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SMEs that have a digitalisation strategy are more proactive in their digital evolution

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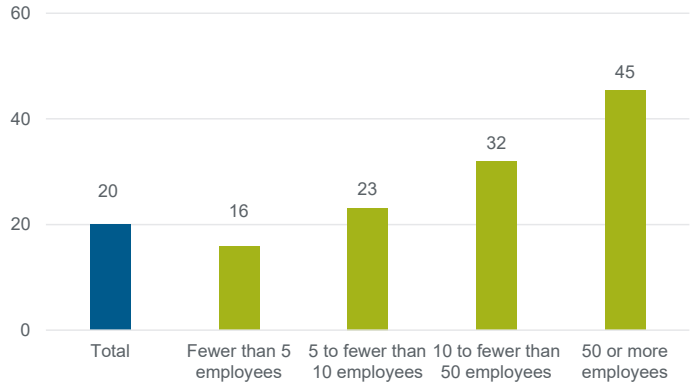
In an international comparison, Germany's progress in digitalisation is average at best. An important reason for this is likely the fact that many businesses still do not fully recognise the strategic aspect of digitalisation. Only a modest 20% of small and medium-sized enterprises already have a digitalisation strategy. Against this backdrop, the present study investigates what sets apart the digitalisation activities of SMEs that have a digitalisation strategy from those that have none.

The key finding of the analysis was that businesses that have a digitalisation strategy embrace digitalisation much more proactively than those that have none. Enterprises with a strategy undertake all types of projects investigated more often than those that have none. For example, a typical SME is around one and one third times more likely to carry out digitalisation projects that focus on reorganising workflows or digitalising products or services when it has a digitalisation strategy. Companies that have a strategy are around one and a half times as likely to pursue digital sales and marketing strategies. Thus the spectrum of projects with a digitalisation strategy is also significantly higher overall. From a technology perspective, businesses with a strategy are among the pioneers. They use big data applications more than three times as often and still use artificial intelligence applications one and two thirds times as often. Not least, SMEs that have a digitalisation strategy spend a good one and a half times as much on digitalisation as peers that do not have one.

Therefore, in addition to removing barriers to digitalisation, making SMEs more aware of the strategic importance of digitalisation appears to be particularly important. This applies to, for example, their positioning in markets, tapping into new customer groups and further developing existing business models. In particular, small and regionally operating businesses as well as those that do not innovate rarely have a digitalisation strategy even though they are active in this area. Targeting these groups of businesses specifically would also likely address the threat of the SME sector splitting into businesses that are digital pioneers and those that are left behind.

Germany is not exactly a global leader in the development or application of digital technologies. But since they are general-purpose technologies they are seen not just as offering great potential for developing new growth areas. They are also becoming increasingly important for Germany's traditional technological strengths.[1] Progress in digitalisation is therefore an essential building block for securing Germany's international competitiveness and prosperity.

Figure 1: Percentage of enterprises with a digitalisation strategy by size



Source: KfW SME Panel 2021, own calculation.

The limited diffusion of digital technologies among SMEs in particular is probably due in large to the fact that these enterprises spend relatively little on their digital transformation. Thus, in 2020 a small or medium-sized enterprise spent only just under EUR 20,000 on average on digitalisation but invested an average EUR 124,000 on traditional fixed assets.[2] In order to mobilise untapped digitalisation potential in the SME sector it is therefore important to tackle the barriers that prevent enterprises from going digital.[3] At the same time, it is becoming apparent that particularly in small and medium-sized enterprises there remains room for raising awareness of the importance of the strategic aspects of digitalisation.

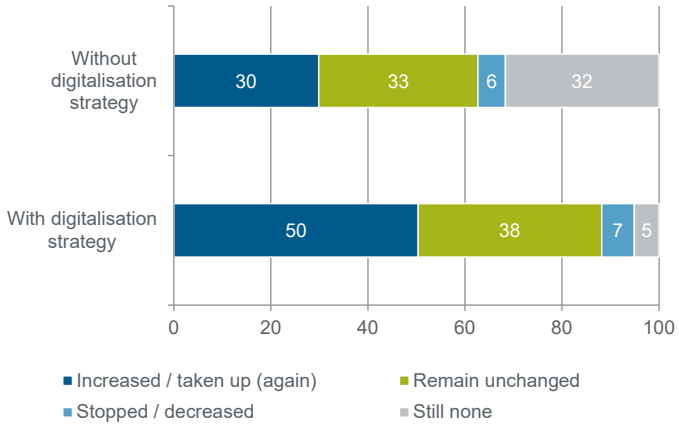
Empirical studies indicate that digitalisation projects are still too rarely being undertaken with the aim of active positioning in the market and that they tend to have little to do with a company's strategic orientation.[4] Furthermore, company-wide digitalisation strategies are found in only 20% of companies, meaning they are not yet very common (Figure 1). In particular, only 16% of businesses with fewer than five employees[5] thus far have digitalisation strategies, a proportion that is much lower than in large SMEs with 50 and more employees, 45% of which have such a strategy.

