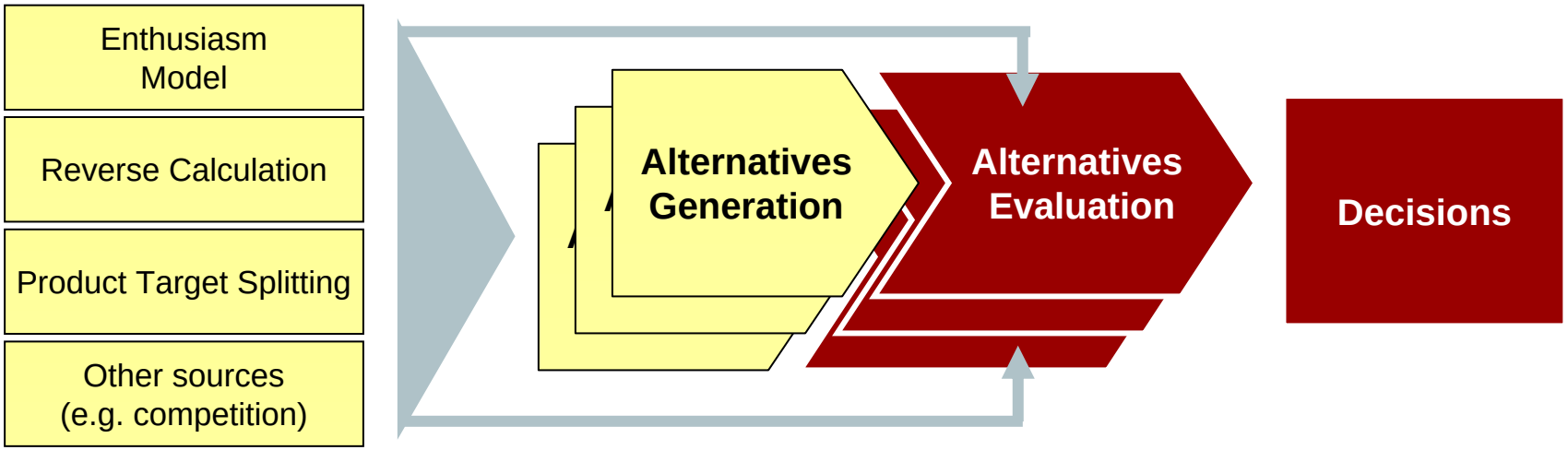
The Alternatives Evaluation is a tool to perform a **standardized analysis** of generated alternatives. Based on **measurable criteria** different alternatives are **evaluated** and ranked using a scoring model.

Benefits of the Alternatives Evaluation

- AE **structures**, **arranges** and **documents** the evaluation process
- AE improves **transparency** in decision taking for the management
- AE increases **objectivity** of individually performed analysis
- AE covers interdisciplinary **decision criteria** (financial, technical, market, strategy)
- AE optimizes the **decision taking** based on a consistent scoring model
- AE guarantees **future commitment** of all parties involved by **decision taking** through team consensus.

Concept of Alternatives Evaluation

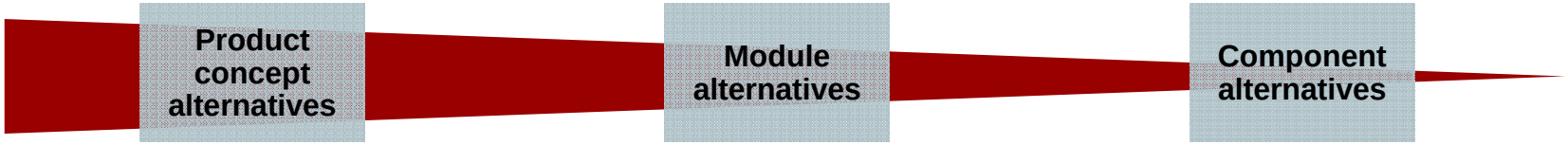
The input of other Target Costing tools and various other sources is used to assist the decision making process throughout the development process



- 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.

