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KfW SME Panel 2013: Innovation

Are German SMEs finally in the starting blocks?

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The innovation activities of SMEs have still not yet fully recovered even in the third year after the financial crisis. In particular, small (-33%) and large SMEs (-17%) have lost some of their innovative strength, which peaked in the middle of the last decade. Only the innovative activity of medium-sized SMEs was good in 2012, making them the vanguard in the expected recovery.

The renewed decline of the so-called imitative product innovators to now around half compared with the period 2004–2006 is once again slowing the modernisation of the product range across wide swathes of the economy. The good news is that the trend in the launch of market novelties was positive for a second year in a row, albeit at a low level. Compared with the prior period, about 21,000 more companies launched market novelties during the years 2010–2012, an increase of nearly one percentage point. Moreover, around 46,000 more companies modernised their processes during the same period. The rate is currently 18%, the highest it has been in four years.

The good prospects for the economy in 2014 offer hope that the innovation activities among SMEs will pick up. The most important prerequisite for an expansion of innovation efforts remains an improvement in orders and sales. In light of the high expectations for 2014, one in three SMEs is in the starting blocks.

The second driver for innovations, ac-

ording to companies, is noticeable competition. Open markets for goods and services are prerequisites for that.

In order to realise more innovations SMEs would also like to see an improvement in the financing situation, and they expect policy makers to provide efficient public administration, followed by concrete offerings to stimulate innovation.

Innovations and technical progress are the only permanent source of long-term economic growth.¹ They improve the use of resources in an economy, accelerate structural change and boost competitiveness in local, national and global markets.

A significant portion of technical progress must take place in small and medium-

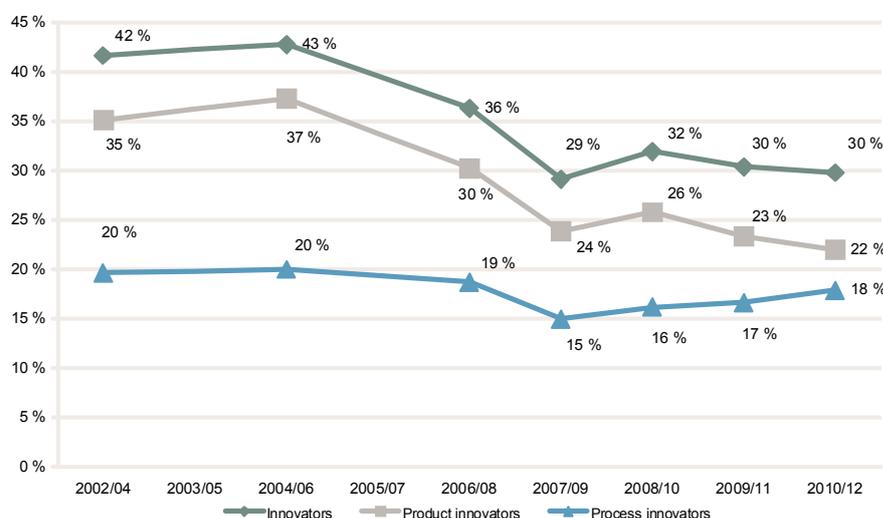
sized companies (SMEs). In Germany SMEs (with fewer than 250 employees) generate 53.8% of the gross value creation.² The modernity of their product range, manufacturing processes and production plants makes a significant contribution to the productivity and competitiveness of German companies. In particular, it enables German SMEs to fulfil their role in the value chain as producers of technology, suppliers, exporters or final providers.

