LEIPZIG GRADUATE SCHOOL OF MANAGEMENT

Center for Scenario Planning | ROLAND BERGER RESEARCH UNIT

# A scenario-based approach to strategic planning

## Tool description – Impact/Uncertainty Grid

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# 1. Introduction

Trend and uncertainty analysis is the third stage of our six-step approach to scenario-based strategic planning. This paper explains how the results of the previous step – perception analysis (*360° Stakeholder Feedback)* – can be structured and categorized using the '*Impact/Uncertainty Grid'* tool (Figure 1). The general aim of trend and uncertainty analysis is to discuss and evaluate relevant trends and critical uncertainties. In particular, critical uncertainties are analyzed to yield two key meta-categories. These categories are required to build a scenario in the fourth step (Wulf, Meissner and Stubner, 2010). Before explaining the '*Impact/Uncertainty Grid'* itself, we will briefly look at the basic idea behind clustering and evaluating factors in scenario projects.

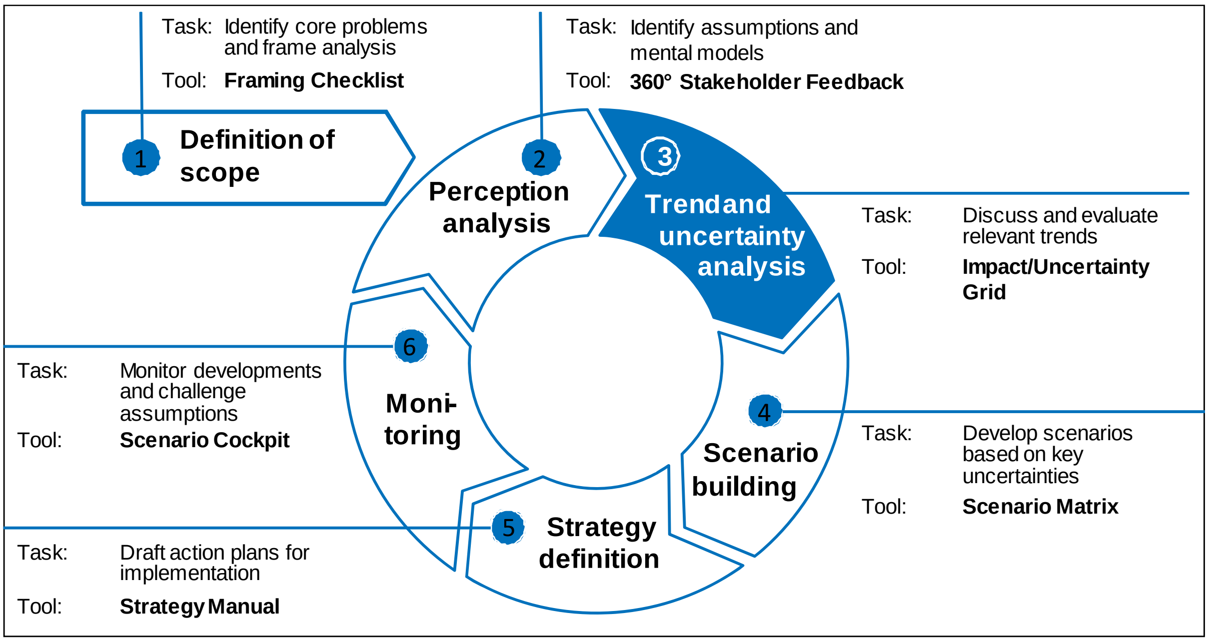


Figure 1: Six-step scenario-based approach to strategic planning

## 2. Background information on the Impact/Uncertainty Grid

Scenario-based strategic planning means coping with a wide variety of factors that can potentially be used to construct scenarios. All available factors must be filtered in terms of logic and structure to obtain the appropriate ones for the designated scenario-based strategic planning activity (Wright & Cairns, 2011). In the past, several methods have been proposed for identifying relevant factors and clustering trends and uncertainties. These methods include:

- Holding workshops with scenario and industry experts. The aim is to collect, evaluate and define relevant future trends and factors (Wright & Cairns, 2011)
- Conducting interviews with scenario and industry experts. The aim is to identify and evaluate trends based on expert opinions (van der Heijden, 2005)
- Building a computerized model consisting largely of a factor analysis that weights each factor against the others. This makes it possible to automatically identify the most relevant factors (Gausemeier et al, 2009)

All of these methods have two main advantages. First, they make it possible to characterize trends in detail by discussing them. Second, factors can be weighted quantitatively by using computerized models. Nevertheless, these tools also have limitations. Conducting a series of workshops takes a lot of time and can be a very resource-intensive task. Moreover, the participants have to be chosen very carefully in order to obtain and evaluate the right trends.

The same is true for expert interviews. Interviewing a wide range of experts is time-consuming, and the analysis of the interview data is subject to the interviewer's perceptions. It is also difficult to quantify the importance of trends and factors during interviews focused on obtaining qualitative data.

Computerized models use quantitative data, but the results often do not fit the scope of the scenario-based strategic planning project, as they lack a certain level of human interaction and analysis.

Participants of a scenario-based strategic planning project need a brief, comprehensive and straightforward tool for clustering all relevant factors. In the previous tool description, we introduced '*360° Stakeholder Feedback*' tool. We explained how factors can be collected and rated in terms of their level of impact and uncertainty. The '*Impact/Uncertainty Grid*' is based on the results of '*360° Stakeholder Feedback*'. Our tool overcomes the weaknesses of existing methods, especially when it comes to evaluating relevant factors. With the '*Impact/Uncertainty Grid',* participants of a scenario planning project can intuitively identify the two key uncertainty factors they need for building sound scenarios.

# 3. Description of the *Impact/Uncertainty Grid*

The '*Impact/Uncertainty Grid*' is a concise cluster of relevant factors, allowing participants of a scenario project to identify two key uncertainties which they can use to construct four distinct scenarios. In the previous step of our approach, we were able to determine and identify factors that are likely to impact the chosen scope of our scenario analysis in the future. Perception analysis allowed us to rate each factor in terms of its importance and uncertainty on a scale from one (= low/weak) to ten (= high/strong).

## 3.1 Methodology of the Impact/Uncertainty Grid

The '*Impact/Uncertainty Grid*' is a matrix with two dimensions: Uncertainty on the x-axis and potential impact (for future performance) on the y-axis (Figure 2). The range of the axes corresponds to the rating scale applied during the application of the '*360° Stakeholder Feedback*', i.e. one to ten.

