Balanced Scorecard Creation based on Value-Focused Thinking

Reinhard Kunz, Johannes Siebert, Joschka Mütterlein

Diskussionspapier Nr. 03-15
Dezember 2015

ISSN 1611-3837
Abstract

Balanced Scorecard Creation based on Value-Focused Thinking

Goal-orientation is key to strategic management. In this field, the Balanced Scorecard is one of the widest spread management tools. It structures a company’s main objectives in different perspectives based on the strategy of the company and shows performance indicators to measure the achievement of objectives and strategy. However, its method of creation is not theoretically sound. Value-focused thinking is a decision-making philosophy that fits perfectly to Balanced Scorecard creation. It provides methods and techniques for the identification and structuring of objectives that are suitable to systematically derive a scorecard from a means-ends network. However, such a means-ends network is often too complex for enduring use in strategic management. By adapting the network’s structure to the Balanced Scorecard’s layout, the profound and clear set of derived objectives and their measures provide a reasonable basis for applying methods of multi-criteria decision-making in an organization.

This paper aims at creating a procedure that merges Balanced Scorecard and value-focused thinking by preserving each concept’s strengths while eliminating their weaknesses. A six-step-process is developed theoretically and employed empirically in a case study. This process includes 1) identifying objectives, 2) structuring objectives, 3) identifying clusters of objectives, 4) formulating mission, vision, and strategy, 5) designing the scorecard, and 6) monitoring and adapting to change.

On the basis of this approach a Management Scorecard is created that enables strategy development and execution, provides a clear and comprehensive means-ends network and visualizes a company’s most important objectives and their relations structured in perspectives roughly following the Balanced Scorecard. It serves as a foundation for research to generalize and compare findings regarding objectives of organizations. Our procedure demonstrates how scientific methods such as value-focused thinking can provide benefit for practitioners’ instruments such as the Balanced Scorecard and how management tools can improve scientific methods.

Keywords: Value-focused Thinking, Balanced Scorecard, Strategic Management, Objectives, Means-Ends Network
1. Objectives in Strategic Management

Strategic management scholars have long emphasized the importance of goal-orientation, *i.e.* aligning all company processes to a company’s objectives (e.g. Drucker, 1954; Chandler, 1962). Several methods to identify and structure these objectives are provided by value-focused thinking (Keeney, 1992). Value-focused thinking “focuses on a philosophy of decision making that can use the techniques and mathematics of MAVT/MAUT” (Parnell et al., 2013). The resulting hierarchies and networks of objectives are able to fully and distinctively capture the most important objectives and their relations of an organization. Such a clear and comprehensive set of objectives serves as a starting point for almost all techniques and methods in multi-criteria decision-making, in particular the framing of a decision, the systematical identification of attractive alternatives (Siebert/Keeney, 2013), the gathering of preferences, the evaluation of alternatives, etc. Although value-focused thinking is well known among decision-making researchers, reports on its use in strategic management practice are scarce. The networks of objectives created with value-focused thinking called means-ends networks, rely on a type of visualization that often is too complex for enduring use in strategic management (Becker et al., 1995). Furthermore, most managers are not familiar with means-ends networks and therefore have difficulties in their interpretation.

Other fashions of structuring objectives have become more common in a strategic management context. Among them, Kaplan/Norton’s (1992) Balanced Scorecard has gained the most widespread practical use (Rigby/Bilodeau, 2013). The Balanced Scorecard is designed to measure whether a company achieves its strategy. In order to do so, objectives and performance measures matching the strategy are defined and assigned to different perspectives. Its strength is its simplicity: managers can judge the performance of different areas of their company by looking at just a few objectives and performance measures. Since the Balanced Scorecard is widespread, most managers are familiar with the design and functioning of this tool and are able to interpret it easily. However, the Balanced Scorecard has been criticized for its underlying assumptions (Nørreklit, 2000) and method of creation (Ahn, 2005). Although Kaplan/Norton strongly recommend using an individualized scorecard, in practice a generic Balanced Scorecard is often implemented. Even if a specific Balanced Scorecard is created for an organization, the applied process is often not
systematical. Instead, workshops among the company’s managers are used to discuss the company’s mission, vision, strategy, objectives, and performance measures (Kaplan/Norton, 2008a). However, this extensively binds capacity and causes cost. The resulting set of objectives might neither be clear nor comprehensive nor provide a sound basis for decision-making.

When put together, value-focused thinking and the Balanced Scorecard seem to be two concepts that complement each other perfectly for the purpose of decision-making in strategic management. One the one hand, value-focused thinking has already been taken into account to improve the Balanced Scorecard (Ahn, 2005). It could be used to systematically create an individualized scorecard that comprehensively captures the most important objectives of an organization and their relations and provides a sound basis for the use of methods of multi-criteria decision-making. Furthermore, the philosophy to start with the values of a decision maker fits perfectly to the spirit of the Balanced Scorecard. On the other hand, the simplicity and the well-known design and functioning of the Balanced Scorecard could be useful in order to communicate the results of a thorough decision analysis. Furthermore, the use of techniques and methods of value-focused thinking in combination with the simple layout of the Balanced Scorecard generates great potential for the field of multi-criteria decision-making, because a clearly structured set of objectives is the starting point of most of the analyses in the field. Against that background, we aim at creating a procedure that merges the two concepts and preserves their strengths while at the same time eliminating their weaknesses.