Against this backdrop, spending on innovation³ by German SMEs is going in the wrong direction. Although SMEs (5 to less than 250 employees), at nearly 19%, do make up a considerable portion of the innovation expenditures by the German corporate sector, in recent years they have not kept up with the pace set by large corporations: between 2006 and 2012 the latter increased their spending on innovation in nominal terms by 17.6% to EUR 104.8 billion, whereas SMEs decreased their spending during the same period by EUR 0.1 billion to EUR 24.2 billion.⁴

Ratio of innovators: stable overall

The share of German SMEs (up to

Figure 1: Development of the share of innovators among SMEs



Note: Extrapolated with the number of SMEs

Source: KfW SME Panel

EUR 500 million in annual sales) that launched (in the view of the company) new products or processes during the last three years is currently 30% (2010/2012).⁵ This means that although the ratio of innovators – which tumbled drastically by nearly a third compared with its peak in 2004/2006 – has stabilised, it has not yet recovered (see Figure 1). Although the pick-up in the economy in 2010 led initially to a marginal gain, this improvement did not last. Above all, the weak economy in 2012 and the rather pessimistic medium-term economic sentiment⁶ that prevailed back then meant there were virtually no incentives for SMEs to expand their innovation efforts.

More innovations in the manufacturing sector

Since the mid-2000s, the share of innovators has declined, especially in the construction and service sectors. Among knowledge-intensive services, the share of companies launching new products or processes has even almost halved (see Figure 2). This is probably due to a less innovation-friendly market environment for these SMEs.⁷ On the other hand, the decline in the manufacturing sector is considerably smaller (-7% among R&D-intensive industries and -10% among other manufacturing segments). At the moment, innovation activity is accelerating again, primarily in the manufacturing sector.

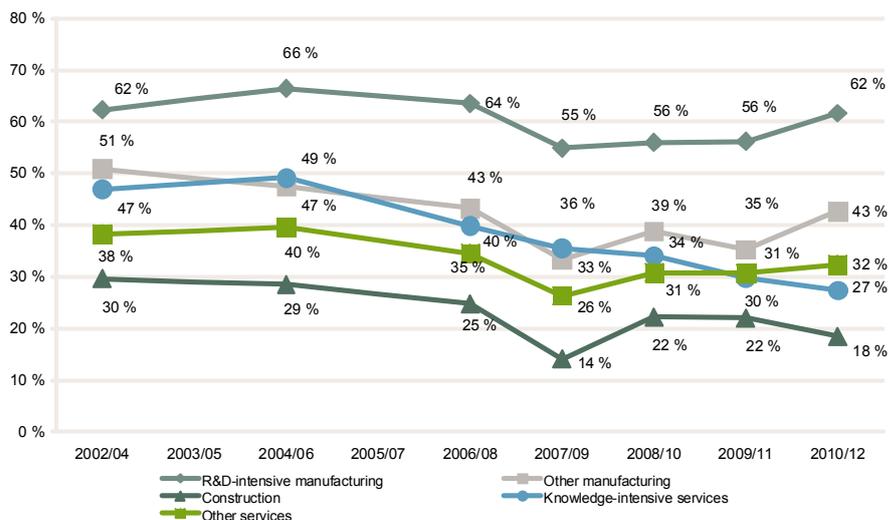
Further recovery in process innovations, but ...

Following the slump as a result of the financial crisis, the trend in process innovations was positive until 2012 (see Figure 1). For instance, in the last three surveys the share of SMEs that launched new production processes in their companies climbed steadily by three percentage points in total to 18% (2010/2012). This means that, as far as process innovations are concerned, the pre-crisis level has almost been reached again. Compared with the prior period, around 46,000 more companies modernised their production processes between 2010 and 2012.

