NAVIGATING IN A ROUGH SEA

Decision making in complex and uncertain business environments

Franz Tessun

This paper shows the need for totally different thinking. There are three sectors of thinking: network thinking; future open thinking; and strategic thinking. Only the combination of these aspects of thinking can deal with the future in an efficient and economic way. This combination is necessary to make decisions in a complex and uncertain environment (navigating in a rough sea). Moreover, markets and customers are quickly changing and trends reveal that markets and demands will change increasingly quicker so that traditional decision making instruments will no longer work. Examples show how to handle various complex and uncertain decisive situations. One most difficult and challenging question is recognition of risks and crisis before competitors. An even more difficult question is how to find and use opportunities in the markets. These questions will be answered with an early warning system that will help to think in alternatives. One can “fore think” opportunities and risks in the markets using a strategic early warning system. The systematic approach can be supported by the Future Scorecard, which is explained in detail in this paper.
WHY SHOULD WE DEAL WITH THE FUTURE?

Although mankind has been interested in the future for centuries and has invented countless methods and procedures for purportedly forecasting the future, to the present day it has not succeeded in making the future predictable. One cannot know the future and it remains unforeseeable, as demonstrated by the many (wrong) forecasts of recent years. Nevertheless, managers are forced to shape the future here and now to actively prepare their enterprise for the uncertain future.

How can this dilemma be solved? How can an enterprise react to the increasing complexity of its environment (shortly described with keywords such as globalization, market saturation, and short product life cycles)? How can an enterprise control the consequences of an increased complexity of markets, of product and technology development and of socio-cultural and political environment? The complexity results in an accelerating dynamic, in short trends and in a high intensity of change.

The answer to these questions is that we can and must create the prerequisites for preventive actions through preventive thinking. Strategic future-oriented business management plays an increasingly important role in a world labelled by turbulence and disruptive structures, because the experiences of the past and the present play a totally unimportant role. The change cycles of business success potentials and established brands are becoming shorter and shorter. The enterprise will lose the competition if managers are not able to identify the essential change drivers very early and if these drivers are not influenced positively for its own interest.

THE “MAGIC TRIANGLE”

To avoid this disadvantage one must prepare a strong decision basis. A key success factor for business management is therefore the systematic arrangement with the future. To be successful one must coordinate, on one side, product capabilities, internal and external communication and the market specific price freedom, while on the other side one must systematically consider relevant developments in the business environment of the different spheres around the enterprise. (See figure 1.)

A suitable thinking model, able to successfully identify and value future developments, is necessary in order to maintain existing success potentials and to explore new ones. The scenario technique provides a suitable methodological model for interdisciplinary and future-oriented problem solving and considers the complexity and dynamic of the developing processes as well as their reciprocal interplay. Specialized future consultants such as
Navigating in a rough sea

Scenario Management International AG in Germany have improved the methods of scenario techniques.¹ The approach of the scenario technique is like a navigational aid when shipping in unknown waters.

**Figure 1**
**THE MAGIC TRIANGLE**

**MISTAKES IN DEALING WITH FUTURE**

Future forecasts are well known and are used intensively in enterprises to shape the future, i.e. economic forecasts, the so-called five wise men in Germany, or more generally the weather forecast. Scenarios are not as well known. Sometimes they have the reputation as crazy and confused games, because they often deal with a long-term future and seem not to support existing problems. What is the real difference between scenarios and forecasts?

Forecasts are one-dimensional and based on past data, which will be extrapolated in a linear manner into the future. This can be compared to driving a car using only the rear mirror. Imagine a car with blind front and side windows and only a rear mirror available. This trip will go well for a very short distance, exactly as long as the route follows the same direction as seen
in the rear mirror. However, every curve or barrier will automatically lead to an accident. Forecasts describe only one dimension, namely the expected future. The consequence is tunnel vision. All modes of acting focus on only one future vision. This often leads to an incorrect estimation of possible futures and to a failure of strategy. Scenarios resolve the tunnel vision regarding alternative future developments. Scenarios describe different possible future developments and force the combination of different, sometimes contrary points of view. Aside from these errors of thinking in linear patterns one can observe the following additional mistakes of dealing with the future (see table 1).

