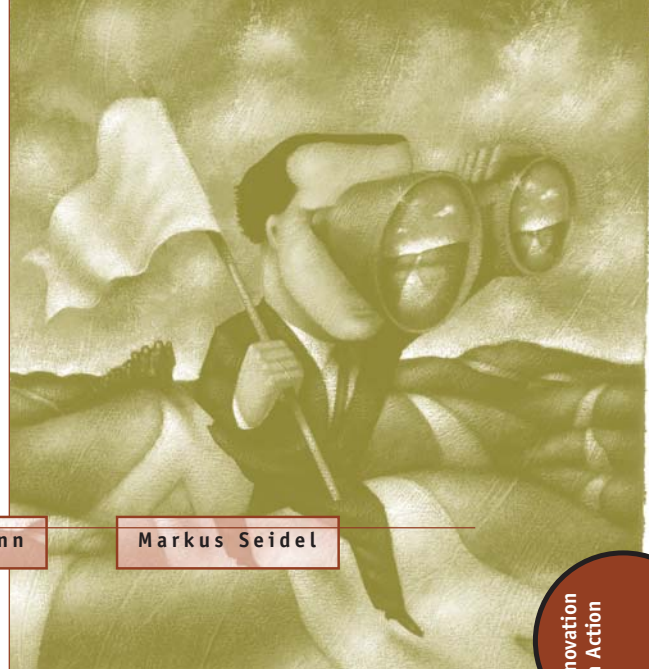


FROM ROADMAP TO ROADWAY: MANAGING INNOVATION AT BMW

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Innovation
in Action

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Asked in January 2001 "which brand stands for new technology," readers of *Auto, Motor and Sport* for the second consecutive year ranked BMW first. The winner and the loser were in the opposite positions in the magazine's initial 1997 survey, which just goes to show that anything can happen with a focus on finding the best ideas and creating a sustainable innovation process. The impact of BMW's innovation roadmap is translating to success on the world's roadways.

At BMW, to "innovate" may mean introducing a new component or technology into an automobile. But at the end of the test drive, it also persuades customers to buy the BMW when, until the moment they drove it, they had intended to buy the competition. Once, lean production was the name of the game in the automotive industry. Then mass customization became the key. Now, innovation is the most effective way to differentiate from the competition. Figure 1 displays the progression of competitive differentiation in the automobile industry during the last century.

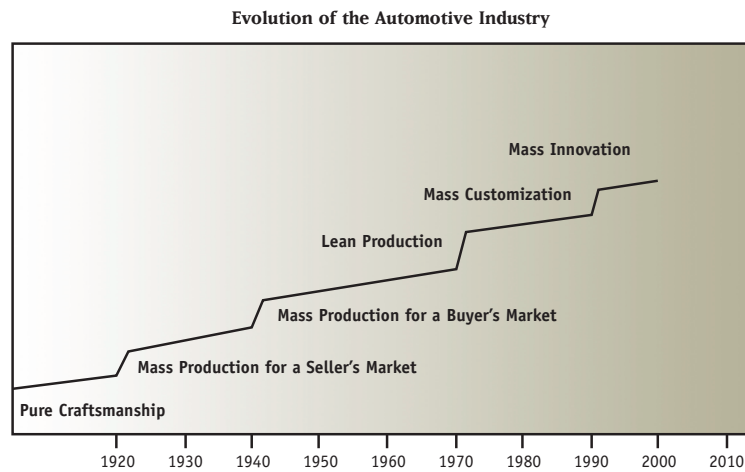
But innovation at BMW has not been happenstance. The company has defined a deliberate process to achieve an integrated flow from idea to finished product, the notion being to create sustaining winning innovations with a quick cycle time. Since 1997, BMW has significantly decreased the time-to-market for new components and linked increasing sales to the introduction of leading-edge components.

To reach sustainable growth, businesses must continually introduce new products, new services,

Figure 1

"The Name of the Game"
Why Innovation?

Source: Institute for Technology Management (2000), Hochschule St. Gallen, Switzerland



new channels, and new processes. New markets also must be constantly explored. It's not possible, however, to pursue every new idea that comes up.

Most companies simply don't have the resources or infrastructure to mine the volume of new ideas and stay ahead in today's competitive marketplace. The key to success, therefore, lies in nurturing new ideas, picking the "winners" and making them happen quickly through an integrated innovation process. Three years ago, BMW underwent an assessment of its innovation process and set out to create a more rigorous and focused approach. Today, BMW has made innovation a systematic part of its product development process with resources, accountabilities, and a governance system to facilitate the decision-making process.

