Innovation from China Going Global

German Chamber's Innovation Survey 2022

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GERMAN CHAMBER of Commerce in China 中国德国商会

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PREFACE

This report, published by the German Chamber of Commerce in China in cooperation with BearingPoint, was made possible thanks to 386 member companies of the German Chamber of Commerce in China surveyed between February and March 2022. The innovation survey is a vital instrument for measuring the status quo, development, and quantifying the challenges and opportunities of innovation activities of German companies in China and qualifying them. It is the third survey by the German Chamber of Commerce in China addressing the topic of innovation, but the first China-wide analysis, incorporating case studies from member companies of the German Chamber of Commerce in China. The survey is representative for the German business community in China and offers practical recommendations for local innovation activities as well as strategies for headquarters in Germany. It was conducted in spring 2022 and thus to a large extent during the initial stage of the Russian war of aggression against Ukraine and prior to the extensive lockdown in Shanghai. Both will certainly have effects on long-term innovation strategies which are not reflected in this report. We understand further that our member companies are concerned about decoupling trends and are reacting by localizing research and development and adapting key technologies to the market in China, but it is an increasingly challenging balancing act between economic success and political framework conditions.

As the survey shows, rising customer demand is often met with supply chain disruptions, increasing regulations, and the continuously growing dominance of local players. In 2020, the Chinese government introduced ambitious CO2 emission targets for the country, and sustainability has become an important factor for consumers and companies in China. New regulations requiring data storage in China and restrictions on the processing of personal information are adding complexity to companies' IT systems and infrastructure. In this period of instability, innovation enables companies to stay ahead of the curve and achieve profitable growth.

Modern Chinese consumers are open to new products and services and have a high adaptability rate and a positive attitude toward change. Chinese companies implemented a swift idea-to-market concept to reflect the specific Chinese B2C and B2B requirements. German companies have adopted this concept, recognizing that innovation is the most effective tool to ensure continued competitiveness and enable future success in the Chinese market. The survey results and case studies also indicate that innovation capabilities in China are used to develop innovative products and services for global markets.

We want to use this opportunity to thank the participating member companies for their valuable contributions and the innovation snapshot companies for the detailed accounts of their operations in China. We trust the survey will provide valuable insights into the innovation activities of German companies in the country. It will also guide the Chamber's innovation strategy and projects moving forward so that we can better support German companies in their innovation activities in the years to come.

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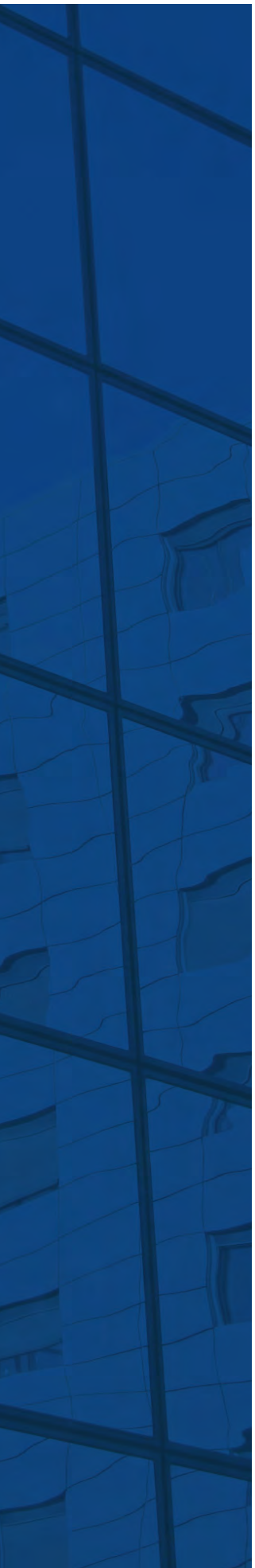

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COMPETITION - MAIN DRIVER FOR INNOVATION IN GERMAN COMPANIES

China is a competitive global innovation hub. The increasing innovation capacities of competitors is the most significant innovation driver for 87% of German companies in China. Over half of the surveyed companies consider local Chinese competitors stronger in terms of establishing and expanding local R&D capacities (55%), R&D processes driven by local teams (51%), and time-to-market of new products and services (50%). Nevertheless, most German companies (86%) consider the quality of their products and services as their strength compared to local competitors.

Responding to the Chinese market competition, 79% of German companies are enhancing direct sales and services, 70% agile product development, and 63% relocation of product development to China.

Cost-related factors are accelerating innovation from both supply and demand sides. From the supply side, increasing raw material costs (78%), growing labor costs (74%), and shortage of critical materials (63%) are rated as the top major innovation driving forces. From the demand side, increasing cost-conscious purchasing behavior is another significant innovation stimulator for 84% of the respondents.

CHINA'S REGULATORY ENVIRONMENT IMPACTS INNOVATION ACTIVITIES

Carbon emission-related penalties and incentives are significant regulatory drivers of innovation for 61% of the respondents. 88% in the automotive/mobility industry state that new energy solutions are crucial technology innovations that address these requirements.

IP protection remains a challenge for companies' innovation activities in China. 30% develop core technologies abroad and only adapt locally, hence protecting innovation activities from IP infringements. Half of the respondents (51%) are not impacted by these IP concerns when doing innovation. However, regarding innovation activities here in China, every 6th company (16%) is negatively impacted by IP protection, especially in the machinery/industrial equipment industry (21%). Taking into consideration how important constant innovation is here in China, this is a substantive amount.

EXECUTIVE SUMMARY

INSUFFICIENT EXTERNAL PARTNERS AND NETWORKS ARE A BARRIER TO INNOVATION

IP rights still concern German companies, and innovation-focused partnerships bear risks; thus, closed innovation like traditional internal R&D is the prevalent form of innovation for 83% of the respondents.

However, for two-thirds (68%) strategic partnerships are the most important when engaging in open innovation. German companies collaborate to the largest extent with parties who are closely tied to their organization: clients/customers (69%), suppliers (41%) and business partners (40%). Even though partnership innovation in the Chinese ecosystem is highly valued by 64%, the implementation lags behind: only 22% of surveyed companies have put it into practice.

This is consistent with the finding that a prominent innovation challenge for 37% of German companies in China is the lack of external partners and networks. This external innovation barrier is even more relevant for almost half of the surveyed small companies (49%).

KNOW-HOW ACQUISITION AND TRANSFER ARE PRIMARY INTERNAL INNOVATION BARRIERS

Know-how acquisition is the most challenging innovation barrier for German companies in China. It is reflected in the primary factor hindering innovation, the shortage of adequate qualified personnel (77%), and the need of companies in China for knowledge support from their headquarters. 52% of Chinese entities are requesting support from German headquarters for knowledge transfer and competency building, and 40% require more Chinese employees to be sent to Germany for training.

GERMAN COMPANIES EXPAND R&D IN CHINA FOR THE GLOBAL MARKET

China is not only an important market for German companies to conduct local research and development but also an emerging hub for global markets. Nearly half of the respondents state they do research (49%) and development (52%) in China for the Chinese market. Roughly one-third of respondents do research (25%) and development (33%) in China for global markets. Furthermore, 43% of German companies demand more autonomy from the HQ in innovation activities. One-quarter (24%) even wish for the Chinese subsidiary to be able to do global R&D.

CALL FOR ACTION: GERMAN COMPANIES

In order to keep up with the **local competition**, the establishment and/or expansion of local innovation activities is essential. This can include:

Globalize your local learnings: Expand learnings from the Chinese market internationally such as China speed, the digital demands, and technical means as it may give you a competitive edge in other markets.

Look into your innovation strategy: Investments of local competitors and German companies into R&D are equally strong, however, the output of local competitors is regarded as stronger in terms of the R&D capacity and local teams. Monitor and perform in-depth analysis of the allocation of resources and investment with regards to output.

Close the local expertise gap: Focus on strengthening local expertise and local teams, diversify your teams.

Increase your brand awareness: To increase your impact on local customers and to build up a strong employer brand to attract local talents.

Speed up: Your quality is a precondition and competitive advantage, but faster development cycles and time-to-market product implementation is a must to keep up with the Chinese competition.

Selectively develop products in China for competitive time-to-market speed: Chinese competitors are stronger in time-to-market of new products. As the majority of German companies, especially SMEs, still develop their new products and services in Germany, a localization of the development would significantly enhance capacity to compete. This step needs to be preceded by thorough risk analysis.

Enter in targeted partnerships as possible solutions to tackle innovation challenges: Consider selected partnerships to increase your competitiveness in local expertise and personnel, reactivity and adaptability to the market.

Engage with the customer: Co-develop your products and services with your customers.

CALL FOR ACTION

Keep up with China speed through direct and agile sales: Traditional sales are outdated. Develop your new business models and enhance your marketing innovation with direct customer interaction.

Protect your IP: Intellectual property and its protection is key to your sustainable growth in China, make sure you understand the tools available to protect your IP. Small and medium sized companies should focus on building up IP protection and data security standards in China to enable a safe know-how and resource exchange and competence building of the subsidiary, while larger companies should constantly maintain the high level of IP protection and data security standards and review related risks of knowledge transfer.

Upgrade your risk management: Understand the risk involved in localization of R&D and IP, assess potential business partners carefully and have a detailed understanding of your supply chain.

CALL FOR ACTION: CHINESE GOVERNMENT

Level playing field: Ensure a level playing field (e.g., with transparent regulations and equally distributed information) where German companies have the same conditions as Chinese competitors.

Reliable institutional framework: Further address regulatory uncertainty. Especially improve protection of intellectual property for companies to incentivize more innovation.

Lack of qualified personnel: Strengthen and develop MINT education. Increase practical knowledge in universities, e.g., more internships for university students. Enhance reputation of “blue collar”/ production workers (for engineering of R&D applications). Reevaluate hukou policies and assist companies with implementation.

Flow of data: Proper R&D can only work with a free flow of information between countries. Cybersecurity and data protection regulation should be clearly defined and not unnecessarily limited to flow of business information between headquarters and its China entities.

International travel restrictions: Proper R&D can only work with a free flow of people between countries. Shorten quarantine times in a scientific and controlled manner. Increase vaccination rates. Establish green channels for HQ personnel to China.

R&D and innovation-related subsidies and incentives: Ensure that companies are well-informed by their local government in a timely manner (e.g., with briefings, databases, personalized reach out).

INNOVATION IN THE CHINESE MARKET: DRIVERS AND BARRIERS

1

The Chinese market is dynamic, competitive, and continuously evolving. German companies need to be fully prepared for potential market threats, as well as for opportunities. Under such circumstances, the practice of transforming innovation from conception to implementation has kept rocketing. Understanding the drivers and barriers and the derived potential innovation impacts in the Chinese market is significant for further development.

1.1 INNOVATION DRIVERS

Understanding innovation drivers is necessary to ensure taking the correct strategic direction, predicting outcomes, making reasonable investments and executing an action plan. What matters is not only a deep understanding of macro issues like regulations and technological trends but also insightful knowledge of market dynamics from both the demand and supply sides.

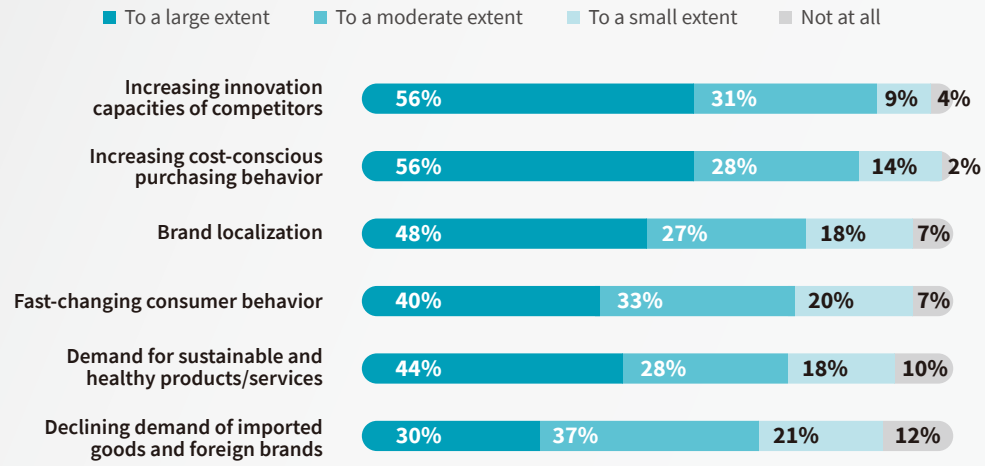
INNOVATION DRIVERS FROM THE DEMAND SIDE

Competition and consumer-related factors in the Chinese market are fueling German companies' innovation. The increasing innovation capacity of competitors seems to be the most significant driving force of innovation to a large and moderate extent, rated by 87% of surveyed companies (the competitive environment will be further analyzed later in this chapter). In terms of consumer-related factors that foster innovation to a large and moderate extent, cost-conscious purchasing behavior (84%), brand localization (75%), fast-changing consumer behavior (73%), demand for sustainable and healthy products/services (72%), and declining demand for imported goods and foreign brands (67%) are high on the list (Figure 1.1, for further analysis see figure A.1 in appendix). Those findings are supported by the continuous trend of German companies catering to Chinese customers by producing for the Chinese market and engaging in local production.

Figure 1.1

Increasing innovation capacity of competitors is the main driver for innovation

To what extent is innovation in your company driven by the following market developments in China? (n=351)



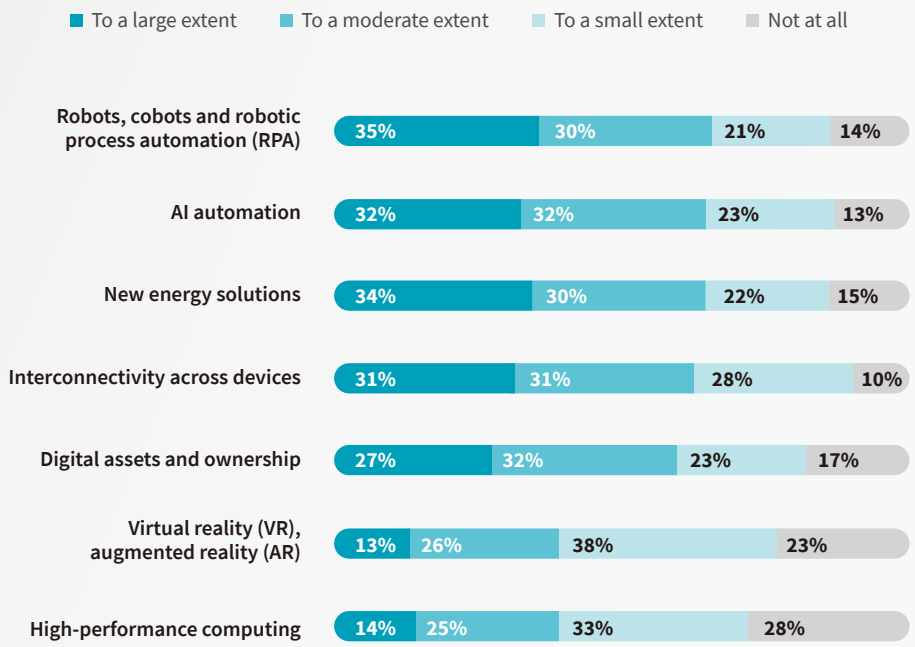
Note: Drivers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

A broad range of technological developments fuels innovation activities in China. When asked about the extent to which technologies drive innovation, robots, cobots and robotic process automation (RPA) (65%), AI automation (64%), and new energy solutions (64%) are the top 3 on the list (Figure 1.2). As RPA and AI automation are known for freeing people from repetitive work, increasing operational efficiency and enhancing accuracy by minimizing human error and its costs, German companies are harnessing these technologies to improve labor usage and operational efficiency.

