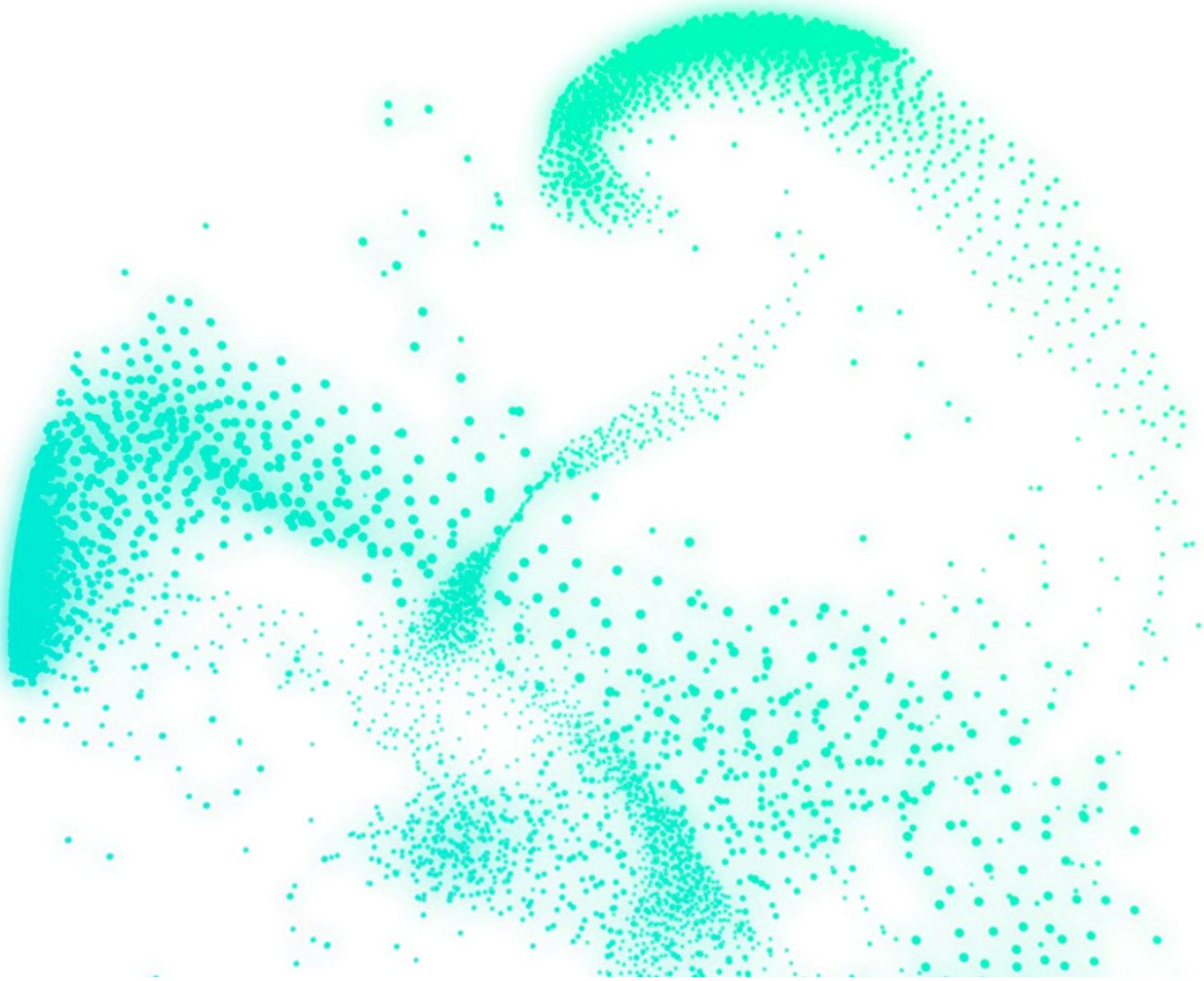

Empowering people

Insights into strategy implementation in the digital era

Research report by Siemens AG and the University of Göttingen

SIEMENS

GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

Contents

Introduction and overview

How can we bring our strategy to life?

How do we get key stakeholders on board?

And how do we foster exchange and learning in our organization?

In today's world full of change, these are critical questions for business leaders. Global megatrends such as glocalization, climate change, urbanization, demographic change, and digital transformation are driving tremendous transformation scenarios in the world. To be ahead of these transformational demands, companies need to reinvent themselves with the aid of successful strategy implementation. At Siemens, this means putting the four strategic priorities of "customer impact", "empowered people", "technology with purpose", and "growth mindset" into action (Siemens AG, 2021).

Bringing any strategy to life requires getting the buy-in and support of key stakeholders. Moreover, it is becoming more important than ever to ensure that good practices and learning are shared throughout the organization. Hence, successful strategy implementation is required to seize emerging opportunities by leveraging and embracing novel collaboration approaches. Here, in particular, data analytics offers great potential (e.g., DalleMule and Davenport, 2017; Lavalle et al., 2011; Mikalef et al., 2019). But how can data analytics be utilized for strategy implementation? And how can business impact be generated from these emerging opportunities?

