



Navigating in a Rough Sea **Decision Making in Complex and Uncertain Business Environments**

by Franz Tessun, Germany

This paper shows the need of a totally different thinking. There are three sectors of thinking:

- a) network thinking
- b) future open thinking
- c) strategic thinking.

It will be shown that only the combination of these three parts of thinking is able to deal in an efficient and economic way with the future and that the combination is necessary for making decisions in a complex and uncertain environment (Navigating in a Rough Sea). More, the markets and customers are changing so fast and a lot of trends tell us that the markets and demands will change quicker and quicker so that we cannot work anymore with our old traditional decision making instruments. Some examples will be shown where you can see how to handle with complexity and uncertainty in different decisive situations.

One of the most difficult and challenging questions is to recognize the risks and crisis earlier than the competitors. An even difficult question is to find the opportunities in the markets and how to use them. These questions will be answered with an early warning system. This early warning system will help to think in alternatives. You can “fore think” a lot of 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 future?

Although the 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. You cannot know the future and it remains unforeseeable, which is demonstrated by all the (wrong) forecasts of recent years. Nevertheless, the managers are forced to shape the future here and now to prepare actively their enterprise for the uncertain future. How can this dilemma be solved? How can an enterprise react on the increasing complexity of its environment shortly described with keywords like globalization, market saturation, 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 deposits in an accelerating dynamic, in short following trends and in a high intensity of change.

The answer to these questions is: we can and must create the prerequisites for preventive actions through preventive thinking. The strategic future oriented business management plays a more and more important role in a world which is labeled by turbulences and disruptive structures, because the experiences of the past and the presence play a totally unimportant role. The change cycles of business success potentials and established brands are becoming shorter and shorter. The enterprise will loose the competition, if its managers are not able to identify the essential change drivers very early and if they are not able to influence positively these drivers for its own interest.

The “Magic Triangle”

