Strategy-based prioritisation of KPIs using the fuzzy analytic network process

An application in the context of shared services

During the design of a performance management system, decision makers are faced with the challenge to prioritise key performance indicators (KPIs) with regard to their accuracy in reflecting the goal achievement. To solve this prioritisation problem, the fuzzy analytic network process (FANP) is applied. This enables decision makers to quantify the relative importance of each KPI. The concept is proven by a case study within a shared service centre (SSC).

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1. Prioritisation of KPIs – importance, challenges, and requirements

During the design phase of a performance management system, decision makers are inter alia faced with the challenge of prioritising key performance indicators (KPIs). It is important to identify the KPIs that best reflect the achievement of the organisation’s vision and that thereby completely acknowledge its goal structure (see Carlucci, 2010).

When prioritising KPIs, decision makers have to consider different financial and non-financial KPI alternatives and recognise the dependencies between KPIs, the organisation’s strategic goals, its performance dimensions, and its vision. Furthermore, different stakeholder opinions enter the process of KPI prioritisation, thereby making the prioritisation of KPIs a complex decision-making problem. In many cases, the complexity of the decision-making problem is not sufficiently considered because no flexible and transparent as well as guiding and structured decision-making support is used. To solve such a complex real-life business problem, decision theory suggests using multi-criteria decision-making (MCDM) methods (see Fritze, 2017). Such methods allow for the structuring of the decision problem, guide through its conversion into sub-problems, and enable the development of analytical solutions. One such method is the fuzzy analytic network process (FANP). The FANP enables decision makers to quantify the relative importance of each KPI to achieve the organisation’s vision by considering its underlying goal structure. Therefore, by analysing the collected data, decision makers gain insights into the importance of each KPI with respect to the organisation’s goal structure. This process produces a cardinal KPI ranking. Furthermore, due to the process’ flexibility, different stakeholder opinions can be incorporated, analysed, and compared, which promotes the discussion between stakeholders and creates not only transparency but also a basis for mutual comprehension. Additionally, based on the resulting information, decision makers are empowered to uncover areas of improvement in their existing performance management systems.

In order to demonstrate the feasibility of prioritising KPIs in alignment with organisational strategy by means of the FANP and to demonstrate the advantages of this approach, the article at hand, which is based on the dissertation of Fritze (2017), provides a real-life case study in the area of shared service centres (SSC). SSCs are hybrid organisational forms with own visions, strategies, goals, and business plans. Hence, in new areas of application – such as the finance organisation of companies – SSCs also can be classified as new business models with unique characteristics. However, despite a major trend towards the implementation of shared service centres has emerged, experience suggests that SSCs do not always meet their expectations in terms of cost savings, quality, and efficiency im-
provements. This shortfall can be ascribed to different factors, including performance management (see Davis, 2005; Häusser, 2013). Therefore, the performance management of SSCs is a suitable area of application for illustrating the strategy-based KPI prioritisation process.

The remainder of this article is structured as follows. First, we give an overview on the fundamentals of performance management of SSCs and the fuzzy analytic network process. This is necessary so that the reader is prepared to fully understand the following explanations on the process for the prioritisation of KPIs. Second, we describe each process stage to make the approach comprehensible. Thereby, we illustrate the process description by means of a real-life case. This article ends with a review of the presented process and some final remarks on the results.

2. Fundamentals of performance management, shared service centres and analytical decision support

Strategy-based performance management of shared service centres
Empirical and literature-based findings precisely indicate the considerable importance of performance management within the implementation and management of an SSC. Performance management can pinpoint where further performance gains can be achieved through internal and external benchmarking and sharpen the SSC’s focus on, e.g., the customer (see Cecil, 2000). Further, performance management allows the introduction of a variable remuneration system that rewards good performances and penalises bad performances, which affects employees’ behaviours, pushing them to act in accordance with the SSC’s vision (see Shah, 1998). While designing an SSC is important, the design must also be put into action. At that point, the SSC must prove that it generates value. To provide evidence of such value creation, a comprehensive set of KPIs must be developed to evaluate the SSC’s operating success (see Bergeron, 2003; Quinn et al., 2000; Schulman et al., 1999).

