Holger Sommerfeld: Developing a new management approach by combining risk management and controlling as a change management process

0. Reasoning "Why?"

Following the period after Lehman's collapse a lot of companies have experienced huge and unexpected up- and downturns in important cost and revenue determining factors. This is not only true for commodity or energy prices, it is also impacted by significant break downs and recoveries in demand for capital and consumer goods even in mature economies as in North America or Western Europe.

Before this background companies have acknowledged that controlling approaches based on deterministic forecast and plan values are only insufficiently appropriate to manage a company's activities. They are wondering how to adjust the management systems in a way that relevant steering impulses can be generated also in volatile periods. Risk management deals with identifying, evaluating and managing chances and risks; the latter being nothing else than potential deviations from plan values. So risk management could be a concept, that being integrated in existing management approaches, improves the management quality.

In many companies risk management is often limited to identifying operational weaknesses or to financial risks. True entrepreneurial risks being linked to strategic decision finding or investment decisions are then evaluated inexplicitly in heterogeneous ways. Maximizing the added value for corporate management is not possible when relying on individualized, inconsistent and personally subjective experiences and evaluations.

This essay describes an approach how to integrate risk management into controlling approaches to combine the best of both worlds in an environment of increasing volatilities. It is necessary to transform the long practiced behaviour into a new company culture of transparency and a candid handling of chances and risks. This requires a sustainable change process, which needs to be carefully introduced and implemented.

Showing the limits and difficulties in today's typically implemented risk management approaches, the essay describes the six phases for this change management process. Methodological adjustments are necessary, but they must be accompanied by cultural and value changes. Having performed this process, a company has approached the status of a risk-aware entrepreneurial organization.

1. Status quo in corporate risk management

Basically all kind of companies are performing risk management activities. But the responsibility for it, its integration in management processes as well as the sustainable acknowledgement of its value differ significantly. Standard & Poor's has recently integrated the quality of corporate risk management as one criterion to evaluate the credit worthiness of non-financial companies into their methodology. This is not only an indication for the increasing importance of risk management, but it could also foster its standardization. Nevertheless, risk management

outside the Financial Services sector typically shows an improvable grade of maturity due to lacking historical time series and the worse statistical measurability of operational risks.

The following issues indicate this:

- Risks are evaluated via the two factors „probability of occurrence" and "impact": multiplying those two factors is interpreted as the risk amount. But this figure does not describe a risk, but the expected value of the financial impact from a risk occurring.
- Operative units decide independently on accepting or mitigating risks.
- There is no standardized approach to describe, evaluate and aggregate various types of risks (e.g. compliance, information systems, environment/security/health, strategic, financial, etc.)
- Risks are not aggregated across the company nor are risk limits defined.
- The responsibility for performing risk analyses is separated from the responsibility for planning, controlling, and forecast. This results in a parallelism of similar reporting and management processes.

A really integrated risk management approach does not only deal with risk management activities. It also contains more than an alignment of performance indicators between financial and risk management or one unique catalogue of risk categories. It furthermore requires that a company analyzes all potential deviations from planned values in all management and decision finding processes and deals with them in a continuous and transparent manner. Risk next to return is one component of a shareholder value oriented management approach and needs to be managed according to a stringent economic calculus, based on which personnel and resources are allocated.

2. Typical risk management processes in companies

Nowadays, basically all companies create a company-wide risk report containing a list of relevant risks to be presented to the top management. Additionally, when preparing a project proposal, the majority of companies performs a risk analysis as part of a project business case.

When planning a project (the term „project" can include all kind of investments, M&A transactions, etc.) employees from various functional directions give their specific input. The business case to be developed aggregates the knowledge and experience of a company into one monetary evaluation: All associates contribute their forecast values on costs and revenues over the planning horizon across all functional directions (e.g. product development, production, marketing, sales etc.); in other words the project plan is a "best guess" on time, cost and revenue factors. The business case is also consolidated to one or several economic measurands (net present value, internal rate of return, capital return, etc.). It can be stated that the characteristics of this result is not always clear: Is this return figure to be interpreted as the project result

- if anything works as intended?

- that can be expected?
- that includes a safety margin by the planning person(s)?
- that will be achieved with the highest probability?

Subsequently, a typically smaller number of employees, mainly with a technical background, performs the risk analysis (identification and evaluation). Regularly, a "risk reserve" is calculated by adding the values of multiplying probabilities of occurrence with financial impacts to the business case. This risk reserve serves as an adjustment to the initially deducted planned value. This is not risk quantification; it is rather to be seen as an "approximation to a realistic planning" (cf. Figure 1).