Figure 1.2

Technology trends are demanding innovation in China

To what extent do the following technology trends require innovation activities in your company (n=341)



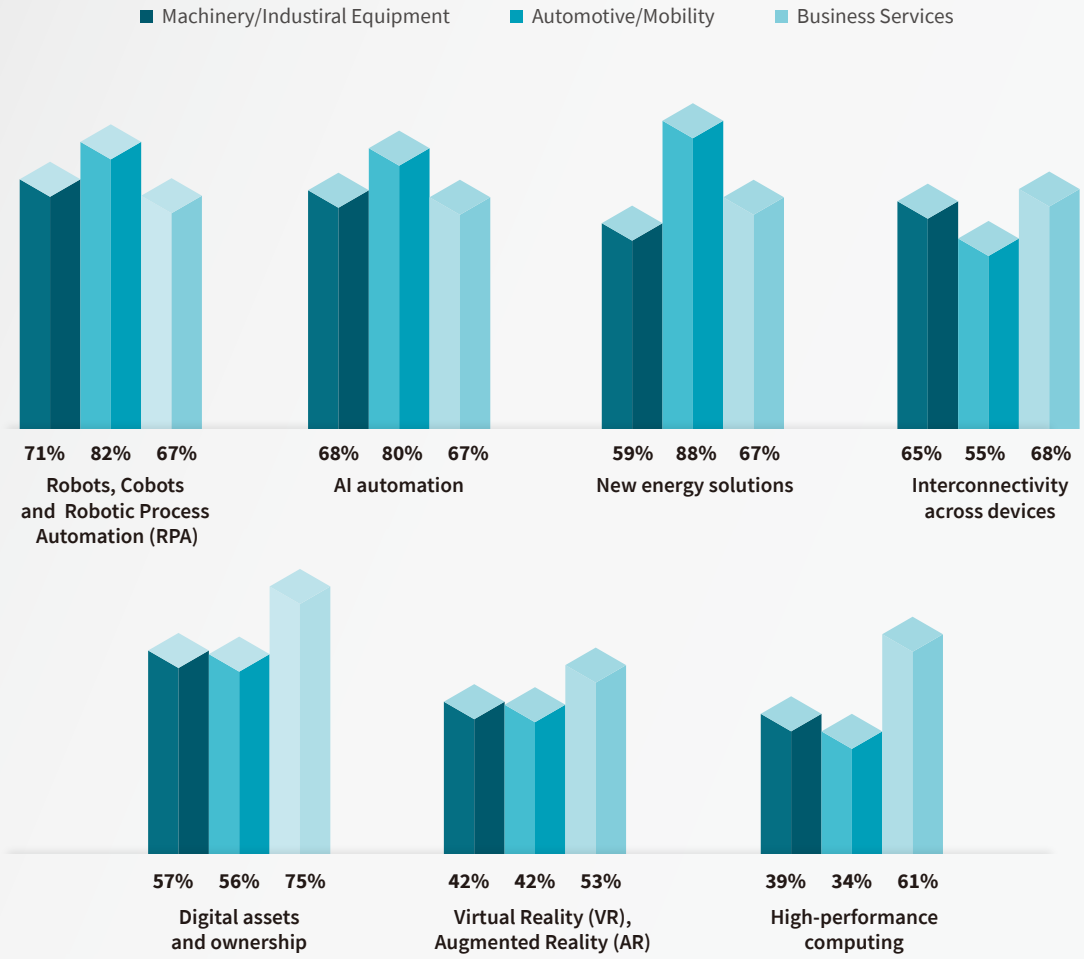
Note: Drivers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent". The complete results can be found in the appendix, Figure A.2. "Not applicable" responses are excluded.

Industries are responding to technology trends to different degrees. The automotive/mobility industry is responding considerably more than other industries to the top 3 technology trends, especially new energy solution technologies (88%), to adhere to the regulations related to carbon emissions. China has pledged to reach its carbon emissions peak by 2030 and achieve carbon neutrality by 2060. The automotive/mobility industry will play a critical part in achieving these goals by producing renewable energy cars. In contrast, business services industry respond much more to digital assets and ownership (75%) and high-performance computing (61%) than other industries (Figure 1.3).

Figure 1.3

New energy solutions are prominent innovation stimulators in the automotive/mobility industry

To what extent do the following technology trends require innovation activities in your company in China? (n=341)



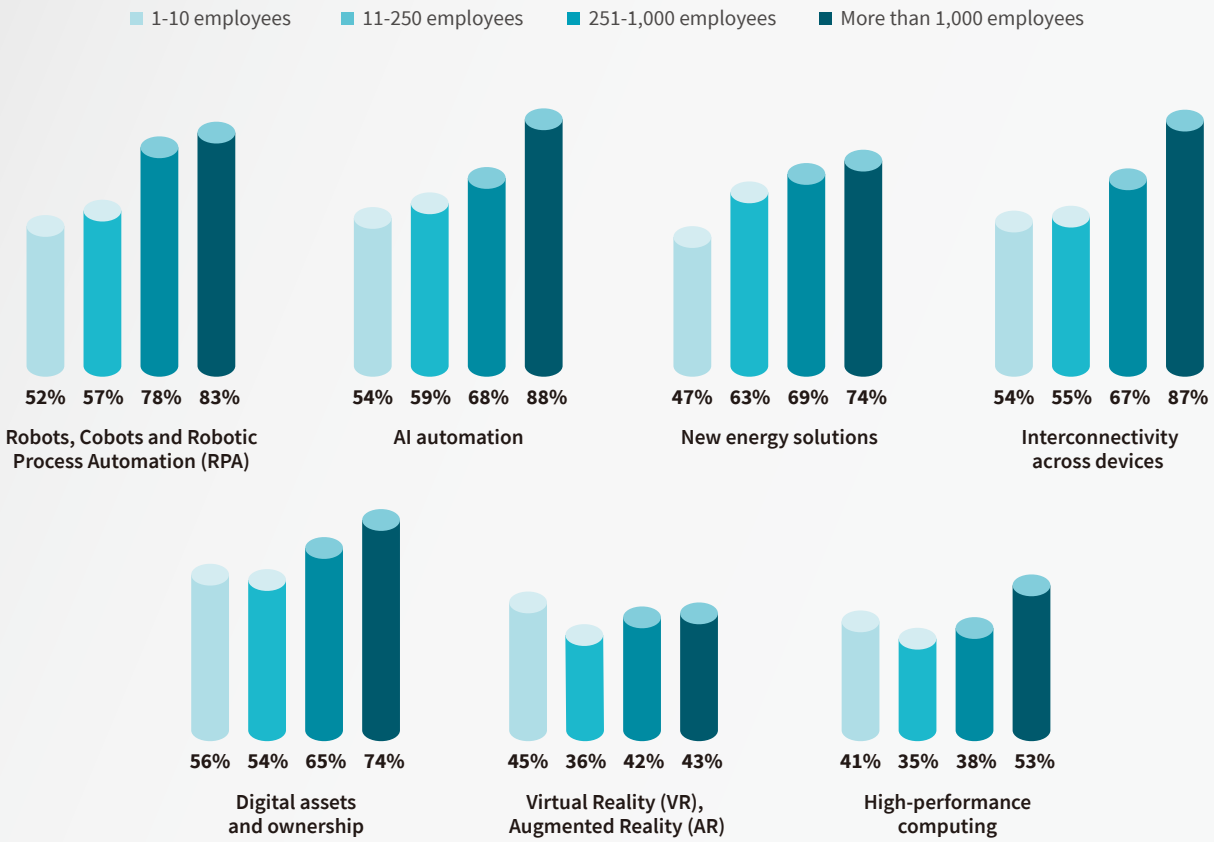
Note: The percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

When analyzing the responses by company size, it can be noted that technologies are steering more innovation for medium (251-1,000 employees) and large companies (1,000+ employees). In contrast, technologies are less relevant for smaller companies as innovation drivers. Large companies are responding to AI automation (88%), interconnectivity across devices (87%) and robots, cobots and robotic process automation (RPA) (83%) the most (Figure 1.4). Medium and large German companies demand more scaling effects and likely have more financial means to adopt those technologies.

Figure 1.4

Medium and large companies are demanding more innovation in technology than small companies

To what extent do the following technology trends require innovation activities in your company in China? (n=341)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

REGULATORY IMPACTS ON INNOVATION

German companies operating in the Chinese market must adjust their operations and strategies, including their innovation activities, according to regulatory requirements.

Travel restrictions are among the top operational business challenges of German companies in China according to the German Chamber of Commerce in China's Business Confidence Survey 2021/2022. Travel restrictions toward foreign and local personnel negatively impact foreign investment, mutual understanding, as well as the expected growth of the Chinese economy. The hampered knowledge exchange due to the travel restrictions also highly impacts (70%) innovation activities of German companies in China (Figure 1.5). Travel restrictions reinforce the shortage of qualified staff at local companies which subsequently challenges innovation activities (see Figure 1.19).

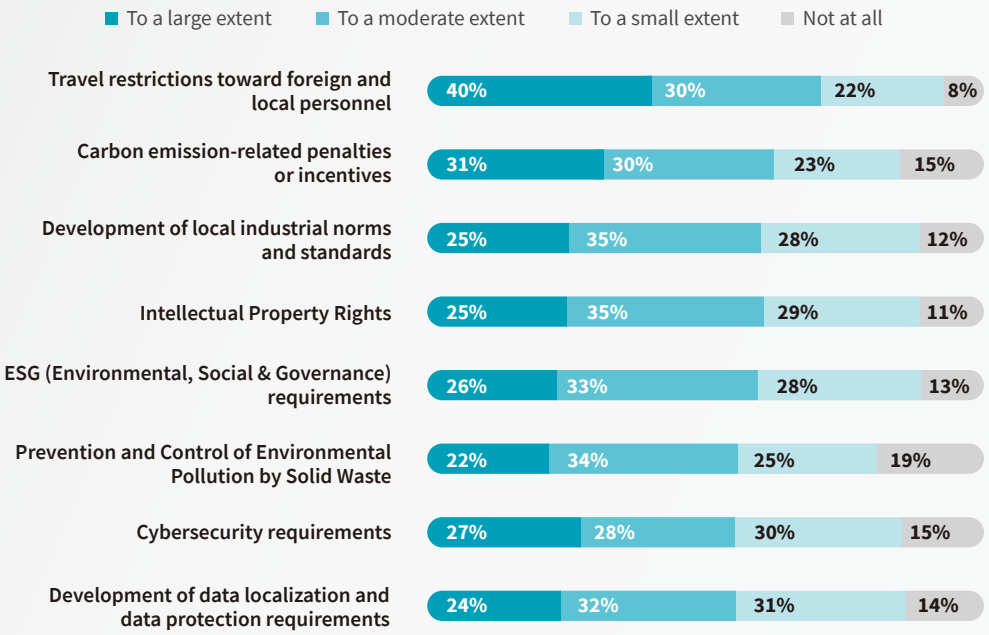
As a result, German companies have to adjust their approach to innovation by e.g., further localizing their activities.

Environment-related regulations further require adjustments and enhancements of innovation activities. Carbon emission-related penalties and incentives (61%), ESG (Environmental, Social & Governance) requirements (59%), and Prevention and Control of Environmental Pollution by Solid Waste (56%) are demanding innovation from German companies (Figure 1.5). This is particularly relevant in the automotive/mobility industry (Figure 1.6), which is in line with the automotive/mobility industry being especially active when it comes to new energy solution technologies (Figure 1.3). Besides incentivizing cars powered by renewable energy, China also encourages carbon emission reduction during the product life cycle, including the production process. A CO2 emission trading system was also introduced in 2021 and is being promoted to address China's objective.

Figure 1.5

Environment-related regulations require innovation by German companies

To what extent do the following regulatory updates require innovation activities in your company in China? (n=348)



Note: Drivers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent. 'Not applicable' responses are excluded.

Figure 1.6

Environment-related regulatory updates are steering innovation in the automotive/mobility industry

To what extent do the following regulatory updates require innovation activities in your company in China? (n=348)

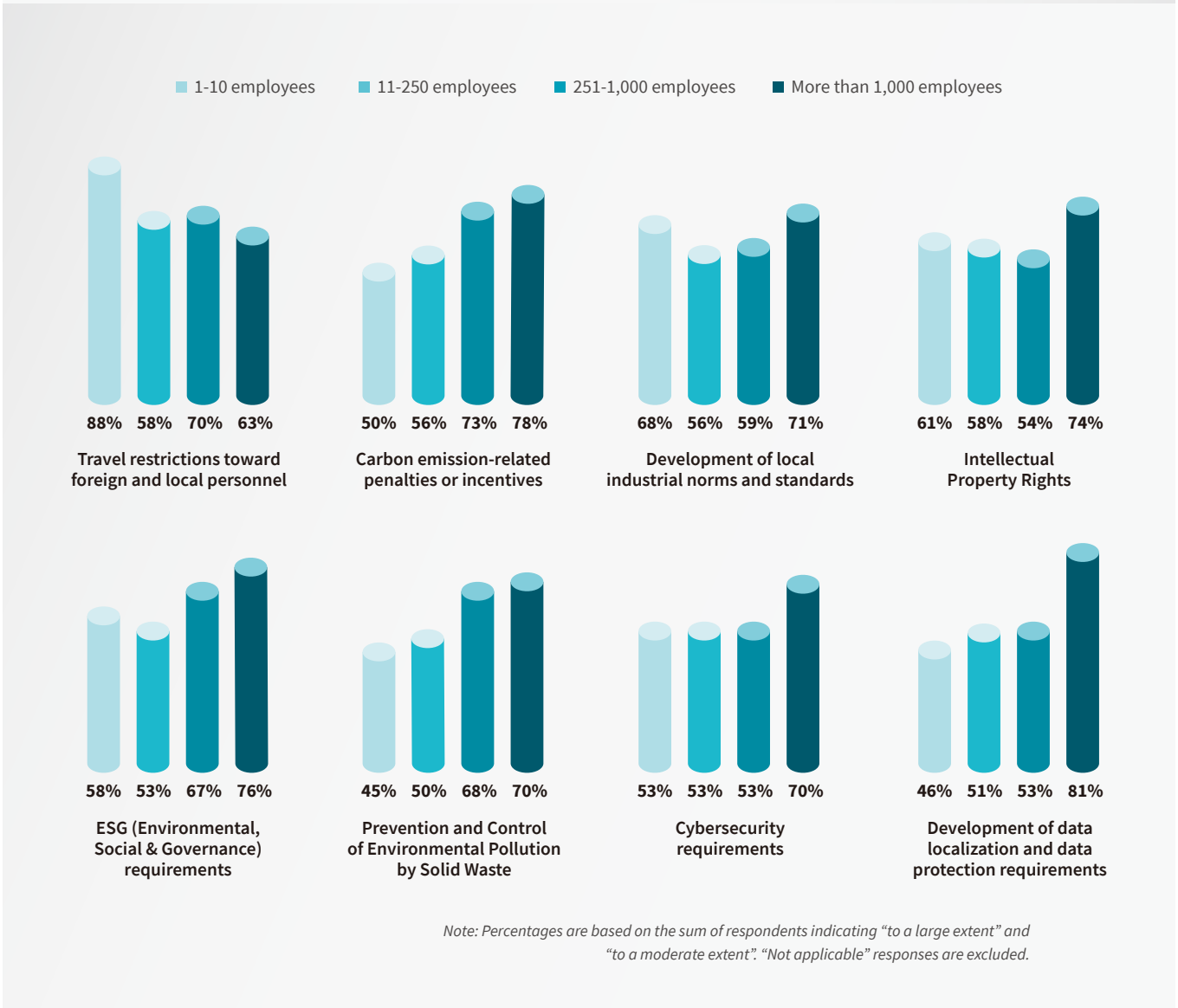
Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

Development of local industrial norms and standards (60%), development of data localization and data protection requirements (56%) are also on the list (Figure 1.5). In particular, large companies with 1,000+ employees (81%) are responding to the development of data localization and data protection requirements more than SMEs (Figure 1.7). China's Personal Information Protection Law (PIPL) came into force on November 1, 2021. The law establishes strict rules on data protection that restrict the handling of Chinese citizens' personal data and data localization, restricting storing and transferring personal information outside of China. Larger companies are likely to be affected the most as they have to establish their presence in China and use local servers to onboard Chinese users.

Figure 1.7

Large companies are responding to the development of data localization and data protection requirements more than SMEs

To what extent do the following regulatory updates require innovation activities in your company in China? (n=348)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

IP protection remains a challenge for companies' innovation activities. China has constantly been working on strengthening the IP protection rights over the last decades. For example, in 2022, the China National Intellectual Property Administration (CNIPA) released the 2022 National Intellectual Property Administrative Protection Work Plan to create a sound business environment. Half of the respondents (51%) are not impacted by IP concerns when doing innovation. 30% develop core technologies abroad and only adapt locally, hence protecting innovation activities from IP infringements. However, regarding innovation activities here in China, every 6th company (16%) is negatively impacted by IP protection in China (Figure 1.8), especially the machinery/industrial equipment industry (21%) is experiencing IP-related issues (Figure 1.9). Taking into consideration how important constant innovation is here in China, this is a substantive amount. in China, this is a substantive amount.

Figure 1.8

Every 6th company is negatively impacted by IP protection in China

How does IP protection influence the innovation activities in your company in China? (n=356)

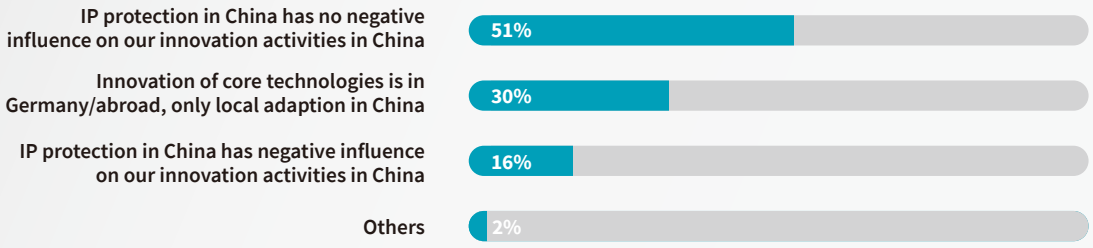
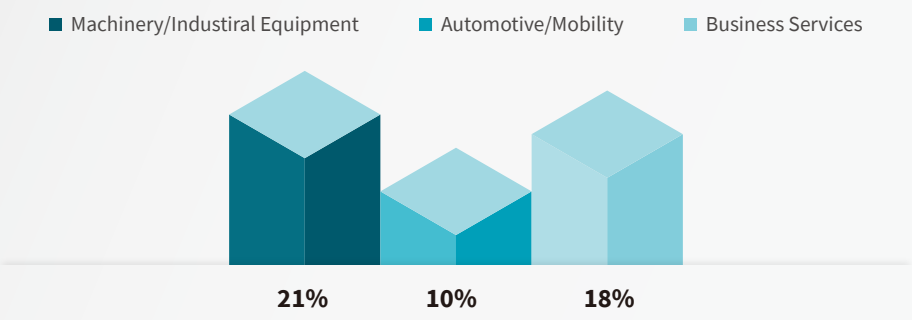


Figure 1.9

Machinery/Industrial equipment industry and business services are experiencing a higher negative impact of IP protection on innovation

How does IP protection in China influence the innovation activities in your company in China? (n=356)



Note: Percentages indicate "IP protection in China has negative influence on our innovation activities in China".