... product innovations are lower

In 2010/2012 the share of product inno-

Figure 2: Development of the share of innovators by economic sector



Note: Extrapolated with the number of SMEs

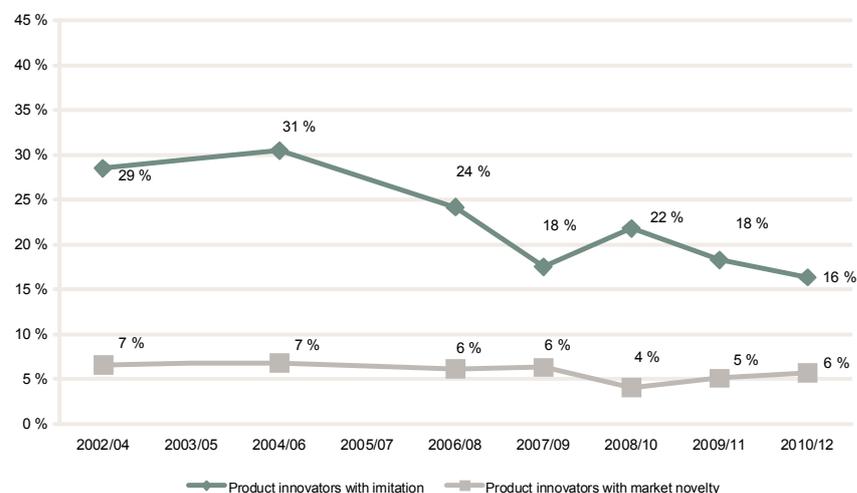
Source: KfW SME Panel

vators, at 22%, is even lower than in the period 2007/2009, when the comparable figure was strongly influenced by the financial and economic crisis. Following quite a significant decline by more than one third (-35%) to 24% between 2004/2006 and 2007/2009, it is currently at the lowest level ever reached since the start of the surveys.

The economic cycle is one reason for the contrasting trends in product and process innovations as well as for the unsatisfactory product innovation rate. Product innovations tend to be more successful in the market when demand is rising

rather than during economic downturns, a fact which companies take into account in their decisions about market launches. It is also probably easier to finance innovations when the economic environment is good. The pressure on the capital base of the banking sector is another factor weighing on lending with relatively high risk. In contrast, there is increased pressure for cost-reducing process innovations during times of economic weakness in particular. This offsets the cyclical nature of process innovations.⁸

Figure 3: Development of the share of original and imitative product innovators



Note: Extrapolated with the number of SMEs

Source: KfW SME Panel

Imitations dominate the big picture

Since 2008/2010, the share of imitative product innovators has steadily declined by six percentage points to 16% (see Figure 3). Here, too, the weak economic growth of the last two years is apparent. Imitative product innovations typically do not have longer development phases, which means a market launch at short notice based on the current demand situation is possible. The strong cyclical sensitivity of imitative product innovations was already seen between 2004/2006 and 2007/2009, when they suffered a particularly sharp decline (-42%).

On the other hand, significant innovation efforts and longer development phases are typically necessary for developing (product) market novelties. Accordingly, there is not a pronounced connection to the economic situation for the share of companies with market novelties. There was a gap here only in the aftermath of the financial and economic crisis (minus two percentage points), but this gap has nearly been closed again with a value of currently 6%.⁹ This increase of nearly one percentage point means that, compared with the prior period, about 21,000 more companies launched market novelties during the years 2010 until 2012.

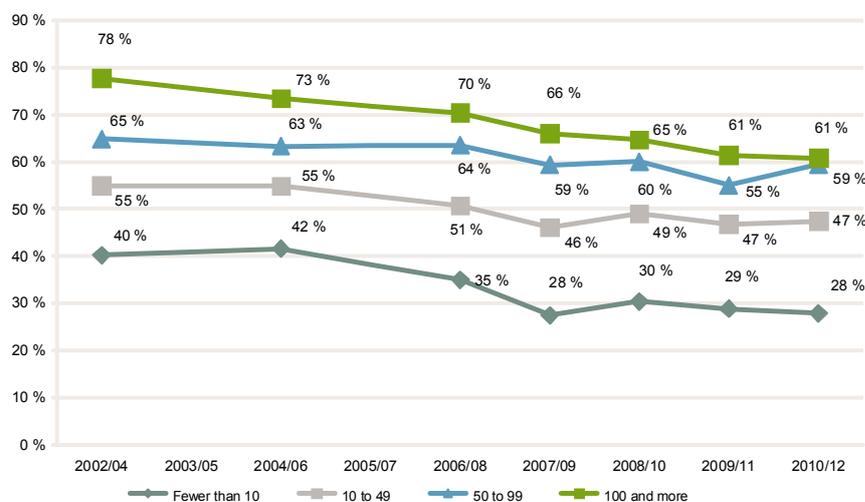
Mid-sized SMEs lead the way

Today, the share of innovators among small companies with fewer than 10 employees¹⁰ has declined for the second time in a row (see Figure 4). In contrast, the decline among companies with 10 to 100 employees has at least stopped, and in some cases the share is even increasing again. Among large SMEs (100 and more employees), the share of innovators has declined steadily since 2002/2004, with no apparent influence by the corresponding economic environment.¹¹

