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# Department Quality Management

Chair of Metrology  
and Quality Management





The members of the Chair of Metrology and Quality Management (one of the four chairs of the Laboratory for Machine Tools and Production Engineering WZL at RWTH Aachen University) work on industrial solutions for various business sectors, ranging from manufacturers to service providers.

The department Quality Management develops integration concepts and implements them into companies in accordance with individual customer needs. Furthermore, strategic and operative solutions are developed and optimized for practical application.

We possess comprehensive solving expertise to support production companies in expanding their competitiveness. In order to provide solutions for research and industry, the competences of the two departments Metrology and Quality Management are used synergistically by forming project oriented groups.

Let us face the described challenges professionally and with eagerness, so that you are capable of accomplishing your goals.

Sincerely yours,

Robert Schmitt

We believe that increasing the quality and thus the effectiveness of the operational and organizational structure is vital for both competitive strength and innovation.

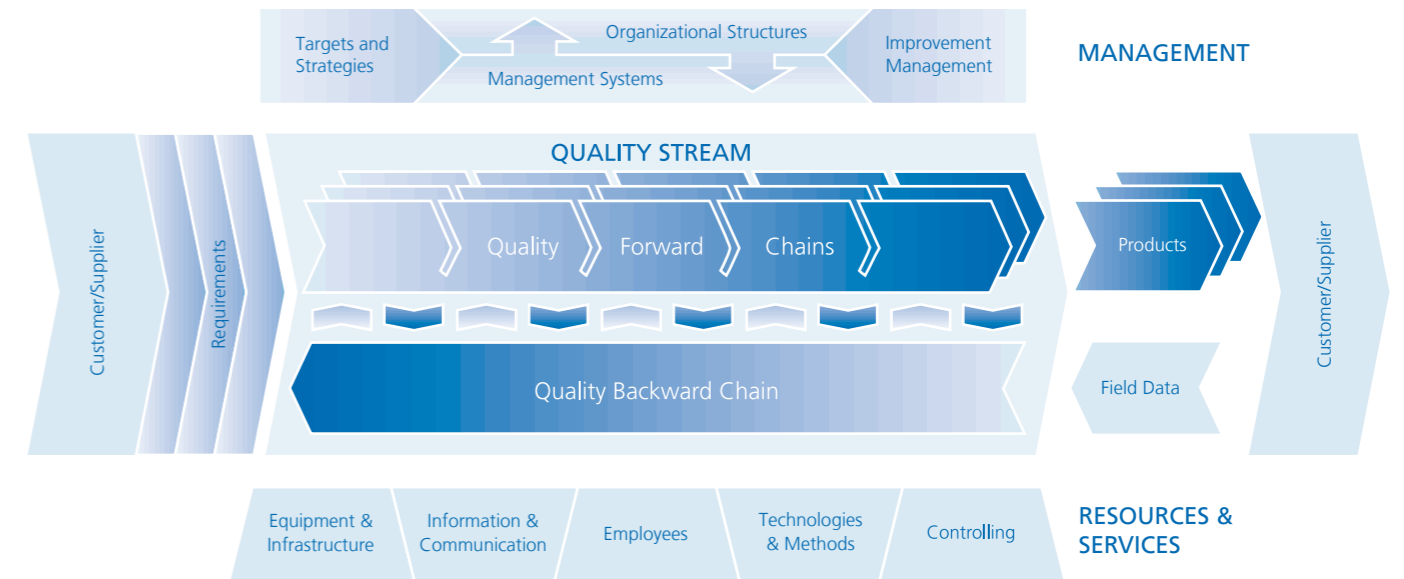
This requires a concentration of various competences.

The creation of a distinctive profile is a central challenge for companies of all business sectors. Unique, customer delighting products and failure free, efficiently working processes are important unique selling propositions in the global competition.

In order to control production processes, it is essential to capture and constantly improve processing ability. Holistic Quality Management as a product life cycle oriented management approach creates relevant indices and identifies regulating variables for continuous improvement processes within the entire company.

»Entrepreneurial Quality Management helps you to accomplish your goals«

## The Aachen Quality Management Model



More and more companies see Quality Management as a comprehensive cross-sectional task to guarantee and increase the ability to consequently and swiftly implement operative and strategic objectives and thus secure entrepreneurial success.

Efficiently applying the right methods and measures for the qualification of employees, processes and organization is a key factor in avoiding any kind of waste and increasing the innovativeness and competitiveness.

In order to make these optimizing tasks practically accessible and manageable, the Aachen Quality Management Model has been designed by a cooperation of the Chair of Metrology and Quality Management of the Laboratory for Machine Tools and Production Engineering WZL at RWTH Aachen University and the department Production Quality and Metrology of the Fraunhofer Institute for Production Technology IPT.

