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## **Strategic foresight for competitive advantage: a future-oriented business and competitive analysis techniques selection model**

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**Abstract:** In this article, we develop a strategic foresight techniques selection model. To this end, we build on the classical FAROUT assessment of business and competitive analysis (BCA) techniques, which we extend and redesign to allow for context- and purpose-specific selections of BCA techniques that combine robust future orientation with one or all other FAROUT criteria: accuracy, resource efficiency, objectivity, usefulness and timeliness. The results of this approach are informative for decision-makers who wish to make systemic and context-specific choices among the existing BCA techniques. Our research thus contributes to the systematisation and further development of strategic foresight methodology.

**Keywords:** strategic foresight; technology forecasting; business intelligence; competitive analysis; BCA techniques selection; FAROUT.

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## 1 Introduction

Strategic foresight is about the systematic integration of strategic management and futures and foresight studies. In this emerging field, the common theme is that techniques and methods from futures and foresight studies may have important support functions for strategic management (Slaughter, 1999; Cuhls, 2003; Bootz, 2010; Vecchiato and Roveda, 2010; Vecchiato, 2012a, 2012b; Ejdys et al., 2015; Ahlqvist and Kohl, 2016; Sales et al., 2021). Therefore, these techniques and methods should be increasingly used in technology foresight (Kaivo-oja, 2017; Kaivo-oja et al., 2017; Kaivo-oja and Lauraeus, 2018a, 2018b), innovation management and strategic management (Makridakis, 1996; Fidler, 2011; Iden et al., 2017) or policy-making and public administration (Leigh, 2003; Savio and Nikolopoulos, 2013). As with many cases of the not-invented-here syndrome, however, attempts to apply these techniques are complicated by issues such as ephemeral use and organisational resistance (Mendonça et al., 2009; Hines and Gold, 2015; Schmitt and Klarner, 2015). Strategic foresight research is currently addressing these and further major challenges by systematic reviews, critical assessments, fusions, or further developments of individual strategic foresight methods (Amer et al., 2013; Bezold, 2010; Bootz, 2010; Dufva and Ahlqvist, 2015; Iden et al., 2017; Kaivo-oja et al., 2017, 2018; Kuzmanovic and Gaffney, 2017; Lehr et al., 2017; Liebl and Schwarz, 2010; Mietzner and Reger, 2005; Rohrbeck et al., 2013). There is also some empirical research showing how and why researchers, practitioners, or companies select strategic foresight techniques (Popper, 2008; Vecchiato, 2012a, 2012b, 2015; Sarpong et al., 2013). Yet, as these selections often remain contingent on individual habits and preferences or specific fields of applications, or often the position within an organisational hierarchy (Sarpong and Maclean, 2014), there has still been no systematic evaluation of which specific futures

studies and foresight techniques are feasible and effective for specific strategic management challenges.

Our aim in this article is to develop an exemplary strategic foresight techniques selection model, and by this means, to contribute to the systematisation and further development of strategic foresight methodology.

We start from the unspectacular idea that a categorical separation of futures and foresight studies versus strategic management is artificial insofar as all strategy is characterised by a certain degree of future orientation. This implies that all strategic management techniques can be evaluated for their degree of suitability for strategic foresight as much as for other relevant criteria. We demonstrate this circumstance by a strategic re-reading of the FAROUT assessment of business and competitive analysis (BCA) techniques introduced by Fleisher and Bensoussan (2003, 2015), the compilation of yet absent FAROUT rankings of these techniques, and a future-oriented dynamisation of these rankings, and ultimately in the development of a context-specific strategic foresight techniques selection model.

The article is organised in the following way. Section 2 combines a theory-methodology statement with background information on function and design of the FAROUT ‘quality standards for strategic planning’ [Agarwal et al., (2012), p.16] assessment system, thus also introducing the six FAROUT key criteria: future orientation (F), accuracy (A), resource efficiency (R), objectivity (O), usefulness (U) and timeliness (T). Section 3 then expands the classical FAROUT assessment by a systematic ranking of business and competitive analysis (BCA) techniques showing each technique’s performance per individual FAROUT criterion, whereas Section 4 shows each technique’s combined performance across all six FAROUT criteria. Based on a ‘what if?’-approach, Section 5 proceeds to elaborate on strategic combinations of future orientation and the other five FAROUT criteria. We trust that our approach is informative for decision-makers who wish to make systemic choices among the existing BCA techniques in general and in strategic foresight contexts in particular. Yet, as there might also be cases in which decision-makers require not combinations of future orientation and one single other FAROUT criterion, but rather the best blend of future orientation and all other criteria, Section 6 presents the best broadband BCA techniques for strategic foresight purposes. Finally, Section 7 concludes the study.

## **2 The FAROUT assessment system as basis for the development of a strategic foresight techniques selection model**

In the field of strategic foresight research literature, there have been various approaches to discuss methods, methodological issues and models. Here, we can mention some of the most important strategic foresight approaches if we limit our discussion to the models which are relevant for strategic foresight research. The inventory of key management models listed 56 management models (ten Have et al., 2003), but many of these management models are not futures-oriented models. Clearly, futures-oriented management models have been:

- 1 Porter's (2004) original competitive advantage approach
- 2 Popper's (2008) diamond model approach
- 3 Vecchiato's (2012a, 2012b) FSO approach focused on foresight (F) techniques, strategic (S) decision-making and organisational (O) issues
- 4 Sarpong et al.'s (2013) approach to foresight
- 5 FOR-LEARN's (2019) manual's diagnosis-prognosis-prescription approach
- 6 the Manchester School's three pillars fully fledged foresight model (prospective futures methods, participatory networking analyses and policy orientation with decision-making models) approach (see, e.g., Miles, 2008)
- 7 the Cynefin approach with four system domains to foresight (see, e.g., Snowden and Boone, 2007)
- 8 most recently, the VUCA approach (see, e.g., Kaivo-oja and Laureaus, 2018a, 2018b).

These strategic foresight management approaches are subsequently summarised in Table 1a.

There are various ways to cluster these foresight methods. Of course, one dominating way is Popper's (2008) diamond approach, which is quite generic and provides uniform four assessment categories of methods. There are also some other clustering criteria. We try to explain these integration possibilities, especially from a knowledge management perspective. There are various ways to cluster foresight methods, as Table 1 indicates that there are at least nine theoretical approaches to select strategic foresight methods. In social and economic sciences typical categorisations have been also:

- 1 quantitative vs. qualitative methods
- 2 methods for short and long-run analyses
- 3 methods for inner organisational foresight vs. external environment
- 4 methods for strategic foresight and visionary foresight
- 5 small data methods and big data methods.

We can note that these five approaches can be used in clustering foresight methods.

In organisations, people typically select foresight methods. Often, managers or leaders say their world in method selection. Awareness of available foresight methods, readiness to apply foresight methods and confidence to use methods of experts have impacts on which foresight methods are applied. Sometimes, foresight methods are selected by suggestions of other experts and consulting offices. Also availability of data sources (quantitative or qualitative) has impacts on method selection. If quantitative data is not available, qualitative methods are selected, vice versa. Sometimes also gaming type of approach is adopted in the field of foresight (see Dator, 2017; Inayatullah, 2017; Sweeney 2017). This can lead to method selections, which the rules of game and a process of game have impacts on methods used in socio-cultural game.

**Table 1a** Strategic foresight management approaches

<i>Strategic foresight approach</i>	<i>Key assumption of method selection</i>	<i>The key framework of management of the approach</i>
Competitive advantage approach of Porter (2004)	<p>The analysis of five competitive forces leads to five key methods of measurements: the bargaining power of:</p> <ol style="list-style-type: none"> <li>1 suppliers</li> <li>2 buyers</li> <li>3 the threat of new market entrants</li> <li>4 the threat of substitution by new products or services</li> <li>5 of rivalry between established firms.</li> </ol> <p>Key dimensions of method selection are:</p> <ol style="list-style-type: none"> <li>1 creativity</li> <li>2 expertise</li> <li>3 evidence</li> <li>4 interaction.</li> </ol> <p>Organisations select a combination of qualitative, semi-quantitative and quantitative methods.</p>	<p>The management of industrial environment with five forces analyses.</p>
Popper's (2008) diamond model	<p>Organisations select a combination of qualitative, semi-quantitative and quantitative methods.</p> <p>Two issues, emphasis on prediction and emphasis on control lead to four alternative school of foresight thinking:</p> <ol style="list-style-type: none"> <li>1 planning school (high emphasis on prediction versus low emphasis on control)</li> <li>2 visionary approach (high emphasis on both prediction and control)</li> <li>3 adaptive school (low emphasis on both control and prediction)</li> <li>4 transformative school (low emphasis on prediction versus high emphasis on control).</li> </ol> <p>Organisational practices facilitate or prevent strategic foresight. Key organisational architecture and organisational practices are linked to:</p> <ol style="list-style-type: none"> <li>1 over-compartmentalisation</li> <li>2 over-determination</li> <li>3 social coordination</li> <li>4 value congruence.</li> </ol> <p>Organisational architecture is having impacts on the selection of methods.</p>	<p>Uniform approach to different organisations. Organisations select a menu of foresight methods.</p>
Vecchiato's (2012) FSO foresight approach	<p>Organisational culture led to four alternative schools of thinking, which leads different foresight models and method selection.</p>	<p>Organisational culture has different organisational practices (four key patterns), which lead to the selection of different foresight methods.</p>
Sarpong-Maclean-Davies organisational approach 2013	<p>Organisational culture led to four alternative schools of thinking, which leads different foresight models and method selection.</p>	<p>Organisational culture has different organisational practices (four key patterns), which lead to the selection of different foresight methods.</p>

