

PERFECTION!?

Why we Need to Reconsider Quality



ROI DIALOG OVERVIEW – ISSUE 45

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BEYOND PERFECTION AND 'FIRE FIGHTING'

Why we need a new understanding of quality

Prof. Dr. Werner Bick, Chief Representative of ROI Management Consulting AG

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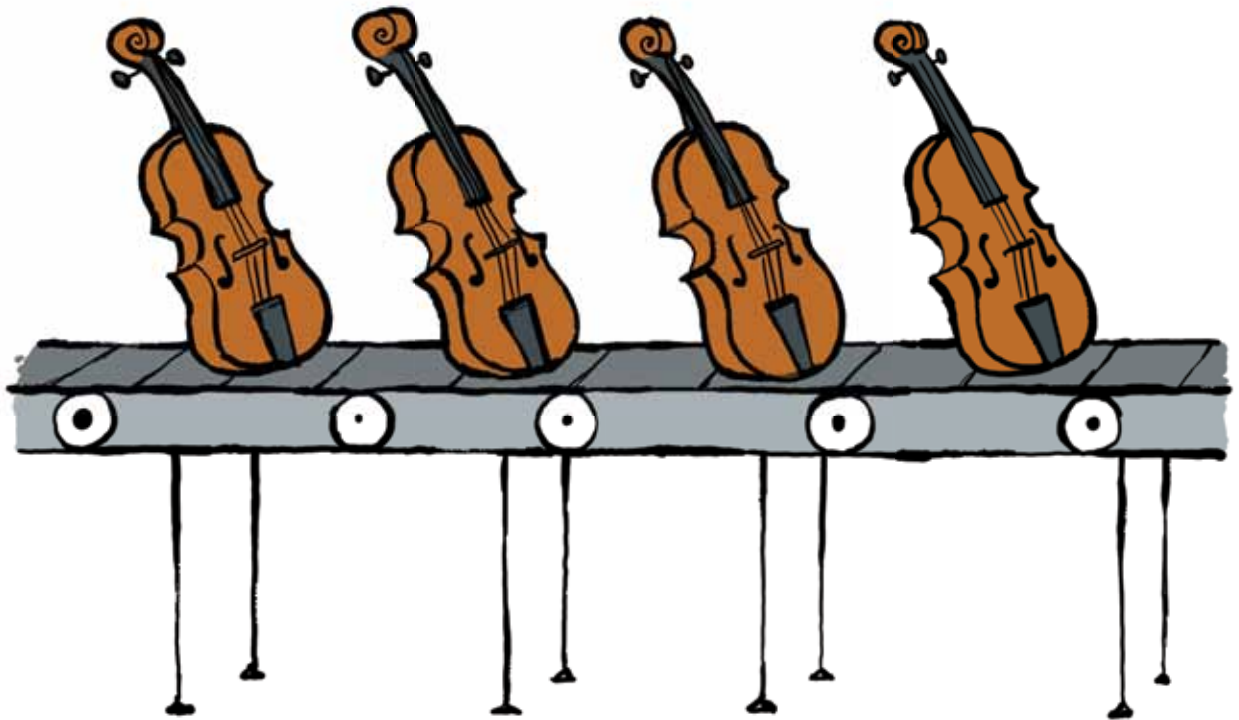
The legend was born 450 years ago on the Piazza San Domenico in Cremona in Northern Italy. It was here, among magnificent Lombard buildings in the shadow of Padua and Milan, that Antonio Stradivari is said to have produced his best and most famous violins, violas, and cellos. Instruments that have over the centuries been loved, adored, treasured and, in rare cases, sold for millions. Instruments that are unrivaled in their beauty and tone and whose perfection has never been equaled. Many people still say that it was not just human hands that were at work in forming them. Stradivari's instruments are the quintessence of human creation – the highest, ultimate quality.

Or to be more precise: they were, because people have been dismantling the legend for a number of years. One of the first and immediately highly visible attacks came from Germany of all places. "Print me a Stradivarius" was the heading above the cover picture of the British magazine

'Economist' depicting a violin produced from an unremarkable gray material at the beginning of 2011. The violin maker was the Munich-based company EOS, one of the pioneers in 3D printing. The spectacular precision of the new technology – the article message ran – would change

the world in a few short years and make it possible to produce quality for a fraction of the cost of a masterpiece of craftsmanship. At the end of 2011, the respected American science magazine PNAS tested the sound of Stradivari against modern violins – which won the test hands-down. Exactly 400 years after Stradivari produced his famous violin 'Lady Inchiquin'. The test leader noted that the power of the legend was so great that in all the centuries nobody had even dared think of testing the quality under scientific conditions. It is not known whether he had read the 'Economist' a few months earlier.





'Zero Defects' as the Brand Core

Even today, quality is more than the sum of matter-of-fact indicators and readings. It forms the core of most globally successful brands in German-speaking countries in particular, providing the central dimension for positioning and the basis for a price strategy that is intended to ensure the survival of high-wage economies in global competition. 'Zero defects' has become a standard concept over the last few years that for most companies is non-negotiable. The art of engineering – in the self-conception of its followers it still has a great deal in common with the master workshop in Cremona.

