

June 22, 2011 (Wednesday)

55th EOQ Congress

CONCURRENT SESSIONS
KEMPINSKI HOTEL CORVINUS

Wednesday 8:30 – 12:30
Erzsébet tér 7-8, Budapest V.

REGINA BALLROOM I.

Wednesday 8:30 – 10:30

17.1. STANDARDIZATION AND THE NEW ISO 9004

Session Chair: *Kari Jussila, BIT Research Center, Aalto University of Science, Finland*

9.00 The SAB – Self-Assessment Method: An Innovative Self-Assessment Method Helps Organizations to Keep their Focus on the Implementation of Improvement Actions

Efstratios Petrellis, MEN Mikro Elektronik GmbH, Germany

Nikolaos Raptakis, Innosys GmbH, Germany

Herbert Schnauber, Ruhr-University Bochum, Germany

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Dipl.-Ing. Efstratios Petrellis studied Mechanical Engineering at the Ruhr-University of Bochum (RUB) and the Georg-Simon-Ohm-University (GSO) of Nürnberg (Germany). He worked as student research assistant at the Institute for Applied Work Science at the Ruhr-University and also at the Chair of Sociology and Social Anthropology at the University of Nürnberg-Erlangen. Since 2005 he works at MEN Mikro Elektronik GmbH as quality and environmental manager. Main fields of expertise are Implementation of Quality Management Systems for EN/AS 9100 (avionics), IRIS (railway) and TS 16949 (automotive). Also responsible for the quality assurance activities of MEN Mikro Elektronik GmbH in Aerospace in accordance to RTCA/DO-254 (Design Assurance Guidance for airborne electronic hardware) up to Design Assurance Level A and in Railway up to Safety Integrity Level. He is qualified Quality System Manager and Quality Auditor from the German Society for Quality (DGQ) as well as Excellence Assessor from the European Foundation for Quality Management (EFQM).

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He studied Production Engineering at the Technical University of Crete, Greece and Work Science at the Ruhr University of Bochum (RUB), Germany. Since 1994 he is member of research and teaching staff at the Institute for Applied Work Science of the Ruhr University. In 2001 he graduated as PhD (summa cum laude) in the faculty of Mechanical Engineering. He has been qualified as Quality Systems Manager and Quality Auditor from the German Society for Quality and Excellence Assessor from the European Foundation for Quality Management (EFQM). He is Lead Auditor for ISO 9001 and SA8000 (Standard for Social Accountability), employed by DQS GmbH (Deutsche Gesellschaft zur Zertifizierung von Managementsystemen) and IQNet Ltd. Main fields of expertise are Implementation of Quality Management Systems, Trainings in Total Quality Management, Planning and Development of computer-aided assessment concepts, Implementation of Self-Assessment projects, Deployment of Process Management. He has coached more than 200 organizations globally in all business sectors as well as in the public services.

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He took Diploma Examination in 1963 at the Rheinisch-Westfälische Technische Hochschule, Aachen (Germany) (Dipl.-Ing.). He worked at Max-Planck-Institut for Working Physiology, Dortmund (1964-1970), Hoesch AG, Dortmund (1970-1972) and University Siegen (1972-1985), teaching field industrial science. He made Doctor Examination in 1969 in Darmstadt (Dr.-Ing.) and Habilitation (1980). He was Chair for Operation Planning and Design at the Ruhr-University Bochum (RUB), Institute for Applied Work Science. He is Member of DGQ-Board (beginning from 1998 Vice President); Corresponding Member of the International Academy for Quality (IAQ) and Editor of the *Qualität und Zuverlässigkeit (QZ) DGQ Journal*.

The SAB®-Self-Assessment Method

An innovative self-assessment Method helps organizations to keep their focus on the implementation of improvement actions

By

Dipl.-Ing. Efstratios Petrellis

Dr.-Ing. Nikolaos Raptakis

Prof. Dr.-Ing. Herbert Schnauber

ABSTRACT: The innovative computer-aided self-assessment method SAB® has been developed to help senior leaders to become a total overview of their organization. SAB® guarantees a fast, effective and comprehensive analysis of the own organization. Areas of strengths and areas for improvement as well as communication and information gaps are being visualized by the SAB®-Tool in a professional manner. Our resource-optimized method helps to keep the focus on the implementation of improvement actions.

