



Operations

► Quality of the Future

Successful approaches to shaping quality management for tomorrow



INSIGHTS

//01

No one-size-fits-all approach but best practice principles on how to organize and drive quality management in today's environment.

//02

Ongoing quality role shift from “policing” to “sparring partner” and increasing focus on software quality. ISO 9000 ff. norms remain important.

//03

Data collection is prevalent but must be combined with the right analysis techniques to derive knowledge of interest. To digitize QM, quick wins are key.

Introduction



In recent years, quality management (QM) has moved beyond its original focus on products to cover a broad spectrum of comprehensive customer experience. That includes services – an example from the mobility sector being how to travel on the basis of suitable charging infrastructure – as well as peripheral products such as wall boxes to stick with the example of charging infrastructures. It also includes megatrends like digitalization and the ability to address contexts with multiple crises. QM organizations with a traditional focus on functions run up against their limits here.

This study elucidates the most important fields of action for making quality management viable for tomorrow, and sketches guidelines for proactively shaping the corresponding organizations. It was conducted in collaboration with TU Berlin, Chair of Quality Science. QM senior management at leading companies were surveyed for the study (see Figure 2). The survey's topics include the structure of QM organizations, how quality-oriented mentalities are anchored in corporate cultures, agile forms of work, and the use of digitalization for quality-related matters. The study's value lies in its transparent presentation of the current situation and its concrete recommendations for action to achieve quality management tailored to future needs and developments.



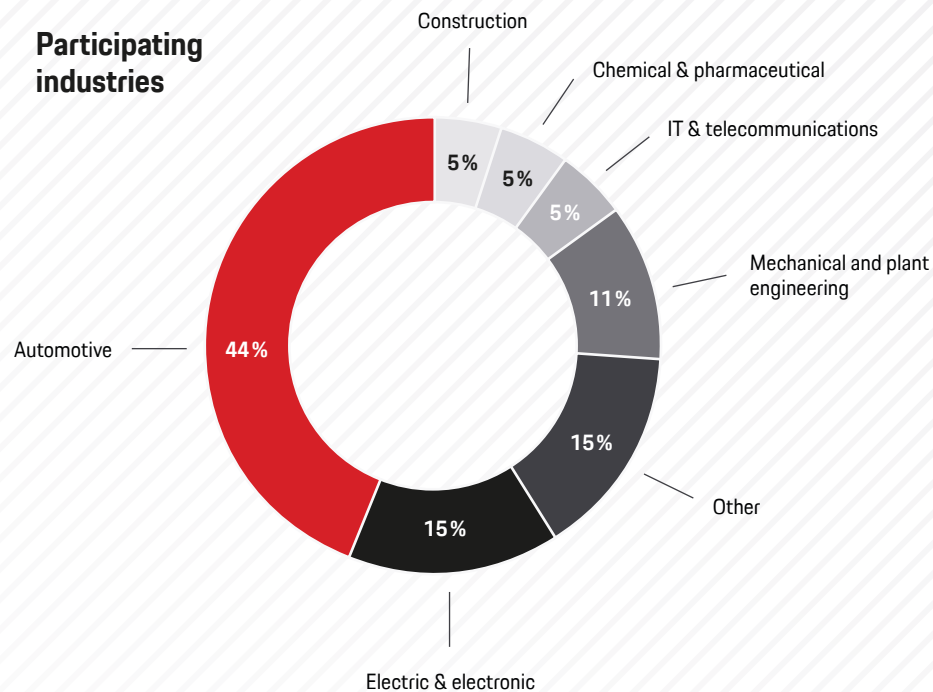
© Porsche Consulting

Fig. 1. Focuses of the study

The study considers a range of industries beyond the automotive sector and distills the views of top quality managers at the companies surveyed. The results were compiled in a two-stage process consisting of an online survey (42 participants) and subsequent in-depth interviews (14 participants). The data collection took place throughout 2022.

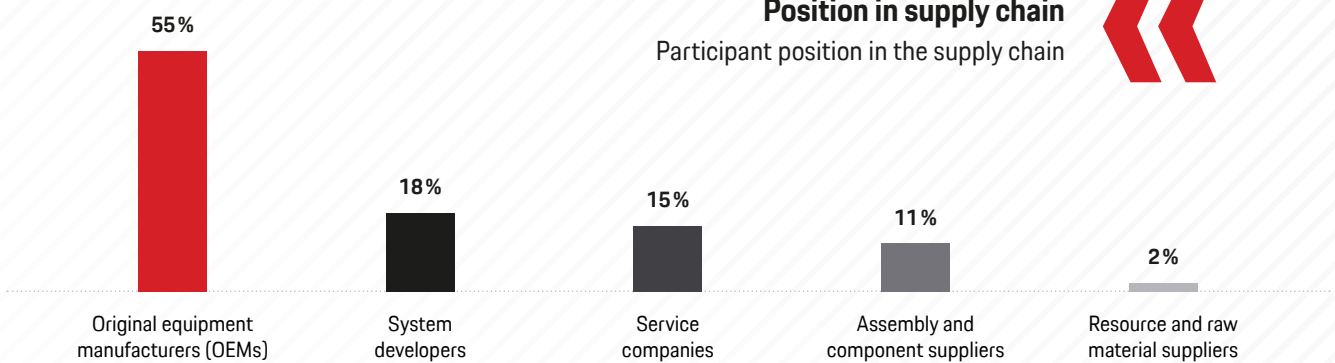


Participating industries



Position in supply chain

Participant position in the supply chain



© Porsche Consulting

Fig. 2. Distribution of the 42 study participants

Centralized, function-oriented forms of quality management (QM) continue to predominate at companies to this day, despite their disadvantages in covering the sequences of subprocesses needed to fulfill concrete customer needs (end-to-end processes). Decentralized QM approaches have thus far only been used to a limited degree. At the

same time, most of the managers surveyed consider quality to focus largely on products, services, and processes.

Leadership plays an important role in establishing a quality mindset. A mindset of this type concentrates on designing processes to maximize



customer enthusiasm. That in turn implies a new role for quality management, namely moving beyond simply monitoring the fulfillment of requirements toward managing customer experience in multifunctional systems.

Quality managers can therefore no longer work as “lone rangers.” Trans-functional processes require cross-functional collaboration. This is especially relevant when it comes to taking effective measures to eliminate errors in products that are becoming ever more complex. However, silo mentalities still hinder effective collaboration, as does insufficient anchoring of quality processes in company cultures.

The degree of digitalization in QM is rising. The vanguard of this movement consists of large companies that are analyzing field data in an attempt to generate value especially for their customers. Data quality is a major prerequisite for effective analytics, but this realization has yet to become part of the overall understanding of quality everywhere. Another problem lies in the extent to which skilled personnel are available.

The following sections present the current situation of QM organizations from four perspectives. Focusing on structures, cultures, work models, and degrees of digitalization, they discuss challenges and derive recommendations for action to promote targeted development of future-proof QM organizations.



“Trans-functional processes require cross-functional collaboration.”

Organizational structures for quality management

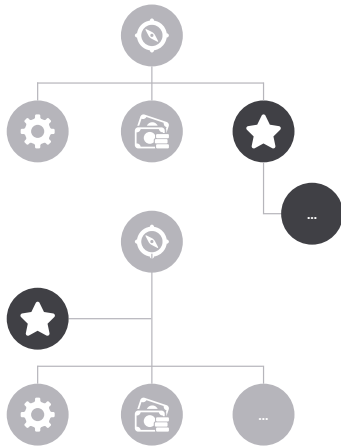


This section examines the number of employees in QM departments, basic organizational structures, and certification standards. These aspects are supplemented by an examination of work focuses, degrees of trans-site collaboration, and the scope of quality-related control.