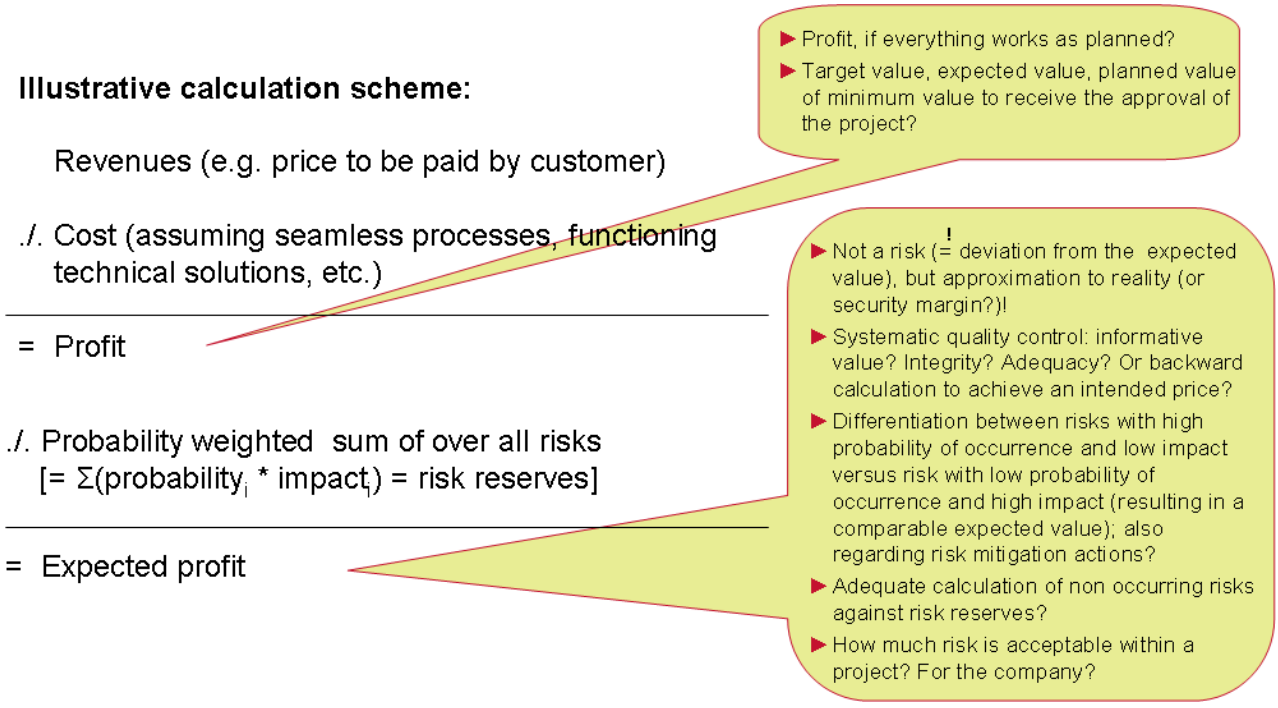

Figure 1: Typified calculation scheme in project calculation

In practice, the functional departments delivering the input for the business case are also responsible for executing the project and achieving the profitability specified in the business case. Therefore, realistic expectations are balanced with a sufficient financial return necessary to make the project proposal approvable. This is especially true, if planned values are directly transferred to target values. It is obvious that this process hinders a realistic and balanced project planning.

This dilemma is further reinforced by timing issues, as the risk analysis is performed after the business case has been finalized. Typically, only a few of the associates having contributed to the business case also deal with the risk analysis. Therefore, the risk analysis does reflect neither the same level of knowhow nor a comparably intensive discussion and detailed analysis as the business case. Hence, the result of the risk analysis does hardly explicitly influence the

decision finding. This can also be seen from the fact that the risk of a project cannot be expressed e.g. in one figure.

Consequently, the decision in favor or against a project is based on the forecasted rate of return, but not on a simultaneous balance of risk and return. A reason for that might be that only considering one profitability figure leads to an unambiguous preference between two projects. This is no longer true when a project A has a higher return with higher risk than project B. But this is relevant information to the decision maker.

The same incorrect calculus also affects the decision behavior regarding risk mitigating and cost causing actions: Those actions are performed to maximize the probability of achieving the plan value. But this decision rule is contradictory to maximizing company value.

Sometimes risk is redefined to the expected missing of a target ("We have a sales risk volume of xx M$"). This wrong interpretation leads to two parallel definitions for risk: The correct interpretation of risk as the potential deviation from a planned value, and parallel the reason for the psychologically negative interpretation of risks ("I don't have a risk, I have everything under control."). The latter one leads to a non-transparent and sub-optimal handling of entrepreneurial risks.

3. Road map for implementation

If a company wants to generate the manifold steering impulses of an integrated approach, it requires not only a methodological challenge, which can be addressed by implementing software. A sustainable change of a behavior that has been learnt and practiced over several years requires a systematic and holistic approach. The central risk manager holds an important role that creates high demands on him in this change process.