For decades it was success that justified a strategy of uncompromising quality and the pursuit of perfection. In the same way that Stradivari was right for 400 years. However, securing and maintaining quality is becoming an increasingly uncertain task for which there are a number of reasons.

"'Zero defects' has become a standard concept that is non-negotiable for most companies."

Quality under Pressure

The life cycle of most products is growing ever shorter at a dramatic rate – bringing far-reaching change to B2B as well as B2C markets.

Development, industrialization and production must therefore be performed under enormous pressure of time, restricting the scope for quality optimization. At the same time, complexity has also been growing – not least as a result of physical and digital components and systems. The development is leading to a rapid increase in the costs of quality – through inadequate advance quality planning, higher expenses for testing and follow-on costs for quality defects. Accordingly, more than three-quarters of a million vehicles in Germany were subject to a workshop recall last year. We therefore urgently need methods that



ensure a lower susceptibility to faults and defects in the subsequent product. One approach here, for example, is provided by the concept of 'robust design', which aims to analyze and control the effects of factors such as material properties, process parameters, environmental influence and deviations in product design. In addition, it is also important to understand the interactions of these factors and even to exploit them in reducing costs.

Quality Management as a Core Function

What is more, the conventional predominant understanding of quality is up for discussion. Nowadays quality is generally registered along two dimensions. First, it is the dominant secondary constraint in any production system, if not its

"The principle of 'faster and cheaper' is no longer sufficient when designing a global network."

meta goal. Second, quality above all means fire fighting, too. Quality management is deployed as a function when standard requirements are not met or when things are literally burning. Far-sighted and methodologically grounded coordination of the various systems, processes and teams within the company

is the exception here. However, it is becoming increasingly apparent that a significant reduction in costs and defects will only be possible if a quality management system can – at every step of the value creation process – prevent faulty products from being planned, developed and, either internally or externally, passed on to customers. Viewed in this way, quality is predominantly a corporate function and a management principle that is built on operational excellence and a broad mix of standardized tools and methods.

How much Quality is Necessary?

The question also arises as to how much quality is actually required and where. Global companies in particular are confronted in different markets by differing expectations regarding quality and compulsory quality standards as well as by different trade-offs between quality and price. These must be taken into account primarily in the localization of products as well as in the development and positioning of sub-brands and service models. The key question here is which quality attributes are really non-negotiable and which can be overlooked

in favor of what is for the customer an appropriate price relationship. By the way, this does not just apply to markets in Asia, Africa or South America. Overengineering – i.e. perfection that is not matched by a perception of higher value on the part of the customer – no longer provides an appropriate return in Western European markets, either, as the demise of many traditional brands demonstrates.

The Courage to Risk the Beta-version

And finally, recent years have also seen a change in the relationship between quality and innovation. Today it is more important in many industries to bring innovative products to market and to the customer early than to hone the last detail for the sake of quality and perfection. Approaches such as 'Open Innovation', 'Crowd R&D' or 'Crowd Testing' are already reality today. They count on the willingness of customers to participate in the development and testing processes and in this way to continuously optimize the quality of products – and are seeing growing success. Admittedly, every one of us would prefer a violin from Stradivari's workshop than a fiddle printed using polymers. The question, however, is whether we would also do so for the price of our own survival.

"Overengineering – i.e. perfection that is not matched by a perception of higher value on the part of the customer – no longer provides an appropriate return."