The purpose of this report is to illustrate how Siemens in a joint project with the University of Göttingen developed a novel and innovative approach in leveraging data analytics to involve senior management as a key stakeholder group in strategy implementation. This report provides insights into the project approach and main results, such as the importance of empowerment as a new strategic paradigm. It may thereby offer ideas for other companies to generate and utilize valuable empirical evidence in support of their own strategy implementation.

"Siemens creates technology with purpose. Wouldn't it be great to leverage digital technology to support our own strategy implementation?"

– Peter Körte (Chief Technology Officer and Chief Strategy Officer at Siemens AG)

Senior management as key stakeholder in strategy implementation

The senior management is known as a key stakeholder in strategy implementation (Floyd and Lane, 2000; Kellermanns et al., 2011). It comprises managers from various units and levels throughout the global organization, such as the heads of businesses, regions, and departments. These managers typically possess tasks such as decision-making, planning, directing, and adapting of activities at corporate and business level. As such, the senior management has a key role in translating the firm's strategy into business impact and functions as a decisive multiplier for strategy implementation. Given this crucial role of the senior management, it also possesses valuable knowledge about the internal implementation state of strategic key topics and has a deep sense for the external customer perspective. Therefore, involving senior management and building on their feedback can be highly beneficial for the facilitation of strategy implementation.

However, even if the involvement of senior management provides pronounced benefits in theory, engaging senior management at large scale in practice is remarkably challenging. Especially in large organizations, engaging senior management means involving thousands of managers working in various organizational units and at various levels. Apart from traditional methods (e.g., single interviews, workshops, etc.) falling short due to capacity restrictions, these approaches may also be unfavorable to deal with the different management perceptions. Specifically, subjectivity in these methods may result in biases such as over- or underestimation of individual perceptions (Bol, 2011). Generally speaking, the involvement of senior management is often limited to a small number of senior managers, and the potential for successful strategy implementation arising from the engagement of senior management is often not fully exploited.

An innovative, data-driven approach to strengthening the involvement of senior management

To overcome these restrictions in the involvement of senior management, the opportunities offered by digitalization could provide an answer. In particular, emerging data analytics methods provide potentials to consider different perceptions of senior managers in an objective and scalable manner. The cooperation between Siemens and the University of Göttingen aims to exploit these potentials by integrating and analyzing several data sources, including an academic survey of the senior management regarding strategy implementation.

The project comprises an innovative, data-driven approach for strategy execution support. First, the project combines several data sources to generate a comprehensive dataset that enables for detailed insights into the state of strategy implementation. In particular, the project approach integrates survey data on the senior management's perception regarding the strategy implementation with additional data sources such as individual (e.g., tenure) and organizational (e.g., business unit) characteristics as well as performance data (e.g., financial performance) to set up a sophisticated data basis. Second, rigorous scientific methods are used in survey design to ensure the robustness and validity of the data processing.

Finally, advanced statistical analyses (e.g., multivariate regression and semantic text analyses) are conducted to systematically explore patterns in the data. In particular, multivariate regression analysis enables to consider various confounding influences at the individual (e.g., tenure) and organizational level (e.g., business unit) to identify promising management levers for strategy execution in a robust manner. Hence, the project approach enables to generate detailed insights into the strategy implementation, while, at the same time, it allows to strengthen the involvement of the global senior management.

Empirical evidence for the effectiveness of the strategy

Based on rigorous scientific methods, the approach reveals three key results. First, the analyses show a high level of openness, commitment, and engagement of senior management towards Siemens and their direct involvement in strategy implementation. Second, the analyses provide scientific evidence for the impact of promising management levers, in particular empowerment. Third, the approach reveals topic-specific heterogeneity among business units, which is useful to facilitate a focused approach in best-practice transfer and organizational learning. The results imply that data-driven insights and open collaboration across organizational boundaries provide great potential to positively impact firm performance. Moreover, the results suggest that empowerment is increasingly turning into a strategic paradigm. Hence, this project contributes to the ongoing discussions on empowerment as a leadership skill by empirically showing that driving empowerment can make a decisive difference.

"From an academic perspective, data analytics provides immense potential. However, ensuring data availability, integration, and quality is crucial and can be very challenging. Nevertheless, the cooperation project with Siemens shows that the effort can definitely be worthwhile."

– Michael Wolff (Professor of Management and Controlling at the University of Göttingen)

Project approach

A conceptual model to generate empirical insights into the drivers of strategy implementation

To provide empirical insights into strategy implementation, a conceptual model guiding the data processing and analysis was developed. Specifically, the conceptual model aimed to address two objectives: (1) Identifying crucial management levers to facilitate the implementation of key organizational capabilities and (2) measuring the impact on firm performance. Based on these objectives, the conceptual model consists of three interrelated dimensions: Management levers, organizational capabilities, and firm performance (see Figure 1). For each dimension, topics were identified in an iterative process between Siemens and the University of Göttingen to align the measures with crucial aspects of Siemens' business strategy and the state-of-the-art from an academic perspective. In the following, the dimensions are described and exemplary topics are presented.