**Table 1a** Strategic foresight management approaches (continued)

<i>Strategic foresight approach</i>	<i>Key assumption of method selection</i>	<i>The key framework of management of the approach</i>
FOR-LEARN approach (2019)	Key processes of foresight are diagnosis, prognosis and prescriptions. In different phases of foresight process different methods are used. All foresight methods can be classified to these three categories.	Uniform approach to different organisations. In different phases of foresight different foresight methods can be used. There is an official FOR-LEARN menu of DPP methods of foresight to be selected by organisations.
Three pillars fully fledged foresight model (Miles, 2008)	Three pillars of fully-fledged foresight are: <ol style="list-style-type: none"> <li>1 prospective futures methods</li> <li>2 participatory networking analyses</li> <li>3 policy orientation with decision making models.</li> </ol>	There are three pillars of foresight. Each foresight pillar is relying on different tools and methods. Prospective futures methods rely on futures methods, participatory networking analyses rely on stakeholder, actor-network and network analysis tools, and policy orientation with decision making models rely on strategic decision models and strategic priority tools. Multi-criteria analysis with scenario analysis is a standard tool.
System-theoretical Cynefin approach (Snowden and Boone, 2007)	Systems can be classified to four system categories: <ol style="list-style-type: none"> <li>1 simple systems</li> <li>2 complicated systems</li> <li>3 complex systems</li> <li>4 chaotic systems.</li> </ol> <p>The method selection depends on which kind of system is analysed.</p>	In different systemic contexts the use of foresight methods should be tailored to the requirements of alternative systems.
FAROUT approach (Fleisher and Bensoussan, 2003, 2007)	Selection criteria of strategic foresight should be based on six criteria: future-orientation (F), accuracy (A), resource-efficiency (R), objectivity (O), usefulness (U) and timelines (T).	Uniform approach to different organisations. The FAROUT criteria should be applied in organisations.
VUCA approach (Kaivo-oja and Lauraeus, 2018a, 2018b)	In turbulent decision-environment four elements of decision-environment are relevant: volatility (V), uncertainty (U), complexity (C) and ambiguity (A). Selection criteria of strategic foresight should be based on four characters of external systems of environment.	Because many organisations face nowadays a VUCA type external environment, they should use new methods to manage volatility, uncertainty, complexity and ambiguity. These methods are classified to four categories: <ol style="list-style-type: none"> <li>1 forecasting tools</li> <li>2 risk management tools</li> <li>3 complexity management tools</li> <li>4 testing tools.</li> </ol> <p>The methodological recommendation of Krupp and Schoemaker (2014) is to distinguish between tools that:</p> <ol style="list-style-type: none"> <li>1 anticipate</li> <li>2 interpret</li> <li>3 challenge</li> <li>4 support decision-making on</li> <li>5 help to align with</li> <li>6 learn about</li> <li>7 combine visions of futures.</li> </ol>

**Table 1b** The FAROUT criteria and scales

Future orientation	1 = The model's output is not future-oriented. It may be too anchored in the past or present. 5 = The model is highly future-oriented.
Accuracy	1 = The level of accuracy for outputs using this model is low, taking into account the problem sources of data underlying its application. 5 = The requirements of the model lead to the generation of highly accurate outputs.
Resource-efficiency	1 = This model requires large volume of data, financial and human resources, and it is low in efficiency. 5 = This technique is highly efficient in its use of resources and it in deriving desired outputs from few inputs.
Objectivity	1 = A particular tool provides low levels of objectivity due to the presence of biases and mind-sets in its application. 5 = That the potential for biases can be minimised.
Usefulness	1 = Application of a model delivers less useful output and requires additional work by or on behalf of a decision maker. 5 = Tool provides a high level of valued output without requiring additional effort by a decision maker.
Timeliness	1 = An analysis model that requires a great deal of time to complete well. 5 = This model takes little time to successfully complete.

Source: Fleisher and Bensoussan (2015)

True to Elias (1978), there is no categorical difference between theories and methods insofar as theories may act as methodologies, and thus as tools or *puzzle-solving devices* (Fuller and Loogma, 2009), "as soon as they apply their own distinctions or categories not only to their research objects, but also to themselves" [Roth et al., (2021), p.690]. This is true because this self-application clearly indicates how the theoretical observations appear and systematically observations can be made to reappear. In a similar way, simple and effective tools can be transformed into more sophisticated observation models if they are applied to themselves. For example, SWOT is generated by a cross-tabulation of the distinctions *positive* versus *negative* and *internal* versus *external* (Weihrich, 1982) or *present* versus *future* (Humphrey, 2005), respectively. This basic architecture makes the SWOT analysis simple, effective, and (therefore) popular tool. Parsons' (1960, p.470) notorious AGIL scheme, too, is created by a cross-tabulation of two distinctions, *internal* versus *external* and *instrumental* versus *consummatory* orientation. As with SWOT, the Parsonian cross-tabulation creates four quadrants, and yet, the major difference between SWOT and AGIL is that we may continue to use the AGIL scheme to zoom into each of the four quadrants produced by the AGIL scheme, with this self-application of AGIL resulting in higher levels of observational sophistication or theoretical precision. A long list of well-known issues with AGIL notwithstanding, the basic principle of self-application has since remained at the heart of at least the more advanced theoretical and methodological endeavours (Roth, 2017, 2022; Moe and Kaivo-oja, 2018). In a similar vein, in this article, we shall self-apply the FAROUT method in a bid to produce more task- or research interest-specific assessments of strategic foresight techniques.

**Table 2** FAROUT variables and assessment results per BCA technique

<i>FAROUT-analysis</i>		<i>F</i>	<i>A</i>	<i>R</i>	<i>O</i>	<i>U</i>	<i>T</i>	<i>Sum(FAROUT)</i>
		<i>Future orientation</i>	<i>Accuracy</i>	<i>Resource efficiency</i>	<i>Objectivity</i>	<i>Usefulness</i>	<i>Timeliness</i>	
1	Nine forces/industry analysis	4	3	4	2	3	3	19
2	Competitive positioning	4	4	4	4	5	3	24
3	Business model analysis	3	3	4	3	4	3	20
4	Servo analysis	4	2	3	1	4	2	16
5	Supply chain analysis	4	3	3	4	5	3	22
6	Benchmarking	3	3	2	3	5	2	18
7	Mckinsey 7s analysis	4	2	3	1	3	2	15
8	Shadowing	4	3	2	3	5	4	21
9	Product line analysis	3	3	3	4	3	2	18
10	Win/loss analysis	4	3	4	4	5	2	22
11	Strategic relationship analysis	2	4	2	4	3	3	18
12	Corporate reputation analysis	2	4	1	4	3	2	16
13	Critical success factors analysis	3	4	3	2	5	3	20
14	Country risk analysis	3	2	3	3	3	3	17
15	Driving forces analysis	5	3	3	2	4	3	20
16	Event and timeline analysis	4	4	4	4	3	3	22
17	Technology forecasting	5	2	3	2	4	2	18
18	War gaming	5	3	3	3	5	1	20
19	Indications and warning analysis	5	3	3	2	4	3	20
20	Historiographical analysis	2	2	3	1	4	3	15
21	Interpretation of statistical analysis	1	4	3	3	3	2	16
22	Competitor cash flow analysis	4	4	1	3	5	2	19
23	Analysis of competitive hypotheses	1	3	2	5	3	2	16
24	Linchpin analysis	3	2	3	4	5	2	19
	Sum	82	73	69	71	96	60	



The method to evaluate FAROUT scales is reported in the books of Fleisher and Bensoussan (2003, 2007, Chapter 5, Applying the FAROUT method) and recommended to manage or mitigate cognitive biases in foresight and futures studies (Bonaccorsi et al., 2020). In the context of FAROUT model analysis, the methods were classified to:

- 1 competitive analysis methods
- 2 enterprise methods
- 3 environmental methods
- 4 evolutionary methods
- 5 financial, probabilistic and statistical methods.