<table>
<thead>
<tr>
<th>Mistake 1</th>
<th>Linear extrapolation of trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mistake 2</td>
<td>Ignoring alternative points of view</td>
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<tr>
<td>Mistake 3</td>
<td>Only parts of the systems are regarded</td>
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<tr>
<td>Mistake 4</td>
<td>Ignoring possible trend breaks (wild cards)</td>
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<td>Mistake 5</td>
<td>Use solutions of today</td>
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<td>Mistake 6</td>
<td>Unawareness that you do not know what you do not know</td>
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<td>Mistake 7</td>
<td>Wishful thinking</td>
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<tr>
<td>Mistake 8</td>
<td>Too much confidence in experts</td>
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<tr>
<td>Mistake 9</td>
<td>Too much confidence in concepts, procedures and methods of today</td>
</tr>
<tr>
<td>Mistake 10</td>
<td>Future is seen as a hazard</td>
</tr>
<tr>
<td>Mistake 11</td>
<td>Wait for the next crisis and react on</td>
</tr>
<tr>
<td>Mistake 12</td>
<td>Short term success only counts</td>
</tr>
<tr>
<td>Mistake 13</td>
<td>The belief in fixed paths of future development</td>
</tr>
<tr>
<td>Mistake 14</td>
<td>Driving only with the rear mirror</td>
</tr>
<tr>
<td>Mistake 15</td>
<td>Fear of consequences</td>
</tr>
</tbody>
</table>
LIMITATIONS OF HUMAN THINKING

The errors of table 1 show that human beings have, in principle, three limitations in thinking:

1. It is hard for human beings to endure uncertainty, therefore they suppose only one future. This assumption would only be correct if the future already became the present. It is necessary to deal with alternative future pictures, which afford future open thinking. Future open thinking means to have a right feeling for the given uncertainties and to work with different futures and to consider them indecisions, too. Future open thinking helps handle uncertainty and business managers learn to make decisions under high uncertainty.

2. Complexity will always be reduced because otherwise it seems not applicable. We consider only a few factors and hope they describe the interaction of the enterprise. Enterprises, however, are very complex organisms and they afford a lateral thinking. By lateral thinking is meant the analysis of mutual interaction of relevant key factors in complex situations or systems. Lateral thinking helps handle complexity and business managers learn to make rational decisions in highly complex situations.

3. We often believe that we will be successful in the future by only using concepts and procedures successful for the markets and competition of today. In this case we do not notice that the strategies must be aligned to the future possibilities and success potentials. By strategic thinking is meant to recognize the success potentials of the future and to develop visionary strategies making the recognized potentials accessible.

These thinking limitations can be enlarged considerably by using scenario management. Though the scenario methods are helpful they are not sufficient as a unique instrument for future-oriented business management. To navigate the enterprise ship through difficult and turbulent times a so-called Future Scorecard (FSC) is needed.

WHAT IS A FUTURE SCORECARD (FSC)?

The point of departure is the Balance Scorecard (BSC) developed by Robert Kaplan and David Norton and which is already very often used in enterprises. The BSC closes the gap between strategy development and strategy transfer. The main assumptions for creating a BSC are the vision of the enterprise and the strategy, from which the financial and operational goals will be derived as well as figures out of four different business perspectives like finance,
customer, internal processes and learning. The BSC is a frame for transferring strategy into operational figures.

A further dimension, the future orientation, must be added to the approach of BSC. This enlargement of BSC enables the recognition of possible future development relevant for the enterprise and necessary for the strategy process. This approach of the FSC helps to derive the business vision and the strategic goals as well as to describe and control the suitable way from present into future (see figure 2).

**Figure 2**

**THE APPROACH OF THE FUTURE SCORECARD**

- How do the economical, technological, social and political environment change relevant to the enterprise during the next years?
- The enterprise’s position today?
- The future position of the enterprise?
- Which opportunities and risks are hidden in the changes?
- Adaptation of the enterprise’s strategic orientation to new challenges
- Development of future scenarios for the enterprise
- Presentation of the enterprise’s way into the future
- How should the enterprise be positioned in the future and what is to be done today?
- What will the competition look like in the future?
- Which disruptive events may occur and how may the enterprise react?
- How may the enterprise use the recognized opportunities and avoid the risks?