Management levers are understood as the organizational conditions that are most directly linked to concrete management actions such as performance management approaches, organizational design choices, leadership behaviors, and cultural aspects. Empowerment represents an example of a management lever. In this research report, empowerment is understood as a leadership behavior that captures the senior managers' influence on a range of firm decisions. While empowerment is currently gaining a lot of attention by practitioners (e.g., de Smet et al., 2020) and researchers (e.g., Bouncken et al., 2020), it is particularly noteworthy that empowerment increases the quality of decisions and is related to a culture that supports future-oriented and entrepreneurial behaviors. We therefore expect that empowerment could benefit the strengthening of organizational capabilities, such as digital pioneering and an entrepreneurial climate.

Organizational capabilities represent abstract phenomena that are key to the firm's business strategy. From a strategic perspective, they are expected to be crucial for firm performance and differential value creation. In contrast to management levers, managing organizational capabilities is more difficult since they are the result of the calibration of different management levers. In the case of Siemens, digital pioneering and entrepreneurial climate present two exemplary organizational capabilities. Digital pioneering relates to the embracing and use of emerging digital technologies. It measures the commitment of the respondents towards digital technologies such as digital platforms for collaboration and tools for data analytics. Entrepreneurial climate captures the work climate with respect to risk affinity, customer orientation and competitive orientation. We expect that a higher perception of empowerment is related to a higher perception of digital pioneering and entrepreneurial climate. Moreover, digital pioneering and entrepreneurial climate should also be related to the senior management's perception of firm performance.

The firm's performance reflects the senior management's perception of operative performance (i.e., the efficiency and effectiveness of business operations) and innovation (i.e., the commercialization of new ideas). Moreover, customer satisfaction, which captures the direct feedback of customers, is considered within the firm performance dimension.

In sum, the conceptual model assumes that managers do not directly influence firm performance, but, instead, they need to undertake actions at the management lever dimension to impact organizational capabilities, which, in turn, impact firm performance. Based on this assumption, the conceptual model allows conclusions to be drawn regarding the identification of promising management actions to support strategy implementation in a performance-oriented way.

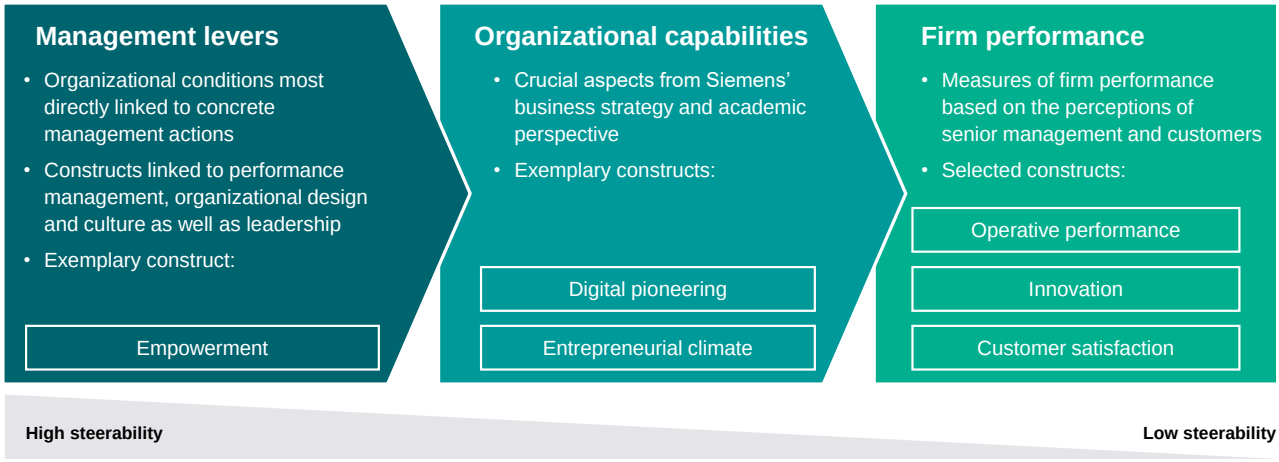

Figure 1: The underlying conceptual model differentiates three dimensions: Management levers, organizational capabilities, and firm performance. For each of these dimensions, several constructs (i.e., abstract entities that capture the non-observable state of a phenomenon; see Bagozzi and Fornell (1982) for more detail) are used to measure relevant strategic topics such as empowerment, digital pioneering, and entrepreneurial climate.