Prof. Dr. Werner Bick,
Chief Executive Officer, ROI
Management Consulting AG

QUALITY BEGINS WITH RESEARCH & DEVELOPMENT

Interview with Dr. Michael Weber, CTO of the KATHREIN Group

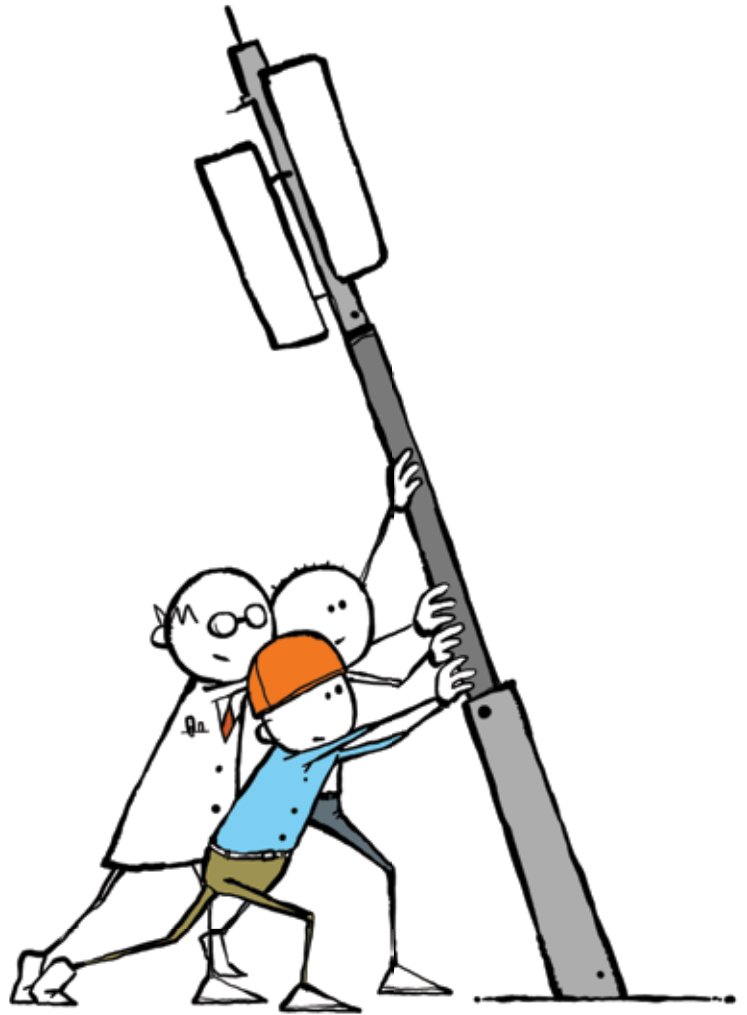
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DIALOG: Dr. Weber, quality is the first thing that springs to mind with the phrase 'Made in Germany'. And yet in the last few years many traditional companies whose names were synonymous with quality have failed. Has quality ceased to serve as a differentiator?

MW: No, and that will never be the case. Quality stands for sustainability, and if you can offer it to customers in a convincing manner it will always be successful. However, the view of the concept of quality has changed. Quality used to mean refining a product ad infinitum. This involved almost unlimited resources, i.e. a great deal of time and manpower. We must acknowledge the fact that was how companies built up the 'Made in Germany' quality image. But this alone no longer makes a business competitive, and if a company fails to recognize this and make adjustments it may encounter major difficulties. For me, quality in a product means guaranteeing so much that it meets customer requirements and is aligned with the long-term strategy of the company. It is clear that there will always be different qualities among rivals competing at differing purchase prices. If the customer looks only at the purchase price, better quality

"It's a question of showing the customer the meaning of sustainability in commercial terms, too."

products will always encounter greater difficulties, whereby quality does not necessarily have to mean high-priced. It's a question of showing the customer the meaning of sustainability in commercial terms, too. You have to fight to ensure that customers do not just see the purchase price but also the entire business case.



DIALOG: Rapid innovation cycles of course result in insufficient time being available for product and process optimization – something which is borne out by the increasing number of product recalls over the years. Are quality and innovation diametrical opposites?

MW: Not at all. Quality and innovation go hand in hand. It is a completely established process of innovation that provides the greatest scope to focus on quality and to integrate it into the ideas phase of product design. I think it is essential to take the right steps with requirements and in the early stage of development. It is



Dr. Michael Weber,
CTO, KATHREIN Group

important to think further about the product than the customer brief requires. This allows optimum platforms to be developed that can model a broad and innovative range of products thanks to intelligent adjustments. The automotive industry has played a clear pioneering role in this regard and there is a great deal that can be learned and adapted. The skill consists in tailoring it to one's own company. Development also has the task not just of creating an optimum design in terms of durability and functionality but also with regard to reproducible production quality. We need to learn, as part of a complete product design process, to forget the odd feature or two if this benefits the overall optimum. This is where production generally misses out and this fact, in my view, is one of the greatest risks for medium-sized companies.

DIALOG: *KATHREIN operates in more than one hundred countries around the world. Have your customers in different regions different quality requirements? What variances are there in the willingness to pay for quality?*

MW: Simply put, customers have different levels of budget available to them and in this respect are sometimes forced to make compromises when it comes to the subject of quality. There are however enough examples that show that, after a certain time, quality wins through in a difficult, market environment that is under enormous pressure. The difficulty here is to persevere in this market and to aim at the 'quality market'. However, this never means taking it easy with regard to product design. Instead, the product must be tested without making any compromises with regard to quality. Let me reiterate – if a company commits to quality, it must convince the customer that the higher purchase price for the product will pay for itself over the long term thanks to a longer useful life and a lower susceptibility to errors. It must make overall economic sense for the customer. If there is no long-term price benefit then I've gone too far with quality. An example: let's assume I'm offering a product with a service life of 30 years. Such a product, however, will not be deployed anywhere in the world for more than 15 years. In technological terms I've built myself a wonderful monument but for which no one will pay me. In this respect the customer must come first when it comes to requirements management, and not the engineer.