On the one hand, performance management includes the development of KPIs at an operational level for each activity, process, or service line, which are tracked on a daily, weekly, or monthly basis (see Fig. 1). On the other hand, it also includes setting up strategic management for KPIs on an SSC, regional, or an overall organisational level, which are analysed, e.g., quarterly, biannually, or annually (see Schulman et al., 1999). In this regard, Schulman et al. (1999) emphasise implementing a balanced scorecard (BSC) to steer the SSC towards a top level and to identify the impact of current actions on critical dimensions of the SSC’s performance. A BSC will enable the SSC to establish a direct link with the overall organisational strategy, to draw a comprehensive, multidimensional picture on performance, and to achieve a certain level of consistency and balance among KPIs. Furthermore, such a BSC can be used as a tool to communicate the SSC’s vision and to stir up a dialog between the SSC and its customers (see Chang et al., 2013; Quinn et al., 2000). Similarly, the empirical evidence shows that KPIs should address different performance dimensions – depending on the SSC’s strategic orientation – such as customers, competitiveness, employees, and processes (see Fritze, 2017). Ulrich (1995) particularly emphasises the importance of customer value, cost, and cycle time measures. Similarly, Davis (2005) argues for customer satisfaction and regular customer feedback on the quality of services. However, the design of a BSC and the set-up of a well-integrated and suitable set of KPIs are challenging. In reality, decision makers generally have access to various KPIs that track activities regarding time, costs, and/or quality (see Fritze, 2017). Carlucci (2010) suggests that collecting countless KPIs that are put to one side and forgotten is a waste of resources and complicates the steering of an SSC rather than benefitting it. Hence, prioritising and selecting a clearly limited number of simple and steering-relevant KPIs is important.

Consequently, the question becomes what kind of KPIs and how many should be measured (see Quinn et al., 2000). In this regard, Schulman et al. (1999) suggest tracking five to ten KPIs per work area. To refine the KPI pool and eliminate insignificant KPIs from reporting, KPIs must be filtered in terms of, e.g., understandability (see Schulman et al., 1999; Quinn et al., 2000). Further it is important to identify these KPIs that have a high degree of accuracy in measuring the SSC’s goal achievement. However, identifying these KPIs can be quite challenging because it is not always obvious to what extent a KPI mirrors the SSC’s goal achievement. This problem is magnified because different SSC’s goals influence one another. Thus, decision makers must consider the KPI’s degree of accuracy, the importance of each goal, and the interdependencies between them simultaneously (see Fritze, 2017).

Although decision makers can – in most cases – choose from a wide range of KPIs to evaluate a specific process, they argue that doing so becomes more difficult as the process’ complexity increases.
As outlined above, decision makers of an SSC expend ample effort to quantify various KPIs rather than concentrating on the most relevant ones. This tendency can be ascribed to this particular challenge, which concerns the prioritisation of KPIs. aforementioned challenge calls for the use of a flexible, transparent, simultaneously structured, and guiding process to identify the KPIs that best reflect the degree of achievement of the SSC’s vision. The prioritisation of KPIs involves making decisions, responding to internal and external changes, and achieving goals. This circumstance calls attention to decision theory. Hence, the prioritisation of KPIs within an SSC’s multidimensional performance management system constitutes a complex decision problem. To solve a complex decision problem, decision theory suggests using a decision-making procedure such as the FANP, which is particularly suited to solve above outlined prioritisation problem. The next paragraph contains a short explanation on the FANP.

Fuzzy analytic network process

The FANP alpha-cut approach used to address KPI prioritisation includes six steps (for basics on the analytic network process (ANP) see also Chung et al., 2005; Staty, 1996). For reasons of simplicity we abstain from explaining the detailed calculation technique in this article but focus on explaining the general idea behind the approach by summarising the approach into three main phases.