Methodology of the Alternatives Evaluation (I)

Each Alternatives Evaluation comprises 5 working steps, starting with the criteria selection and concluding with the decision making

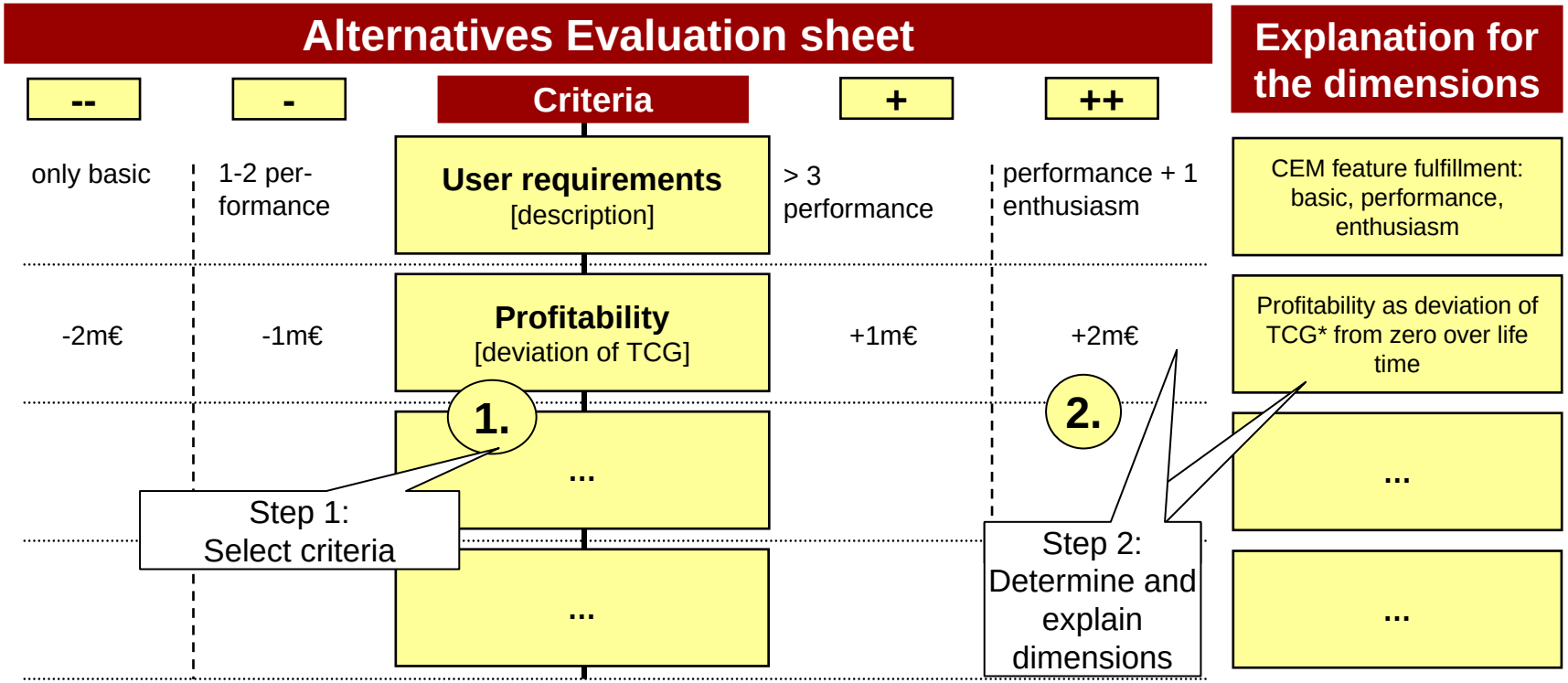


Steps

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

Methodology of the Alternatives Evaluation (II)

In step 1 evaluation criteria are selected which have to be complemented in step 2 by dimensions