DIALOG: *Your competitors from the Far East, for example Huawei, have been able to establish themselves on global markets – they have been able to catch up considerably in terms on quality and innovation in recent years. What are you doing in the light of this trend to consolidate Kathrein's market position?*

MW: KATHREIN has a significant advantage – it's a company of a manageable size. We can decide and implement things faster than large corporations. I myself am familiar with both sizes of organization and can confirm from my own experience that, from a certain size, internal structures and co-

"The customer must come first when it comes to requirements management and not the engineer."

operation begin to lose out in terms of efficiency. Healthy growth as a medium sized company is the desirable alternative. Corporations may have almost unlimited resources but they are not as agile and adaptable as we are. This allows KATHREIN to be the first to bring technical features to the market with our accustomed quality, because we never question our quality standards even with a high innovative speed. However, we need to define quality in terms of what we actually need and not in terms of what is possible. We use our innovation management to think very carefully about the technologies that KATHREIN will benefit from in the future and to assess where we will be in ten or 15 years time. This is how we keep our creativity on the right track and aligned with our goals. It might sound contradictory, but innovation must be controlled in the same way as product development. In this way we are meeting the challenge of always being the first to market with new solutions.

KATHREIN is a leading international specialist in reliable, high-end communications technology. The company is headquartered in Rosenheim and covers a broad spectrum that includes mobile telecommunications, signal processing, optimized data transmission in buildings, fiber-optic and cable networks, satellite receiver technology, radio and TV transmission and data reception in cars.
www.kathrein.de

GLOBAL QUALITY STANDARDS FOR MASTERPIECES OF COMPLEXITY

Operational excellence assured through quality management software

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With more than 20 locations around the world, Miba AG is an experienced global player as a supplier to the motor and vehicle industry. The company is pursuing the 'one.miba' project to create a standardized process and IT environment that can be rolled out across the four key areas of Technology and Product Development, Supply Chain Management and Quality. This not only enables Miba to better manage the increasing complexity of its markets but also ensures greater transparency in quality management.

Family car, leisure-time speedster or second home: car drivers see the benefits of their vehicles through different eyes. More seldom is the perception of them as 'masterpieces of complexity', even though a VW Tiguan, for example, consists of around 25,000 individual parts. Integrating so many components economically in such a short time to the highest quality standards is one dimension of complexity. The second is in the logistical challenge of bringing all the parts, of which up to 70 per cent may come from external suppliers depending on the vehicle type, together. Miba AG also produces a large number of automotive components such as cogwheels, chain wheels, cogged belt pulleys, main bearing covers as well as oil and water pumps that have to be delivered in top quality and with perfect logistical coordination to customers around the world.

The Primer Coating: Coordinated IT and Business Processes

In a similar way to a primer-coated canvas, IT-based operational excellence not only forms a stable foundation but also plays a key role in Miba's global value chains. With its 'one.miba' program, the company has created the process and IT environment necessary for this at so far eight global production locations.

"one.miba is primarily about achieving a virtually perfect interaction between employees and IT – across language, cultural and technological boundaries," explains Günter Reittinger, Quality Project Manager at Miba AG. "There were clear requirements for the process landscape at the beginning of the project. It must not just provide stable, secure and logically standardized processes, but must be capable of being rolled out to additional locations. Furthermore, employees must be able to exchange best practices and thereby share e.g. ideas on improving quality among each other quickly."



Günter Reittinger,
Application Support and
CAQ Project Management,
Miba AG

Miba launched a separate project for the area of quality in June 2013, with planned completion by mid-2015, with the support of management consultants ROI and IT service provider IBS AG. "There are two subjects in global networks where carelessness is not allowed. First, discipline, efficiency and transparency in quality processes must be constantly examined and improved. Second, IT structures are required that make quality-related data from as many points in the value chain as possible available for analysis. This is exactly what we are driving successfully in the quality project – the effort involved in quality work fell significantly in the very first few months," says Günter Reittinger.

The Right Painting Technique: Clear Processes thanks to Quality Control Loop

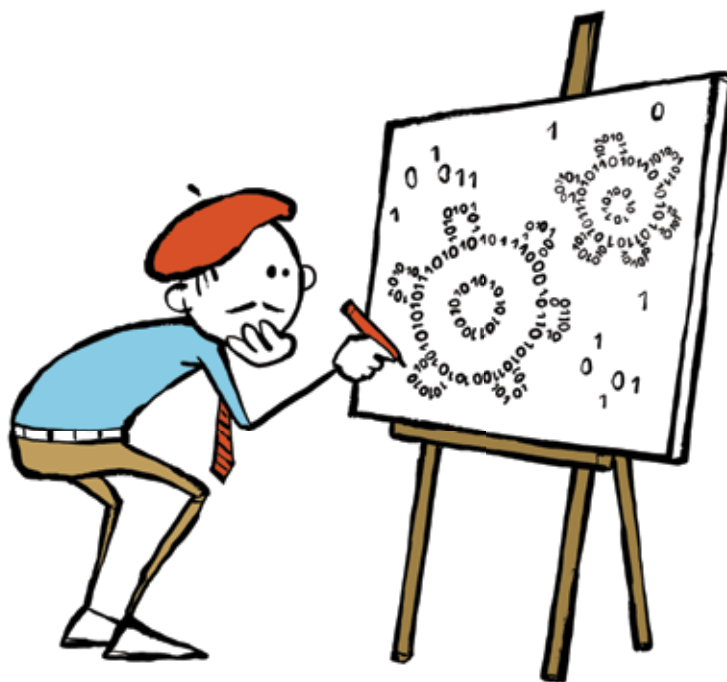
In order to achieve these goals, the project team decided to implement

the quality control loop with the support of IT. Using this approach, the team improved quality processes in the production locations using four interlaced stages:

1. PLAN: Development of a quality strategy with concrete objectives and KPIs
2. DO: Implementation of quality pre-planning
3. CHECK: Collect and analyze test data, perform audits
4. ACT: Derive measures, initiate product improvements and safeguard successful strategy implementation

However, it was only possible to realize these steps by implementing a new CAQ (computer-aided quality) software application. The project team involved the company's management board, quality managers and key users in order to obtain a fully realistic picture of performance requirements. This meant, on the one hand, a great deal of communication and coordination effort in the implementation phase, but it soon paid off in the form of fast application of the software in daily operations.

"We were able to significantly reduce effort in a number of work processes. What is more, employees can now access all relevant data in order to quickly determine and resolve the cause of any complaint that may arise," Günter Reittinger explains. "What is important for a successful rollout of this method in other locations



are the technical and organizational steps. These can take the form of manuals and also regular training sessions. It is also very important to fully document measures and decisions in a for employees structured manner."

Finding Your Own Quality Style: Reducing Defects, Sharing Best Practices

Although the project has not yet been completed, the team has implemented the rollout in all eight plants that use SAP/CAQ. This means that the production locations already have

- Standardized quality processes (e.g. for internal and external complaints),
- Standardized interfaces for their ERP system and for location-specific data collection,
- Improved process integration (e.g. with regard to testing plans, complaints process in the product development process) and
- A standardized and promptly available data pool as well as standardized reporting across all locations.

"A standard data pool in particular is a typical 'Big Data' challenge for the future that we have already solved. Because it allows us not just to access the performance of individual locations at the touch of a button, it also enables our network of locations to act more flexibly. We use software-based benchmarking and

error analysis to identify quality bottlenecks and best practices more quickly and to introduce appropriate measures directly," says the project manager.

Günter Reittinger is accordingly optimistic about the next steps in the project: "We are currently planning the rollout to plants in China and a plant in the UK. In the process, we will continue to reduce the complexity in the management of the network and increase the quality of our products through the coordinated further development of existing standards."

Miba AG

Miba is one of the leading strategic partners of the international engine and automotive industry. The company, which was founded back in 1927, employs more than 4,300 people at over 20 locations around the world. Miba's products – sintered components, bearings, friction components, power electronic components and coatings – can be found in vehicles, trains, ships, aircraft and power plants.
www.miba.com

IBS AG

As a globally-operative software company, IBS AG has been developing and providing software solutions and services for productivity management in industrial companies since 1982. In accordance with the company's philosophy of 'The Productivity Advantage', IBS AG has dedicated itself to developing and implementing CAQ, LIMS and MES solutions that contribute towards optimizing customer business processes and increasing the productivity of companies. IBS AG is part of the Siemens Group.
www.ibs-ag.de

WHEN I THINK OF QUALITY ...

Christian Wallstabe, Managing Partner of Dichtungstechnik
Wallstabe & Schneider GmbH & Co. KG

Quality culture ...

is a management task that must be lived out constantly – a consistent example must be given of quality focus in order to imbue every employee's thoughts and actions.

Made in Germany ...

for us means supplying premium quality from every production location – "Made by German Company" is a seal of quality around the world and the standard that we aspire to.

