# Innovation-to-Business: Enhancing the Innovation Management System of Schaeffler

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Abstract: In uncertain and dynamic environments, established companies must engage in strategic "innovation-to-business" to continuously develop new technology/market-combinations as competitive advantages for future profitable growth. To achieve this, they can leverage Research & Development (R&D) and similar innovation functions for such strategic renewal. However, this requires enhancing their innovation management system, as they are traditionally focused on more incremental technological innovations for established markets. A theoretical framing of the key concepts provides an organizational framework with the required dynamic capabilities and organizational characteristics for such an innovation management system. The following case study of the Schaeffler Group presents their enhanced innovation management system in practice. Summarized as P3, this includes specifically organizational measures for an agile Portfolio management, systematic Process, and supporting organization of the involved People. Together, these measures help Schaeffler to establish and apply the required dynamic capabilities and ambidextrous orientation for successful "innovationto-business".

**Keywords:** strategic innovation; R&D; NPD; strategic renewal; innovation management system; innovation performance; innovation portfolio; innovation process; ambidexterity; dynamic capabilities

# 1 Introduction from theory and practice

Established companies in all industries face highly uncertain and dynamic environments, driven by global trends such as rapid technological improvements, changing geopolitical systems, increasing climate and environmental concerns, and corresponding changes in customer needs (Du & Chen, 2018). This business environment leads to ever-shorter cycles of competitive advantages for established companies, as the half-life of established corporate assets, know-how and business models decrease rapidly (Thornberry, 2001). However, they are usually organized for the efficient exploitation of sustainable competitive advantages. Consequently, their strategic fit to the environment quickly vanishes with every major change, which threatens their future profitable growth (Basu & Wadhwa, 2013; McGrath, 2013). Indeed, the Innosight (2021) Corporate Longevity Forecast shows that the long-term survival of all companies listed in the S&P index diminished from 30-35 years in the 1970's to only 15-20 years today.

Consequently, the mere exploitation of existing competitive advantages does not suffice for established companies anymore. Instead, they must engage in innovation to continuously develop new competitive advantages to survive and thrive in the future (McGrath, 2013). This poses a challenge to all established firms, but especially to traditional technology-driven manufacturing companies, as they deal with long product development cycles, high investment costs, and the requirement of economies of scale. Accordingly, their traditional research and development (R&D) or new product development (NPD) processes are primarily designed for technology-driven innovation within their established markets. Thus, these innovation functions are mostly used to exploit current competitive advantages, but not for the continuous development of new competitive advantages. Accordingly, this study deals with the question how to (better) leverage R&D and NPD functions for strategic renewal.

To provide such a strategic impact, the innovation management systems for R&D and NPD must be enhanced to allow for the systematic development of new business in the sense of new technology/market combinations that provide new competitive advantages, or in short: "Innovation-to-business". The successful implementation of such strategic new business innovation depends on the organizational characteristics of the respective innovation function or unit (Weiss & Kanbach, 2023). Relevant organizational characteristics involve specifically a relevant set of dynamic capabilities and corresponding organizational levers for their establishment and application, including a strategic frame, interlinked structures, agile governance, available resources, systematic processes and methods, suitable skills and competencies, and an empowering working environment. Together, these allow to leverage existing competitive advantages to develop future business for the strategic renewal of the parent company.

After a theoretical framing of the strategic renewal challenge and the key concepts to address it through innovation, the following case study from practice presents the enhanced innovation management system for R&D at the German industrial and automotive supplier 'Schaeffler Group'. The case analysis shows specific organizational measures within the levers: portfolio, process, and people, to establish and apply the required dynamic capabilities for successful "Innovation-to-business" in the sense of innovative R&D-projects with a high strategic contribution for the future business.