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

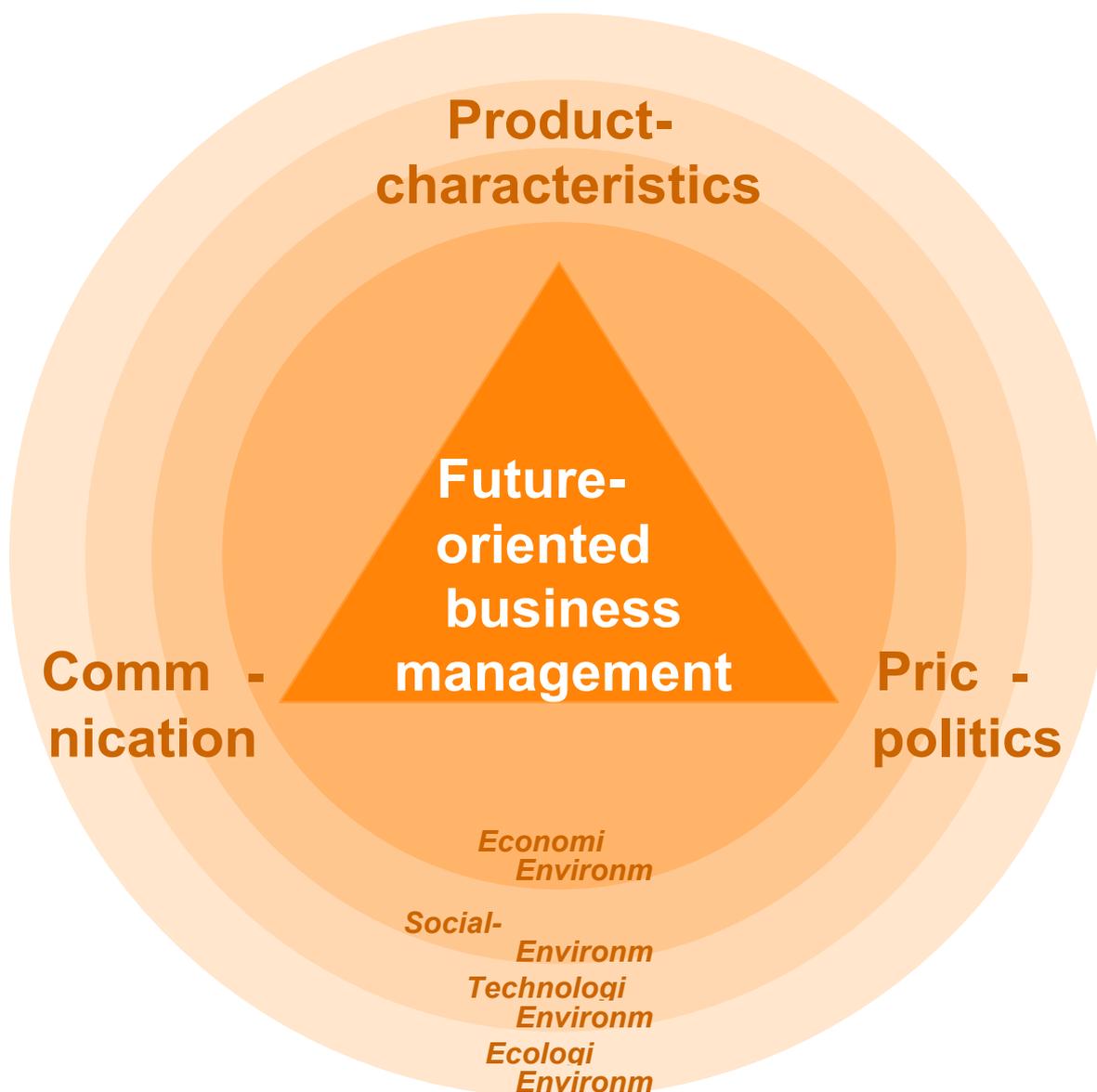


Figure 1: „Magic Triangle“

To keep the existing success potentials and to explore new ones a suitable thinking model is necessary, which is able to identify and to value future developments successfully. 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 like the 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 if you are shipping in unknown waters.

Mistakes in Dealing with Future

Future forecasts are well known and are used intensively in enterprises to shape the future, i.e. the economic forecast or the so called five wise men in Germany or more generally the weather forecast. Scenarios are not so well known, Some times they have the flavor of crazy and confused games, because they are often dealing with a long term future and they seem not to support the just existing problems. But what is now 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. I compare this very often with driving a car only with the rear mirror. Imagine a car whose front and side windows are blind and you can only look at the rear mirror. So this trip is going well for a very short way, exactly as long as the way goes in the same direction as it is seen in the rear mirror. But every curve or barrier will automatically lead to an accident. So forecasts describe only one, namely the expected future. The consequence is a tunnel view. All modes of acting are focused to only one future vision. This leads very often to a wrong estimation of the possible futures and to a failure of strategy. Scenarios resolve the tunnel view regarding more alternative future developments. They describe different possible future developments and force us to combine different, sometime contrary point of views. Beside these mistakes of thinking in linear patterns one can observe the following additional mistakes of dealing with the future. (Table 1)

Mistakes of dealing with the future:

Mistake 1	Linear extrapolation of trends
Mistake 2	Ignoring alternative points of view
Mistake 3	Only parts of the systems are regarded
Mistake 4	Ignoring possible trend breaks (wild cards)
Mistake 5	Use solutions of today
Mistake 6	No awareness that you do not know what you do not know
Mistake 7	Wishful thinking
Mistake 8	Too much confidence in experts
Mistake 9	Too much confidence in concepts, procedures and methods of today
Mistake 10	Future is seen as a hazard
Mistake 11	Wait for the next crisis and react on
Mistake 12	Short tem success counts only
Mistake 13	The belief in fixed paths of future development
Mistake 14	Driving only with the rear mirror
Mistake 15	Fear of consequences

Table 1

Limitations of human thinking

The mistakes 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. But this assumption is only right if the future became already the presence. It is necessary to deal with alternative future pictures, which afford a 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 in decisions, too. Future open thinking helps you to handle uncertainty and the 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 that they describe the interaction of the enterprise. But enterprises are very complex organisms and they afford a lateral thinking. By lateral thinking I mean the analysis of mutual interaction of relevant key factors in complex situations or systems. Lateral thinking helps to handle complexity and the 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 being successful for 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 I mean 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 [2]. To navigate the enterprise ship through difficult and turbulent times a so called Future Scorecard (FSC) is needed from my point of view.

What is a Future Scorecard (FSC)?

The point of departure is the Balance Scorecard (BSC) developed by Robert Kaplan and David Norton [3], which is already used in enterprises very often. 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 FSC helps to derive the business vision and the strategic goals as well as to describe and control the suitable way from presence into future. (Figure 2)