The remainder of this article is as follows: First, we explain the strengths and weaknesses of value-focused thinking and the Balanced Scorecard in more detail. Second, we describe our procedure to create a scorecard based on Keeney’s method. Third, we present the results of a case study employing this procedure, followed by a discussion and concluding remarks.
2. Value-Focused Thinking and the Balanced Scorecard

In his work on value-focused thinking, Keeney (1992) explains how values of an individual or an organization can be accessed to guide decision-making. The described method has since become a classic of the field of multi-criteria decision-making, which is illustrated by over 3,000 citations of Keeney’s initial book in Google Scholar. It has been used in various contexts such as identifying values of customers regarding Internet commerce (Keeney, 1999b), aiding group decision processes (McDaniels et al., 1999), structuring problems (Corner et al., 2001), determining supply chain risks (Neiger et al., 2009), or identifying and structuring the objectives of terrorists (Siebert et al., submitted). In addition, it has been acknowledged to be advantageous for identifying alternatives (Belton et al., 1997) and brought together with conflicting ways of thinking (Wright/Goodwin, 1999). Finally, researchers have emphasized the benefits of employing value-focused thinking in strategic planning (e.g. Bordley, 2001; Sheng et al., 2005), used it to create strategic options (Montibeller et al., 2006), and exemplified how values can be measured with utility functions (e.g. Bana e Costa et al., 1999; Barcus/Montibeller, 2008).

The paramount importance of values – or objectives, i.e. values expressed as an explicit statement of “what one wants to achieve” (Keeney, 1994: 793) – is also highlighted by strategy management scholars (e.g. Pearce, 1982; Nag et al., 2007). Objectives are a core concept in strategic management. They show the decision makers of a company the direction of their management. Different strategies can be used to achieve a company’s objectives. However, research indicates that decision makers experience difficulties in identifying relevant objectives on their own (Bond et al., 2008). To overcome this problem, value-focused thinking is well suited to create a comprehensive set of high quality objectives (León, 1999; Selart/Johansen, 2011).

Yet, reports on the use of value-focused thinking in strategic management practice or even regarding corporate problems (Parnell et al., 2013: 56) are scarce. Applications seem to comprise just isolated decision opportunities (e.g. Kajanus et al., 2004; May et al., 2013), but none show how value-focused thinking can be applied to create a framework for long-term
use in strategic management. The few available applications of the method indicate two possible causes: First, executing value-focused thinking is mentally more difficult than other approaches (Arvai et al., 2001). Second, networks of objectives, the results of an application of value-focused thinking, often require time and effort to be understood as they tend to be complex (e.g. Keeney/Mcdaniels, 1992; Keeney, 1999a). This is due to the non-hierarchical display of relations, i.e. including bottom-up, top-down, and same level relations in one visual, which quickly leads to clutter (Becker et al., 1995).

In the same year Keeney published his work, Kaplan/Norton (1992) introduced the Balanced Scorecard to improve companies’ strategic management. Kaplan/Norton’s scorecard is supposed to lose fixation on financial measures and take a broader view on company performance. In order to do so, Kaplan/Norton recommended looking at a company from four different perspectives: In addition to “financial” objectives, managers should consider “customer”, “internal business”, and “innovation and learning” objectives (1992). Kaplan/Norton emphasize that their Balanced Scorecard has rather to be viewed as a framework than as “a template that can be applied to businesses in general or even industry-wide” (1993: 135). As a consequence, it depends on each company’s individual objectives and strategy which perspectives and measures should be employed.

The Balanced Scorecard’s underlying structure usually contains the most important objectives of an organization that are clustered in the aforementioned four perspectives. Its creation takes time and effort, but the visualization focuses only on linear hierarchical relations, i.e. bottom-up relations. In addition, the Balanced Scorecard’s perspectives help to cluster objectives logically. As a result, the set of the most important objectives is easy to understand and designed for enduring use in strategic management (Kaplan/Norton, 2008a). Similar to value-focused thinking, the Balanced Scorecard proved to be highly influential. However, contrary to Keeney’s approach, it was not only intensively discussed in literature but also widely adapted by practitioners, becoming one of the top five management tools implemented by companies all over the world by 2012 (Rigby/Bilodeau, 2013).
In the 20 years following their initial article, Kaplan/Norton enhanced the Balanced Scorecard with other components (Hoque, 2014), e.g. strategy maps. These link objectives with each other and visualize supposed cause-effect relationships. Together, strategy map and scorecard form a comprehensive “management tool for describing, communicating and implementing strategy” (Kaplan, 2009: 1253). An existing or newly developed mission, vision, and strategy lay the foundation on which the Balanced Scorecard and strategy map are built, as shown in stages 1 and 2 in figure 1.

Figure 1. The closed-loop management system links strategy and operations (based on Kaplan & Norton 2008a: 65).

Both strategy map and Balanced Scorecard are part of “translate the strategy” in stage 2. They provide the necessary framework to plan (stage 3) and monitor (stage 4) operations according to strategic guidelines. In addition, they enable testing and adapting strategy (stage 5). However, regarding stage 1, Kaplan/Norton do not provide concise procedures for strategy development, but recommend approaches e.g. from Porter (1980), Mintzberg (1987), and
Christensen/Raynor (2003). Furthermore, Kaplan/Norton do neither provide a scientifically sound method for creating a company’s vision and mission, nor for systematically identifying a Balanced Scorecard’s objectives. Instead, they just emphasize the role of CEOs and leadership teams (Kaplan/Norton, 2008b: 21, 41, 45) or describe elements of good strategy statements and how these can incorporate objectives (Kaplan/Norton, 2008b: 59-66). Overall, there is little information on the processes of identifying vision, mission, strategy, and objectives besides vague references to workshops (Kaplan/Norton, 2008b: 63) and possible agendas for strategy-related meetings (Kaplan/Norton, 2008b: 221-249). Thus, Kaplan/Norton conclude that “strategy formulation remains an art, and not yet a science” (2008b: 251), although vision, mission, and strategy are the foundation for their scorecard.