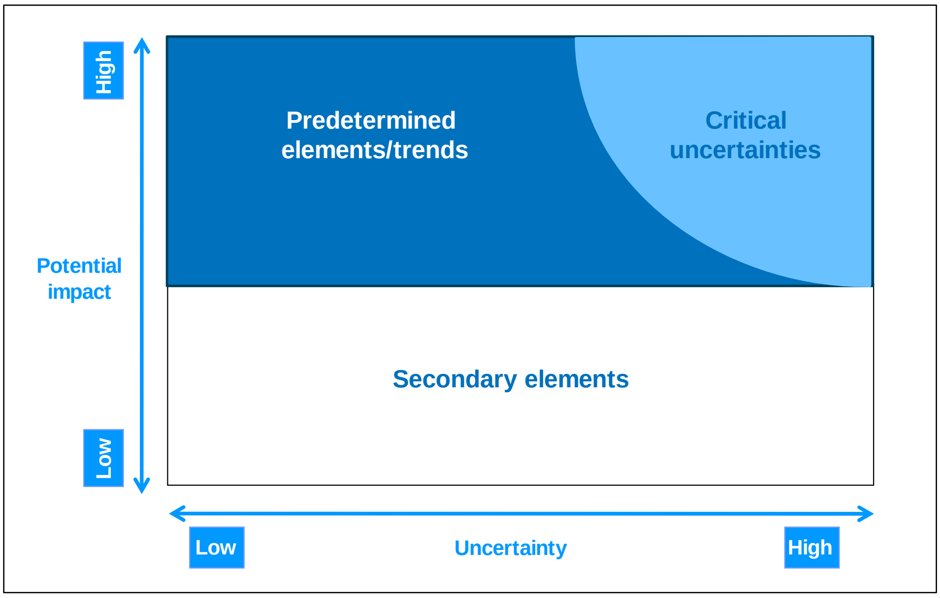


Figure 2: Impact/Uncertainty Grid

The relevant factors can be placed on the grid according to their rating. Ideally the result is a graphical pattern, showing relevant factors spread over the whole range of the axes. If the relevant factors are clustered around one focal point, we recommend adjusting the axes accordingly. Example: Let us assume all relevant factors on the impact dimension range from three to eight. In this case, it is possible to stretch the axis by cutting out values below three and above eight. This method does not manipulate the results, but merely enhances their (graphical) visualization.

The next step is to cluster the relevant factors into secondary elements, trends and especially critical uncertainties. Secondary elements have a low impact and can have low or high uncertainty. For the development of scenarios, these factors can be largely ignored, since they will have only a minor impact on a firm's future development. Instead, firms should concentrate on trends and critical uncertainties.

Trends have a high impact and low to medium uncertainty. The future direction of these trends is fairly certain, and they can have a high impact on a firm's future success. One example of such a trend is the demographic change in Germany. Germany's population is getting older, the country's labor force is shrinking and people tend to start working at a later age. The continuation of this development is relatively certain. It will have a substantial impact on how companies organize their daily operations as well as on their future financial performance.

Finally, critical uncertainties have a high impact on a firm's future success and high uncertainty. These factors are the most important in the grid since they are the most difficult to manage. How a factor will develop, i.e. positively or negatively, is unknown. Yet regardless of its development, the factor will have a strong impact on a firm's financial performance. Examples are input factor prices, key markets or key technologies (such as e-mobility). For these reasons, "critical uncertainties" should take priority when developing scenarios.

Critical uncertainties are then grouped into meta-categories based on common elements or topics. Two of these meta-categories are then chosen to provide the basis for the scenario-building step of the six-step approach. The final task of the '*Impact/Uncertainty Grid*' is to identify these two mega-categories by looking for commonalities among the critical uncertainties. Example: Several critical uncertainties have a political or regulatory aspect. This group of factors should be clustered into a new meta-category.

## 3.2 Using the tool in the European airline industry

We recently applied the '*Impact/Uncertainty Grid*' to a project in the European airline industry. We focused on network carriers that operate a global route network on a hub-and-spoke basis, e.g. Lufthansa, Air France or British Airways. In step two ('*360° Stakeholder Feedback')*, we identified and weighted several factors. After that we applied the *Impact/Uncertainty Grid* to cluster all factors into secondary elements, trends and critical uncertainties (Figure 3).