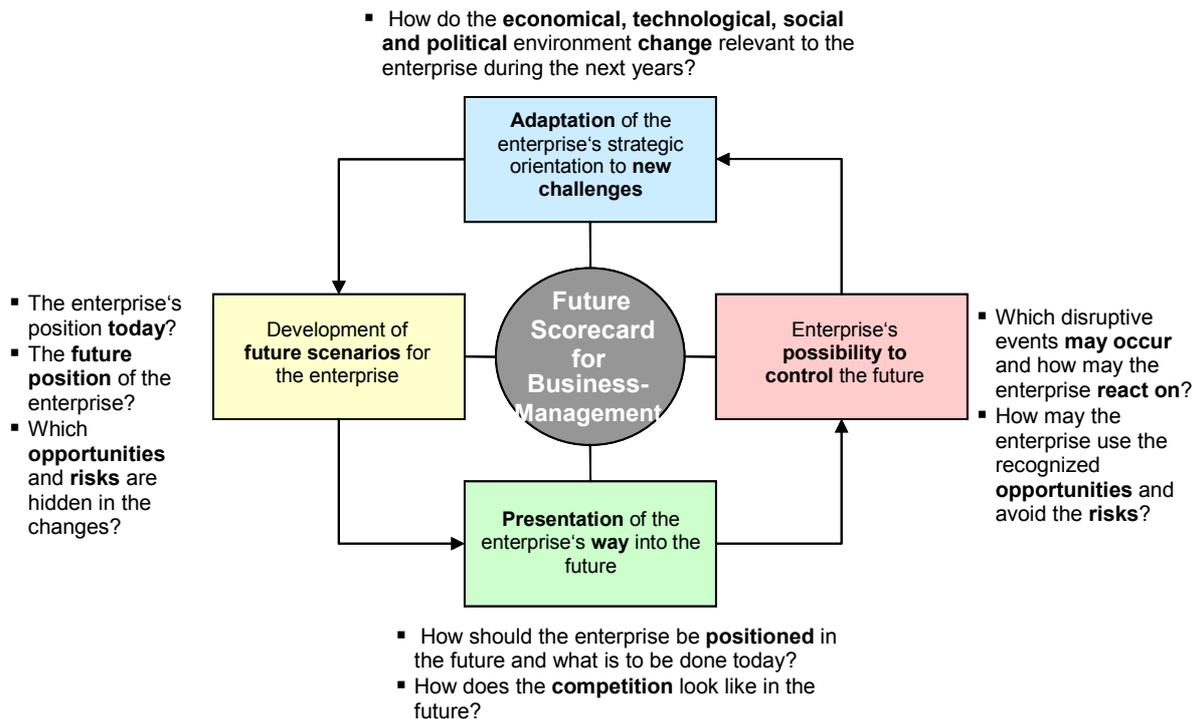


Figure 2: The approach of the Future Scorecard

The FSC, developed by the “Starnberger Zukunftswerkstatt”, requires four adjusted steps as a strategic action frame on the way to the future. First you must collect and evaluate all the relevant trends and key factors of the business environment to get an idea of future positioning 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 analyze systematically the way how 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 go the way, described in figure 2, successfully it is essential to identify and analyze systematically 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.