At the same time, the drop during the economic and financial crisis is more significant the smaller the companies are, even though the general effects of the crisis impacted larger companies more strongly than smaller ones.¹²

The steadier trend in innovation activity among larger companies over the economic cycle is probably attributable to

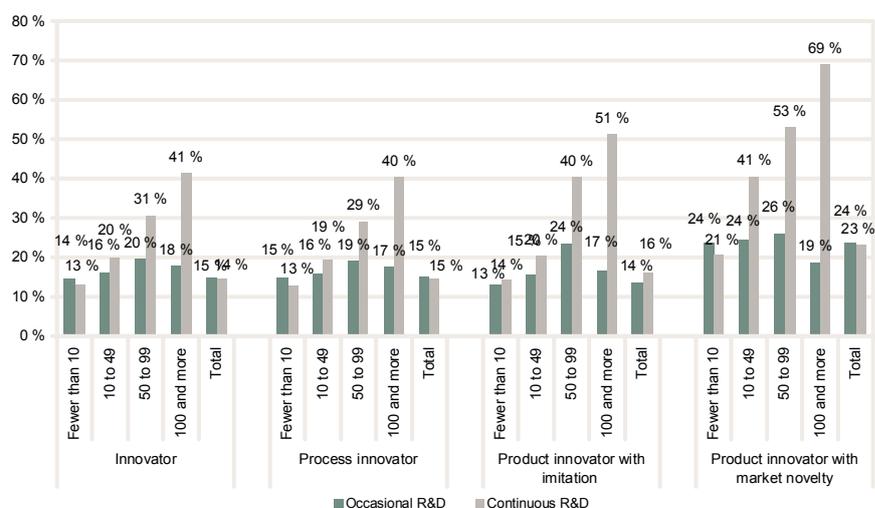
Figure 4: Development of the share of innovators by company size



Note: Extrapolated with the number of SMEs

Source: KfW SME Panel

Figure 5: Involvement in R&D in 2010/2012 by company size and type of innovator



Note: Extrapolated with the number of SMEs

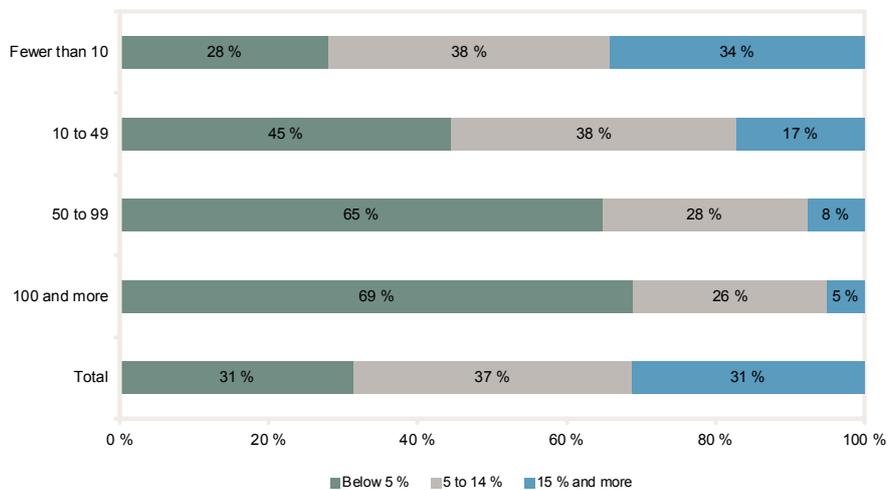
Source: KfW SME Panel

two important factors: firstly, as companies become larger, their need for process innovations – which are relatively less sensitive to the economy – grows.