This Chapter 5 is based empirical assessment process with business executives (see, e.g., Rigby, 2003).

In this article, it is our ambition to demonstrate how a strategic self-application of the basic FAROUT assessment system facilitates the development of a strategic foresight techniques selection model. In this section, we shall therefore present the basic architecture as well as summary results of the assessment of 24 popular BCA techniques as originally developed by Fleisher and Bensoussan (2015). Thus, the portfolio of assessed techniques consists of five competitive methods, four enterprise methods, five environmental methods, five evolutionary methods, and four financial, probabilistic and statistical methods. As mentioned earlier, all 24 BCA techniques necessarily display some degree of future orientation. Consequently, one of the six assessment criteria is future (F) orientation, while the other five are listed and defined in Table 1b. Each technique's performance in each criterion was then assessed using the five-point scaling system. The scale ranges are from low (1) to high (5), and the scaling criteria are explained in Table 1b.

As a result, Fleisher and Bensoussan (2015, p.84f) present the subsequent evaluation of the 24 BAC techniques, to which we added the sum of each technique's combined performance across all FAROUT criteria (see Table 2).

Today, there are only a few strategic foresight projects where there is no need to integrate any of the above BCA techniques. This challenge of integration needs more attention among strategic foresight professionals.

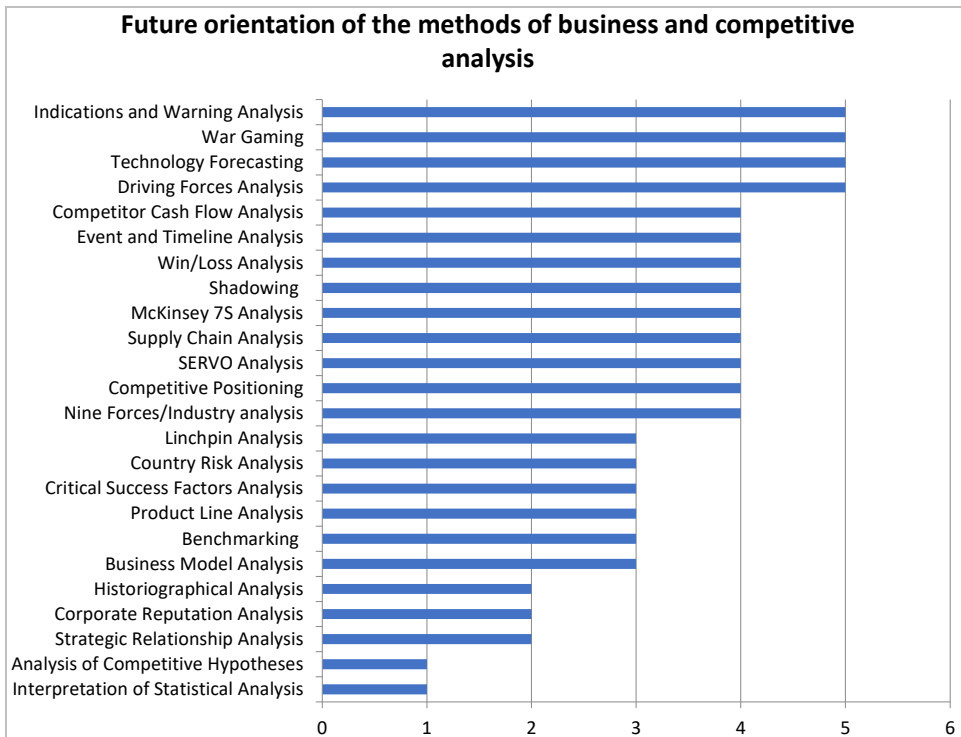
### **3 Criterion-specific FAROUT rankings of the 24 BCA techniques**

Against the backdrop of the above general introduction to the FAROUT method, in this section, we shall proceed to reread and translate the somewhat static original results of Fleisher and Bensoussan (2015) into a more dynamic form of presentation, which also allows us to interest-specifically direct our attention to the 24 BCA techniques' performance in each of the six FAROUT criteria. In so doing, we base our analysis on the original rating scales and results identified by Fleisher and Bensoussan (2015).

### 3.1 Future orientation ranking of the 24 BCA techniques

Future orientation is often considered an underestimated aspect of strategic management (Rohrbeck, 2012). If we focus on the future orientation of the 24 business and competitive techniques, then we find that half of the techniques fail to convince or even excel in terms of future orientation. Particularly, low levels are associated with techniques such as Interpretation of statistical analysis or analysis of competitive hypotheses, whereas the top-ranked techniques are indications and warning analysis, war gaming, technology forecasting, driving forces analysis, war gaming, technology forecasting, driving forces analysis, and event and timeline analysis.

**Figure 1** Future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

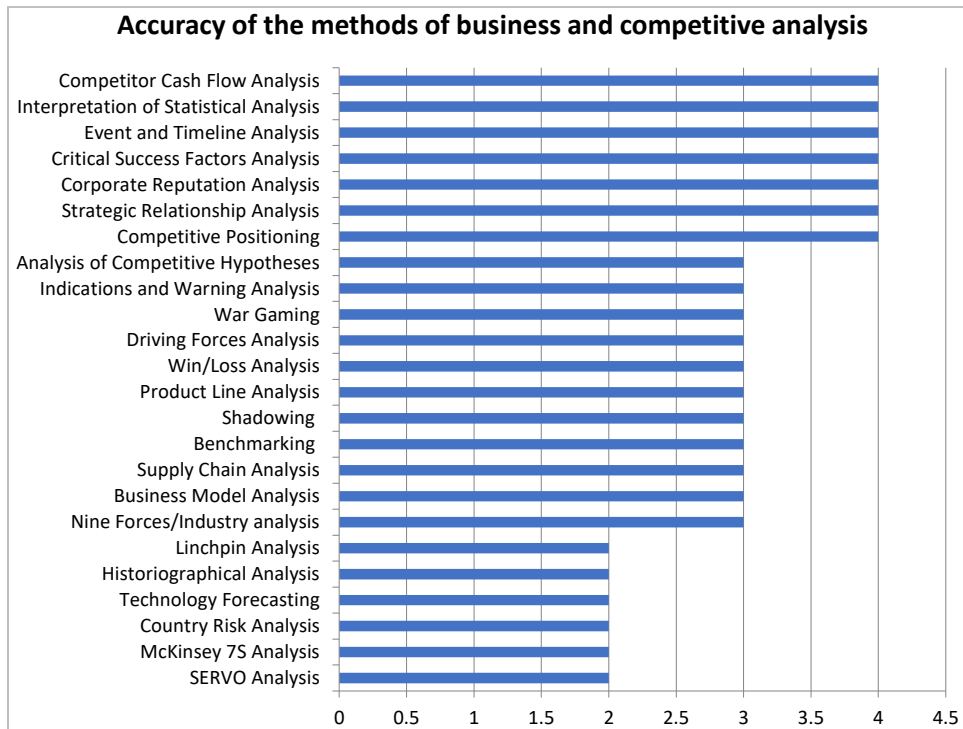
In general, we have a total of 13 alternatives if we wish to choose a technique that features high levels of future orientation, whereas the ‘strategic foresight essentials’ package of techniques with the highest future orientation would include:

- 1 indicators and warning analysis
- 2 war gaming
- 3 technology forecasting
- 4 driving forces analysis.

### 3.2 Accuracy ranking of the 24 BCA techniques

“When critically reviewing the success of futures research, the guiding question usually is: ‘Have the predictions been accurate?’” [Rohrbeck, (2012), p.440]. In looking at the accuracy of the 24 BAC techniques, we find that the most accurate techniques are the following (see Figure 2): competitor cash flow analysis, interpretation of statistical analysis, event and timeline analysis, corporate reputation analysis, strategic relationship analysis and competitive positioning, whereas it comes as no big surprise that SERVO analysis, McKinsey 7S, country risk analysis, technology forecasting, historiographical analysis, and Linchpin analysis receive the lowest accuracy assessments.