Model construction and problem structuring

First, the above described decision problem (in this case: prioritisation of KPIs) has to be structured. Decision makers can obtain a structure for their decision problem through brainstorming or a literature review (see Wu et al., 2011). A structured decision problem generally includes clusters and elements (also called nodes; see Fig. 2). Elements are commonly attributes, goals, or criteria (e.g., vision, performance dimensions, and strategic goals) and alternatives (e.g., KPIs). A cluster generally includes homogenous elements that are part of the decision problem, such as strategic goals, which focus on the same performance dimension. A cluster may also include all the alternatives, such as KPIs. Boxes graphically display the clusters. The arcs between clusters represent the dependencies between the elements (nodes) of the clusters. Furthermore, an arc indicates whether there is feedback (two-directional dependence) between these elements. Feedback within clusters (inner dependencies) is
indicated by cycles that connect the elements of one cluster. Feedback between the elements of different clusters is indicated by two-sided arcs. Moreover, the arc tip indicates the source of influence. The source of the dependency represents the „parent” node. Depending on the complexity of the decision problem, different structures can arise. Some decision problems may contain sources and sinks. Sources are clusters that are the origin of the path of influence (arcs that only go out), whereas sinks are the destination of influence and never an origin of such a path (arcs that only go in). Other decision problems can contain, e.g., solely sources and cycles or only cycles (see Saaty/Vargas, 2013). Because different degrees of complexity exist within a network, different ways of structuring and modelling these relationships also exist.

**Pairwise comparisons**

Modelling the decision problem is the first step; subsequently, the decision maker is asked to make pairwise comparisons, meaning that two elements or clusters of the decision-making model are compared with respect to an evaluation criterion in terms of their importance, influence, or the ways in which they contribute to this particular criterion (see Chung et al., 2005). For example, two KPIs are compared with each other with respect to a specific strategic goal in terms of how well they reflect the degree of achievement of this specific strategic goal. Saaty (2012) introduced the fundamental scale that is generally used to make the aforementioned relative comparisons and that ranges from one to nine (see Fig. 3). In the case of the FANP not crisp but fuzzy interval judgements are conducted. Interval judgements are used so that the decision maker can express his uncertainty regarding a pairwise comparison judgement by stating a range instead of a crisp number. This judgement range is later on defuzzified via formula so that calculations can be done using a crisp number. However, this crisp number then includes the uncertainty a decision maker experiences when conducting pairwise comparisons (see Ayağ/Ozdemir, 2012; Liou/Wang, 1992).
<table>
<thead>
<tr>
<th>Intensity</th>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Equal importance</td>
<td>Two activities contribute equally to the objective</td>
</tr>
<tr>
<td>2</td>
<td>Weak or slight</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Moderate importance</td>
<td>Experience and judgement slightly favour one activity over another</td>
</tr>
<tr>
<td>4</td>
<td>Moderate plus</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Strong importance</td>
<td>Experience and judgement strongly favour one activity over another</td>
</tr>
<tr>
<td>6</td>
<td>Strong plus</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Very strong or demonstrated</td>
<td>An activity is favoured very strongly over another</td>
</tr>
<tr>
<td>8</td>
<td>Very, very strong</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Extreme importance</td>
<td>The evidence favouring one activity over another is of the highest possible order</td>
</tr>
</tbody>
</table>

Reciprocals of above: If activity $i$ has been assigned one of the non-zero numbers above when compared to activity $j$, then $j$ has the reciprocal value when compared with $i$.

