

The Gap between Information Technology and Quality Management

*A Trend-Survey of Quality Managers
in Austria and Germany*

Title	The Gap Between Information Technology and Quality Management
Partner	-
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Executive Summary

Purpose

This trend-survey was designed to assess the potential of information technology applications in the context of quality management. Quality managers of manufacturing companies across Germany and Austria were invited to participate and report on current challenges and obstacles in industrial quality management.

Summary

Because of information-intensive quality management activities, information and quality management are considered to be strongly interconnected. Often, the quality of information in quality management systems directly influences the quality of delivered products.

Therefore, the application of information technology to support quality management represents a feasible and necessary approach to increase effectiveness and efficiency in quality management systems. IT-enabled quality management solutions represent a new trend that aims to leverage information technology for quality management purposes.

While a significant group of companies has already implemented these concepts, many quality managers are currently busy realigning their IT infrastructures to quality management requirements.

Methodology

The Know-Center Graz conducted a series of in-depth telephone interviews with 19 quality managers of Austrian and German manufacturing companies with up to 100,000 employees in Q4/2004. Interviews were conducted by Know-Center employees and supported by a standardized questionnaire raising open and closed questions concerning the domain at hand. This trend-survey comprises both the empirical and qualitative results of the conducted survey.

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1 Introduction

You know that **successful quality management** strongly depends on an **effective application of information technology**. Organizations that appropriately leverage information technology for quality management smoothly integrate the quality of information with the quality of their products.

Information technology in these organizations automatically ensures the **accordance of businesses with quality management standards** and **reduces administrative work** for their work force. Thereby information technology frees employees from painful and costly tasks enabling them to focus on the most value-generating activities.

Yet, the situation in many organizations is different. On your company's file server, employees are facing multiple documents, out-of-date information and even inconsistent data. Remember your last quality management audit? - When your employees lacked knowledge about quality management requirements and consequently, could not conform to the guidelines developed? And they can not even be held accountable for that because they needed to put their energy and time in their **value-generating activities** while they are in desperate need for **appropriate information technology support**.

Sound familiar? – You are not alone.

Despite the promises of the e-business age and available quality management software, **an amazing number of organizations struggle with aligning their information technology** to their quality- and business needs because of:

- Complex and information-intensive business processes
- Incompatible IT systems
- Networked supply chains
- Non-transparent software market

2 IT Often Handicaps Organizational Performance

Because appropriate information technology significantly influences an organization's performance, the consequences of inefficiencies are severe: Information technology often causes non-conformance with quality management, evoking quality as well as strategic risks for businesses and thereby leading to redundant work and remarkable internal and external costs.

Quality managers in organizations are faced with these challenges and strive for solutions.

„Before we aligned our IT infrastructure to QM requirements, we were losing millions of dollars because of costly product call-backs and damaged reputation.“

Quality Manager
Automobile Industry
(~100.000 employees)

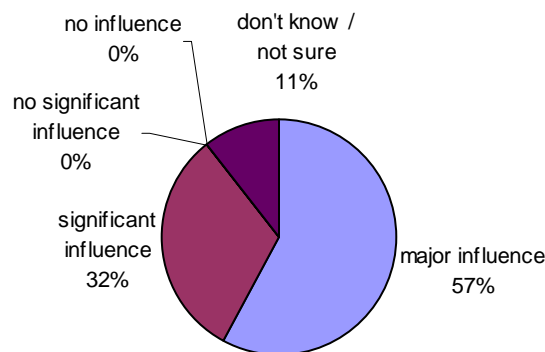
Therefore, this trend survey recognizes current technological challenges identified and addressed by quality managers and draws conclusions for supportive IT systems.

3 The Quality Manager Survey

Quality management drives organizational performance

Unsurprisingly, quality management strongly affects the degree of achieving organizational objectives. Therefore, successful organizations rely on effective and efficient quality management operations. In fact, no modern organization can afford to ignore the challenges emerging from quality management efforts.

Question: How do you assess the influence of quality management on the achievement of organizational objectives?