## **2** Theoretical framing

#### Strategic renewal as imperative in uncertain and dynamic environments

Traditional strategic planning and development approaches focus on the exploitation of sustainable competitive advantages, such as specific technologies, processes, customer relationships, and similar factors of the competitive positioning. However, the sustainability of such competitive advantages fades in today's uncertain and fastchanging environments (Dogan, 2017; Glaser et al., 2015; McGrath, 2013). To secure their profitable growth in the future, established companies must thus engage in new approaches for strategic renewal to continuously adjust the status quo of the competitive positioning through the development of new competitive advantages (Schmitt et al., 2018; Agarwal & Helfat, 2009). Generally, such competitive advantage can be defined as a monetary or non-monetary value difference between a companies' market offer and competing offers (Kraus & Kauranen, 2009). For technology-driven companies such as manufacturing and industrial firms, this means especially the development of relevant new business that exploit current opportunities in the environment with key assets from the company. Such new business refers specifically to new technology/market combinations (including products, services, and business models) that are new to the company, its industry, or globally - in contrast to improvements of existing products, new processes, incremental business model changes, or other forms of innovation that do not change, but rather exploit the current competitive positioning (Kuratko et al., 2009). Developing such new business usually poses a major management challenge for these companies, as they are traditionally organized for the efficient exploitation and incremental optimization of the existing business. To address this challenge, they must therefore develop and apply a capability for strategic business innovation to continuously

develop new competitive advantages for future growth in an organized and systematic way (Cantarello et al., 2012; Vanhaverbeke & Peeters, 2005; Boer & Gertsen, 2003).

Such 'innovation-to-business' can take place in dedicated innovation functions or units such as R&D or NPD that are tasked with the creation of organizationally consequential new business for an existing organization (Birkinshaw et al., 2016; Gutmann, 2019; Hill & Georgoulas, 2016; Weiss & Kanbach, 2022). However, empirical evidence for the specific organizational setup of such strategic innovation functions in practice is still rare (Weiss & Kanbach, 2022). A relevant gap remains in research and practice for successfully leveraging R&D, NPD, or similar innovation functions for strategic renewal. However, popular key concepts for strategic renewal already provide the basis to define the required organizational capabilities and characteristics for successful innovation-to-business.

## Dynamic capabilities for strategic renewal

One key concept for successful strategic renewal lies in the establishment and application of so-called dynamic capabilities. This concept describes that new competitive advantage stems from a companies' ability to (continuously) integrate, build, and reconfigure internal and external resources and competencies through specific organizational capabilities (Agarwal & Helfat, 2009; Schmitt et al., 2018; Teece, 1997). These are usually built through distinct skills, organizational processes and procedures, behaviors and routines, structures which the whole organization and/or specific organizational functions or units develop and deploy (Schoemaker et al., 2018; Teece, 2007; Teece & Pisano, 1994).

When aiming for a clear strategic contribution, innovation functions such as R&D or NPD should establish and apply the required set of dynamic capabilities. Based on the pivotal article from Teece (2007), this set should include specific 'sensing', 'seizing', and 'transforming' capabilities to identify, develop, and implement solutions for emerging business opportunities (Table 1). Weiss et al., (2023) specify these capabilities more specifically for strategic innovation functions and units and propose 'scoping' and 'configuring' as additional capabilities that provide the required strategic direction for the subsequent innovation development (Table 1).

Scoping	Configuring	Sensing	Seizing	Transforming
Ability to define the strategic contribution of the innovation function/ unit and specify it through strategic objectives	Ability to (re)prioritize the innovation portfolio based on strategic evaluation criteria, and allocate resources accordingly	Ability to systematically derive new opportunities from the combination of environmental changes with internal strengths & weaknesses	Ability to develop, test, and iterate new market-/ technology- combinations in a customer- centric manner to address selected opportunities	Ability to successfully implement and scale the developed new business with the required (adapted) processes, resources, and competencies

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#### Ambidexterity for strategic renewal

As a second theoretical key concept, so-called organizational ambidexterity deals with the challenge of established companies to engage in the exploration new future competitive advantages for their future business (exploration), while they must exploit their current competitive advantages to run their existing business (Schmitt et al., 2018; O'Reilly & Tushman, 2013). These activities are difficult to combine, as exploration requires flexibility, autonomy, and continuous adjustment, while exploitation builds on established and optimized processes and routines (March, 1991).

The concept of 'organizational ambidexterity' describes different ways to achieve this combination, either by separating and re-integrating exploration and exploitation (trade-off view), or by simultaneously applying exploration and exploitation (paradox view). These two approaches can be applied either for the whole organizations (respectively, all its employees), or for specific organizational entities (functions, units). Therefore, four organizational setups for ambidexterity can be identified within the existing literature (Figure 1).