Keywords: Self-assessment, TQM, EFQM, MBNQA, Benchmarking

MEN Mikro Elektronik – Profile and Mission

Embedded Solutions - Rugged Computer Boards and Systems for Harsh, Mobile and Mission-Critical Environments

Since its foundation in 1982 our company designs and manufactures failure-safe computer boards and systems for extreme environmental conditions in industrial and safety-critical embedded applications.

With over 200 employees and subsidiaries in France and the USA we have an annual revenue of around 30 million Euros with an export share of about 50%. Customized solutions make for more than half of our revenue. Starting with the development phase, through the design-in and beyond we are at our customer's disposal with advice and support. In addition the standard product range includes far more than 100 different computer boards with Intel® and PowerPC® with the corresponding BIOS, BSP and driver software, manifold I/O boards and completely configured systems based on:

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The consistent use of FPGA technology gives us high flexibility when configuring customized and standard products.

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We are certified to EN/AS 9100:2003 (aerospace), IRIS (railway), e1 (road traffic), ISO 9001:2008 (quality management) and ISO 14001:2005 (environmental management) in order to meet the severe quality requirements in critical applications and to offer our customers the highest quality in products and services while considering environmental protection and occupational safety on the basis of a recognized quality management system.

Our aim is to constantly improve and to provide the highest technology and innovation level. Our business ethics is determined by the principles of the United Nations' Global Compact Initiative (human rights, labour, environment and anti-corruption).

1. Introduction

The introduction and the continuous utilization of a Total Quality Management System supposes a regular monitoring of all relevant activities and achieved results of an organization. Punctual recognition and prioritization of improvement areas are core factors on the Way to Business Excellence. An evaluation process should be able to supply reliable and valid results for all of these areas in efficient and resources-effective manner. Due to realize an applicable method that would unite these features, the company Innosys GmbH, Bochum (Germany) in cooperation with the Ruhr-University of Bochum (Professorship for Work Systems Planning and Organization) has developed an innovative and unique self-assessment method, which should be able to help Organizations to diagnose deficit areas and to prioritize areas for improvement on the basis of the EFQM-Model for Excellence respectively the U.S.-American MBNQA-Model (or any other TQM-Model). These efforts have led to the origin of the SAB®-Self-Assessment-Method, which is core constitutes the self deployed computer application «SAB-Tool». (SAB is the acronym of the German term «System Analyse Bewertung» and literally means Systemic Analysis and Assessment).

- The main advantages of the SAB® - Method are:
- flexible application at any organization
- optimal use of the organization resources
- short implementation time (maximal one day including an introduction to the excellence model plus the Self-Assessment itself and the results presentation)
- automated data entry und visualization
- immediate feedback of the results
- extraction of concrete insights into the organization
- high identification with the results
- top-management is involvement into the continuous improvement process
- build-up of an commitment to the areas for improvement
- excellent cost-benefit relationship

2. The Basic-Analysis Module (Basis Module) of the SAB®-Method

At the beginning of our development we start with an extensive analysis-module. In accordance with the guidelines and the structure of the EFQM Excellence Model, we have deployed a simplified assessment framework based on an extensive questionnaire. An organization's specific customization of that base structure can also be implemented.

The participants of a top-level-management meeting (8 to 20 managers) firstly get an introduction into the EFQM-Model (respectively the underlying TQM-Model) and the RADAR-logic (EFQM) or the corresponding scoring matrix (approx. 2 hours). Afterwards they answer the questionnaires regarding two dimensions. The first one refer to the «importance» of the areas to address in the own organization. With the second one the participants are asked to assess the «performance» (RADAR-logic oriented) of all relevant areas. Our self deployed application SAB®-Tool processes the input data and creates an immediate (approx. 5-15 minutes after the last questionnaire sheet is handed over and scanned) and extensive feedback of them. The SAB®-Tool visualizes the results in a professional manner, so that significant findings can be easily achieved (e.g. about the management's conviction, the maturity of quality thinking, information deficits, communication gaps etc). Figure 1 illustrates the SAB®-Method analysis process.