Disconnecting strategy development and its translation into a Balanced Scorecard in such a manner can lead to problems (Ahn, 2005). When the scorecard does not complement strategy, it might decrease company performance (Braam/Nijssen, 2004). Furthermore, deriving objectives based on mission and vision can produce questionable results, as many mission and vision statements possess little explanatory power (Bart, 1997) and are not connected to companies’ true values (Bartkus/Glassman, 2008). In addition, the scorecard’s supposed linear hierarchical cause-effect relations between objectives have been criticized, suggesting using means-end relations instead (Otley 1999; Nørreklit 2000: 83). This is a link to the means-ends networks of value-focused thinking. Therefore, improving the method to identify objectives and connecting it directly to strategy development could improve the quality of the scorecard.

To sum up, on the one hand, value-focused thinking and its techniques and methods seem to have great potential to overcome the described problem of Balanced Scorecard creation because it is a concise method to identify objectives and means-end relations between them. On the other hand, the Balanced Scorecard provides an approved and widespread applied framework, which can be used to communicate a set of objectives. We propose to use this framework to communicate the core results of a means-ends network derived by applying value-focused thinking, which is more detailed and sophisticated but also more complicated and less clear than a Balanced Scorecard. Thus, combining both concepts could help to improve decision-making in strategic management.
3. Identifying and Structuring Objectives with Value-Focused Thinking

With value-focused thinking, Keeney (1992) provides techniques and methods to identify and structure objectives. Keeney suggests creating a means-ends network, \textit{i.e.} a network of objectives. It contains all relevant objectives of an individual or an organization and visualizes their structure. While doing so, it distinguishes between means objectives and fundamental objectives. Means objectives are just pursued to achieve other objectives while ends, also called fundamental objectives, are pursued for their own sake. Fundamental objectives that are used to guide strategic decisions are called “strategic objectives” (Keeney, 1994). Whether an objective is means or fundamental depends on the decision context. For example, in the context of “company performance” the objective “increase number of customers” is a means objective, but in the context of “impact of marketing actions” it is fundamental. This distinction is crucial for decision-making with multiple objectives because only fundamental objectives should be used to evaluate alternatives in order to prevent double counting. Furthermore, the use of fundamental objectives ensures preference independence, the central assumption for decisions with multiple criteria (Keeney/Raiffa, 1976; von Winterfeldt/Edwards, 1986).

Kaplan and Norton also use the term “strategic objective” in the context of the Balanced Scorecard. They refer to objectives considered in a Balanced Scorecard as “strategic” (Kaplan/Norton, 2008b: 61, 69). In the following, we use the definition of “strategic objectives” of Keeney in the context of multi-criteria decision-making and of Kaplan and Norton in the context of Balanced Scorecard.

We propose to use value-focused thinking techniques and methods to create a means-ends network that can be transferred into a Balanced Scorecard and used as a foundation for developing mission, vision, and strategy. Our process consists of the following six steps:
1) Identifying Objectives

Interviews with a company’s decision-makers and key employees by means of value-focused thinking techniques provide all the necessary information on objectives and their relations.

2) Structuring Objectives

A means-ends network is created by eliminating redundant objectives and, if necessary, by aggregating similar ones.

3) Identifying Clusters of Objectives

By shortening paths between objectives, clusters of objectives are formed. They indicate important areas of the company as well as objectives that have to be considered in a scorecard.

4) Formulating Mission, Vision, and Strategy

By selecting the most important objectives of each cluster mission, vision, and strategy can be derived.

5) Designing the Scorecard

The clusters serve as scorecard perspectives. Performance measures that are in accordance with the most important objectives are selected to assess whether the strategy is successful.

6) Monitoring and Adapting to Change

A regular evaluation of the company’s situation and performance may make it necessary to include new objectives in the means-ends network.

Including steps 1-4, this procedure takes techniques and methods of value-focused thinking as reference points. These have gone so far as to formulate a mission statement (Keeney, 1999a), but not beyond. In detail, the six steps are executed as follows.
Step 1: Identifying Objectives

“The most obvious way to identify objectives is to discuss the decision situation with decisionmakers and stakeholders” (Keeney, 1994: 798). Such discussions have to be prepared and conducted systematically. For preparation, interviewers should create an initial list of possible objectives and their relations by investigating academic literature, industry developments, and available company information. This kind of preparation helps to develop a deeper understanding of the company, which is necessary, as otherwise interviewees will have to explain certain issues at length while valuable interview time is lost. After this first part of preparation, an interview guideline is created based on Keeney’s ten techniques to identify objectives (Keeney, 1994: 798).

