Lessons learned in Corporate Foresight

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Summary:
This paper focuses on the practice of Corporate Foresight within a multinational automotive company. It portrays how the early detection of medium- to long-term developments in the broader business environment, including social and market developments, is integrated into innovation and strategy processes. The objective of the paper is to portray the genesis of Corporate Foresight, major working areas and benefits for the company. The initial section highlights the driving forces that promoted the establishment of Corporate Foresight, namely the convergence of Strategic Policy Intelligence with Strategic Early Recognition and Futures Research. The core section highlights five major fields of foresight practice which encompass strategic issues on different levels: long-term market developments, future customer needs, prospective evaluation of innovations, business processes and organisational change and, scanning and monitoring. The paper concludes with characterising the organisational architecture of a mature corporate foresight group.

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1. Introduction

In the last three decades several large enterprises in such diverse sectors as energy, automotive, insurance, telecommunications and information technology have established corporate foresight groups and strategic planning processes, which analyse the long-term prospects of business environments, markets and new technologies and their implications for corporate strategies and innovation (for further case studies covering diverse branches see also Baron et al. 2003, Burmeister et al. 2002, Burmeister, Neef and Beyers, 2004, Davis 2002, van der Duin 2004, Green 2004). Depending on history, branch and institutional set-up diverse labels are used to describe research-based activities in industry and business that pursue a future-oriented perspective on the broader business environment including markets and society to support strategy and innovation processes in the company. Terms like “(industrial) futures research”, “business futures”, “strategic business intelligence”, “corporate think-tank” are also used to describe this field of practice. The organizational set-ups are diverse (see section 3).

Historically external and internal forces have driven the establishment of foresight activities in companies. With the growing differentiation and maturity of these activities and the close alignment with strategy and innovation management in companies this field of practice has developed it’s own identity, professional standards, processes and it’s own label: “Corporate Foresight” (Burmeister, Neef and Beyers, 2004, Ruff, 2004). The external forces promoting the establishment of corporate foresight comprise advances in science and technology, internal forces comprise branch-specific capacity-building in innovation and research. Three main roots can be identified in the external science and technology environment. First, developments in “technology assessment”, “technology forecasting” and “technology foresight”, which had their origin in the science and technology policy context in the 1970s and 80s and have developed into a differentiated set of concepts and practices dedicated to support new modes of governance in innovation and policy-processes on sectoral, regional and transnational levels (Barré, 2001, Rader, 2001, Smits, 2001, Zweck, 2001, Martin, 2002). Results from these branches of “Strategic Policy Intelligence” like specific technology impact assessments or Delphi forecasts (Cuhls, Blind and Grupp, 1998) were monitored and used by companies. In a few cases concepts from technology assessment and technology foresight were even actively adapted for use in innovation processes in big multinational companies, e.g. in “product impact assessment”, “participatory risk assessments” and “innovation and technology analysis” (Minx and Meyer, 1999, Weber et al., 1999, Baron et al., 2003). Second, with the progress of management science and the exploration of new methods for strategic management, especially in big multinational companies, the ideas of “weak signals”, “early warning” and “early detection” promoted long-term and anticipative thinking (Ansoff, 1975, Ansoff, 1984, Krystek and Müller-Stevens, 1993, Liebl, 1996). Third, the proliferating field of “futures research” with new concepts (e.g scenario planning, modelling) and new topics beyond the traditional scope of companies (e.g. global challenges, change of values, knowledge economy) also had an impact on the corporate world (Schwartz, 1991, Morrison and Schmidt, 1994, Coates, Mahaffie and Hines, 1997, Glenn and Gordon, 1999, 2000, Davis, 2002).

A general internal force in industry and business that promoted forward thinking about innovation and technology was the increasing knowledge and research intensity of value creation in many branches. Other internal forces are branch-specific and directly or indirectly related to changes in the business model and
internal organisation of industries and companies, which promoted a need for Strategic Intelligence.

