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"Navigating Global Quality in a New Era"



**June 21, 2011 (Tuesday) 55<sup>th</sup> EOQ Congress**

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**CONCURRENT SESSIONS**  
**KEMPINSKI HOTEL CORVINUS**

**Tuesday 13:30 – 17:30**  
**Erzsébet tér 7-8, Budapest V.**

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**REGINA BALLROOM II.**

**Tuesday 15:30 – 17:30**

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**11.2. REPOSITIONING QUALITY FOR MANUFACTURING II.**

**15:30 – 17:30**

**Session Chair:** *Hans Dieter Seghezzi, University St. Gallen, Switzerland*

**16.20 Repositioning Quality for Manufactured Products**

*Éva Hofbauer, RÁBA AXLE Company, Hungary*

**Hofbauer, Éva** (Hungary)

Bachelor of Science (B.Sc) in electric engineering and technical management from the Budapest Technical College. Later she earned a Master's Degree (M.Sc) at Széchenyi University, Hungary in economics and finance specialized in European Union studies. She also attended Sustainable Lean Culture and Kaizen Management Training Programs. In 2010 she was awarded a Project Management Professional Certificate at the University of Illinois, USA.

Today Eva Hofbauer works as Quality and Continuous Improvement Manager at RÁBA AXLE Automotive / Truck Industrial Company (Győr, Hungary). Her main activities and responsibilities are: by providing leadership, coaching and training, create and sustain a quality management system as well as operational and business monitoring systems which ensure the continuous development of the company and contribute to increased operational efficiency and customer satisfaction. Implemented a Continuous Improvement System that entailed the development of the company culture and the improvement of the company's business processes and leads to Business Excellence. She makes a proactive, all-encompassing development activity that focuses on process improvements, applying the set of tools and methods defined in the "Rába Excellence House". Managed areas: Customer quality support and supplier quality, Quality System, operative quality as well as measuring and chemical laboratories.

Presenter: Éva Hofbauer

## **Repositioning Quality for Manufactured Products**

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### **Abstract:**

The recent economic crisis affected all types of industries across the world and restructured not only the “market players”, but led to major changes in the focus on management systems, and in the approach on the role of quality.

The presentation outlines the factors that influence how quality becomes integrated and a significant part of the production culture, including how the supply chain partnership leads to improvements in the overall quality of the final product.

After providing a view about the features of the old approach, the presentation summarizes the significant changes that have been experienced lately on the end-product quality objective, and outlines what is behind the current changes in the application of quality from an economics and business aspect of the automotive manufacturers.

The presenter will address how the focus of fulfilling certain points of the quality standards moves toward an overall and complex approach with the aim of achieving product and process quality and reliability for the whole value chain.

An examination of the aspects of business efficiency, quality cost, quality value stream and supply chain will be made, to demonstrate the advantages in an overall product quality approach whereby the “meet the customer requirement” definition of quality turns to “exceeding market expectation” while maintaining the supply chain capability, efficiency and profitability. This approach can be supported by building a product community along the supply chain.

**Key words:** product quality, supply chain, business excellence, business efficiency, quality value stream, product community, overall quality.

## **1. Introduction**

After the economic decline a majority of market players followed a more thoughtful and considered business strategy. Today, the focus is not only on business efficiency, but on business excellence throughout the whole supply chain.

Earlier, business excellence was determined separately for all participants of the chain in the product realization stream. The business models followed a “buyer” attitude. Along the chain were adverse parties that resulted in winners and losers.

The same approach was applied to the understanding of quality. Quality was defined for and focused on the input-output points of the chain; the quality had an end-product objective, not a final-product objective.

## **2. Repositioning: from and where?**

The responsibility to achieve the quality function and quality requirement of the final product was on the last “player” prior to the OEM in the chain, while for parties involved at the beginning of the supply chain, the quality pressure was low. Decisions about the product quality were made by the physically measured product quality features at the input-output points of the supply chain (at the end of the manufacturing process), and based on the third party’s certification of the companies in the chain.

Although through the ISO or ISO/TS Standards -as basic requirements- the linking points of the supply chain participants were given, quality is often a subjective goal and the highlights in the interpretation of these requirements could vary between the different levels within the supply chain.

Suppliers in the supply chain may not understand the need for certain quality specifications in the product. Sub-suppliers comply with the specifications as requirements for sale to the supplier, thus, not many efforts are made to continuously improve quality so the quality specifications are seldom surpassed. It has been observed that sub-suppliers are conditioned to accept the quality requirements specified by higher level suppliers. While some suppliers understand how the quality of their component affects the entire final product, others do not.

### **3. Product quality and process quality along the whole supply chain**

The key to overcoming these challenges lies in determining the importance of the elements of business excellence along with profitability and efficiency for the whole supply chain. By giving a new structure to the particular elements of the excellence, quality gets a different meaning.