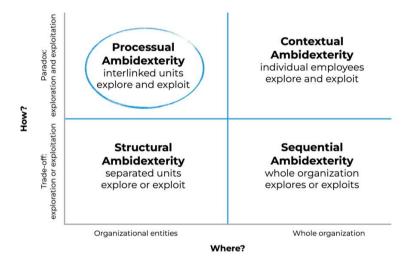


Figure 1 Organizational setups for ambidexterity.

From these different organizational options, 'processual ambidexterity' is the most relevant for strategic innovation functions, as it allows them to combine exploration and exploitation within their unit to leverage competitive advantages from the existing business to develop new competitive advantages for the future business (Eisenhardt et al., 2010; O'Reilly & Tushman, 2013). This requires organizational interlinks with the internal environment (top management team/strategy, business units and functions), as well as with the external environment (start-ups, investors, research institutions, etc.), as well as suitable processes and methods for exploration and exploitation. To successfully implement "innovation-to-business", innovation functions or units such as R&D or NPD must therefore adopt the paradox view with a suitable organizational setup.

# Leveraging innovation functions for strategic renewal

To address the need for strategic renewal through strategic business innovation, the responsible innovation functions or units must incorporate the required dynamic capabilities and organizational ambidexterity through suitable organizational measures. Based on a recent study of several strategic corporate venturing and innovation units from Weiss et al. (2023), these measures lie in seven specific organizational levers:

- 1. *Defined strategic frame:* The strategic frame defines the required strategic contribution of the innovation function/unit. Based on the company strategy, this typically includes a clear mandate with strategic objectives for the innovation activities, that are aligned with all relevant decision-makers involved in the innovation activities. This strategic frame should then be operationalized as evaluation criteria to be used in the continuous steering of the innovation activities and continuously updated.
- 2. Interlinked organizational structures: Ensuring the ability to leverage the existing business (exploitation) for the development of new business (exploration) requires suitable organizational structures and interfaces that allow for interdisciplinary, cross-functional, and project-based work. These requirements can be addressed through the flexible organization of the innovation function or unit itself, as well through suitable formal and informal interlinking mechanisms to exchange with the top management team, business divisions/functions, and the external environment.
- 3. Agile steering/ governance systems: A suitable governance system and steering process aligns all innovation activities to the strategic frame. Typically, this includes a structured and practically usable innovation portfolio management that provides an overview of all innovation opportunities and projects, and their current evaluation in comparison with each other. A suitable governance process allows for a continuous assessment of this portfolio with all relevant stakeholders through structured decision-making for the prioritization and selection of innovation activities, and the corresponding allocation of resources.
- 4. Available resources and infrastructure: To successfully establish and apply the dynamic capabilities for strategic innovation, R&D, NPD, or similar innovation functions or units, they need to access necessary financial, physical, digital, and human resources. This may include a target-based autonomous budget and organizational slack in the headcount to flexibly distribute resources between innovation activities but could also manifest in project-based resource allocation or other defined access to resources.
- 5. Systematic processes and methods: The targeted, structured, customer-centric, and agile development of new business innovation requires a systematic innovation process with suitable methods & tools. To allow for the required strategic contribution, the processes should specifically include activities for strategic planning and analysis in addition to the problem definition, ideation and design of solutions, and their development and implementation. Decision gates between different steps of the process should ensure the continuous assessment of the innovation opportunities and projects within the broader innovation portfolio management to avoid strategic misalignment.
- 6. *Suitable hard and soft skills:* The skills and competencies of the available personnel must fit with the strategic mandate of the innovation unit/function.

This includes specifically subject matter expertise for both new markets and new technologies, for instance with combination of technical and business expertise. Due to the fluctuating topics, so-called creative generalists should be able to work on a variety of topics and connect the dots to identify and develop new strategic opportunities, which can then be addressed through more specific subject matter experts. In addition to these specific "technical" skills and competencies, engaging suitable personality traits and encouraging diverse perspectives for successful innovation are critical success factors. The innovation function/unit must therefore determine the required competencies, skills, and personalities, and source them through suitable measures, including recruiting, upskilling, or outsourcing.

7. Empowering work-environment: A supportive working environment is the basis for the successful implementation of all the above-mentioned organizational levers. Suitable measures should ensure the optimal employee satisfaction, as this correlates with high creativity, productivity, and generally realization of potential. These measures usually cover aspects such as a positive work- and leadership culture, agile collaboration and cooperation, flexible work design, motivational support ensuring high autonomy and competency, individual development opportunities and an optimal work-life balance. Furthermore, specific innovation leadership principles should be applied to ensure the continuous optimization and realization of the intended working environment, including employee support, empowerment, and performance management.