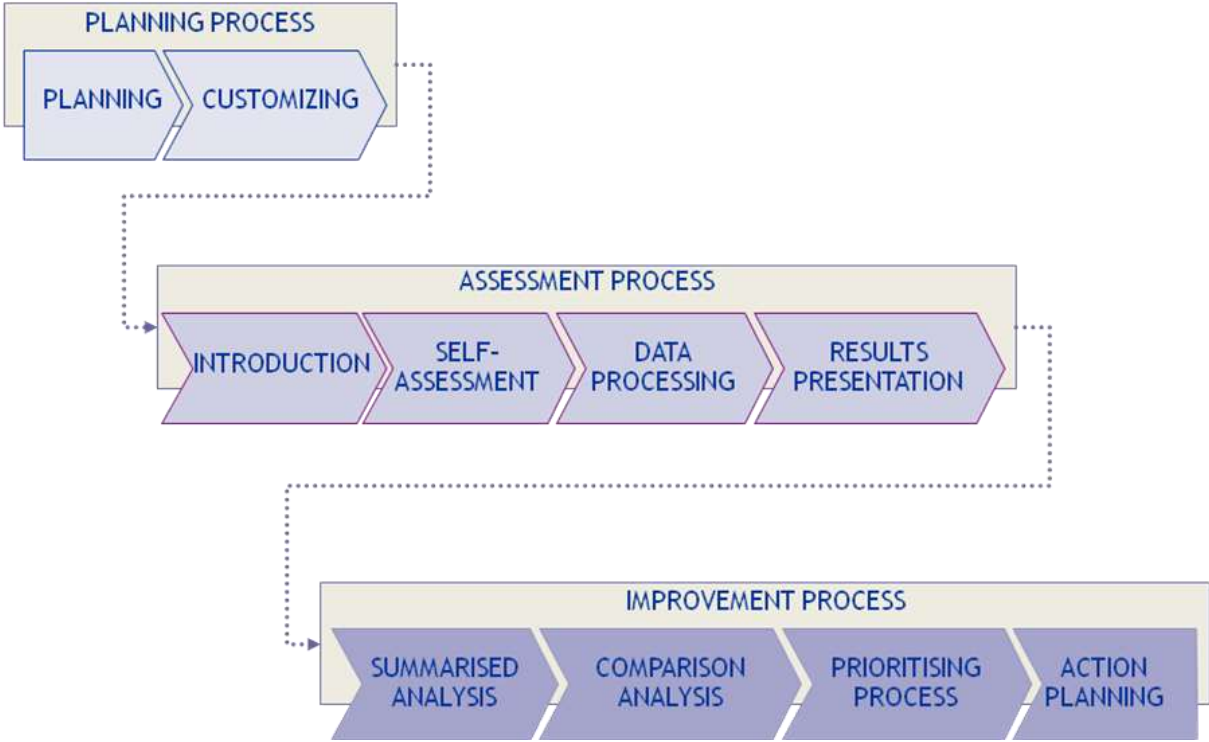


Figure 1: Schematic process of the SAB®-Method

3. The Summarized Analysis Module of the SAB®-Method

Creating the Safe-Method our aim was to develop an assessment-method for senior leaders which on the one hand considers their time restrictions and which on the other hand delivers very particular results regarding the own organization such as a workshop or simulation method can deliver. Beside this all mostly used questionnaire-based self-assessment methods do not offer a control system to measure and quantify communication gaps, information deficits or other workshop orientated results. Therefore we have developed die Summarized Analysis Module as a part of the SAB®-Tool that restructures the key-areas for improvement identified by the Basis-Module and also checks and visualizes the information deficits and communication gaps as well as the differences in the understanding of quality. The delivered results can be used as a helpful starting basis to establish a common understanding concerning the key-areas for improvement at a consensus workshop.