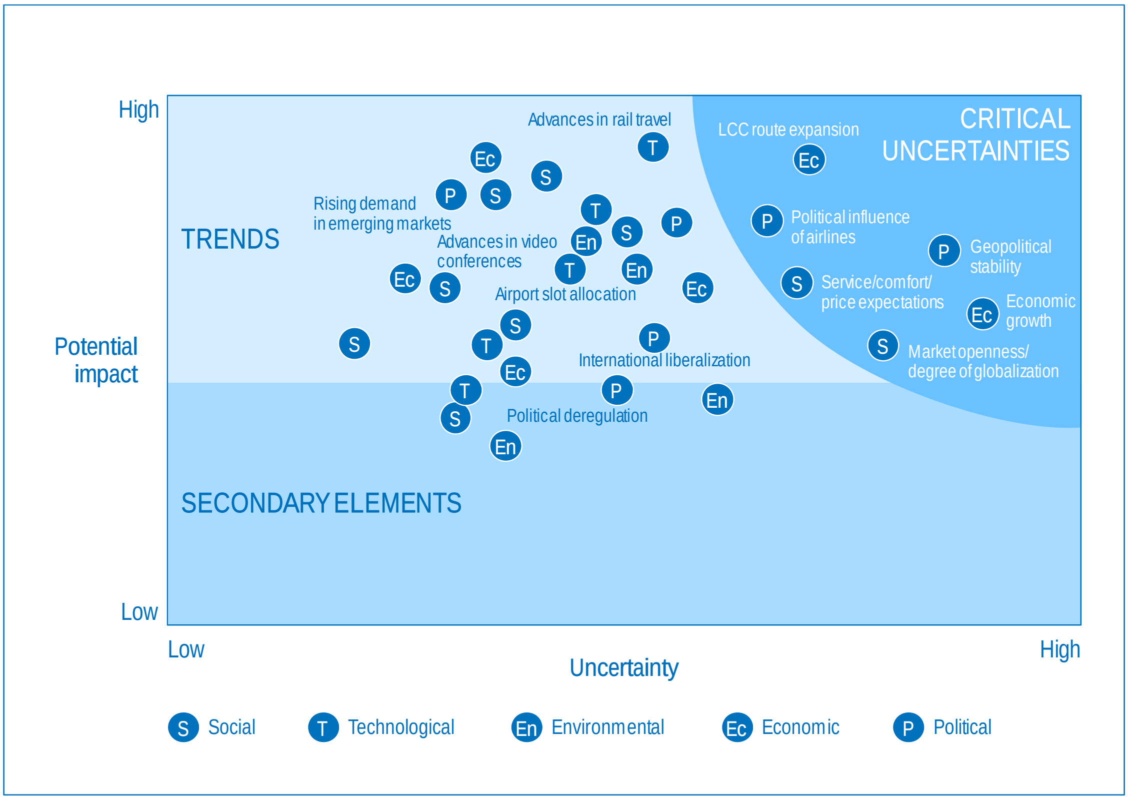

Figure 3: Impact/Uncertainty Grid for the European airline industry

The *Impact/Uncertainty Grid* found six critical uncertainties: Economic growth, low-cost carrier route expansion, service/comfort/price expectations, market openness/degree of globalization, political influence of airlines and geopolitical stability.

Related uncertainties were clustered into two meta-categories. The first meta-category was identified using the first three critical uncertainties stated above (economic growth, low-cost carrier route expansion, and service/comfort/price expectations) and labeled *"Price sensitivity of the customer base"*: What these factors have in common is that they describe customer expectations and the means they have to satisfy them.

The second three critical uncertainties (market openness/degree of globalization, political influence of airlines, geopolitical stability) were clustered into the meta-category *"Regulation of industry in Europe"*: Here the common element is the extent to which the European airline industry's future development is dependent on political decisions. Both meta-categories of critical uncertainties can now be used to build four concise scenarios, a process we will explain in the fourth tool description.

# 4 Evaluation

The '*Impact/Uncertainty Grid'* has been applied in several scenario-based strategic planning projects. It is an efficient tool for discussing and evaluating relevant trends and critical uncertainties, as shown in the European airline industry example. Its main advantages are its straightforward application when clustering several factors and its good visualization when it comes to selecting two meta-categories for the scenario development process. The tool helps reduce the complexity of scenario planning projects by systematically condensing important factors.

When we applied the tool, however, we found some weaknesses that have to be addressed. The first is related to content: Clustering all critical uncertainties into two meta-categories can be challenging if the issues are too diverse to bundle. In some cases, it may be necessary to leave out one or two critical uncertainties during the clustering process. These "excluded" uncertainties have to be included later on in the scenario description.

The second weakness lies on the operational level: Adjusting the scales for graphical visualization of the impact and uncertainty dimensions can be time-consuming. The same is true for placing the different factors into the different groups. Both steps can lead to extensive debates among members of a scenario-based strategic planning team and industry experts. We recommend keeping this sanity check as brief as possible and looking for compromises.

In conclusion, the outcome of the '*Impact/Uncertainty Grid'* is a list of clustered factors and two meta-categories of critical uncertainties that can be used in the next phase of the scenario development process. This phase will be described in our fourth tool description introducing the *'Scenario Matrix'* tool.

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