An important initial question concerns the choice of interview partners. There is a large amount of literature on sample composition and sizes (e.g. Creswell/Clark, 2010; Ritchie et al., 2013), but recommendations in relation to value-focused thinking are scarce. Regarding composition, e.g. Keeney (1994: 798) vaguely names decision-makers and stakeholders. Sample sizes range at least from ten people (Maitland et al., 2013) to “over 100” (Keeney, 1999b: 536), usually with individual interviews for up to around 30 people (e.g. Sheng et al., 2010) and group discussions or mixtures of interviews and group discussions for numbers above (e.g. Arvai et al., 2001). Regarding the occupation of interviewees, to conduct interviews with just the top management of a company would be the obvious solution, as they should know best about strengths, weaknesses, opportunities, and threats. Nevertheless, employees might provide more detailed insights, e.g. into company processes or relationships with customers. The best combination of interview partners’ occupations and the optimal number of interviews are issues that have to be thought about to increase the quality of the results, the efficiency of the study, or both. To collect all relevant information, the purposes of step 2 (regarding relations of objectives), step 4 (regarding the creation of mission, vision, and strategy), and step 5 (regarding performance measures) below have to be considered as well for the choice of interview partners as for the design of the interview guideline.
All interviews should follow the same semi-structured guideline to enable consolidation of the results. As objectives are often not stated explicitly, but hidden in sentences such as “if we do not finally improve our internal communication, we will never be able to unleash our employees’ creativity”, conducting the interviews requires the interviewer to be highly attentive to details. In order to not miss important objectives, an additional note-taker as well as recording and transcription are useful and highly recommended.

The procedure to analyze the interviews follows Mayring’s qualitative content analysis approach (Mayring, 2003; 2014). Objectives are derived from quotes of interviewees. According to Keeney’s definition of “objectives”, the final statement of an objective has to cover the decision context, an object, and a direction of preference (Keeney, 1994). Regarding the latter, the case study will demonstrate that stagnation can also be a direction of preference, e.g. if the objective aims at avoiding an undesired future condition.

**Step 2: Structuring Objectives**

In addition to stating objectives according to the definition above, their relations to each other have to be identified. Some relations are obvious: the sentence “if we do not finally improve our internal communication, we will never be able to unleash our employees’ creativity” can be transformed to “improve internal communication” in order to “increase employee creativity”. In the context of a company’s capability for innovation, the first is a means objective, the second is the fundamental objective. However, interviewees usually do not state relations this obviously. By asking why specific objectives are important and how they can be achieved, further objectives can be identified and relations between objectives become clear (Keeney, 1994: 798). The question “Why is that objective important?” is also known from other approaches to identify means-end relations, e.g. the laddering technique used in marketing to create a means-end chain (Reynolds/Gutman 1988).
<table>
<thead>
<tr>
<th>Objective ID</th>
<th>B1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type and relation</strong></td>
<td>Means objective of B2, B3, C1</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Improve internal communication</td>
</tr>
<tr>
<td><strong>Quote</strong></td>
<td>“If we do not finally improve our internal communication, we will never be able to unleash our employees' creativity.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective ID</th>
<th>B2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type and relation</strong></td>
<td>Fundamental objective</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Increase employee creativity</td>
</tr>
<tr>
<td><strong>Quote</strong></td>
<td>“If we do not finally improve our internal communication, we will never be able to unleash our employees' creativity.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Objective ID</th>
<th>B3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type and relation</strong></td>
<td>Fundamental objective</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td>Reduce resistance to change</td>
</tr>
<tr>
<td><strong>Quote</strong></td>
<td>“Better communication will also help to reduce resistance. Many employees don’t want this company to change.”</td>
</tr>
</tbody>
</table>

**Table 1:** Sample of identified objectives and relations of interviewee A.
The resulting list of objectives and relations can be designed as shown in table 1. Working with identification numbers (IDs) helps to indicate relations without creating laborious visuals. Each interviewee’s objectives and relations should be kept in their own list, i.e. separated from those of other interviewees. For correction and validation purposes each interviewee should receive their list of objectives and relations. This further provides confidence for the interviewees giving them control over their data.

As soon as all individual lists are validated, objectives and relations should be aggregated. On the one hand, many interviewees will name the same or similar objectives and relations, while on the other hand, no interviewee will be able to identify all objectives and relations by themselves. Due to that, redundancies have to be eliminated without sorting out relations one interviewee has named for a redundant objective and another has not. For example, one interviewee might state “improve internal communication” in order to “increase employee creativity” while another mentions “talk more with each other” in order to “increase process efficiency”. Both means objectives can be summed up as “improve internal communication”, i.e. the second objective can be eliminated. However, its relation has to be kept, as it provides additional insights. As a result, “improve internal communication” leads to “increase employee creativity” and to “increase process efficiency” in the aggregated list, although no one interviewee has named both relations in a single interview.

Eliminating redundancies this way can become an exhaustive task when many objectives have to be examined. After all individual lists are put together in a large list (e.g. using a spreadsheet program such as Microsoft Excel), sorting objectives and their relations roughly into provisional categories helps to keep the overview. Such categories can be derived from the literature. Once all objectives and their relations are sorted into one of these categories, redundancies can be more easily detected and eliminated.

As soon as objectives and relations are aggregated, some objectives will not have any relations at all. Depending on the context, this could be indicating that a fundamental objective has been identified. However, in the context of any profit-oriented company’s overall existence, all objectives will eventually be means to objectives regarding financial
survival or growth, i.e. maintaining or increasing company value (e.g. Freeman, 1984; Donaldson/Preston, 1995). Thus, when creating a means-ends network for a company as a whole, objectives in addition to the mentioned financial ones are supposed to have relations to other objectives. Some relations are still missing after aggregation and have to be added logically to complete the network and to understand it as a whole. In addition, it might be necessary to add important objectives that have been mentioned in literature but interviewees forgot to name. However, especially additions regarding objectives have to be chosen carefully and inserted in as few a number as possible in order to not change the substance of the means-ends network. In the end, the means-ends network has to represent the individual values and objectives of the company, not those read into it, e.g. by a decision analyst.