Methodological approach to operationalizing the conceptual model

At the core of the project approach stands an academic survey to capture relevant phenomena and to derive implications for strategy implementation. Rigorous scientific methods are used to ensure the validity and robustness of this approach. First, the survey design is based on academic standards. This means that the strategic topics of the dimensions such as empowerment, digital pioneering, and entrepreneurial climate are measured by academic constructs, i.e., pre-defined sets of questions that have already been used in prior scientific research. As such, the validity of these question sets has already been tested in various surveys and, thus, ensures a high robustness of measurement. The assignment of constructs to a dimension is based on a deductive approach, which follows prior academic literature theorizing on the effects of the constructs. The model is further substantiated by an inductive approach. In the inductive approach, the results of structural-equation modeling confirm the assignment of constructs to the dimensions of our conceptual approach as we could find only direct effects on the firm performance of the constructs assigned to the organizational capabilities dimension. Besides the standardized questions that reflect the specific constructs, respondents could give detailed individual comments. These comments provided additional insights into the perception of senior management. Based on semantic text analysis, the comments are clustered according to their content and, thereby, can be interpreted in a systematic and structured way.

Second, the survey data is combined with additional data sources to consider potential confounding influences. Organizational and individual characteristics are combined with the survey responses to account for influences that may determine the response behavior. For example, empowerment may be perceived differently in the context of various organizational units or may depend on the organizational level of the respondent. Considering the organizational unit and level as control variables in the analysis allows these confounding influences to be excluded when analyzing empowerment. Moreover, we combine the survey data with data on customer satisfaction and with performance data. The performance data comprises financial KPIs used for reporting purposes, such as profit margin, and strategic KPIs used for planning purposes, such as growth-related KPIs. This allows the robustness and potential for actual impact of the model to be tested by assessing the relationship between the senior management's perception of firm performance and the actual financial performance of the firm.

Finally, these procedures in data processing and combining enable the application of advanced data analytics methods. Descriptive analyses are used to describe the average response behavior by specific sub-groups such as organizational units and functions. While this type of analysis allows conclusions to be drawn about the current perception of senior management in these sub-groups, it does not allow to draw conclusions about causal relationships between different data points. However, these kinds of conclusions are necessary to provide insights into management levers and impact of organizational capabilities. To move closer to making statements about causal relationships, sets of multivariate logistic regression analyses are employed. These types of analyses allow to account for several control variables such as individual (e.g., tenure, age) and organizational characteristics (e.g., business unit, function). Hence, these multivariate regression analyses allow to make more valid statements about causality than those statements based on descriptive analyses. In addition, semantic text analysis is used to draw conclusions from the various comments provided by senior management. Figure 2 summarizes the methodological approach.

The analyses based on anonymous data are conducted by the University of Göttingen and the results are only provided for groups of more than six respondents in line with the data privacy regulations of Siemens.

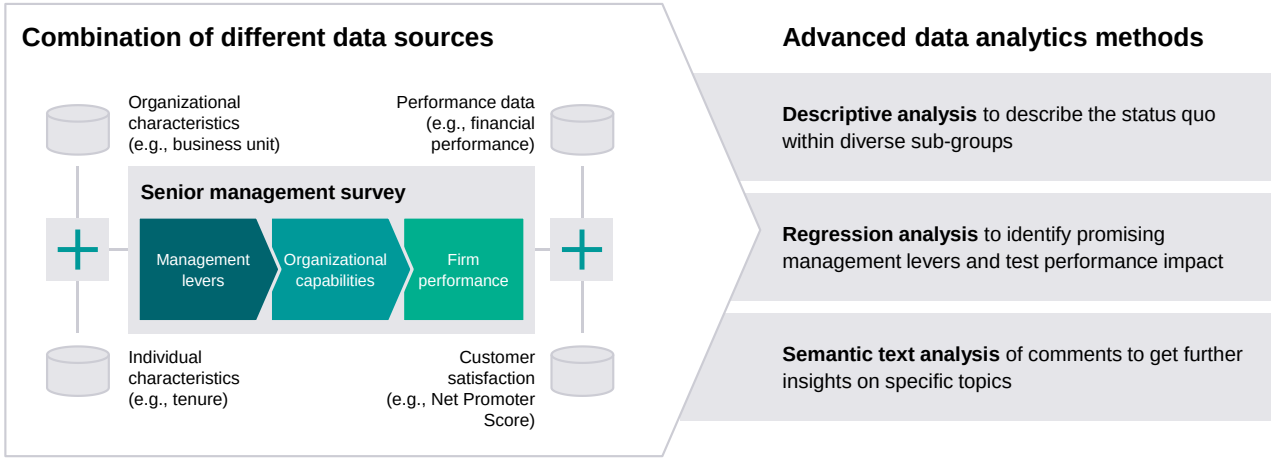

Figure 2: The methodological approach: Combining different data sources to enable advanced data analytics methods

Processual approach to raising awareness for key results and ensure business impact

While the conceptual model and the methodological approach allow robust and sophisticated insights to be generated regarding the impact of organizational capabilities on firm performance and the identification of management levers, creating business impact from these data insights still needs to be ensured. The cooperation primarily focused on three types of activities to derive business impact.

First, reporting of key results for the top management was established. Specifically, the top management was informed about both the outstanding positive feedback and potentials for improvements. At relevant top management meetings, potential implications were presented and discussed. As such, the feedback of senior management was provided to the top management in an unfiltered, direct way.