INNOVATION DRIVERS FROM THE SUPPLY SIDE

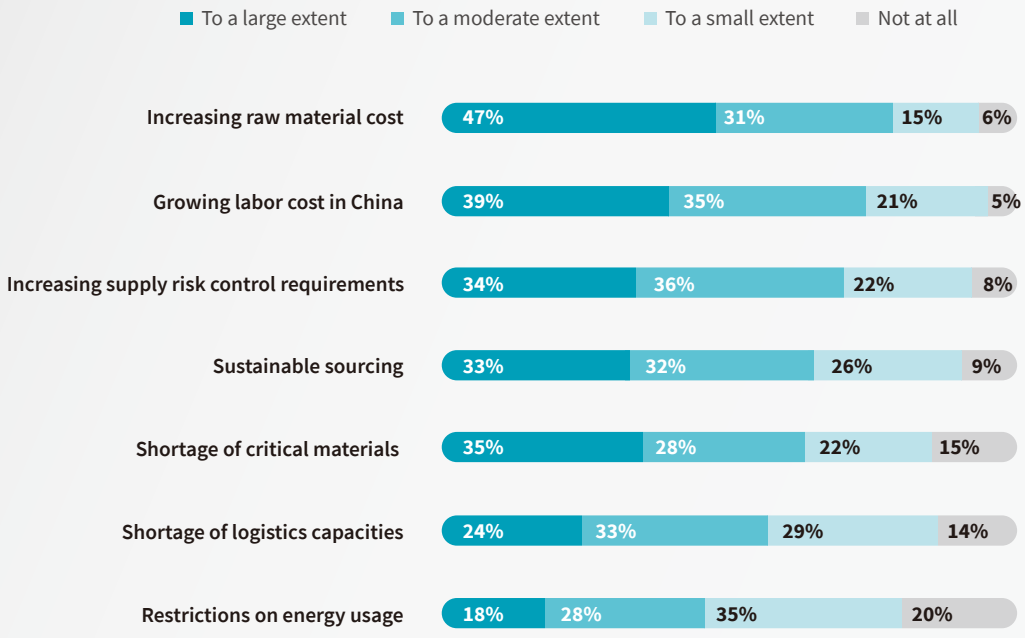
On the supply side, cost-related factors are prominently accelerating innovation. Traditional approaches for solving sourcing challenges appear to have reached their limits: companies are seeking new innovative solutions to tackle cost-related challenges. In particular, increasing raw material costs (78%), growing labor costs (74%), and shortage of critical materials (63%) are major innovation driving forces to a large and moderate extent (Figure 1.10).

Energy-related topics have been discussed a lot recently in China. The Chinese government has enforced restrictions on energy use to reduce carbon emissions to match its goal of carbon neutrality. Related to these measures, 46% of the surveyed respondents deem restrictions on energy usage as drivers for innovation activities to a large or moderate extent, but 35% to only a small extent and even 20% state that it is not driving innovation at all (Figure 1.10).

Figure 1.10

Increasing cost-related issues are driving innovation on the supply side

To what extent is innovation in your company driven by the following market developments in China? (n=351)



Note: Drivers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent." "Not applicable" responses are excluded.

COMPETITIVE ENVIRONMENT

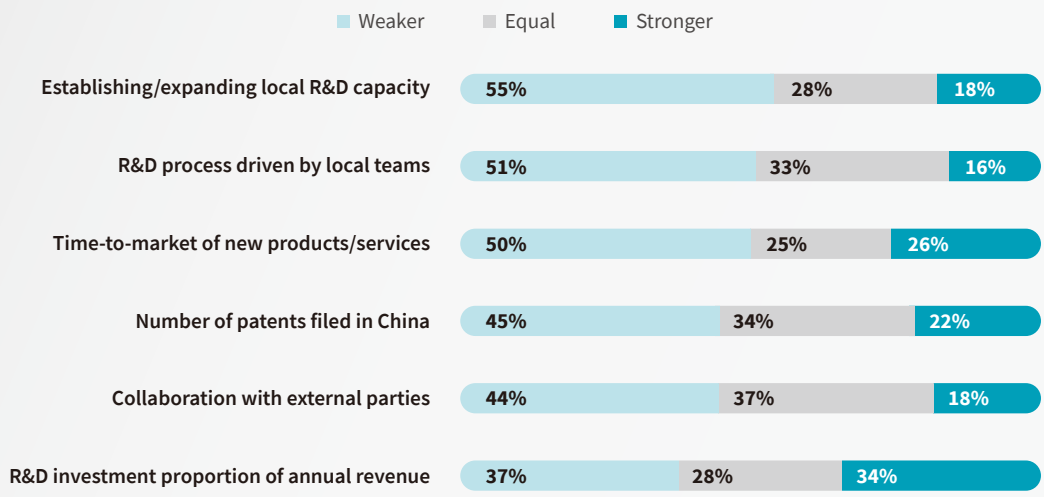
German companies face strong local competition in multifaced areas; one significant factor is local R&D performance. Over half of the surveyed German companies in China consider themselves weaker than their Chinese competitors in establishing or expanding local R&D capacities (55%), and R&D processes which are driven by local teams (51%) (Figure 1.11). Solid local R&D capacities and local-driven R&D processes could considerably accelerate the speed of local product development and better grasp the evolving market and customer needs.

Furthermore, it can lead to a shorter time-to-market for a new product or service[1], in which German companies are also lagging behind Chinese competitors. Moreover, the proportion of annual revenue that the surveyed German companies allocate does not necessarily correlate to a stronger local R&D performance since 34% of German companies consider themselves stronger than local companies in allocating R&D investment. Still, only 18% see themselves stronger in establishing and expanding local R&D capacity (Figure 1.11).

Figure 1.11

Stronger local performance and faster time-to-market are the strength of the local competitors

How do you compare your company in China to your local Chinese competitors in the following areas? (n=345)



Note: Factors are displayed in declining order of German companies indicating "weaker" in comparison to local Chinese competitor. "Not applicable" responses are excluded.

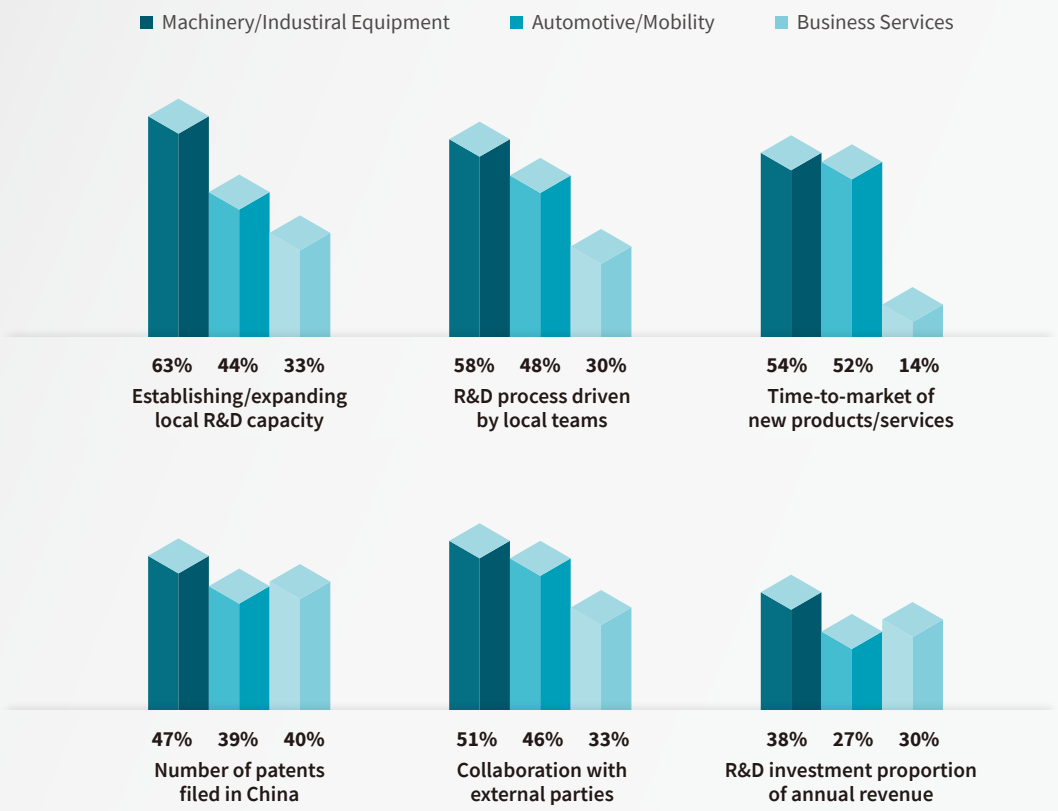
[1] *Massachusetts Institute of Technology. 2014. Accelerated Innovation: The New Challenge from China. [online] Available at: <https://sloanreview.mit.edu/article/accelerated-innovation-the-new-challenge-from-china/> [Accessed: 31 May 2022].*

The strong local competition is reflected quite differently among industries. Machinery/Industrial equipment and automotive/mobility face more local competition than the business services industry. Over half of the companies in the machinery/industrial sectors consider their companies as weaker compared to local companies in establishing or expanding local R&D capacity (63%), R&D process driven by local teams (58%) and time-to-market products/services (54%) (Figure 1.12).

Figure 1.12

Machinery/Industrial equipment industry is facing the strongest competition

How do you compare your company in China to your local Chinese competitors in the following areas? (n=345)



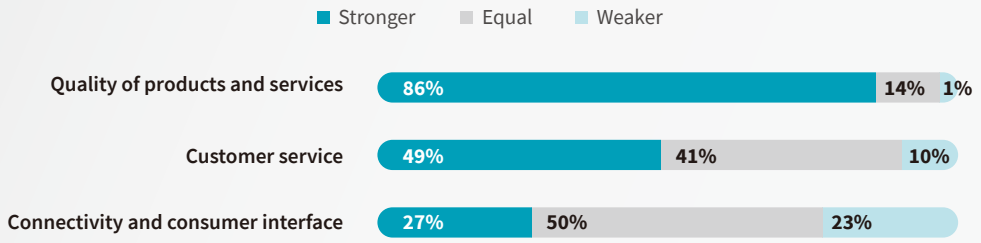
Note: Percentages are based on answers of respondents indicating German companies are "weaker" than local Chinese companies. "Not applicable" responses are excluded.

The vast majority of German companies (86%) consider their quality of products and services stronger than the local competition (Figure 1.13). Especially in the machinery/industrial equipment industry, where 90% of respondents rate their quality of products and services as stronger (Figure 1.14). The second strongest area is customer service (49%), which is especially apparent in the business services sector, with nearly two-thirds (63%) saying that their customer service surpasses one of the local competitors (Figure 1.13 & 1.14). Regarding connectivity and consumer interface, half of the German companies consider themselves comparable with local companies (Figure 1.13).

Figure 1.13

Quality of products and services is the primary competitive advantage of German companies

How do you compare your company in China to your local Chinese competitors in the following areas? (n=345)

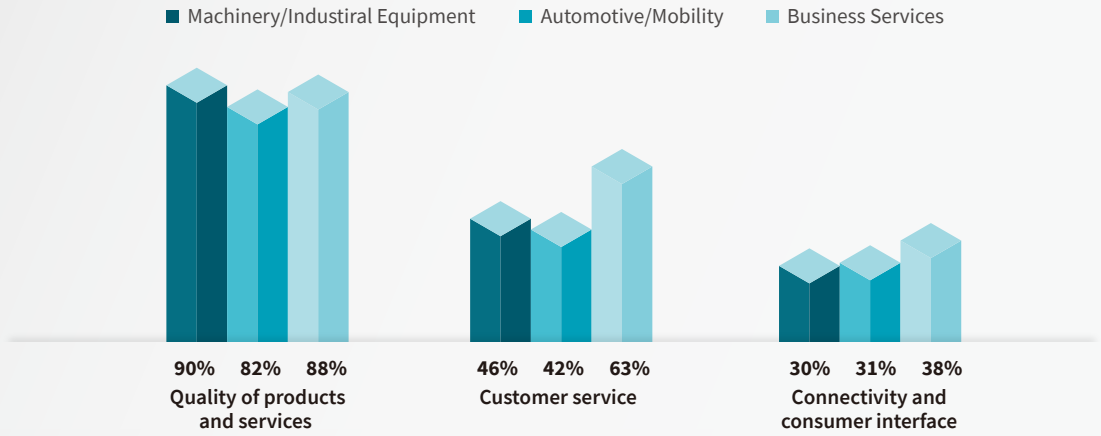


Note: Factors are displayed in declining order of German companies indicating "stronger" in comparison to local Chinese competitor. "Not applicable "responses are excluded.

Figure 1.14

German companies in the business services industry surpass local competitors in terms of providing customer services

How do you compare your company in China to your local Chinese competitors in the following areas? (n=345)



Note: Percentages are based on answers of respondents indicating German companies are "stronger" than local Chinese companies. "Not applicable" responses are excluded.

The blistering pace of expansion of China's economy in the past decades has impressed the world. This "China speed" is not only measured in terms of GDP development or the speed with which roads, bridges and skyscrapers are constructed, but also about how quickly China develops unprecedented technologies. Innovation is propelling "China speed" more than ever. The Chinese market continuously demands innovation in products, service development, and business model[2].

German companies are taking action to keep up with the fast pace of the innovation environment. In terms of business model, respondents enhance direct sales and direct customer service (79%) and adapt to China's social commerce system (55%) (Figure 1.15). Direct sales and services can improve product availability and enhance customer proximity, allowing companies to identify changing customer needs faster. Those responses are ubiquitous among the machinery/industrial equipment, the automotive/mobility, and the business service industry.

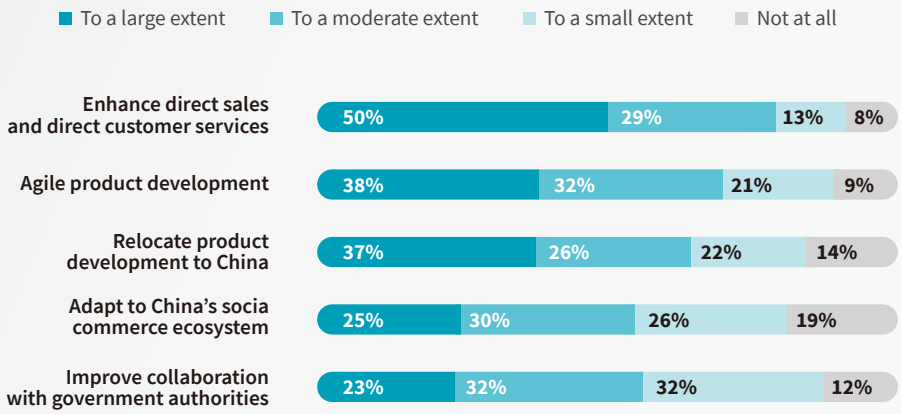
China is a powerhouse of social commerce. Social commerce by its nature is a social media platform that offers an e-commerce experience within the platform, such as WeChat, Xiaohongshu and Pinduoduo. It has become one of the most powerful beyond-sales channels that no business in China can afford to ignore. Social commerce industry in China is expected to grow by 38.5% on annual basis to reach US$363,547.3 million in 2022[3]. In this aspect, business services industry (70%) largely outperform other industries (Figure 1.16).

For product and service development, agile product development (70%), and relocation of product development (63%) are among the top actions that German companies are taking in reaction to "China speed." (Figure 1.15). They are prevalent in the automotive/mobility industry (Figure 1.16).