CENTRAL ANCHORING

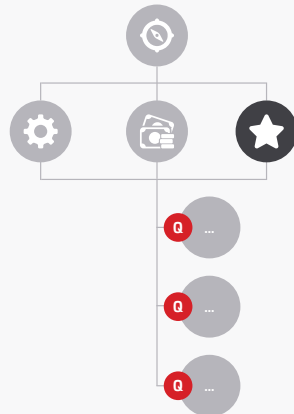
Company quality management: **Quality management is its own organizational unit/department**



43.2 %

All QM departments belong to a single QM unit

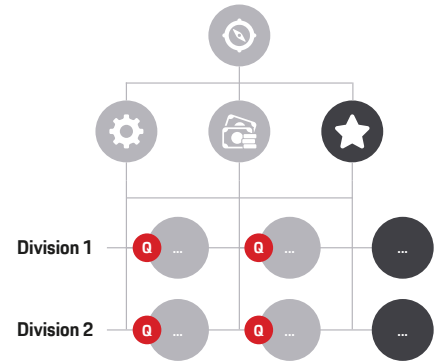
FUNCTIONAL



9.1 %

One central QM unit; QM departments work in different divisions

DIVISIONAL



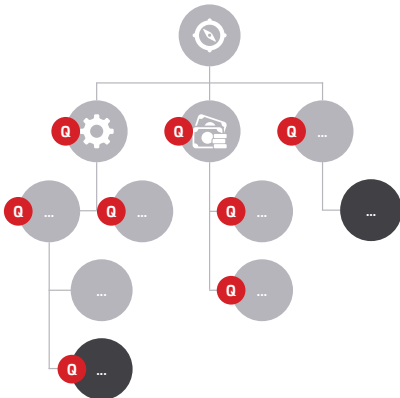
36.4 %

One central QM unit; QM departments work in different functions and divisions

MATRIX

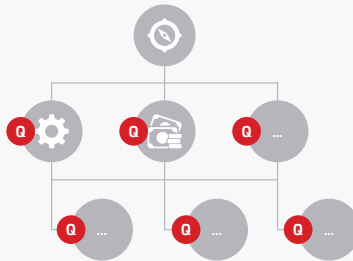
2.3 %

Each department handles its own QM without central QM



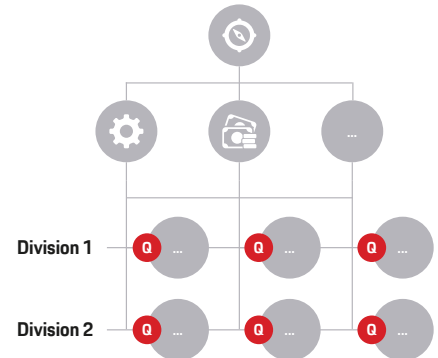
2.3 %

Each division (e.g. brand, product group) handles its own QM without central QM



6.7 %

QM matters are handled by matrix departments without an overall central QM



DECENTRAL ANCHORING

Company quality management: **Quality management is not its own organizational unit/department**



© Porsche Consulting

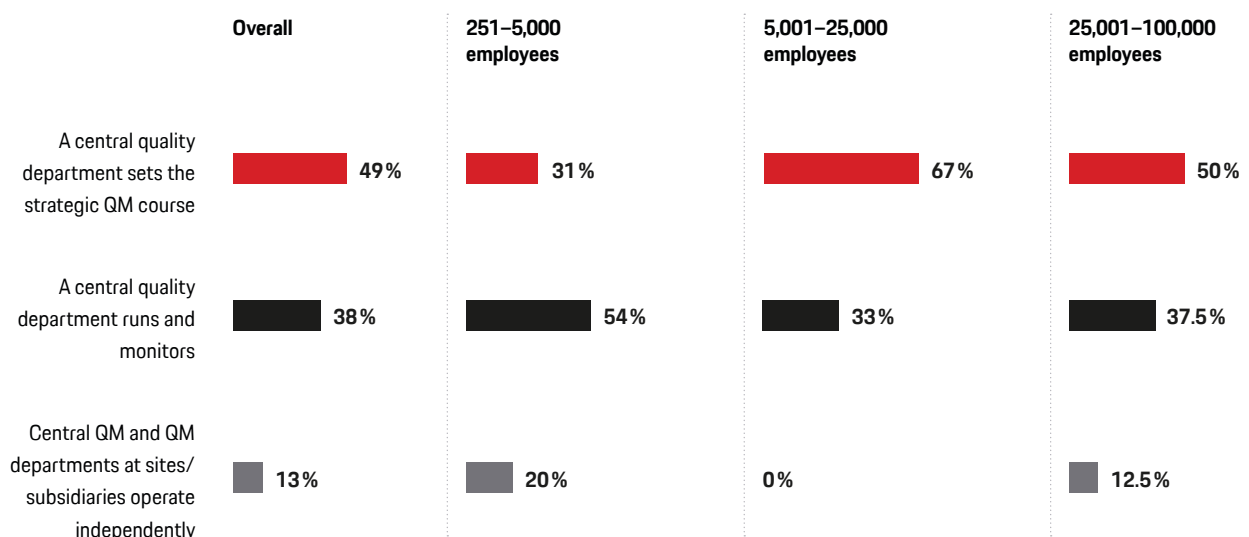
Fig. 3. Organizational forms at the companies surveyed

“Quality management organizations need to be structured in such a way that they can respond rapidly and flexibly.”

The most common type of QM structure among the companies surveyed is a central, function-based organization (45 percent). The smaller the company, the greater the probability that quality management (QM) and quality assurance (QA) at different sites are run by a central quality unit. Single-site companies benefit here all the more, of course, because all their specialized departments are concentrated at one location and coordination is thereby streamlined.

The second-most common basic structure is a central matrix organization (38 percent), which is especially prevalent at large companies (> 25,000 employees). Here, a central unit focuses especially on the quality strategy and overarching standards, whereas implementation within specified boundaries proceeds on an autarch basis at the individual sites. This approach can ensure prompt and flexible responses – while also exploiting synergies.

Where do QM organizations affect their brands/product groups/business fields/services?



Central strategy standards guide decentral departments and enable targeted and efficient work by adaptive QM organizations

© Porsche Consulting

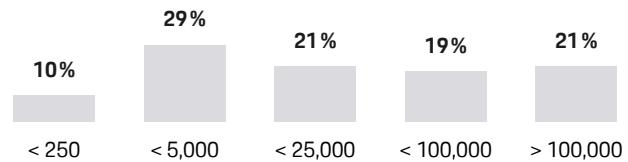
Fig. 4. Division of labor in central versus decentral QM structures

As might be expected, the number of employees at QM departments rises in connection with overall company size (see Figure 5). This can be explained by product properties and the number of production sites (both usually higher for larger companies), as well as by the structure chosen for the QM organization: A central matrix allows tasks to be assigned more efficiently than a division- or function-based structure, which either duplicates functions or requires a high degree of coordination.

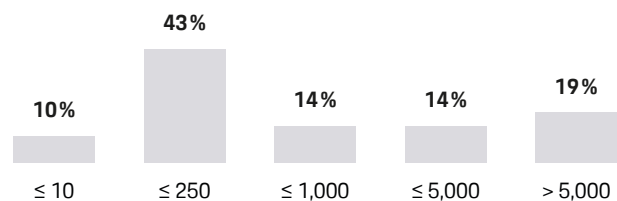
“For decentral structures, managers need to have a high level of trust in their people and processes.”

Eighty-six percent of companies surveyed apply the ISO 9001 standard (requirements for quality management systems). OEMs show a lower rate than supplier companies, which frequently need to certify their quality management systems (QMS) as a precondition for entering supply relationships. Nevertheless, all companies in the largest category have ISO 9001 certification, whereas only 50 percent of the small ones do. Generally speaking, QMS certification continues to be seen as an unmistakable indication of professionalization and standardization of quality-related processes. However, participants emphasize the importance of still being able to act flexibly and use their own judgment instead of relying exclusively on the standard. This shows that results-oriented, context-based decisions continue to be extremely important in QM, and that standards can only serve as guide rails.