A reasonable assumption

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Fig. 3: The fundamental scale (figure is adapted from Fritze, 2017)

Matrix calculations

When all the relevant fuzzy pairwise comparisons between the elements are deployed, defuzzified, checked for consistency, and revised if necessary, the decision maker’s judgements are brought together in a matrix (see Saaty/Vargas, 2013). By means of matrix calculations a global priority vector for the alternatives (in this case: KPIs) then can be computed. For more information on the exact calculation procedure please visit Saaty (1996). The KPI alternative with the largest priority value is the one that is best suited to reflect the degree of achievement of the SSC’s vision while the one with the smallest value is least suited according to the expert judgements (see Chung et al., 2005).

Afore outlined remarks present the main pillars of the FANP approach. In the following section, we apply the FANP in the scope of the prioritisation of KPIs and validate its applicability within an SSC’s multidimensional performance management system by means of a real-life case study.

3. Application of the process for the prioritisation of key performance indicators within a shared service centre

Organisation A is a global manufacturer that is situated in Central Europe. It obtains its accounting, finance, information technology, research and development, human resource, material data, and project management services largely from the global shared service centre A (SSA), which is situated in Eastern Europe. The initial situation at the time of conducting the case study was as follows: to achieve long-term success, the executive management of organisation A and SSA determined a vision and a variety of strategic goals for SSA. These strategic goals were derived from the organisation A’s overall vision and were assigned to different performance dimensions. SSA also independently collected and analysed a diverse set of KPIs on the service line and SSA levels. Although this approach initially seemed to be a sound basis for SSA’s performance management, SSA’s executive management was displeased with the solution because it lacked a link between the operational KPIs and the strategic orientation of SSA. Furthermore, the strategic goals were relatively unstructured and did not consider dependencies across one another. Moreover, the importance of the different strategic goals and KPIs was unclear. Additionally, to some extent, there was a lack of common understanding and acceptance for SSA’s integrated performance management at the operational level. Hence, the prioritisation of KPIs aimed to clearly align the entire KPIs of SSA with its strategy and to identify the main KPIs, which would then be reported to the executive management of organisation A. Furthermore, SSA’s executive management looked for a transparent and structured way of challenging and validating their existing steering system and KPI set. To prioritise KPIs according to the SSC’s vision a six stage process was used that is outlined in the following (see Fritze, 2017).
Set up cross-functional decision group
In the first stage, a cross-functional decision group was selected. As a result of an internal discussion, the decision group consisted of six experts: two SSA controllers, two service line managers, one transition and change manager, and SSA’s executive manager. The involvement of various individuals from different functions and management levels ensured that different perspectives were integrated. The task of the cross-functional group was to identify SSA’s goal structure and relevant KPIs, which was part of the next stage.

Structure the decision problem
To refine and improve SSA’s existing performance management, the decision group, and an FANP specialist with expertise in the field of performance management, met in the context of a one-day workshop. During this workshop, the decision group discussed SSA’s vision, performance dimensions, and strategic goals and the relevant KPIs collected, which match these strategic goals. The FANP specialist thereby moderated and guided the workshop. She also acted as an administrator and recorder. As a result of the discussion, nine strategic goals were then ascribed to one of the three final performance dimensions: partnership, processes/portfolio, and people. Subsequently, during a series of brainstorming sessions, several relevant KPIs were collected by the decision group for each performance dimension that matched the respective strategic goals. These KPIs were then discussed and consolidated. This process resulted in a set of eleven KPIs for tracking the achievement of SSA’s strategic goals, overall performance dimensions, and ultimately its vision (see Fig. 4). Additionally, suggested dependencies between the elements of the decision problem, that means the vision, performance dimensions, strategic goals, and KPIs, were identified (see Fig. 5).

Model the decision problem
After all relevant elements and dependencies of the performance management system were defined in
SSA strives to provide first-class services to save costs and to support business processes by delivering service quality, competitive prices, and comprehensive services.