In the automotive industry research departments focusing on innovation and technology have a relatively short history. They were mostly founded as part of integrated R&D in the 1970s, 1980s and 1990s. A few companies appreciated research and technology so much, that it was not only established as an appendix of vehicle development (integrated R&D) but set up as a central division dedicated to build the basis for innovation and technology leadership across a more or less diversified portfolio of business divisions (e.g. passenger cars, commercial vehicles, services). A first historical driver of the functional differentiation of research & technology units was the increasing competition in innovation and the insight that technological leaps have to be prepared in a long-term perspective (e.g. shifting from combustion engine to alternative drivetrains). A second driver was the strongly growing relevance of knowledge as a prerequisite for innovation and the emergence of new research and technology fields (e.g. semiconductor electronics, microsystem technology, material science). A third driver was the recognition, that innovation-oriented knowledge creation and “advanced development” require different time scales and organisational set-ups than vehicle series development. Finally, external impacts like the oil price shocks of the 1970s and 80s raised awareness regarding the relevance of business environment developments and discontinuities.

A few car manufacturers established “non-technical” research groups as part of automotive research (e.g. Daimler-Benz, Toyota). This was grounded in the insight that the long-term success of an automotive company not only depends on the successful management of the core functions of automotive value creation (procurement & supply, technical development, manufacturing, marketing & sales) but also requires that long-term developments in the business environment, in markets and society, have to be taken into consideration. This emphasis on enhancing the market perspective by including societal dimensions corresponds to the qualification of “Third Generation Foresight” in the scientific discourse about foresight in the context of innovation policy (Georghiou, 2001). DaimlerChrysler’s Society and Technology Research Group (STRG) was one of the first foresight groups to be established within a company. Since 1979 it has investigated, in close cooperation with technical research and development, marketing and strategic planning, the factors shaping tomorrow’s markets, technologies and products. Deviating from the then widespread mainstream path of most technology management and forecasting, STRG started with two basic premises. First, before focusing on technology, a broader view of the market environment, including societal factors, has to be taken into account if a company wants to look into the future. Secondly, to accept and learn about complex and dynamic environments, foresight dedicated to innovation has to concentrate on an “outside-in” perspective. Thus the mission of STRG is social science-based futures and business environment research to support strategy and product innovation processes for DaimlerChrysler and its business divisions. The key question of this mission is: what business environment trends shape future markets and contexts for the automotive industry and the mobility business, and what key challenges do these pose for DaimlerChrysler?

The business environment is defined broadly and comprises technological, economic, political, societal and ecological domains. The analyses are conducted on macro, meso and micro levels. They are oriented between a medium and long-term temporal horizon (5-15 years).
The research group unites about 40 research scientists from diverse disciplinary and regional backgrounds. The headquarters are in Berlin, and there is a branch office in Palo Alto (United States of America) and a network node in Kyoto (Japan). For its international projects STRG maintains an international network of partners in Europe, the United States, Japan, Eastern Europe and parts of Asia.

This introduction gave a short account of the driving forces that put “Foresight on Society, Markets and Technology” on the research agenda of an automotive company. The following chapter (2) of this paper portrays 5 central fields of research that bring the business environment, market and society into the innovation process. For each field an example is described. Finally, chapter 3 will briefly portray some basic organisational features of foresight research within an enterprise that bolster this function.

2. Perspectives and topics of future-oriented business environment research

Strategic decisions and the innovation agenda in an international automotive firm reach far into the future. Any plan’s success is measured by how well it pays off in the future. A future-oriented business environment research supports the basic strategic pillars of innovation and technology leadership, global presence and a product and brand portfolio that is highly attractive for customers.

The strategic goal of innovation and technology leadership requires an early detection of opportunities and risks. The average time spans of innovative vehicle development are 5 to 7 years for passenger cars, and 7 to 12 years for commercial vehicles (vans, light trucks, heavy trucks). The strategic planning cycles can be very long if the goal is to cover the opportunities and risks for the whole business cycle, which also includes the relatively long usage cycle (ca. 10 to 20 years). These temporal horizons entail high innovation and investment risks. Futures research in the enterprise supports the early identification and evaluation of opportunities and risks and thus contributes to innovation management, business and investment strategy.

The targeted global presence of the firm requires an analysis of future regional market developments in short, medium and long-term temporal horizons. Regional vehicle markets are in different developmental stages (mature vs. emerging markets). Internationally oriented business environment research has to explore the regionally diverging business environments and market developments.

A product and brand portfolio that is highly attractive for customers requires a balance between “technology push” and “market pull”. Innovation strategies in mature and competitive markets that are solely driven by technology result in decreasing returns on innovation. A corporate foresight unit delivers continuously updated knowledge about future customer needs adapted to the needs of the internal clients. It also supports the development and marketing departments in the customer-oriented prioritization of innovations and thereby strengthens strategic marketing and sales.