This model contains three essential and unique features. The first feature is its perspective character, which com-

bins and combines and represents the perspectives that are required to adapt Quality Management to the internal and external conditions optimally and continuously. Secondly, it is life cycle oriented, which means that it generates a new perspective that can be applied dynamically to operate successfully within the product creation process. This creates advantages on the market and improves competitiveness.

As a third unique feature, the quality backward chain organizes the reactive and corrective actions for all product groups. Control loops between the quality forward chains of different product groups and the quality backward chain enhance the model with elements of continuing improvements.

### The Core Elements

In the model, the three elements – Management, Quality Stream and Resources & Services – form the frame of reference for the strategic and operative application of Quality Management. The first core element, Management,

includes classifying tasks, competences and responsibilities for the management, which remains the initiator and driving force for any quality initiatives.

The second core element of the model represents the Quality Stream (quality oriented value stream) and relates to the processes and operations in companies. This stream begins with the customer or supplier and leads back to the customer while supporting services, value adding processes and the increase in product quality. The essential task of the Quality Stream is the transformation of customer demands into delighting products that are able to bind customers.

The model's third core element covers Resources & Services. The main task of this element is the preparation and qualification of Resources & Services. It takes into consideration all factors of production, such as material and immaterial means, and services needed to provide, develop and apply the Quality Stream.

## Our Services at a Glance

In order to achieve quality and productivity goals, more and more companies rely on Quality Management as a comprehensive cross-sectional task, which has a lasting impact on the success of the company. This requires a holistic approach, which takes all aspects of Quality Management into consideration and points out their effects on the company's performance.

Based on the Aachen Quality Management Model, the department Quality Management offers practical and targeted approaches for the solution of entrepreneurial challenges in both the strategic normative as well as the tactical operative field, so that a holistic optimization can be achieved by exploiting all available synergies and potentials. Regarding this, the three different perspectives of the Aachen Quality Management Model – customer perspective, management perspective and operations perspective – are also reflected by the different research groups of the department.

The department Quality Management consists of three groups: »Business Excellence & Development«, »Customer Satisfaction & Operations Management« and »Perceived Quality & Product Value Management«.

## Business Excellence & Development



Focus: Management perspective

The group »Business Excellence & Development« develops and implements solutions for a successful alignment of the company to meet the demands of high quality production standards. From the management perspective of the Aachen Quality Management Model, the group »Business Excellence & Development« determines the strategic and customer-friendly orientation taking into consideration entrepreneurial capabilities. Within the scope of the company's high quality production standard orientation, we provide a wide variety of research and consulting expertise for the creation and optimization of organizational structures, business processes and management systems. It is a pleasure for us to assist you with developing business oriented modification and improvement strategies and with selecting and implementing relevant programs. Therefore, we offer individual qualification measures, which enable us to assure effective qualification of your organization's members.

### Main Fields of Operation

- RWTH course and certificate for the »Business Improvement Manager«
- Organizational embedding of Quality Management
- Optimized adaption strategies for development processes (»Dynamic Quality Gates«)
- Implementation of Quality Management systems
- Lean Six Sigma/Design for Six Sigma

## Customer Satisfaction & Operations Management



Focus: Operations perspective

The motivation and main task of the group »Customer Satisfaction & Operations Management« is the successful exploitation of performance potentials regarding the conformance of the operative capabilities with the company's orientation. From the operations perspective of the Aachen Quality Management Model, the group »Customer Satisfaction & Operations Management« designs business as well as production processes and operates the required input of resources. Therefore, the operative potentials of organizations are synchronized with their strategic objectives. With this ambition, we research, qualify and advise mainly within the fields quality oriented control loops, Quality Stream Tracking, product function oriented Quality Management and Complaint Management. The development of these topics assures the holistic generation of the Quality Stream.

### Main Fields of Operation

- Integrated Complaint and Claim Management
- Systematic structuring and harmonization of production and business processes
- Failure Elimination Processes
- Quality improvement by optimizing product and process structure