Number of company employees



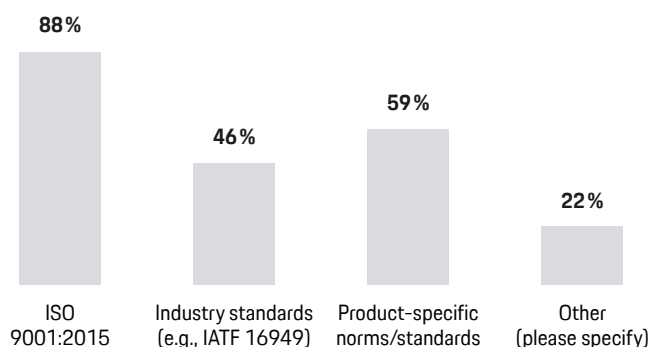
Number of QM employees



© Porsche Consulting

Fig. 5. Number of QM employees by company size

Utilization of standards



© Porsche Consulting

Fig. 6. Standards at the companies surveyed

Participants were also queried about their satisfaction with the performance of their QM organizations. Their responses reveal the critical importance of efficiently organized processes. Also

of significance are a culture of openness about mistakes, a company-wide and preferably uniform understanding of quality, and the rise of customer satisfaction as the top priority for QM activities.

Correlation with satisfaction

strong negative correlation	no correlation	strong positive correlation
-1	0	1

	Satisfaction with efficiency of QM processes
Satisfaction w/performance of QM organization	0.91

Efficient processes are the strongest indicator of satisfaction with the performance of QM organizations

	Customer satisfaction as highest priority	Culture of openness about mistakes	Uniform quality culture
Satisfaction w/performance of QM organization	0.60	0.55	0.57

A premium on customer satisfaction, a culture of openness about mistakes, and a uniform quality culture are crucial factors in QM organizations' performance

	Satisfaction with performance of QM organization
Utilization of data analytics	0.52
Use of KPIs as early warning indicators	0.57
Utilization of preventive data analytics	0.58
Digitalization in QM strategy	0.66

Advanced data analytics are especially common at high-performing QM organizations

© Porsche Consulting

Fig. 7. Performance drivers for QM organizations (-1 = negative correlation, +1 = positive correlation)

Recommended actions

Different approaches can be taken to optimize business processes and organizational structures in order to ensure efficient and flexible forms of work. Central guidance and standardization are essential factors in harmonizing procedures and making use of synergies. At the same time, decentral task allocation should be recognized as a good way of maintaining flexibility and agility at different sites.

A wider understanding of quality also includes the quality of data. This understanding is crucial if companies want to make full use of the associated informational potential. Improving the quality of data can strengthen the bases for decisions and allow valuable insights to be gained.

To effectively manage processes as complex as those needed to eliminate errors, cross-functional collaboration should be anchored in QM organizations. This enables different departments to work together efficiently on finding joint solutions.

It is important to assess the degree of centralization on a regular basis, and to ensure that the structure of the QM organization is a good fit for the requirements of the respective products. The more similar the processes, the more successful centralization can be in raising levels of efficiency.

Processes and decisions that require quick response times should be handled decentrally. This enables faster implementation and adaptation to changing demands. When putting such measures into practice, the goal should be to achieve the best possible balance between central control and decentral flexibility in order to ensure efficient and agile work processes.

CENTRALIZATION of QM work

ADVANTAGES

- ▶ Greater **consistency** in **QM strategy**
- ▶ Simpler **implementation** of **standards**
- ▶ **Synergy effects** (use of same tools, centralization of knowledge & data)
- ▶ Better monitoring options

DISADVANTAGES

- ▶ **Slower response times**
- ▶ **Poorer quality of solutions** due to greater distance from problems and needs of sites and divisions

Suitable for



Small organizations



One site, few regional sites



Homogeneity of products, services

DECENTRALIZATION of QM work

ADVANTAGES

- ▶ **Faster response times**
- ▶ Better consideration of operational **demands** (**proximity to operational realities**)
- ▶ Greater **individual responsibility** and **motivation**

DISADVANTAGES

- ▶ **Efficiency and synergy losses** due to duplication of processes and activities

Suitable for



Large and complex organizations



Large geographical area



Heterogeneity of products, services

© Porsche Consulting

Fig. 8. Advantages and disadvantages of central and decentral QM structures

Quality culture



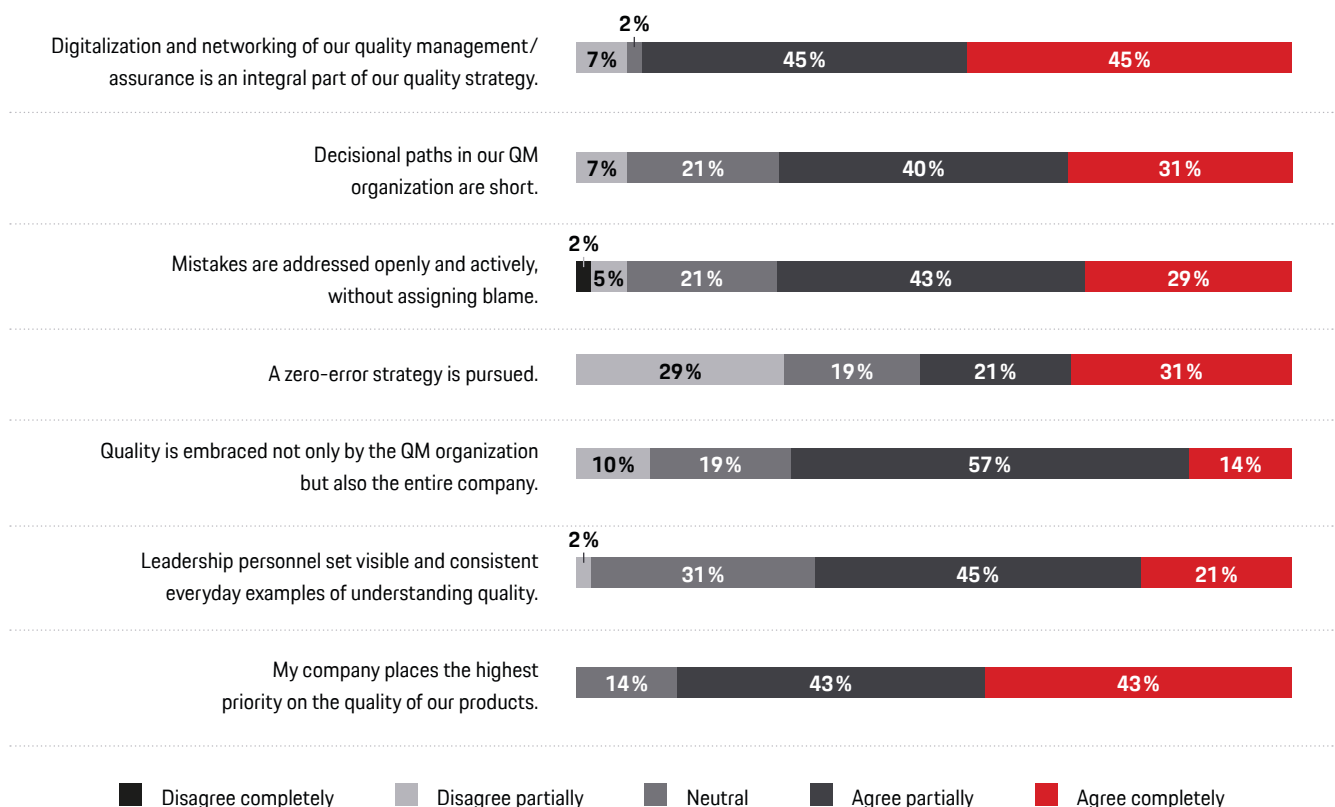
The results of the survey on quality culture reveal a strong positive understanding of quality, namely that quality-oriented thinking is anchored in everyday work throughout the participating companies. This is an important factor for successful quality management, because when all employees understand the significance of quality and are aware of their individual responsibilities, the foundation is laid for achieving shared quality goals.



Of especially positive note is that digitalization and networking are considered important components of quality management and assurance strategies. Additional important factors in the overall effectiveness of QM work are short decisional paths and a culture of openness that does not assign blame for mistakes.

Some of the results in this area, however, show room for improvement. Although most of the companies have zero-error strategies, a quarter of respondents report that they are not pursued in practice. Only somewhat less than half state that customer satisfaction has the highest priority. As such, there is further potential for raising the awareness for quality.

A positive understanding of quality is the prerequisite for successful quality work



© Porsche Consulting

Fig. 9. Dimensions in the understanding of quality

Overall, however, the survey shows that the participating companies have a positive understanding of quality and an awareness of its importance. Diligent implementation of quality strategies and measures can further strengthen this understanding and support successful QM work.

