THE (FUTURE) CUSTOMER VALUE IN THE FOCUS
An axiomatic design method combined with a Delphi approach to improve the success rate of new strategies, products or services

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ABSTRACT

The success rate of new strategies, products and services can only be increased by a consequent (pre-) orientation to the future markets and respectively the stakeholder's and the customer's benefit.
This paper presents a methodology which helps predicting new market trends and identifying systematically the customer needs and shows how to define on this basis a consistent vision and strategy for the company (from the high-level targets to the lower-level strategies).
The approach is based on the combination of different methodologies like the Delphi techniques and the Axiomatic Design aims to the systematic identification of share-/stakeholders and customer's benefits and requirements.
The Axiomatic Design is the cornerstone of the proposed methodology and is applied in different stages of the approach: first, to set up specific surveying / interviewing guidelines (that integrate the Delphi applications), and second to drill down the different strategic options and to set up new strategies and product or service concepts with the highest probability of success.
An example taken from the durable goods industry helps to illustrate the successful application of this approach (case study).

Keywords: Axiomatic design, innovation, product and service design, corporate strategy, strategy development, customer value

1. INTRODUCTION

Competitive pressure in volume markets has become stronger because of increasing economical and technical emancipation of the so called low labor cost countries [1]. Due to increasing customer expectations and growing international competition, companies are forced to move faster, to offer a huge product variety and at the same time to reduce the product life cycles.
The physiological (strategic) reaction of many small and middle sized enterprises (SME) to this development is the retreat into niche markets. However, lower production volumes, increasing complexity of the product range and shorter product life cycles render difficult the amortization of the investments, especially for SMEs. Flops on the market are hard to cope with and often even endanger a company's survival. [2].
The success rate of new strategies, products and services can only be increased by a consequent (pre-) orientation to the future markets and the customer benefit since the benefit drives the buying decision!
A company will only be able to define proper business strategies and to offer products or services with a better cost/benefit relation if the company is close enough to the market and to the customer and if it is capable to recognize and predict future markets trends and opportunities at the right time: not only the technological benchmark or the comparison with the competition are the "key factors" of success, but the more than ever the orientation at the (future) customers' needs.
This fact is proved by the fact that companies exploit ideas coming to a high percentage from external sources: almost 75% of the ideas come from market research and marketing as well as from other external sources, e.g. retail sector and suppliers [3]. It is also rather difficult to develop technologically oriented ideas to such an extent that it results in a tangibly noticeable customer benefit [2]. The past showed that in just 20% of the cases, this target could be achieved [4]. This indicates that the orientation to the customer and the really relevant issues (for the customer) is a basic condition for success in strategy, product or service development.
First of all, there has to be differentiated between the terms „customer benefit" and „customer requirement". Customer benefit can be defined as the quantitatively measurable and/or qualitatively perceived customer profit when purchasing a product or utilizing a service. Customer needs will be created if a supplier of such a product or such a service can communicate this benefit adequately [2]. The targeted search of ideas for successful products or services, and the corresponding strategies has to begin therefore with the identification of these customer benefits, and the related "benefit-driver". The "benefit-drivers" are influencing-variables related with the middle- to long term market prediction. (e.g. at a macro-level: political, demographical, economical, cultural, social trends and/or scenarios; at a micro-level the benefits-drivers are typically related with technology, design, materials, product- or service functions, ergonomics..).
On the other side customer requirements are particular characteristics and specifications of a good or service indicated

by a customer. They are usually identified by surveys or by market analyses [5]. The customer requirements are thus directly related to the respective customer benefit, which possibly could also be created by another (competitive or substitutive) product or service [2]. They can be also derived systematically from an identifiable customer benefit. The list of customer requirements (briefing) determines the direction of the product development onto which the functions and materials of the product are being developed.

The prediction of new trends and future markets, the identification and communication of the customer benefit is often very difficult especially in the area of durable goods.

Regarding the pursuit of customer benefits, the automobile industry, for example, discussed at length this problematic some years ago. A number of methods were developed for this topic, such as the QFD (Quality Function Deployment) or the Conjoint Analysis [6, 7].

All these methods can be meaningfully applied where customer needs regarding an already existing product- and/or service concept have to be evaluated [8]. However, these methods are insufficient or even not deployable for novel products, services or product/service combinations: after all, to a large degree, it is about ascertaining what the customer would like, but what does not yet exist in this form. How should he or she then be able to verbalize such a requirement? Even if the alternatives are obvious or known (which is an important condition for the functioning of the Conjoint Analysis, which tries to evaluate preferred samples by a comparison in pairs), the comparison in a panel or a group of people can lead to mistakes, as the Arrow's Impossibility Theorem shows [9].

On the other side, the systematic definition of a coherent customer and market-oriented strategy-framework (including e.g. commercial-, industrial-, financial- and corporate guidelines) is hard to achieve but it is crucial for a company to have clear stated goals and visions and to perform strategy and tasks accordingly.