**Figure 2** Accuracy of the 24 BAC techniques (see online version for colours)



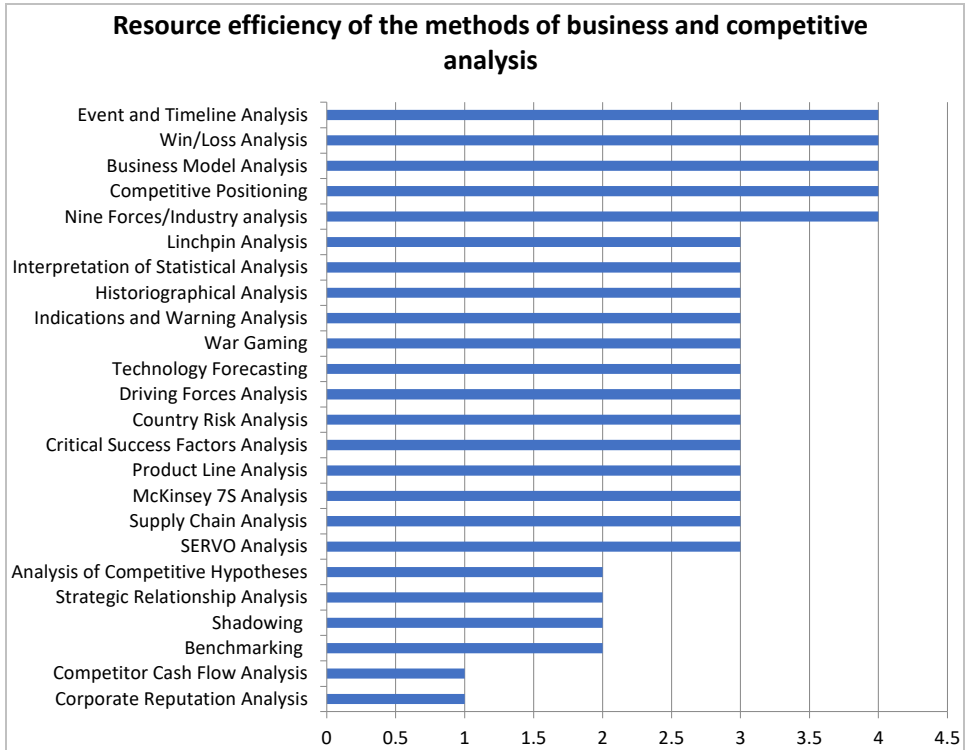
*Source:* Own figure

It is obvious that methods which have high future orientation do not necessarily have, and probably never had to have (Capon and Hulbert, 1985), high accuracy level. This issue requires careful attention when companies and corporations select techniques to their tool package.

### 3.3 Resource efficiency ranking of the 24 BCA techniques

In Figure 3, we show the results of the resource efficiency-specific ranking of the 24 BCA techniques. The highest resource efficiency levels are reached by techniques such as event and timeline analysis, win/loss analysis, business model analysis, competitive positioning, and nine forces/industry analysis. Conversely, corporate reputation analysis and competitor cash flow analysis display the lowest resource efficiency levels.

**Figure 3** Resource efficiency of the 24 BAC techniques (see online version for colours)

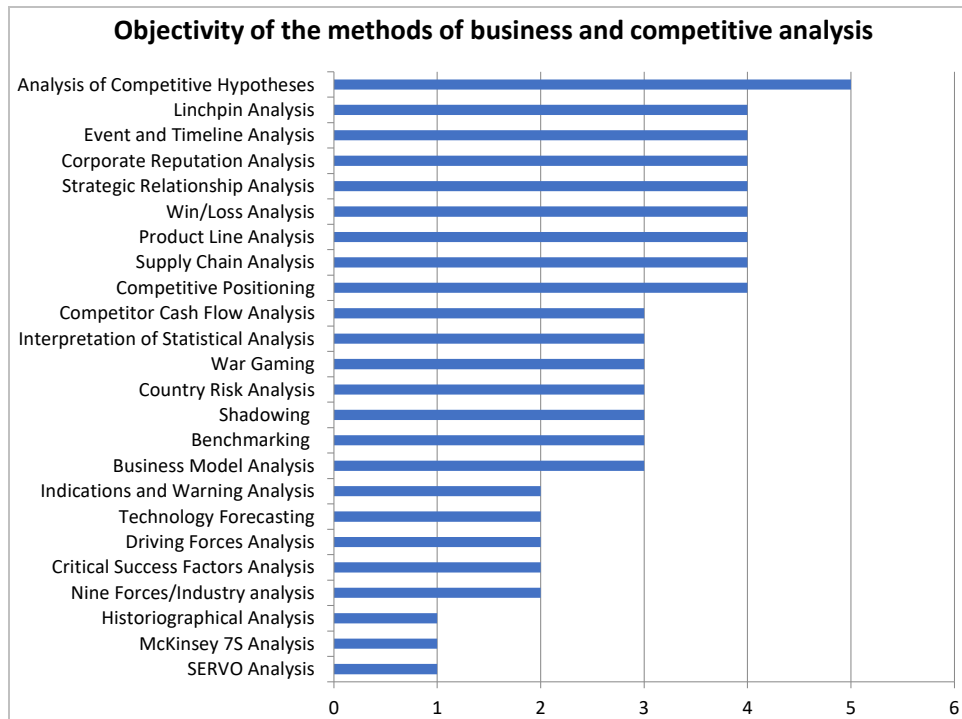


Source: Own figure

Techniques with high future orientation remain in the mid-field of this resource efficiency ranking. Companies and corporations often prefer resource-efficient techniques; however, Figure 3 reveals clearly that this strategy comes at the cost of an, at best, only average future orientation.

### 3.4 Objectivity ranking of the 24 BCA techniques

In Figure 4, the levels of objectivity of the 24 techniques are ranked, whereby only one technique, analysis of competitive hypotheses, reaches the highest level of objectivity and may be considered the first choice in contexts where objectivity is most critical in business and competitive analyses. Further, eight techniques reach the second-best level.

**Figure 4** Objectivity of the 24 BAC techniques (see online version for colours)

Source: Own figure

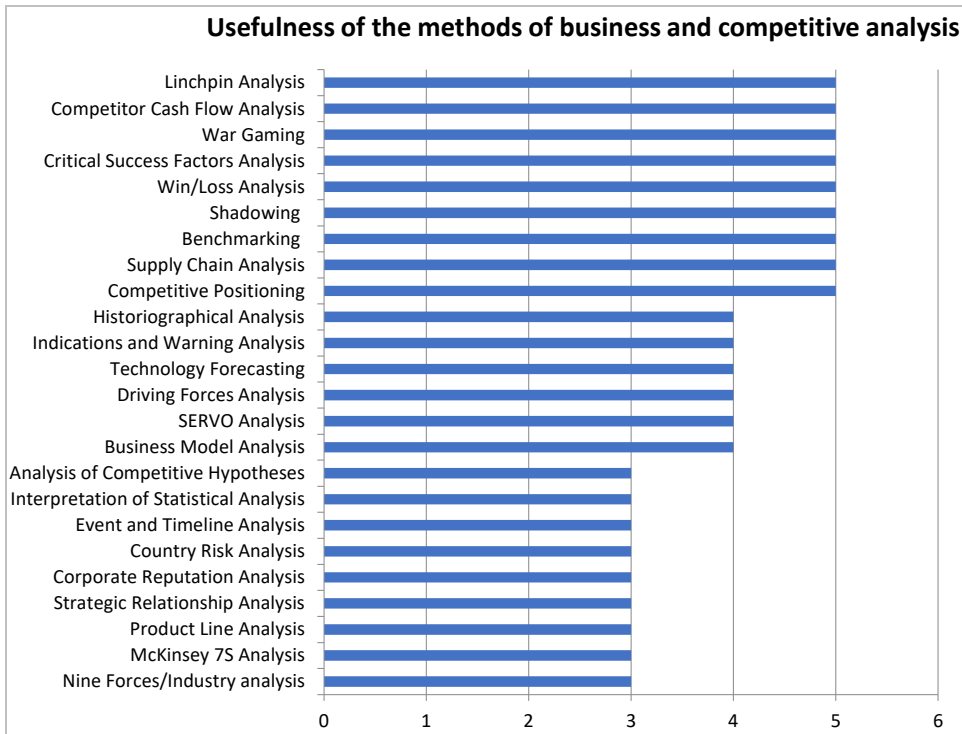
In this comparative objectivity analysis, historiographical analysis, McKinsey 7S analysis, and SERVO analysis rank lowest.

### 3.5 Usefulness ranking of the 24 BCA techniques

The usefulness ranking of the 24 BAC techniques is reported in Figure 5. Many techniques reach the highest rank in this version of the ranking: Linchpin analysis, competitor cash flow analysis, war gaming, critical success factors analysis, win/loss analysis, shadowing, benchmarking, supply chain analysis, and competitive positioning display a very high level of usefulness.

It is interesting to observe that all 24 techniques reach or exceed level 3 of usefulness. This corresponds to the idea that all of these 24 techniques have stood the test of time in 'real-life' conditions.