"When changing a culture of quality, it is important for the new values to be embraced on the top management level. Even more crucial are extensive communication and dialogue with employees, so regular Q&A sessions are held, ..."

The study also revealed a pronounced awareness for quality among employees at all the companies surveyed. The highest priority hereby is placed on product quality. Awareness is especially marked at companies with a regional scope and at those with upstream positions in value chains such as suppliers of preliminary products. Respondents emphasize that quality needs to be anchored in employee mindsets in order to ensure successful QM work.

"Quality management should serve a supporting purpose, set guidelines, have a coaching function, set the course, identify best practices, and communicate."

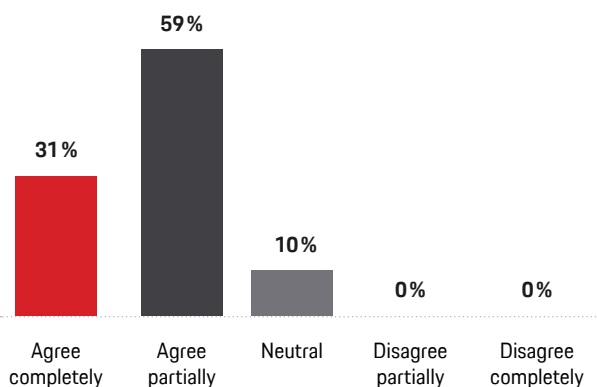
In addition, the study showed that the more a company focuses on customer satisfaction, the sooner it will use KPIs as early indicators. At many companies, customer satisfaction rivals product quality in importance.

Forty-five percent of respondents agree completely that customer satisfaction is their highest priority, whereas 40 percent say that this is partially the case.

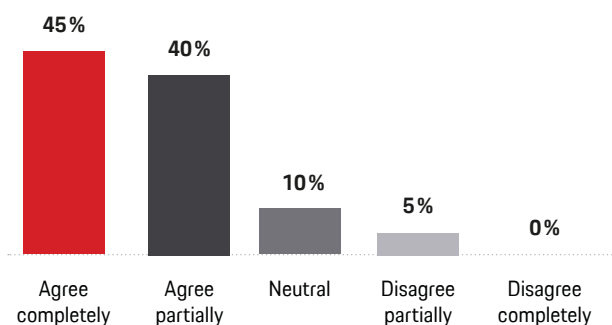
Employees' positive awareness for quality and the high priorities placed on it and customer satisfaction show the importance of quality in general at the companies surveyed. It is clear that a positive attitude toward quality is the cornerstone of successful work in this area.

"By shifting to customer centricity, quality managers act as customer advocates whose job is to ensure that demands are met by products."

Our employees are strongly aware of quality



Customer satisfaction has the highest priority at my company



More than 50 % of respondents indicate that customer satisfaction is not or only partially the highest priority at their companies.

© Porsche Consulting

Fig. 10. Levels of quality awareness and customer orientation

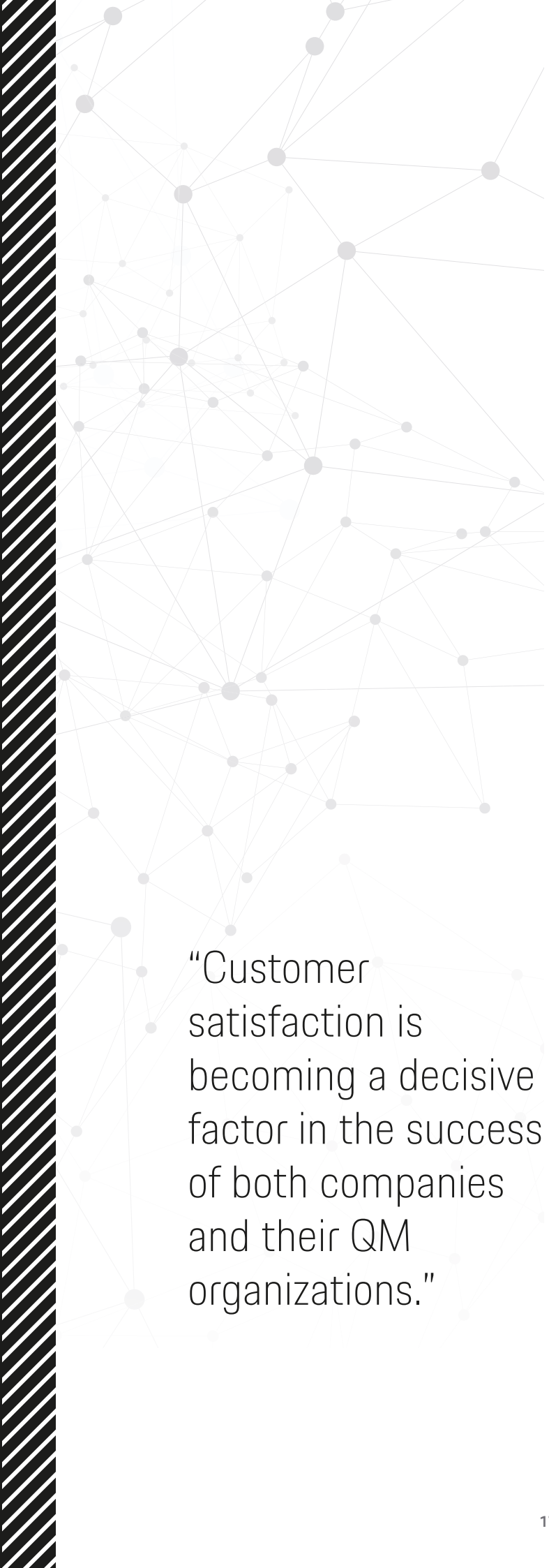


Recommended actions

As customer behavioral patterns change and levels of competitive pressure rise, companies are placing an ever greater focus on customers. Customer satisfaction is becoming a decisive factor in the success of both companies and their QM organizations. In order for this to work, quality managers have to position themselves as the voice of customers at their companies. This applies not only on the organizational level but also in the effectiveness of communications.

QM departments assume the task of communicating all customer needs to the company and of ensuring that these needs are met in all parts of the company. QM should therefore work closely together with other departments in the role of partner or coach. Responsibility for the results lies with the respective project owners, e.g., the quality of production being a matter for the production department and the quality of development for the developers.

This approach lets quality personnel distance themselves from a (frequently unappreciated) "policing function," and enables them instead to act as customer advocates and internal partners/advisors for quality questions. By means of this shift, QM becomes an integral part of the company and makes key contributions to fostering customer orientation and to the success of the enterprise as a whole.

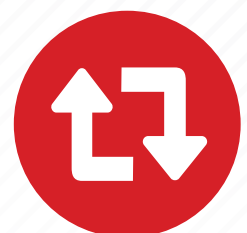


"Customer satisfaction is becoming a decisive factor in the success of both companies and their QM organizations."

The future of QM collaboration



Changes to the structure and work of QM organizations are relevant across all sectors and company sizes, although they are currently only being pursued to a moderate degree. Eighty-one percent of study participants view agile project work in QM contexts as either relevant or partially relevant, whereas 95 percent hold the same view of digital mindsets. A striking result is the high significance attached to cross-functional teams, with 92 percent of participants considering them either relevant or partially so.

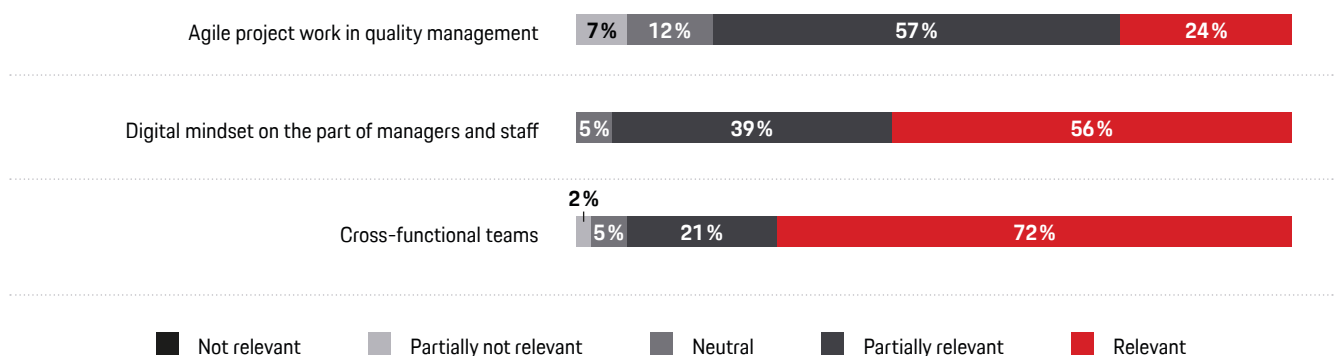


Collaboration is increasingly taking place on a trans-domain level, which means that cross-functional and -departmental skills need to be developed. At the same time, respondents note that company structures and processes must not hinder collaboration. This is an important factor in successfully changing work-organizational patterns and fostering a collaborative culture and the exchange of knowledge.