The FSC, developed by the “Starnberger Zukunftswerkstatt”, requires four adjusted steps as a strategic action frame on the way to the future. First, all the relevant trends and key factors of the business environment must be collected
and evaluated to get an idea of the future positioning of the enterprise and its products. The next step is to develop alternative future scenarios of the enterprise based on the evaluated key trends and key factors. The third step is to systematically analyze the way to reach from today’s position to the desired future position including the upcoming opportunities and risks related to this way. Describing and starting concrete actions to realize the desired future is the last step.

**BUSINESS MANAGEMENT WITH THE AID OF FUTURE SCORECARD**

To successfully follow the approach described in figure 2 it is essential to identify and systematically analyze the relevant evolutions of the business environment. For this purpose the FSC will be separated into four perspectives (figure 3), which enables the systematic collection of evolutionary factors of the business environment and the analysis of the interactions between them. The consequences for the strategic leadership of the enterprise will be derived from the above results.

**Figure 3**

**PERSPECTIVES OF THE FUTURE SCORECARD**

![Perspectives of the Future Scorecard diagram]

(1) Future scenarios relevant for the enterprise
(2) Monitoring and Early Warning relevant for the enterprise
(3) Disruptive Events relevant for the enterprise (wild cards)
(4) Strategic Option for actions relevant to the enterprise
CREATE ENTERPRISE RELEVANT SCENARIOS

The enterprise relevant scenarios are the basis for FSC-supported business management. The starting point is the vision of what the enterprise should have reached in three, five or ten years and its position in the market compared with competitors. To do so, it is necessary to analyze in detail today’s situation (where we are today?) An extensive assessment is necessary to evaluate the internal processes, structures and instruments, which are needed for the enterprise’s future orientation. Together with the managers the internal and external business relevant key factors will be identified and the interaction between them will be analyzed (figure 4a and b).

Figure 4a
INTERLINKAGE OF KEY FACTORS:
EXAMPLE: KEY FACTORS OF AIRBUS A380 DEVELOPMENT

During this procedure the factors which can be controlled by the enterprise will be distinguished from those which may not. The next step is to project these key factors in different ways into the future, i.e. assumptions are made on quantitative and qualitative changes vis-à-vis the present situation, and to combine these projections to consistent scenarios. The first business opportunities and risks to reach the defined vision can be identified from these scenarios (for details see appendix 1). The FSC describes these factors, their
interactions and their future projections and documents them. Scenarios help to be better prepared for the future.

**Figure 4b**

**DRIVER DRIVEN ANALYSIS OF KEY FACTORS:**

**EXAMPLE: KEY FACTORS OF AIRBUS A380 DEVELOPMENT**

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**MONITORING AND EARLY WARNING SYSTEM**

The bankruptcies during the past months in particular showed that many companies did not pay enough attention to their future. Many could have been saved if they had discussed early enough how to shape their future and how to install an early warning system (perspective 2 of the FSC).

Early warning systems are often not relevant for enterprises during booming times. Failures and not monitoring for possible changes are not highly dangerous in times of economic boom. However, the disaster in the New Economy, the problems around UMTS and the saturated market of mobile phones startled a lot of companies. Studies showed that a lot of these companies could have survived this crisis better if they had professionally monitored the main important economic indicators.
The attack of September 11th contributed a better awareness of the enterprises regarding early warning systems.

Dealing with the future is not a quick way to success but it is a way to obtain sustainable successes. Today’s top managers concentrate too strongly on operational businesses. The reason is very often the fashioning of incentive models (closely oriented to the shareholder value). Only a few have enough time to work on their essential key task, namely to shape the sustainable future of their enterprise. The goal of future oriented business management is to be prepared for all possible eventualities. The early perception of evolutionary tendencies in the environment is essential in that case.