**Figure 5** Usefulness of the 24 BAC techniques (see online version for colours)



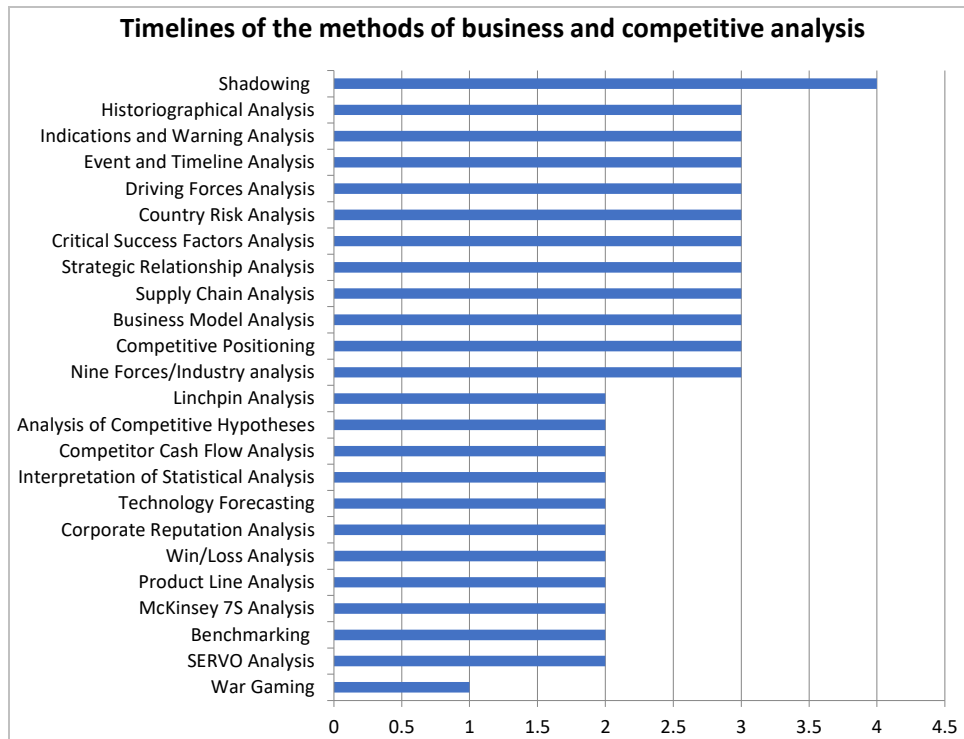
Source: Own figure

### 3.6 Timeliness ranking of the 24 BCA techniques

Timeliness refers to time investment required for each of the 24 BAC techniques; the corresponding ranking is presented in Figure 6.

The most time-efficient technique is shadowing, whereas war gaming appears to be the worst choice if timeliness is the key criterion in the given BCA context. The techniques between historiographical analysis and nine forces/industry analysis make a total of eleven at least solid alternatives to shadowing. In general, we find that BCA is relatively time demanding.

In general, the six criterion-specific rankings make it easier to grasp that the different BAC techniques distinguish themselves by different merits as well as to understand which are these merits. As basic as is this analysis, it will already facilitate the context-specific selection of adequate BAC techniques. In the next sections, however, we shall proceed to the presentation of more strategic foresight-specific rankings and method selection models. In the next step, we shall therefore show which are the best-performing techniques across all the FAROUT criteria.

**Figure 6** Timeliness of the 24 BAC techniques (see online version for colours)

Source: Own figure

#### 4 Combined ranking of the 24 BCA techniques across all of the six FAROUT criteria

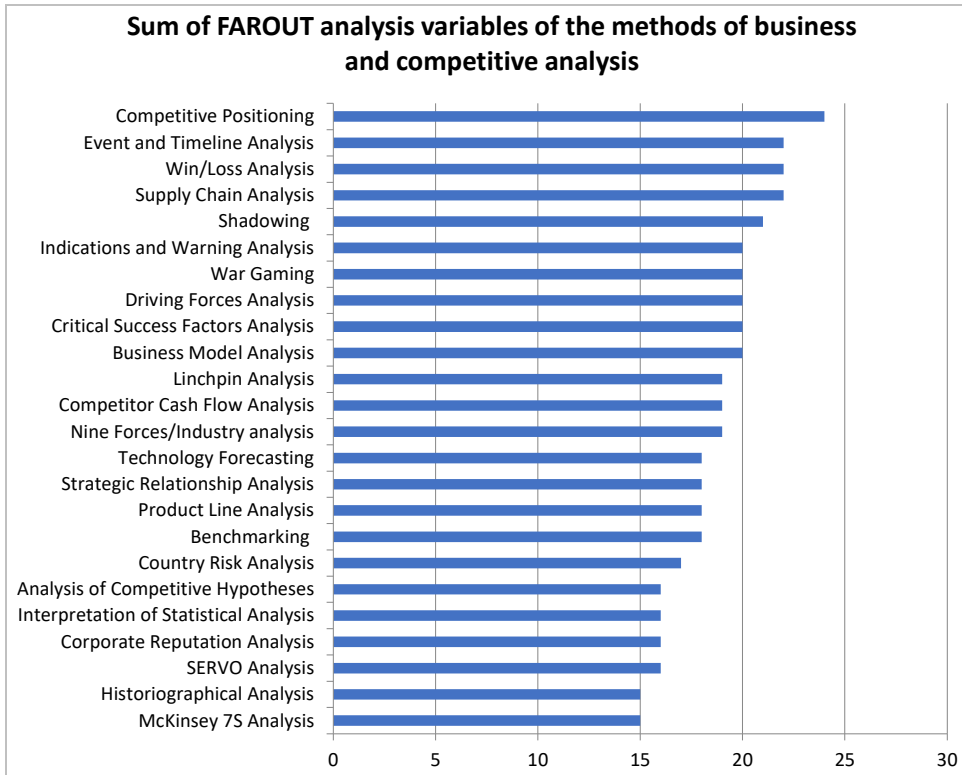
As instructive as are the above criterion-specific rankings, as evident is it that in most BAC contexts we are not interested in techniques for an *either* future orientated, accurate, resource efficient, accurate, objective, useful, *or* timely analysis, but rather in tools that provide an adequate blend of performances across all six FAROUT criteria (see Figure 7).

From this perspective, the top 10 techniques for BCA are:

- 1 competitive positioning
- 2 E&T analysis
- 3 win/loss analysis
- 4 supply chain analysis
- 5 shadowing
- 6 indicators and warning analysis
- 7 war gaming

- 8 driving forces analysis
- 9 critical success factor analysis
- 10 business model analysis.

**Figure 7** Combined performance across all FAROUT criteria of the 24 BAC techniques (see online version for colours)



Source: Own figure

Consequently, in contexts where the six FAROUT criteria are equally relevant, these ten techniques may be considered the first choice. Yet, there is reason to assume that in a strategic foresight context, future orientation of a BAC technique is more critical than the other FAROUT criteria. Therefore, in the subsequent section, we shall investigate how well the 24 techniques perform if we analyse specific combinations of future orientation and the other criteria.

### 5 Combined ranking of future orientation and one of the remaining FAROUT criteria of the 24 BCA techniques

In this section, we discuss about, how to select BAC techniques for strategic foresight contexts. Our basic assumption is that a strong future orientation is a necessary condition for successful strategic foresight, which is why we specifically focus interactions of

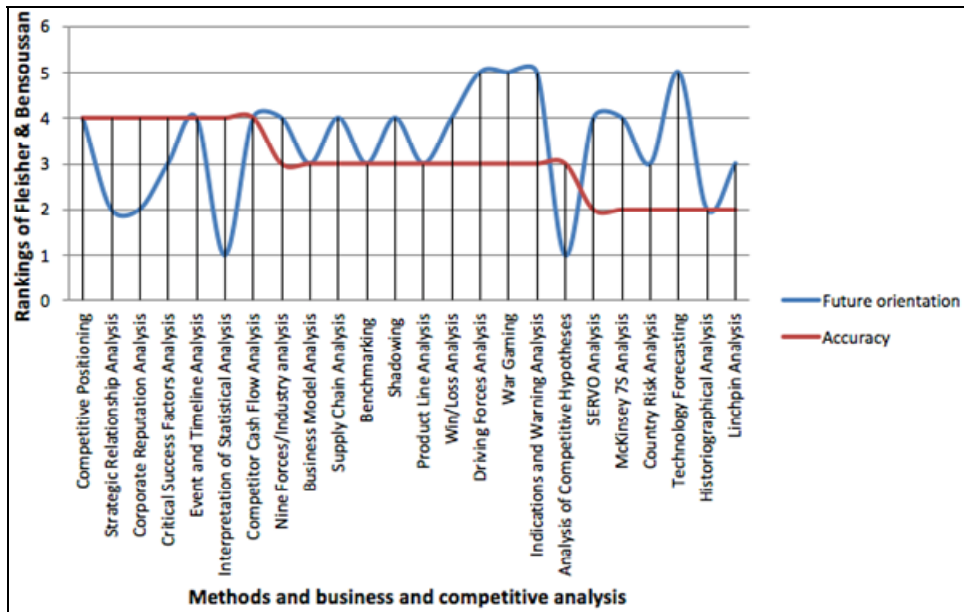


future orientation and the other FAROUT variables. This section is based on an ‘if X, then Y’-type of reasoning: e.g., *if* we are in a strategic foresight context, and *if* we are looking for an accurate BAC technique in this context, then we might wish to prefer the following techniques (see Figure 8 and Table 3). The reason why we have presented rankings by different combinations of criteria is that managers and leaders in different organisations may and probably have always first priorities of management. Some FAROUT aspects may be less important for them. Now in our reporting format these potential socio-cultural differences and management preferences have taken into more serious consideration than normally in many foresight studies. Thus, we are turning the original Fleisher-Bensoussan evaluation into a conditional method for the selection of particularly accurate, resource efficient, objective, useful, or timely techniques for strategic foresight. To allow for fruitful and inspiring oscillations between the observation of either future orientation or the respective another criterion the main selection criterion, for each of the AROUT criteria, we provide both a table in which future orientation is the main criterion and a figure in which the respective other criterion is the main criterion.