All organizational measures within these organizational levers must play together to enable the required dynamic capabilities and processual ambidexterity for successful innovation-to-business. Therefore, it is best to regard them as a holistic innovation management system, which can be summarized as a practice-oriented framework (Figure 2). This provides the basis for R&D, NPD, or other innovation functions/units to plan, execute, and continuously improve their organizational setup for the successful development of new competitive advantages for the parent company.

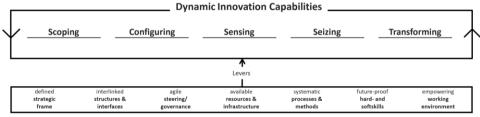


Figure 2 Dynamic Innovation Capabilities and Organizational Levers.

## 3 Case description

The following case study from Schaeffler Group provides practical insights into the development and implementation of the required capabilities for 'innovation-to-business' through specific organizational measures in the innovation management system.

The German Schaeffler Group is a global automotive and industry supplier with approximately 82,800 employees and a turnover of 15.8 billion Euro. The company

develops and manufactures components, systems and services for powertrains and chassis, rolling and plain bearing solutions as well as repair solutions for the automotive spare parts market. (Schaeffler AG, 2022)

Like the whole industry, Schaeffler is dealing with increasingly fast-changing and uncertain environments driven by exponential technological growth, shorter product life cycles, ever-changing customer demands, as well as (geo-)political and environmental uncertainties. Accordingly, Schaeffler faces the ambidexterity challenge to enhance and leverage its innovation capabilities to continuously develop new competitive advantages, i.e., new products, services, and business models, while continuously strengthening and improving its core business.

Technology and innovation are and always have been at the core of the company, and innovation is deeply rooted in the corporate values (Schaeffler AG, 2023a). In the past, Schaeffler could rely on its elaborated traditional innovation instruments to bring these values to life with a large R&D division to develop new products and technologies. These were often either based on clearly expressed requirements from existing customers ("market-driven") and/or based on the development of technological core competencies ("technology-push"), and thus led relevant improvements within the existing market/technology-combinations.

Under the described circumstances of volatility, uncertainty, complexity and ambiguity, the company has recognized the need to strategically prioritize innovation, agility, and efficiency (Schaeffler AG, 2023a). In this context, the traditional innovation instruments and structures are no longer sufficient. They need to be adapted and extended to achieve a faster and more open, flexible, and customer-driven innovation system that provides a clear strategic contribution. Therefore, a suitable innovation management system should enable the R&D division to increase the strategic impact of its innovation projects and develop new competitive advantages in the form of new market/technology-combinations for the future of the Schaeffler Group as a leading technology company. Thus, to increase the match between market needs and technology competencies, and the resulting business impact of innovation, the company developed their innovation system for more targeted, systematic and successful innovation, or in short successful 'innovation-to-business'.

# 4 Solution

Based on the presented theoretical frameworks and existing best practices within the company, the Schaeffler Group worked together with the management consultancy venture.idea to enhance and adjust several parts of its innovation management system to increase the value creation for customers, secure future profitable growth for the company, and increase the sustainability of the product portfolio. Accordingly, the case study provides insights into how Schaeffler strengthened their dynamic capabilities for innovation, in particular with regards to Scoping, Configuring and Sensing, and implemented their enhanced innovation management system which follows the new unique innovation-to-business formula of Schaeffler:

#### **P<sup>3</sup>:** (Innovation) Performance = Portfolio x People x Process

#### Portfolio management as key for prioritization and selection

A structured, visual innovation portfolio management ensures the strategic evaluation, prioritization, and selection of R&D-activities and the corresponding allocation of resources. To achieve this, the portfolio management must reflect the relevant strategic topics and evaluation criteria of Schaeffler. Accordingly, it is based on five global trends: Sustainability & Climate Change, New Mobility & Electrification, Autonomous Production, Data Economy & Digitalization, Demographic Change. Those trends were used to identify and define eight innovation clusters as relevant strategic search fields for innovation (see Figure 3). The innovation clusters should provide orientation for all R&D activities with particular focus on future trends and market needs. More detailed subcluster structures help to narrow down these strategic search fields into specific market/technology opportunities, including first insights about potential addressable markets and competency fits.