It is a fact that a lot of possible business opportunities, threats and risks can be “foreseen” with the aid of scenarios and early warning. The correct occurrence of a trend is not as important as the mental preparation of an enterprise for possible threats. Only with this mental preparation can one act faster and with more flexibility and one may no longer only react. The famous Greek philosopher Pericles said, “The point is not to know the future but to be prepared for it”.

More and more enterprises recognize that they must be prepared for their own special future and that therefore early warning becomes increasingly important. The reason is that the dynamic of the economic, social and technological developments increased strongly during the last years and decades. If we focus on the top enterprises today we then notice that many were unimportant 20 years ago or did even not exist. At the same time only a few top companies of the 1970s could survive to today. If enterprises want to survive and be sustainable, they must take the challenge with adequate instruments for shaping the future. It is not enough in a strategy process to adjust the course of the enterprise ship to the forecasted prognosis and to control this course continuously. On the other hand only a few large companies from the 1970s did survive to today. Therefore if an enterprise wants to survive for the long term it then has to deal with these challenges using the right tools. It is not enough to develop a straightforward strategy but the different possibilities which are all interrelated must be considered, giving a complex and highly interlinked system of market factors. Icebergs appear along the course and must be recognized in a timely fashion and circumnavigated with a short-term course correction. In order to succeed navigation system that is able to give early warning signals in case of danger or barriers is required. The combination of research, prognosis, trends, scenarios and early warning is a wonderful tool to help move on and survive in a rough sea.
Early warning is also a kind of “Change Management”. It is very important to understand that early warning can help detect new markets and new business opportunities in the markets. SAP was founded in the very difficult 1970s and matured during this time very well.

Today we need more dynamic and flexible strategies to “fore-think” all the possible different eventualities. Very important tools to develop such strategies are scenarios and early warning which managers can use as an instrument for supporting complex decisive situations. The decision-makers can learn how their decisions impact their company and the market. It is more or less like a qualitative simulator. Every pilot of an airline must train in a flight simulator before being allowed to fly a real aeroplane. Every top manager is allowed to lead a company without having tested and simulated the impact of his decisions. Navigating in a rough sea means to train on a (qualitative) simulator in different future pictures.

**THE STRUCTURE OF AN EARLY WARNING SYSTEM**  
*(PERSPECTIVE 2 OF FSC)*

Out of the key factors’ interaction analysis (figure 4) the critical factors for the future orientation of enterprises are identified and transferred into an early warning system (figure 5).

**Figure 5**  
**MONITORING SYSTEM (5):**  
**KEY FUNCTIONS OF MY4SIGHT MONITORING SYSTEM**

Disruptive events and wild cards⁴ (perspective 3 of FSC) complete the critical factors as well as additional monitoring indicators and internal data of the company. The identified changes are summarized in so-called trend
landscapes, documented and if possible systematized. Their influence on the developed scenarios will be analyzed and documented. In this process the opportunities, threats and risks regarding your future businesses are worked out. They have to be correlated and prioritized to the company’s financial, personal and time resources and capabilities.

**INSTRUMENTS FOR EARLY WARNING**

In principle the following tools are available for early warning. They depend on the time horizon you look for in the future.

For short-term forecasts there are good mathematical prognosis models available. However, they are all based on the assumption that the understood data structure of the past will not change in the future (driving with the rear mirror). It is obvious that these assumptions can only be true for a short time, i.e. we are able to forecast the weather for the next three days with a certainty of about 80% and we use very complicated mathematical methods to achieve this result. It is not possible to forecast the weather for the next three months as precisely. Depending on the branch, for enterprises short-term could mean one to three years.

For mid-term forecasts we have trend management systems, which help perceive big trends. Already in this situation one must establish an early warning process to check whether the trend will continue in the future or not.

For a long-term future investigation it is recommended to use scenarios and to describe consistent but alternative future situations and to evaluate them afterwards with an early warning system.

The special benefit of all these instruments is the combination of different tools. Trends could be evaluated by related prognosis. At the same time there is the possibility of combining different trends with entire future scenarios. The continuous search for new trends enables the company to determine the different position of the scenarios for the future orientation and to regularly check the validity of the scenarios. To check how the trends intensify or hinder each other is also very important.