5.1 Future orientation versus accuracy

A combined observation of Figure 8 and Table 3 shows that if decision-makers wish to use both accurate and future-oriented BAC techniques, then the best techniques are driving forces analysis, war gaming, and indications and warning analysis (if *future orientation* is the main criterion) or competitive positioning analysis, event and timeline analysis and competitor cash flow analysis (if *accuracy* is the main criterion).

Figure 8 Matching accuracy (main criterion) with future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

**Table 3** Combining accuracy with future orientation (main criterion) of the 24 BAC techniques

	<i>Future orientation</i>	<i>Accuracy</i>	<i>Sum</i>
Driving forces analysis	5	3	8
War gaming	5	3	8
Indications and warning analysis	5	3	8
Technology forecasting	5	2	7
Competitive positioning	4	4	8
Event and timeline analysis	4	4	8
Competitor cash flow analysis	4	4	8
Nine forces/industry analysis	4	3	7
Supply chain analysis	4	3	7
Shadowing	4	3	7
Win/loss analysis	4	3	7
SERVO analysis	4	2	6
McKinsey 7S analysis	4	2	6
Critical success factors analysis	3	4	7
Business model analysis	3	3	6
Benchmarking	3	3	6
Product line analysis	3	3	6
Country risk analysis	3	2	5
Linchpin analysis	3	2	5
Strategic relationship analysis	2	4	6
Corporate reputation analysis	2	4	6
Historiographical analysis	2	2	4
Interpretation of statistical analysis	1	4	5
Analysis of competitive hypotheses	1	3	4

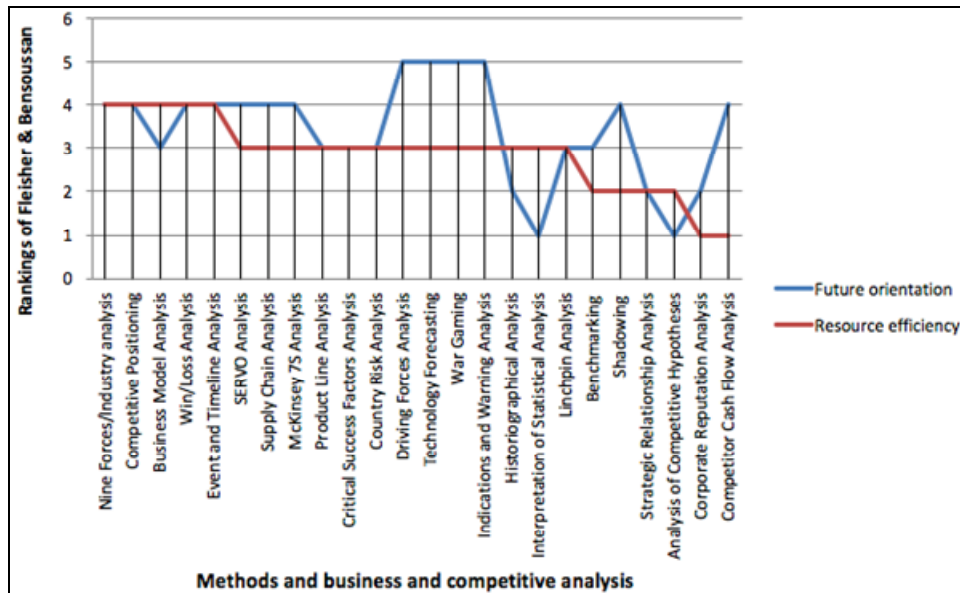
*Source:* Own table

## 5.2 *Future orientation versus resource efficiency*

In Figure 9, we find that nine forces/industry analysis, competitive positioning, win-and-loss-analysis, and event and timeline analysis are the best options if resource efficiency is the main criterion.

Table 4 furthermore shows that driving forces analysis, technology forecasting, war gaming, and indications and warning analysis provide the optimal futures orientation combined with still reasonable levels of resource efficiency.

**Figure 9** Matching resource efficiency (main criterion) with future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

**Table 4** Combining resource efficiency with future orientation (main criterion) of the 24 BAC techniques

	<i>Future orientation</i>	<i>Resource efficiency</i>	<i>Sum</i>
Driving forces analysis	5	3	8
Technology forecasting	5	3	8
War gaming	5	3	8
Indications and warning analysis	5	3	8
Nine forces/industry analysis	4	4	8
Competitive positioning	4	4	8
Win/loss analysis	4	4	8
Event and timeline analysis	4	4	8
SERVO analysis	4	3	7
Supply chain analysis	4	3	7
McKinsey 7S analysis	4	3	7
Shadowing	4	2	6
Competitor cash flow analysis	4	1	5
Business model analysis	3	4	7
Product line analysis	3	3	6
Critical success factors analysis	3	3	6
Country risk analysis	3	3	6

Source: Own table

**Table 4** Combining resource efficiency with future orientation (main criterion) of the 24 BAC techniques (continued)

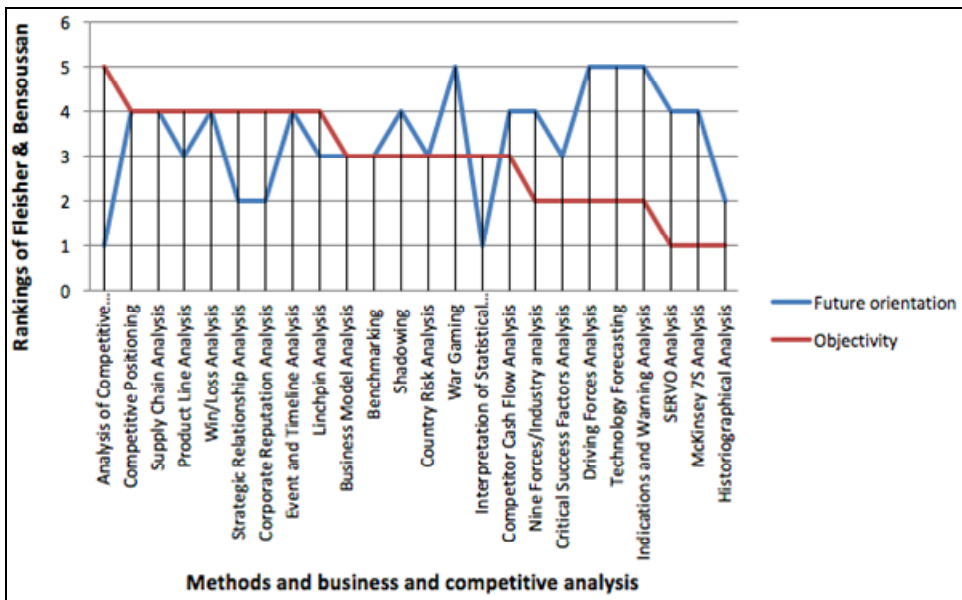
	<i>Future orientation</i>	<i>Resource efficiency</i>	<i>Sum</i>
Linchpin analysis	3	3	6
Benchmarking	3	2	5
Historiographical analysis	2	3	5
Strategic relationship analysis	2	2	4
Corporate reputation analysis	2	1	3
Interpretation statistical analysis	1	3	4
Analysis competitive hypotheses	1	2	3

Source: Own table

### 5.3 Future orientation versus objectivity

In Figure 10, the analysis of competitive hypotheses appears as the most objective, yet also as one of the least future-oriented techniques, whereas competitive positioning, supply chain analysis, win/loss analysis, and event and timeline analysis provide the best blend of objectivity and future orientation.

**Figure 10** Matching objectivity (main criterion) with future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

Table 5 furthermore shows that all of the most future-oriented techniques – namely war gaming, driving forces analysis, technology forecasting, indications and warning analysis – have considerable issues with objectivity. As mentioned earlier, this comes as only little surprise as observations of the future are particularly hard to objectify. War gaming

seems to be the best blend of future orientation and objectivity if the former is the main criterion.