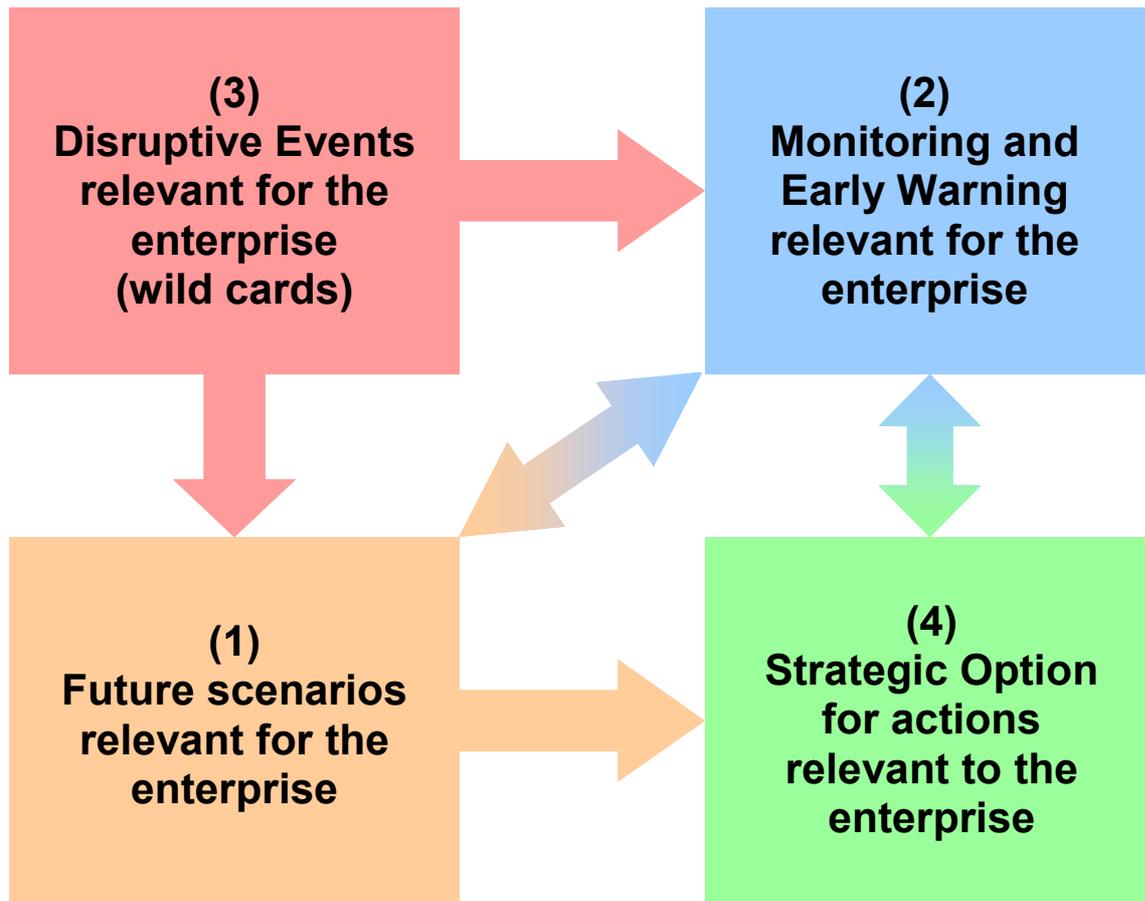


Figure 3: Perspectives of the Future Scorecard

Create enterprise relevant scenarios

The enterprise relevant scenarios are the basis for a FSC-supported business management. Starting point is the vision what the enterprise should have reached in three, five or ten years and what is its position in the market compared with the competitors. To do so, it is necessary to analyze in detail the today 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 4). During this procedure the factors which can be controlled by the enterprise will be distinguished of 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 A). The FSC describes these factors, their interactions and their future projections and document them. Scenarios help to be better prepared for the future.

Example: Key factors of Airbus A380 Development

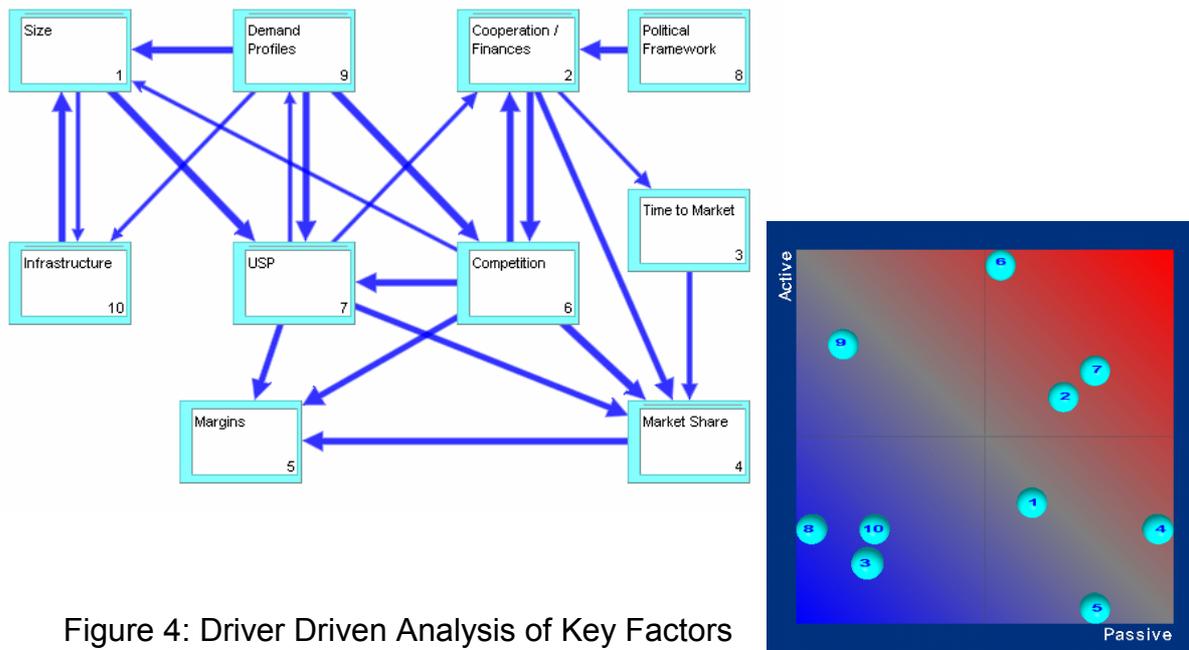


Figure 4: Driver Driven Analysis of Key Factors

Monitoring and Early Warning System

Especially the bankrupts during the last months showed that many companies did not pay enough attention to their future. Many of them 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).

For enterprises early warning systems are often not relevant during booming times. Failures and not monitoring possible changes are not highly dangerous in times of economic boom. But 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 monitored professionally 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 get sustainable successes. Today's top managers concentrate too strong only to operational businesses. The reason is very often the fashioning of incentive

models (close oriented to the shareholder value). Only a few of them have enough time to work on their essential key task, namely to shape sustainable the future of their enterprise. The goal of a future oriented business management is to be prepared of all possible eventualities. The early perception of evolutionary tendencies in the environment is essential in that case.