Figure 1.15

Companies are responding to "China speed" with direct sales, customer services and agile product development

To what extent is your company responding to "China speed" (the rapid economic and technological development) by taking the following actions? (n=348)



Note: Actions are displayed in declining order of the sum of "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

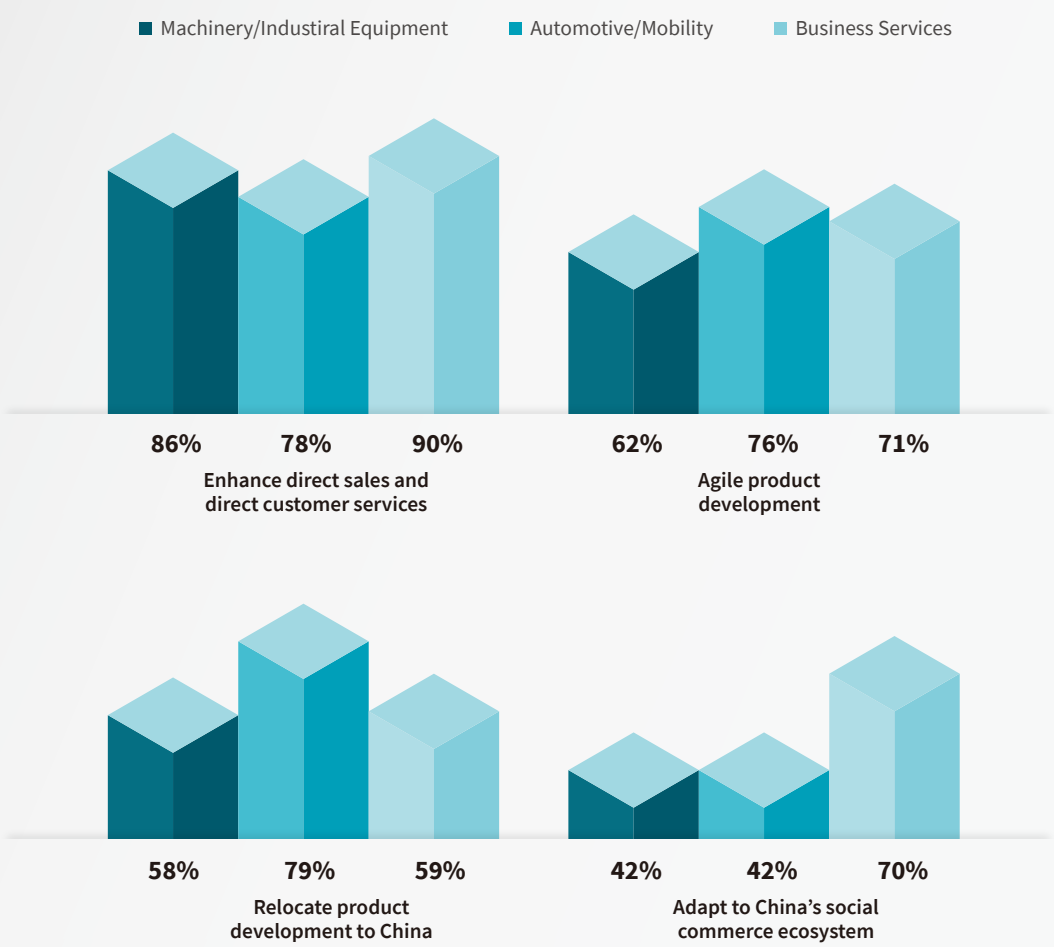
[2] *European Journal of Innovation Management. 2020. Business model designs, big data analytics capabilities and new product development performance: evidence from China. [online] Available at: <https://www.emerald.com/insight/content/doi/10.1108/EJIM-01-2020-0004/full/html> [Accessed: 31 May 2022].*

[3] *Researchandmarkets. 2021. China Social Commerce Market Intelligence and Future Growth Dynamics Databook. [online] Available at: < https://www.prnewswire.com/news-releases/china-social-commerce-market-report-2022-301546066.html> [Accessed: 31 May 2022].*

Figure 1.16

Business services industry adapts to China's social commerce ecosystem to the largest extent

To what extent is your company responding to "China speed" (the rapid economic and technological development) by taking the following actions? (n=348)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

KEY FINDINGS

Increasing innovation capacities of competitors (87%) is the most significant innovation driver of German companies in China on the demand side of the market. Over half of surveyed companies consider local Chinese competitors as largely stronger in terms of establishing and expanding local R&D capacities (55%), R&D process driven by local teams (51%), and time-to-market of new products/services (50%). Nevertheless, most German companies (86%) consider the quality of their products and services as their strength compared to local competitors.

Cost-related factors are accelerating innovation from both supply and demand sides. Increasing raw material costs (78%), growing labor costs (74%), and shortage of critical materials (63%) are top innovation driving forces on the supply side. Increasing cost-conscious purchasing behavior (84%) is another significant innovation stimulator on the demand side.

Technologies are steering more innovation for medium (251-1,000 employees) and large companies (1,000+ employees) than smaller companies. RPA (65%) and AI (64%) are the most important technology drivers that aim to improve operational efficiency and labor usage.

The environmental sector is increasingly regulated. Carbon emission-related penalties and incentives (61%) is the second most significant regulatory driver. In this context, new energy solutions (88%) are one of the major technology innovations for the automotive/mobility industry.

IP protection remains a challenge for companies' innovation activities in China. Every 6th company (16%) is negatively impacted by IP protection in China, especially in the machinery/industrial equipment industry (21%). Also in other areas, such as cybersecurity, does the increasingly regulatory framework in China influence innovation activity.

German companies are responding to "China speed" by taking actions around direct sales and services (79%), adapt to China's social commerce system (55%), agile product development (70%), and relocation of product development (63%). China as the powerhouse of social commerce, business services (70%) largely outperform other industries.

1.2 INNOVATION BARRIERS

German companies in China face several obstacles to innovation. It is essential to identify and recognize the barriers from both internal and external perspectives and prepare corresponding mitigation, especially drawing more attention and support from German headquarters.

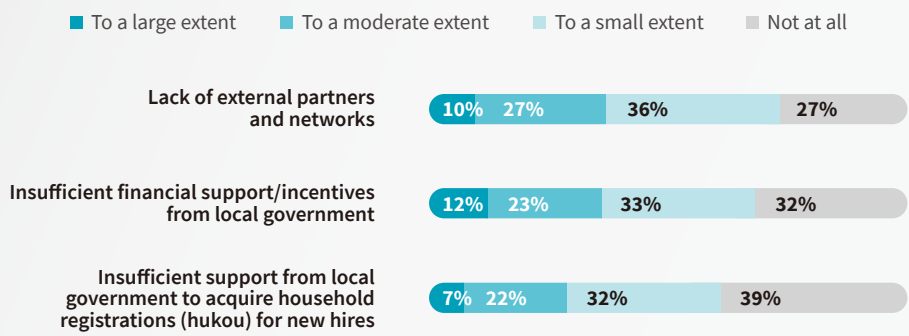
EXTERNAL BARRIERS

German companies in China face several obstacles to innovation. External barriers are impediments outside the organization, including a company's external partners and networks and innovation policies. One-third of surveyed companies rated the lack of external partners and networks (37%) as an innovation barrier to a large and moderate extent, though external partners and networks are considered important contributors to innovation[4]. Further innovation barriers perceived by surveyed companies are related to the local authorities: insufficient financial support/incentives from local governments (35%) and insufficient support from local governments to acquire household registrations (hukou) for new hires (29%) (Figure 1.17).

Figure 1.17

Lack of external partners and networks is the biggest external innovation barrier

To what extent do the following issues hinder the innovation in your company in China? (n=351)



Note: Barriers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

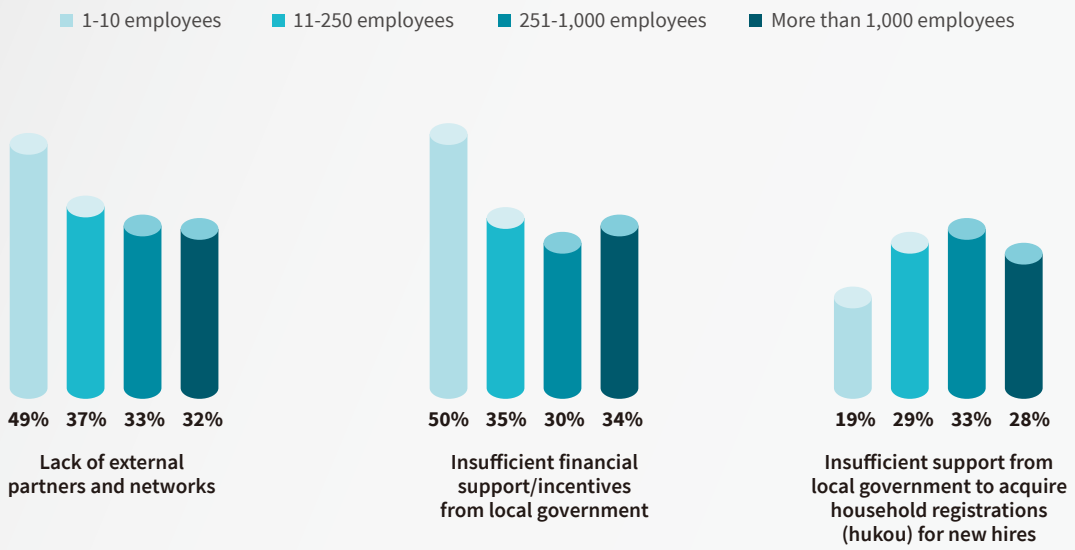
[4] *Foresight and STI governance. 2021. Cooperative Strategies in the Age of Open Innovation: Choice of Partners, Geography and Duration, [online] Available at: https://reurl.cc/RrG5R6 [Accessed: 31 May 2022].*

When analyzing the responses by company size, it can be noted that small companies rate innovation obstacles differently. Nearly half of small companies (1-10 employees) consider insufficient financial support and incentives (50%) and lack of external partners and networks (49%) as innovation obstacles to a moderate or large extent. On the contrary, medium and large companies are experiencing more impediments when it comes to support from local governments to acquire household registrations (hukou) for new hires (Figure 1.18).

Figure 1.18

Lack of external partners and networks for innovation is challenging to a higher amount of small companies

To what extent do the following issues hinder the innovation in your company in China? (n=351)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

INTERNAL BARRIERS

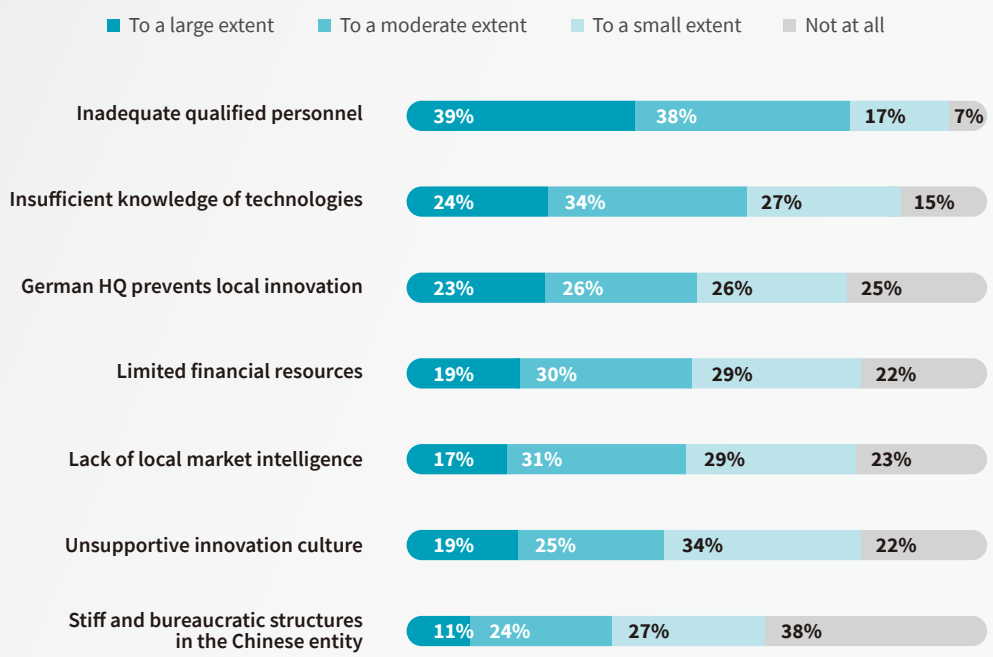
Internal barriers are a broad-spectrum impediment within the organization. Know-how acquisition is mainly hindering innovation including inadequate qualified personnel (77%), insufficient knowledge of technologies (58%), and lack of local market intelligence (48%) (Figure 1.19). Recruiting and retaining qualified staff has been a long-time challenge for German companies in China. Linked to the brain drain resulting from the COVID-19 outbreak, this factor has accelerated.

Other obstacles perceived by surveyed companies are German HQ preventing local innovation (49%) and limited financial resources (49%). It could also be noted that stiff and bureaucratic structures in the Chinese entity are less of an innovation obstacle – 38% consider it is not hindering innovation at all (Figure 1.19).

Figure 1.19

Inadequate qualified personnel is named as the top factor hindering internal innovation

To what extent do the following issues hinder the innovation in your company in China? (n=353)



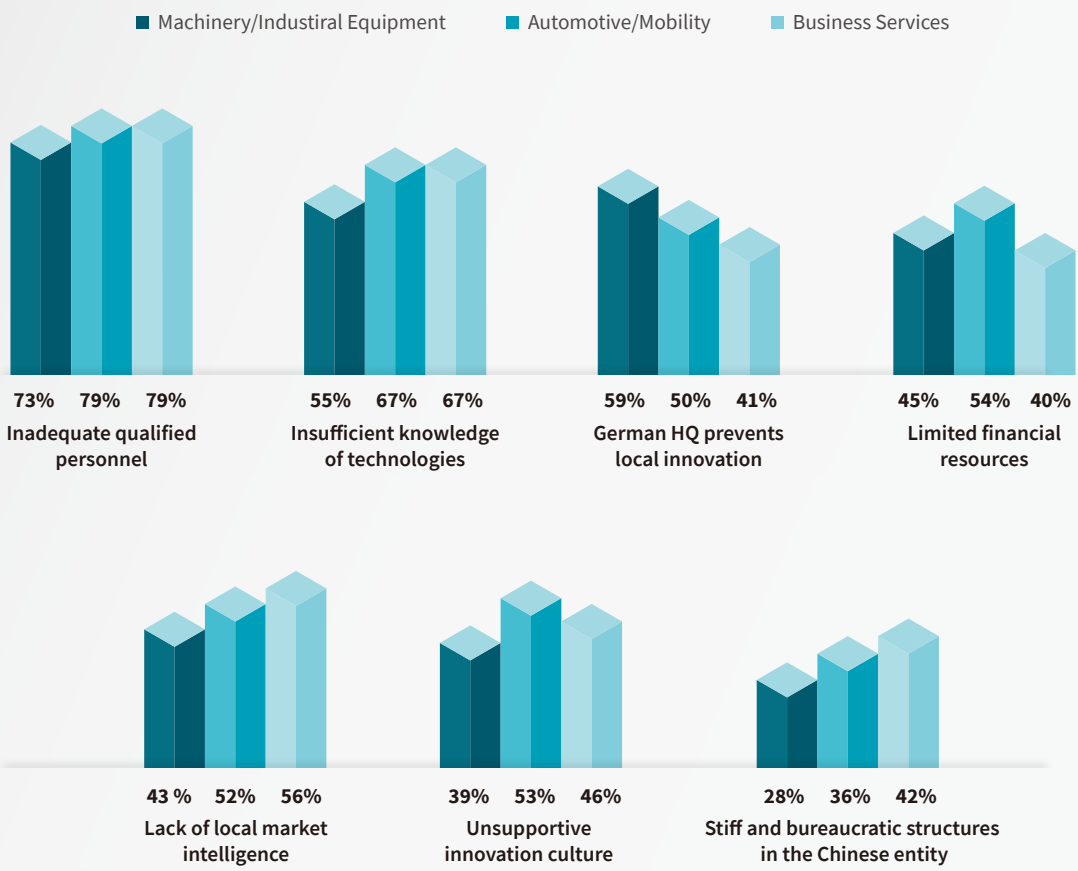
Note: Barriers are displayed in declining order of the sum of "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

Industries encounter internal barriers at different degrees. Talent shortage is prevalent among all 3 industries. Machinery/Industrial equipment industry (59%) is, to a larger extent, hindered by the German HQ. While automotive/mobility and business service industries are encountering more impediments toward insufficient knowledge of technologies. Moreover, the business services industry is also experiencing insufficient local market intelligence (56%) the most (Figure 1.20).