And secondly, innovation processes are perpetuated to a greater extent in larger companies. For instance, the share of companies that continuously invest in R&D grows as the size of the company increases, regardless of the type of innovations that result (see Figure 5). The main reason for this is probably that innovation projects often cannot be arbitrarily divided. The fixed-cost nature of

innovation projects means that the relative financial burden of in-house innovation activity is greater in small companies than in larger ones (see Figure 6). This contributes to the stronger demand-oriented, rather short-term innovation activity of smaller companies.¹³ In contrast, larger companies are more able to completely finance longer development processes regardless of current business trends.

Figure 6: Share of innovation expenditure as a percentage of annual sales of innovating companies in 2012 by company size



Note: Extrapolated with the number of SMEs

Source: KfW SME Panel

One in three SMEs is in the starting blocks

What potential for more innovation is there among German SMEs, and what has to happen so that SMEs actually expand their innovation activities? At just over 2%, only a few SMEs state that they are planning to expand or (re)commence their own innovation activities in the next three years. A further 30% say that they believe it might be possible to expand or commence innovation activities under certain circumstances.¹⁴

The potential to strengthen their own innovation efforts is seen mainly by companies that are already innovating. When the survey was conducted in the spring of 2013, six percent of them had already decided to expand and a further 53% were considering doing so under certain circumstances (see Figure 7). Companies that had not produced any innovations during the last three years were considerably less likely to strive to (re)commence innovation activities. Here only 1% were planning to do so and 18% were considering it under certain circumstances. This reflects, firstly, the fact that a majority of non-innovating companies do not see the need for innovations due to specific market conditions, and, secondly, the fact that the commencement of innovation activities is

probably also a difficult obstacle to overcome, requiring an extensive use of resources and know-how.

Different mobilisation potential among large and small SMEs

Among non-innovators, small companies are especially pessimistic about the (re)commencement of innovation activities. Just 18% of small companies are looking into it, making them the least likely group of companies, whereas

companies with more than 50 employees see a greater potential, at 25% and 24%. In addition, 2% of large SMEs (100 or more employees) have already made a definitive decision to commence their own innovation activities, making them the category with the highest share of companies in this regard.

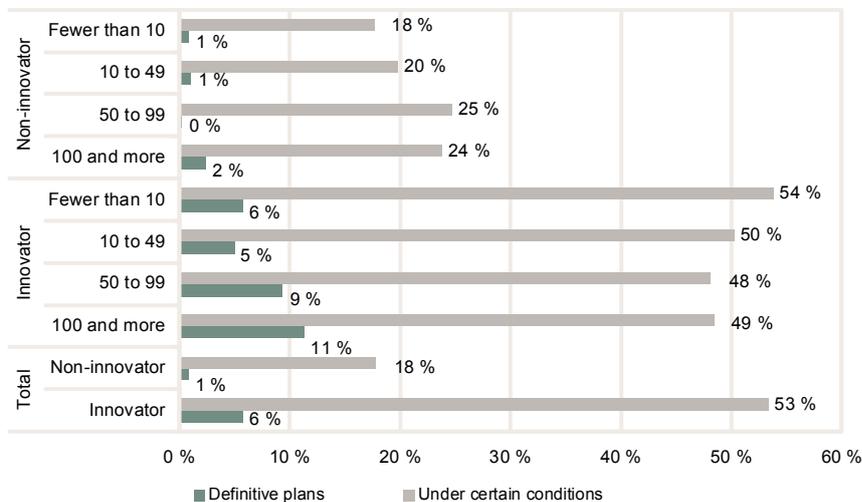
Among companies that are already innovating, larger SMEs are also more optimistic about the future. 11% of companies with 100 or more employees have already decided to expand their innovation efforts over the coming three years. This share is only half as high among companies with fewer than 50 employees (5% and 6%).