**Vision**

**Partnership**
- Partnership sub-network 1

**Processes/Portfolio**
- Processes/Portfolio sub-network 2

**People**
- People sub-network 3

**Sub-network 1**
- Partnership
  - Know customer and stakeholder requirements
  - Manage customer satisfaction and build customer relationship
  - Define and refine service portfolio

**KPI alternatives**
- Degree of overall customer satisfaction
- Degree of customer relationship and loyalty

**Sub-network 2**
- Processes/Portfolio
  - Promote process maturity and continuous improvement to innovate and add value to the company
  - Ensure quality and productivity
  - Meet audit and fraud requirements

**KPI alternatives**
- Degree of productivity
- Degree of quality
- Degree of cost savings
- Total costs per FTE
- Passed audits

**Sub-network 3**
- People
  - Hire the right people at the right time and adapt to customer requirements
  - Manage talent to retain and develop employees and to ensure employee satisfaction
  - Drive management credibility, respect, and involvement

**KPI alternatives**
- Time to hire
- Unintended fluctuation rate
- Degree of training days
- Degree of employee satisfaction

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Fig. 5: SSA’s decision model (figure is adapted from Fritze, 2017)

STRATEGY-BASED PRIORITISATION OF KPIS USING THE FUZZY ANALYTIC NETWORK PROCESS

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the scope of the workshop, the FANP specialist designed the decision model using *Super Decisions* software (Pittsburgh, Pennsylvania, USA). In this case, a sub-network model was used to incorporate both hierarchical dependencies and loops. A sub-network model consists of a control hierarchy and sub-networks. The control hierarchy contains the SSA’s vision and performance dimensions, whereas the sub-network model has a sub-network for each performance dimension. These sub-networks include the strategic goals and KPIs of each performance dimension. This approach addresses all the aforementioned peculiarities and requirements of SSA’s decision problem. On the one hand, it allows the incorporation of the hierarchical structure between the SSA’s vision and the performance dimensions into the control hierarchy as well as the hierarchical structure between the strategic goals and the KPIs in the sub-networks. Additionally, the use of sub-networks enables to consider inner dependencies between the strategic goals in each performance dimension. On the other hand, each performance dimension is linked to its own set of relevant KPIs (see Fig. 5).

Based on the constructed decision model, the FANP specialist developed a questionnaire. This questionnaire included all pairwise comparisons that are relevant to the solution of the decision problem and reflected the elements and dependencies that are illustrated in the decision model. Furthermore, it included questions that are relevant to the fuzzy alpha-cut approach (see Fritze, 2017).

**Determine the pairwise comparison**

To identify the importance of the performance dimensions, strategic goals, and ultimately the ranking of the KPIs, pairwise comparisons were conducted. Each decision group member compared two elements of the decision problem at a time with respect to another predefined element, gave an interval judgement, and answered the relevant questions that were necessary for defuzzification. Additionally, the questionnaire contained a summary of SSA’s decision problem and provided notes on the FANP as the methodological approach. This additional information aimed to create a common understanding of the topic, the method, and served as a reference manual. The final questionnaire was sent to each decision group member, who completed it independently. Subsequently, the completed questionnaires were collected from the FANP specialist, and Stage 5 of the process began.

**Conduct matrix calculations**

Based on the information gleaned from the questionnaires, the FANP specialist started analysing the questionnaires for each decision group member independently. After checking the judgements of the decision group members for consistency they were aggregated via a geometric mean approach. Afterwards the priorities for the control hierarchy, sub-networks and KPI alternatives were computed. The matrix calculations were carried out using *Super Decision* software.

**Implications for practice**

- The design of the performance management system affects organisational performance, thereby the prioritisation of KPIs and their alignment with strategic goals plays a crucial role.
- Often decision makers measure too much instead of concentration on what matters. This can cause information overload, which is negatively interlinked with decision accuracy and may lead to inferior performance.
- A systematic prioritisation of KPIs prevents waste of resources, supports decision accuracy, induces feedback and discussion between decision makers, and concentrates decision makers’ attention on what matters most.
- The application of the FANP can facilitate the prioritisation of KPIs by considering multiple goals and several stakeholders as well as ranking the KPIs regarding their degree to which they reflect the organisational vision.