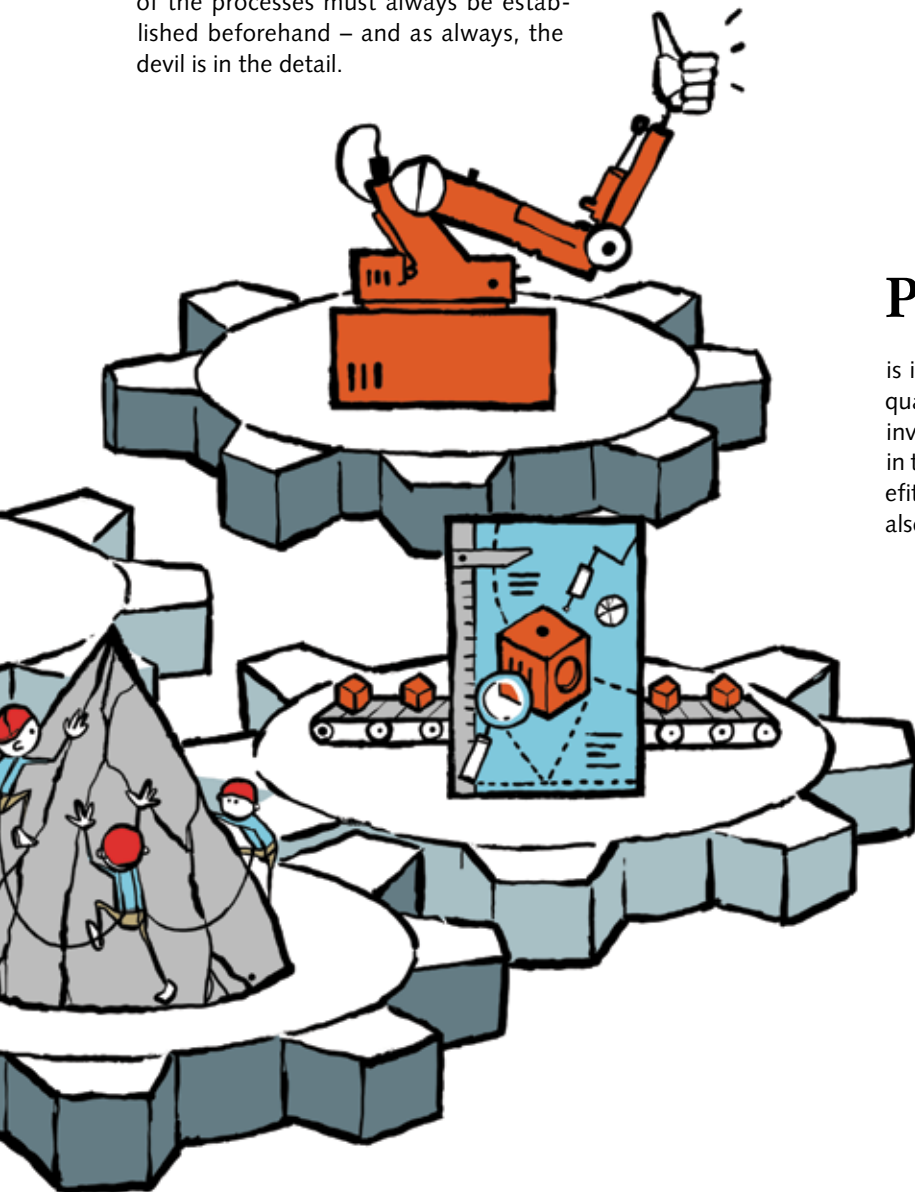


Quality vs. Innovation ...

is a permanent balancing act – product quality results from capable, durable and clearly defined processes. Innovations in process technology disrupt this stability but are often necessary to make major advances in productivity.

Automation ...

of production plants has a positive knock-on effect on product quality. The quality of the processes must always be established beforehand – and as always, the devil is in the detail.



Prototyping ...

is important, but is only one element in quality for a high-quality product. We are investing ever increasing time and effort in this phase. But then our customers benefit from this in series production – as we also do ourselves.



Christian Wallstabe,
 Managing Partner
 Dichtungstechnik
 Wallstabe & Schneider
 GmbH & Co. KG

Partner Networks ...

according to the principle "promote and challenge" ensure long-term quality and also successful partnerships. Our quality standards apply to all our partners around the world. They were introduced, trained and certified by us, and we constantly monitor compliance.

Wallstabe & Schneider

Wallstabe & Schneider develops and produces precision elastomer seals in Germany and abroad. Headquartered in Niederwinkling, Bavaria, the company employs more than 500 people. Customers include car and commercial vehicle manufacturers, system and component suppliers to the automotive industry and gas and water fitting manufacturers in the premium segment.

www.wallstabe-schneider.de

FINE SENSOR TECHNOLOGY FOR CONCRETE GROWTH FIGURES

Reliable Presence in New Markets thanks to New Network Structures

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As a global player in the manufacture of high-end measurement technology, the Swiss Kistler Group must adapt to new growth markets in a flexible way. With a total of four production centers in Switzerland, Germany and the USA and 28 affiliate companies, Kistler not only offers several thousand products but also services such as the calibration of sensors and training courses in measurement technology. Since demand for these products and services has been growing in traditional markets and around the world, Kistler has reorganized its global production and logistics network.

In a joint project with ROI, the company identified concrete policies for action for its production and logistics strategy in just five months. In the process, the project team answered questions concerning a major part of Kistler's growth plans with a timeline through to 2020, for example, how a "breathing factory" can be achieved that provides increased flexibility in production processes – or how to deal with price pressures in products for new, competitive industrial applications.

Technology Matrix creates Reference Points

For this purpose, the team first created an exact 'snapshot' of the network

structure showing where Kistler produces which products. What are the strategic processes and core competences? What reserves are available in the current structure? The next step enabled a focused look into the future: which location is to produce what in future? What investment is therefore needed at which location up to 2020? The project was divided into four phases of work:

1. Setting-up to specify concrete objectives and the strategic framework,
2. Status analysis of factories and the supply chain as well as a statement of strategic challenges,
3. Strategy for the production/logistics network defining the reorganization and the target factory structure and
4. Master plan for implementation that Kistler can use and extend independently over the coming years after the project has ended.