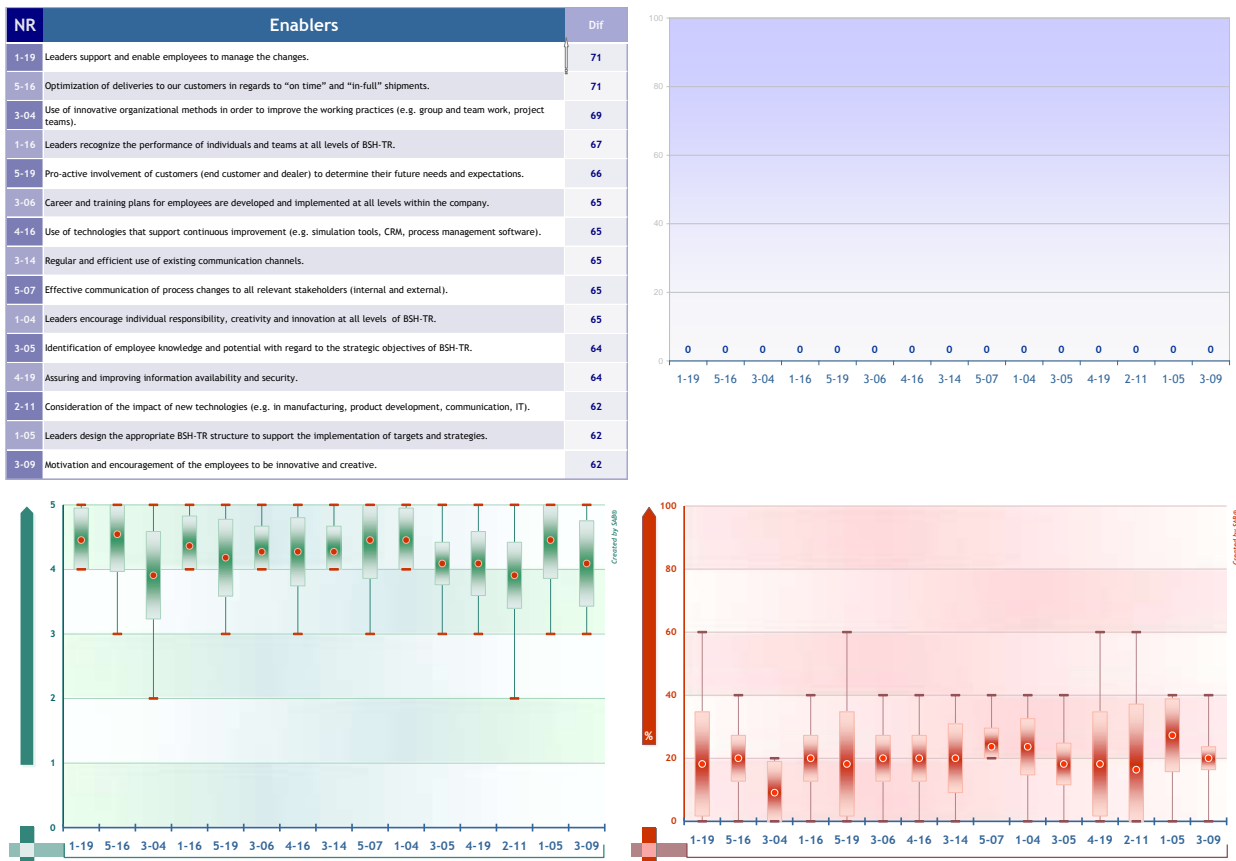


Figure 2: Variation Analysis for the Areas for Improvement

4. The Prioritizing Workshop Module of the SAB®-Method

The aim of each self-assessment is to identify the most relevant areas for improvement. As already described the SAB®-Method helps senior leaders to quickly and accurately identify a lot of areas for improvement. The Prioritizing Workshop Module helps to prioritize the identified key-areas for improvement with consideration of contributing factors such as feasibility or influence on «customer satisfaction», «people satisfaction» and «business results». These factors can be defined by each organization itself whereby a valence for each factor can also be specified.