Second, a sophisticated dashboard was implemented, in which senior management could assess the results. In particular, the dashboard enabled individual access of senior managers to customized and visualized content. For example, senior managers could access and compare results that were at an aggregated Siemens level, but also at the level of their specific organizational unit. The dashboard-based visualization of the data further enabled an intuitive, interactive, and quick interpretation of the key results. While this increased transparency across the organization, data confidentiality and anonymity were also ensured by providing only aggregated results for groups of more than six respondents. All in all, the dashboard enabled the senior management to make sense of the anonymized and direct feedback regarding the perception in their organizational units and to use the results for interactions and discussions across the organization. As such, the dashboard-based distribution of the results presented a crucial factor to facilitate organizational learning throughout the senior management.

Third, customized data and analyses were provided on demand to units to conduct business workshops. In these workshops, key results related to those units were presented. These workshops were particularly helpful to discuss and interpret the results and implications. In this way, leadership teams and senior managers were given the opportunity to assess potentials for improvement in their specific context and to discuss and derive potential management actions.

The bottom line is that these three activities ensured that awareness regarding the key results was raised and translated into management actions (see Figure 3).

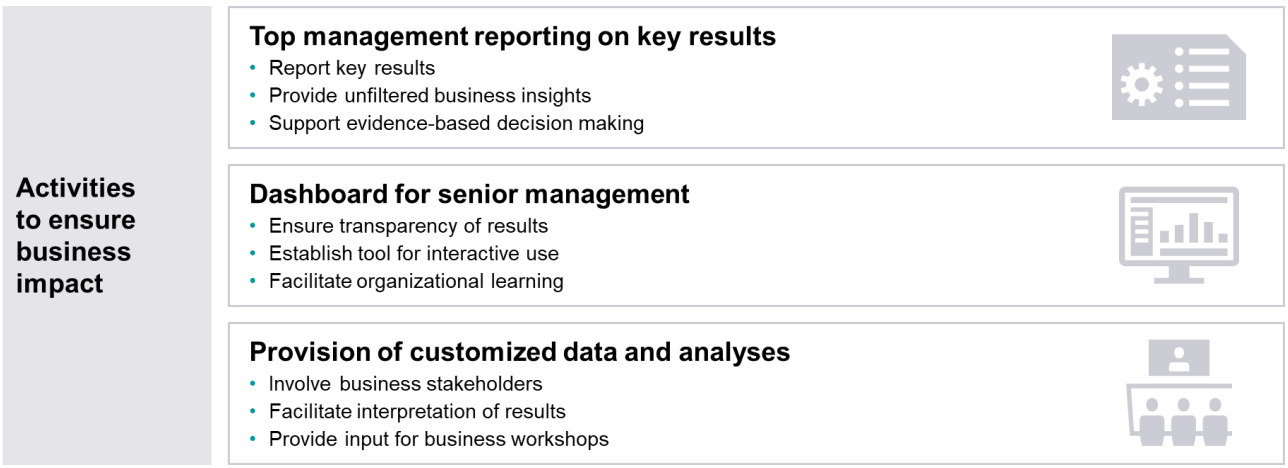

Figure 3: Raising awareness for key results to ensure business impact

Main results

Overall, the cooperation generated a comprehensive dataset that combines extensive survey data (e.g., more than 100,000 data points based on more than 1,600 participants answering 63 survey questions) with additional data sources such as data on individual characteristics, organizational characteristics and firm performance. This comprehensive dataset was analyzed by data analytics approaches such as multivariate regression analyses (i.e., to consider control variables) and semantic text analyses. Based on these analyses, three main results stand out:

1. A high level of openness, engagement, and commitment of senior management,
2. scientific evidence for the impact of promising management levers, and
3. a highly heterogeneous perception by business units that indicate significant potential for best-practice transfer and organizational learning.

"The cooperation of Siemens and the University of Göttingen gave our senior management a platform to speak their mind and provided invaluable insights with business impact."

– Peter Körte (Chief Technology Officer and Chief Strategy Officer at Siemens AG)

Result 1: High level of openness, engagement, and commitment of senior management

Given the participation of more than 1,600 senior managers across the global senior management and more than 400 detailed and heterogeneous comments, the cooperation highlights a substantial openness and engagement of senior management. These results indicate that the senior management highly appreciated the opportunity to give direct and unfiltered feedback on strategic topics.

Moreover, the descriptive results of standardized questions emphasize high commitment of senior management toward Siemens. In particular, 78% of senior managers agree that their work has a special meaning and is "not just a job", thereby representing the highest score among all questions. Further comments underscore the high commitment of senior managers toward their company (see Figure 4).

Figure 4: Participation of senior management across the globe reflects high openness and engagement while comments and top-rated questions indicate strong commitment of senior management. The survey was conducted in June 2019. Note: The percentages on the left do not add up to 100% due to rounding. The percentages on the right represent the rate of favorable answers. The rate of favorable answers is defined as the proportion of participants who rated scale values of 6 and 7 on a 7-point Likert scale.