**Table 5** Combining objectivity with future orientation (main criterion) of the 24 BAC techniques

	<i>Future orientation</i>	<i>Objectivity</i>	<i>Sum</i>
War gaming	5	3	8
Driving forces analysis	5	2	7
Technology forecasting	5	2	7
Indications and warning analysis	5	2	7
Competitive positioning	4	4	8
Supply chain analysis	4	4	8
Win/loss analysis	4	4	8
Event and timeline analysis	4	4	8
Shadowing	4	3	7
Competitor cash flow analysis	4	3	7
Nine forces/industry analysis	4	2	6
SERVO analysis	4	1	5
McKinsey 7S analysis	4	1	5
Product line analysis	3	4	7
Linchpin analysis	3	4	7
Business model analysis	3	3	6
Benchmarking	3	3	6
Country risk analysis	3	3	6
Critical success factors analysis	3	2	5
Strategic relationship analysis	2	4	6
Corporate reputation analysis	2	4	6
Historiographical analysis	2	1	3
Analysis of competitive hypotheses	1	5	6
Interpretation of statistical analysis	1	3	4

*Source:* Own table

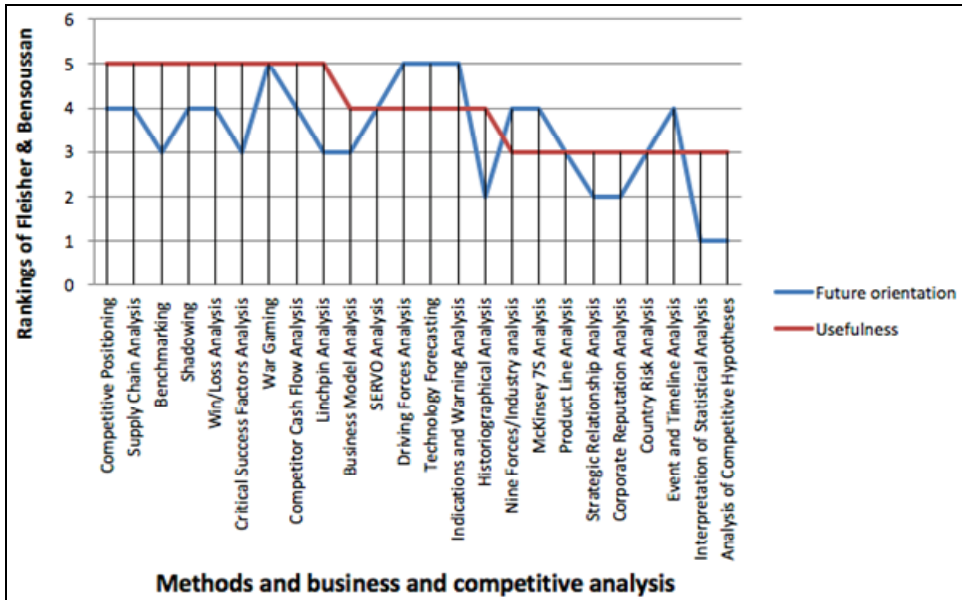
#### 5.4 Future orientation versus usefulness

Figure 11 shows that the list of useful techniques is long, as is the list of both useful and reasonably future-oriented techniques. War gaming stands out from all of them as the only technique to combine maximum values in both usefulness and future orientation, followed by competitive positioning, supply chain analysis, shadowing, win/loss analysis, and competitor cash flow analysis, which all combine maximum usefulness with high levels of future orientation.

Table 6 further corroborates that there are many options to choose excellent combinations of future orientation and usefulness. If the former is the first choice, then, next to the outstanding war gaming, then driving forces analysis, technology forecasting,

and indications and warning analysis stand out from a longer list of techniques providing attractive combinations of future orientation and usefulness.

**Figure 11** Matching usefulness (main criterion) with future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

**Table 6** Combining usefulness with future orientation (main criterion) of the 24 BAC techniques

	<i>Future orientation</i>	<i>Usefulness</i>	<i>Sum</i>
War gaming	5	5	10
Driving forces analysis	5	4	9
Technology forecasting	5	4	9
Indications and warning analysis	5	4	9
Competitive positioning	4	5	9
Supply chain analysis	4	5	9
Shadowing	4	5	9
Win/loss analysis	4	5	9
Competitor cash flow analysis	4	5	9
SERVO analysis	4	4	8
Nine forces/industry analysis	4	3	7
McKinsey 7S analysis	4	3	7
Event and timeline analysis	4	3	7
Benchmarking	3	5	8

Source: Own table

**Table 6** Combining usefulness with future orientation (main criterion) of the 24 BAC techniques (continued)

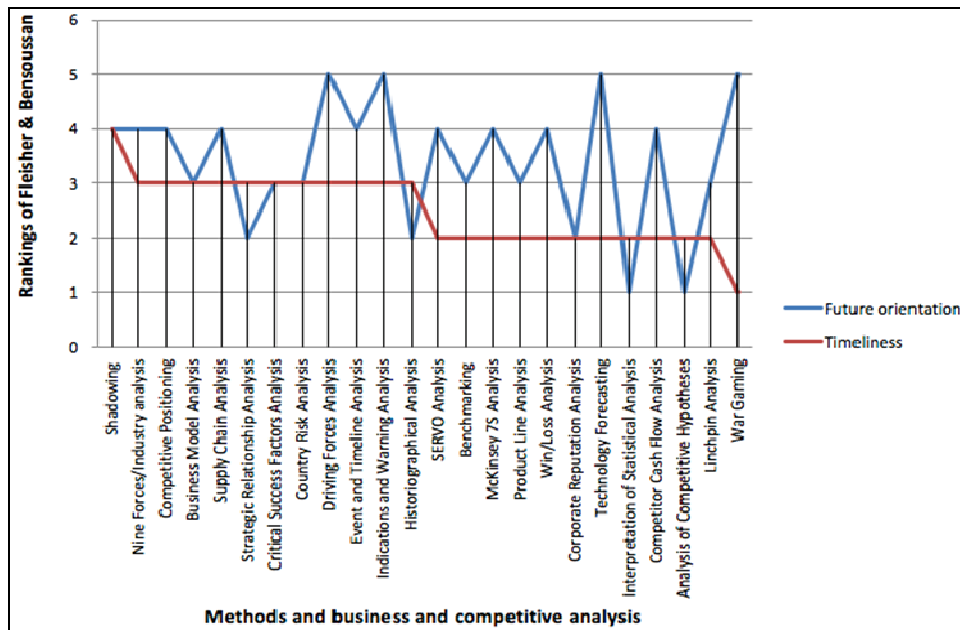
	<i>Future orientation</i>	<i>Usefulness</i>	<i>Sum</i>
Critical success factors analysis	3	5	8
Linchpin analysis	3	5	8
Business model analysis	3	4	7
Product line analysis	3	3	6
Country risk analysis	3	3	6
Historiographical analysis	2	4	6
Strategic relationship analysis	2	3	5
Corporate reputation analysis	2	3	5
Interpretation statistical analysis	1	3	4
Analysis competitive hypotheses	1	3	4

Source: Own table

### 5.5 Future orientation versus timeliness

Figure 12 shows that shadowing is the timeliest among the future-oriented techniques. Among the reasonably timely options, driving forces analysis and indications and warning analysis stand out as they combine maximum values in future orientation with reasonable timeliness.

**Figure 12** Matching timeliness (main criterion) with future orientation of the 24 BAC techniques (see online version for colours)



Source: Own figure

Table 7 further corroborates the impression that timeliness is a considerable challenge for most of the 24 BAC techniques. Thus, if decision-makers are interested in the best combination of timeliness and future orientation, then the best choices are shadowing, driving forces analysis, and indications and warning analysis.

**Table 7** Combining timeliness with future orientation (main criterion) of the 24 BAC techniques

	<i>Future orientation</i>	<i>Timeliness</i>	<i>Sum</i>
Driving forces analysis	5	3	8
Indications and warning analysis	5	3	8
Technology forecasting	5	2	7
War gaming	5	1	6
Shadowing	4	4	8
Nine forces/industry analysis	4	3	7
Competitive positioning	4	3	7
Supply chain analysis	4	3	7
Event and timeline analysis	4	3	7
SERVO analysis	4	2	6
McKinsey 7S analysis	4	2	6
Win/loss analysis	4	2	6
Competitor cash flow analysis	4	2	6
Business model analysis	3	3	6
Critical success factors analysis	3	3	6
Country risk analysis	3	3	6
Benchmarking	3	2	5
Product line analysis	3	2	5
Linchpin analysis	3	2	5
Strategic relationship analysis	2	3	5
Historiographical analysis	2	3	5
Corporate reputation analysis	2	2	4
Interpretation statistical analysis	1	2	3
Analysis competitive hypotheses	1	2	3

*Source:* Own table

### 5.6 *Summary of first and second choice future-oriented BCA techniques per other FAROUT criterion*

To summarise the analyses presented in Section 5.1–Section 5.5, in Table 8, we provide a compact overview of first and second choice future-oriented BCA techniques per se as well as first and second-choice future-oriented BCA techniques as a function of their combined performance in future orientation and one of the other FAROUT criteria.