Using a well-structured / oriented strategy, a company can achieve its goals faster than if the work was carried out in a less structured manner. According to Hacker (1998), there is a well-established idea that the success of an enterprise depends not only on its strategy planning, but also on how this strategy is implemented, monitored, and adjusted. Sull (1999) stated that many good companies fail due to an inability to take the appropriate action, while Nordlund (1996) found out that too many strategies lack action plans to fulfill their high-level goals. Usually, the company grows based on a specific strategy but fails monitoring and predicting environmental changes and adjusting strategy.

There are very few tools for customizing and designing a strategy to a company-specific and detailed level [10].

Among the approaches suggested in the management literature regarding to what should be implemented in a strategy, the most important ones are: Porter's five market forces for evaluating market attractiveness [11] , the "generic strategies" [11], the value chain analysis and its nine activities for increasing customer value (Porter, 1985); Ansoff's "growth strategies" (Ansoff, 1957, 1965); Andrew's "SWOT Analysis" and his strategy emerging from the alignment between "environmental opportunity" and "corporate capability" (Kennth R. Andrews 1965); the Prahald's and Hamel's "core competence focusing" (also focus on specific factor(s) that provides customer benefits, is(are) not easy to imitate, can be leveraged to many products and markets) for improving competitive advantages [12], 1990); Ghemawat's way to achieve competitive advantage using positioning analysis, level of flexibility and sustainability by commitment to sticky factors (i.e. untradeable, specialized, and durable) [13]; Erickson's and Shorey's performance pursuit by defining a strategy for high-level stakeholders and then trim it to fit important business processes, organization and resources [14]; Kotler's headquarters driven business units strategies [15]; Kerin's "aided matrix models" to suggest generic strategies depending upon the level of market growth rate and relative market share, or market attractiveness vs. business strength (Kerin et al., 1990); the Peters's and Waterman's 7-S framework and the related co-dependency between strategy successful implementation and company's structure, system, know-how, staff and values (7-S framework from Peters and Waterman Jr., 1982); et al.

The strategy design and (solving-) processes suggested in literature are to some extent contradictory, and focus mostly on high-level decisions [10]. Some researchers praise the concept of strategic business units (e.g. Hax and Majluf, 1996), whereas others prefer the principle of core competences as an alternative (organizational) way [12]. Many of the mentioned techniques also stress that a strategy has to be applied at all levels of the company, but few of them suggest how this should be realized.

Tools and frameworks for strategy-designing to fit companies at all levels are less frequent in management literature.

The first challenge therefore lies in the identification of a potential area of benefit, in which benefits can be derived and be translated into (product- or service-) demands. The second one is to initiate and to manage this innovation process into a coherent decisional framework that consider and define the strategy, according to the top-down approach of Hayes and Wheelwright (1984), at the corporate, business and functional level (marketing, sales, manufacturing, R&D, finance, et cetera).

How to reduce / manage complexity by SME's all-round strategy review?

How to recognize in a very early stage potential risks and / or "tactical circular reference" (e.g.. by the product / brand positioning, by the sales channels, by investments policies…).

How to formulate lower-level strategies respecting the high level goals, and also guarantee the link between tasks and stated goals and vision?

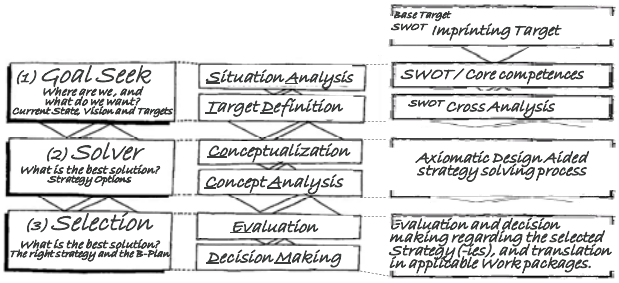
In this paper we suggest the use of Axiomatic Design (in the following referred to as "AD") as a tool for tackling the problems stated above. The first results of this research field, only focused on the product or service AD-aided development, were published in 2008 as CVF I Customer Value in the Focus Methodology [2]. The challenge of this new research chapter is now to define a structural framework for the market prediction, and the consequent definition of customer and market oriented corporate, business and functional strategies (Customer Value in the Focus II, in the following referred to as "CVF II").

2. METHODS, IDEAS AND SOLUTIONS

The developed and as CVF II (Customer Value in the Focus) proposed methodology is a collection of guidelines studied and tested for the prediction of future markets and customer needs, and for the systematic design of new company goals and strategies (from the corporate strategy level to the product or service ones).

Build up on a base Züst approach [19], the purposed framework foresees, according to Figures 1 and 2, three main work steps: (1) the "Goal Seek" (Where are we and what do we want?), consisting in a "Situation Analysis" based on a upgraded SWOT methodology, and the "Target Definition" (Company's Vision and Targets); (2) the "Solver" (What is the best solution?) consisting in two AD-Aided tasks: "Conceptualization" and "Concept Analysis" aims to strategy options design; and the (3) "Selection" (What is the best solution?), consisting in "Evaluation" and "Decision Making", also a quantitative and qualitative statement about the designed strategy options and the structuring of consequent implementation work packages.