Result 2: Scientific evidence for the impact of promising management levers

To test the relationship between organizational capabilities and firm performance as well as to identify promising management levers, several multivariate logistic regression analyses were conducted, subject to control of additional variables. The interpretation of these regression results is based on odds ratios, because they enable the interpretation of the direction of the effect and its size between two constructs in an intuitive and comfortable way. An odds ratio represents the change in the likelihood that an output happens (such as the favorable perception of a construct, which we define as the scale values of 6 and 7 on a 7-point Likert scale) given that another construct increases by one unit (Firk et al., 2021; Kunisch et al., 2020).

For instance, an odds ratio of 1.0x indicates no effect, while an odds ratio greater (smaller) than 1.0x indicates a positive (negative) effect. The odds ratio of 2.0x between empowerment and entrepreneurial climate means that an increase of one in empowerment doubles the likelihood that entrepreneurial climate is perceived as favorable. Altogether, odds ratios give an indication regarding the strength of the relationship between two constructs and how a change in one construct affects another construct.

The results indicate a strong positive association between the selected organizational capabilities and firm performance. For example, the results indicate a positive and significant relationship between digital pioneering and operative performance (1.8x), innovation (2.0x), respectively customer satisfaction (1.1x). Given the odds ratio of 2.0x for innovation, an increase in digital pioneering is associated with a two times higher probability of perceiving innovation as favorable. Hence, based on the senior management's perception, the results support that strengthening the commitment of senior management towards the embracing and use of digital technologies is positively associated with firm performance.

The regression results further show a positive and significant relationship between entrepreneurial climate and operative performance (2.4x), innovation (2.3x), and customer satisfaction (1.5x). For example, an increase in entrepreneurial climate is associated with a 2.4 times higher probability of perceiving operative performance as favorable. Thus, the regression results further support the idea that promoting an entrepreneurial climate can indeed be beneficial to facilitate the firm's performance.

In the identification of promising management levers, empowerment stands out. The regression results indicate a positive and significant relationship between empowerment and both, digital pioneering (1.5x) and, respectively, entrepreneurial climate (2.0x). An increase in empowerment is associated with a one-and-a-half times higher probability of perceiving digital pioneering as favorable as well as a two times higher probability of perceiving entrepreneurial climate as favorable. Hence, the results support that increasing the empowerment across senior management helps to facilitate digital pioneering and an entrepreneurial climate in the organization. Altogether, the regression results support the expected relationships as summarized in Figure 5.

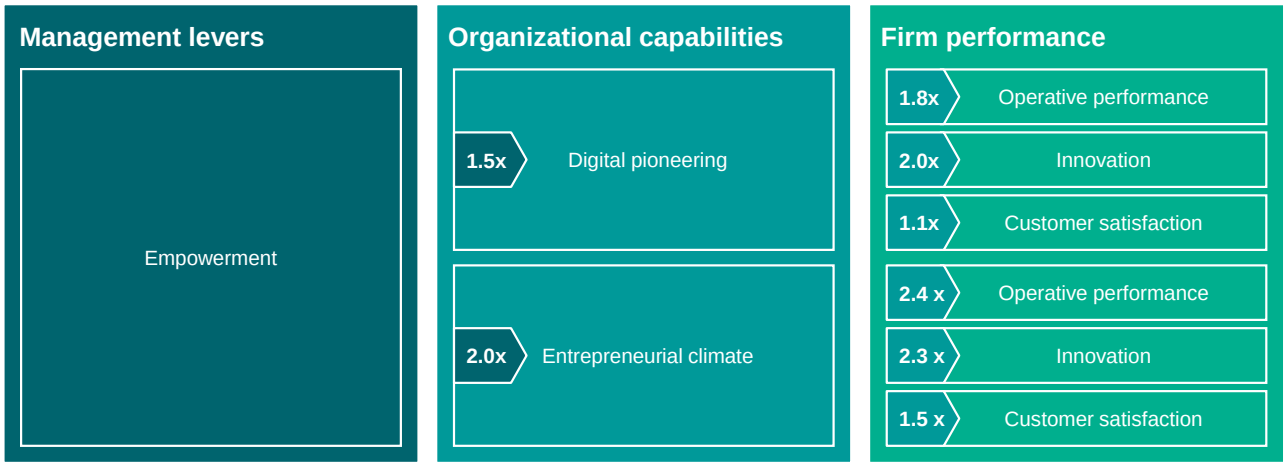

Figure 5: Results of multivariate logistic regression analysis provide evidence for empowerment as a promising management lever. The figure shows the odds ratios between related constructs. Calculation of odds ratios is based on multivariate logistic regressions subject to control of additional variables. An odds ratio represents the change in the probability that an outcome happens (e.g., favorable perception of digital pioneering) given that the independent variable (e.g., empowerment) increases by one unit. All multipliers are statistically significant unless otherwise indicated ($p<0.1$).

Result 3: Heterogeneity in the perception by business units as a basis for best-practice transfer

In a next step, additional analyses were conducted to investigate whether crucial conditions for the derivation of concrete management actions are met. As a result, these additional analyses reveal two insights of high relevance for the derivation of concrete management actions.