Inadequate consideration of the strategic aspect of digitalisation has likely contributed significantly to the low degree of digitalisation among small and medium-sized enterprises. After all, implementing a company-wide digitalisation strategy in particular is regarded as key, not just for businesses to take digitalisation measures sporadically but for implementing the digital transformation from a comprehensive perspective.[6] These aspects were already examined in a previous study.[7] The underlying hypothesis for the following analysis therefore

is that SMEs that have a company-wide digitalisation strategy are more proactive in their digital transformation, spend more on digitalisation and carry out more ambitious digitalisation projects.[I] In the following we examine the importance a company-wide digitalisation strategy has for digitalisation activities in SMEs.

Figure 2: Development of digitalisation activities of businesses with and without a digitalisation strategy during the coronavirus crisis

In per cent



Source: KfW SME Panel, supplementary coronavirus survey in autumn of 2021, own calculation.

Businesses with a digitalisation strategy are more active in digitalisation during the coronavirus crisis

Simple comparisons between SMEs with and without a digitalisation strategy suggest that businesses that had such a strategy have indeed progressed their digitalisation more intensively during the coronavirus pandemic than businesses that had no such strategy. Thus, under the supplementary survey to the KfW SME Panel that was conducted in autumn of 2021, half the businesses that had a digitalisation strategy stated that they expanded their digitalisation activities compared with the pre-pandemic situation (Figure 2). Among businesses that had no digitalisation strategy, that share was only just under one third. Furthermore, among the businesses with a digitalisation strategy there are hardly any that (still) had no digitalisation activities during the pandemic. Among those without such a strategy, on the other hand, that share was around one third.

Analysing the importance of having a digitalisation strategy for digitalisation activities

We will study this finding in more detail below. We know from past studies that digitalisation activities and the existence of a digitalisation strategy both differ greatly from one type of business to another.[8] Simple comparisons of digitalisation activities of enterprises with and without a digitalisation strategy do not correctly show the influence of the existence of such a strategy on their digitalisation activities because the influence of the strategy and of further characteristics of these businesses – such as their size, sector and innovation activities – overlap in the findings.

In the following investigation we therefore draw on the statistic method of regression analyses (see box Investigative methodology at the end). Regression analyses isolate the influences of overlapping factors and can thus calculate the exact influence intensity on the matter observed for each (observed) influencing factor. A regression analysis thus enables the actual correlations between the existence of a digitalisation strategy and the observed digitalisation activities to be identified. Specifically, the investigation compares the digitalisation activities of SMEs with and without a digitalisation strategy.

Enterprises with a digitalisation strategy are more likely to pursue ambitious digitalisation projects

After adjusting for other influencing factors, it became evident that a typical SME with a digitalisation strategy is more likely to carry out all types of projects surveyed than SMEs without a strategy (Figure 3). With regard to the renewal of IT structures and introduction of new applications, the difference in frequency is around one eighth, which is moderate. With respect to the digitalisation of interactions with the business environment, which should be regarded as a type of project with a relatively low level of difficulty, businesses with a digitalisation strategy outperform peers without such a strategy slightly more often. A typical SME that has a digitalisation strategy is a good one and one quarter times more likely to undertake such a project.

Figure 3: Types of digitalisation projects

Probability in per cent

Note: Model calculation on the basis of regression analyses.

Source: KfW SME Panel, surveys from the years 2021 and 2019, own calculation.

[I] The present study was conducted in a partnership between Creditreform Rating AG, Neuss, and KfW Research, the economics department of KfW Group.