Figure 1. CVF II (Customer Value in the Focus) Framework



This framework (CVF II) combines a set of base techniques and methodologies in an innovative way: many of them are known and reviewed in the literature, such as the SWOT Analysis (Andrews 1965 et al.), or the Delphi forecasting techniques (Dalkey & Helmer, 1962, Hill & Fowles, 1975; Linstone & Turoff, 1975; Lock, 1987; Parente´ & Anderson-Parente´, 1987; Stewart, 1987; Rowe, Wright & Bolger, 1991, Gordon 1994 et al.), dedicated to the "Situation Analysis" and other (in this context) rather diffused methodologies as AD (Axiomatic Design – Suh, 1990).

Figure 2. CVF II Framework – extended view

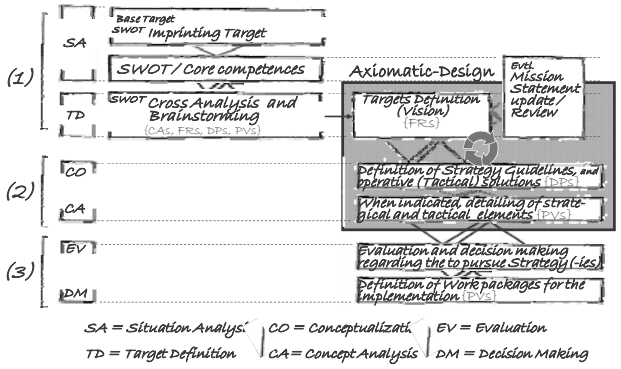
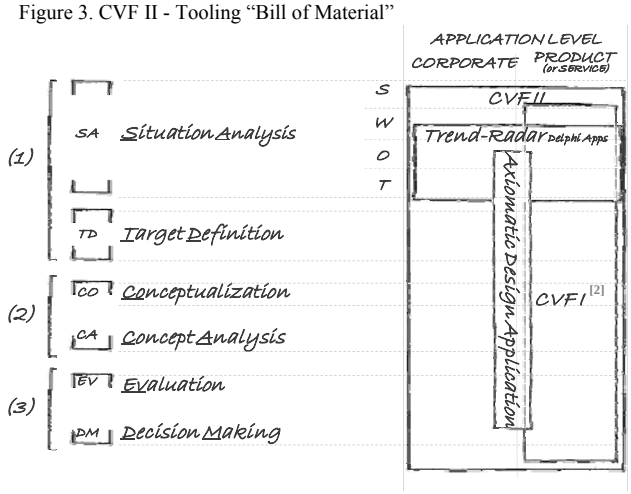


Figure 3. CVF II - Tooling "Bill of Material"



Especially the first two steps of the CVF II methodology require specific explanation and examples:

Step 1.1: (1) Goal Seek > (1) SA Situation Analysis

According to Martin and Kar [16] leading to the statement of business mission and goals, a careful analysis of customer needs and expectations represents one of the critical success factors of the strategy development. According to Certo (1993), strategy development begins with environmental analysis. In this analysis, all external and internal factors affecting the business unit are considered in a medium to long term perspective. Socio-cultural aspects, workers skills, governmental laws, and environmental considerations need to be analyzed accurately.

The Situation Analysis consists in a SWOT Analysis, upgraded with Delphi forecasting techniques, and applied for the identification and the prediction of: (a) future trends and customer "benefit drivers" related with market, competitive environment, legal – social – cultural – economical and technological issues; (b) customer needs, and the potential of new product or service concept or development directions [2].

According to Dalkey and Helmer (1962), the Delphi technique is as a procedure to "obtain the most reliable consensus of opinion of a group of experts… by a series of intensive questionnaires interspersed with controlled opinion feedback". In particular, the structure of the technique is intended to allow access to the positive attributes of interacting groups (knowledge from a variety of sources, creative synthesis, etc.), while pre-empting their negative aspects (attributable to social, personal and political conflicts, etc.). From a practical perspective, the method allows input from a larger number of experts geographically dispersed.

According to Rowe and Wright [17], Delphi is not a procedure intended to challenge statistical or model based procedures, against which human judgment is generally shown to be inferior: it is intended in judgment and forecasting situations in which pure model-based statistical methods are not feasible because of the lack of appropriate historical / economic / technical data, and this where some form of human judgmental input is necessary (e.g. Wright, Lawrence & Collopy, 1996).