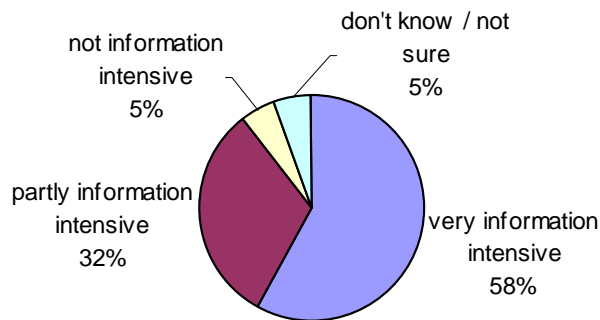
„We could never satisfy our customers without effective quality management.“

Quality Manager
Electronic Industry
(~ 30.000 employees)

Quality management is an information-intensive activity

Because quality management activities are information-intensive , the enormous potential of information technologies in the context of quality management becomes obvious. Information technology therefore acts as an enabler and is essential for successful quality management.

Question: Are quality management activities in your organization information-intensive?



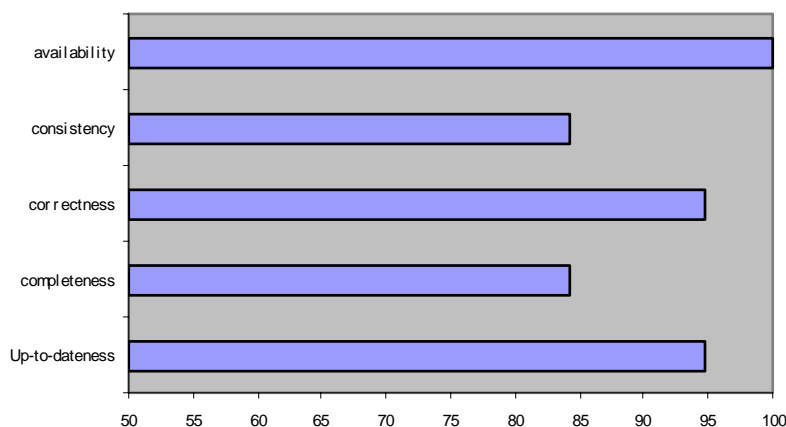
„Successful quality management is 95% information work.“

Quality Manager
Metal Industry
(~20.000 employees)

Quality of information matters

Quality management strongly relies on the quality of information in order to achieve its goals. Yet, information quality needs to be designed, engineered and supported and cannot be assumed to be readily available. The answers given by the respondents emphasize the need for technological systems that aid in increasing information quality in organizations while at the same time reducing costs for maintaining it.

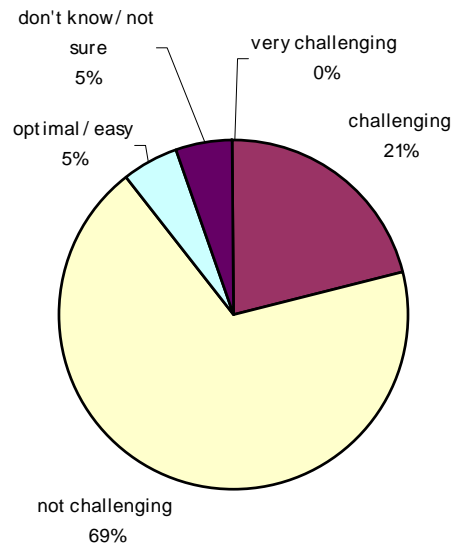
Question: Which aspects of documents or information are critical for successful quality management?



Information technology eases access to information

Organizations already leverage information technology to ease information access within corporate boundaries. Modern search instruments, knowledge portals or structured approaches to document management already implemented in organizations decrease search times while at the same time increase productivity of employees.

Question: Is it challenging to access necessary information in your organization?