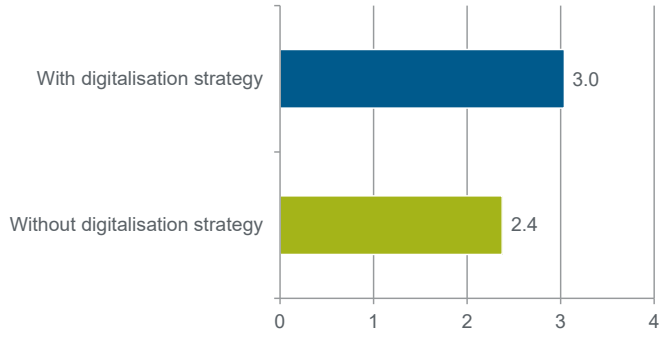
Enterprises that have a digitalisation strategy are particularly active in ambitious projects such as digitalising products and services, reorganising workflows with the aid of digitalisation measures and interconnecting the business as a whole by digitally integrating functional areas. In these types of projects, a typical SME that has a digitalisation strategy exceeds a peer with no strategy by a good one and a third to almost one and a half times. The likelihood that a business with a digitalisation strategy and otherwise identical characteristics introduces digital marketing and sales strategies – whose degree of complexity may, however, differ – is also around one and a half times higher than in an identical SME with no strategy.

Enterprises with a digitalisation strategy undertake projects with a broader thematic scope

Another finding was that enterprises that have a digitalisation strategy also undertake more distinct digitalisation activities in terms of the variety of project types carried out. In order to establish a measure of the breadth of activities, the investigation counted how many of the project categories a business addressed at the same time during the period of observation.[9] A typical SME with a digitalisation strategy simultaneously carried out projects from 3.0 of the categories surveyed, while that rate was only 2.4% in a typical enterprise without a digitalisation strategy (but with digitalisation activities) (Figure 4). That means enterprises with a digitalisation strategy are more active with regard to the thematic scope of their projects.

Figure 4: Thematic scope of digitalisation projects undertaken

Number of categories to which the digitalisation projects refer



Note: Model calculation on the basis of regression analyses.

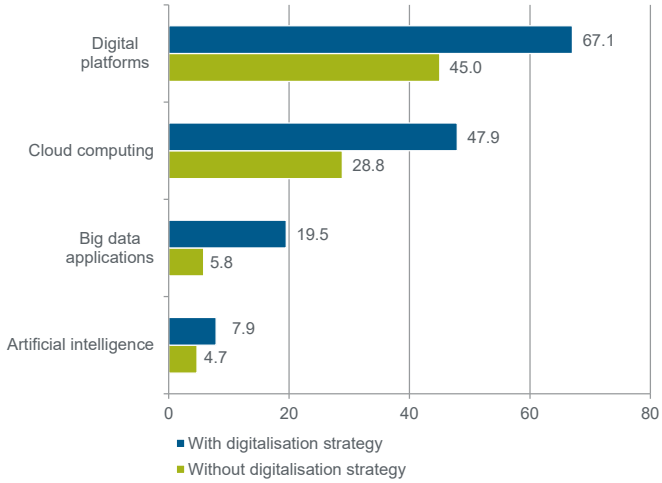
Source: KfW SME Panel, surveys from the years 2021 and 2019, own calculation.

SMEs with a digitalisation strategy are more likely to use sophisticated digital applications

The above considerations that enterprises with a digitalisation strategy are most likely to embrace ambitious digitalisation projects are confirmed when we look at the digital applications which enterprises are already using. For the digital technologies investigated here it can be argued that usage increases in complexity from digital platforms through cloud computing and big data applications to artificial intelligence. Growing complexity means that using them requires increasingly higher levels of competence. This applies to increasing IT skills, which grow from the ability to use simple pre-programmed applications to the need for programming skills, but also applies with regard to mathematical-statistical knowledge and the demands on the design of specific application cases.[10]

Figure 5: Use of individual digital applications

Probability in per cent



Note: Model calculation on the basis of regression analyses.

Source: KfW SME Panel, surveys from the years 2021 and 2019, own calculation.

Overall, Figure 5 shows that enterprises with a digitalisation strategy are already using all technologies surveyed more often than enterprises without a digitalisation strategy.[11] In particular, it was found that the less frequently a technology is already being used – that is, the newer and more sophisticated it still is from the perspective of SMEs – the more likely it is for enterprises with a digitalisation strategy to use that technology than those without a strategy. Thus, an enterprise with a digitalisation strategy is one and a half times, one and two thirds times and more than 3.3 times more likely to already be using the technology of digital platforms, cloud computing and big data applications, respectively, than an enterprise without such a strategy. Enterprises with a digitalisation strategy therefore must definitely be regarded as digital pioneers.