It is fact that a lot of possible business opportunities, threats and risks can be “forethought” 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 of the possible threats. Only with this mental preparation you can act faster and more flexible and you may not only react anymore. Pericles a famous Greek philosopher 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 more and more 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 than we notice that many of them were unimportant 20 years ago or did even not exist. On the same time only a few top companies of the 70ies could survive up today. If enterprises want to survive 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 big companies from the 70ies did survive till today. So if an enterprise wants to survive on the long term than it has to deal with these challenges using the right tools. It is not enough to develop a straight forward strategy but you have to consider different possibilities which are all interrelated giving a complex and highly interlinked system of market factors. Icebergs come out along the course and they have to be timely recognized and must be circumnavigated with a short term course correction. To succeed in you need a navigation system which is able to give early warning signals in case of danger or barriers. The combination of research, prognosis, trends, scenarios and early warning is a wonderful tool helping to move on and to 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 to detect new markets and new business opportunities in the markets. So SAP was founded in the very difficult 70ies and grew up during this time very well.

We need today more dynamic and more 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 decision will 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 he is 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. So navigating in a rough sea means train it in 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). Disruptive events and wild cards [4] (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, they are documented and if possible systematized. Their influence on the developed scenarios will be analyzed and documented. In this process you work out the opportunities, threats and risks regarding your future businesses. They have to be correlated and prioritized to the company's financial, personal and time resources and capabilities.

Key Functions of my4Sight Monitoring System

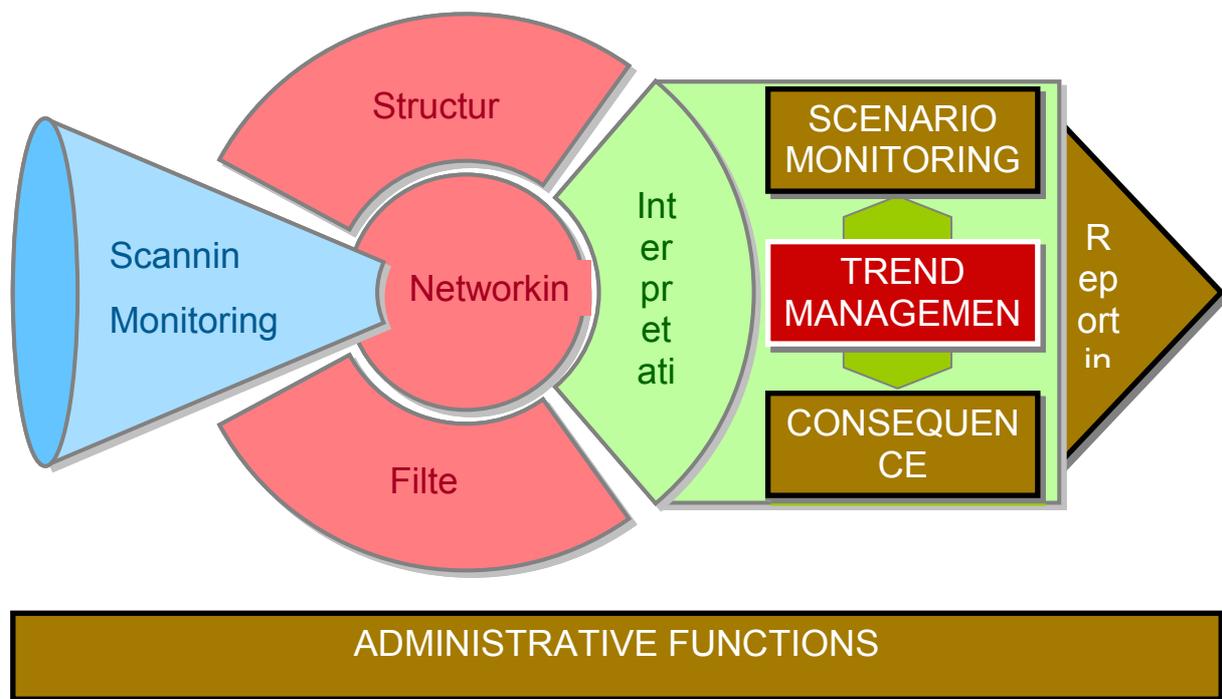


Figure 5: Monitoring System [5]

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. But 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 quote of about 80% and we use very complicated mathematical methods to achieve this result. To forecast the weather for the next three months is not possible as precise. For enterprises short term could mean 1 to 3 years depending on the branch they are in.

For midterm forecasts we have trend management systems, which help to perceive big trends. In this situation already you have to establish an early warning process to check whether the trend will continue in the future or not.