Concerned that the best new ideas were not always getting the most attention, and that those that were sometimes lagged through the innovation process at an unacceptably slow pace, BMW engaged the Business Innovation Consortium (BIC) to work with it to analyze BMW's existing method for identifying new automotive components and getting these ideas into production. What the BIC found was that BMW actually had many new component ideas circulating, but the process for selecting the best ideas and applying the appropriate resources could be more efficient. It was virtually impossible to find the best new ideas, manage them, and get them commercialized as quickly as the market opportunities appeared. An idea census found that the various BMW divisions developing

components were trying to manage more than 1,200 innovations at once, all of which were potential changes to the production process. The BIC created a model to reduce the potential innovations to a smaller number and focus them on specific customer areas with the intent of integrating innovation more seamlessly into BMW's business strategy.

Managing innovation is no easy task—it's almost an oxymoron—because it's about risk and change. While many companies find it easy enough to put an "idea generation" process in place, few have discovered the discipline for prioritizing, categorizing, and supporting ideas all the way through production. The BIC estimates that in a typical company, decision-making consumes up to 65 percent of the innovation process. As a result, companies' processes for generating ideas literally die on the vine because they haven't instituted a means for supporting an idea through the entire life cycle.

The Process

BMW and the BIC created an innovation model for BMW using explicit filtering criteria to weed out the weak ideas from the strong ideas. The criteria developed were customer-driven and became the basis for developing six specific Innovation Fields that would be used for opportunity identification. Upon passing through the filter, ideas may be promoted to the next innovation stage, recycled for further evaluation, or removed from the process and stored within an ideas repository (part of the innovation infrastructure) for possible future use (see Figure 2). Any accompanying

BMW is currently considered the most innovative brand in its industry. But it has not always been that way. After management chose to focus on making innovation an explicit way that consumers differentiate BMW from its competitors, the company was able to create numerous internal mechanisms to manage and speed innovation without stifling creativity. Most importantly, the company realized it must risk failure to create success and solidify the future of the company.

article abstract

information associated with the idea is saved so new technologies and new business opportunities won't fade to black or be lost in the system when people leave. This is known as the "Focus" stage.

From Focus through implementation, each idea may be filtered out of the funnel if evidence shows the idea won't survive as a business proposal. The business proposal considers the idea's value and risk and determines if the idea can be managed to a result. This guarantees that resources always are focused on optimizing the business return from new ideas. At each stage (idea generation, focus, concept development, prototyping), these filtering criteria are crucial to making the organization's innovation process successful. These common innovation disciplines apply to every stage of the process:

- Strict schedules ("timeboxes") to ensure focus and timeliness.
- All departments likely to be significantly affected by a particular innovation are involved at the earliest step of the process.
- A responsible, committed sponsor is accountable for each step: a Business Innovation executive, followed by a Business Unit sponsor (e.g., a line manager) who has to be identified before concept generation.
- Exit criteria is explicitly applied to determine whether an idea progresses, dies, or hibernates.

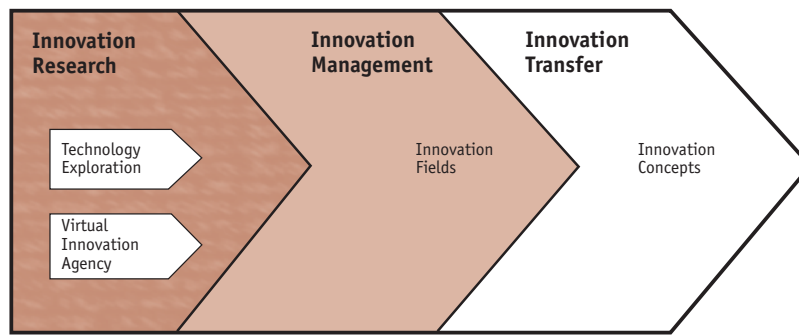
These parameters must be applied within an environment that supports innovation and cannot be simply seen as reasons to abort new ideas. Successful innovation hinges upon a balance between creativity to spark ideas and business pragmatism to certify there are real commercial benefits.

BMW executives established a Research and Innovation Management Center to manage ideas through the defined process to completion. This group is charged with identifying new component ideas quickly and getting the best ideas into production as quickly as possible. Centered in Munich, the group has linkages throughout the BMW organization and to different "satellites" around the world, as seen in Figure 3. The satellites have been established to ensure BMW is first to identify new technologies and market trends by being in the right places around the world.