“QM organizations should display a mixture of classical structures and agile approaches. Ours works on a very service-oriented basis and provides support wherever tasks accumulate and assistance is needed.”

Work-organizational changes are considered extremely relevant for quality management



© Porsche Consulting

Fig. 11. Relevance of work-organizational changes for QM

Overall, the results show that companies are increasingly recognizing the importance of agile forms of work, digital mindsets, and cross-functional teams for their QM organizations. The challenge lies in putting these changes successfully into practice and promoting collaboration between different areas.

Cross-functional collaboration is viewed as relevant at many companies. However, the results indicate that it is only practiced to an average degree. Agile project work and a digital mindset for management and staff are considered especially relevant. Cross-functional teams are also seen as important, and only in a few cases viewed as not relevant. Collaboration on cross-functional and -departmental teams, however, is often hindered by miscommunication and misunderstandings.

For nearly half of the companies surveyed, cross-functional collaboration is hindered by silo mentalities and insufficient expertise. The skills needed for cross-functional and -departmental collaboration are in especially short supply for projects with high levels of software. Company structures and processes, by contrast, are seen as less of a hurdle. Overall the obstacles to cross-functional collaboration are rated as moderate.

Most of the companies consider cross-functional collaboration an important part of their QM work. However, there remains a need to overcome hurdles such as silo mentalities and insufficient skills in order to further improve effective ways of working together.



"A networking mindset is of the utmost importance. Quality experts should be able to streamline tasks, break them down into key components, and generally deal with complex sets of issues."

Silo mentalities and insufficient skills are seen as obstacles to cross-functional collaboration

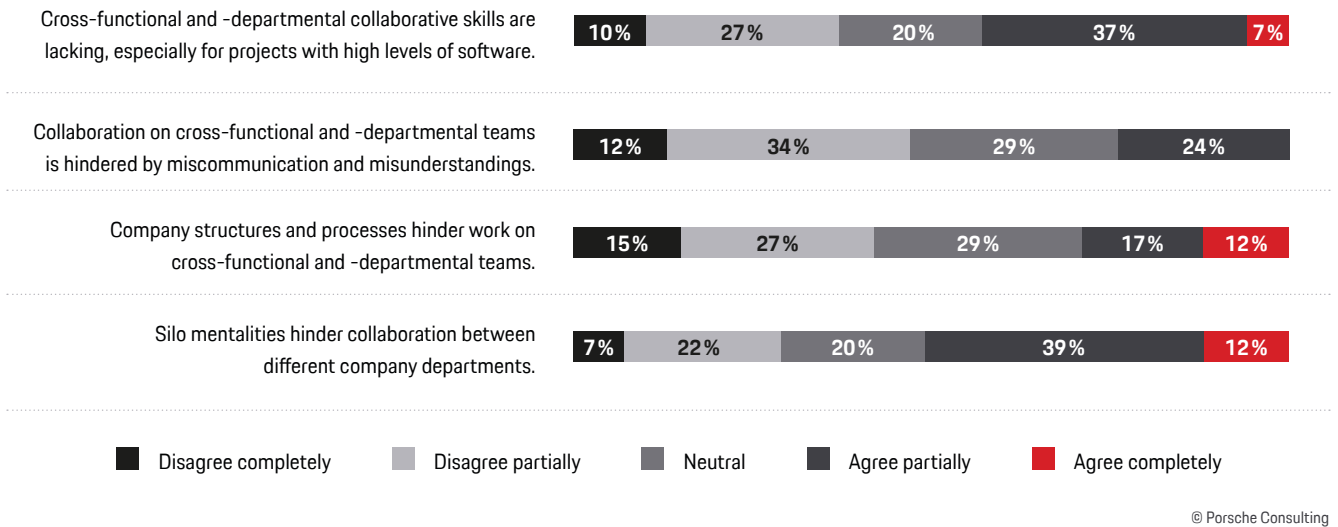


Fig. 12. Obstacles to cross-functional collaboration in QM organizations

The study shows that major globalization-related topics are only being addressed to a moderate degree. Although respondents report integrating partners on a trans-sector basis in order to improve the quality of their products and services, they devote hardly any effort to developing alternative

regional supply structures. Most respondents report that their companies already have a uniform quality culture across all departments and sites, but that action is still needed to improve company quality matters overall.

Uniform quality culture and partner involvement are essential for overall quality

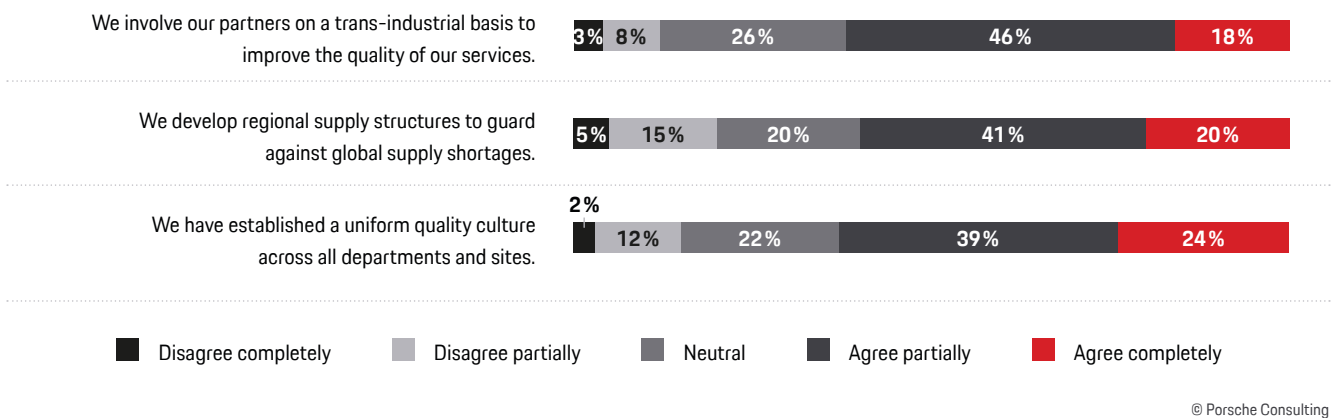


Fig. 13. Consideration of supplier structures in QM

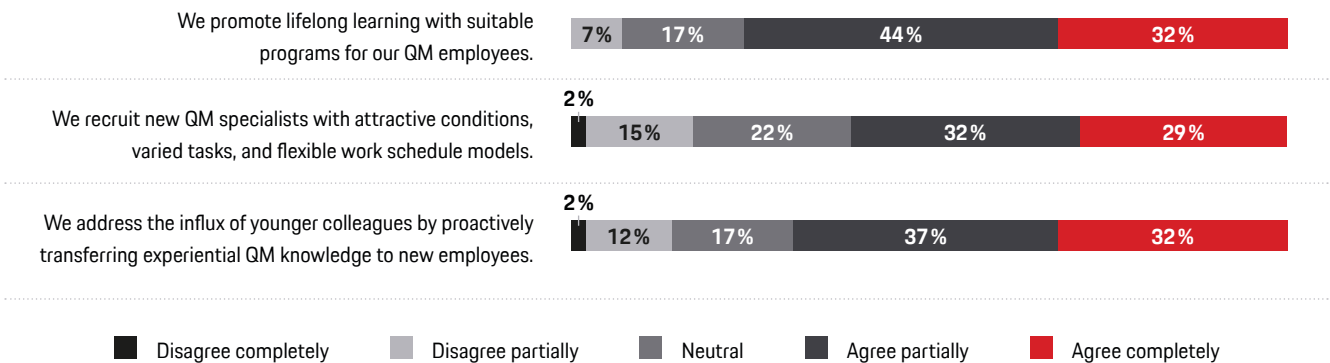
Uniform quality culture and partner-oriented collaboration are of great importance for shared and globally active value chains. However, this requires a shift in corporate culture and the development of strategies that foster collaboration on international levels.