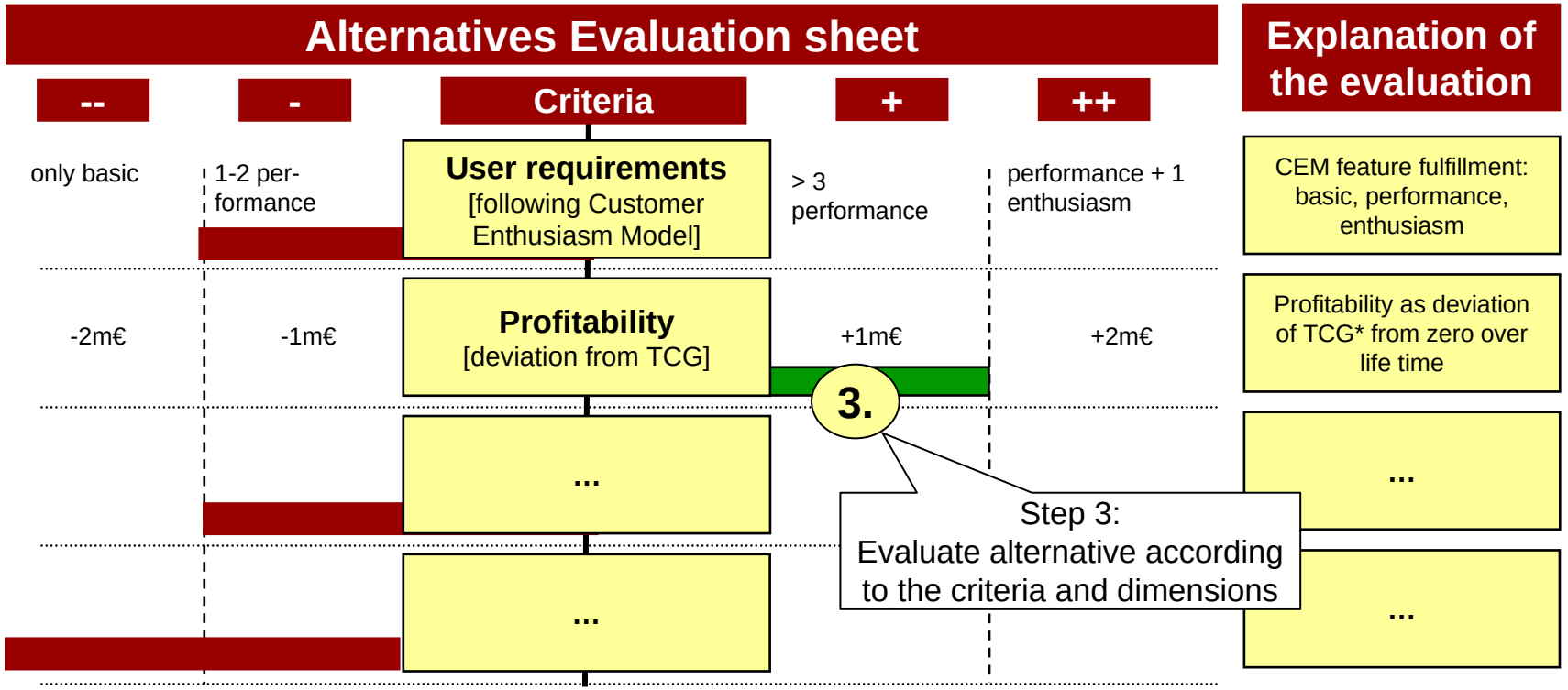


- Criteria and dimensions are **fixed prior to evaluation**.
- The criteria are listed in the centre together with a short description.
- Each criteria is evaluated on a scale from -- to ++.
- The dimensions provide an exact definition of the -- to ++ scale.