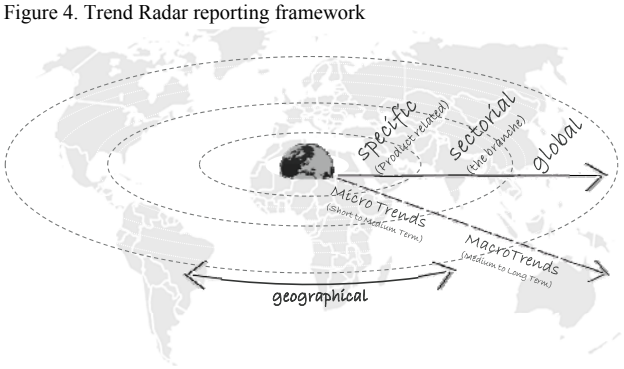
Four key features may be regarded as necessary for defining a procedure as a "Delphi". These are: anonymity, iteration, controlled feedback, and the statistical aggregation of group response. Anonymity is achieved through the use of questionnaires and / or anonymous interviews. The iteration of the questionnaire over a number of rounds, the individuals are

given the opportunity to change their opinions and judgment without fear of losing face. Between each questionnaire iteration, controlled feedback is provided through which the group members are informed of the opinions of their anonymous colleagues.

An examination of recent literature, for example, reveals how widespread the use of Delphi is: applications in very different areas such as health care industry (Hudak, Brooke, Finstuen & Riley, 1993), marketing (Lunsford & Fussel, 1993), education (Olshfski & Joseph, 1991), information systems (Neiderman, Brancheau & Wetherbe, 1991), and transportation and engineering (Saito & Sinha, 1991).

The results of this first work-step (1) "Situation Analysis" consist in a traditional SWOT Analysis report, combined with a "Trend-Radar" based on the Delphi-forecasting results (see Figure 4) and a core-competence profile edited according to Prahald and Hamel [12], namely on the results of specific customer surveying processes (due to the direct relation with customer benefit and competitive advantages position).

Figure 4. Trend Radar reporting framework



Step 1.2: (1) Goal Seek > (2) TD Target Definition

The above described Situation Analysis that includes an analysis of internal and external strategic factors (Step 1.1) affecting the organizational performance, inputs from the stakeholders and the market needs guide now iteratively the definition of the corporate goals (Step 1.2) and strategies (Step 2.1) using AD.

According to Suh (1990), Nordlund (1996), Engelhardt (1998), Lobo, Cochrand and Lima (2000) [18], Martin and Kar (2002) [16], Schnetzler, Sennheiser and Schönsleben (2006) et al. Axiomatic Design can be used as a tool for the design of non engineering design object, such as technology strategies, business plans, and organizations.

AD differentiates four so called Design Domains: the Customer Domain describes the so called customer-benefit attributes (CAs; customer attributes), the Function Domain deducts from there the functional demands (FRs; functional requirements), the Design Domain provides Design Parameters (DPs) for the implementation of the FRs, whose transformation into processes shall be secured by the Process Variables (PVs) in the Process Domain [20]. The essential core of the Theory of AD is represented by two axioms, the Independence Axiom (1st axiom) and the Information Axiom (2nd axiom), which represent a necessary and sufficient condition for a "good" design of a product or a system. For this purpose, FRs and DPs are mathematically shown as vectors {FR} and {DP}.

The Design Matrix describes the relation between the two vectors:

$$\{FR\} = [DM]\ \{DP\} \quad (1)$$

where

$$DM_{ij} = \frac{\partial FR_i}{\partial DP_j} \quad (2)$$

The first axiom demands the independence of the functional requirements (FRs). A potentially good design exists if exactly one Design Parameter (DP) can be found to fulfill the allocated FR without influencing the other FRs. To fulfill the Independence Axiom, the Design Matrix must be either a diagonal or a triangle matrix. In the case of a diagonal matrix, it is called an uncoupled design. This represents the ideal case, as every FR can be fulfilled with exactly one DP without being in any interrelation whatsoever to other FRs. In triangle matrices there is a so called decoupled design. These functions can only be fulfilled independently from each other by adhering to a certain sequence. All other cases represent a (badly) coupled design [20].

According and expanding Engelhardt and Nordlung [10], by adapting AD to the strategic design, the following terminological parallelism (respectively in engineering and business applications) can be assumed: Customer Attributes (CAs) = Customer / Shareholders needs, Functional Requirements (FRs) = Goals (∑ Goals = Mission and Vision); Design Parameters (DPs) = Strategies; Process Variables (PVs) = Activities.

The next step in strategy development is setting the directions that will guide the enterprise: the mission and the strategic objectives (FRs).

On this base, the logical and mathematical framework of the Axiomatic Design Theory helps to explore and to structure systematically all the goals (FRs) and the strategic options (DPs) (e.g. at commercial, product and service level) and to identify, at a very early stage, possible couplings (inconsistencies) between the different targets and solutions.

The passage between the function, the design and the process domain can very systematically be developed by the two axioms and the underlying methodology. In contrast, Nam P. Suh does not present an uniform methodological approach for the identification and translation of the customer attributes (CAs Customer or Share/ Stakeholders Needs). The analysis of the many examples which are meant to prove the validity of the axioms, does, however, show a logical pattern at the identification of the customer benefit attributes: from a purely economical point of view, the benefit is connected with a measurable value generation. The latter consists of a different perception of the value term for each user or group of users / shareholders.

