

# Quality Management in BEV

BEV - Federal Office of Metrology and Surveying



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**See you: [www.bev.gv.at](http://www.bev.gv.at)**

**[www.metrologie.at](http://www.metrologie.at)**

# Content

- Motivation for quality management
- Management system of BEV
- Organisation of quality management in BEV

## Motivation for quality management

- 1996 - 1999: **structural reform** (customer focus, corporate culture, management tools, continual improvement, ...)
- 1999: signing the CIPM Mutual Recognition Arrangement (CIPM-MRA)
- Quality Management System (QMS) of BEV is mainly based on international standards ISO/IEC 9001 and ISO/IEC 17025

# Mutual Recognition Arrangement, CIPM - MRA

- International Arrangement between National Metrology Institutes (NMI)
- Mutual recognition of
  - national measurement standards +
  - calibration and test certificates
- **CMC**: Calibration/ Measurement Capabilities + measurement uncertainty published in international data base (BIPM KCDB)
- **Requirements:**
  - Participation in measurement comparisons
  - Quality Management System (QMS) according to ISO/IEC 17025

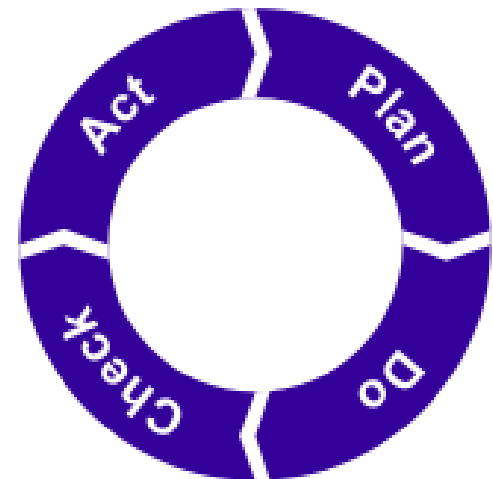


# Content

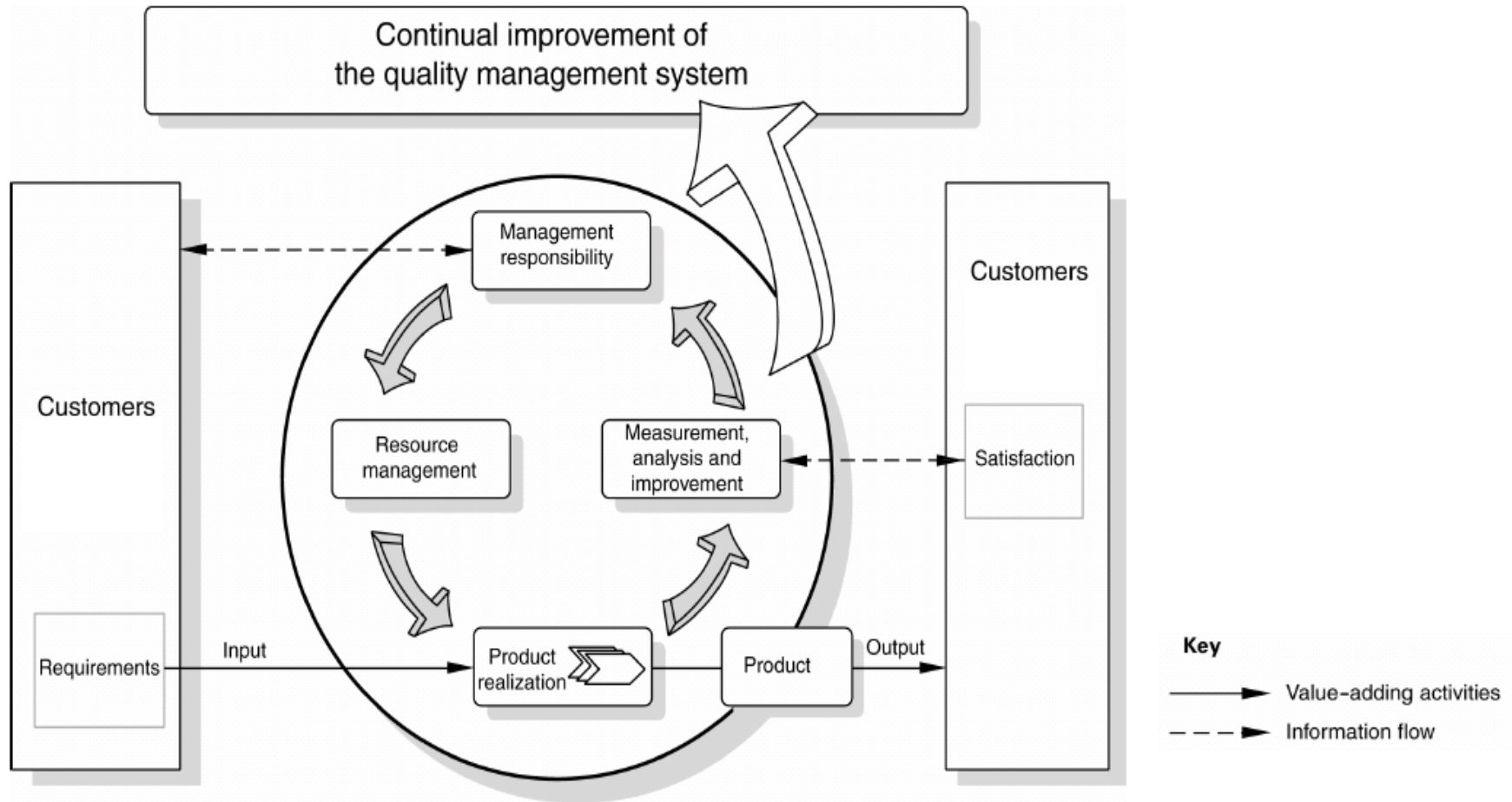
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## Definition of „Quality“