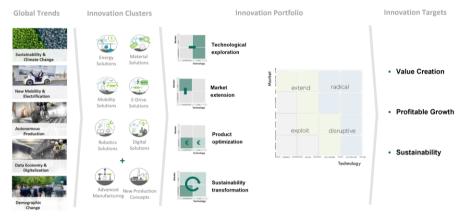


Figure 3 Innovation-to-business targets and strategies.

Within and across those innovation clusters, innovation opportunities and projects are assessed against a set of strategic evaluation criteria already in a very early phase of innovation. The portfolio visualization shows the degree of newness with regards to technology (x-axis) and with regards to market (y-axis), differentiating four levels: established, adjacent, new to Schaeffler, new to the world. The additional color code for the project type generates transparency about how much the company is investing in new technologies and/or in new and emerging markets and can be used as tool for continuously monitoring and developing the innovation strategy. In addition, innovation activities are also evaluated with regards to potential revenues, profitability, capital intensity, competition, sustainability aspects and chances of success. All these strategic evaluation criteria were derived from the company strategy and aligned with all relevant stakeholders and decision-makers to ensure a common language when discussion innovation activities and their strategic value contribution.

Even with high uncertainties in the front end of innovation, such structured assessments of the opportunities and projects are possible based on initial data points and prior experience, especially relative to each other. Even without certain knowledge about the specific outcome or return on every innovation activity, this creates transparency about potentials and efforts, aligns expectations and directions for all following efforts, and helps to define risk-mitigating measures early-on. As an interactive instrument, the portfolio management with various portfolio assessment and analysis possibilities thus supports a structured decision-making for the prioritization of innovation activities, and corresponding allocation of resources with all relevant stakeholders and decision-makers.

Hereby, the overall portfolio is used not only to communicate and prioritize topics within each innovation cluster, but also across all clusters (see Figure 2). This ensures that the company allocates resources to the most promising innovations independent of organizational boundaries or predetermined budgets. Furthermore, the involvement of relevant stakeholders in the portfolio management with defined touch points ensures their buy-in for later investments in innovation projects, and their subsequent execution which usually must take place within the existing organization to leverage its existing competitive advantages for successful commercialization and scaling.

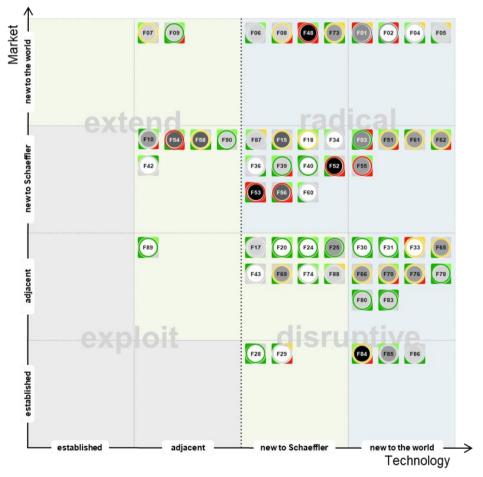


Figure 4 Exemplary portfolio at Schaeffler across innovation clusters.

#### Process for targeted and systematic development

Following a planned innovation logic, innovation projects are initiated and executed based on the defined portfolio strategy. Depending on the maturity of an innovation opportunity, it can be processed in one of three pre-defined project types for development: (1) research and innovation project, (2) advanced development project, (3) product development project. Together, they represent the end-to-end R&D-process from portfolio strategy to the transfer for production and commercialization.

To achieve "innovation-to-business", Schaeffler extended the front end of the innovation process to identify and focus on relevant strategic directions for the innovation efforts early-on in the process. Together with the portfolio management, this strategic part of the innovation process reduces and de-risks the following, more resource-intensive development and testing processes through early validation and selection. This includes specifically process activities and methodologies to identify novel opportunities to address a (sub-)cluster, specify them as "future options" with a first assessment of the market opportunity and relevant technologies, and develop them into concrete "innovation concepts" that present concrete possible (technological) solutions for relevant customer pain points within selected future options.

Selected innovation concepts are then further developed within their defined project types. The following later steps of the process were also enhanced with customer-centric, iterative methodologies to better integrate the market perspective in the traditionally technology-driven process the market perspective. These methodologies are reflected in specific formalized requirements, i.e., early pain point generation and validation, extended market testing (desirability, viability), customer centric iteration (pilots, market tests).