In contrast, 54% of small companies that innovate link an expansion of their innovation activities to certain prerequisites, which is more common than among large SMEs (49%). The reason for this is probably that smaller innovating companies are more likely to be hampered by specific obstacles in the development of their innovation activities than larger companies.¹⁵

A good business situation is the most important driver for more innovation

Among the companies that link an expansion or commencement of their own innovation efforts to conditions, the majority, at 34%, answer that the prerequi-

Figure 7: Expansion or commencement of innovation activities in the next three years



Note: Extrapolated with the number of SMEs

Source: KfW SME Panel

site for them is an improvement in their own business situation (e. g. order intake or sales) (see Figure 8). In particular, small companies with fewer than 10 employees indicate that their own business situation is well ahead of all other aspects as the most important driver for openness to innovation (see Figure 9).

Changes in the company's environment (e. g. demand for innovative products, type or intensity of competition) rank 2nd. Around one fourth of all SMEs see changes in market conditions as a prerequisite for more innovations.

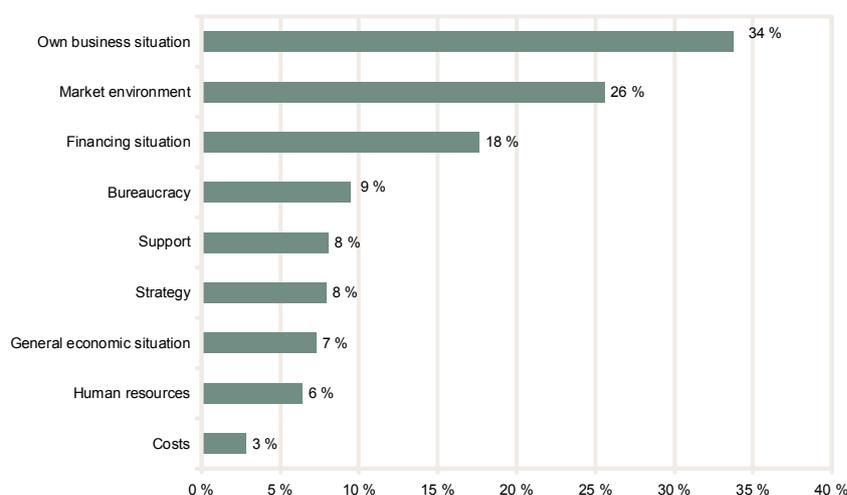
18% of SMEs say that an improvement in their own financing situation is a condition for expanding their innovation efforts. As was to be expected due to the particularly high burden that in-house innovation efforts place on smaller companies (see Figure 5), companies with fewer than 50 employees name this condition more often than larger companies (18% compared with 15%).

Legal / bureaucratic hurdles and support opportunities are ranked nearly equal in 4th and 5th place, at 9% and 8%. Larger companies tend to feel impacted by bureaucratic obstacles more frequently than smaller companies, while innovation support increasingly loses importance once companies have 50 or more employees.

But surprisingly, companies with fewer than 10 employees are least likely to see changes in support opportunities as a factor, even though these companies most frequently name their own financing situation as a barrier to innovation. This is probably due to the fact that small companies have less experience with innovation support opportunities and are therefore less often able to identify improvement potential.

Among companies with 10 and more employees, it is primarily firms that innovate which link an expansion of their innovation efforts to changes in support measures. It can be assumed that these companies are more likely to have already utilised support measures. Small companies with fewer than 10 employees, by contrast, participate at support measures less often,¹⁶ making it correspondingly less likely that they are able

Figure 8: Prerequisites for a potential expansion or commencement of innovation activities



Note: Only companies that link the expansion/commencement of their own innovation activities to prerequisites; extrapolated with the number of SMEs