First, additional analyses reveal topic-specific heterogeneity in the perception of management levers across the units. In particular, there is a difference in the perception of empowerment of up to 20 percentage points between the business units of highest and lowest empowerment rating (see Figure 6). As such, the additional analyses show that there is diversity in the status across units which implies significant potential for best-practice transfer and organizational learning. Enabling exchange between the respective units could thereby generate insights into the successful implementation of relevant organizational capabilities, such as digital pioneering and entrepreneurial climate, and ultimately support improving firm performance.

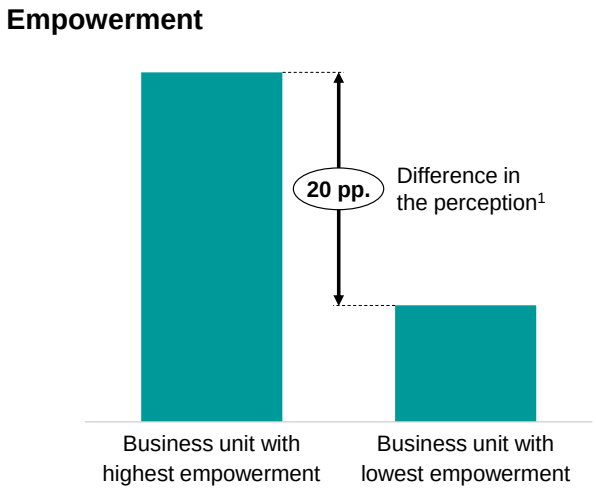

Figure 6: The approach reveals large potential to facilitate best-practice transfer between high and low performing business units

1 Difference in percentage points of the rate of favorable answers. Rate of favorable answers is defined as the proportion of participants who rated scale values of 6 and 7 on a 7-point Likert scale. The height of the bars does not allow any conclusions to be drawn about the actual values.

Second, additional analyses were conducted to test whether there is a relationship between perceived and actual firm performance. To do so, the average ratings of high and low performing units are compared and the correlation coefficients between the senior management's perception and the actual firm performance are calculated. The additional analyses show that the average perception of operative performance in actually high performing units is about 14 percentage points higher compared to actually low performing units. Similarly, the average perception of innovation is about 8 percentage points higher in actually high performing units compared to actually low performing units. Moreover, the additional analyses reveal that there is a significant correlation between the perception of operative performance (correlation coefficient of 0.6), respectively innovation (correlation coefficient of 0.4), and the firm's actual performance (see Figure 7). Customer satisfaction is excluded from this analysis due to statistical reasons (i.e., lower variance in the data, as these are only available for the units with customer interface).

Since the correlation coefficient gives an indication for the strength of the linear relation and can range from -1 to 1 (Cohen et al., 2003), these additional results outline that there is indeed a high correlation between the actual and the senior management's perception of firm performance.

Taken together, both types of additional analyses underscore the robustness of the model and highlight the significant potential of using such an approach to facilitating best-practice transfer and to generating transparency on relevant management levers for the improvement of actual firm performance.

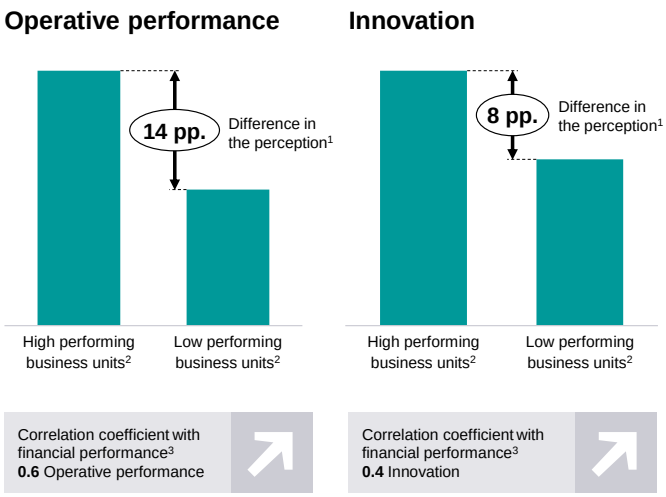

Figure 7: A high correlation with financial performance data underscores the robustness and potential performance impact of the approach.

1 Difference in percentage points of the rate of favorable answers. Rate of favorable answers is defined as the proportion of participants who rated scale values of 6 and 7 of a 7-point Likert scale.

2 Financial performance of business units defined as high (low) if profit margin is higher (lower) than market earnings potential and higher (lower) than Siemens average.

3 Correlation coefficients between the perception of operative performance, respectively innovation, and financial performance data (both are statistically significant at 0.1 level); please note that the height of the bars does not allow any conclusions to be drawn about the actual values.

Implications

Based on a rigorous scientific approach in utilizing data analytics for strategy implementation, the cooperation has provided three main results. First, senior management showed a high level of openness, engagement, and commitment toward the approach and Siemens' strategy. Second, the approach provided scientific evidence for the impact of promising management levers. Third, it revealed heterogeneity in the perception by business units providing a valuable and founded basis for best-practice transfer and organizational learning.