<table>
<thead>
<tr>
<th>Network</th>
<th>Objective</th>
<th>Relation 1</th>
<th>Relation 2</th>
<th>Relation 3</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increase ROCE</td>
<td></td>
<td></td>
<td></td>
<td>Financial</td>
</tr>
<tr>
<td>2</td>
<td>Increase profits</td>
<td>Increase ROCE</td>
<td></td>
<td></td>
<td>Financial</td>
</tr>
<tr>
<td>33</td>
<td>Increase</td>
<td>Increase profits</td>
<td></td>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td>34</td>
<td>Improve</td>
<td>Increase</td>
<td>Increase</td>
<td>Reduce</td>
<td>Internal</td>
</tr>
<tr>
<td>35</td>
<td>Create more</td>
<td>Increase profits</td>
<td></td>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td>36</td>
<td>Reduce</td>
<td>Increase</td>
<td></td>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td>70</td>
<td>Increase</td>
<td>Create more</td>
<td></td>
<td></td>
<td>Employee</td>
</tr>
<tr>
<td>n</td>
<td>Improve technological</td>
<td>Create more innovative</td>
<td></td>
<td></td>
<td>Technology</td>
</tr>
</tbody>
</table>

*Table 2: Sample of finalized aggregated list of objectives and relations.*

To keep track of changes during the process, three IDs should be assigned. An Objective ID helps to illustrate relations between objectives of an individual interviewee, as shown in table 1. As soon as the objectives of an individual interviewee are transferred to the aggregated list, the Objective ID receives a prefix that indicates which interviewee the
objectives belong to. This ID is named “Origin ID”, as it shows the origin of each objective. The last ID, called “Network ID”, is given to objectives that are adopted in the means-ends network. Table 2 displays Network IDs and the corresponding objectives, the relations of these objectives to superior objectives, and the area – i.e. provisional categories – each objective belongs to.

**Financial Cluster**

- Increase ROCE (1)
- Increase profits (2)

**Internal Process Cluster**

- Increase process efficiency (33)
  - Improve internal communication (34)
  - Create more innovative products (35)
  - Reduce resistance to change (36)

**Employee Cluster**

- Increase employee creativity (70)

**Technology Cluster**

- Improve technological infrastructure (n)

**Figure 2:** Visualization of the sample objectives and relations.
Visualizations of large networks can get confusing and some relations might need to be looked up in the Excel-list. The Network ID serves as a cross-reference between this file and the network (see first row of table 2 and numbers in figure 2). Using the Origin ID for this purpose is not recommended, as observers might draw conclusions from a combination of objectives with the same prefix on the identity of the interviewee. Due to that, only the Network ID should be made public with the Excel-list. Table 2 exemplifies how the final aggregated Excel-list can look like.

After the Excel-list is completed, the means-ends network should be visualized using e.g. a diagramming application such as Microsoft Visio. Objectives and relations have to be placed one by one in the visual, gradually building the means-ends network top-down. Starting from the top is recommended, as financial objectives usually have to be placed at the top and are comparatively few in number. Other objectives are placed according to their relations to the financial objectives. These are often indirect, i.e. via one or more non-financial objectives with relations to financial objectives. Figure 2 exemplifies how the sample objectives and relations from table 2 are visualized.

**Step 3: Identifying Clusters of Objectives**

So far, objectives have been sorted into provisional categories. Using the visualization of the means-ends network, these categories have to be reviewed to identify the final clusters. As objectives and clusters differ from company to company, a logical analysis of each objective’s context is necessary. Some categories might contain many objectives, others few. This might indicate that a category should be split in two or more single clusters or should be integrated in another category in order to receive a merged cluster. In addition, many long edges (relations) from objectives in one category to those in another might indicate that these categories belong together, i.e. that they should be merged to a single cluster. Thus, shortening the edge lengths between objectives supports in identifying clusters. As a result of
this procedure, the final number of clusters of a means-ends network might not be in accordance with the number of categories derived from literature.

Each final cluster of the means-ends network can be seen as a specific context that has its own fundamental objective. For the internal process cluster from figure 2, this fundamental objective would be “increase process efficiency”, for the financial cluster “increase ROCE”. However, in the broader context of “be a successful company”, the latter is the only fundamental objective. Objectives such as “increase process efficiency” that are fundamental in the context of their cluster, but just means in an overall company context, play a special role. As they represent an important area (cluster) of objectives, they have to be taken into account when making strategic decisions. In addition, for strategic decision-making some means objectives within clusters might be nearly as important as the fundamental objective of the cluster. For example, these means objectives might serve as important points of intersection for many relations or help to understand the relations between fundamental objectives of different clusters. As described at the beginning of this chapter, such objectives can be regarded as “strategic objectives” in the context of the Balanced Scorecard.

The procedure described so far has resulted in a large diagram of the whole means-ends network. It is displayed hierarchically according to the relations between objectives, which are grouped according to the identified clusters. As a final step, the column “area” in the Excel-list has to be updated so that all objectives are assigned their new cluster names, where necessary. In addition, another column that specifies whether an objective is strategic or not has to be included in the Excel-list.