**Table 8** First and second choice future-oriented BCA techniques as well as combinations of future orientation and each of the other FAROUT criterion

<i>FAROUT</i>	<i>First choice methods</i>	<i>Second choice methods</i>
Future orientation	Driving forces analysis (5)	Nine forces/industry analysis (4)
	Technology forecasting (5)	Competitive positioning (4)
	War gaming (5)	SERVO analysis (4)
	Indications and warning analysis (5)	Supply chain analysis (4)
		McKinsey 7S analysis (4)
		Shadowing (4)
		Win/loss analysis (4)
		Event and timeline analysis (4)
		Competitor cash flow analysis (4)
	Accuracy	Competitive positioning (8)
Event and timeline analysis (8)		Nine forces/industry analysis (7)
Competitors cash flow analysis (8)		Supply chain analysis (7)
Driving forces analysis (8)		Shadowing (7)
War gaming (8)		Win/loss analysis (7)
Indications and warnings analysis (8)		Technological forecasting (7)
Resource efficiency	Nine forces/industry analysis (8)	Business model analysis (7)
	Competitive positioning (8)	SERVO analysis (7)
	Win/loss analysis (8)	Supply chain analysis (7)
	Event and timeline analysis (8)	McKinsey 7S analysis (7)
	Driving forces analysis (8)	
	Technology forecasting (8)	
	War gaming (8)	
Objectivity	Competitive positioning (8)	Product line analysis (7)
	Supply chain analysis (8)	Linchpin analysis (7)
	Winn/loss analysis (8)	Shadowing (7)
	Event and timeline analysis (8)	
Usefulness	War gaming (10)	Supply chain analysis (9)
		Shadowing (9)
		Win/loss analysis (9)
		Competitor cash flow analysis (9)
		Driving forces analysis (9)
		Technology forecasting (9)
		Indications and warning analysis (9)
Timeliness	Shadowing (8)	Nine forces/industry analysis (7)
		Competitive positioning (7)

*Source:* Own table

We trust that Table 8 is informative for decision-makers in strategic foresight who wish to make conscious and systemic choices among the existing BCA techniques. Yet, there might still be cases in which strategic foresight requires not combinations of future orientation and just one single further FAROUT criterion, but rather the best blend of future orientation and all other criteria. Therefore, in the subsequent section, we provide rankings of the BCA techniques' combined performance of future orientation and the FAROUT criteria.

**Table 9** Combining future orientation performance with the combined AROUT performances of the 24 BAC techniques

	<i>Future orientation</i>	<i>Sum2 (AROUT)</i>	<i>Sum</i>
Competitive positioning	4	20	24
Supply chain analysis	4	18	22
Win/loss analysis	4	18	22
Event and timeline analysis	4	18	22
Shadowing	4	17	21
Business model analysis	3	17	20
Critical success factors analysis	3	17	20
Driving forces analysis	5	15	20
War gaming	5	15	20
Indications and warning analysis	5	15	20
Linchpin analysis	3	16	19
Nine forces/industry analysis	4	15	19
Competitor cash flow analysis	4	15	19
Strategic relationship analysis	2	16	18
Benchmarking	3	15	18
Product line analysis	3	15	18
Technology forecasting	5	13	18
Country risk analysis	3	14	17
Interpretation of statistical analysis	1	15	16
Analysis of competitive hypotheses	1	15	16
Corporate reputation analysis	2	14	16
SERVO analysis	4	12	16
Historiographical analysis	2	13	15
McKinsey 7S analysis	4	11	15

*Source:* Own table

## 6 Combined ranking of future orientation and all F/AROUT criteria of the 24 BCA techniques

In case we are interested in the broadest possible combinations of future orientation and all other FAROUT criteria, we may draw inspiration from Tables 9 and 10. Whereas

Table 9 presents the combined performances of future orientation and the sum of the remaining AROUT criteria, Table 10 presents the combined performances of future orientation and the sum of all of the FAROUT criteria, including future orientation. This 're-entry' (Spencer Brown, 1979) of future orientation is justified to the extent that we started from the assumption that future orientation presents a necessary and possibly the most critical criterion in strategic *foresight*, which is why some decision-makers might wish to weight it higher on some occasions.

**Table 10** Combining future orientation performance with the combined FAROUT performances of the 24 BAC techniques

	<i>Future orientation</i>	<i>Sum (FAROUT)</i>	<i>Sum</i>
Competitive positioning	4	24	28
Supply chain analysis	4	22	26
Win/loss analysis	4	22	26
Event and timeline analysis	4	22	26
Shadowing	4	21	25
Business model analysis	3	20	23
Critical success factors analysis	3	20	23
Driving forces analysis	5	20	25
War gaming	5	20	25
Indications and warning analysis	5	20	25
Nine forces/industry analysis	4	19	23
Competitor cash flow analysis	4	19	23
Linchpin analysis	3	19	22
Benchmarking	3	18	21
Product line analysis	3	18	21
Strategic relationship analysis	2	18	20
Technology forecasting	5	18	23
Country risk analysis	3	17	20
SERVO analysis	4	16	20
Corporate reputation analysis	2	16	18
Interpretation of statistical analysis	1	16	17
Analysis of competitive hypotheses	1	16	17
McKinsey 7S analysis	4	15	19
Historiographical analysis	2	15	17

*Source:* Own table

If we leave future orientation out from the FAROUT criteria package, then competitive positioning emerges as the most adequate broadband BCA technique. The second-best choices are supply chain analysis, win/loss analysis, event and timeline analysis and shadowing (see Table 9).

If we perform the above-mentioned re-entry, then we find that the top 10 remains intact, whereas we observe some changes at the lower ranks.

Thus, competitive positioning, supply chain analysis, win/loss analysis, event and timeline analysis, and shadowing remain the most adequate broadband BCA technique even if we once more give specific weight to future orientation.

## 7 Conclusions

In this article, we presented a strategic foresight-oriented BCA techniques selection model focusing on the techniques evaluated in the FAROUT assessment developed originally by Fleisher and Bensoussan (2007, 2015). We drew on this sample because, first, the sample comprises well-known, well-tried, and not too context-specific techniques, and second, because the descriptive, unweighted FAROUT assessment made a valuable basis for our more strategic foresight- and selection support-oriented approach. The key result of our approach is a series of if-then BCA technique selection models that allow for the context- or purpose-specific selection of techniques that distinguish themselves by both a robust future orientation and one of the other FAROUT criteria: accuracy, resource efficiency, objectivity, usefulness and timeliness. Moreover, we identified those techniques that are most adequate for strategic foresight contexts in which the best-possible combinations of all FAROUT criteria is required.

We can note that the FAROUT approach is applicable to the selection of foresight methods in a flexible way. The FAROUT approach can also be applied to consider the socio-cultural context. It is also possible to incorporate the FAROUT approach into one of the existing foresight method selection frameworks, such as Popper's (2008) diamond or any other presented foresight selection model. It is also possible to cluster different methods and apply FAROUT evaluation to clustered foresight method 'families'. In this sense, the FAROUT method is sensible and flexible approach to select foresight methods.

In this sense, our article introduces a novel perspective on the issue of appropriate BCA selection strategies in a strategic foresight context, which is particularly critical as our comparative BCA analysis showed that there are several techniques with low future orientation, which are nonetheless often used for strategic foresight probably not only due to under-reflected selection routines induced by their ease-of-use or their mere exposure (e.g., in business school contexts) but also due to their solid performance in one or several of the other FAROUT criteria. Yet, it might be a desirable goal for future strategic foresight research and practice that BCA techniques selections be performed more consciously as well as more purpose- and context-specifically, with the probably most important context of strategic foresight being future orientation, a criterion that can now be strategically related to any or all other FAROUT criteria.

Thus, this article provides a well-argued, manageable, and goal-specific BCA techniques selection support programme, which could contribute substantially to the further development of or be implemented in existing foresight support systems (Bañuls and Salmeron, 2011; Spithourakis et al., 2015) and which supports the transition from intuition-driven, recipe-based, or check-list-oriented selection behaviours to the development of further and possibly more comprehensive, context-specific conditional programs for the sometimes-underestimated task of strategic foresight techniques selection.

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