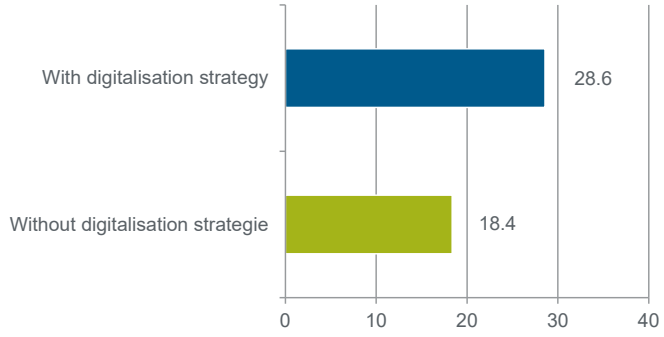
Only in artificial intelligence, which must be regarded as the most sophisticated technology, is the likelihood of even an enterprise with a digitalisation strategy using it ‘only’ around one and two thirds times as high as for an enterprise without such a strategy. This finding can be regarded as an indication that artificial intelligence poses major challenges even for the digital pioneers among SMEs.

Enterprises with a digitalisation strategy spend significantly more on digitalisation than other enterprises

Finally, Figure 6 shows that the more comprehensive and ambitious digitalisation activities of enterprises with a digitalisation strategy also go hand in hand with significantly higher digitalisation expenditure. In our investigation, a typical SME with a digitalisation strategy spends a good one and a half times as much on digitalisation as its peer without a strategy, or just under EUR 29,000. Thus, SMEs with a digitalisation strategy also make significantly higher funds available for digitalisation.

Figure 6: Level of digitalisation expenditure

EUR in thousand



Note: Model calculation on the basis of regression analyses.

Source: KfW SME Panel, surveys from the years 2021 and 2019, own calculation.

Conclusion

Digitalisation is not one of Germany's strengths. A major reason is that many enterprises still fail to take into account the strategic aspects of digitalisation. For example, digitalisation measures often have little relevance to the enterprise's strategic orientation. Furthermore, a relatively small proportion of SMEs already have a digitalisation strategy (20%), although having a strategy is actually regarded as a guarantor of an enterprise's comprehensive digital transformation.

The analysis demonstrates that enterprises with a digitalisation strategy take a more ambitious approach to their digitalisation than those that, although actively engaged in the field, have not implemented a strategy. SMEs with a strategy thus complete each of the types of project investigated more often than those without one. The thematic scope of the digitalisation efforts is also higher. With respect to the complexity of digitalisation efforts it was found that businesses with a strategy already use sophisticated technologies, in particular, more often than other enterprises. Not least, enterprises with a digitalisation strategy also spend significantly more on digitalisation than those without. Those that have a digitalisation strategy are therefore typically among the pioneers of digitalisation.

Besides removing barriers to digitalisation, it thus appears particularly important to step up efforts to make small and medium-sized enterprises more aware of the strategic importance of digitalisation. This applies to positioning in markets, tapping into new customer groups and further developing existing business models, for example. The findings of the investigation show that this will likely provide major impetus for digitalisation in small and medium-sized enterprises.

In particular, small and regionally operating businesses as well as those that do not innovate rarely have a digitalisation strategy.[12] Thus, addressing these groups of businesses is also likely to counter the threat of the SME sector splitting into one group of usually large businesses that have a strategy and play a very active pioneer role in digitalisation and another group of businesses left behind that have no such strategy.

Investigative methodology

The statistical analysis was based on the 17th and 19th waves of the KfW SME Panel, in which the existence of a company-wide digitalisation strategy was surveyed. The analysis was conducted using probit models and least-square regressions into which around 4,000 to 6,000 responses from businesses were entered. The analyses on the different types of projects carried out and amounts spent on digitalisation included only businesses that carried out digitalisation projects or undertook digitalisation expenditures. The following characteristics were taken into account in the regressions: size of enterprise (in full-time equivalents), age, employment of university graduates, share of employees younger than 40, size of sales region, successful completion of innovation projects, creditworthiness of enterprise according to the Creditreform credit rating index, collective industry to which enterprise belongs, degree of settlement density of the district of its registered office, group to which it belongs, legal status, KfW support status, region of its registered office as well as year of survey.