**Analyse results**

The findings show that the degree of quality, degree of productivity, and passed audits KPIs are rated as the three most important KPIs, which have to be tracked to achieve the SSA’s vision (see Fig. 6). By contrast, the degree of cost savings and total costs per FTE are among the KPIs to rank the lowest. As such, SSA has seemingly reached a point at which more importance needs to be placed on non-financial (qualitative) performance rather than financial (quantitative) performance. Indeed, the degree of overall customer satisfaction and customer relationship and loyalty rank as the fourth and fifth important KPIs. Followed by people performance dimension’s KPIs: degree of employee satisfaction, time to hire, unintended fluctuation rate, as well as degree of training days. In conclusion, there are divergent judgements regarding the importance of KPIs when each decision maker’s individual priorities are investigated. However, such discrepancies can be addressed by presenting and discussing this information further. Within such discussions, the results are then finalised and opinions are aligned based on the information provided. After a consensus regarding the results is established, the process ends.

**4. Review and concluding remarks**

The case study outlined above shows how a flexible, structured, and transparent process of KPI prioritisation within an SSC’s multidimensional performance management system can be designed using the FANP approach. Although the case study was conducted in an SSC environment, the strategy-based prioritisation process is not limited to SSC-based business models. On the contrary, the approach generally can be applied when decision makers are faced with the challenge to (cardinally) rank KPIs according to the vision and strategic goals. Since
Final priorities of performance dimensions (1)  
Final priorities of KPIs within each sub-network (2)  
Global priorities of KPIs (3) = \[(1) \times (2) \times \text{factor} \text{norm}\]  
Ranking

| Partnership | 32.8% | Degree of overall customer satisfaction | 52.0% | 9.1% | 4 |
| Processes/Portfolio | 41.3% | Degree of productivity | 23.9% | 12.6% | 2 |
| | | Degree of quality | 36.7% | 19.6% | 1 |
| | | Degree of cost savings | 11.2% | 6.2% | 10 |
| | | Total costs per FTE | 10.3% | 5.6% | 11 |
| | | Degree of passed audits | 20.0% | 11.0% | 3 |
| People | 26.0% | Time to hire | 25.1% | 7.0% | 7 |
| | | Unintended fluctuation rate | 24.3% | 6.7% | 8 |
| | | Degree of training days | 23.4% | 6.5% | 9 |
| | | Degree of employee satisfaction | 27.2% | 7.5% | 6 |

Note. In column one of this table, the final priorities of the performance dimensions (control hierarchy model) are presented, whereas column two contains the final priorities of the KPIs within each sub-network model. In column three the global priorities are displayed, whilst column four shows the ranking of KPIs in accordance with column three. Column three presents also the formula for the calculation of the global priorities of KPIs. Thereby, the term ‘norm’ is the abbreviation for normalised.

**Fig. 6: Priority distribution of SSA’s global model (figure is adapted from Fritze, 2017)**

the FANP method is based on expert judgements, no extensive data history is required. Therefore, we emphasise that the approach is also suitable for organisations that developed further or changed their business model or strategy recently, such as startups.

To sum up, this process helps decision makers identify the KPIs’ relative importance displayed by cardinal numbers. However, it also makes possible considering the vision and various performance dimensions, strategic goals, and KPI alternatives. As a result of the presented prioritization process, the decision maker is equipped with a final ranking regarding the KPI alternatives with respect to a previously developed goal network (see **Fig. 7**). Furthermore, the process considers in-
Advantages: the presented prioritisation process...