However, the special challenge in all phases of the project was to understand the huge complexity of the product range and to make growth transparent.



Claudio Valeri,
Head of Production & Logistics,
Kistler Group

"In addition to the status analysis of factories and the determination of strengths and weaknesses in our supply chain, a major challenge was to capture growth in as concrete terms as possible – something which seemed almost impossible to us at the outset since there was no sales planning by product area," explains Claudio Valeri, Kistler's Head of Production & Logistics. "Nevertheless, we managed to break down sales planning into a volume plan with annual volume targets for each

product family. These results enabled us to create a product-technology matrix and to map the growth plan.

The matrix shows in visual form what technologies as well as plant and staff capacities are needed for each product family each year through to 2020."

"Customers provide the most important stimulus for innovation and quality."

As Kistler is also able to identify currently available capacities for each location and to compare potential thanks to the new planning system, bottlenecks and expansion requirements can be seen and solved considerably earlier than before. However, the project team did not just look at requirements in production and logistics during the analysis phase. "Our customers provide the most important stimulus for innovation and quality. For this reason we do not just examine their requirements together with the sales department, we also determine the challenges for production and logistics that arise from each of these requirements – for example regarding delivery date, delivery reliability and flexibility and market-related costs.

Fine-tuning with Lean Production

Based on all these analyses, the project team was finally able to develop a set of concrete options for action for the global network. It became quite clear that considerable capacity potential could be achieved at all locations if Kistler continued to systematically implement its lean production policy that it had already begun to introduce.

"Lean production proved to be a hugely important factor – the perception



that we already have the potential to cover our growth plans in house without resorting to large additional investment was extremely gratifying," says Claudio Valeri. Nevertheless, it also became clear that lean principles on their own are not enough. In order to achieve maximum improvement outcomes the project team had to combine various points of leverage in a skillful manner. This included, for example, further systematic production automation as well as further systematic modularization of the product range, which brought additional advantages for production such as shorter lead times.

Fine-tuning the Future with a Master Plan

"It was very helpful to list bottlenecks, sources of error and possible areas of improvement in a clear form. But it is not enough to concentrate solely on problem resolution from this point onwards – that would be thinking on too short a time scale," Valeri explains. After the points of leverage for realizing potential became apparent, the team developed and evaluated various scenarios dealing with what Kistler would like to produce at which locations in the future and what the production concepts have to look like for this. The scenarios describe, for example, how the structure and staff at individual plants, supply streams, general business processes and central functions will change. Using these and other results, the project team finally specified the new strategic alignment and target structure for each plant and also redefined bought-in and outsourcing volumes.

"We developed a master plan for each plant location defining the core competences of the location and showing what competences need to be developed and expanded there. It drilled down into details such as which products the plant will manufacture using which technologies and capacities through to 2020," Valeri explains. In line with the Kistler Group's overarching growth strategy, the master plan also defines:

- At which point a process or service will be outsourced;
- The technologies a location will use;
- By when certain potential from rationalization projects must be achieved;
- When and where investments will be made;
- Which modularization topics are relevant for the plant and when.

Even before the project finished, the team was also able to clearly demonstrate the development of costs in the individual sections of Kistler's supply chain and in this way to reveal further potential savings. Furthermore, Kistler is also ensuring that attention to a high level of operational excellence in all matters relating to value creation and quality will remain very much alive beyond 2020 thanks to internal project initiatives as well as projects supported by ROI such as a global working capital program.

"It's not enough to concentrate just on remedying problems after performing analysis."

Kistler Group

The Kistler Group is one of the world's leading suppliers of sensors measuring pressure, force, torque and acceleration, as well as the related electronics and software. The company's high-end measurement technology from Kistler is used to analyze physical processes, and to control and optimize industrial processes. With around 1,200 employees the company generated sales of CHF 280 million in 2013.
www.kistler.com

STILL SKYROCKETING WHILE PRIORITIES CHANGE

China's Automotive Industry: The New Significance of Quality and the Need for Structural Changes
By Stefan Weiler, Managing Director of ROI Management Consulting Co. Ltd., China



Stefan Weiler, Managing
Director of ROI Management
Consulting Co. Ltd., China

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China's auto sales smashed through the 20 million mark last year, growing nearly 14 percent and extending the country's lead as the world's biggest car market. But despite a strong increase in Chinese auto sales last year, the domestic market share for Chinese brands continued to shrink, falling to 39 percent year-on-year, a 3 percent decline from the year before – and a steep drop from just over 50 percent in 2010 according to estimates of the government-backed China Association of Automobile Manufacturers (CAAM).

And while Chinese companies like Shanghai-based SAIC Motor Corp. Ltd. and Wuhan-headquartered Dongfeng Motor Group Co. Ltd., the nation's top two automakers, struggled to hold their own, Western multinationals such as Volkswagen AG, the best-selling brand in China with a 15.1 percent market share in 2013, and General Motors Co., with 14.5 percent, have thrived primarily through joint-venture agreements with large domestic auto companies.