The subsequent description of this process has to be regarded as a guideline, which has to be adjusted according to the characteristics of the company. Nevertheless, the sustainable integration of risk management can follow the described pattern:

- Develop the vision and communicate top-down the redirection of the corporate management approach and the ambition for change
- Modify the existing risk management, which has been implemented based on legal requirements
- Integrate risk analyses into project planning, evaluation and decision finding
- Aggregate several projects to one company-wide project portfolio and manage the company based on portfolio return and risk
- Adjust the management of the individual risk in operative project management
- Expand the integrated risk management to the periodical planning and management.

Those phases focus on changes in method and concept. However, the need for a cultural change is at least as important as the methodological adjustments and will be described as well. Both must be implemented simultaneously.

3.1. Vision and top down communication

The top management has to communicate the vision and unconditional necessity to develop the company into a transparent and risk-conscious company ("tone from the top"). This leads to a discussion and modification of relevant company values such as integrity, responsibility and transparency. The top management has to credibly emphasize that they confide in their associates in consciously and transparently taking risks. The decentralized responsibility can only be taken over within centrally determined risk limits. Objectives and behavior have to be adjusted accordingly in a way that supports the thrust of these efforts.

3.2. Modify the existing risk management, which might have been implemented based on legal requirements

The whole process should be based on experiences that have been gathered during implementing the legal requirements on risk management. The adjustment needs on the existing risk management approach have to be critically analyzed and identified.

Practice shows that functional departments interpret the term risk too narrowly. At this phase the correct comprehension of risk has to be established: Risk contains not only an event with one-sided negative consequences, but also all kind of potential deviations from a planned value. Risk has often a negative background attached, as it is frequently interpreted as a forecasted miss of a plan value. This is not a risk, but an expected loss.

Risk understood as an unexpected loss influences how a company deals with risks. As all kind of entrepreneurial activity implies to take risks, reports such as "we do not have any risks" must not be accepted. Generally, the occurrence of a risk can be accounted for missing a plan. Vice versa, "not having any risks" would be tantamount to having objectives that are not stretched enough, as obviously they will be achieved with a probability of 100%. Targets can be defined in monetary as well as in non-monetary units, such as safety at work or reputation. Accordingly, potential negative impacts can be evaluated in the same unit as the target is set. Systematically identifying risks fosters the preventive implementation and monitoring of risk mitigating action plans. This saves cost and enhances transparency, which further supports the necessary changes.

Acceptance and relevance of the company wide risk reporting in top management can be increased when an illustration of risk in bandwidths (in form of a probability distribution) of financial results (cf. Figure 2) substitutes the typically used heat map. Risks and chances are classified according to there probability of occurrence and financial impact into the matrix of a heat map. The "at chance/at risk" illustration show the expected, the most positive and the most negative impact on the planning.

The quantification with a direct link to the profit planning replaces the digital and abstract risk evaluation in the heat map. This can initiate interesting discussions about the assumptions and framework implied in the company's planning process.

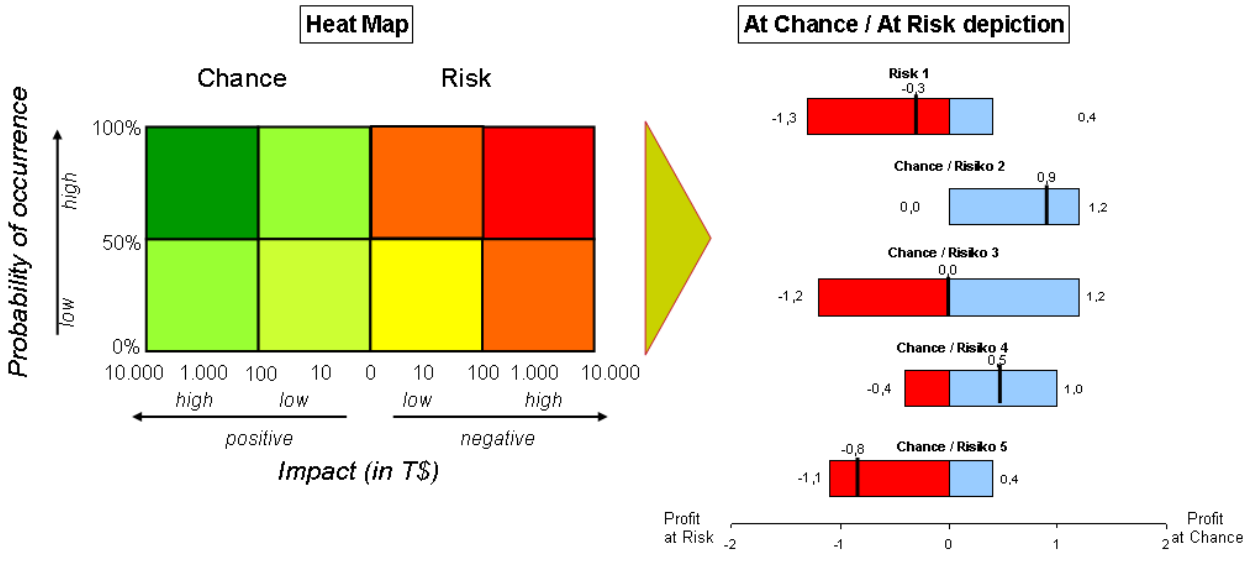

Figure 2: From heat map to “at risk/at chance”