*Target Cost Gap

Methodology of the Alternatives Evaluation (III)

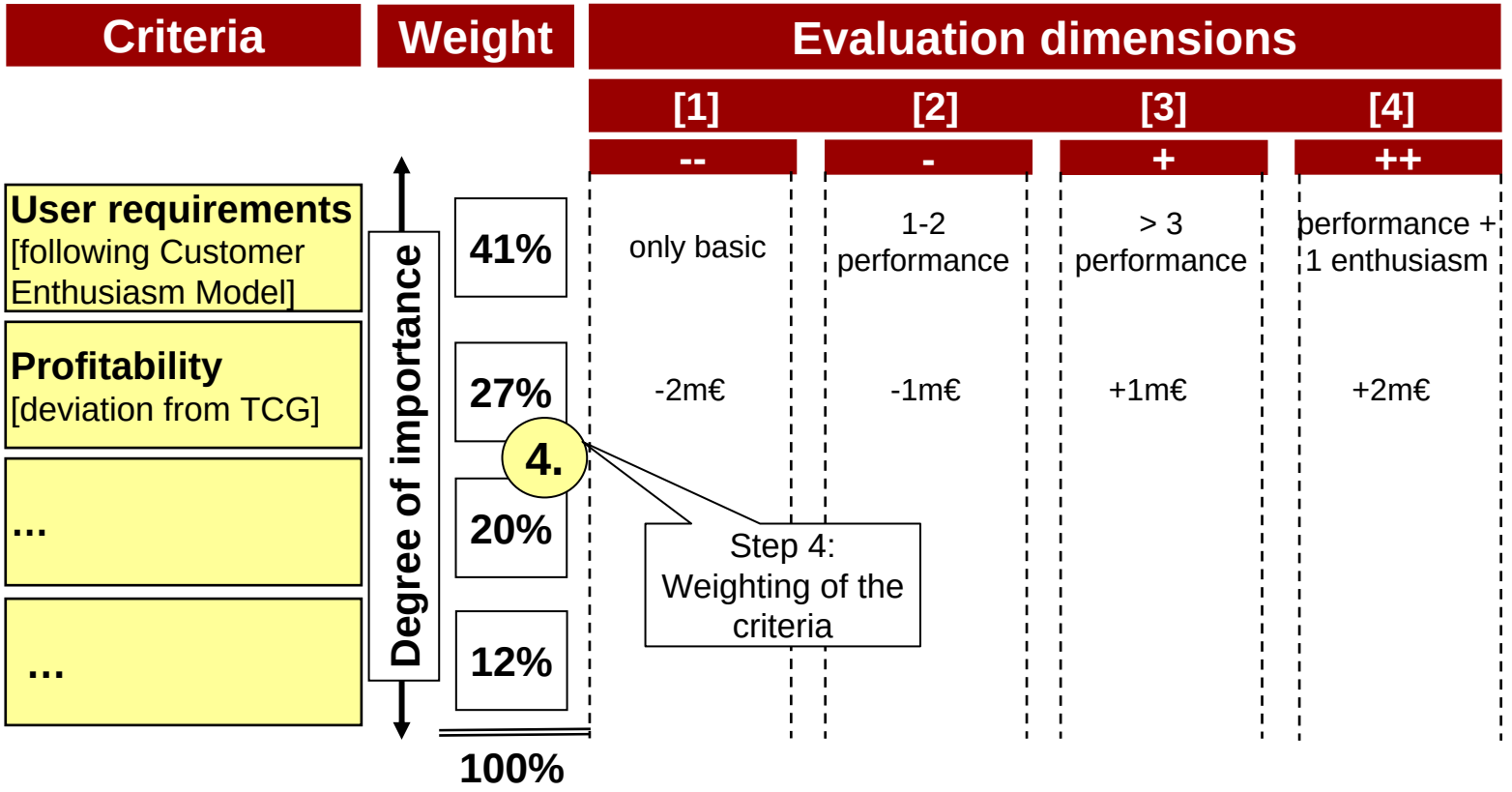
In step 3 each alternative is separately evaluated according to the defined criteria and dimensions



- 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.