Specific decision gates and requirements are defined along the whole process in accordance with the portfolio management system. Thus, each innovation is evaluated within the portfolio framework early on, and updated based on the new, increasingly certain assumptions in each process step. These decision gates ensure especially the inclusion of relevant decision-makers and stakeholders that are crucial for the execution of the projects. That way, together with the portfolio management framework, these decision gates work as formal interfaces to the top management team, business divisions, and business functions which are quired for successful "innovation-to-business".

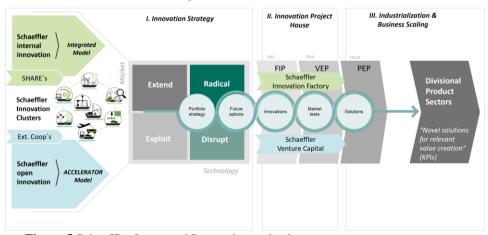


Figure 5 Schaeffler Integrated Innovation-to-business process.

## People empowerment through organization and culture

The described portfolio management and innovation process are embedded into an empowering organization and culture to support all involved people. The internal organization of the R&D function ensures continuous agility through cross-functional, flexible work and distributed decision-making. To achieve this, projects teams are structured around the defined innovation clusters and subclusters, each with a responsible cluster manager. As a subject matter expert for the markets and technologies within the respective cluster, the cluster manager steers the specific innovation portfolio and allocates teams and resources accordingly.

To ensure a strategic steering across all clusters, an innovation strategy team works as horizontal support function for the overall portfolio management and development. Steering committees have been implemented on several levels to make sure that a quick and efficient decision and commitment for the next stage can always be reached. Key for this is also a strong organizational interlinkage with strategy and top management, business divisions and functions, and the external environment.

To best leverage internal and external knowledge, the project teams in each cluster consist of personnel from the R&D function, as well as from the respective contributing business divisions and functions from Schaeffler. The company also actively engages in strategic partnerships with external partners to bring appropriate competencies and resources together for efficient innovation activities. For this, Schaeffler can build on long-term established relationships and partnerships with start-ups, external research institutions, venture capital investors and other relevant experts.

As such an agile organization requires high autonomy and self-management from the employees, Schaeffler continuously develops its innovation culture. For that, the company has developed a framework of structural and behavioral aspects which has been used to assess and develop innovation culture in a targeted and structured way (Gerhard et al., 2015). While previous focus fields of the new "innovation-to-business" approach (portfolio, process) already address certain cultural aspects, like improved transparency in decision making, clear assignment of responsibilities, and balanced resource commitment, we would like to further elaborate on some behavioral aspects of innovation culture.

Openness and a learning culture are a crucial element of innovation and thus are encouraged at the Schaeffler Group. While openness brings people in contact with new insights and enables them to explore, it is trial, eventual failure and learning that will lead to quick exploitation. Thus, multiple formats are in place to bring employees in contact with new impulses from internal (e.g., innovation events on recent developments) and external sources (e.g., supplier days, partnering events). The defined innovation clusters help to scope these activities. As discussed above, in particular in the early phases of innovation, fast learning is encouraged by the setup of the respective processes.

Another key aspect of innovation culture is determined by the relationship between employees and leadership. Schaeffler has developed their employee and leadership essentials based on an open culture of feedback and trust. The leadership essentials emphasize (1) Connect for success, (2) Empower your team, (3) Care for people, (4) Manage for results, (5) Drive the change and (6) Take on responsibility, as particularly important for the future of success (Schaeffler, 2023b). They are well aligned with the priorities and focus fields given in this article.

## **5** Conclusion

To ensure survival and future profitable growth in today's uncertain and fast-changing environments, established companies must leverage innovation functions and units such as R&D for the (continuous) strategic renewal of competitive advantages.

The provided theoretical framework describes a specific set of dynamic capabilities for strategic innovation, that can be established and applied through suitable organizational measures in certain organizational levers to design an innovation management system that allows to leverage existing competitive advantages for the development of future business, i.e., new technology/market-combinations. The described case study from Schaeffler Group shows the design of such an innovation management system in practice. That way, it illustrates how innovation functions or units such as R&D can be leveraged for the strategic renewal of the parent company by ensuring all required capabilities for successful 'innovation-to-business'.

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