During a workshop the senior leaders are being asked to fill up prioritizing questionnaires to prioritize the identified key-areas for improvement with consideration of the defined contributing factors. After the questionnaires have being scanned the SAB®-Tool processes the input data and visualizes the results. On the basis of these consolidated results the organization can plan concrete projects for the prioritized areas.

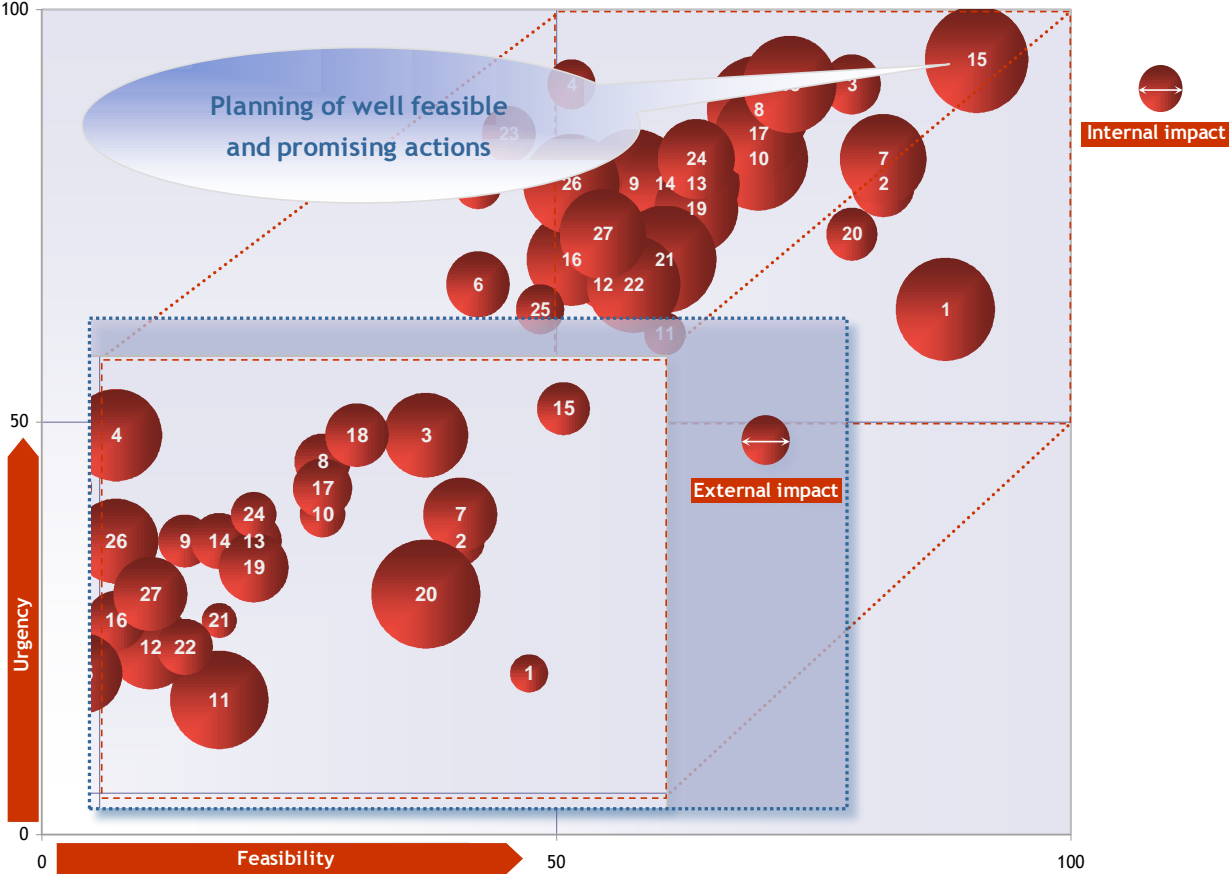


Figure 3: Results visualization by the SAB®-Prioritizing Workshop Module

5. The SAB® Benchmarking Module

After a self-assessment of each location or division the SAB®-Tool offers the possibility of a benchmarking analysis on the basis of the won results. Through the direct comparison for each area to address it can be shown who and in which area is the best in concern. So it is easy to identify strengths of each location or division and to use them as a benchmark for a whole concern. The SAB®-Benchmarking Module can be also used in a benchmark-project to identify weaknesses concerning the competition. It can also be very useful in the comparison of the results of a current self-assessment with the results of a previous self-assessment in order to prove the effectiveness of already undertaken actions in areas for improvement, thus the Way to Business Excellence is fully, accurately and continuously documented.