Figure 1.20

Talent shortage is prevalent among all 3 industries, while prevention of local innovation from German HQ especially challenges the machinery/industrial equipment industry

To what extent do the following issues hinder the innovation in your company in China? (n=353)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

SUPPORT FROM GERMAN HEADQUARTERS

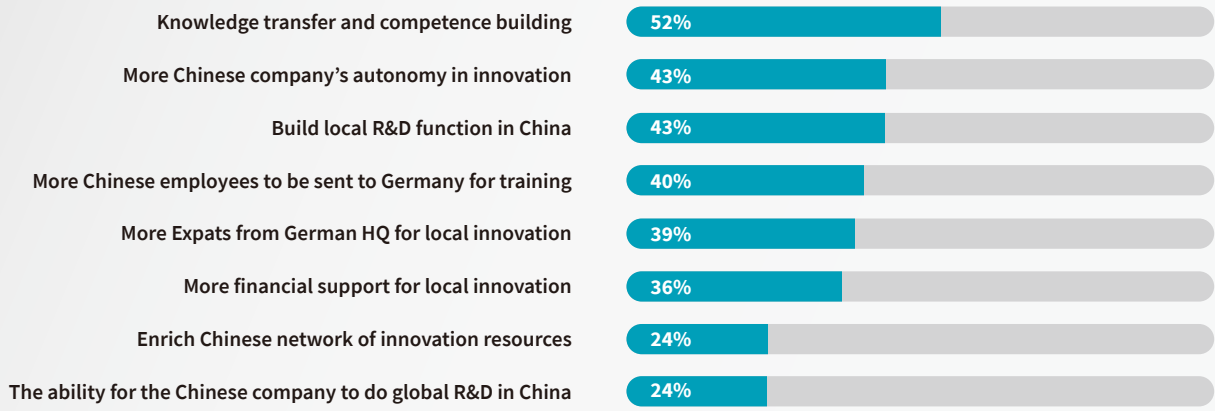
To address encountered innovation barriers, German companies in China have requested various requirements from German headquarters. Many expectations concern know-how acquisition and local R&D ownership. For know-how acquisition, Chinese entities are requesting support from German headquarters for knowledge transfer and competency building (52%) and more Chinese employees to be sent to Germany for training (40%) (Figure 1.21). These are also means to tackle the primary internal barrier: inadequate qualified personnel.

Regarding local ownership, surveyed companies wish for more autonomy in innovation (43%) and to build local R&D function in China (43%). Growing the Chinese network of innovation resources (24%) is also being requested from the German HQ (Figure 1.21) to address the top external barrier: the lack of external partners and networks (Figure 1.17). Moreover, the autonomy support is more prevalent in large companies with 1,000+ employees (62%) than small ones with 1-10 employees (24%) (Figure 1.22).

Figure 1.21

Knowledge transfer and Chinese company's autonomy in innovation are the most desired forms of support by German companies in China

What support would your company in China expect the most from the German HQ for innovation? (n=350)

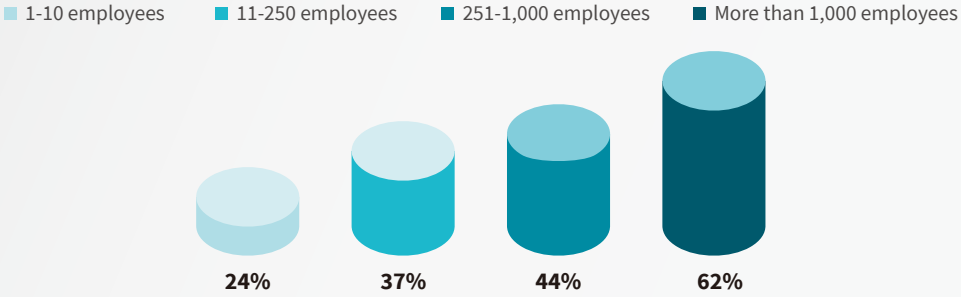


Note: Multiple answers are possible; percentages are based on the number of respondents.

Figure 1.22

Demand for Chinese company's autonomy in innovation grows with company size

What support would your company in China expect the most from the German HQ for innovation? (n=350)



Note: Percentages indicate "German companies in China expect more Chinese company's autonomy in innovation from German HQ".

KEY FINDINGS

Lack of external partners and networks (37%) is the biggest external innovation barrier, and it is more relevant among small companies (49%) with 1-10 employees. However, small companies with less than 10 employees (19%) are experiencing fewer impediments than medium and large companies (around one-third) when it comes to support from the local government to acquire household registrations (hukou) for new hires.

Know-how acquisition is the most challenging innovation barrier for German companies in China. It is reflected in the primary internal innovation barrier, the shortage of adequate qualified personnel (77%), and the need of companies in China for knowledge support from their headquarters. Chinese entities are requesting support from German headquarters for knowledge transfer and competency building (52%) and more Chinese employees to be sent to Germany for training (40%).

German HQ's excessive control of local innovation (49%) is another leading internal innovation constraint, especially in machinery/industrial equipment (59%). More local autonomy in innovation (43%), as an effective mean of tackling the issue, is more prevalent among larger companies. One-quarter (24%) even wish for the Chinese subsidiary to be able to do global R&D.

FETTE COMPACTING

FETTE COMPACTING (CHINA) CO.,LTD.,

WHEN CHINA AGILITY MEETS GERMAN ENGINEERING: ADAPTING THE BEST OF BOTH MARKETS TO SPUR INNOVATION

With over 5,000 installed machines, Fette Compacting is an international market leader in tablet presses and capsule filling machines in the pharmaceutical industry. The headquarters of Fette is based in Schwarzenbek, Germany, and a second production site is located in Nanjing, China. The subsidiary in Nanjing also includes a competence hub, that increasingly develops products and implements innovative processes in close cooperation with the headquarters, which are later sold worldwide.

LOCAL COMPETITION DRIVES INNOVATION

When entering the Chinese market, Fette Compacting had to adapt its strategy to compete with local players. The company expanded its reach from the high-tech market to include the lower-end market segment. Fette identified its strengths and weaknesses in this area compared to local market participants (see Table 1). The efficiency level and high mechanical standards are clear competitive advantages of traditional German engineering. According to Fette's observation, local competitors excel in digitalization, customization, and speed. In this case study, the implementing of innovative and strategic measures to meet the local competition is explained, mixing the best of both markets: China's speed and innovative, customer-focused mindset with Germany's high-quality engineering and expertise.

INNOVATION SNAPSHOT

FETTE'S SUBSIDIARY IN CHINA

- High-quality mechanics
- Machines constantly being upgraded, focusing on a sustainable, long-term relationship with customers
- Higher output and efficiency
- Holistic full solution approach, incl. consultancy and optimization of machines
- A more conservative, long-term successful standard approach and Technology Standard

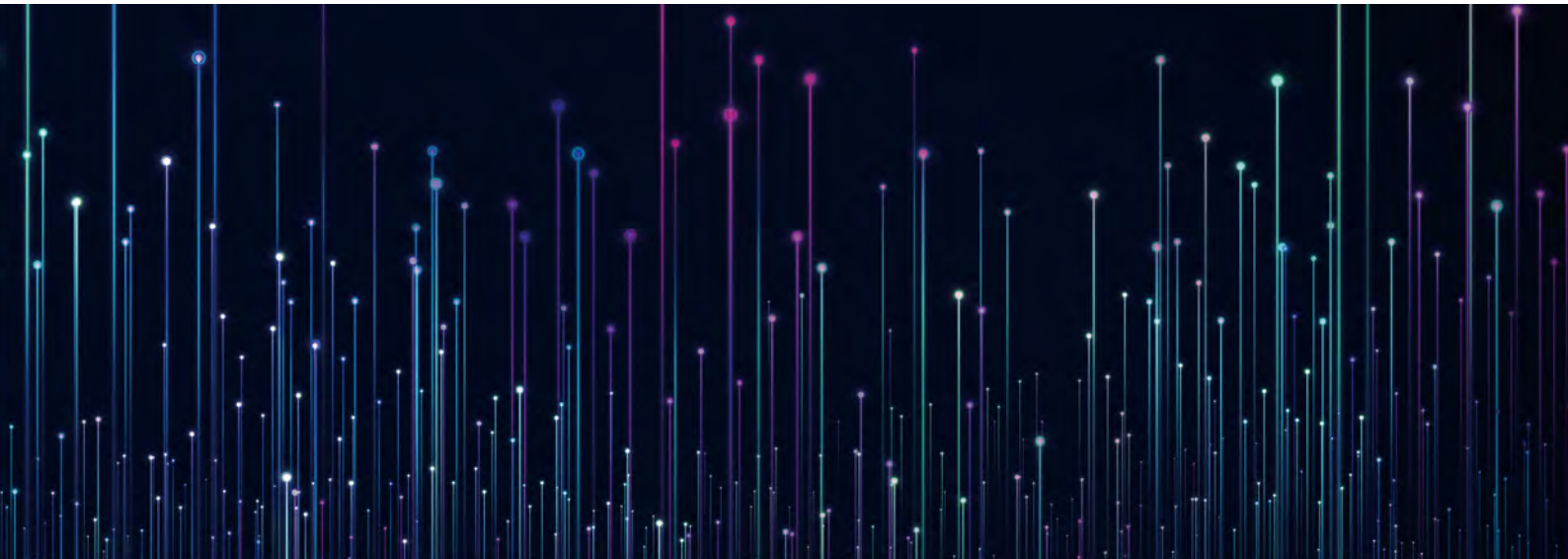
LOCAL CHINESE COMPETITORS

- High innovation capabilities in digitization
- Customization of interfaces, innovate according to individual needs of customers
- Faster and better software and user interface
- Shorter lifetime of machines, but cheaper and workable

Table 1: Competitor Analysis of Fette Compacting (China) Co., Ltd. with local Chinese competitors

INNOVATION ACTIVITIES

Fette Compacting upgraded its innovation activities in China. Like most German SMEs serving the pharmaceutical, nutrition and food markets, when entering the Chinese market, the machinery producer first opened a production site in China, keeping all main R&D functions located in Germany. In the second stage, to meet the local market requirements, innovation was primarily focused on localizing and optimizing products and processes for the Chinese market. A vital aspect of innovation was - and still is - employee-driven: many ideas, especially for localization and optimizations (e.g., supply chain management), came from local teams. An inclusive and less hierarchical company culture, that encourages employees on all levels and across functions to engage in innovation processes, is essential to fostering this development.



Since 2017, the approach for innovation has further developed in China with the first machine mainly being developed by the Chinese team, supporting the business development in China and other budget sensitive pharma and nutrition markets worldwide. As new or optimized products target a different market segment than the traditional products of Fette Compacting, limited challenges arose in terms of local competition. Instead, the products from the competence hub in Nanjing support the global expansion of developed products for new market sectors.

COMBINING STRENGTHS AND FOSTERING INTERACTION

Today, the responsibility for innovation is still led by the HQ, but the contribution by the Chinese subsidiary for standard machine development has significantly increased. The HQ still administers economies of scale, investment capacity and IP protection, and patents usually are filed from Germany. Compared to other entities, cost-optimization, corporate process digitization, and speed in production and customer service are innovative advantages of the Chinese entity in Nanjing. A key element in this process is the close communication and interaction among all levels of staff. In cross-functional teams of German and Chinese developers and engineers, both sides learn from each other. For example, in design-to-cost and design-for-production, the expertise is more prevalent in China. In the development of products, employees receive supervision and support from experienced engineers in Germany. Innovation activities are conducted on a global platform and supported by the management. Gaining access to skills and knowledge as being one important reason to be present in the Chinese market has also been confirmed by 71% of the survey respondents (Figure 3.6).

"When I first came to China, I was an ambassador for German standards and engineering. Now I am advocating in Germany for Chinese innovation activities and speed"
Dr. Andreas Risch, Managing Director, Fette Compacting (China) Co.,Ltd.

FUTURE PERSPECTIVES

A once reluctant approach toward innovation and R&D activities of the Chinese entity, and concerns about cannibalization in the global markets from products developed in China, vanished over the past years. Through localization and targeting lower or more budget-sensitive market segments, Fette Compacting's sales increased by acquiring market shares in new market segments. The activities of the Chinese entity became one of the company's main drivers for growth and profit worldwide.

In addition, innovation contributed by China was adapted globally, and close cooperation among the entities provided mutual benefits.

Given the proof of concept by results, Fette Compacting's Chinese entity will gain more ownership and responsibility for its product and innovation design in the future, with support from the HQ.

INNOVATION PRACTICES

2

Taking the massively increasing innovation capacities of competitors in China into account and considering the limitations of funding innovation activities, openness has become increasingly relevant in innovation management. German companies are perceived in the China market for excellence in engineering and high-quality products. Engagement in open innovation offers opportunities but bears risks for companies of losing competitive advantages at the same time. Therefore, German companies need to explore a broad range of parameters in innovation management.

2.1 INNOVATION STRATEGY

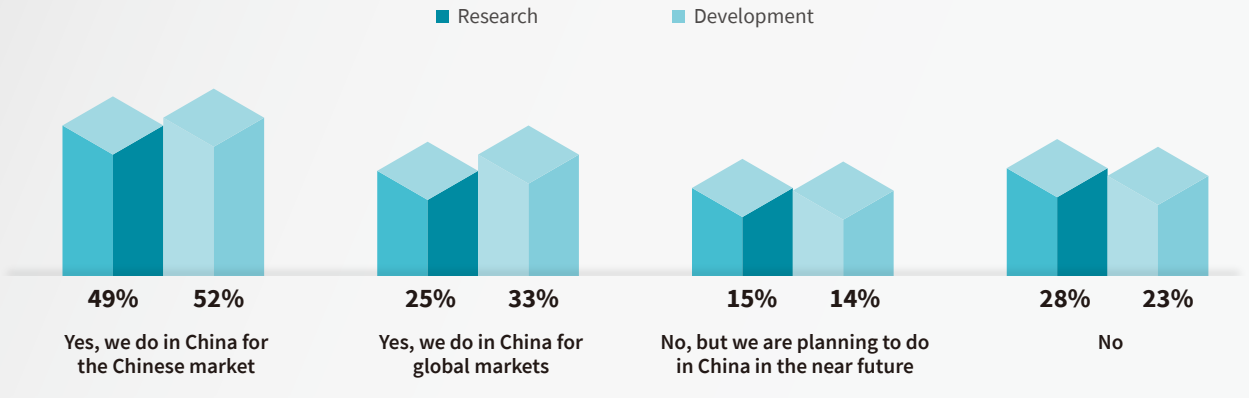
The innovation strategy determines how companies approach the market with innovation. Companies need to define where to conduct research and development (R&D) and to what extent localization or adaptation can be applied to different markets. Research is the foundation of a strategic innovation roadmap, and development is about its conceptualization and realization.

German companies in China are heavily conducting R&D for the Chinese market. China is not only an important market for German companies to conduct local R&D but also an emerging hub for global markets. Nearly half of the respondents state they do research (49%) and development (52%) in China for the Chinese market. One-third of respondents do research (25%) and development (33%) in China for global markets. It is also expected that an additional one-sixth of respondents who have no R&D activities in China are planning to establish those in the near future (Figure 2.1).

Figure 2.1

Majority of German companies are expanding innovation R&D in China

Does your company conduct research in China? (n=384)
Does your company develop in China? (n=384)



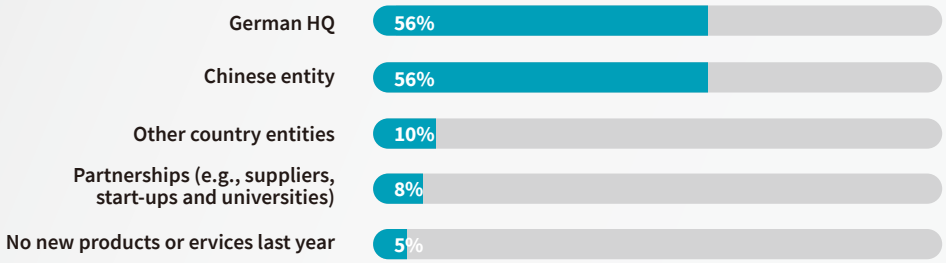
Note: Multiple answers are possible; percentages are based on the number of respondents.

Product development indicates innovation dependency and ownership, and Chinese entities are taking more responsibility for it. Asked who was mainly responsible for the development of newly introduced products or services in China in the last year, more than half of the respondents (56%) expressed the responsibility of new product introduction was borne by German HQ or Chinese entity or both parties' cooperation (Figure 2.2).

Figure 2.2

Responsibility for new product introductions is mainly borne by German HQ and Chinese entity

If your company in China introduced any new products or services last year (2021), who was mainly responsible for developing these products or services (multiple choices)? (n=383)



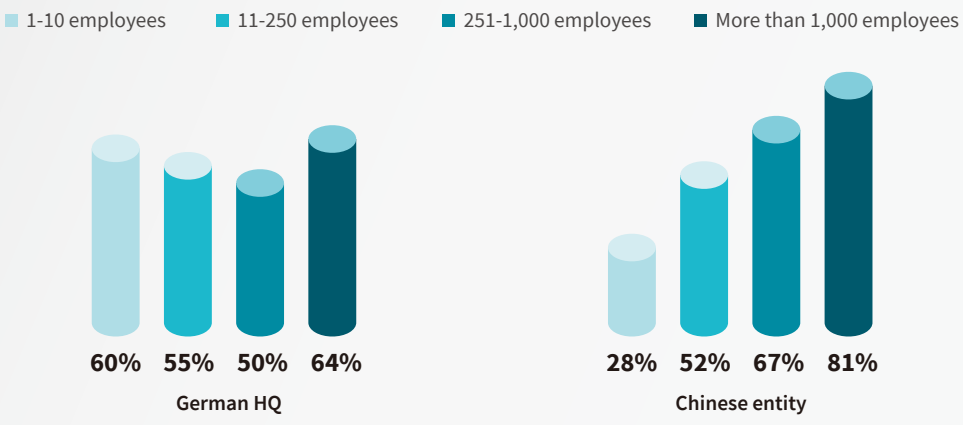
Note: Multiple answers are possible. Percentages are based on the number of respondents. "Not applicable" responses are excluded.