Management on all organizational levels has to review and discuss the results of the risk analyses and the evolution of action plans (“tone at the top”). Part of this is to check if a risk that occurred has been identified in advance. The effectiveness of action plans should also be monitored, and their implementation in time should be part of one’s personal target agreement and linked to the incentive system. These activities boost an open dealing with risks, a transparency about the risk situation of the company and an equal importance of risk mitigating measures with operative line function activities.

3.3. Integrate risk analyses into project planning, evaluation and decision finding

To integrate a risk analysis into the preparation of proposals and recommendation of decisions is the main content of the next phase. A comprehensive risk analysis has to be part of a business case; the forecasted return of a project is supplemented with a statement about potential deviations. Risk is one component for arguing in favor of or against a proposed project.

Several important methodological and cultural aspects exist in this phase:

The whole organization gets used to the method how to perform a risk analysis as an fully integrated part of a project planning. This means that risks are identified and evaluated simultaneously when forecasting the project result. On a single project level it can be easily understood that forecasting a value always implies uncertainties (meaning risks). The risk analysis reveals and evaluates those uncertainties, resulting in an expected value for the return and its probability distribution around this value. It also states with which probability a certain project result can not be achieved or can be overachieved („at risk“ and „at chance“-value, respectively; this approach can be applied to basically all relevant performance indicators). The project risk can be consolidated and expressed in one figure: the profit level, which is missed

with a given probability (e.g. 5% percentile) or, alternatively, the probability weighted average lower deviation of the planned value (being less sensitive against smaller changes in the input variables).

Process- and culture-wise, the acceptance and necessity of a risk analysis as a decision supporting instrument has to be established. The bandwidth for the possible project result is driven by the bandwidths of the different cost and revenue values to be planned. At this point it becomes evident that identifying and evaluating risks – with regard to time planning, technical issues and financials – have to be instantaneous parts of a project planning: Whenever the planned value is determined, it should be asked under which assumptions this forecast is being made. Those assumptions and uncertainties should be revealed, as each potential deviation from an assumption implies that the forecast will not occur. This understanding makes clear that risk identification and evaluation should be immediately performed when developing a project plan. This permanent and simultaneous scrutiny enhances the quality of the planning and completeness of the inherent risk analysis. Therefore, the same personnel have to perform the risk analysis and evaluation as an integrated part of the project planning.

This period of the whole process also contains a learning process on risk evaluations. A lot of associates find it difficult to determine the probability of a risk occurring as well as its potential negative impact. However, this (at least with regard to the impact) can be put on the same level as determining a forecast value - if only under changed assumptions. While developing a prognosis - even over a multiple year period - is often accepted by planners and deciders, the same task with a change in assumptions is being considered difficult or even impossible. In fact, this is basically the same task. This is another example for a learned behavior in a company, which can be corrected when consequently implementing an integrated risk management approach.

This also changes the way an organization evaluates risks. It understands that “probability of occurrence” and “financial impact” is inadequate. Associates will substitute this approach by an evaluation in several scenarios or directly in potential bandwidths (e.g. three-points-method). It is worth mentioning that this is not primarily a methodological question, but a shift towards a higher quality in risk management: Discussing a risk evaluation scrutinizes the drivers and causes of a risk and its effects. The discussions about defining risk mitigating measures as well as deciding if and to what extent those should be implemented are more differentiated.

Independently of the exact evaluation method used, the approach generates the expected value besides the „at risk“ and „at chance“ values, respectively. The expected value expresses the return to be achieved „on average“. It should form the basis for corporate planning and management activities, as it is the most realistic prognosis. It does not deliver any relevant value to distinguish between the expected value and a planned value (e.g. the latter being the one not considering chances and risks).

Unlike the expected value, the target value is normally not determined based on an existing project planning and risk analysis, but it expresses the necessary return on investment determined by company-wide considerations and requirements. The target value serves as a reference for performance assessments including linked incentive systems. It is essential to differentiate between plan / expected value resulting from the project planning and the target

value deducted form company-wide requirements. This differentiation contributes to reducing the incentive that an employee overweighs risks and neglects chances; this could be done to emphasize the own performance during the project execution.