These regression analyses demonstrate how strongly each of the target areas analysed is influenced by the existence of a digitalisation strategy. The regression results are illustrated using model calculations for a typical small or medium-sized enterprise. The influence of the digitalisation strategy on the target areas can be mapped by varying the characteristic 'digitalisation strategy' in the model calculations while leaving all other enterprise characteristics unchanged.

[1] Cf. Zimmermann, V. (2021): Digitalisation in international comparison: Germany lags far behind in IT investment, Focus on Economics No. 352; KfW Research, Zimmermann, V. (2021): Information technologies are not one of Germany's strengths but of vital importance as technologies of the future, Focus on Economics No. 332, KfW Research and Schmoch, U. et. al (2021): Identifizierung und Bewertung von Zukunftstechnologien für Deutschland (*Identifying and assessing future technologies for Germany* – our title translation, in German only), Fraunhofer Institute for System and Innovation Research.

[2] The values refer to the average expenditure of businesses that spend on digitalisation and capital investment. Cf. Schwartz, M., and Gerstenberger, J. (2021): KfW SME Panel 2021. SMEs have shown adaptability in the coronavirus crisis but cracks are appearing in the foundations of small businesses, KfW Research, and Zimmermann, V. (2022): SME Digitalisation Report 2021. Corona pandemic triggers digitalisation push but digitalisation is still not a matter of course, KfW Research.

[3] Cf. Zimmermann, V. (2022): Vielfältige Hemmnisse bremsen die Digitalisierung im Mittelstand (Various obstacles hamper digitalisation in SMEs – in German only), Focus on Economics No. 380 and Zimmermann, V. (2022): Vielfältige Hemmnisse bremsen die Digitalisierungsaktivitäten deutscher Unternehmen, ifo-Schnelldienst 2/2022, 75th year, p. 8–11.

[4] Cf. Zimmermann, V. (2021), Market environment and competition strategies shape innovation and digitalisation in small and medium-sized enterprises, Focus on Economics No. 347, KfW Research.

[5] The number of employees is calculated including the active owners but excluding trainees and apprentices. Two part-time employees are counted as one full-time employee.

[6] Cf. Kane, G. C. et al. (2015): Strategy, Not Technology, Drives Digital Transformation. MIT Sloan Management Review. 57181-MIT-Deloitte-Digital2015.pdf (fuerstenberg-forum.de)last retrieved on 15 March 2022; Hille, V.a and Wiedemann, A. (2019): Digitalisierung im Mittelstand – integrativer Steuerungsansatz zur Implementierung einer Digitalisierungsstrategie (*Digitalisation in the SME sector – integrative steering approach to implementing a digitalisation strategy* – our title translation, in German only), Zeitschrift für KMU und Entrepreneurship 67(2), p.145–152; Trenkle, J. (2020): Digital transformation in small and medium-sized enterprises: strategy, management control, and network involvement, Dissertation Technical University of Munich.

[7] Cf. Zimmermann (2022): Digitalisierungsstrategien sind vor allem in kleinen, regional-agierenden und nicht innovativen Unternehmen selten (*Digitalisation strategies are particularly rare in small, regionally operating and non-innovative businesses* – our title translation, in German only), Focus on Economics No. 382, KfW Research.

[8] Cf. Zimmermann (2022): Digitalisierungsstrategien sind vor allem in kleinen, regional-agierenden und nicht innovativen Unternehmen selten (*Digitalisation strategies are particularly rare in small, regionally operating and non-innovative businesses* – our title translation, in German only), Focus on Economics No. 382, KfW Research.

[9] Including the category 'Other', the maximum achievable score is 8.

[10] For more in-depth analyses on the use of digital platforms and artificial intelligence cf. Zimmermann, V. (2021): Artificial intelligence: high growth potential but low penetration in SMEs, Focus on Economics No. 318, KfW Research and Zimmermann, V. (2020): Which SMEs use digital platforms? Focus on Economics No. 303, KfW Research.

[11] The technologies investigated were not all included in both surveys of the KfW SME Panel. Digital platforms, big data applications and artificial intelligence were covered by the 2019 survey. The survey on cloud computing as a technology was included in the 2021 survey.

[12] Cf. Zimmermann (2022): Digitalisierungsstrategien sind vor allem in kleinen, regional-agierenden und nicht innovativen Unternehmen selten *(Digitalisation strategies are particularly rare in small, regionally operating and non-innovative businesses* – our title translation in German only), Focus on Economics No. 382, KfW Research.