**THE EARLY WARNING PROCESS**

The analyzed key factors of the scenarios have to be monitored in the scope of strategic early warning. The changes must be evaluated for the company’s use. That means that early warning is a continuous process. One must permanently collect new information and data inside the company and process this within the scope of early warning. In many companies this is already done today,
perhaps not systematically and not with the term “early warning”. The employees record permanent information from newspapers, the internet, customer communication and visits of exhibitions. This is a continuous process, but the information is normally lost because there is no procedure for capturing all this information. The main task of a successful early warning process is to canalize all this information in the right way and make it available for strategic planning. There are some very good approaches which can be partially supported by IT solutions.

It is not necessary to involve all employees of a company in the early warning process. When I was responsible for scenarios and early warning in EADS, the German aerospace industry, I involved about 20 well-selected employees in the process for bigger strategic projects. If these individuals know their exact monitoring areas and are interested in business intelligence it works quite well. I also conducted processes with only one or two persons when the monitoring area was small enough. It is very often sufficient to involve people who are already working in departments where it is the daily business to gather external information for a project (i.e. strategic planning, technology monitoring, trend scouts, market research, etc.)

There is no real rule how many people should be involved in an early warning process. The principles of an early warning process are shown in figure 6 (cf. also appendix 2).

**Figure 6**  
**PRINCIPLE OF EARLY WARNING PROCESS EWS - HOW DOES IT WORK?**
Observations of trend changes are accomplished by experts (scanners) inside and outside the company. If the scanners notice essential changes they transfer their observations to an evaluating team. The evaluating team checks the information with regard to business relevance and urgency. The evaluating team must increase the awareness of decision-makers and managers of the business concerning relevant changes and to recommend necessary actions.

To keep this process alive it is very important to install a feedback loop. This feedback loop must start with the decision-makers via the evaluating team down to the scanners to keep them motivated to gather further information. The scanners will want to know what has happened with their given information and how useful it was for the managers. This feedback loop is also necessary for improvement of the process.

Early warning helps recognize wrong decisions in a timely manner so that managers often have the chance to introduce “repair actions” in order to correct the decisions. You can reduce wrong decisions using early warning techniques but you cannot prevent them.

But you cannot only reduce your wrong decision rate with early warning but also obtain a basis for new powerful decisions with new opportunities which were not before in the focus of the decision-maker. Early warning gives new impulses for the future orientation of the company and shows new issues and opportunities for the company.

**IDENTIFICATION OF STRATEGIES BASED ON SCENARIOS (PERSPECTIVE 4 OF FSC)**

Future robust strategies will be developed from the scenarios. Traditionally a strategy is based on a desired scenario, which is often only available in the mind of a decision-maker. A very powerful, consistent and well communicable strategy can be created and which is not very robust against changes in the business environment because these changes cannot be described in only one scenario. This approach is close to a prognosis.

If you have developed more scenarios and your strategy is nevertheless based on only one desired scenario, you can use the alternative scenarios for discovering the weaknesses of your strategy. Your early warning system can now be focused on exactly these strategic weaknesses.

However a future robust strategy should be based on more scenarios, because the strategy covers a broader scope of possible changes. Normally the strategy will not fit all scenarios, but there is always a robust strategic kernel (based on two to four different scenarios), which covers most of the possible changes. All scenarios which are not used for the robust kernel are the basis for the
development of an alternative strategy. This strategy becomes important if the early warning system shows that the key premises of the original strategy will fail or can no longer be realized.

The strategies based on several scenarios are less focused and harder to communicate. Nevertheless during the last years a lot of procedures and methods were developed to communicate such strategies more effective, i.e. story telling or visualization techniques.

**SUMMARY**

The Future Scorecard (FSC) is a suitable process for systematically collecting all relevant factors needed in the business management, for monitoring and tracing them, for deriving consequences for the enterprise and for its actual and future business positioning. So the FSC closes two gaps in the strategic leadership: first, it forces the consequent linkage of necessary internal (today mostly documented in a BSC) and external management information; and second it bridges between the present-oriented and future-oriented business management and branding.