Methodology of the Alternatives Evaluation (IV)

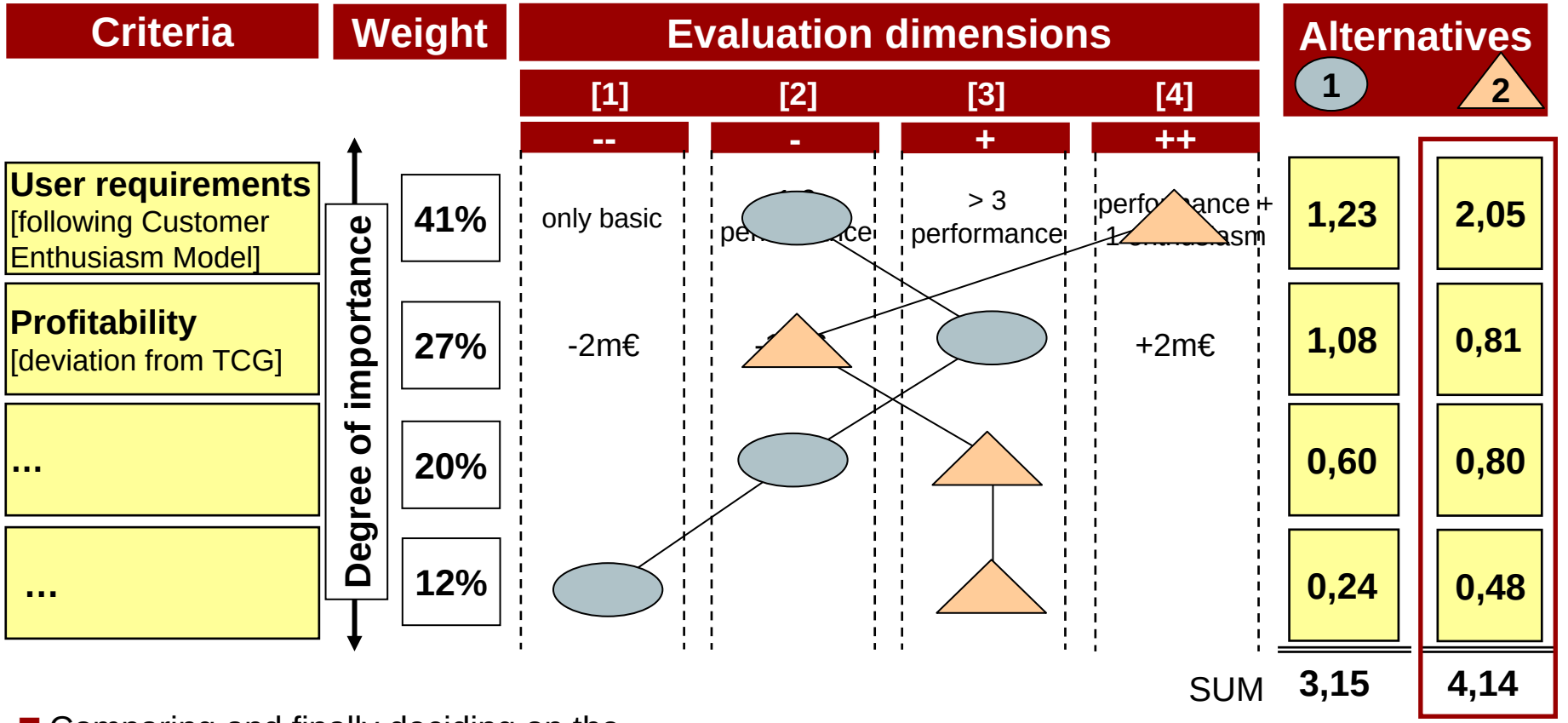
In step 4 the criteria are weighted according to their importance



- The **weighting** of the criteria is performed using a **pair wise comparison**.
- From this step on a comparison chart is used instead of the Alternatives Evaluation sheet.
- The weighting is done after the evaluation to secure a more objective process.