„Our IT-enabled QM solution represents the only way for our employees to keep up with latest information on quality management.“

Quality Manager
Paper Industry
(~ 5000 employees)

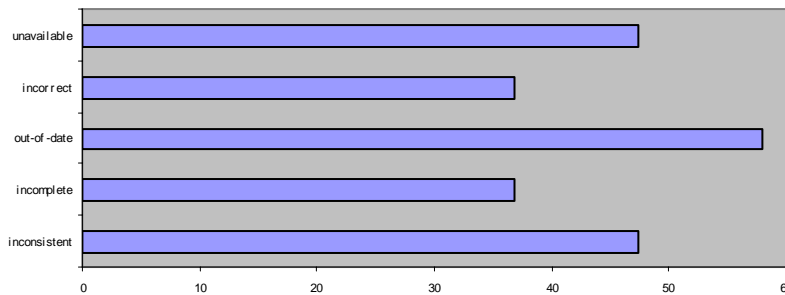
Quality managers already address information quality problems

Quality managers in organizations have to deal with significant problems with respect to information quality. Information technology is regarded to be an enabler for improving the quality of information which in turn represents the basis for an improvement of the quality of products. Therefore, the interplay of information and quality management is further emphasized.

„Availability of accurate and up-to-date documents represents the fundament for our successful business operations.“

Quality Manager
Plastics Industry
(~ 8000 employees)

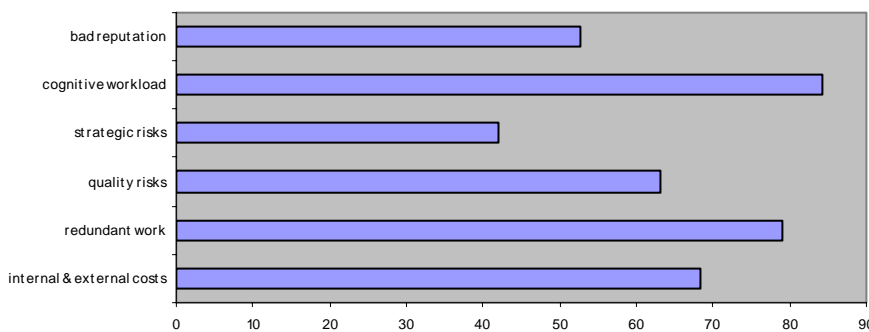
Question: What problems do you face in your organization with respect to documents or information?



Bad information quality causes significant threads

The consequences of bad information quality pose a dangerous threat to organizational success. Needless to say, quality managers are concerned with reducing these effects on organizations. Notably, around 80% of interviewees agreed that bad information quality causes the execution of redundant work in organizations. Around 70% believed that this is the root of significant additional costs. More than 60% of interviewees agreed that bad information quality directly poses risks for quality management efforts. Given these results, increasing information quality represents a key challenge for quality managers today.

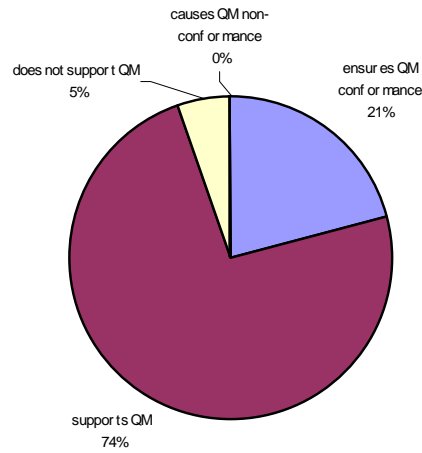
Question: What are the consequences of bad information quality on an organization's performance?



Information technology supports quality management

As many quality managers know, appropriately applied information technology has the potential to promote successful quality management. About 75% of the respondents perceive information technology to be supportive of quality management. Notably, more than 20% already report that information technology even ensures the conformance of quality management requirements in their organizations.

Question: Does IT support quality management in your organization?



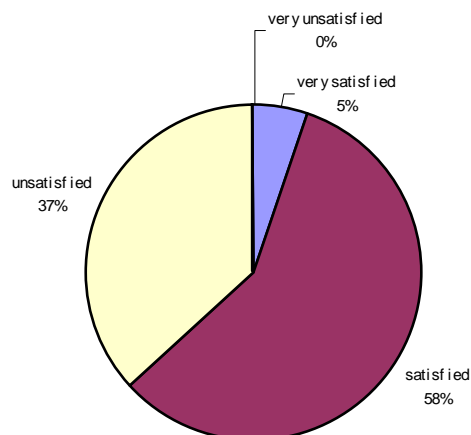
Employees are sufficiently trained

For quality management to be successful, employees must receive effective training. The majority of quality managers consider the competences of their employees with respect to quality management sufficient. However, more than a third of the respondents complained about a lack of knowledge with regard to quality management processes, requirements and structures and requested instruments that assisted in the transfer of knowledge about QM.