From these different temporal horizons and levels of strategic planning 5 major foci of corporate foresight have emerged:
Strategic Futures Research

Changes in transport and in vehicle markets are shaped by social mega-currents on a “macro level”, e.g. by political, economic, infrastructural, social and cultural conditions. Dynamic changes in these “macro environments” can be observed today in the “Emerging Markets” where the basic conditions for mass motorisation in passenger and goods transport are developed today (e.g. in China, Southeast Asia, Latin America, Eastern Europe). The strong dynamics in these emerging vehicle markets evoke bright perspectives but are also fraught with high uncertainties. In this context the following research questions arise:

• Which societal factors are driving transport and mobility of the future?
• Which basic changes and risks can be detected?
• Which changes in production and logistics drive the transportation of goods?

As changes in the macro environment strongly depend on long-term political and economic developments, corporate foresight has to take a long-term perspective of 10 to 15 years ahead.

Case study: For most international car manufacturers an important strategic issue is the question whether China will remain the powerhouse of global automobile market growth and what the market drivers are. To tackle these issues the foresight unit initiated a research project in which the prospects of the Chinese automotive business environment were explored in a long-term perspective. In a first step the internationally mixed research term analysed relevant influential factors in the “macro environment” 10 to 15 years ahead. These factors tackled relevant developments in politics (e.g. economic and social inequalities), in traffic and transportation (e.g. development of highways), in social trends (e.g. modernisation of lifestyles in Chinese society), in industry structures (e.g. joint ventures of car manufacturers) and other fields. The research work was based on international expert interviews, workshops and desk research. The resulting “macro scenarios” depict three alternative paths of development regarding the political, economic and infrastructural environment. The alternative scenarios are coherent and complex stories about alternative futures that capture the high uncertainty in the economic-political system of China (for the use of scenarios in the energy sector see Davis, 2002). As these scenarios are too general and abstract to offer strategic guidance for specific business decisions the foresight team developed a “three-level” rationale to connect the general “macro scenarios” with issues and decisions on the business level. This rationale included, in two succeeding steps, more specific “mobility scenarios” and “market scenarios”. The three scenario levels are consistently connected, which means that each “macro scenario” is connected with a corresponding “mobility scenario” and, on the next level, with a corresponding “market scenario”. The macro scenarios are encompassing enough to capture uncertainties on the political and economic level. The market scenarios are specific enough to evaluate strategic options regarding market entry with specific products and setting-up manufacturing or assembly activities in the local market. Finally critical early warning indicators were identified which should be continuously tracked by the strategic planning units (e.g. government industry policies, emission legislation, energy and resource consumption, social tensions between the poor and rich). In a set of workshops with strategic planning units the knowledge created by this research project was finally
integrated into the strategic plans on the headquarter, business unit and regional levels.
The project delivered two core results for the company. First, the strategic value of “macro scenarios” which are appreciated by management for capturing uncertainty and complex relationships was much enhanced by connecting them via a multi-level hierarchy with specific management objectives. Second, the multi-level analysis of the business environment covered up many risks in the Chinese market that were not considered before and as a consequence a cautious step-wise approach to market-development was suggested.

**Markets and Customers of Tomorrow**

In the competitive and often saturated markets of the automotive industry it is no longer sufficient to fulfil basic customer needs. The differentiation of customer needs and the fragmentation of target group segments proceeds continuously. To understand what “differentiation of needs” means one just has to recall what was generally associated with “seating comfort” in cars three decades ago and what the most advanced “premium” associations are today, e.g. a seat individually adaptable in each of its parts, with heating, cooling and massage functions available.
The competition over customers has led to the next level which is to anticipate non-articulated and latent customers needs and to actively shape the needs of the customers – especially in the premium markets. Market positions can only be defended if customers are led onto new paths with tangible and emotional innovations. Exclusive knowledge about customers and methods for anticipating future customer needs thereby becomes a competitive advantage.

In this context the following research questions arise:

• How and where do the customers of the future live (cultural conditions, life styles, consumer needs)?
• What customer needs and product requirements will be relevant in changing societal contexts?
• How will the acceptance of marketing instruments and branding strategies – in different cultures – develop?