Methodology of the Alternatives Evaluation (V)

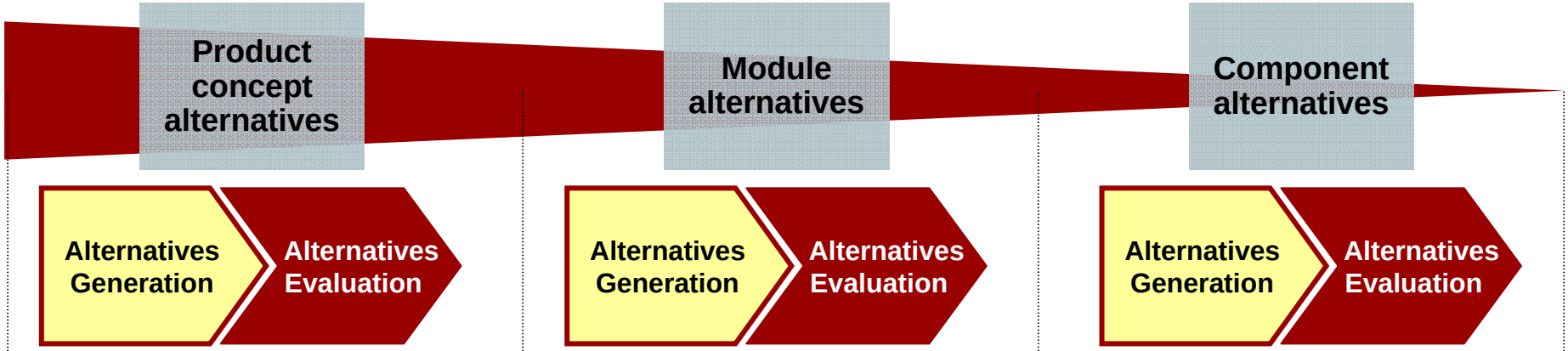
In step 5 all alternatives are mapped into one chart, scored and ranked, to decide on the best alternative



- Comparing and finally deciding on the alternative with highest ranking.
- When various alternatives are closely scored, the fiber 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

Alternatives Evaluations throughout the product development process

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



- Generation of product concept alternatives
- **Evaluation** and decision on one **concept** with reasoning

- Generation of module alternatives for selected product concept
- **Evaluation** and decision on one **module** combination for the selected concept

- Generation of all possible component alternatives for given modules
- **Evaluation** and decision on one **component** list for each module

After each generation and evaluation the decision is **frozen and handed over until** the **final** concept with its defined modules and components is chosen.

Agenda

- Methodology and benefits of the Alternatives Evaluation
- **The Alternatives Evaluation at Siemens MD**

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

CTO process	Roadmapping / Malpha process	
	Focus TC handbook	
		
The CTO processes are supported with AG/AE regarding: ■ **Innovation** alternatives ■ **Platform** alternatives	■ Generation and evaluation of **product concept** alternatives	■ Generation and evaluation of **module/component** alternatives

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

Steps of Alternatives Evaluation at MD

MD Alternatives Evaluation follows the 5 step approach solely using a predefined set of criteria and specific evaluation sheets

CTO process	Roadmapping / Malpha process

Steps

General steps		Steps at MD	
1	**Selection** & description of a set of evaluation criteria	1	For each type of Alternatives Evaluation a **criteria** catalogue is **predefined**.
			Pre-screening with knock-out criteria (already in the Alternatives Generation)
2	Definition of a set of **dimensions** with corresponding explanation	2	**Dimensions** are **predefined** and can be **adapted** if necessary.
3	**Evaluation** of all alternatives including explanation	3	The step is **identical** to the steps in the general part using an evaluation tool.
4	**Weighting** of the criteria	4	**Weighting** only for main criteria. Sub criteria have a pre-distributed weighting.
5	**Decision** making	5	The step is identical to the steps in the general part using an evaluation sheet.