The set of six customer-driven Innovation Fields is the focal point for defining market opportunities and managing a portfolio of ideas. Each Innovation Field is focused on a particular customer-driven need:

- Experience dynamics
- Convenience and service
- Safety and security
- Concept cars and experimental vehicles
- Esthetics and value
- Environmental acceptability

Figure 2 The BMW Innovation Process Flow



Source: BMW

Each Innovation Field, stewarded by a full-time Innovation Field Manager (IFM), is linked to a component of the company's business strategy that is determined by an innovation strategy board made up of BMW board members, corporate strategists, and innovation managers. Each Innovation Field Council (IFC) is made up of members of appropriate operating units and levels across BMW. These councils interpret the directives of the innovation strategy board into needs and opportunities for new products and components.

The fields are not meant to be mutually exclusive—ideas do overlap—but to provide focus and decision traction to prioritized ideas and opportunity areas. Fields can be added as necessary to keep the range focused. Each field is linked to a corporate principle such as strategic direction in R&D, market introduction policies for the most important innovations, and transparent, companywide accepted evaluation of innovations.

BMW also has developed an innovation portfolio that is managed by the innovation team in Munich, ensuring the company stays focused on the best opportunities and to understand the value each new car component brings to overall automobile sales. This portfolio tracks ideas from the point of generation through completed projects and then monitors the projects' results once they are put into series development. The portfolio also is used as a type of business radar screen, identifying areas of "white space," or opportunity areas where there is a need

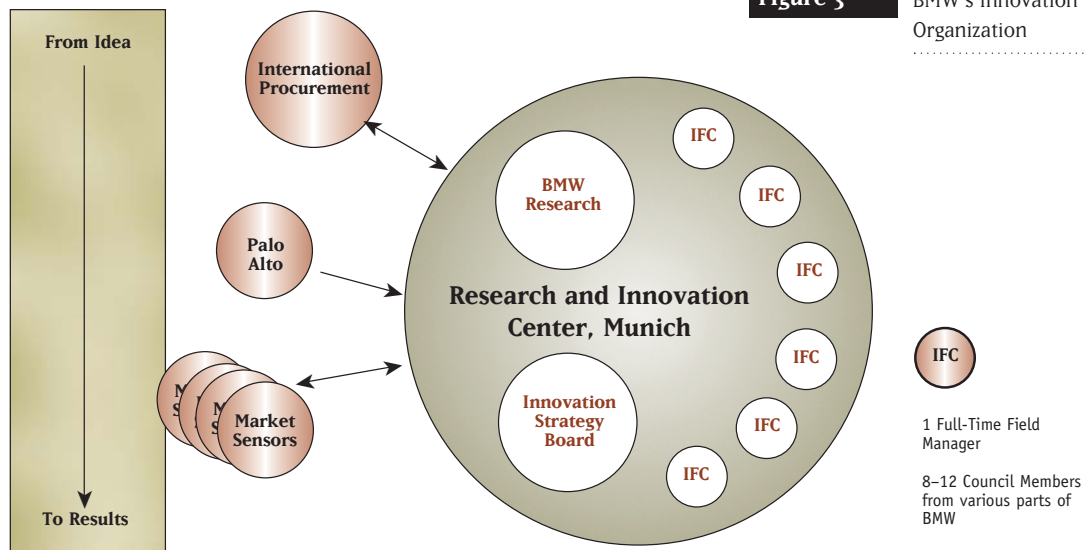
for ideas. Because ideas often have been developed but have not been moved to project status, the white space technique enables engineers throughout BMW to connect their ideas to opportunity areas.

Sensing the Market

To buttress its competitive advantage and to actively position itself in areas where significant market and technology opportunities exist, BMW has adopted an "empathic" approach to market sensing utilizing its various innovation satellites. This strategy allows the company to understand market opportunities by participating in them rather than by simply reviewing market research. If the situation warrants the required investment, the company will establish an on-site Innovation Satellite office to augment those in Munich, Palo Alto, Tokyo, and Park Ridge, N.J.

The Palo Alto Technology Office (PATYO) is perhaps the leading example of BMW's managing innovation strategy. Once the decision-makers were determined to make what PATYO director Holger Jeebe calls a "pre-emptive strike" to mine the Valley's intellectual capital and its leading-edge technologies, where better to set up than in today's most progressive high-tech neighborhood? There, a small group of engineers work among the brains behind advanced hardware and software developments, sharing insights and co-creating new automobile component products.

"We do things in the PATYO we could never do in Munich," Jeebe says. "We've created an intercultural, interdisciplinary work mode that combines structural



processes from Munich with Silicon Valley's practices and work habits."

At the PATYO, there are opportunities to explore new ideas such as the Helmet Project, through which an innovative motorcycle helmet that employs new technology to enhance the BMW riding experience was created. Combining advanced technologies with the product vision, doing market research, designing the prototype, and getting customer response yielded a helmet with an integrated information display in just 18 months. And while this product may never go wider than the open-vehicle market for which it was developed, that isn't the point. This research center allows the opportunity for experimentation and taking a chance, risking failure to create success.