Figure 4 shows one from many visualized comparison results of a fictitious organization. The benchmark concerns here the top-ten areas with the lowest performance of the location «B» versus the corresponding performance of the same areas of the location «A».

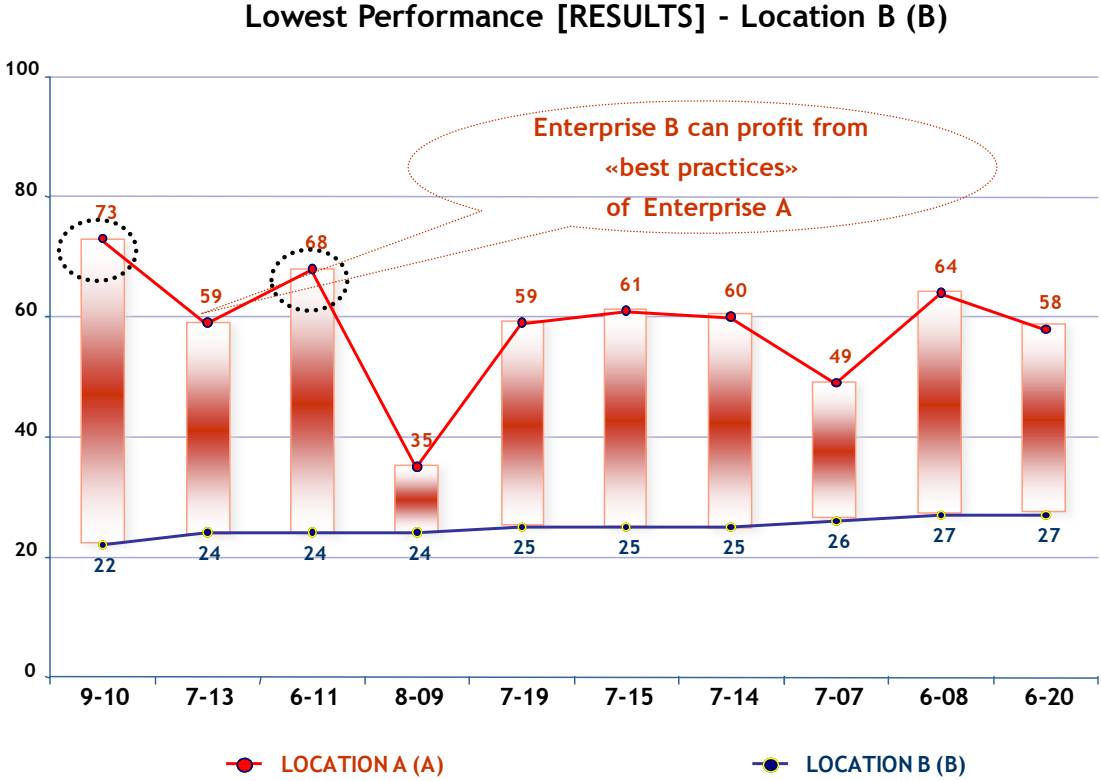


Figure 4: Comparison of two organization’s locations by the SAB®-Benchmarking Module

6. A time and resources saving method

The introduction into TQM, the relevant TQM-Model and the (SAB)[®]-method, the completion of the questionnaires and the presentation of the results of the self-assessment, that means the SAB-Basis Module, requires one day. The participation of senior leaders is very important for this introduction

The summarized analysis, the prioritizing workshop and die project planning requires another one day. Not all senior leaders must be involved here. The action planning can be done on operative levels. In order to be successful on the way to excellence, it is indispensable for organizations to realize improvement projects after the analysis of die areas of strengths and the areas for improvement.