Criteria catalogue at MD

Predefined sets of criteria in step 1 guarantee a more transparent evaluation process and a better comparability of 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		
Resource feasibility fit	Production capacity Development incl. production preparation time External resources	
Technical solutions' fit		
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. Once the evaluation started, the criteria are **not allowed** to be changed.

Dimensions at MD

In step 2 the predefined MD dimensions are used

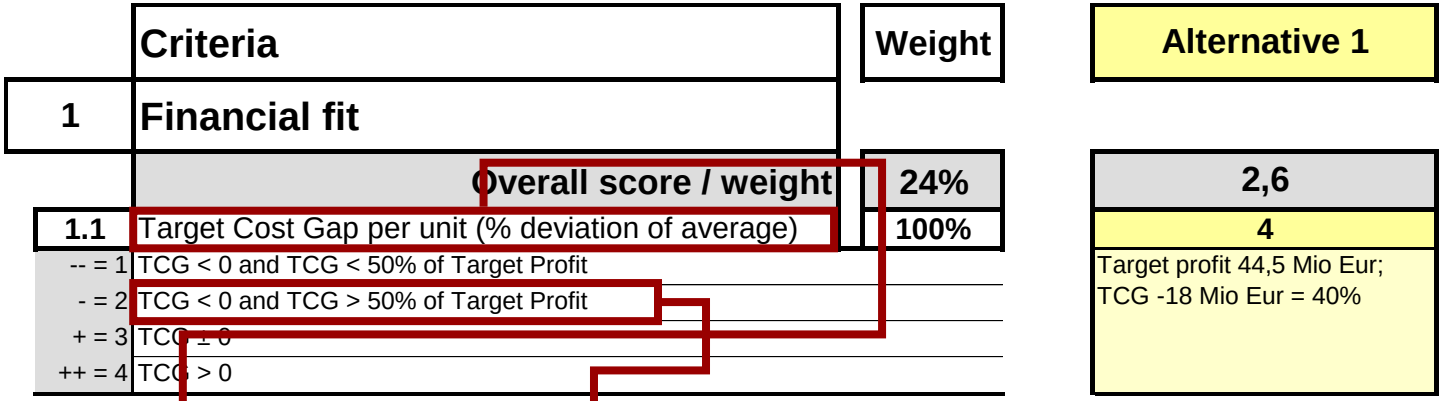
- For each MD criteria catalogue a set of **dimension** is predefined.
- The fixed set of dimensions guarantees **objective** and **comparable results** and creates a **common understanding** of the scope of the evaluation.
- Due to changing expectations and strategic requirements, **dimensions might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

	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 -0,3 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.

Evaluation at MD

Step 3 “evaluation” represents the heart of Alternatives Evaluation and has to be conducted by experts



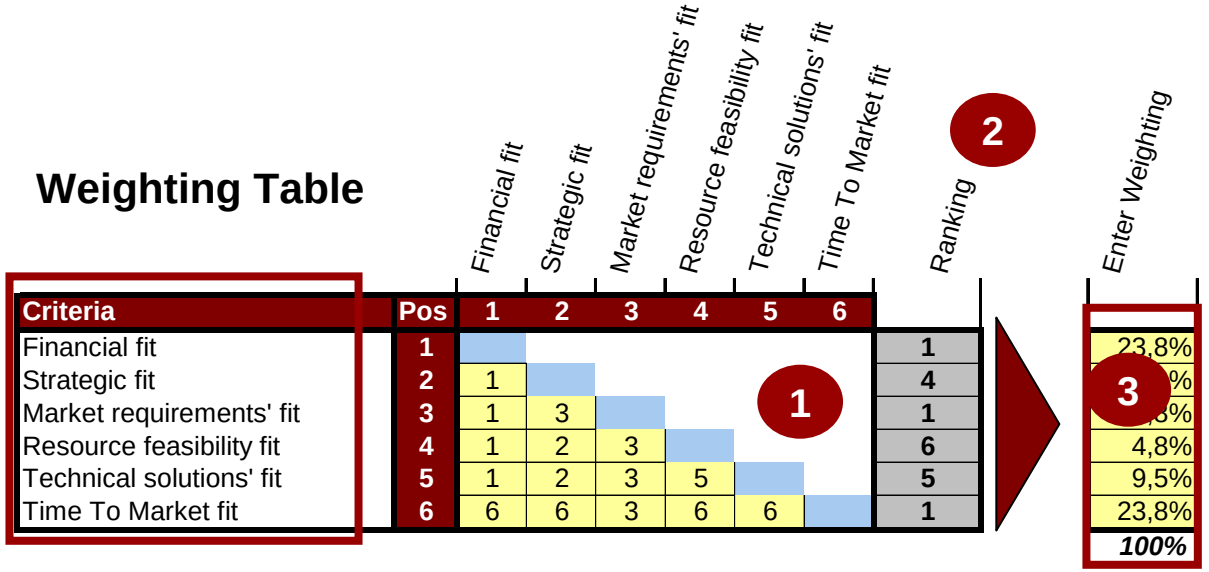
- For **each criteria** along the **dimensions** the necessary data has to be collected from members of the product team.
- The evaluation tool is then filled with this information (the corresponding value) and a **short, fact based reasoning** for the posted value is given.
- If an alternative does 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!