Source: KfW SME Panel

to express any desires for improvement.¹⁷

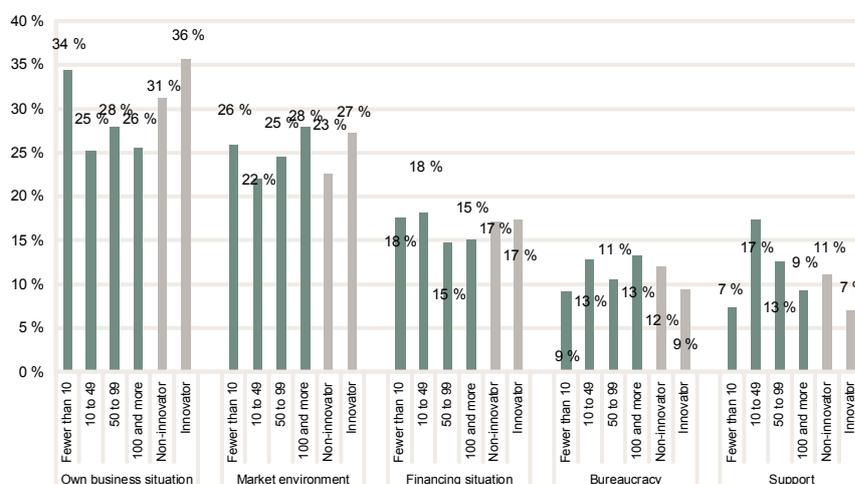
Bureaucracy is important, especially for non-innovators

12% of non-innovators indicate they are likely to commence their own innovation activities if there would be less bureaucracy, whereas among innovators the ratio is only 9%. Bureaucratic obstacles are therefore the only factor that is considered more important for mobilising in-

active companies than for expanding the innovation activities of companies that already innovate.

Six percent of companies make an expansion of their innovation efforts dependent on improvements in their human resources. This means human resources rank 8th. This may be due to the fact that the survey took place during a period of weak economic growth. A shortage of specialist staff might become increas-

Figure 9: Prerequisites for a potential expansion or commencement of innovation activities by company size and innovation activity



Note: The most frequently mentioned prerequisites; only companies that link the expansion/commencement of their own innovation activities to prerequisites; extrapolated with the number of SMEs

Source: KfW SME Panel

ingly important in the list of obstacles to innovation if growth accelerates in 2014.

Conclusion

Even in the third year after the financial crisis in 2008/2009, the innovation activities of SMEs have still not fully recovered from that significant turning point. In particular, the share of imitative product innovators is still decreasing. This means the spread of innovations through the economy is delayed, causing negative effects on structural change and on the competitiveness of broad swathes of the SME sector. Since the mid-2000s, the innovation activities among small companies (fewer than 10 employees) have declined the most; they are about one third lower.

In the view of the companies surveyed, the most important prerequisite for an expansion of innovation efforts by SMEs is an improvement in their individual business situation. This is especially the case for small companies. The consider-

able improvement in economic prospects for 2014 that has taken place since the survey was conducted in the spring of 2013 is therefore a reason to hope that innovation activities will accelerate among SMEs.¹⁸

The second most important driver for innovations is the market environment. Significant competition to provide superior solutions to customer problems – and less pure price competition – provides a major incentive for greater innovation efforts. Open markets for goods and services are an important prerequisite for that.

The fact that companies frequently mention their own financing situation underscores the great significance of financing difficulties as an obstacle to innovation. An improvement in the ability of companies to generate financing internally can be expected as the economy strengthens. In addition, corporate taxation, access to credit and specific measures to finance innovation are potential starting

points for economic policy.

Last but not least, this study demonstrates once again that legal and bureaucratic regulations are perceived as a barrier to companies' own innovation activities. A continuous review of legal standards and governmental procedures to confirm their necessity will encourage more innovations.

The social and economic environment in Germany will be dominated in the coming decades by the megatrends of demographic developments, climate change, resource shortages and increasing globalisation. To overcome these challenges and safeguard Germany's prosperity, permanent and higher investments in research and innovation are needed. The innovation efforts of SMEs are an important component in this regard. ■

¹ Cf. Borger, K., Lüdemann, E., Zeuner, J. and V. Zimmermann (2013): Deutschlands Wachstum in der Demografiefalle: Wo ist der Ausgang? [Germany's growth in demographic trap: Where is the way out?] KfW Economic Research. Papers and Proceedings, November 2013.

² In the standard EU definition. Cf. European Commission Enterprise and Industry (2013): 2013 Fact sheet Germany.