Every year, 10 BMW employees, who compete for the honor, travel to Palo Alto to discover the next big thing in automotive innovation. Teams of three people then have 90 days to identify, explore, and develop new projects. Teams are cross-functional so that each project has the perspective of a marketer, an engineer, a strategist, etc. This way, there is no holdup later in the process as the idea makes its way from one stage to the next. If the team determines the technology has a chance, the engineers begin to create a component. They then build a working prototype. Once a design and prototype are finished, the concept is tested in the interiors of three production cars. If that survives a rigorous testing process, it goes to Munich for further evaluation, development, and final commercialization.

"If a project takes 95 days, that's ok," Jeebe says.

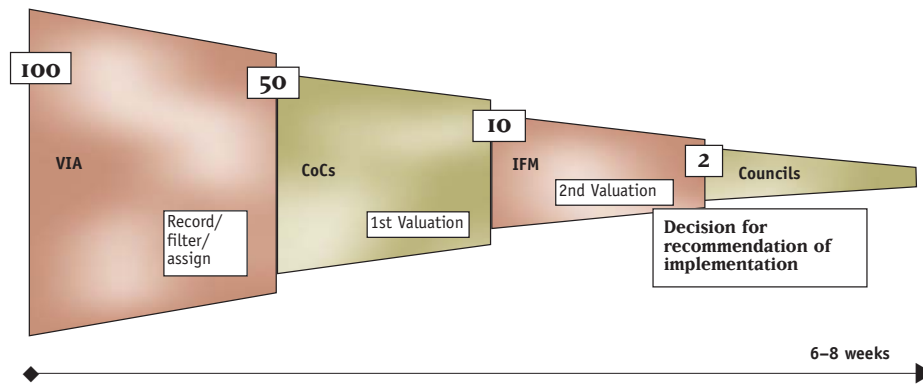
"We're in Silicon Valley for faster time-to-market and for faster product development. But the ideas have to make sense, or we won't explore them. If Munich takes our idea, then we count it as a success."

The iDRIVE is one such success. With approximately 700 different selectable functions available in today's deluxe cars, the instrument panel can look like that of the Concorde—and be just as difficult to operate. With customers complaining that the dashboard was taking too much of their attention from the road, the company's marketers and engineers began to think about redesigning the dashboard panel. Their challenge was to restructure the controls so the important driving functions would be easy to access and the less important ones wouldn't get in the way. Could drivers function more efficiently with a different interface? Could fewer knobs be positioned within one visual point of view?

BMW headquarters relied on the PATYO for help. The Innovation Strategy Board asked PATYO to investigate the possibilities. An engineering team from Munich was assigned to combine its intellectual capital with that of local software developers. Within 90 days the international team had developed a draft iDRIVE device. The prototype was then brought back to Munich for feedback from engineers and marketing mavens and ultimately seen through to production. Not long afterward, the new iDRIVE hit the street in a Z9 study vehicle at the 1999 Frankfurt Motor Show. It now comes with every Series 7 car.

Figure 4 Innovation Research—Virtual Innovation Agency (VIA)

Source: Business Innovation Consortium



The gestation period was less than a year.

BMW's other information pipeline is the Virtual Innovation Agency (VIA), an Internet portal for developing new relationships with any potential external innovators: individuals, small companies, and large companies from other business centers and research centers. This way, BMW can be sure of a continual idea generation flow and keep a direct pulse on the market, customers, and small business partners.

Those who have developed an idea that could increase BMW's competitive advantage can go to the website (<http://zulieferer.bmw.de/en/via/>), where the company promises to support them and maintain the confidentiality of their idea. If the company is interested in implementing the idea, it provides personal contacts in the appropriate special departments. The company then reimburses the innovator for the idea.

BMW instituted filters and self-assessment procedures to help decide which innovative solutions were best suited to go through the VIA. This way, the novelty, technical feasibility, and economic viability of the idea can be assessed effectively and quickly. VIA associates, acting as the first filter, assess the survivors' ideas, register them, and report their findings to the innovation fields. The VIA associates and innovation field managers work together to identify the appropriate center of competence, which then analyzes the idea and the associates' reports. If the Center of

Competence (CoC) thinks the idea has merit, it seeks the approval of the appropriate cross-functional council. If the council agrees, a contract is signed to begin a market assessment. Figure 4 captures the process of narrowing down VIA submissions.

Only three ideas have survived the VIA's rigorous test. BMW has partnered with other startup companies to explore them. But the company and its customers have just begun to familiarize themselves with sharing information over the Internet, so the ideas soon will flow faster. The more there are, the more winning ones there will be.