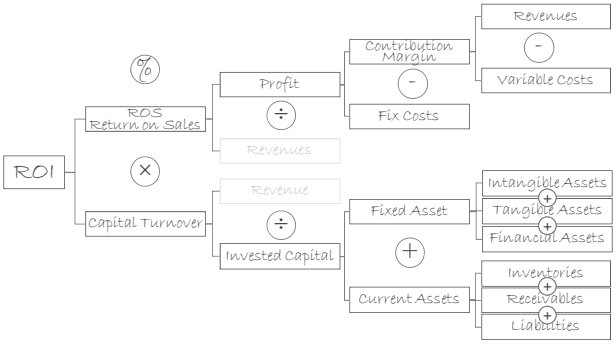
The shareholder of a (profit-oriented) company measures the benefit of a strategy drawn upon to the extent to which this contributes to the increase in the value of the goodwill of the company (at least in medium and long term). According to the respective point of view, the goodwill can be illustrated by the Economic Value Added (EVA) or by the Return on Investment (ROI, see Figure 5).

Both methods illustrated are based on analytically-mathematically connected systems of key figures, which help to drill the benefit "goodwill" down into the smallest units.

The individual "leaves" of the respective key figure trees represent hereby ideal approaches for "benefit creating" strategies, products or services as partial benefits of the achievement of an increase in goodwill. For this purpose it is

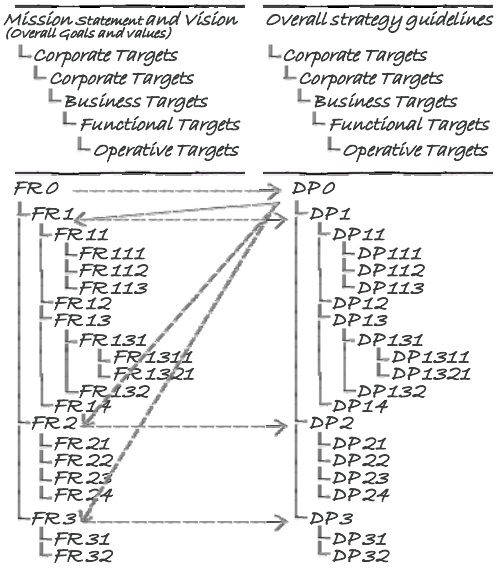
sufficient to calculate the target ”earnings before tax” as the difference between contribution and fixed costs.

Figure 5: The Shareholder benefit logic (CAs): The ROI tree



On the top level therefore, the “father” functional requirement FR-0 can be directly attributed to the shareholder benefit “profit maximization” and be defined as follows:
FR-0 (Goal 0) Sustainable high profitability
On this level, FR-0 can be directly attributed to a design parameter DP-0, which is illustrated as follows:
DP-0 Define a Corporate, business and functional strategy for a high and sustainable profitability
The first design round explores now according to the ROI’s mapped CAs (Customer, respectively Shareholders needs), the first level of company goals (FRs), which can be displayed as follows:
FR-1 (Goal 1) Increase Sales Volumes
FR-2 (Goal 2) Optimize the costs
FR-3 (Goal 3) Minimize the capital employed
By defining the Target structure on this top level other factors can also be considered: e.g. overall company / shareholders values, general purpose, existence reason, social-cultural principles.. . In this case the tree structure can be opportunely adapted.
As shown in Figure 2 the Target Definition process (Step 1.2) and the Solving Process (Step 2) are iteratively combined (AD “Zig-Zagging” process).

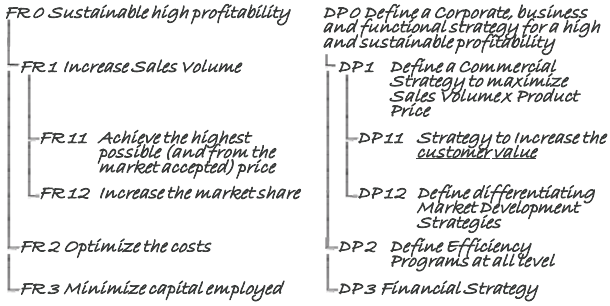
Figure 6: AD applied to Strategy-Design



The significance of the requirement for a targeted strategy design is, however, still too weak on the top specification level. In line with the methodology of the Axiomatic Design, the FR – respectively DP- tree is to be extended onto lower levels by the so called “zigzagging”, as explained in the following.