7. Empowering best practice through the SAB-Method

The SAB-Method enables senior leaders to assess their own organization according to the criteria of each preferable TQM-Model. Through the personal involvement the top-management wins first hand information and it can guide die improvement planning and control its effectiveness without losing the overview. We have created a method and best-practice database that is focused on the most concise self-assessment results that came out by several applications of the SAB[®]-Method and that involve over 300 senior leaders from 15 renowned German industrial enterprises. From follows that there are some areas for improvement as well as areas of strengths that are very common and affects all organizations.

Common identified areas for improvement: It is remarkable that nearly all involved managers have identified all areas concerning policy as large areas for improvement. Leading people of the improvement examined organizations are not aware of the policy and strategy, organizations, harmonization and prioritization of policy and strategy within the organization often do not run as desired. Target agreements are therefore not accomplished or only insufficiently supported. Thus it is not amazing that an examination of die policy's and strategy's awareness does hardly or even not takes place at all. Most managers looking forward for an adjustment of their organization concerning the optimum support of the policy and the strategy.

The senior leaders value the communication in their organizations mostly as a gap. Effective communication structures are often not developed, what is partly strengthened by an identification lack of the communication need. Results of employee surveys are often not communicated with the employees themselves. The senior leaders also identify wide gaps concerning information management such as accessibility, completeness and punctual availability of relevant information. The senior leaders further identified large areas for improvement concerning process management. Above all the interface problems prepare concern for them. In addition, the examination of the effectiveness of the key processes regarding their real support of policy and strategy is often not given clearly. This settles then within a critical range, the error rate of all business processes.

Also there have been recognized clear deficits referring to knowledge management as well. Purposeful knowledge management hardly takes place in the organizations. Senior leaders have determined the constant evaluation and the improvement of the effectiveness of the own leadership behaviour as a great weakness. For the improvement of the business processes the creative and innovative power of employees, customers and partners are only used insufficiently. Among other things this is also a consequence of the insufficient supply from resources of the

promotion of assumption, creativity and innovation of the employee. Senior leaders could identify the response time at complaints as well as the number of complaints and the associated expense as deficits. Insufficient comparison with competitors and «best in class» organizations represents a Benchmarking lack.

Common identified strengths: Almost all enterprises seem to have a particularly good and secure process management by attention of quality system standards, environmental management standards as well as the work and health protection. This accompanies with the avoidance of health risks and accidents as well as with the avoidance and/or reduction of environmental pollutions, air pollutions and noise disturbances. Resources are preserved by the optimization of the consumption of energy and raw materials. The German managers have identified the competitive ability, the value and the reliability of their company's products as an additional strength. The enterprises support this strength by the good observance of terms of warranty and guarantee. Product development of die companies mostly bases on customer requirements. German organizations seem to have long term customer relations and they know the loyalty of their customers very well. In addition to this the managers are convinced that they have identified all strategically important partners. They plan on the basis of financial characteristic numbers and also recognize financial risks very early and try to minimize them.

Organizations analyse areas for improvement-areas not as end in itself but to become better for their daily work. SAB®-Method is a powerful utility for every organization, which want to guarantee a sustainable development for itself it helps to make TQM approaches and models popular and in that way to simplify their introduction in an organization, whereby the top-management itself is being involved.

References:

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- Working since 2005 at MEN Mikro Elektronik GmbH as quality and environmental manager. Main fields of expertise are Implementation of Quality Management Systems for EN/AS 9100 (avionics), IRIS (railway), TS 16949 (automotive). Also responsible for the quality assurance activities of MEN Mikro Elektronik GmbH in Aerospace in accordance to RTCA/DO-254 Design Assurance Guidance for airborne electronic hardware) up to Design Assurance Level A, and in Railway up to Safety Integrity Level (SIL 4).
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- Ruhr-University Bochum (RUB), Institute for Applied Work Science, Chair for Operation Planning and Design (1985 to 2003) member of DGQ-Board (1994 to 2010)
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