Weighting at MD

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

Weighting Table



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).

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

Management summary for the Alternatives Evaluation I

In the first page of the management summary the alternatives are described using the defined functional structure

Product functions support/ provide ...	Nestor Base Case	Nestor Design Phone	Nestor Connec...	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		...sing than ...mm)
Imaging and video	VGA camera, no Flash, 2x digital 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

The input for this sheet results from the Alternatives Generation

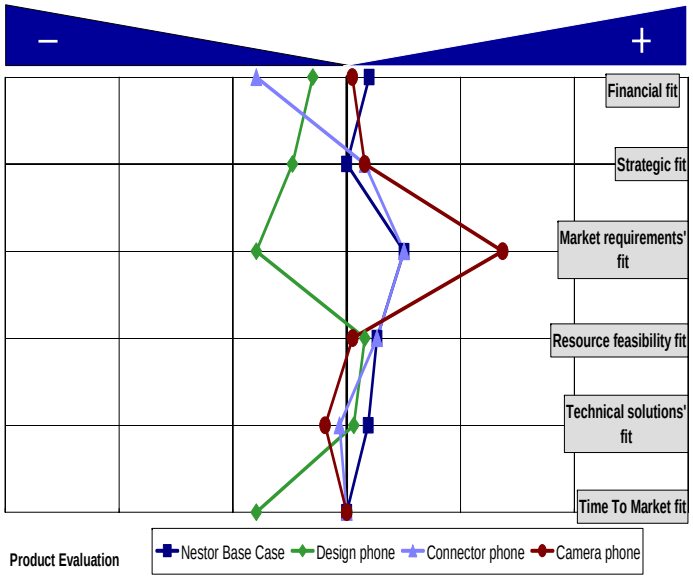
Responsibles for Alternatives Evaluation

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

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.

Management Summary for the Alternatives Evaluation III

In the last page the recommended alternative is presented in a structured format

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

- 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.

Success factors for the Alternatives Evaluation

A clear definition of the criteria and the dimensions together with involving the right people in the decision making process are crucial for the success of the Alternatives Evaluation

- The team needs the **support by the management**, as the evaluation process needs time and resources.
- Only with **carefully chosen experts** will the Alternatives Evaluation deliver the best choice.
- Before starting with the Alternatives Evaluation the cross functional team has to have a **clear and common understanding of the used criteria**.
- **Changes in second level criteria and dimension** have to be approved by a superior. **Permanent changes** in the criteria and dimensions have to be approved by Com MD PBM.
- The **dimensions** must be defined in such a way that they are **easily measurable** and don‘t give the freedom to extended interpretations.
- Each **criteria evaluation** should be verbally **explained.**

In future no decision on BSF, platform or product concepts will be accepted without the use of tools and processes described in this paper.