With these research questions strategic intelligence in marketing and sales becomes more important because it explores medium to long-term changes in the lifestyles and needs of customers, in contrast to conventional market research that is focussed on satisfaction verbalised by customers today.

Case study: a research team is assigned with the task to explore potential market niches for new, unconventional vehicle concepts. For this purpose a scenario process is conducted with a special focus on changing mobility patterns and lifestyles in big cities. One of the ideas that shows a high “fit” with the scenario is a small, “urban and trendy” two-seater. In the next step a cross-functional team checks the technical and economic feasibility of such a car. Finally the top-management decides to develop this new car concept in the context of a new brand and the start-up of a new subsidiary. In a following project the foresight team is commissioned by the marketing division of this new company (Smart) to describe the future target groups for this product. The team designs a procedure that is based upon four steps – identifying future trends, projecting target groups, visualizing target groups and finally, deriving implications. The first step is dedicated to trend research and about
20 trends and changes in society, consumer behaviour and mobility are identified and described in their long-term trajectories. In this case a temporal horizon of 5 to 7 years is used which corresponds to the second year of presumed market penetration. The trends comprise demographic changes, changes in mobility behaviour and in lifestyles and consumer needs. In the second step, these trends are used to project “status quo” customer groups – described in their profile of needs and socio-demographics by available market research studies – into the future.

The rationale used for projecting the customer needs into the future is a sensitivity analysis with two leading questions: (1) Which trends in society, consumer behaviour and mobility will particularly affect the different target groups? (2) How are the target groups, their consumer behaviour, mobility patterns and lifestyles affected by these developments? For instance, different people experience the phenomenon of “time-shortage” in different ways. For young trendsetters, who set a premium on individual freedom and on expressive consumerism, a shortage of time isn’t quite as negative as it might sound; it is also a status symbol demonstrating how much they are “in demand”.

This assessment is done in a structured internal workshop with the experts from trend research, also familiar with the market research data for the target groups (see also Minx & Reeb, 2005). In a third step the researchers draw up pictures of the future target groups so as to stimulate ideas for new car features and services. In the last step the interdisciplinary team derives product and marketing-related requirements. Later, shortly before the market introduction of the new car (Smart ForTwo) the descriptions and visualisations of the future target groups are also used as background information for designing marketing communication and training salespeople.

The core results for the internal client of this project comprised some lessons learned. First, additional strategic value can be generated if available market research data on today’s customers and commissioned trend research on future developments are not only used as a cumulative knowledge base, but connected and integrated by a sound method to anticipate future customer needs. Second, apparently “trivial” societal trends, like the aging of society or the increasing relevance of women as consumers, can make big differences in terms of innovation and product design if their implications are studied and discussed in a visually enriched environment, depicting trends and visions.

**Prospective Evaluation of Innovative Ideas**

The product creation process in the automotive industry is embedded in a tension field between technological options (“technology push”) and market opportunities (“market pull”). Most vehicle manufacturers have experienced business cycles in which they ran into difficulties because they were seduced by technological hypes and one-sidedly followed technology driven innovation strategies. A recent example is the vision of the “connected vehicle”, heavily equipped with telecommunication, telematics, mobile services and multi-media devices, which, in the late 1990s was supposed to become “big business” around 2003-2006. The lessons learned by the non-realisation of this vision, at least at the present, is that customer needs change slowly, and that the competition in innovation is about selecting those technologies, which show a tangible benefit for the customer. In this context the following research questions arise:
• What are the contextual conditions that promote success for innovations in the automotive branch?
• How can business potentials of innovations be identified and evaluated in a prospective perspective?
• Which innovative ideas reflect a high tangible benefit for the customer of the future?

Because this research field is directly related to the development of specific vehicle concepts as well as components/systems it is aligned with the respective planning horizon of 3 to 7 years.