³ This includes spending on internal and external R&D, innovation-related spending on machines, systems, software and external knowledge (e. g. patents and licences). In addition, it also contains spending on product design, construction, service concepts, preparations for the manufacturing and distribution of innovations, and training in connection with innovations and their market launch.

⁴ Cf. Rammer, C. et al. (2014): Innovationsverhalten der deutschen Wirtschaft. Indikatorenbericht zur Innovationserhebung 2013 [Innovation patterns in German business sector. Indicator Report of the Innovation Survey 2013] and Aschhoff, B. et al. (2013), Innovation in Germany – Results of the German CIS 2006 to 2010. ZEW Documentation No. 13-01.

⁵ The following study is based on the KfW SME Panel. The KfW SME Panel is a representative annual company survey with responses from between 10,000 and 15,000 company owners with annual sales of up to EUR 500 million. In particular, the survey also covers companies with fewer than five employees, which according to calculations based on the KfW SME Panel account for more than four fifths of Germany's small and medium-sized enterprises and are generally not included in comparable data sets. Cf. Schwartz, M. (2013): KfW SME Panel 2013. Solider Gesamteindruck trotz Sand im Getriebe [Solid overall impression, despite sand in the works]. KfW Economic Research. The share of innovators is determined in the KfW SME Panel for a three-year period according to the Europe-wide standard approach. At the beginning of the observation period the KfW SME Panel collects information on innovation activity only every two years.

⁶ Cf. Schwartz, M. (2013): KfW SME Panel 2013. Solider Gesamteindruck trotz Sand im Getriebe [Solid overall impression, despite sand in the works]. KfW Economic Research. The survey took place during the spring of 2013.

⁷ Cf. Zimmermann, V. (2012): The innovation motor is sputtering. KfW Economic Research. Focus No. 13, January 2013.

⁸ For more detailed information, cf. Zimmermann, V. (2010): Innovation und Konjunktur [Innovation and the economic development]. KfW Economic Research. KfW Points of View No. 10, June 2010.

⁹ Owing to differences in the way the survey is conducted (inclusion of companies with fewer than 10 employees and coverage of all economic sectors), the data determined in the KfW SME Panel is not comparable with that of other surveys. Analyses based on the Community Innovation Survey conclude that Germany is in the upper quarter in Europe regarding the share of companies with (product) market novelties.

¹⁰ The calculation of the number of employees includes active owners but not trainees. Two part-time employees count as one full-time employee.

¹¹ The declining share of innovators can be seen primarily in non-R&D-intensive services and in the construction sector. By contrast, the share of innovators among large manufacturing companies has remained virtually unchanged at a high level.

¹² Cf. Reize, F. (2010): KfW SME Panel 2010. Mittelstand: Stabil in der Krise – auch in Zukunft Leistungsstark durch Innovation [SMEs: Stable in the crisis – successful in the future through innovation]. KfW Economic Research.

¹³ Cf. Zimmermann, V. (2012): To be the leader of the pack? Innovation strategies in the German SME sector. KfW Economic Research. Focus on Economics No. 11, November 2012.

¹⁴ The companies surveyed were able to respond in a free-text field to the following question: "What would have to happen in order for your company to commence or expand your own innovation activities in the next three years?" An alternative to this was for companies to agree with the statement "I will not expand or commence my innovation activities under any circumstances" by ticking it.

¹⁵ Cf. Zimmermann, V. (2012): Barriers to Innovation in SMEs. KfW Economic Research. Focus on Economics No. 6, September 2012.

¹⁶ Cf. Zimmermann, V. (2010): Wie finanzieren Mittelständler ihre Innovationen? (How do SMEs finance their innovations?) KfW Economic Research. Akzente No. 23, April 2010.

¹⁷ One fact that supports this interpretation is that among non-innovators the share of companies seeing a need for changes in support opportunities varies only marginally. The higher importance of support measures for non-innovators, as shown in Figure 9, is accordingly attributable to the special situation among companies with fewer than 10 employees, and not generally applicable.

¹⁸ Cf. KfW-ifo SME barometer December 2013. Mittelstand geht mit Zuversicht ins neue Jahr [SMEs confident about 2014].