Based on these results, the cooperation outlines three major implications:

1. An increasing relevance of data-driven insights to support decision making and best-practice exchange,
2. that open collaboration beyond hierarchies and across functions becomes key in future work, and
3. that empowerment unfolds as a new strategic paradigm.

"The project enabled Siemens-specific insights and analyses that would not have been possible with traditional methodological approaches."

– Michael Wolff (Professor of Management and Controlling at the University of Göttingen)

Increasing relevance of data-driven insights to support decision making and best-practice exchange

The project shows the value of data-driven insights to support decision making and best-practice exchange. In particular, the approach enabled strategic topics to be measured and analyzed that are a difficult to quantify. Thereby, it provided insights into the relationship of the observed strategic topics, which can be highly beneficial for decision-making. In particular, regression-based insights can help to assess decisions in light of probabilities of predicted outcomes. Moreover, data-based insights allow conclusions to be drawn on the state of specific phenomena among different business units in an objective and unfiltered manner. As such, the approach provided valuable insights to support the identification and prioritization of topics for a focused and strongly grounded best-practice exchange.

Based on these insights, the approach provided empirical support for management discussions and for shaping the implementation of future strategies. The project shows that digital potentials can actually generate tangible benefits for the business and that exploiting these potentials can, despite considerable effort, be definitely worthwhile.

Open collaboration beyond hierarchies and across functions as key in future work

The project substantiates the relevance of overcoming traditional boundaries in collaboration. The approach allowed involving a community of key stakeholders spanning hierarchies and functions, highlighting the value of exchange and dialogue beyond potential boundaries. In particular, the analysis emphasizes the value of involving senior management in strategy work at larger scale.

Besides the generation of valuable insights into the peculiarities of the business, senior management showed a high level of openness, engagement, and commitment toward the approach and the Siemens strategy. This supports the idea that more interactive work approaches that empower organizational actors can be strongly beneficial to improve the commitment of key stakeholders.

However, the application of interactive, data-driven approaches is not restricted to strategy work. Such approaches could also be transferred to other entities or work settings, involving employees with diverse backgrounds or other stakeholders, such as customers. This may offer value to any such initiative by strengthening the commitment of the involved parties and generating valuable business insights.

Empowerment as a new strategic paradigm

Given that the global megatrends put pressure on firms for ongoing adaptability and transformation, empowerment can be an important element of the answer. While Siemens already addresses empowerment as part of their four strategic priorities, the cooperation provides empirical evidence for its relevance in strategy implementation.

In particular, the project shows that empowerment stands out as a decisive management lever to facilitate digital pioneering and create an entrepreneurial climate in the organization. Both digital pioneering and entrepreneurial climate are expected to be crucial for businesses to become more adaptive and more resilient. Hence, the implementation of an empowering leadership culture is an important step to remain competitive in increasingly dynamic environments.

Moreover, the approach itself can be understood as a pilot for large-scale empowerment of a group of key stakeholders based on their direct involvement in strategy implementation. Given the overwhelming openness and engagement of the respondents, the findings indicate that the senior management of Siemens is highly motivated to engage in new collaboration approaches and to put the idea of empowerment into action. As such, the empirical results of the cooperation highlight the relevance of empowerment as a critical leadership skill of the future.

In today's business world, empowerment is a frequently discussed topic across firms. The findings of the project contribute to this discussion and confirm that empowerment can provide significant benefits. At the same time, it requires considerable, dedicated effort, which, however, showed up to be worth it.

"At Siemens, we foster an empowering leadership culture to support continuous transformation and achieve sustainable business success. That is why "empowered people" is one of our strategic priorities."

– Peter Körte (Chief Technology Officer and Chief Strategy Officer at Siemens AG)

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About the authors

About Siemens

Siemens AG (Berlin and Munich) is a technology company focused on industry, infrastructure, transport, and healthcare. From more resource-efficient factories, resilient supply chains, and smarter buildings and grids, to cleaner and more comfortable transportation as well as advanced healthcare, the company creates technology with purpose adding real value for customers. By combining the real and the digital worlds, Siemens empowers its customers to transform their industries and markets, helping them to transform the everyday for billions of people. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a globally leading medical technology provider shaping the future of healthcare. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power. In fiscal 2021, which ended on September 30, 2021, the Siemens Group generated revenue of €62.3 billion and net income of €6.7 billion. As of September 30, 2021, the company had around 303,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

About the University of Göttingen

The University of Göttingen is an internationally renowned research university. Founded in 1737 in the Age of Enlightenment, the University is committed to the values of social responsibility of science, democracy, tolerance, and justice. It offers a comprehensive range of subjects across 13 faculties: in the natural sciences, humanities, social sciences, and medicine. With over 30,000 students and more than 210 degree programs, the University is one of the largest in Germany. Further information is available on the internet at www.uni-goettingen.de.

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