The Chinese entity's innovation dependency and ownership are evident in larger companies. The vast majority of the respondents (81%) in companies with more than 1,000 employees indicate that their Chinese entities take responsibility for new product introductions, nearly three times more than small companies with 1-10 employees. However, small and medium-sized companies share a similar percentage with large companies when the German HQ lead new product development (Figure 2.3).

Figure 2.3

Responsibilities of local entities are increasing along with company size

If your company in China introduced any new products or services last year (2021), who was mainly responsible for the development of these products or services (multiple choices)? (n=383)



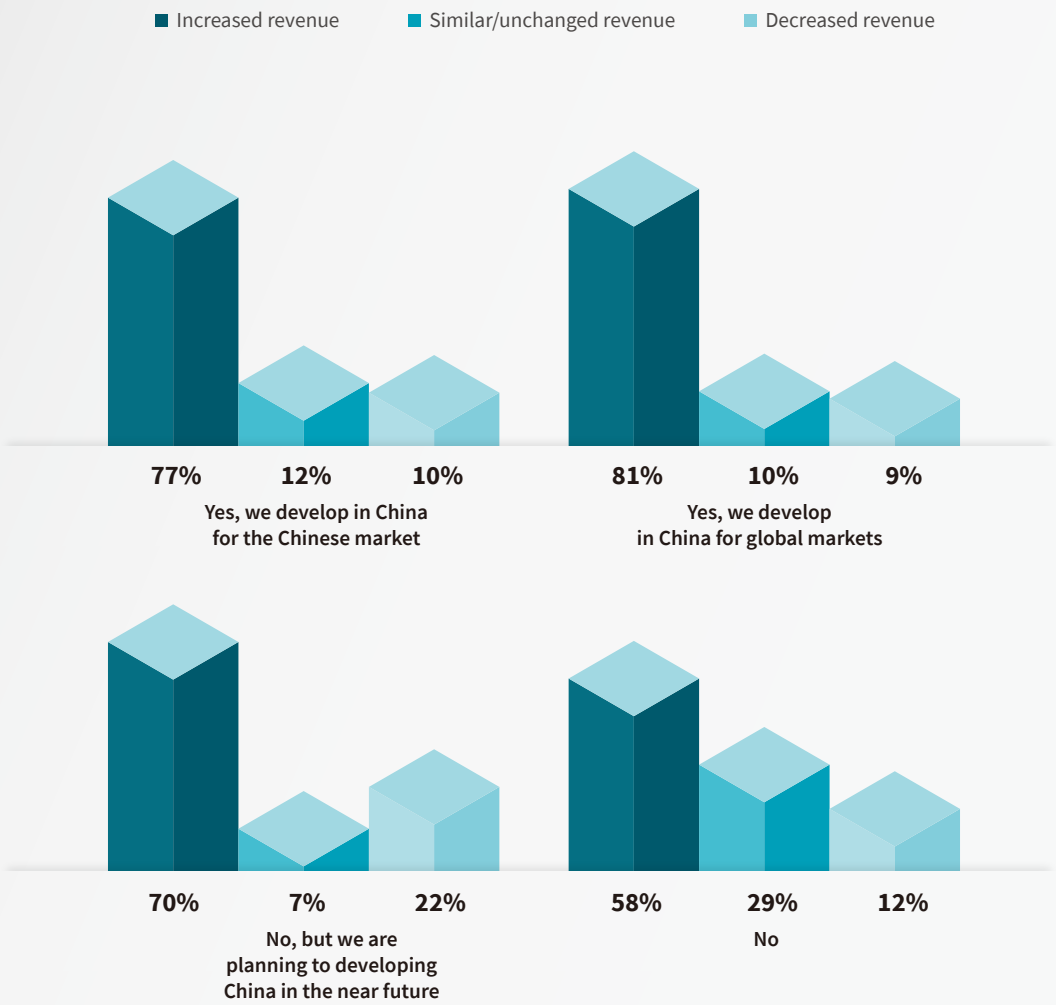
Note: Multiple answers are possible. "Not applicable" responses are excluded.

Companies with innovation development in China are more likely to demonstrate positive revenue growth: 77% of German companies who develop in China for Chinese market and 81% of those who develop in China for global markets state that they have experienced increased revenue in 2021. Only 58% of the respondents who have no development activities in China experienced revenue growth in 2021 (Figure 2.4). Similarly, companies with revenue increase are also more likely to establish or enhance their R&D activities in China.

Figure 2.4

Companies with development activities in China demonstrate stronger revenue growth

Please indicate last year's annual revenue growth rate of your company in China. (n=382)
Does your company develop in China (multiple choices)? (n=384)



Note: Multiple answers for "does your company develop in China" are possible.
Percentages are based on the number of respondents.

2.2 INNOVATION FORMS

Innovation forms determine implementation of companies engaging in closed innovation work in a self-contained environment; all intellectual property rights, technology and machinery belong to the company and remain under its control. In contrast, those using open innovation rely on external knowledge sources for their innovation management strategies. However, the boundary between closed and open innovation is blurring. In recent years, a hybrid form of innovation has emerged: semi-open innovation, which involves a limited external group, but the content is shared (constrictive).

Both closed and open innovation play crucial roles. This survey results show that closed innovation adopted in the past decades is of greater importance than open innovation (Figure 2.5 & Figure 2.6). Although it places a higher value on knowledge from outside sources and can allow for improvements in a company's innovative structure and processes, German companies in China are concerned about the openness given the IP rights.

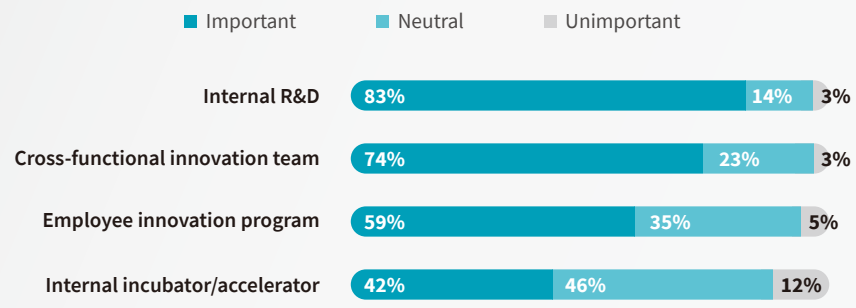
CLOSED INNOVATION

Internal R&D is regarded as the most important innovation form within closed innovation, with an 83% recognition rate, followed by cross-functional innovation teams (74%) and employee innovation programs (59%). Internal incubators/accelerators' role in innovation is ambiguous, as 42% consider it important, and nearly one-half of the respondents (46%) have a neutral attitude toward it (Figure 2.5).

Figure 2.5

Traditional internal R&D is by far the most important form of innovation for German companies

To what extent do you agree the following innovation forms are important? (n=371)



Note: Factors are displayed in declining order of "important". "Not applicable" responses are excluded.

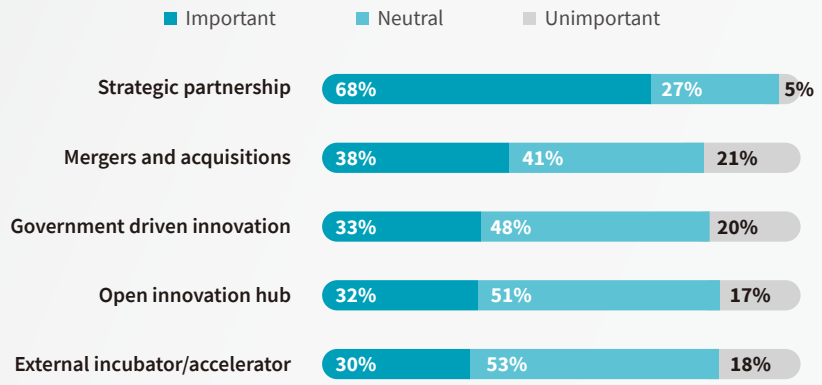
OPEN INNOVATION

Open innovation seems to complement closed innovation. Strategic partnership is perceived as of significant importance, rated by 68% of respondents, far ahead of other open innovation subdivided forms (Figure 2.6). A strategic partnership is based on mutual trust between companies and partners who share common values and goals. The rest of the open innovation subdivided forms are perceived as neutral by around half of surveyed companies.

Figure 2.6

German companies rank strategic partnership as the most important open innovation form

To what extent do you agree the following innovation forms are important? (n=371)



Note: Factors are displayed in declining order of "important". "Not applicable" responses are excluded.

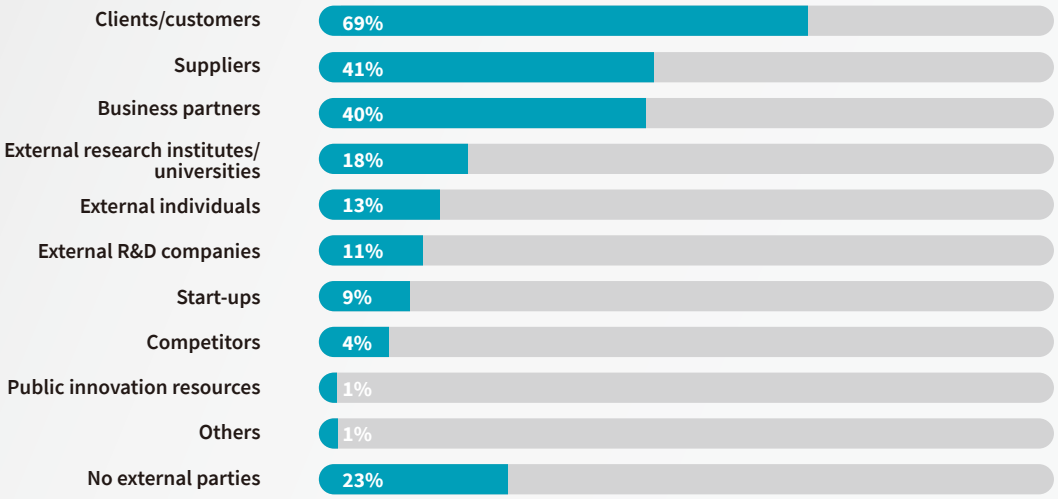
When asked about external parties, respondents reported that clients and customers (69%), suppliers (41%), and business partners (40%) are the top 3 collaboration partners over the last three years (2019 – 2021). They appear to be significant parties closely tied to their organization. External research institutes and universities (18%), external individuals (13%), and external R&D companies (11%) are also common open innovation subdivided forms. It is also noteworthy that 23% of the respondents did not collaborate with any external partners during the past three years (Figure 2.7).

Analyzing the responses by company size, it can be noted that large companies tend to have stable and frequent collaboration. Large companies with over 1,000 employees respond the most to ongoing collaboration with customers and suppliers (49%) and strategic partnerships within the company's ecosystem (11%). Medium-sized companies are mainly engaging in occasional collaboration. Moreover, small companies with 1-10 employees are catching up with the trend: they show the most intent to establish partnerships, rated by 26% of the respondents (Figure 2.8).

Figure 2.7

Open innovation is focused on partners who are closely tied to the company

Which of the following external parties have your company in China collaborated with for innovation during the last three years (2019-2021, multiple choices)? (n=383)



Note: Multiple answers are possible; percentages are based on the number of respondents.

Figure 2.8

Large companies are ongoingly collaborating with external partners

Which statement best describes your collaboration with external parties to support innovation in your company in China? (n=380)

Note: Percentages are based on the number of respondents.

HELLA XIAMEN – PILLARS FOR A SUCCESSFUL LOCAL R&D STRATEGY IN CHINA

HELLA (Xiamen) Electronic Device Co., Ltd. is a listed subsidiary of HELLA, which is a company of the FORVIA group. HELLA stands for high-performance lighting technology and automotive electronics. At the same time, the company covers a broad service and product portfolio for the spare parts and workshop business as well as for manufacturers of special vehicles with its Business Group Lifecycle Solutions. HELLA has 36,000 employees at more than 125 locations worldwide and generated currency and portfolio-adjusted sales of € 6.5 billion in the fiscal year 2020/2021.

HELLA Xiamen develops and produces high-performance automotive electronics, especially sensors and actuators. HELLA established since 2011 a R&D center in Xiamen, China, with the aim to support global development projects, to further promote local development and to develop automotive electronic products that meet the specific needs of the Chinese market.

As discussed in chapter 1.1 of the report, many German companies face an increasing local competitive environment. HELLA approaches these challenges in the demanding Chinese market with a local and global innovation strategy and with strategic partnerships.

HELLA'S TWO PILLARS TO MEET CHALLENGES IN THE CHINESE MARKET

- **A dynamic and autonomous cooperation of local and global innovation strategy**
- **Mutually-beneficial strategic partnerships**

INNOVATION SNAPSHOT

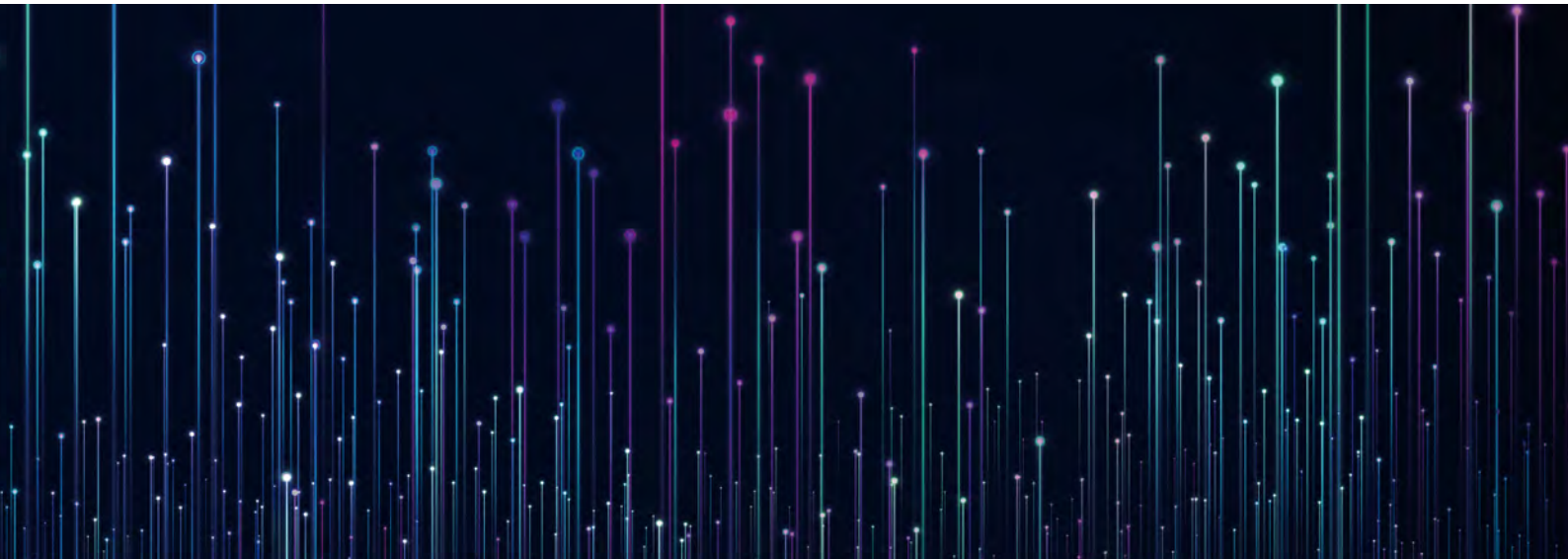
GLOBAL AND LOCAL INNOVATION STRATEGY

HELLA's subsidiary in China sees the role of the headquarters in Germany as supporting local innovation activities in China. This reflects the minority of the responding companies, while the majority (75%) of the respondents stated that the HQ in Germany prevents local innovation to a large, moderate, or small extent (see Figure 1.19).

HELLA's HQ support is part of its global structural approach: The company is in the transition from a headquarters-led international strategy towards a more decentralized and autonomous global strategy. This global approach does not only provide important regions and subsidiaries with the needed autonomy and responsibility for their respective markets, but also enables these regions to influence other markets and global activities of HELLA. Hence, the local team in China is essential for innovating in China and building local competencies, but also plays an active role in shaping the global strategy and innovation landscape of HELLA.

To make this strategy approach work, consistent support from the headquarters and an open company culture are needed. Subsidiaries cannot be viewed as competition to the headquarters or other subsidiaries, but as an essential part of the whole innovation success of the company. HELLA HQ understands that no expansion or successful growth in China would have a negative global influence.

The company views China as a key market of the future in the automotive industry, and, therefore, as a key growth market for sales, but also innovation, new and changing mobility concepts, and openness of consumers for future mobility. Being competitive in these fields in China is essential for HELLA, in order to stay ahead of the curve worldwide.



STRATEGIC PARTNERSHIPS

The second pillar of successful innovation activities of HELLA in China is strategic partnerships. Like 63% of the respondents, HELLA sees strategic partnerships as an important form of open innovation, due to its benefits in market expansion, innovation activities, and positioning in a competitive business environment.