Question: Are you satisfied with the qualification of employees concerning quality management?

„I wish for an efficient instrument that eases QM training efforts for our employees.“

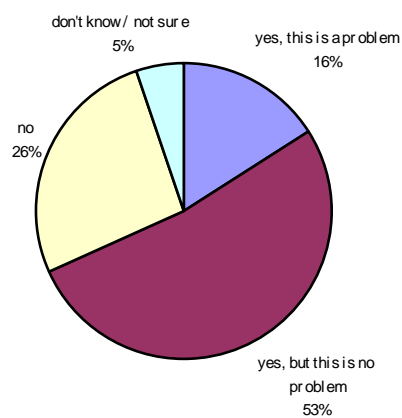
Quality Manager
Electronic Industry
(~1500 employees)



A gap between QM theory and practice exists

More than two thirds of the respondents agreed that a significant gap between QM theory and practice, e.g. theoretical business processes and current procedures in organizations, exists. At the same time, the majority of quality managers do not consider this to be a problem for business operations. However, reasons for this gap could be identified.

Question: Do you perceive a gap between QM theory and QM practice in your organization?



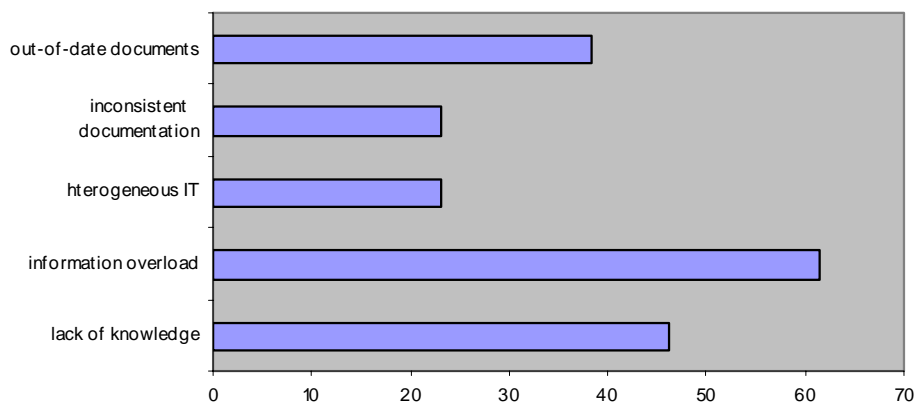
This gap can be explained

It's no wonder that so many quality managers consider information technology to be supportive of quality management. Information overload was the top-rated cause for the identified gap. A lack of knowledge around quality management was considered to play another major role in this issue. Since both aspects can be remedied with advanced information technology, help is under way.

Question: What is the reason for the gap between QM theory and practice?

„The dynamics in our industry cause a constant lag between our theoretical QM considerations and our day-to-day practice. We depend on IT to resolve these issues.“

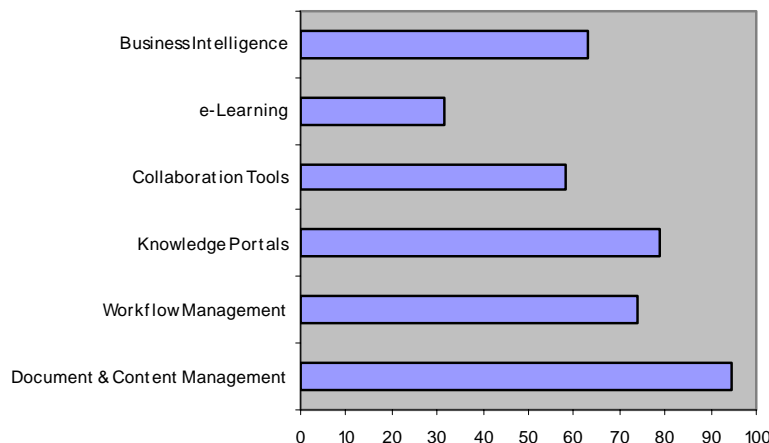
Quality Manager
Electronic Industry
(~ 3000 employees)



Document management is key to successful quality management

Document and content management solutions represent the most critical type of software that enables quality management in organizations, followed by portal and workflow technologies. Quality managers agree about the tremendous need for technological instruments that aid in dealing with the issues of information overload and QM-conforming documentation.