## Perceived Quality & Product Value Management

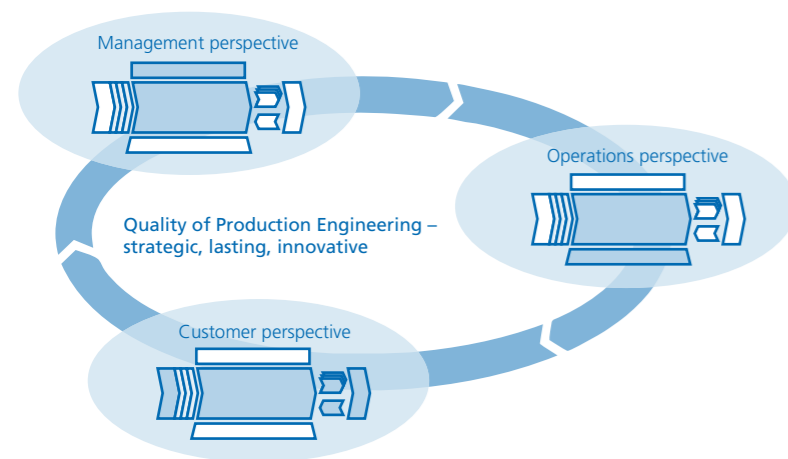


Focus: Customer perspective

The group »Perceived Quality & Product Value Management« develops solutions for the creation and implementation of successful, customer delighting products on the market. From the customer perspective of the Aachen Quality Management Model, this group enables companies to design products in a way that delighting features, exceeding basic expectations, can be created technically. Therefore, a comparison between subjective customer demands and intrinsic product features is necessary, which also provides opportunities for differentiation on already saturated markets. For the practical implementation, this interdisciplinary working group has developed a methodology which identifies and quantifies product features and qualifies all required processes and resources of the company considering the realization.

### Main Fields of Operation

- Systematic integration of customer demands into product development
- Conception and realization of customer specific concept tests
- Quality Management tools for the adaption of customer optimized products
- Identification of customer relevant components and product features



We offer customized qualification methods in all areas of Quality Management:

- Management presentations for your company
- Workshops on designing and implementing QM methods
- Basic and Best-Practice seminars
- Green and Black Belt trainings

You are interested in individual qualifications?

#### Your contact

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#### Qualification: A Key for Long Term Quality Management

Qualified employees are a prerequisite for a transformation of innovative ideas into delighting products without waste. Thereby, being aware of methods and solving strategies, their application in practice, as well as the estimation of the performance of entrepreneurial activities are of significant importance.

In order to qualify employees at all levels of your entrepreneurial structure, we offer synchronized qualification modules, Best-Practice workshops and individually outlined management and expert presentations. Their essence hails from practice oriented research and consulting projects that have been successfully realized with industry partners.

#### WZL Qualification Modules

Our modular qualification concept enables the optimal orientation of qualification measures towards your individual needs. Together, we identify your need of training and assist you with the selection of relevant modules.

The qualification measures can either be taken in WZL facilities or in-house by our employees in cooperation with you. The content of each seminar is tailored to its target group and can be adjusted to take your individual needs into account. The modules can be applied in interaction with one another, forming a consistent and constructive training concept, or they can be applied individually and independently from one another. Through participation in the corresponding sets of modules, the RWTH certificate ›Business Improvement Manager‹ can be acquired as either Green or Black Belt.

Aside from the synchronized modules, we also offer individual in-house method trainings on your request. Such as:

- FMEA and DRBFM
- Quality Function Deployment (QFD)
- Quality Gate Systematics
- Single Minute Exchange of Die (SMED)
- 5 S and Poka Yoke

#### Seminars

For the practical adjustment of our qualification offers, we regularly arrange seminars on current subjects of Quality Management. Through expert presentations, our industrial solutions adapted from research on the one side and practical knowledge on the other side build an excellent base for the interdisciplinary exchange of experience.

#### Management and Expert Presentations

It would be a pleasure for us to hold management presentations in your company, for instance during the kick off a new project improvement. The content of the presentation will be defined according to your suggestions, possibly under consideration of your current individual case studies.

#### The WZL – Your Reliable Partner for Quality Management Challenges

With regard to our established expertise and our highly qualified personnel, the department Quality Management of the WZL provides support as a supremely capable partner for improvement measures.

We assist you with strategic planning and long term implementation of projects on all levels of your entrepreneurial structure, no matter which area of the Aachen Quality Management Model you would like to address. We use our practical research results in order to develop individual and innovative solutions for you.

#### Practice and Research Hand in Glove

Together with our partners, we work on future-proof solutions for challenges within the scope of Production Engineering and Quality Management. The spectrum of our partners ranges from small and medium-sized enterprises to internationally oriented corporations from different business sectors.

In more than twenty projects per year, we support our industry partners by providing short term solution for current challenges as well long term solutions, jointly realized development activities. Besides the conception, introduction and long term implementation of measures, our activities also include the cooperative study of innovative ideas.

Apart from the consulting products listed below, we offer services within Production Engineering and Quality Management, such as:

- Implementation of value adding quality control loops
- Multi-site process harmonization and optimization
- Identification and defining of customer delighting features.

You feel like being faced with a new challenge? Contact us – we will find an individual solution for you.

#### Your contact

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#### Consulting Products

<p>Identifying and synchronizing strategic, organizational and technical-operative goals and fields of action for the implementation of improvements, based on objective decisions</p>	<p>Integrated complaint processing and evaluation in order to increase customer satisfaction and decrease G&amp;K costs</p>
<p>Procedure for process and project management, which help saving time and costs efficiently</p>	<p>Identification and classification of customer relevant quality features for target oriented product improvement</p>
<p>Harmonizing company processes, associated indices and escalation routines and generating process structures that are best suitable for the company</p>	<p>Evaluation and expansion of existing customer-supplier-relationships for transferring customer demands as needed</p>