Knowledge is King

Through its JVs, China wanted to transfer the technical know-how of automotive manufacturer from Europe, US or Japan to its own automotive industry. Despite this, most of the Chinese brands lag behind with respect to quality and safety tests in comparison to not only European, also American and Japanese vehicles.

"Most Chinese car manufacturers have still the strategy to focus on quick sales including copying design elements versus investing in state-of-the-art R&D."

One reason is that Chinese automotive manufacturers mainly focus on lower-level cars, which are no longer in such high demand on the Chinese market since people's income has increased significantly. Chinese cars are mainly bought because of the low price – if a Chinese consumer has more than around 15,000 euros to spend, a 'joint venture car' or foreign brand is preferred, as the Chinese always think that the foreign brand is better than their own.

Most Chinese car manufacturers have the strategy of focusing on quick sales including copying design elements and components versus investing in state-of-the-art R&D structures and processes, which results in a lot of technology and quality issues in their cars. This behavior negatively impacts the brand reputation, leading to the fact that Chinese don't trust their own brands with respect to safety, quality, reliability etc.

However, the situation seems to be starting to change as, according to the latest J.D. Power report, some Chinese automakers have been improving vehicle quality.

The Crucial Lever: Improved Quality is Key to Growth

At the China Quality Conference in Beijing in September, the first meeting of its kind held in China, Premier Li Keqiang called for a drive to improve the quality of Chinese products. Quality management has to be put in a more important position, and he also stressed the importance of developing educated laborers.

These statements have a strong meaning especially in the automotive industry, as quality is, apart from the price, one of the top purchasing criteria for Chinese car buyers, no matter which age group the buyers are in or whether they want to buy a Chinese or premium brand.

But how can the car manufacturers be enabled to build products with a much improved quality? As China used to be a very poor country, high product standards were not affordable for most of the people. Thus, people are used to lower standards of quality, safety etc. – and education did not focus on quality and safety, either.

In China, ROI is using methods in quality management which work especially well there, as they consider the specific educational background of employees as well as cultural aspects.

In quality management-related projects or new vehicle launches, ROI China has gained good experience in training and implementing easy-to-use quality systems and at the same time paying attention to the specific mind-set and culture of Chinese clients. A system has to be established that allows workers to report defects.

To communicate quality requirements to employees it is paramount to implement systems which use pictures and visualizations e.g. checking paths, visualizing defects on real products and pictures – avoiding words in quality requirement checklists & descriptions. This helps to motivate operators. In order help workers to recognize quality problems at all, limit samples have to be produced and the people trained on

"Rapid response systems, like QRQC, help to tackle quality and manufacturing issues, whether it's an external / internal customer or a supplier."

those real examples, e.g. painted car bodies for identifying different kinds of surface-related defects and for creating a standardized defects catalog.

Rapid response systems, like Quick Response Quality Control – QRQC, help to tackle quality and manufacturing issues, whether for an external/internal customer or a supplier. QRQC mainly deals with problems on a day-to-day basis to improve shopfloor indicators (customers concerns & internal scrap rate, OEE, accident rates ...). This approach is more than a problem-solving tool; it is rather a culture or mindset which is applied, leading to fast quality improvements.

Quality gates and loops along the processes from the press shop to the final assembly and in the rework areas are implemented to achieve transparency about the current top problems. Discussing

and following up the results across workshops and departments and applying a structured problem solving approach to the top problems is finally reducing the defect rate significantly.

Applying the Poka Yoke principle also helps to reduce errors, especially where workers with low education and qualifications are used and a high fluctuation of workers is common.

When the quality management (QM) principles and processes are understood by employees, the implementation of an IT-based QM system helps to support the scalability and flexibility of the whole system.

Apart from implementing QM tools and methodologies, it is also key to work with the HR department to adapt the bonus system for employees in order to ensure that people are financially awarded when they care for quality and can show improvements.

The Road Ahead

It is hard to predict when Chinese car brands will finally be competitive outside China, too, e.g. in comparison with European vehicles.

Many Chinese auto buyers today believe that developing a successful Chinese premium auto brand is within reach. In a McKinsey survey from 2013, 41 percent of (Chinese) respondents said that Chinese automakers would build a globally recognized premium car in the next 5 to 10 years; 18 percent said that it would take 10 to 20 years. Successfully launching a premium auto brand will be a long journey for the handful of Chinese automakers with the aspirations and resources required for such an effort. But whenever that might happen, a strong automotive sector must start from the quality management of its products.



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Person responsible for content under German press law:
Hans-Georg Scheibe

ROI Management Consulting AG
Nymphenburger Strasse 86, D-80636 Munich
Phone: +49 (0) 89 12 15 90 0, E-mail: dialog@roi.de

Management Board: Michael Jung, Hans-Georg Scheibe

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