For a long term future investigation I recommend 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. So trends could be evaluated by related prognosis. In the same time there is the possibility to combine different trends to entire future scenarios. The continuous search of new trends enables the company to determine the different position of the scenarios for the future orientation and to check regularly 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 first early warning is a continuous process. Inside the company you have to collect permanently new information and data and to process them in the scope of early warning. In many companies this is done already today, maybe not systematically and not with the term "early warning". The employees record permanent information from newspapers, internet, customer communication and visits of exhibitions. This is a continuous process, but the information is normally lost, because there is no procedure how to capture all these information. The main task of a successful early warning process is to canalize all these information in the right way und to make them 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 the German aerospace industry EADS I involved about 20 well selected employees in the process for bigger strategic projects. If this people know exactly their monitoring areas and are interested in business intelligence it works quite well. I did also processes only with one or two persons if the monitoring area was small enough. It is very often sufficient to involve people who are already working in departments where it is 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 involve in an early warning process.

The principles of an early warning process are shown in the next figure (cf. also Appendix B)

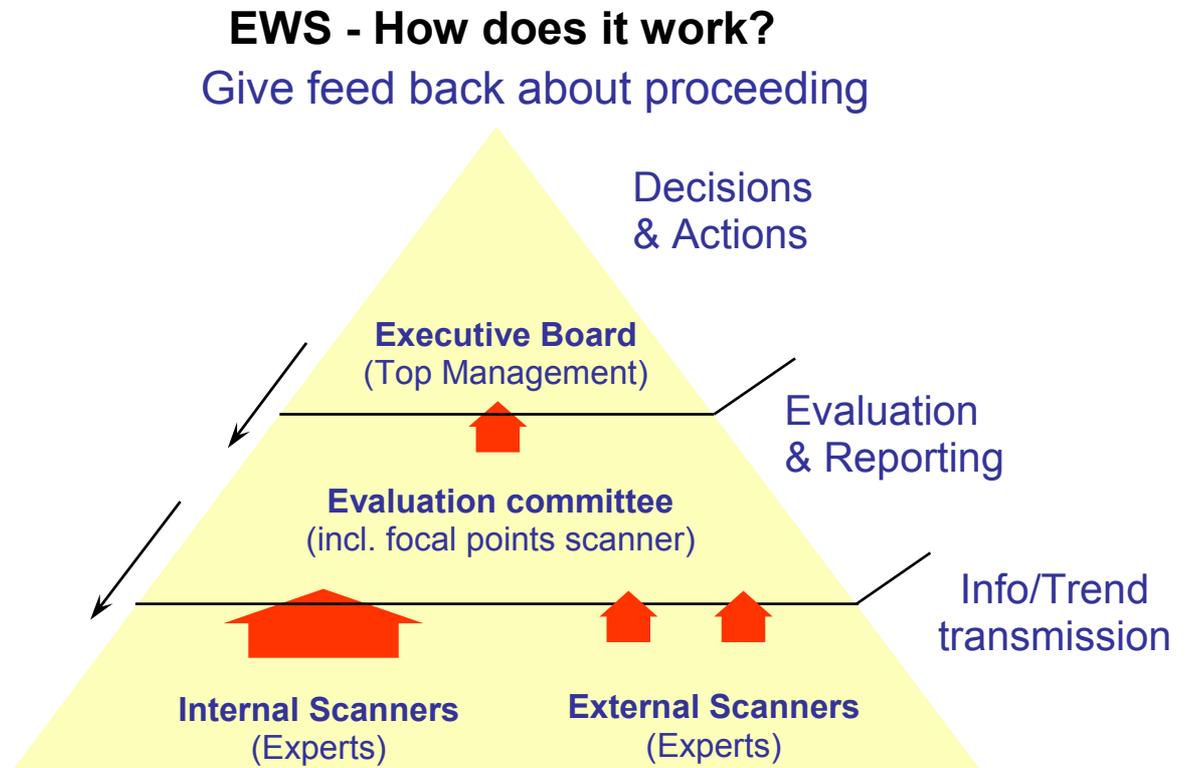


Figure 6: Principle of Early Warning Process

Observations of trend changes are accomplished by experts (scanner) inside and outside of 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 has to increase the awareness of decision makers and managers of the business relevant changes and to recommend necessary actions.

To keep this process alive it is very important that you install a feed back loop. This feed back loop must start at the decision makers via the evaluating team down to the scanners to keep them motivated to gather further information. The scanner 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 an improvement of the process.

Early warning helps to recognize wrong decisions timely so that managers have very often 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 get a basis for new powerful decisions with new opportunities which are not in the focus of the decision maker before. 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 very often only available in the mind of a decision maker. So you can create a very powerful, consistent and well communicable strategy, which is not very robust against changes in the business environment, because these changes cannot be described only in 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 finding weaknesses of your strategy. Your early warning system can now be focused on exactly these strategic weaknesses.