The COVID-19 pandemic and the war in Ukraine have highlighted the importance of regional supply chains and alternative structures in order to guard against supply shortages. In the future, companies will need to focus more strongly on regional suppliers and develop alternative sources in order to be better prepared for crisis situations.

Generally speaking, the respondents indicate a need for action in addressing major globalization-related topics. A greater focus should be placed on a uniform culture of quality across all departments and on alternative regional supply structures in order to strengthen company quality overall and guard against global supply shortages.

The companies surveyed report a moderate level of recruiting and retaining skilled QM personnel and of developing and maintaining the relevant knowledge and experience. Lifelong learning programs, attractive conditions, varied activities, and flexible work schedules are all used to recruit skilled personnel. In addition, as younger employees join companies, important experiential knowledge is transferred to these new colleagues. Smaller companies, in particular, systematically transfer experiential QM knowledge to younger colleagues in order to minimize the risk of losing it when their long-time experts depart.

Only a third of companies actively address and/or support change in their QM organizations



© Porsche Consulting

Fig. 14. Developing and retaining skilled personnel and expertise at QM organizations



Here, too, however, there is still a need for action because the measures taken are only rated moderately. Retaining experiential knowledge is highly relevant for quality management overall. Precisely with respect to an influx of younger members and the need to transfer knowledge, it is important to ensure the preservation of departmental expertise and share it systematically with new colleagues.

The study also shows that small companies place a higher emphasis on transferring expertise. Small companies are at greater risk of losing their know-how if even a few of their experts move on.

Recommended actions

Employee attitudes toward quality play a crucial role. More attention should therefore be paid to fostering quality-oriented mindsets. One way of doing so is to enhance employee loyalty by ensuring attractive work environments as well as clear and meaningful descriptions of responsibilities.

In addition, any interested QM employees should have further training opportunities in digitalization or data analytics. This will enable them to stay abreast of developments and expand their areas of expertise.

To improve collaboration with suppliers and/or customers, systems can be created that make it easier to communicate and exchange information. Examples include workflow systems for processing complaints on a joint basis or for eliminating errors.

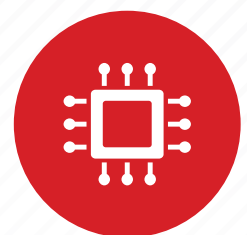
A clear definition of project roles and responsibilities, especially for cross-functional processes, can improve the efficiency of both the collaboration itself and its results. QM personnel can assume cross-sectional roles to facilitate coordination and agreement.

These measures help to improve the quality of work and the efficiency of collaboration. By fostering a positive attitude to quality-related work, enhancing employee loyalty, providing further training, improving communication systems, and clearly defining roles, companies can raise their performance levels and become more successful.

Digitally Driven Quality



Survey participants view digitalization as a relevant field of action at their companies. However, there often appears to be room for improvement when it comes to putting digitalization into practice. Respondents emphasize that digitalization is only being implemented to a moderate degree at their QM departments. They nevertheless view digitalization strategies as necessary for remaining competitive.



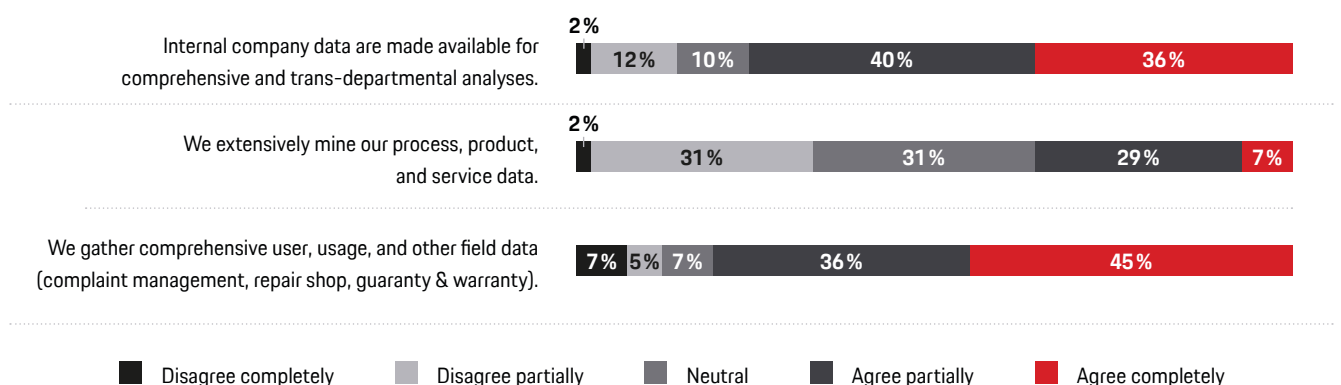
One hurdle for digitalization lies in the shortage of qualified employees. Companies are therefore investing in programs to promote the corresponding expertise among their workers and to recruit new personnel. As workforces become younger, the transfer of crucial experiential knowledge from specialists and managers to younger colleagues is viewed as a challenge.

In this context, ever greater relevance is attached to gathering and analyzing data. The study shows that companies are compiling large amounts of data for analysis and making them available internally across departmental lines. This applies to 80 percent of the companies surveyed. Process, product, and service data are also being extensively mined, albeit by only 36 percent of the companies surveyed. Still, 81 percent of respondents

regularly gather user, usage, and other field data for their internal analytics.

Another survey question addressed future perspectives on quality. Product, process, and service quality are rated the most relevant perspectives. Data quality, by contrast, is viewed as relevant by only 55 percent of the companies surveyed.

Data quality is not yet the focus in many cases



© Porsche Consulting

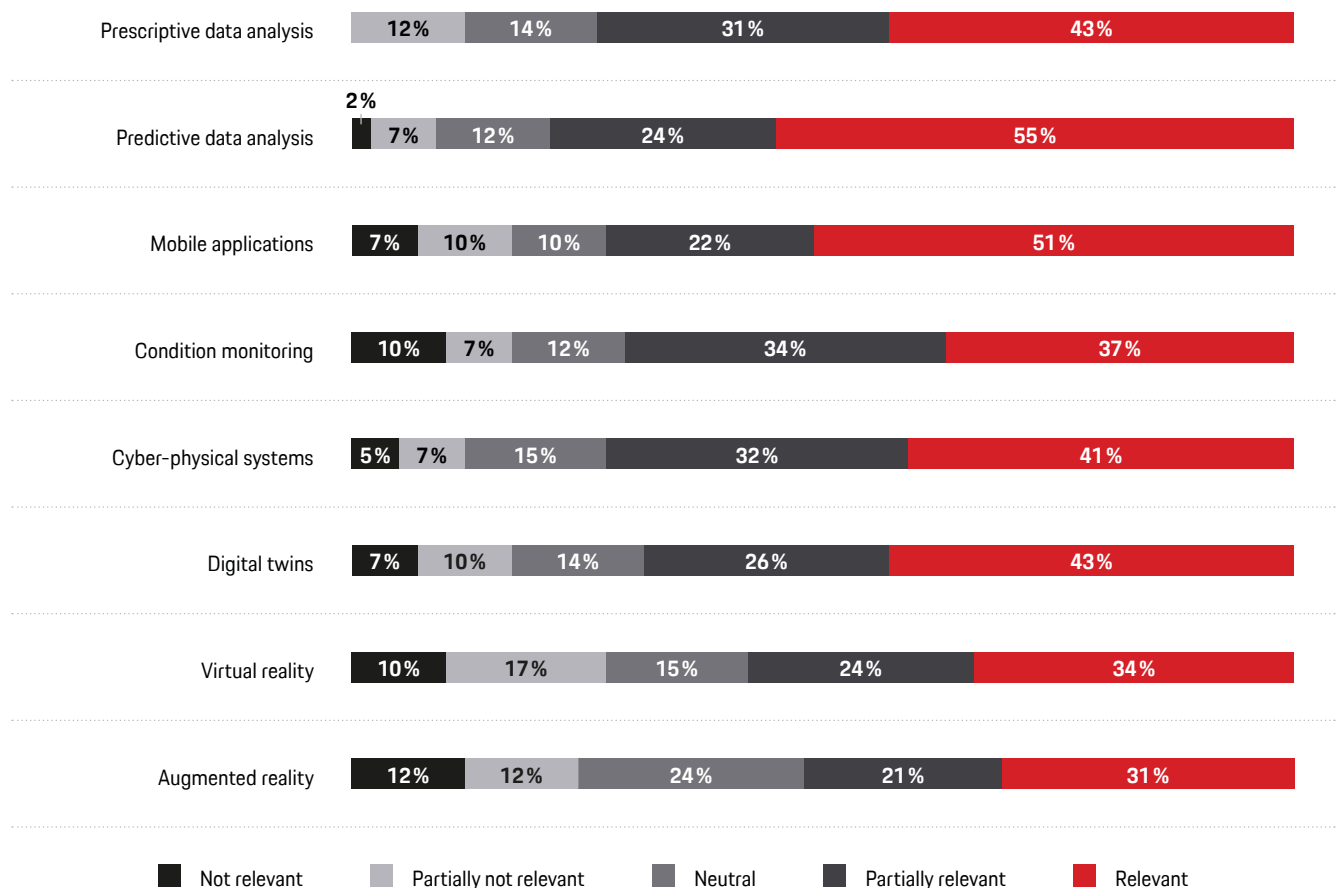
Fig. 15. Data collection and analysis at QM organizations