**REFERENCES**


5. Scenario Management International AG, Partner of Starnberger Zukunftswerkstatt.

**THE AUTHOR**

Franz Tessun is President, Future Thinking&Training (FT&T), Germany
APPENDIX 1

ANALYSIS OF THE SYSTEM DYNAMICS AND FUTURE PROJECTIONS

The interlinking of the key factors results in system dynamics in which a distinction can be made between active and passive influencing factors. Each factor that influences another factor is designated as active, while each factor that is influenced by another factor is classified as passive. For example, the key factor “Demand Profiles” (9) strongly influences all other key factors, but is itself only rarely influenced by other factors (see figure 4). In contrast, the key factor "Margins" (5) is strongly influenced by other key factors, but exerts little influence itself (figure 4).

In particular, the developments of the key factors in the upper right quadrant “Competition” (6), “Unique Selling Point (USP)” (7), “Cooperation /Finances” (2) have to be watched very closely (early warning system) since they will determine the kind of risks in which the airbus strategy will run by virtue of their enhanced active as well as passive characters. Even a slight change to one of these factors will have a great impact on the overall system (chaotic system behaviour).

Moreover, we have conducted a scenario analysis, which serves to answer questions of the type “What will happen if...?” This step was conducted to check some future projections and cross impact assessments that had been marked “uncertain” in the course of the discussion.

As an example of projections into the future see figure 7. To project into the future assumptions are made on quantitative and qualitative changes vis-à-vis the present situation. In this step the competent experts were additionally consulted. The alternative assumptions for these key factors as well as the reasons for the respective assumptions and supplementary information were recorded in so-called “descriptor essays”.

The objective of the consistency analysis is to correlate the key factors to form coherent scenarios of the future free of contradictions. For this purpose, each key factor with its projections is correlated to each key factor in a “cross impact matrix”. To set up a cross impact matrix, the following question is answered: “If a variant of a descriptor is certain to occur, what will be its impact on all the other descriptors with their variants?” This is carried out for all key factors and their variants and the result is documented by allocating points between -3 and 3, where -3 means “does not fit at all”, 0 means “no impact” and 3 means “fits very well”.
### Figure 7

**FUTURE PROJECTIONS OF KEY FACTORS**

<table>
<thead>
<tr>
<th>The Role of M-HR in an European Environment in 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global economic development</strong></td>
</tr>
<tr>
<td>Prospering global economy</td>
</tr>
<tr>
<td>Ideal global economy</td>
</tr>
<tr>
<td>Prospering industrialised countries</td>
</tr>
<tr>
<td>Prospering least developed countries</td>
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</tbody>
</table>
APPENDIX 2

THE PRINCIPLES OF A MONITORING SYSTEM

1. Scanning and Monitoring
Monitoring means a directed observation of defined indicators of the enterprise’s environment.

Scanning means a continuous non-directed observation of weak signals in the environment.

2. Filter
A qualification process of the information data is needed. Quality, relevance and expiration date are some selection criteria.

3. Structure
The data are ordered in a suitable way. As an example one can define realms like economy, technology, finances, labour markets, etc. Each of these realms consists of related issues. Each issue is detailed by key factors of the scenarios and some additional other factors.

4. Networking
These factors are interlinked and analysed in a similar way described in appendix 1 (cf. figure 4).

5. Interpretation
There are three possibilities to interpret the factors:

a) Trend management. Identification, verification and visualisation of derived trends. Creation of trend landscapes.

b) Scenario Monitoring. Compare trends with scenarios and find pro and cons arguments for the occurrence probability of scenarios. This is an important navigation aid for strategies.

c) Consequence Analysis. What does the occurrence of a trend mean for the enterprise? Are there opportunities, risks? How relevant is the trend for strategic decisions already taken or to be taken in the future?

6. Reporting
There are various possibilities of reporting. One can, for example, report trend portfolios, scenario news, consequences for the strategic process, newsletter for special issues, etc.
Figure 8 shows the principle architecture of a monitoring system.

**Figure 8**
**MONITORING ARCHITECTURE (CF. [5])**