Case study: the business division for vans is looking for innovative ideas to improve the innovation portfolio for a specific follower product in the van segment. The task definition implies that business processes and vehicle usage patterns of commercial customers should be analysed and that the current innovation portfolio should be augmented by additional creative ideas with high value for the customers. The foresight team assigned with this task takes a five-step-procedure. In the first step, typical business processes and transport situations and challenges regarding vehicle design are identified, e.g. loading and storage of goods, planning and tracking delivery sequences. Also interviews are conducted with experts on transport to detect future changes in the transport business. An example for a relevant change is the impact of internet-based orders by consumers on transport profiles of courier, express and parcel services. In a second step the team estimates the effects of the identified trends and issues on core customer requirements like safety, transport functionality, driving comfort, telematics etc. The result of this step is a future ranking of customer requirements, which shows a different profile than the ranking of today. This ranking is then compared with the existing portfolio for future innovations to identify “search fields for innovation” - blind spots that have a lack of innovation ideas. To complement the innovation portfolio, a series of creativity workshops is conducted with experts from engineering, marketing and sales and the foresight group as facilitators (Step 3). In the subsequent creativity workshops, ideas are generated on the basis of the “Theory of Inventive Problem Solving” (TRIZ), which uses known patterns of technological evolution and a step-wise procedure to analyse the problem to be solved, to research existing solutions in related technology fields and tool-box of approaches to search for solutions (c.f. Schüler-Hainsch and Ahrend, 2003, Gimpel, Herb and Herb, 2000). In a fourth step, the long list of created ideas is evaluated and prioritized against the projected customer requirements. The result is a future- and customer-oriented prioritization of innovative ideas. In a final “feasibility analysis” directly implementable ideas are identified and put into the development process of the vehicle concept. Attractive ideas needing further investigation and ideas evaluated as “future visions” are transferred into research projects and the “idea memory bank” of the business unit for the next product and innovation cycles. This case study highlights some basic features and lessons learned by integrating the analysis of future markets into innovation management in a company context. First, the applied procedure of future market and requirement analysis, ideation and prioritisation of innovations proved to be feasible in a short time span, covering only a couple of months. This is a crucial feature, because in tight developmental cycles structured by quality stage processes the “window of opportunity” for transferring innovations in specific products is very short. Second, the interdisciplinary and cross-functional composition of the team enabled quick decision processes and high
management attention in the involved departments of engineering, marketing and research. Third, the method proved transferable to other product segments.

**Business Processes and Organisational Change**

The automotive industry is shaped by a hardly surpassable process complexity. This is why the improvement and integration of workflows, processes and patterns of organisation is one of the central management tasks. As a consequence automotive research has to tackle product innovations as well as process innovations. Because of its importance, and driven by technological change, the emergence of new business models and organisational change is also a field of innovation research. A technologically oriented process- and production research as well as a social science based foresight deliver important contributions. The focus of this field is analysing the interaction between changes in societal and market-related business environments and changes in internal organisational environments of the enterprise. The research in this field contributes to the improvement and innovation of processes and organisational designs.

In this context the following research questions arise:

- Which internal organisational challenges result from the technology-driven change of internal workflows and processes?
- How can the alignment of the product creation process with organisational patterns of manufacturing be improved?
- Which developments in the automotive branch and impacts of other branches pose challenges for the business models and organisational patterns of an automotive company?

Because the time-scale regarding organisational changes may vary between a few years (e.g. in the case of introducing new IT-tools for team collaboration) and a decade (e.g. in the case of integrating new business models from a non-automotive branch) the temporal horizon of research varies between short- and long-term.

Case study: The „Information Technology Management“ unit in the headquarters buys standard IT solutions for “digitizing” tasks and workflows in the human resource domain (e.g. enterprise-employee relationship, employee portals). Some recent roll-outs of new IT-applications encounter barriers of limited acceptance because the implicit organisational imperatives contained in the “IT solutions” do not fit together with patterns of organisation and individual usage patterns of IT. In this context a foresight project is initiated to explore which types of “informed workspheres” could emerge for upper qualification levels (“knowledge work” in the corporate headquarters) in a mid- to long-term temporal horizon. Because of experiences with organisational resistance to purely technology-driven implementation processes strong attention is dedicated to the organisational and employee-related consequences of IT innovation. Additionally an expanded “outside-in perspective” is taken, to consider the organisational requirements and “social pull” that may result from “non-technical” external driving forces, like the societal change of working patterns (increasing flexibility of work schedules, new forms of collaborative work across enterprises).