This issue is only partly true during the phase until the target values are determined. The future project responsible intends to influence the required return with regard to “sufficient target stretch” and “realistic achievability”. He therefore tries to reduce the expectation by emphasizing risks and playing down chances. Before this background, a systematic and integrated risk analysis with a structured discussion of risks inherent in a project helps to increase the quality of a business case. Secondly, praxis shows that the integrated risk identification and evaluation contributes to a higher transparency about performed assessments, met assumptions and personal interest while preparing the business case. Thirdly, if only effective on a mid-term, a project manager’s ex-post statement that his personal performance explains the excessive success over the planned value (in a positive way), looses credibility. Generally, each deviation of the actual value from the expected value must be explainable by a previously identified risk or a chance in a follow up calculation. If this is not the case, the risk analysis has been executed – intentionally or unintentionally – incomplete and in a bad quality. If over a high enough number of projects the expected values lie systematically below the realized values, this indicates a bad planning quality, but not an extraordinary performance by the project responsible. If the target is set, to differentiate between those two values partially solves this conflict.

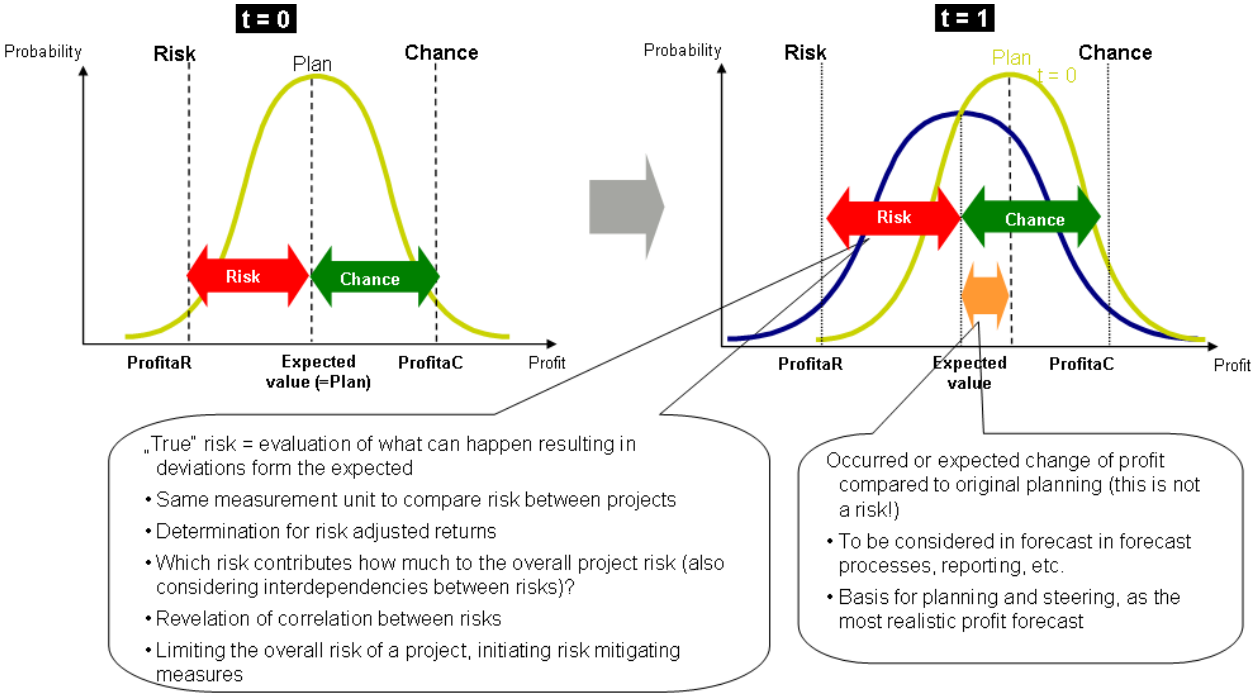

Figure 3: Periodic profit change equals change in expected value.

The risk analysis allows consolidating a project risk in one figure. This is a pre-requisite to assess a project proposal according to its risk-return-relationship. Figure 3 shows the relationship between expected value and the “real risk” in a bi-periodic comparison.

The simultaneous view on risk and return needs to be explicitly incorporated into the company’s financial decision rules when the expected return of a project is balanced against the inherent risk. This makes clear to all associates that the risk analysis is not an add-on activity, but an essential component that can lead to a project’s approval or withdrawal. A project risk is accepted and creates value if it is accompanied by an least adequate expected return. Using the generated information to reason a decision under simultaneous consideration of risk and return is essential to achieve a mental change how to look at risks. The behavior of top management plays a crucial role (“tone at the top”): The discussion if a project being a bundle of risks yields enough return to be accepted (“Why should we take the risk? Because we get paid for it!”) substitutes the interpretation of risk as an operative weakness. And the consideration if an additional risk from a project should be accepted complements the view on achieving the minimum return.