**Step 4: Formulating Mission, Vision, and Strategy**

Before the Balanced Scorecard is designed, it is necessary to consider a company’s mission, vision, and strategy. As described in the last chapter, a Balanced Scorecard is usually derived from strategy, which has previously been derived from mission and vision (Kaplan/Norton
2008a: 65). When instead deriving the Balanced Scorecard from a large means-ends network, mission, vision, and strategy are either missing or potentially not in accordance with the Balanced Scorecard.

For many companies, that is less of a problem than an opportunity, e.g. because often mission statements possess little explanatory power and are not connected to companies’ true values (Bart, 1997; Bartkus/Glassman, 2008). With the systematical procedure described here, companies can identify objectives and, using them, create a scorecard that represents their true values. In addition, the means-ends network can serve as a foundation to derive mission, vision, and strategy that match company values. Thus, the combination of means-ends network and Balanced Scorecard becomes a comprehensive tool for strategy development and execution, which we would call a “Management Scorecard”.

In developing such a Management Scorecard, interviewers have to make sure that they find the right interview partners and develop an interview guideline that covers all areas relevant to formulate a good mission, vision, and strategy (e.g. David, 1989; Collins/Porras, 1996; Hambrick/Fredrickson, 2001). Even if a company has a mission, vision, and strategy, creating a means-ends network provides valuable insights. In the best case, the result is in accordance with mission, vision, and strategy. If not, it should be clarified why these three elements are differing from a company’s objectives and, thus, its true values.

**Step 5: Designing the Scorecard**

Using the large means-ends network as a foundation, the Balanced Scorecard is derived. As a simplified version of the means-ends network, it contains all its clusters, but solely strategic objectives (as defined above). The clusters serve as the Balanced Scorecard’s perspectives. To enable managers to understand their meaning faster, each perspective’s core purpose should be summarized in one short statement. It describes how fulfilling all strategic objectives of a perspective contributes to company success. This roughly follows the example of Kaplan &
Norton, who define questions, which each perspective has to answer. For example, they assign their financial perspective the question “How do we look to shareholders?” (Kaplan/Norton 1992: 72).

Although the Balanced Scorecard can be derived from the large means-ends network comprehensively, it might be necessary to add further strategic objectives to the scorecard. One possible reason is that interviewees have named several objectives describing a business issue, but are lacking the knowledge to state it as one precise objective, e.g. regarding “customer profitability”. As the Balanced Scorecard needs precise objectives in order to not grow too large, it might be necessary to add them although no interviewee has named them explicitly. Another possible reason is that in order to define mission, vision, and strategy, the inclusion of one or more additional strategic objectives is required, e.g. because the view of an important stakeholder has been missed during the interviews. The Excel-sheet with information on objectives and relations and the means-ends network have to be changed accordingly.

Then, as the Balanced Scorecard contains only strategic objectives, the relations between them have to be remodeled. A large means-ends network can contain several hundred objectives, but among them are only few strategic objectives. Accordingly, a large means-ends network contains several hundred relations, but only a few of them are necessary to visualize the relations between strategic objectives. To remodel the relations between objectives, first all relations to and from means objectives that are not strategic are made continuous so that they overleap the non-strategic means objectives. Second, these means objectives are eliminated. Third, similar relations are aggregated. This results in a Balanced Scorecard that contains only strategic objectives and their relations, sorted in perspectives.

Furthermore, a Balanced Scorecard has to provide performance measures to enable monitoring whether a company achieves its objectives (Otley, 1999). Often, standard or financial measures are chosen, which can lead to problems because these measures might not fit company-specific non-financial objectives (e.g. Lipe/Salterio, 2000; Libby et al., 2004). As a result, the wrong issue might be measured. However, measures can indeed be obvious,
especially for financial objectives. For example, “profit” is an appropriate measure for “increase profit”, “ROCE” for “increase ROCE” (e.g. Nielsen/Nielsen 2008).

Selecting measures for other objectives can become challenging, e.g. for “reduce resistance”. To monitor the achievement of such objectives that either cannot be measured directly or lack a scale to be measured, proxy or constructed attributes are used. Proxy attributes relate to an objective, constructed attributes create a scale to measure an objective if it has no inherent scale (Keeney/Gregory, 2005). In case of “reduce resistance to change” a proxy attribute would be the number of complaints against decisions, a constructed attribute would be a survey among employees regarding management decisions. Another option is to ask interviewees about measures for objectives, as suggested by Keeney (1994: 798). These measures could also be used in multi-criteria decision-making.

After all perspectives, strategic objectives, relations, and performance measures are determined, the means-ends network and the Balanced Scorecard can be finalized. This includes adjustments of the design and validation with the management board. The latter is especially important because objectives named by employees are treated in the same manner as those named by management or the CEO. Having management approve the results obviates resistance against the means-ends network and the Balanced Scorecard, which might occur due to not granting priority to any stakeholder’s objectives.

**Step 6: Monitoring and Adapting to Change**

Any Balanced Scorecard’s quality depends on its implementation and on regular evaluations (e.g. Assiri et al., 2006). One of the main tasks is to ensure that appropriate data for performance measures are collected. In addition, whether data quality matches requirements and whether strategy matches objectives (and vice versa) has to be monitored. If necessary, the means-ends network and the Balanced Scorecard have to be adapted by starting the process again. However, as the means-ends network displays a company’s usually slow
changing values (Collins/Porras, 1996), such adaptations do not require the same effort as the first creation of the means-ends network.