In terms of method, a “from-the-outside-in” perspective was taken. Instead of starting with the identified current IT issues a future-oriented contextual scenario approach was taken. In a first step, 34 relevant influential factors in the societal,
economic and organisational environment were identified (e.g. new forms of work, rationalisation of knowledge work, informatisation of processes). The scenario process resulted in three scenarios describing different future workspheres and user profiles. In a final step the project team, together with the information technology management, evaluated the scenarios in terms of worksphere features and organisational risk potentials. Finally for each of the three scenarios implications for organisational design, employees on different levels and information architectures were derived.

The central results for the internal client of this foresight project – the information technology management division – comprised some lessons learned. First, long-term contractual “lock-ins” into big IT programs and standard applications, which promise quick cost savings carry delayed and invisible social costs and hence high organisational and investment risks. A better strategy is to pursue a highly evolutionary, adaptive strategy. Second, the foresight project raised the awareness for the high relevance of social and employee-related factors for organisational innovation (“micropolitical viability”, “social embeddedness”). This is a non-trivial insight in a technology-based IT management context. Third, IT-strategies that contain technological and business administration goals, should be complemented by organisational and worksphere-related goals.

Scanning and Monitoring

A core task of innovation management in automotive research is the early detection and evaluation of opportunities and risks of future technology and business developments. Therefore the broad-band scanning and the focused monitoring of relevant developments is a core part of multidisciplinary “society and technology” foresight activity. In this context a social science based foresight unit is focussing on “early” and “weak” signals in the political, economic and societal business environments.

In this context the following research questions arise:

- Which developments in the political and regulative environment, as well as the domains of economy, society and demography, mobility and transport, environment and resources, enterprise and worksphere, information and communication carry opportunities and risks for the enterprise in the medium to long-term future?
- Which discontinuities and “wild cards” could pose strategic threats for the business portfolio?
- Which new topics – also beyond the automotive branch – that are not yet part of the strategic horizon of the enterprise today, could be relevant in the future?

The broadband monitoring is a cross-sectional task, which encompasses the different levels of analysis (macro environment, markets, products, organisation) as well as different temporal horizons. Because of the wide open and long-term agenda of monitoring business environment issues a diversified multidisciplinary and international research team is required. To be effective and relevant in a business context, the analytical part of this task has to be supplemented by structured and networked communication and transfer processes within the enterprise, especially the R&D units and innovation management. This is implemented by a differentiated set of “transfer instruments”, ranging from electronically distributed “trend reports” and “futures newsletters” to
focused workshop formats (e.g. expert workshops, “trend forums”). The evaluation of different organisational settings for monitoring has led to the conclusion that it achieves the broadest impact and efficiency, if it is established as an integral part of the research work of the experts in the respective R&D units.

3. Implications for organisational design

A recent monitoring of Corporate Foresight showed that three types prevail (Burmeister et al., 2002):

(1) Companies with in-house or closely affiliated units (“Think Tank”) with a stable sizeable team (more than 10 persons), diversity of tasks, clear professional identity and continuity (e.g. Shell Planning Group, Deutsche Bank Research, Toyota Gendai, DaimlerChrysler STRG);

(2) Integrated functions as part of strategy, innovation or design units with a professional identity as “futures researchers” and some (3-10) team members specialised in this field (e.g. Deutsche Telekom, Philips Design, Henkel);

(3) Mixed forms, like dealing temporarily with futures issues, e.g. in cross-functional project teams working on an assigned task, or single outstanding persons representing futures thinking for the company.

Beyond Corporate Foresight which denotes activities embedded and rooted within a company the growing demand for extending the temporal and topical perspectives of innovation management and corporate strategic planning has also created a booming external market of “foresight consulting”. It is evident, that a lot of companies neither need nor can afford their own corporate foresight unit or team, because of size (small or medium-size enterprises) or business portfolio (limited amount of external risks, limited need to capture long-term uncertainty). In such cases, project-based and externally assigned foresight is a reasonable option. In large multi-national enterprises setting up an internal “society and technology foresight” unit is an organisational option to integrate future-oriented knowledge about science, society and markets into their innovation processes.

It can be argued that multi-national companies with an internal foresight unit can leverage a competitive edge over external services. First of all, a corporate foresight unit delivers the generated knowledge exclusively to its own company and not to the competitors as well, as is often the case with business consultancies. Second, such a unit continuously participates in core processes of innovation management and strategy. Hence it does not consume “start-up” costs and also has a long-standing, deep and continuous understanding of the business logic of the company. Last but not least, a corporate unit is able to integrate a deep and broad scope of knowledge about business environments and apply it across business units, which is usually not possible with selective assignments of foresight consultants.