STRATEGIC PARTNERSHIPS IN CHINA ARE ESPECIALLY IMPORTANT FOR HELLA IN CASES WHERE:

- **Partnerships combine technological advantages and/or market access for the involved parties**
- **Partnerships create a strong shared business case**
- **Partnerships include a complementary product or service portfolio, which enables an improved offering to the customers**

Entering a partnership with a Chinese company has the considerable benefits of highly developed market expertise and access: Chinese partners often have localized industry expertise, strong price competitiveness and a well-developed (local) customer access. Furthermore, to meet Chinese companies' speed in the fast-changing market, collaboration on development and production for specific elements or using existing solutions in the market can reduce efforts and home-grown R&D. Cooperating with partners who have capabilities oneself is lacking can foster innovation and growth.

These factors have been proven valuable for HELLA in China, especially for developing innovative products.

Partnerships, along with the group's supporting global strategy and investments in local R&D, are an important pillar of HELLA's work in the Chinese and global markets.

2.3 INNOVATION TYPES

Innovation can be grouped into different types based on business focus and outcomes. Companies need to make trade-offs between these innovation types according to their development needs. Standard innovation types are product innovation, service innovation, process innovation, business model innovation, marketing innovation, ecosystem partnership (network) innovation, and organizational innovation.

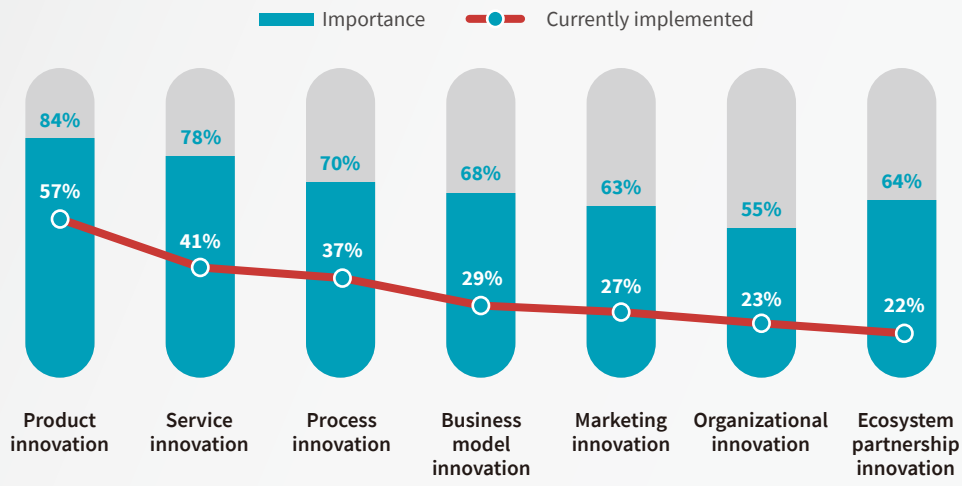
All the innovation types are valued as important by over half of the respondents. An overwhelming majority of 84% of respondents reported that product innovation is the most prominent innovation type. It also happens to be the most consistently implemented innovation type (57%) (Figure 2.9). Most likely, it is because product innovation is the most recognized innovation by customers.

However, there are significant gaps between the importance and actual implementation, especially ecosystem partnership innovation, with the largest gap of 42% among all innovation types (Figure 2.9). It most likely has a low implementation rate because "lack of external parties and networks" is identified as the biggest external innovation barrier.

Figure 2.9

All innovation types are commonly valued, but implementation degree differs

What types of innovation has your company in China implemented (multiple choices)? (n=385)
How do you evaluate the importance of the following types of innovation for your company's future success in the Chinese market? (n=372)



Note: Multiple answers are possible; percentages are based on the number of respondents. "Not applicable" responses are excluded.

2.4 INNOVATION METHODS

Innovative methods have a significant impact on innovation performance. Systematic approaches can increase the chances for valuable output. A variety of methods exist for different purposes and types of innovation. Companies often combine methods and leverage a set of innovation approaches for their purpose.

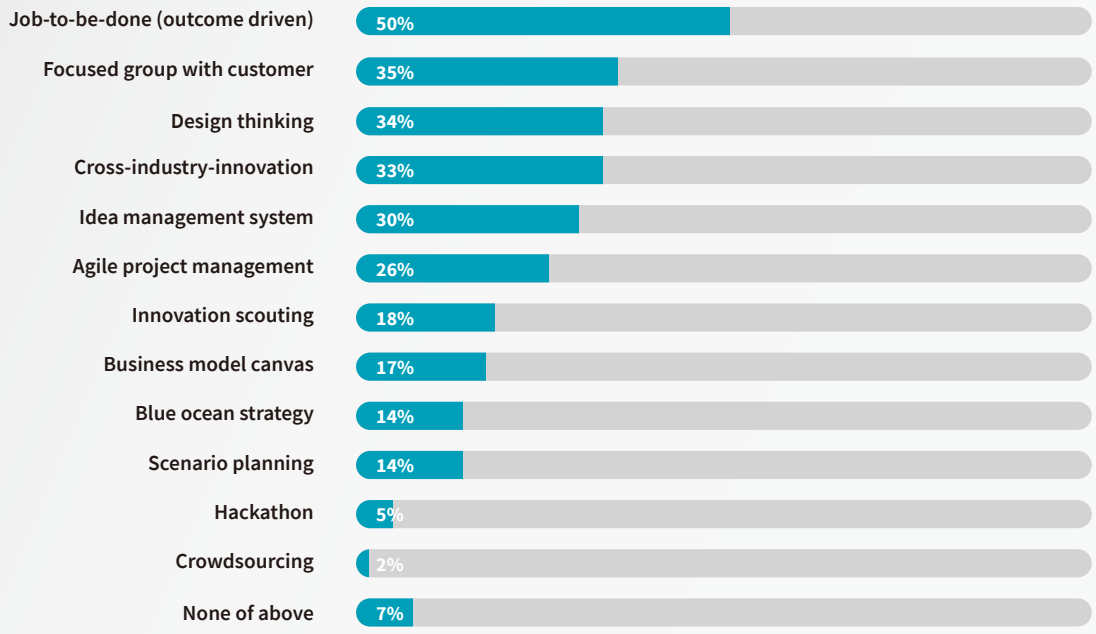
Innovation methods can be classified into customer-driven, acceleration-oriented and forward-looking. Customer-driven innovation methods focus on fulfilling customer requirements. Job-to-be-done (outcome driven) (50%) is rated as the most effective innovation method, followed by focused groups with customers (35%). Job-to-be-done focuses on the causal driver behind a purchase by identifying a job that customers struggle to get done (Figure 2.10).

Acceleration-oriented innovation forms aim to speed up the innovation process. It is well known that design thinking (34%) can assist individuals in systematically extracting, teaching, learning and applying human-centered techniques to address challenges creatively and inventively. It is followed closely by cross-industry-innovation (33%), idea management system (30%), and agile project management (26%). Innovation methods with a stronger forward-looking focus like business model canvas (17%), blue ocean strategy (14%), scenario planning (14%), and hackathon (5%) are considered less effective (Figure 2.10).

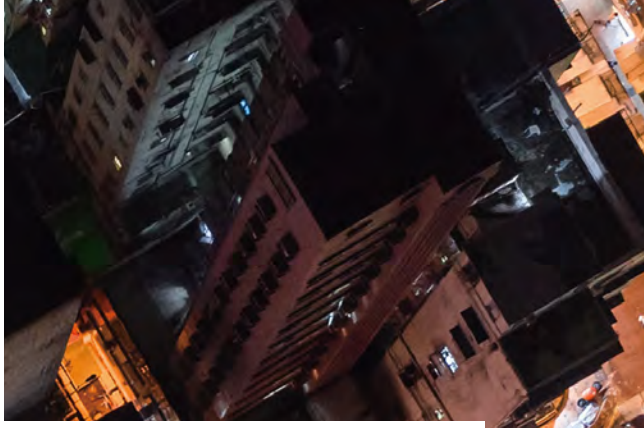
Figure 2.10

Innovation methods related to innovative results or customers are esteemed by most German companies

Which methods do you think are effective for your company in China to innovate (multiple choices, answers explained below)? (n=375)



Note: Multiple answers are possible; percentages are based on the number of respondents.



KEY FINDINGS

German companies are expanding innovation R&D for both local and global markets. It is expected that an additional one-sixth of respondents who have no R&D activities in China will establish those in the near future.

Closed and open innovation play crucial roles in innovation. Closed innovation, adopted over the past decades, is rated more important than open innovation given the IP rights concerns of German companies.

Strategic partnership (68%) is perceived as the most important open innovation form. The top 3 frequent collaborations with external parties are tied to their organizations: clients/-customers (69%), suppliers (41%), and business partners (40%).

All innovation types are commonly valued, but the degree of implementation differs. An overwhelming majority of respondents (84%) indicated that product innovation is the most prominent and the most consistently implemented. In the contrast, ecosystem partnership innovation has the most significant gap (42%) between recognition and implementation.

Innovation methods can be classified into customer-driven, acceleration-oriented, and forward-looking. Customer-driven innovation methods are considered the most effective, like job-to-be-done (outcome driven) (50%) and focused groups with customers (35%). In comparison, forward-looking are considered the least effective: business model canvas (17%), blue ocean strategy (14%), scenario planning (14%), and hackathon (5%).

ABOUT THE SURVEY

RESEARCH METHODOLOGY

The online survey was conducted from February 17, 2022, to March 17, 2022, with 386 member companies of the Germany Chamber of Commerce in China participating. The response rate reflects 18.3% of all member companies.

PROFILE OF CONTRIBUTORS

German companies in China are traditionally engaging in industries such as machinery/industrial equipment (24%), automotive/mobility (19%), as well as business services (9%) – summing up to half of all respondents. The remaining half of respondents consists of companies from a broad range of various industries, with electronics (6%) and plastic/metal products (5%) making up another 11% (Figure 3.1).

Sales and marketing (60%), production (55%) and services (54%) are the top 3 main areas of business, followed by sourcing procurement (35%), R&D (32%) and trading (26%) (Figure 3.2).

Small size companies with 1-10 employees represent 13% of all responding companies; companies with 11-250 account for 57%; companies with 251-1,000 employees constitutes 18%; and companies with more than 1,000 employees make up for the remaining 12% of the respondents (Figure 3.3).

Management team (61%) is the major department of surveyed respondents, sales (30%) and human resources (30%) account for one-third of respondents, followed by operations (29%), marketing (29%), finance (26%), corporate strategy (24%) and supply chain (20%) (Figure 3.4).

The vast majority of respondents are part of a wholly foreign-owned enterprise (WFOE) (82%); joint venture (9%) and holdings (2%) come after (Figure 3.5).

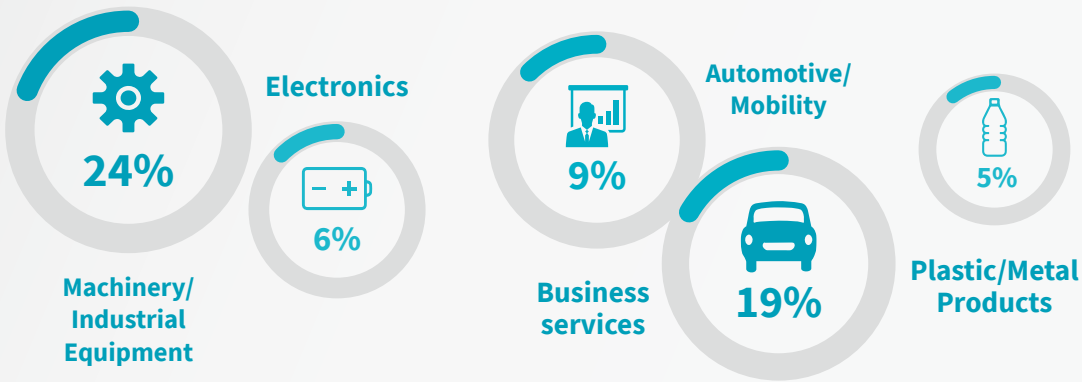
The most important objective for German companies to enter China market is to access to market (89%), followed by access to skill and knowledges (71%), access to strategic innovation alliances (55%) and access to low-cost labor (37%) (Figure 3.6).

In 2021, majority (73%) companies in China indicated increased revenue, 15% for similar/unchanged revenue. While 12% of them had decreased revenue (Figure 3.7).

Figure 3.1

Distribution of contributions by industry (Lite version)

Please specify the primary industry of your company in China. (n=386)

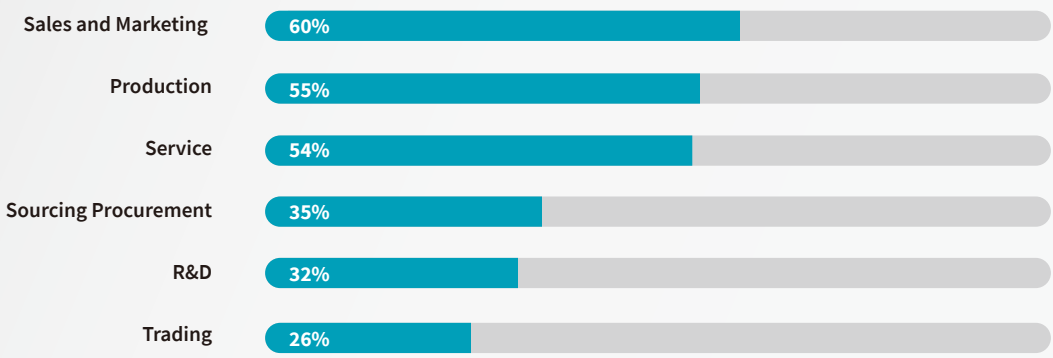


Note: The complete results can be found in the appendix, Figure A.4.

Figure 3.2

Distribution of contributors by main fields of business

Please indicate the main fields of business of your company in China (multiple choices). (n=386)



Note: Multiple answers are possible; percentages are based on the number of respondents.

Figure 3.3

Distribution of contributors by company size

Please select the range of your Chinese entity's full-time equivalent employee number. (n=386)

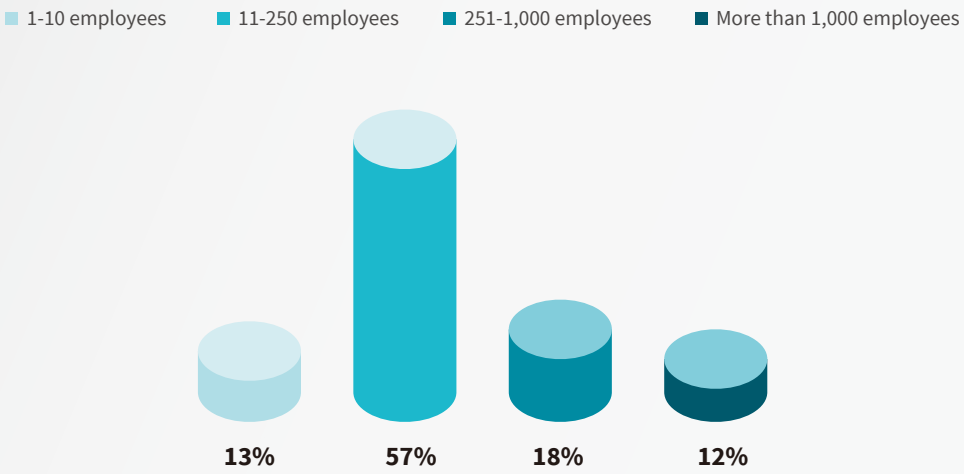
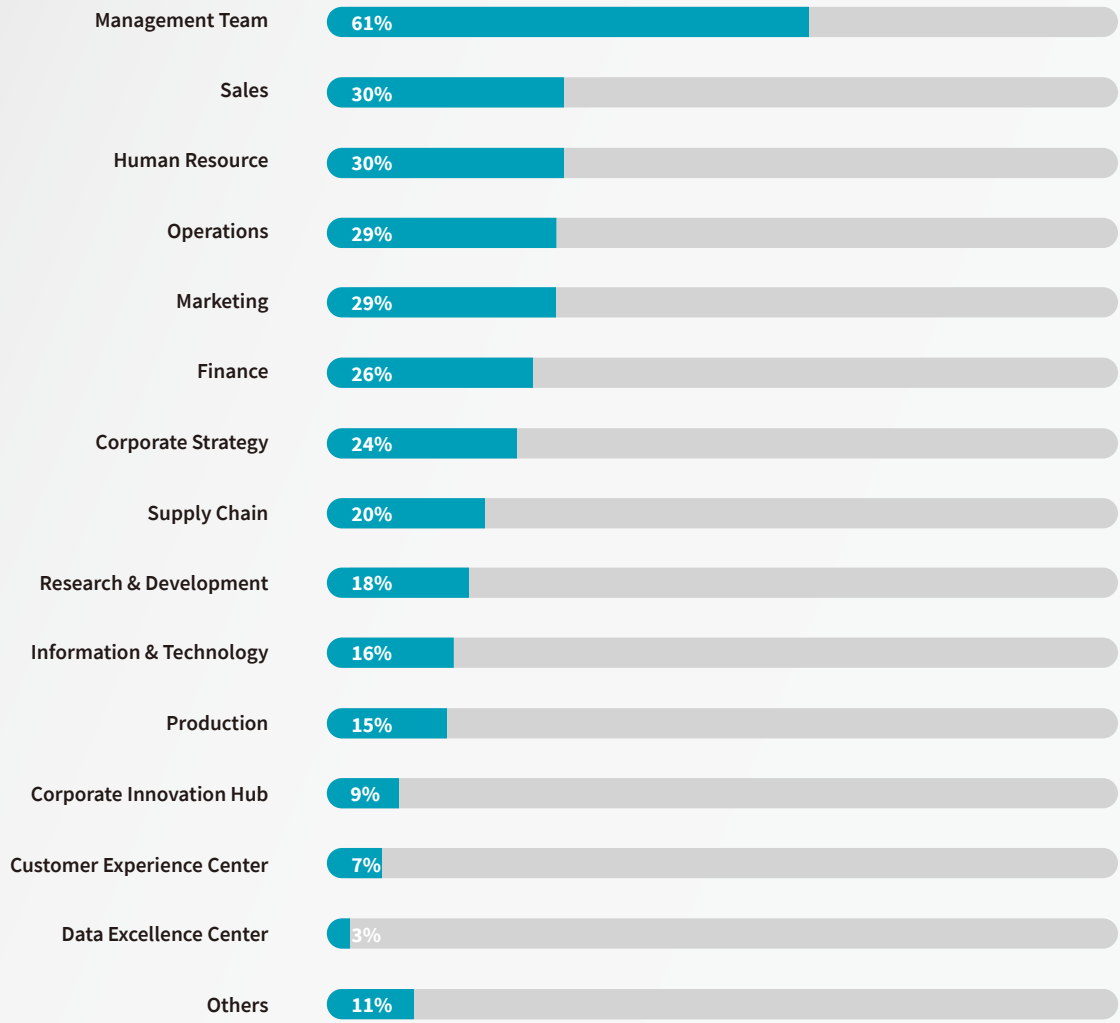