4. Case Study at a Newspaper Company

We applied the described procedure at the Nordbayerischer Kurier, a German regional newspaper company. The Nordbayerischer Kurier employs a staff of 200 and additionally 500 freelance journalists. It mainly offers a printed newspaper with a circulation of 35,000. Furthermore, it operates a news website and distributes advertisement products in print.

In total, we conducted 21 interviews with management and members of staff from different areas of the company. The first round included eleven interviews in April 2013 and focused on identifying a broad set of objectives and relations. In June 2013, we conducted the second round of interviews and concentrated on relations. One main interviewer led all interviews and was assisted by two note-keepers. Additionally, we recorded the interviews on tape.

Durations of the interviews ranged from 47:03 to 100:23 minutes with an average of 72:27 minutes during the first eleven interviews. The other ten interviews lasted between 22:20 and 53:53 minutes, on average 37:57 minutes, because the focus was stronger and interviewees increasingly repeated themselves. During the first round, 78.6 objectives and 48.8 relations were named on average. The second round provided 41.8 objectives and 49.6 relations on average. In total, we identified 1,283 objectives and 905 relations that were validated by interviewees. For our case study, we have analyzed research on media and newspaper companies for categorization purposes. We derived financial, recipient, advertiser, content, internal business process, employee, policy, and technology categories (e.g. Demers, 1998; Küng, 2000; Tjernström, 2002; Massey/Ewart, 2012). After aggregating, complementing, and clustering the identified objectives and relations as described in steps 2 and 3 of our procedure, we received a means-ends network with 698 objectives and 1,009 relations.
This means-ends network was then reduced to create the scorecard. By including only strategic objectives and remodeling relations, we eventually derived a network of 33 objectives and 65 relations. These are clustered in seven perspectives, which is one less than the categories originally derived from literature. For our object of investigation, the policy category was not relevant. The Nordbayerischer Kurier’s management approved the final result as shown in figure 3. In addition, purpose statements for the perspectives and performance measures for the objectives were defined.

As we develop a methodology and a guideline for its implementation in this paper, we keep our case study short. More details about the study and the applied approach as well as a discussion of the empirical results, i.e. the media-specific Balanced Scorecard, including an evaluation of the applicability for media companies to address their problems in a changing landscape due to digitalization, are published elsewhere (Kunz et al., 2015).

One additional remark has to be made regarding the definition of objectives applied in this paper: Objectives such as “provide required infrastructure”, “present content credibly”, and “satisfy recipients” seem to lack a direction of preference. This is due to many interviewees stating that they are satisfied with the status quo. As they did not want to emphasize improvement, these objectives imply stagnation as a direction of preference.
Figure 3. Balanced Scorecard of a newspaper company created with value-focused thinking.
5. Implications for Research and Practice

The Balanced Scorecard has been criticized for presenting linear hierarchical cause-effect relations that are not empirically validated (Otley 1999). Instead, it has been suggested to use non-hierarchical relations, such as means-end relations (Nørreklit 2000: 83). Value-focused thinking provides these relations, but the resulting visualizations tend to be cluttered (Becker et al., 1995). To solve this problem, it helps to reduce the number of objectives and relations and to introduce perspectives roughly following the well-known structure of the Balanced Scorecard, as described in our procedure (six-step-process) above.

This greatly facilitates understanding the results of an application of value-focused thinking in profit-oriented organizations. Analyzing the objectives of a company differs from analyzing those of an individual, because companies need to emphasize financial objectives for their economic success (e.g. Freeman, 1984; Donaldson/Preston, 1995). The Balanced Scorecard’s structure reveals many mechanisms that support in achieving such objectives. By applying the scorecard’s structure to a means-ends network, an organization’s objectives can be better viewed and interpreted as a whole. For research, this enables comparisons between organizations and generalization of results. For practice, uncovering strengths and weaknesses as well as defining mission, vision, and strategy becomes easier.

At the same time, the scorecard creation benefits from applying value-focused thinking. For example, identifying the scorecard’s measures is easier with the means-ends network at hand: As research has shown, suitable measures are better found if relations between objectives are uncovered with an objectives network, e.g. a strategy map or a means-end network (Pandey 2005; Assiri et al. 2006; Othman 2006). By providing more inspiration for good measures that are specific for each organization, the means-ends network might also help to overcome a financial bias in measures for non-financial objectives (e.g. Roberts et al., 2004; Rich, 2007). Furthermore, instead of identifying objectives and measures for multi-criteria decision problems, these objectives and measures could be used.
Moreover, with our procedure the process to create a scorecard becomes more systematical. Applying methods and techniques of value-focused thinking in interviews with managers and employees ensures that all important objectives and their relations are uncovered. During the interviews, the categories derived from literature help to take all important company areas into account. Additionally, different opinions from all over the company are considered, not just top management’s sometimes isolated view on the company. This leads to higher acceptance for strategic decisions, because key players have received a voice during the objective networks’ creation (Keeney, 1999a) and the means-end relations make objectives seem easier achievable, thus increasing motivation (Webb, 2004). Besides, creating the means-ends network and scorecard is comparably effortless for a company’s employees and managers with only a one-hour interview and the validation of results.