- Is flexible, transparent, structured, and guiding
- Generates the KPIs’ relative importance using cardinal numbers
- Generates a final ranking regarding the KPI alternatives with respect to a previously developed goal network
- Can consider interrelations between the elements of the decision model
- Can consider multiple, qualitative, and quantitative elements (criteria)
- Applies to a broad variety of decision problems
- Considers uncertainty regarding individual judgements in the decision model
- Provides the possibility for consistency analysis
- Provides the possibility for sensitivity analysis
- Can consider multiple decision makers in the decision process
- Can induce communication, feedback, discussion, and alignment between different decision makers
- Can facilitate the creation of a common understanding regarding the SSC’s strategy and goal network
- Applies to a broad variety of decision problems
- Can consider multiple, qualitative, and quantitative elements
- Can consider interrelations between the elements of the decision model
- Considers uncertainty regarding individual judgements in the decision model
- Provides the possibility for sensitivity analysis
- Can consider multiple decision makers in the decision process
- Can induce communication, feedback, discussion, and alignment between different decision makers
- Can facilitate the creation of a common understanding regarding the SSC’s strategy and goal network
- Makes use of specified freeware and standard software packages for the calculations

Fig. 8: Advantages of the presented process (figure is adapted from Fritze, 2017)

During the process different stakeholders are actively encouraged to think jointly about the organisational strategy.

terrelations between the elements of the decision problem, which makes this process unique and applicable to a wide variety of decision problems. The systematic way of processing information thereby enables decision makers to break up complex problems into sub-problems, which are easier to manage. This creates transparency regarding the decision problem and existing interdependencies. The approach also allows for the inclusion of qualitative and quantitative elements. Therefore, a wide range of strategic goals and KPIs can be incorporated into the decision problem — no matter of their measurement scale. Moreover, the approach offers the possibility to consider different decision makers’ opinions. Individuals from different departments with diverse professional backgrounds were able to contribute to the selection of KPIs for a multidimensional performance management system. As such, the decision makers developed an understanding regarding the different needs of the other decision group members. Besides, the findings of the KPI prioritisation are internally validated and thereby objectified (see Fritze, 2017).

In the case of the prioritisation of KPIs, we conclude, the journey is the reward. In other words, presenting a process that induces communication, feedback, discussion, and alignment among different stakeholder groups, facilitates the creation of a common understanding regarding the organisational strategy. Moreover, this cross-functional collaboration promotes active reasoning about strategy and its further development. Through the prioritisation of KPIs, managers are also enabled to focus their attention, action plans, and internal communication precisely on relevant working areas to achieve specific strategic goals and the organisational vision. Consequently, we conclude that in using this process, a performance management system can be improved. Moreover, uncertainty regarding individual judgements can be accounted for with the FANP, which uses interval judgements instead of crisp values during the deployment of pairwise comparisons.

However, we recognise that there also exist three main limitations of the presented process. It can be time and effort consuming, the modelling of the decision problem and its calculations can be sophisticated, and its results completely depend on expert judgements. Nevertheless, these challenges can be systematically addressed by reducing the decision model’s complexity and the number of elements in the decision problem as well as introducing sensitivity and consistency checks to the method. Hence, although there are some limitations regarding the presented six stage process; overall it has proven to be a highly suitable method for the prioritisation of KPIs within a multidimensional performance management system (see Fig. 8).

Literatur

- Saaty, T. L., Decision making with dependences and feedback: the analytic network process, Pittsburgh 1996.

**Literaturtipps aus dem Online-Archiv http://elibrary.vahlen.de**
- Jost Baumgartner, Unternehmenserfolg greifbar machen – Identifikation und Steuerung der Key Performance Treiber durch das Controlling, Ausgabe 04–05/2014, S. 258–263.

**Stichwörter**

- # Mehrdimensionales Performance Management
- # Mehrkriterielle Entscheidungsunterstützungsmethoden (MCDM)
- # Priorisierung
- # Shared Service Center (SSC)
- # Strategie-basierte Leistungskennzahlen (KPIs)

**Keywords**

- # Multi-Criteria Decision Making (MCDM) Methods
- # Multidimensional Performance Management
- # Prioritisation
- # Shared Service Centres (SSCs)
- # Strategically aligned Key Performance Indicators (KPIs)

**Zusammenfassung**