But 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 to all scenarios, but there is always a robust strategic kernel (based on 2 to 4 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 cannot be realized anymore.

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 collecting systematically all relevant factors, which are 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.

Second it bridges between the presence oriented and the future oriented business management and branding.

References:

1. **Alexander Fink, Oliver Schlake und Andreas Siebe**, *Erfolg durch Szenario-Management. Prinzip und Werkzeuge der strategischen Vorschau* (Frankfurt: Campus Verlag, 2001).
2. **Klaus Burmeister, Andreas Neef, Bernhard Albert und Holger Glockner**, *Zukunftsforschung und Unternehmen. Praxis, Methoden, Perspektiven* (Essen: Z_punkt GmbH, 2002).
3. **Robert S. Kaplan and David P. Norton**, *The Balanced Scorecard: Translating Strategy into Action* (Boston: Harvard Business School Press, 1996),
Robert S. Kaplan and David P. Norton, *The Strategy-Focused Organization. How Balance Scorecard Companies Thrive in the New Business Environment* (Boston: Harvard Business School Press, 2001).
4. **Angela und Karlheinz Steinmüller**, *Ungezähmte Zukunft. Wild Cards und die Grenzen der Berechenbarkeit* (München: Gerling Akademie Verlag, 2003).
5. **Scenario Management International AG** Partner of Starnberger Zukunftswerkstatt.

Appendix A: 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 Role of M-HR in an European Environment in 2008						
Global economic development	European security policy	Structure of Military Aircraft Industry	Status of the Labour Market	Transfer from Technology to product	Multicultural requirements for employees	Development of key Competencies
Prospering global economy	independant common EU secur. policy	highly fragm. mil.A/C manu-fact. industry	Overall high degree of recruiting	Cont. mark/app oriented prod/tech. enhance.	high internat. adaptability of employees	high relev. of integr. knowh. as key compet.
Weak global economy	intern. fragm. of EU security policy	highly concent. mil.A/C manu-fact. industry	Overall low degree of recruiting	Market/applic. requis. orient. innovation	low internat. adaptability of employees	high relev. of techn. knowh. as key compet.
Prospering industrialised countries	NATO dom. common EU secur. policy	fragm. area of divers. mf. w. niches f. foc.m	war for experienced employees	Strong technol. fundamental R&D	Core-langua-ges capability of employees	high relev. of organi. knowh. as key compet.
Prospering least develop. countries	Split of EU secur. policy due to NATO	conce. area of divers. mf. w. niches f. foc.m	replenishment of staff with graduates		multicult. integr. capabilities of employees	

Figure 7: Future Projections of Key Factors

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 other key factor in a "cross impact matrix". To set up this 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 keyfactors 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" (cf. Figure 8)