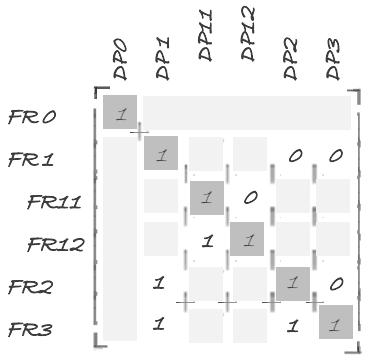
Step 2: (2) Solver > (1) Conceptualization
Strategy development based on AD starts also with setting high-level goals, and then corresponding strategies are defined to achieve these goals.
The strategic design process progresses from a system level to levels of more detail. High-level goals and the corresponding strategies are decomposed into more detailed sub-goals and strategies in terms of a design hierarchy. The decisions at higher levels affect the statement of the goals at lower levels (see Figure 6).
During strategy development, a strategic design process includes high-level decisions that make up the corporate level strategy and goes on to levels with increasing details. The business and functional level strategies are formed in the lower levels of decomposition.
At each level of the strategy development, there exist a set of goals. Before a certain goal is decomposed, the corresponding strategies must be determined. Once a business goal can be satisfied by a corresponding strategy, that goal can be decomposed into a set o sub-goals, and the zigzagging process is repeated iteratively. This process of mapping and zigzagging must continue until the design is completed. The first three iterations are shown in the following Figure 7.

Figure 7: The first three design iterations (initialization)



The information generated during mapping is captured in a strategic design matrix, which shows the relationships between each goal and strategy (Figure 8).

Figure 8: The first three design iterations – the design matrix



This matrix shows a decoupled design: these goals and strategies can only be fulfilled independently from each other

by adhering to a certain sequence: in our example the "cost optimization" can be applied just after "volume increasing", and after "market and product development"; "Financial Strategy" as last.

The mapping process between the domains can also be expressed mathematically in terms of the characteristic vectors that define the design goals and the design solutions.

Design Matrices are set up for all the goal-strategy relations at the different levels in each branch of the goal-strategy tree. Knowledge for configuring the Design Matrices comes from the Delphi interviews (see Step 1.1), cross functional groups, existing process descriptions etc.

The strategy has to be consistent all the way from high-level company targets and visions (FRs), down to the operative tasks carried out by the employees (DPs). The company's personality, culture, philosophy, organization and areas of business provide company-specific needs. Those needs have to be considered when designing (customizing) a strategy. In addition, the results of the SWOT simple and cross analysis (Stages 1.1) as a cluster of CAs, FRs, DPs and PVs, and the defined goals must also set priorities. After the first initializing-rounds, the next detailing must be effected in the light of the individual market-sector and application. This is now demonstrated below with a practical example.

3. ILLUSTRATIVE EXAMPLE

The company concerned is a medium sized, worldwide operating durable goods producer offering products and solutions of the highest quality. The company is market leader in their sector and wants to review the own middle to long run targets and strategies (for the next 10 to 15 years).

Step (1)

The Situation Analysis, realized through one-rounded Delphi campaign (25 customer and sector's experts worldwide involved – see e.g. a std. Delphi report Figure 9), combined with traditional internal analysis helps to identify trends and future scenarios, regarding the competitive situation, the customer needs, the products and technology development (see a Trend-Radar excerpt - Figure 10).

Figure 9: Delphi response standard report

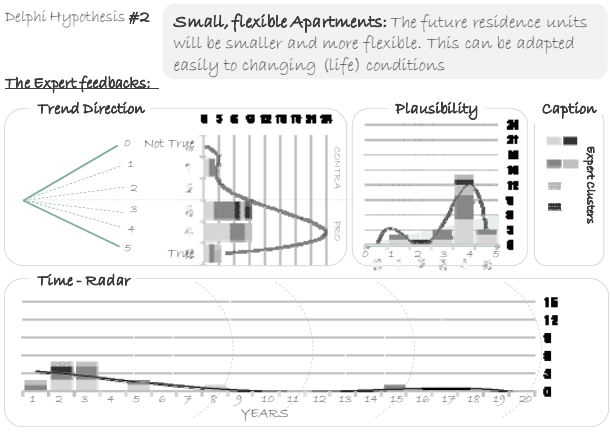
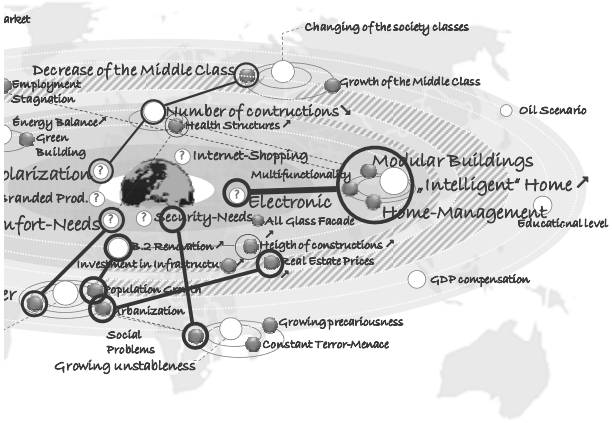