3.4. Aggregate several projects to one company-wide project portfolio

A risk integrating business case as basis for alternative project proposals for the top management lead to an ambiguous decision situation if no project alternative is dominant (that means the project with the higher expected return goes along with a higher risk). The question arises how much risk a company is willing and capable to accept. A company can only answer this question when looking at the total portfolio of projects, investments and activities; this leads to a portfolio oriented management approach. Aggregating risks into a company-wide risk profile is a pre-requisite to determine and cascade down a risk limit, which has been formulated to not endanger the going concern of the company.

This can result in discussions about the company strategy, if for example a business segment achieves the determined minimum yield but with a higher risk than another. In some cases, the existence of a business area or its strategic thrust can be put in question. The company will consider determining a minimum risk return relation instead of a minimum yield. Standard projects with a low level of complexity and therefore only little risk can be prioritized against projects with a higher level of complexity. This approach corresponds to the real-life experience that standard projects can typically not accomplish the requested expected return, which increases the acceptance of integrating risk management in the whole company.

The change of decision criteria requires a general change in corporate culture: the decision in favor or against executing a project does no longer depend only on the (marginal) cost and return of one project but also on its effect on the whole project portfolio. It also requires an intensive communication process that emphasizes the method as well as the main drivers and influencing factors in the whole portfolio.

The cross-project reviewing approach has a direct feedback on the project planning and execution: The top down specifications can be formulated by fixing criteria, which, when being met, ensure a positive contribution, meaning risk reducing or below average contribution, of

the project to the company's risk profile. This approach can result in marketing strategic framework, which product offer optimizes the chances and risk profile of the company. Therefore, integrated risk management is not only a question of controlling or risk management, but also of marketing and strategy. Accordingly, the change process has to follow an approach that comprises the whole company.

3.5. Manage the individual risk in operative project management

Dealing with a project's risk-return profile typically leads to using information also on operational level to control individual risks, e.g. when deciding for or against risk reducing measures. The project manager will not only use the expected value of a risk (probability times impact) to prioritize the risk mitigating activities. He will also consider the potential negative impact that might go beyond the expected value. In addition, within the permanent projects' earnings calculation the negative effect of an occurred risk must not be fully paid from the initially built pot of reserves until it is empty. Instead, every occurrence or disappearance of a risk leads to a change in the forecasted project result. This pot of financial reserves is not an anonymous amount used to pay occurring risks as long as it is filled, but contains earmarked reserves directly connected to individual risks. Controlling methods and processes have to be adjusted accordingly.

Consequently the way how to calculate the advantageousness of risk mitigating measures changes. Of course, the determined risk limit for the project has to be kept. Additionally, the change in the risk profile (being the unexpected value) has to be taken into consideration besides the change in expected value. Therefore, project managers who decide about risk reducing measures have to assimilate the methods and basic ideals of this integrated risk management approach. This shows that even methodological questions within risk management are not only relevant for central risk management departments and/or the controlling.

3.6. Adjust the integrated risk management to the periodical planning and management

The described approach should also affect various other processes dealing with planning and forecasting. When talking about profit forecasts and corresponding investor relation activities, capital market communication can also incorporate the idea of a forecasting in bandwidth. To cover all kind of activities (sales, corporate costs, FX result, pensions, quality costs, etc.) by this method is a prerequisite for this next step. The same is true for the risk (chance) to loose (win) a project that has (not) been included in the planning. Instead of only determining "the one profit forecast figure", a company has to reveal the significant chances and risks by aggregating both pieces of information in a bandwidth of a profit forecast. Investor relation departments can use this to communicate to the financial community. By doing that, a company can avoid short term measures at year end to achieve the profit prognosis named to the capital market; practical experience show that this actionism rather destroys value than creates it.

The bandwidth of periodical results creates important management information for short term as well as long term planning (cf. Figure 4):

On a short term, a company cab decide upon hedging cross company risks such as FX, commodity, insurances etc.. Individual expectations on the development of prices is not enough for that. Knowing and accepting a risk exposure and with it a certain probability to fall short of periodical profit target must be the basis.