Advanced data analytics represent a further aspect. The results show that the highest relevance is attached to advanced data analytics. Respondents view predictive data analyses and cyber-physical systems as especially relevant. By contrast, many companies currently tend to disregard mobile applications and augmented reality.



“The results show that the highest relevance is attached to advanced data analytics.”

Individual digitalization topics are assigned different degrees of relevance



© Porsche Consulting

Fig. 16. Relevance of digitalization topics

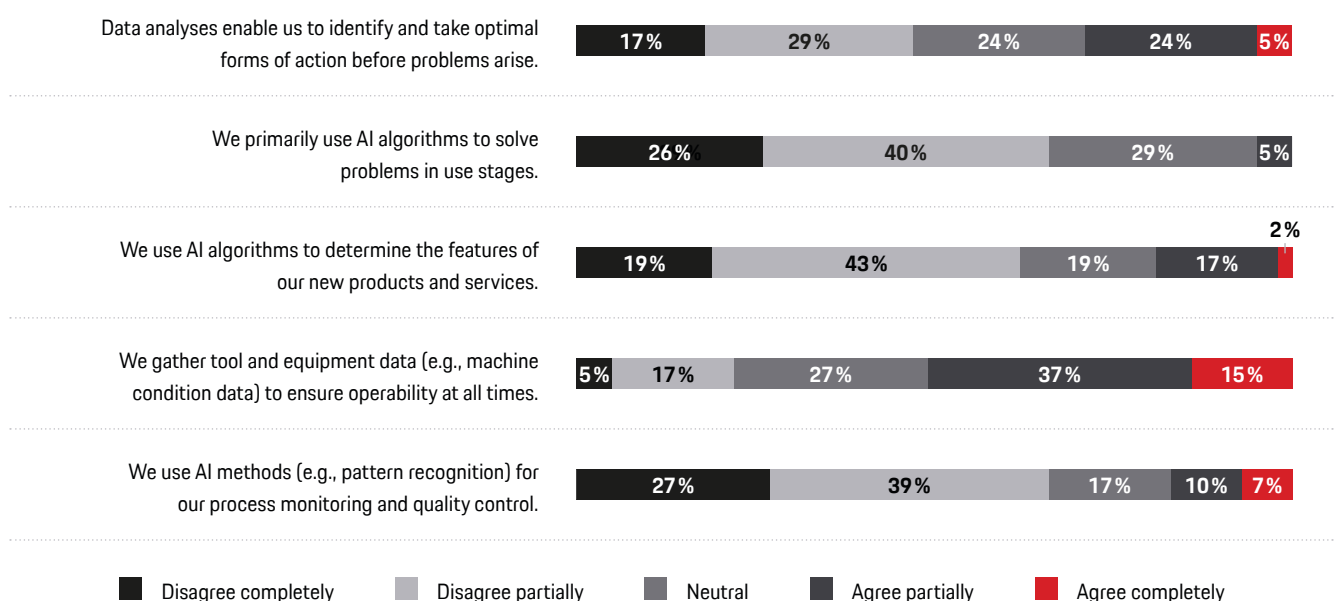
In summary it can be said that QM organizations are attaching ever greater relevance to gathering and analyzing data, and also to practicing this on a comprehensive basis. However, when it comes to different quality perspectives, the least attention is paid to the quality of data although that is a crucial foundation for meaningful analyses. Advanced data analyses are considered relevant, especially predictive data analyses and cyber-physical systems.

"Data are already being compiled and evaluated on a semi-automated basis. It is important to assess the plausibility of these data at their sources, which can be done by AI systems."

The survey covered not only the relevance but also the use of advanced data analytics. The results show that only moderate use has been made thus far of artificial intelligence (AI) in particular. Also, only a few companies use data analytics to derive the best possible options for action and are therefore able to prevent problems before they arise. Moreover, most companies make only limited use of AI to solve problems in use stages or when defining new products and services.

The survey shows that predictive maintenance measures are applied to determine and monitor tool and equipment conditions to ensure their operability. Greater use is made of AI here. Some companies also use pattern recognition and other AI methods to monitor processes and perform quality control.

Targeted data analyses are already used widely, AI not much thus far



© Porsche Consulting

Fig. 17. Use of advanced data analytics

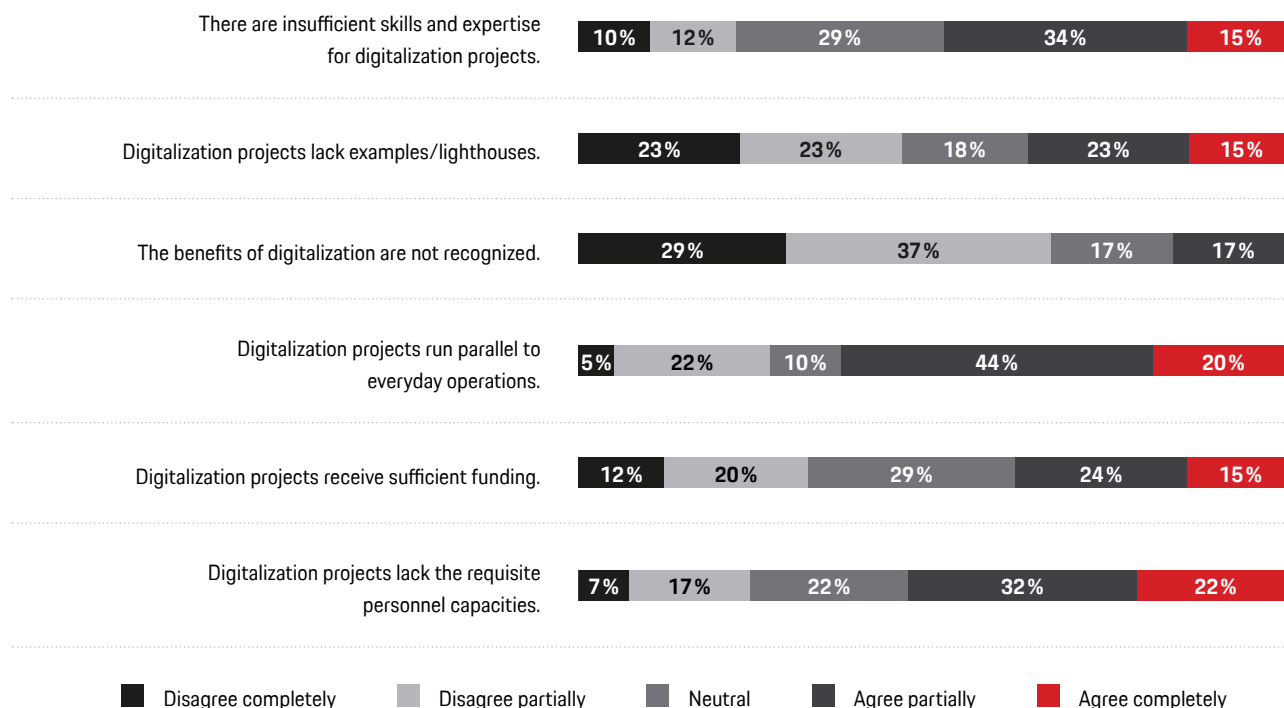
Despite the high relevance attached to data analytics, the survey shows that the use of AI and other advanced methods is not widespread. Most companies surveyed make only limited use of such methods, so have more potential in this area. Challenges clearly still need to be overcome in application and implementation. Companies should devote greater attention to data analytics and especially to AI, and should exploit their potential to achieve enhanced and more efficient quality control and assurance.