Figure 9: Trend Radar report sample excerpt



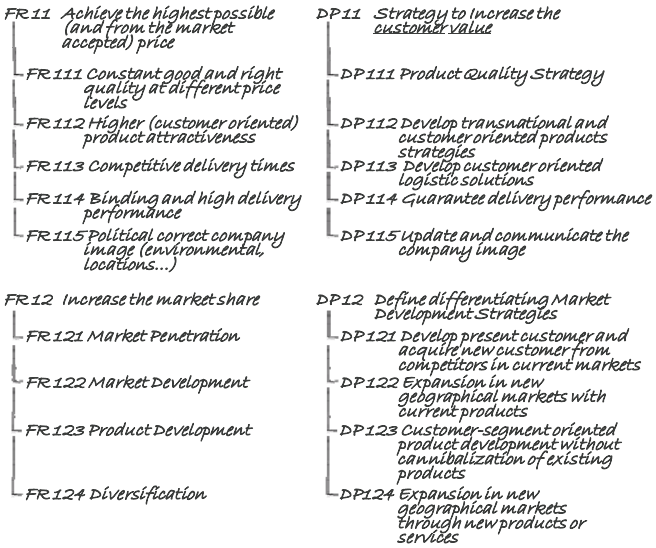
All this inputs and information can be capitalized for the following strategy design using e.g. a SWOT-Cross analysis, also crossing and studying the different combinations between identified Strengths and Opportunities ("attack"), Strengths and Threats ("prevention"), Weaknesses and Threats ("defense"), Weaknesses and Opportunities ("improvement").

Step (2)

In the Solving process, all the "random" CAs, FRs, DPs and PVs identified above (external, internal analysis, future trends / customer need predictions…), can be distilled together with the company management experience and know-how, structured and fulfilled using AD multi-level decomposition methodology.

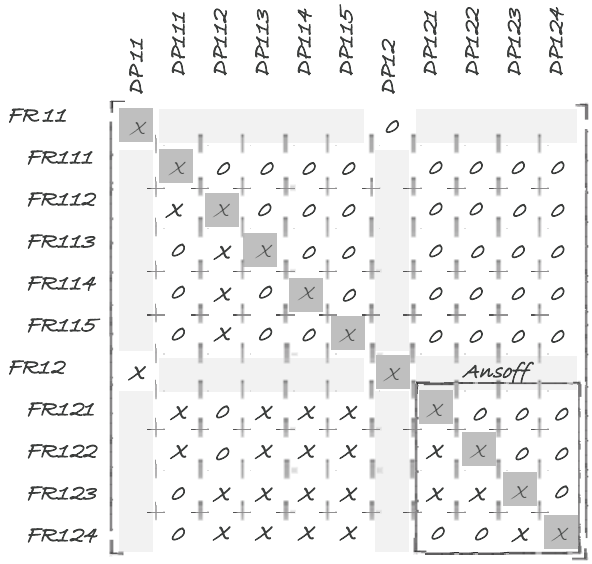
According to the first three design iteration described above (see Figure 8), as illustrative example, in this paper, only the decomposition of the FR 1 Increase the Revenues > FR 11 Achieve the highest possible price, and FR 12 Increase the market shares > is shown.

Figure 10: Illustrative-Example Decomposition



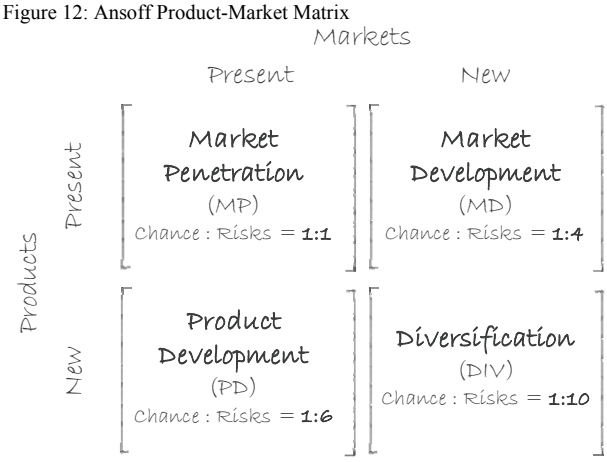
The corresponding related design matrix (Figure 11) shows a decoupled design, also a potentially good strategy design subordinated to the displayed implementation sequence.

Figure 11: Illustrative-Example Design Matrix



According with Ansoff (1957, 1965) and Becker (2001), the FR12 Increase the market share can be achieved only through a well defined strategic roadmap. Considering in fact the four sub-FRs, directly derived from the Ansoff's Product-Market Matrix (see Figure 12), FR121 Market Penetration (MP), FR122 Market Development (MD), FR123 Product Development (PD), FR124 Diversification (DIV -Horizonatal, Vertical or Lateral), AD helps with the evidences of the Design Matrix to demonstrate the better strategic way to go.

Figure 12: Ansoff Product-Market Matrix



Analyzing in detail the independency between the different FRs and the related DPs (see Figures 13 and 14):

DP121(MP) affect FR122(MD)

The implementation of a Market Penetration strategy can influence the Market Development Strategy, e.g. through the choice of marketing activities and promotion, which should be discussed and coordinated between MP and MD.