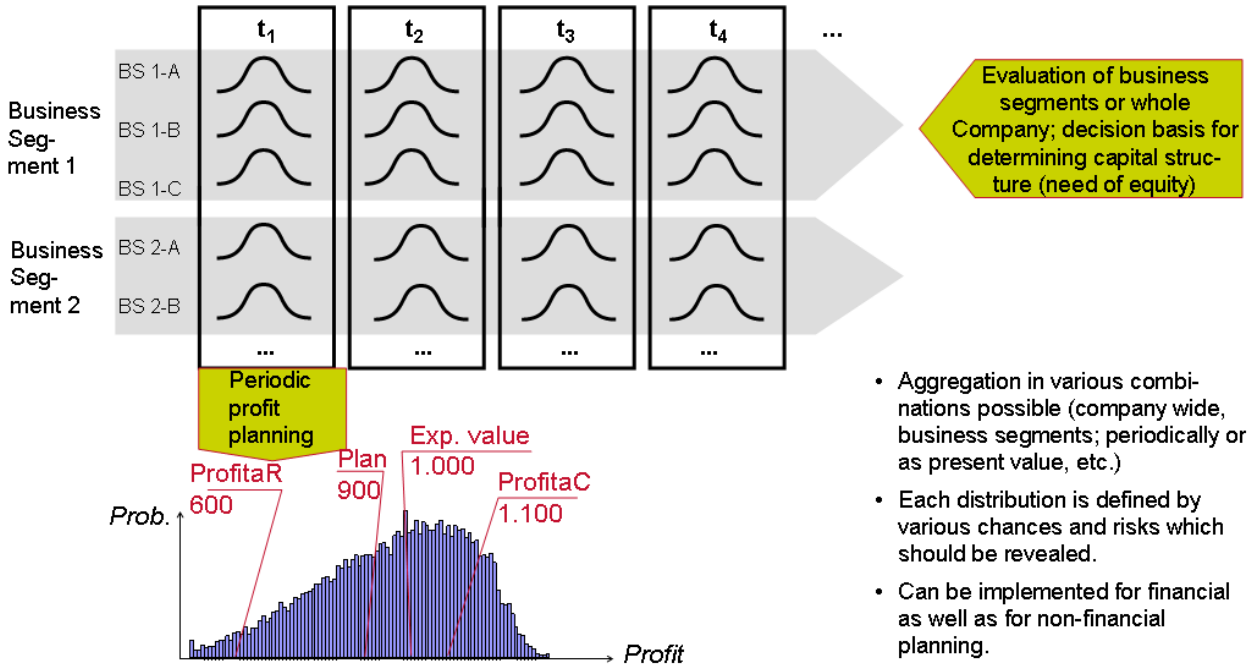

Figure 4: Steering impulses from an aggregation over one period to the annual result or over various periods

Looking at a longer period, it can help to analyze the corporate strategy against changes in the environmental assumption on which the strategy development has been founded. In a structured manner, management can only discuss strategic decisions like the flexibility in the production capacities (higher flexibility typically implies higher cost), when bandwidths of potential future demands are incorporated in the analysis.

Those examples can make clear, that integrated risk management is also a natural component in the process of developing and determining a strategy (functional, segmental or corporate).

4. Organizational aspects of the implementation process

It comes at no surprise what can be frequently observed in practice: A company needs a sustainable change management process to alter the learned and practiced behavior in terms of methods, processes and corporate culture. A “four consultants – three months” project, in

which an external consultant is hired to implement calculation algorithms in a risk management software or to risk profile the company in a one off effort (without a sustainable effect), is not enough to achieve this goal.

The central risk manager has an important role in this process (cf. Figure 5):

He describes and explains the roadmap, methods and approaches within the company, defines requirements and processes and determines conceptual and methodological standards. Further on, he supports the functional department in applying and implementing the various changes in methods and processes. His tasks in coordinating and managing the change management are even more important for the sustainable success: He is the advisor of the top management within the process, organizes a corresponding internal communication and supports the central controlling departments. His knowledge in controlling, planning and management approaches and processes are a necessary but not sufficient condition.