Question: What type of information technology provides significant support for successful quality management?



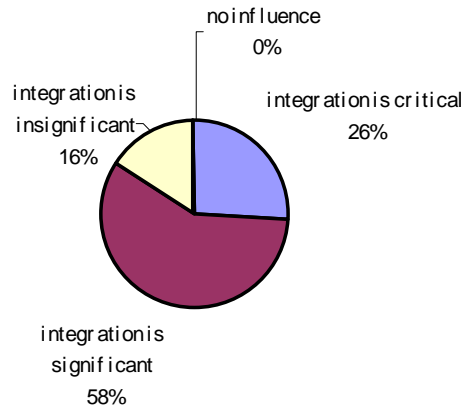
„Without our document management solution, we would already have drowned in a sea of information.“

Quality Manager
Semiconductor Industry
(~ 10.000 employees)

Integrated IT systems are important for quality management

As most quality managers know, the integration of various IT systems creates extra work. According to the quality managers that were interviewed, the majority view was that, the availability of integrated information technology 1) pays off and 2) significantly contributes to the achievement of quality management goals.

Question: What is the impact of integrated information technology systems on the achievement of quality management goals?



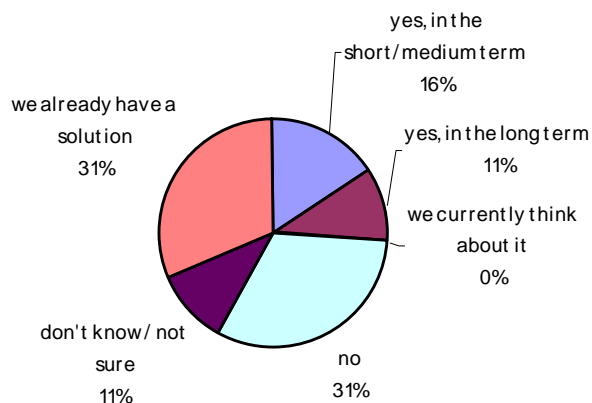
The number of IT-enabled quality management solutions will rise

Quality managers widely recognize the importance of integrating quality management and information technology aspects. While approximately a third of the respondents have already implemented an IT-enabled QM solution, another 27% think about it in the short to long term.

Question: Do you plan to invest in an IT-enabled QM solution in the future?

„Our IT-supported quality management solution paid itself off in less than 7 months.“

Quality Manager
Pharma Industry
(~5000 employees)



4 Conclusions

The results of this trend-survey strongly indicate that quality management is perceived to be an information-intensive activity. The achievement of organizational improvements relies on precise, consistent and up-to-date information. Therefore, information quality plays a key role in quality management efforts.

Quality managers know how much it costs to deal with the consequences of poor information quality and quality management defects. Product call-backs, angry customers or slow supply chains that ruin valuable profits. Quality managers recognize that fact and address these problems. Information technology, and especially IT-enabled quality management solutions, offer relief to tormented quality managers.

IT-enabled QM solutions provide:

- Faster access to QM documentation
- QM training for employees
- Document and workflow management capabilities
- Functionality to increase information quality
- Relief from administrative QM tasks
- Instruments to keep up with the gap between QM theory and practice.

„In our company, IT ensures the conformance of everyday business with our quality management requirements.“

Quality Manager
Electronic Industry
(~ 1000 employees)

Today's business dynamics and customer demands force organizations to continuously question and improve their operations. With 58% of quality managers already having an IT-enabled quality management solution available or planning to acquire one, a strong trend towards IT support for challenges in quality management could be identified in this survey.

Nevertheless, information technology itself does not substitute customer-orientation, motivated employees or sophisticated innovations. However, it enables employees to focus on the relevant aspects of value-generating activities, leaving tiring administrative tasks to the IT infrastructure and at the same time ensuring conformance to your organization's quality management requirements.

Imprint

The Know-Center is Austria's Competence Center for knowledge-based Applications and Systems. The Know-Center has its core competences in the fields of information technology as enabling technologies for knowledge management and in human-oriented knowledge management.

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