![Diagram](image)

**Figure 4.** Connecting mission, vision, strategy, and scorecard to a company’s objectives.

Furthermore, although a huge amount of objectives and relations can be accessed using the means-ends network, it is at the same time possible to focus only on the most important strategic objectives via the scorecard. This way, the latter can be used in strategic management to judge a company’s performance, while the former can serve as stimuli to create alternatives (Keeney, 1994; Siebert/Keeney, 2013). In addition, the means-ends network can serve as a foundation to overcome the disconnection of strategy development and its translation into a Balanced Scorecard (Ahn, 2005), making strategy formulation more of a science than an art. All elements of strategic management are derived from the means-ends network and therefore directly connected to a company’s objectives, as visualized in figure 4. In this context, we speak about a Management Scorecard as a comprehensive tool for strategy development and execution to be used by the company’s decision-makers.
6. Conclusion, Limitations and Further Research

We aimed at creating a procedure that allows for combining the strengths of value-focused thinking and the Balanced Scorecard while at the same time eliminating their weaknesses. With the six-step-process described above, we have outlined a systematic fashion to create a scorecard and simplified the objectives network that results from an application of value-focused thinking. The outcome can improve companies’ strategic management and connect management tools such as mission and scorecard better. A Management Scorecard can be the result, i.e. a comprehensive tool for strategy development and execution. In addition, it serves as a foundation for research to generalize and compare findings regarding objectives of organizations. This contributes to multi-criteria decision-making by providing a sound approach for deriving a clear and comprehensive set of a company’s management objectives. The widespread framework of the Balanced Scorecard can be used to communicate the results of detailed and sophisticated means-ends networks created by decision analysts. Furthermore, creating a Balanced Scorecard is a great opportunity for decision analysts, since companies are highly interested in improving their performance. A decision analyst could use the objectives to help the company identifying and evaluating alternatives. In that sense, when created with value-focused thinking, the well-known structure of the Balanced Scorecard could serve as a foundation to increase the decision makers’ willingness to apply other multi-criteria decision-making techniques.

However, while the procedure does not lock up management or staff resources as other approaches would, it can become challenging for the person(s) creating the means-ends network and the scorecard when the number of objectives grows large. In addition, the revealed means-ends relations represent the opinions of interviewees and are not empirically verified, just as the Balanced Scorecard’s cause-effect relations (Otley 1999; Nørreklit 2000). Finally, clustering objectives has to be done qualitatively to consider individual characteristics of the company, which can make generalization of results more difficult.
Further research could improve clustering of objectives by developing a more quantitative-based method (Romesburg, 2004). Moreover, there is room for research applying our procedure to compare objective networks of different organizations. Finally, research could investigate which number and combination of interviewees provides the deepest insights into strategic objectives of a company – as the case study has shown, employees can contribute a great amount to this. The huge variance in the number of interviews conducted to create a means-ends network has also been remarked by Dhillon/Torkzadeh (2006: 297), but so far, there is no evidence on an optimal range.

All in all, our procedure demonstrates not only how scientific methods such as value-focused thinking can provide benefit for practitioners’ instruments such as the Balanced Scorecard, but also how management tools can improve scientific methods. Combinations of both as outlined in this paper could advance other methods and tools as well, to both sides’ advantage.
References


Siebert J, von Winterfeldt D, John R. Identifying and structuring the objectives of the “Islamic State of Iraq and the Levant” (ISIL) and its followers. *Submitted*.


Zuletzt erschienene Papiere:

02-15 Ahlert, Marlies Pfarr, Christian
The acceptance of priority criteria in health care: international evidence

01-15 Hohberger, Stefan Kraus, Lena
Is fiscal devaluation welfare enhancing? A model-based analysis

06-14 Pfarr, Christian Schmid, Andreas Mørkbak, Morten R.
Identifying latent interest-groups: An analysis of heterogeneous preferences for income redistribution

05-14 Ahlert, Marlies Pfarr, Christian
Attitudes of Germans towards distributive issues in the German health system

04-14 Mühlbeyer, Johanna Held, Johanna
Untersuchung des Attitude-Behavior-Gaps im Bio-Produkte-Segment

03-14 Cassel, Dieter Ulrich, Volker
AMNOG-Schiedsstelle: Schlichter oder Richter? Schiedsamtliche Preisermittlung bei neuen Arzneimitteln jenseits von Angebot und Nachfrage

02-14 Erler, Alexander Hohberger, Stefan
The real costs and profits of TARGET 2 balances

01-14 Cassel, Dieter Ulrich, Volker
Determinanten der Preisunterschiede von Arzneimittel-Innovationen – Eine empirische Analyse von EU-Ländern

07-13 Siebert, Johannes Keeney, Ralph L.
Stimulating the Creation of More and Better Alternatives

06-13 Keeney, Ralph L. Siebert, Johannes
Proaktive Entwicklung besserer Alternativen mit Value-focused Thinking

05-13 Just, Lars Šaljanin, Salem
Indirect Taxation in Durable Goods Markets

04-13 Hohberger, Stefan Vogel, Lukas Herz, Bernhard
Fiscal policy rules and current account adjustment

03-13 Pfarr, Christian Schmid, Andreas Ulrich, Volker
You can’t always get what you want – East and West Germans attitudes and preferences regarding the welfare state

02-13 König, Markus Pfarr, Christian Zweifel, Peter
Mutual Altruism: Evidence from Alzheimer Patients and Their Spouse Caregivers

01-13 Pfarr, Christian Schmid, Andreas
The political economics of social health insurance: the tricky case of individuals’ preferences

11-12 Woratschek, Herbert Durchholz, Christian Maier, Christopher
Do Innovative Sport Services Open New Ways to Realize Additional Motivations? An Exploratory Study of Passive Sports Consumption in Public Viewing Arenas

* Weitere Diskussionspapiere finden Sie unter
http://www.fiwi.uni-bayreuth.de/de/research/Working_Paper_Series/index.html