DP121(MP) affect FR123(PD)

DP122(MD) affect FR123(PD)

MP influences the Product Development, e.g. an old product could be "reanimated" through a specific marketing campaign.

DP123(PD) affect FR124(DIV)

PD influences the Diversification, e.g. the improvement of current product interfaces, can simplify an horizontal diversification.

Figure 13: Becker's Product-Market Matrix Strategic-Roadmaps demonstration through Axiomatic Design (Part I)

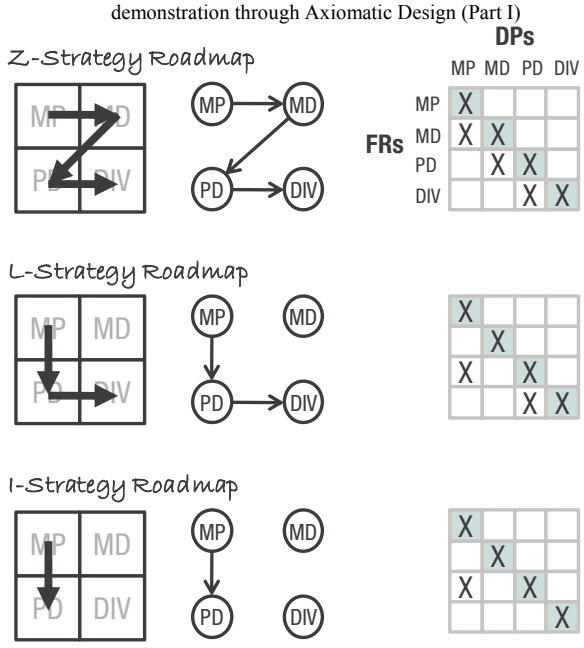
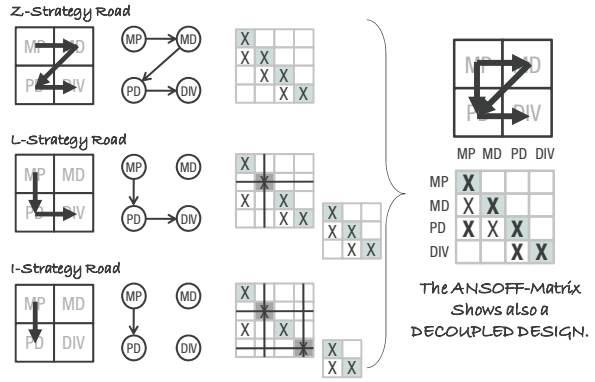


Figure 14: Becker's Product-Market Matrix Strategic-Roadmaps demonstration through Axiomatic Design (Part II)



This AD-Aided design process enables also the design of a total strategy with no contradictory goals. Feedback from company experts, strategic team-members and other stakeholders provides new knowledge and enables further trimming and redesign of the strategic output.

4. RESULTS AND CONCLUSIONS

Solving the equation systems expressed in the Design Matrices creates a process sequence that minimized unproductive iteration and reduces rework, thereby speeding up implementation. The final result can be produced in form of a process /or a flow chart that displays the different relations (time / cause-effect) between certain activities and others in time.

Since Axiomatic Design is a top-down design method, it is very suitable for consistently transferring high-level company goals and visions down to specific projects. This breakdown of abstract goals into more concrete ones improves company efficiency (Robbins, 1994). It also allows the firm to adopt more rapidly a new strategy by defining how low-level goals and strategies as well as tangible activities are related to overall strategic vision, which improves employee participation and communication. In the case of a business strategy one might find that the product strategy and the marketing strategy (strategic e.g. product segmentation: quality image vs. low cost performance) are fully coupled: in this cases the decoupling requires specific statement and strategic decision, in order to avoid dangerous "short-circuits". According to Engelhardt and Nordlung [10] other examples of the effects of a tight coupling between what the company aims for and what it actually does could be: (1) less resources needed for achieving the goals, (2) selection of proper technologies for chosen markets, (3) hiring procedures focused on getting the employees needed for planned tasks, (4) motivated employees that know the reason for what they are doing, etc.

AD helps the designer also to set up design equations that express the relationships between goals, strategies and activities. The framework provided by AD gains simplicity by having a one-to-one mapping between activities, strategies, and goals.

AD proved to be a very useful tool for designing and customizing a technology strategy for the company. The approach also helped to identify strategies and activities that from unnecessary coupling are candidates for redesign.

In this paper, a methodology based on the Theory of Axiomatic Design combined with Delphi techniques has been demonstrated, which supports companies in their systematic design of new strategies, products or services. By means of consequent derivation of FRs and first DP hypotheses for the (future) strategies, products or services from a clearly defined share-, stakeholder or customer benefit description, a framework for guided expert surveys is being developed. The results of the survey show a clear picture of the future market and customer needs. On this basis, targeted and detailed developments of innovative products, respectively services can be commenced. The successful application of the methodology has been demonstrated in an example from the durable goods industry. Future research will be focussed on the validation and improvement of the approach by means of its application in different areas.

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