The survey also queried aspects of satisfaction with the status of digitalization. In general, the results show that high levels of complexity at large companies pose hurdles to digitalization processes and lead to lower levels of satisfaction with the extent of digitalization.

The results show that personnel shortages present the greatest obstacle to digitalization. Skills and expertise are lacking, as are the personnel themselves to put digitalization projects into practice. One solution could consist of offering digitalization training programs, and of relieving employees from everyday responsibilities for this purpose.

Yet another obstacle to digitalization consists of silo mentalities that hinder collaboration between different company departments. Certain company structures and processes as well as disparate standards can also hinder work on cross-functional and -departmental teams. The survey results show that there is insufficient collaboration on cross-functional and -departmental teams, especially for projects with high levels of software.

Digitalization benefits are recognized, but personnel and time to achieve them are lacking



© Porsche Consulting

Fig. 18. Barriers to implementing digitalization initiatives at QM organizations

"In recent years a number of new digital systems have been introduced in product engineering processes, like SAP as ERP (enterprise resource planning) or PLM (produce life-cycle management). The relevant standards need to be created between the individual plants, because the systems are only partially adaptable."

Moreover, digitalization projects do not receive sufficient funding, which is viewed as another obstacle. Many companies do not have models or lighthouses for their digitalization projects, which makes it harder to put them into practice. In many cases the benefits of digitalization are not recognized, which is also viewed as a hindrance.

The survey shows that companies find it important to identify barriers to digitalization and address them directly. In addition to training employees in digitalization and recruiting sufficient personnel, companies should also make sure to foster cross-functional and -departmental collaboration. In addition, they should devote more efforts to communicating the benefits of digitalization projects in order to increase acceptance thereof.

"Digitalization campaigns are top-down in nature, meaning the impetus comes directly from the management of individual company departments. Employees need to understand the benefits of these projects and gain enthusiasm for putting them into practice."

Recommended actions

The first step in digitalizing QM work consists of representing the processes and documenting the tasks and procedural results on a digital platform. This initial step lays the foundation for the next steps to be effective. Top-down support is needed in order to ensure the success of digitalization.

Large-scale digitalization projects are especially suitable for trans-departmental activities. They enable comprehensive integration and collaboration among different areas. In independent business operations, QM teams can pursue digitalization. This work requires employees with IT affinities and in-depth knowledge of quality-related processes.

When digitalization programs have uniform strategies, this increases the likelihood of digitalization projects being implemented. Systematic assessments of the potential for QM digitalization are important. Qualified personnel need to conduct the corresponding data analytics work with clear questions in mind. Close coordination with other company departments when gathering the data is also necessary.

If companies do not yet command sufficient data skills they need to develop them. Small numbers of employees can initiate data analyses. If data-gathering channels are already established, it is advisable to retain them. Aftersales data have proved to be especially valuable.

Internal company sources such as production data and work documentation can also provide valuable information.

Automation can improve the quality of data-collection processes. Quality is crucial if the analyses are to be meaningful. It should be noted, however, that artificial intelligence (AI) is not always the best solution. AI is especially suitable for repetitive data processes, whereas human solutions are often more appropriate for individual problems. It is important to find the right balance between automation and human expertise.

Outlook and summary



The results of this study show that most companies (88.7 percent) have a central quality management (QM) organization. QM is an independent unit and quality is therefore its own area of responsibility. QM is usually integrated into a central, functional, or matrix organization, and the associated strategic topics are generally guided on a centralized basis. The participating companies show a strong orientation toward quality, and their conception of it is moving away from the notion of “production policing” toward an empowering role for QM departments, which function as customer advocates and internal partners for other departments.

Cross-functional collaboration and agile project work are considered relevant for QM organizations of the future, but implementation thus far has only been moderate. Collaboration with suppliers represents a growing challenge, as do the recruitment and retainment of qualified employees.

As for digitalization, the study shows that extensive quality-related data are gathered. However, AI and targeted data analytics are not used on a

widespread basis to solve quality-related problems. The first steps toward digitalization usually address “paper-laden” tasks such as documenting tests, measurements, inspections, and complaints. Nevertheless, comprehensive digitalization solutions such as those from SAP are common. Company-wide campaigns and top-down support are crucial for digitalizing quality-related activities.

The study also shows that customer centricity, a culture of openness to mistakes, and a uniform quality culture are essential for the success of QM organizations. Success is best described by a combination of KPIs covering economic factors as well as products, processes, and customers. Additional future-oriented QM topics include the increasing levels of product digitalization (e.g., electrification and higher levels of software), acquiring new customer groups and product portfolios, complying with regulations and official directives, and handling political and economic crises.

IN BRIEF

01 Organizational Structures for Quality

There is no one-size-fits-all approach but rather some general principles on how to shape the organization of quality management (QM): effective central QM is essential for ensuring company-wide standards and generating synergies, while decentral QM departments must be capable of responding to variation in agile ways.

02 Quality Culture

A shift in roles is well underway from "production police" to "internal sparring partner." In addition to product and process quality, an increasing focus is being placed on software. The ISO 9000 family of norms continues to form the basis for how quality is understood throughout companies.

03 Collaboration for Quality

QM methods and tools need to keep up with the rise of agile project work. Cross-functional collaboration is a critical factor for success here. QM in supply chains is rapidly gaining significance in light of global crises.

04 Digitizing Quality Management

Collecting data cannot be an aim in itself. For value to be added, targeted analyses are needed to derive knowledge of interest. When digitalization projects are launched, quick wins also have to benefit QM. In addition, quality indicators should focus not only on results but also on enabling processes.

Authors



Markus
Uellendahl
Senior Partner



Oliver
Stahl
Partner



Dr.-Ing. Colin
Raßfeld
Senior Manager



Dr.-Ing. Falk
Behmer
Manager



Contact

☎ + 49 170 911 4330

Co-Authors

A special thank you to our collaboration partners at the TU Berlin, Chair of Quality Science
Prof. Dr.-Ing. Roland Jochem, Tra Bui Thi Thanh, M.Sc

Porsche Consulting

Porsche Consulting GmbH is a leading German management consultancy and employs 900 people worldwide. The company is a subsidiary of the sports car manufacturer Dr. Ing. h.c. F. Porsche AG, Stuttgart. Porsche Consulting has offices in Stuttgart, Hamburg, Munich, Berlin, Frankfurt am Main, Milan, Paris, São Paulo, Shanghai, Beijing, Atlanta, and Palo Alto. Following the principle of “Strategic vision. Smart implementation,” the consultants advise industry leaders on strategy, innovation, brand, sales, development, technology, and operations. Porsche Consulting's worldwide network serves clients in the aerospace, automotive, construction, consumer goods, energy, financial services, industrial goods, life sciences, and transportation sector.

Strategic Vision. Smart Implementation.

As a leading consultancy for putting strategies into practice, we have a clear mission: we generate competitive advantage on the basis of measurable results. We think strategically and act pragmatically. We always focus on people—out of principle. This is because success comes from working together with our clients and their employees. We can only reach our aim if we trigger enthusiasm for necessary changes in everyone involved.

Porsche Consulting

Stuttgart | Hamburg | Munich | Berlin | Frankfurt | Milan | Paris | São Paulo | Atlanta | Palo Alto | Shanghai | Beijing

www.porsche-consulting.com

© Porsche Consulting 2023