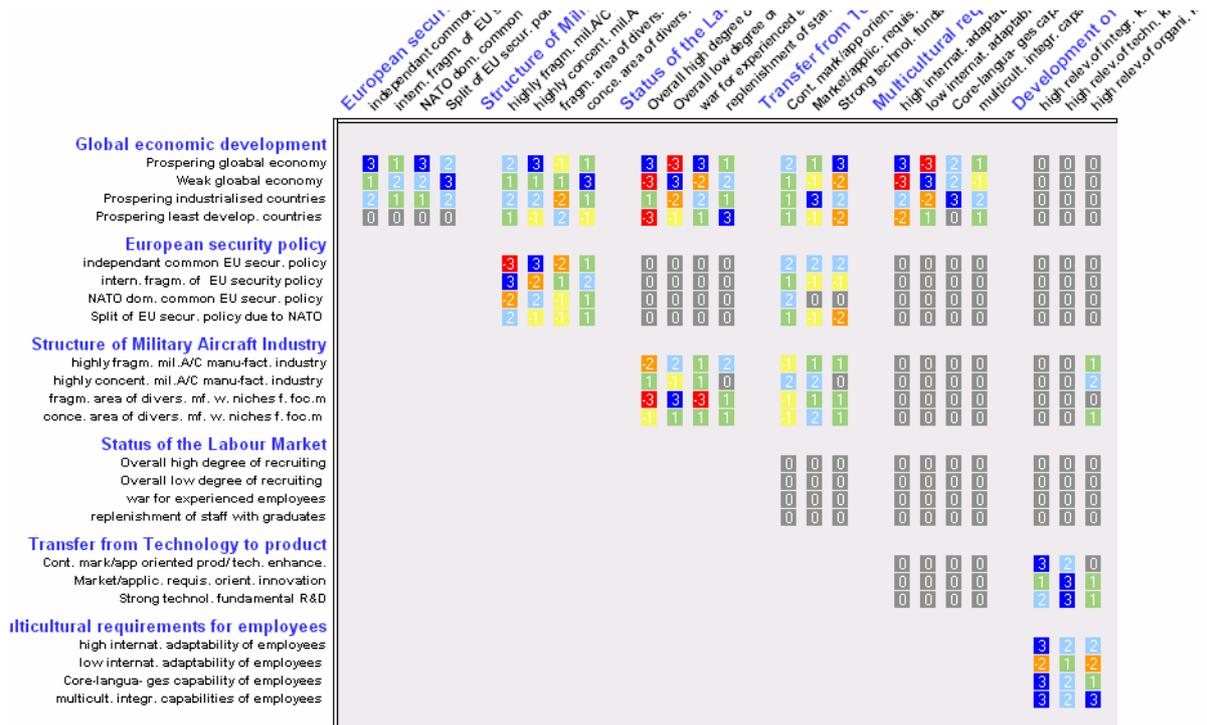


Figure 8: Consistency Matrix

Appendix B: 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 you 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 A. (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. You can i.e. report trend portfolios, scenario news, consequences for the strategic process, newsletter for special issues etc.

Figure 9 shows the principle architecture of a monitoring system.

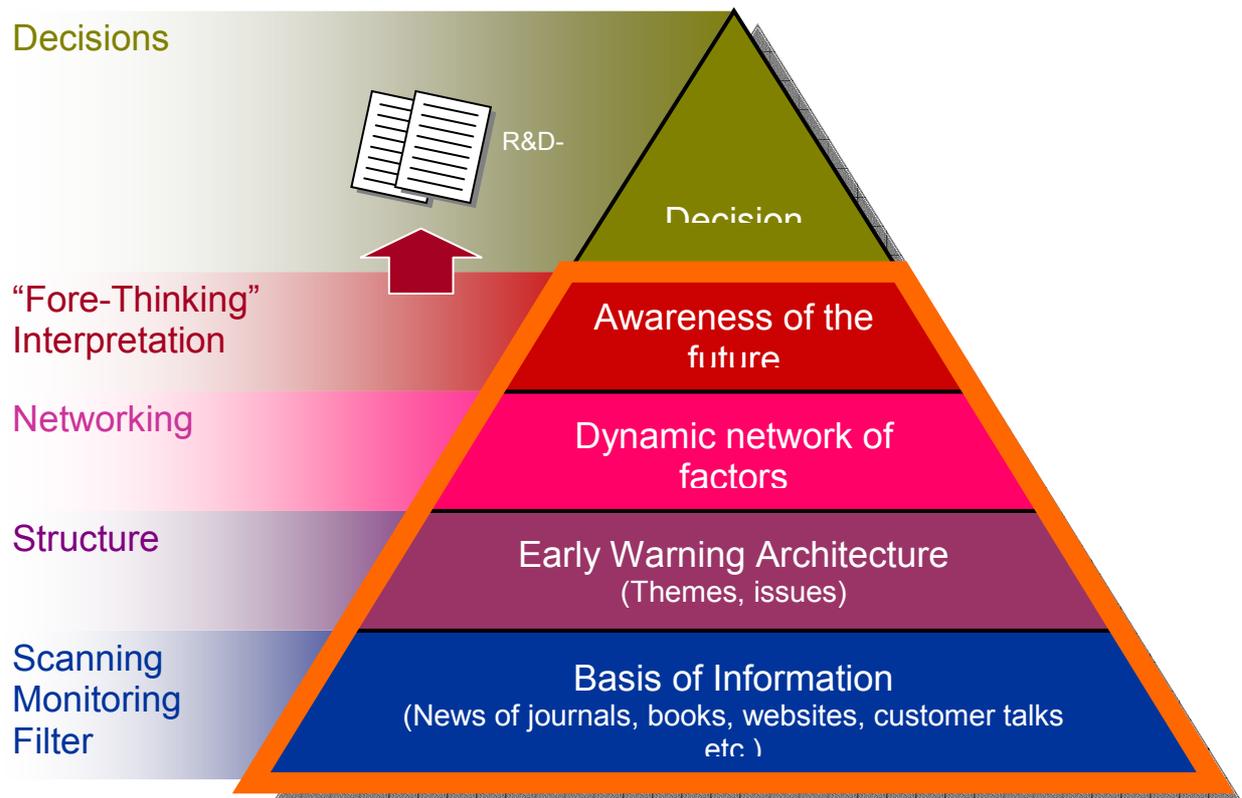


Figure 9: Monitoring architecture (cf. [5])

Author:
Franz Tessun
Future Thinking & Training
Fastlinger Ring 283
D-85716 Unterschleissheim
Germany

e-mail: franz.tessun@ft-and-t.de