On the other hand it can be argued that internal corporate foresight units run the risk of parochialism, of being locked in the prevailing mental models and power structures of the company. This is a real risk if such groups are integrated in the power centre or managed hierarchically top-down in business units with a narrow operational focus or in corporate strategy departments with “zero distance” to the top management. To avoid this risk STRG was established as a part of the Research and Technology
division, which is generally dedicated to future orientation and innovation. Also it was intentionally founded in a “peripheral” location with some distance to the headquarter. Beyond this general organisational positioning the internal organisation of such a foresight unit is decisive to preserve an outside-in approach and act as an effective early detection system at the boundaries of the company.

Based on the 25 years of foresight practice of STRG within an automotive company five principles have emerged for the “organisational architecture” of the foresight group.

Team composition: multi-disciplinary and international

Forward thinking, focussed on innovation, requires a diversity of scientific and non-scientific knowledge horizons and an integration of how technological, economic and societal developments interact and change business environments and markets. Innovations like new vehicle concepts and mobility services do not develop out of the blue. They emerge from new combinations and applications of known technologies and markets. In a foresight group promoting innovation, the integration and the lively exchange between diverse scientific, cultural and regional perspectives is one of the core prerequisites for thinking ahead in a knowledgeable and systematic way.

The team as incubator: multi-teaming and job rotation

Promoting innovation capabilities in the context of research teams requires intellectual and professional flexibility. A means to achieve and maintain this is to set up a project organisation in which the team members simultaneously work in parallel project teams on different issues for different customers. Thereby, in contrast to strongly specialised professional profiles, each team member maintains a broad set of knowledge and methods. This simultaneous work in very different projects encourages the discovery of “latent” opportunities and promotes the exchange of knowledge across different innovation projects.

“Production factor” communication: high density of interaction and creativity-promoting work environment

The “organisational architecture” of a foresight unit supporting innovation processes should be reflected in the “social architecture” of the working environment. Future and innovation oriented knowledge work is nurtured by the real and virtual encounters in social spaces. Thus the working environment of a foresight unit should look like the team office of architects, a marketing agency or a small, lively research institute. Informal “markets for ideas” should be balanced with the needs of the team members for privacy and individual work. The teams of the unit should work approximately half of their time in close collaboration with their customers. The other half of their working time is dedicated to the exchange of knowledge and experiences in the “project factory”, which is home, harbour and turntable of ideas.
Close relationships with internal customer and diverse networks in the business environment

A direct, strongly interactive relationship with a diversified portfolio of internal customers is vital to maintain demand for a corporate foresight unit within a company. Besides the widespread enthusiasm for foresight and futures issues, even in a lot of management ranks, one has to consider that the demand for foresight is neither continuous nor always growing. We are living in a partly saturated “knowledge society” in the sense, that a lot of issues have already been (over-)analysed. So corporate foresight has to anticipate the lifecycle of relevant topics at the boundaries of the company, proceed to unravel new relevant topics and access new customers with these topics. Besides the close relationship with the internal customers in R&D, marketing and strategy, a foresight unit should also be strongly connected with external networks and contexts. Differing from other functions in the enterprise, such a group has to consequently take an “outside-in” perspective. Therefore the team members have to maintain diverse contacts with external experts, knowledge workers in other branches as well as relations with other domains of social and cultural life.

Management philosophy: promotion of self-organisation and the community of experts

The idea of the team as a “germ cell”, the multidisciplinary exchange of knowledge and the project orientation of the work require a leadership culture that promotes open and flexible structures. Future-oriented knowledge work cannot blossom in hierarchical, department-oriented and over-controlled management structures. A core task of the management team in a foresight group dedicated to innovation is to promote the self-organisation of the project teams, to support networking between projects and people and to define open platforms for the strategic bundling of research ideas. The organisation in such a group should ideally not be fixed in rigid rules, routines and specialised competency fields. It should be a working community of experts, in which the social architecture is continuously adapting to ongoing and new projects. This poses undoubtedly high requirements for each individual: flexibility, tolerance and openness in the face of uncertainty and “fluid structures”, intercultural sensitivity, readiness to communicate, take risks and experiment.
References and Notes