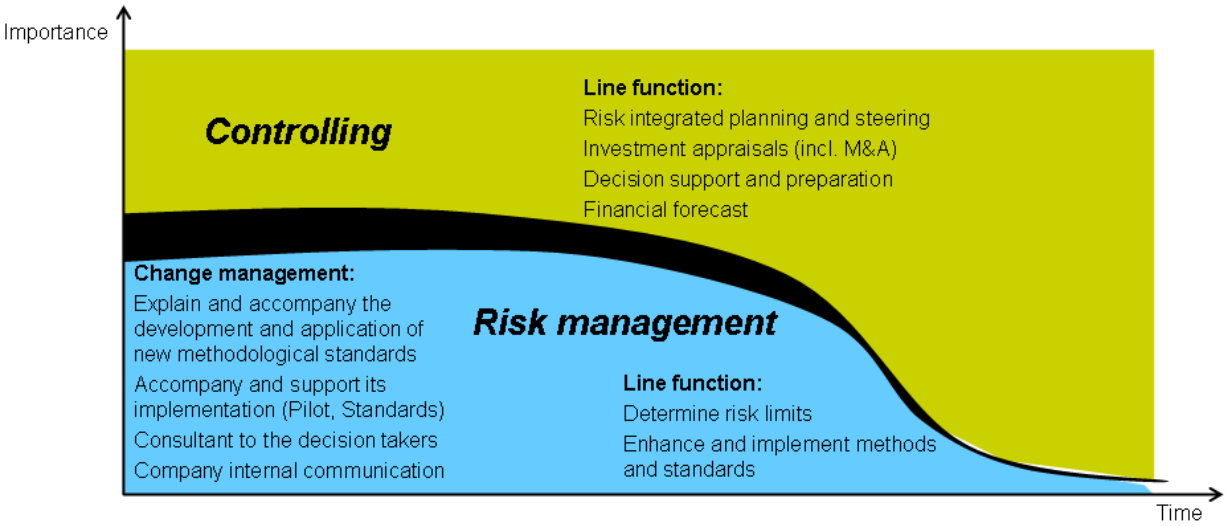

Figure 5: Change in the role of a risk manager within the cultural change management process

Before this background, the risk management function should be positioned independently from functional units in the organization. An external consultant can be used as a coach for the central risk manager, accompanying the whole process and being the risk manager's advisor and bringing in external experiences.

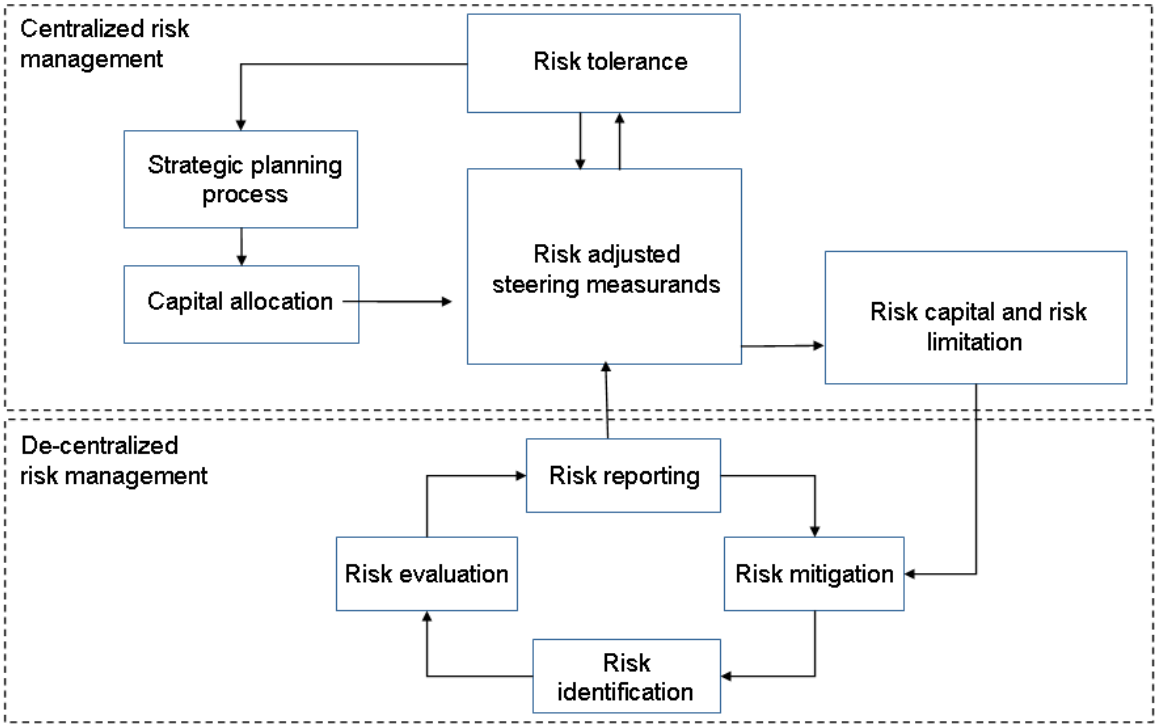

Figure 6: Centralized and decentralized risk management circles

The central risk manager's role changes over time: The described integration of risk analysis into the planning and forecasting processes implies that each organizational unit responsible for a planning process is also in charge for the integrated risk management activity. It is not only the risk managers' tasks but of all associates who are dealing with planning and forecasting, to generate and reveal bandwidths for all relevant measurands. If this grade of maturity in risk management is achieved, the risk manager's duty shifts to a holistic view on the whole company and resulting contents: These are the components of the centralized risk management circle (cf. Figure 6), such as to generate and optimize the risk profile for the company, determining risk limits and allocate risk capital, refine methods and tools, while the components of the decentralized risk management circle remain with controllers and operational functions.

Dr. Holger Sommerfeld is head of risk management at AREVA NP GmbH, Erlangen (Germany)