Figure 3.4

Distribution of contributors by department

Which functional departments are you responsible for (multiple choices)? (n=385)

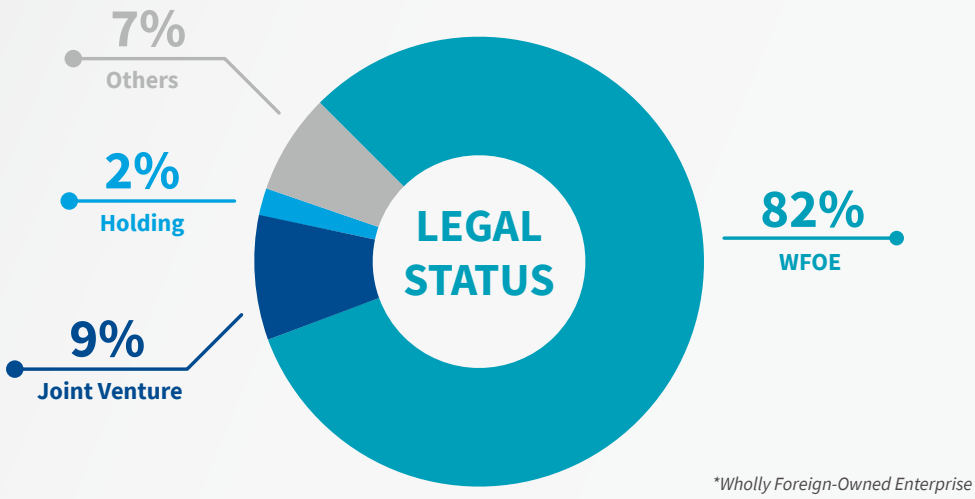


Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

Figure 3.5

Distribution of contributors by legal status

Please specify the legal status of your company in China. (n=379)



**Wholly Foreign-Owned Enterprise*

Figure 3.6

The main objective for German companies in China is the access to the large and fast-growing market

How important are the following objectives for your company's presence in China? (n=385)

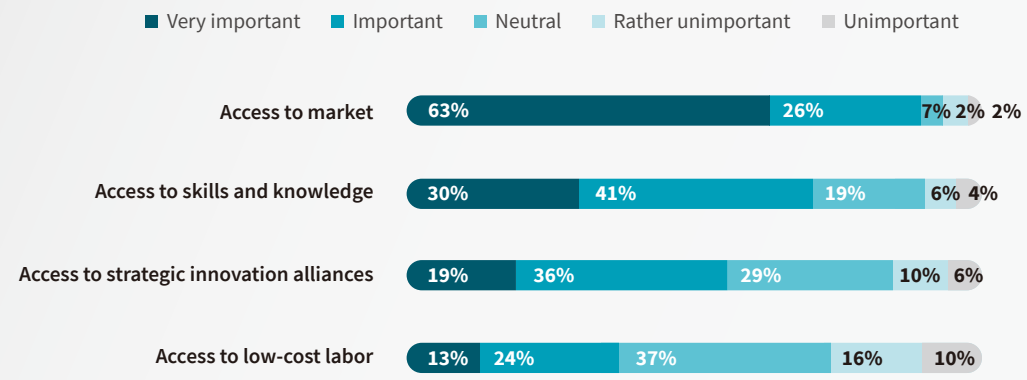
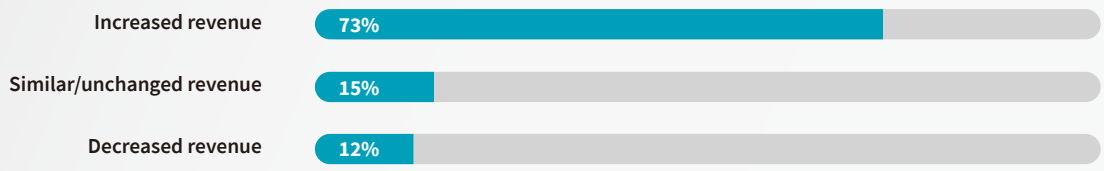


Figure 3.7

Companies experienced revenue growth during 2021

Please indicate last year's annual revenue growth rate of your company in China. (n=382)

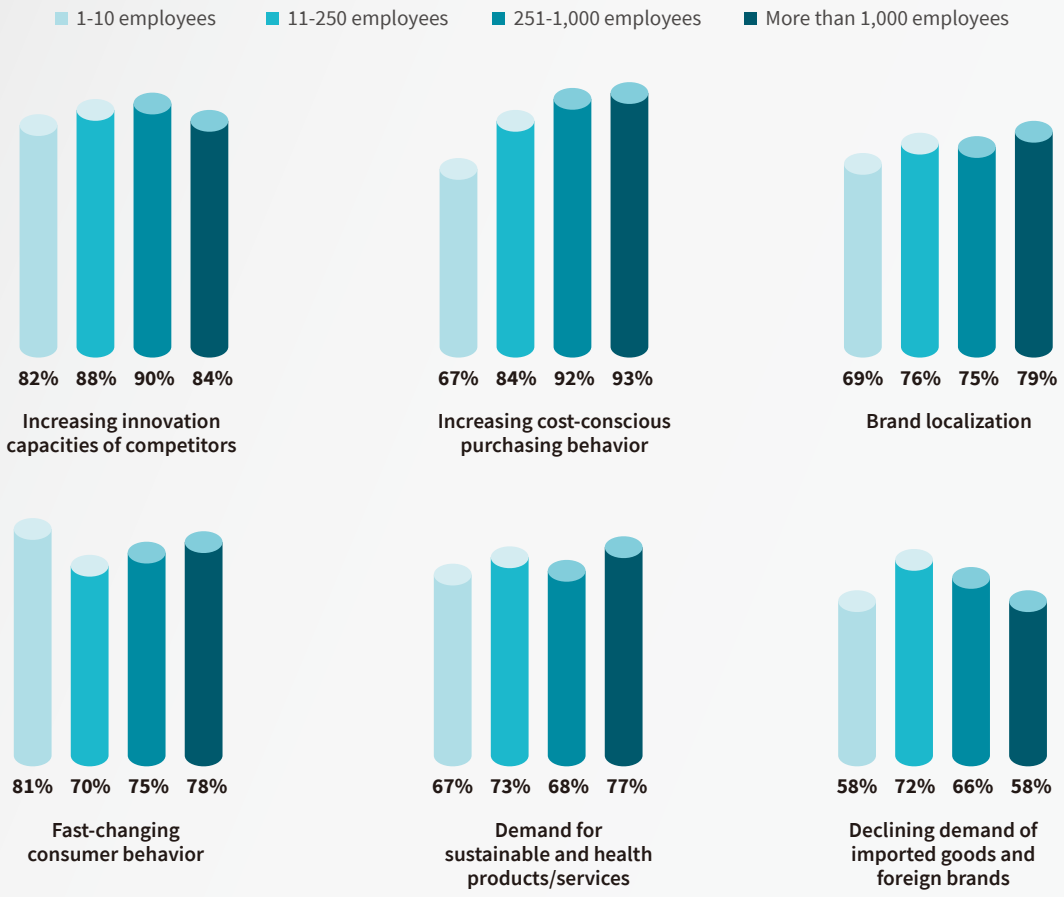


APPENDIX

Figure A.1

Increasing innovation capacities of competitors are the strongest drivers for SMEs, while cost-conscious purchasing behavior has the strongest impact on innovation activities at larger companies

To what extent is innovation in your company driven by the following market developments in China? (n=351)



Note: Percentages are based on the sum of respondents indicating "to a large extent" and "to a moderate extent". "Not applicable" responses are excluded.

Figure A.2

Technology trends are demanding innovation in China

To what extent do the following technology trends require innovation activities in your company (n=341)

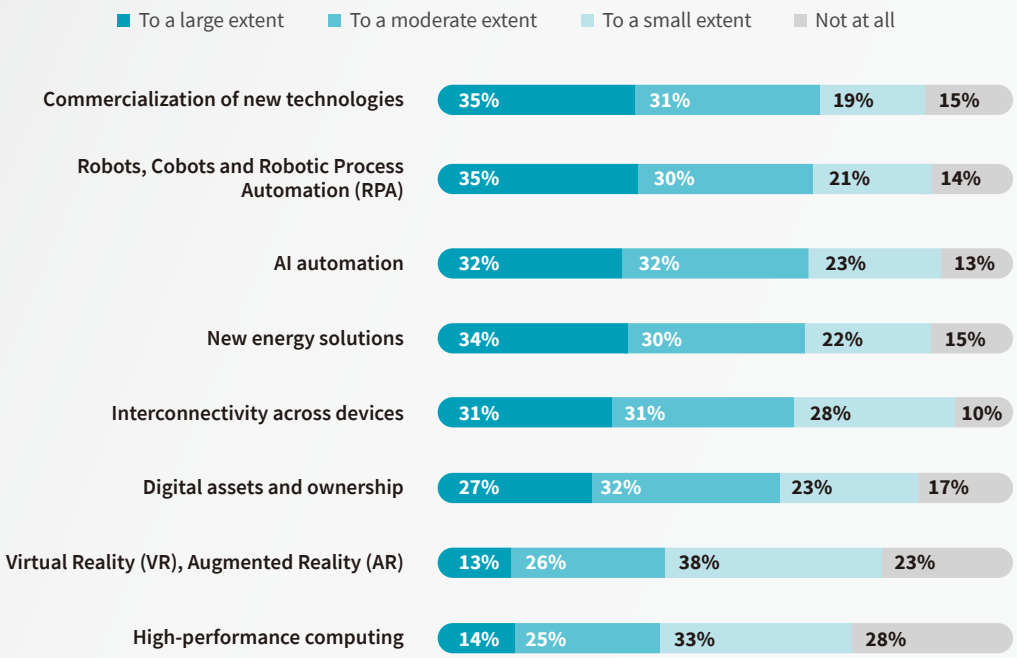


Figure A.3

IP protection is influencing German companies in China

To what extent does IP protection influence the innovation activities in your company in China?

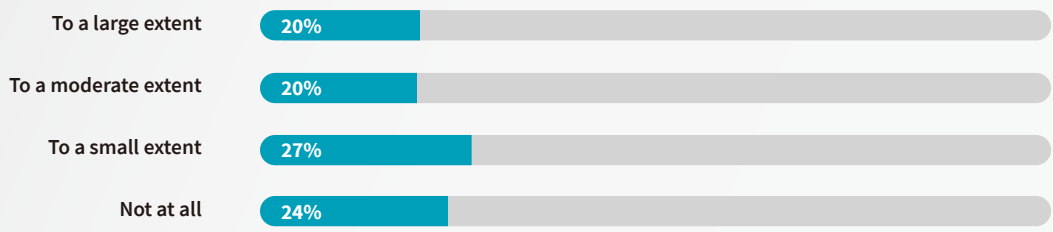
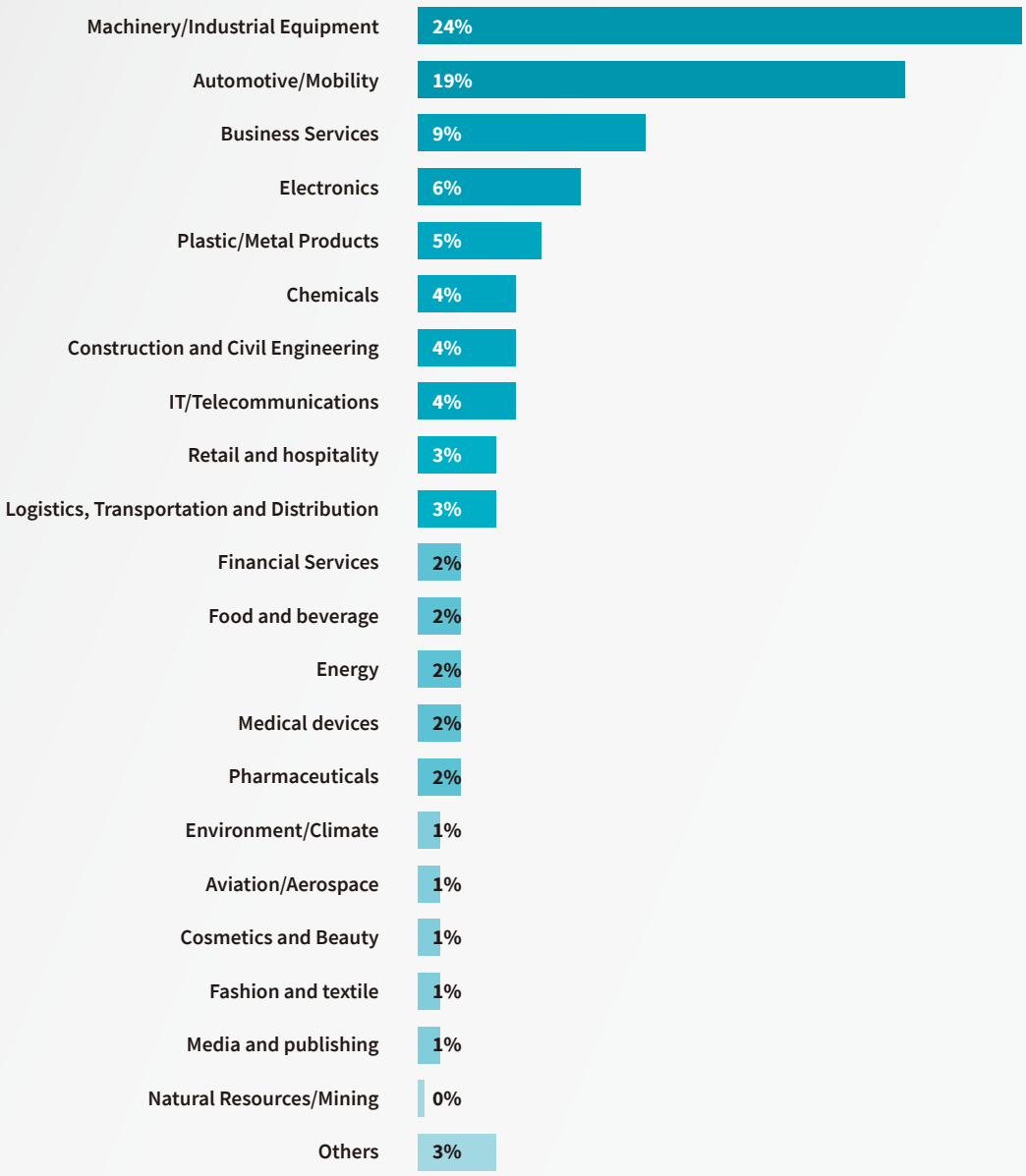


Figure A.4

Distribution of contributions by industry (Full version)

Please specify the primary industry of your company in China. (n=386)



CONTACTS

GERMAN CHAMBER OF COMMERCE IN CHINA

The German Chamber of Commerce in China currently has more than 2,100 members in mainland China and is the official member organization for German companies in China. By providing up to date market information and practical advice, the German Chamber helps its members to succeed in China. It offers a platform for the Sino-German business community and represents its members' interests towards stakeholders including government bodies and the public.

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The German Chamber of Commerce in China's Innovation Survey 2022, as well as further reports are available on our website under the Economic Data & Survey section at www.china.ahk.de.

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