Focusing on the process quality (the quality of internal-external product realization processes and on the quality of the business processes) means a change in the “customer role” from the requirement definer and restraining roles, to a mentoring role.

Operating a system throughout the supply chain means that there are overlaps in defining and in controlling the fulfillment of the requirements. The overlap helps the broader understanding of customer expectation and ensures that the focus is on the quality value of the final product through the product realization process.

If the same set of concepts is used along the whole supply chain, and the requirement system is common, known and understood consistently on all levels, improvements will be experienced in:

- cost of developing systems,
- communication (same type of product/ process indicators are applied through the whole chain, proactive, open communication),
- transparency (the linking of processes are not dependent of the borders of the companies),
- cost of non-quality; and,
- quality (function) value.

The importance of quality in the input-output points transforms to a detailed and deep audit and understanding in the same structure of the preceding link along the whole supply chain. These activities are followed up by an upstream traceability of the corrective and improvement actions for the whole supply chain.

The highlight is on the quality value in whole supply chain versus the local optimization.

#### **4. Interpretation of Quality Function Value and PDCA in the new approach**

It is a common understanding among quality professionals that PDCA is a highly effective tool to manage product and process quality.

Repositioning quality shows a significant difference in the interpretation of the PDCA cycle along the value stream compared to planning independent improvements for the single elements of the chain in a product realization stream.

Data will be presented that demonstrates how the Plan and Control steps of the improvement cycle resulted in a considerable difference in the Quality Function of the final product if quality is seen as integral to the whole supply chain.

A comparison will be made of the reactive failure handling versus the proactive company wide risk analysis from the point of view of the end user.

#### **5. Supply Chain as “Product Community”**

In the closing part the focus is on the “Product Community” and discussing its relationship to quality. After exploring the definition as the collection of people and organizations involved in the product development and realization, the presentation outlines why the quality in the new approach depends on the effectiveness and quality of the product community.

The Product Community is more than an average supply chain, it can differentiate you from your competitor (supply chains as “competitors”) because it leads to a final customer focused increasing spiral through the following:

An effective Product Community has high grades on each of the following:

- **Visibility** – All participants of the supply chain are aware of the final product requirements, through open communication the “Own lessons learned” are provided as “service” toward the chain participants
- **Conformity** – All participants of the supply chain conform to industry standards
- **Capability** – The supply chain is capable of making quality products
- **Integrity** – Your suppliers are involved in your quality system

If a company measures quality control parameters during or after its production processes for better control, or for regulatory purposes, and stores all that quality control data somewhere, it could easily make it available to its customers and claim a competitive advantage.

Sharing quality control data with suppliers and vendors can reduce surprises and provide valuable feedback for process improvements.

## **6. Effects on quality cost**

From a quality cost standpoint, the classic approach contains a certain extra outlay originating from the risk avoiding behavior of the single elements of the chain. All participants pursue the 100% safety against failure at the next level, thus, only part of this extra cost can be enforced in the price.

The curve of prevention cost can be interpreted for the single elements of the chain but it shows much advantage if the same systematic approaches are followed in the planning than to seek the local optimums of the single chain.

All points of the cost curve are higher if we summarize the individual curves compared to applying the overall approach along the value chain.

The resources should be allocated along the supply chain in the way that results in the most for the preventive side. Building error proof solutions in the downstream of the chain leads not only to decreasing failure / repair cost at the end of the chain, but by applying the innovative solutions at the early product phase we can build latent customer demands on sub-sub supplier level in the product which appears in the final product and increase cumulatively its quality function leading to Total Customer Satisfaction.

The same negative effect can be seen by pushing an unreasonable / layman version of cost cutting that results in keeping from investing in resources at the right point of the product realization process, and representing only apparent savings while the lack of technical support behind these actions carry further risk on the following steps of the value stream.

Applying Value Analysis Value Engineering (VAVE) for the whole supply chain could be a valid alternative to finding the right point for improvement driven interventions without being accompanied with increasing technical / functional risk or decrease in product quality reliability.

## **7. Conclusion**

The automotive industry has evolved into a complex network of interrelations across the entire value system, where decisions at any level often impact various other levels.

The end-product objective of quality turns to an overall product quality, whereby the focus is not on the quality of the product at the input-output points but on the quality of processes and business along the product realization stream.

In the quality point of view, the future can not be different for any parties but move towards an overall and complex approach. An approach where quality is determined as the “quality of the supply chain” and pursued to become an integral part of a “product community” with the aim of achieving product and process quality and reliability for the whole value chain.

Building up a “Product Community”, and establishing and deploying an “over companies” process-oriented quality system along the whole supply chain leads to a more reliable product, to increased quality value, and to a more satisfied customer on the final product level while maintaining the supply chain capability, efficiency and profitability.