- **Crosby:** „Quality means **conformance to customer requirements**“
- **Juran:** „Quality means **fitness for use**“
- **ISO 9000:2005:** „Quality is the degree to which a set of characteristics **fulfils requirements**“
- or simple  
SAY what you DO  
⇒ DO what you SAY  
⇒ PROVE it  
⇒ IMPROVE it



# Process model according to ISO 9000





# ISO/IEC 17025 General Requirements for the competence of Testing and Calibration Laboratories

- specifies requirements for sound management in accordance with ISO/IEC 9001 (Clause 4)
- specifies criteria for technical competence of tests and calibrations (Clause 5)
- requirements are focussed on technical competence but take into consideration also customer satisfaction

is therefore basis for

- the QMS of Metrology in BEV
- the accreditation of calibration and test laboratories

**ISO/IEC 17025:2005**

**ISO 9001:2000**

# ISO 17025 Clause 4 Management Requirements

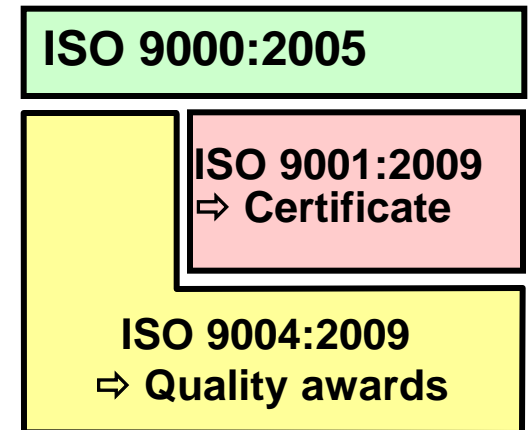
- 4.1 Organization
- 4.2 Quality System      4.3 Document Control
- 4.4 Review of requests, tenders and contracts
- 4.5 Subcontracting of tests and calibrations
- 4.6 Purchasing services and supplies
- 4.7 Service to the client
- 4.8 Complaint      4.9 Control of nonconforming work
- 4.10 Improvement
- 4.11 Corrective action      4.12 Preventive action
- 4.13 Control of records
- 4.14 Internal audits
- 4.15 Management reviews

# ISO 17025 Clause 5 Technical Requirements

- 5.1 General
- 5.2 Personnel
- 5.3 Accommodation and environmental conditions
- 5.4 Test and calibration methods and method validation
- 5.5 Equipment
- 5.6 Measurement traceability
- 5.7 Sampling
- 5.8 Handling of test and calibration items
- 5.9 Assuring the quality of test/ calibration results
- 5.10 Reporting the results

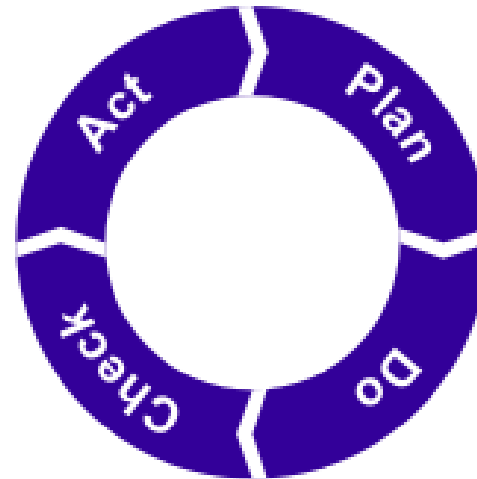
# ISO 9000 standards

- consist of:
  - ISO 9000:2005 QMS – Fundamentals and vocabulary
  - **ISO 9001:2009 QMS - Requirements**
  - ISO 9004:2009 Managing for the sustained success of an organization – A quality management approach
- Guidelines for the implementation and operation of an effective QMS and for the certification of a QMS
- Goal: to provide constantly the quality of products required by the customers



## Management system of BEV

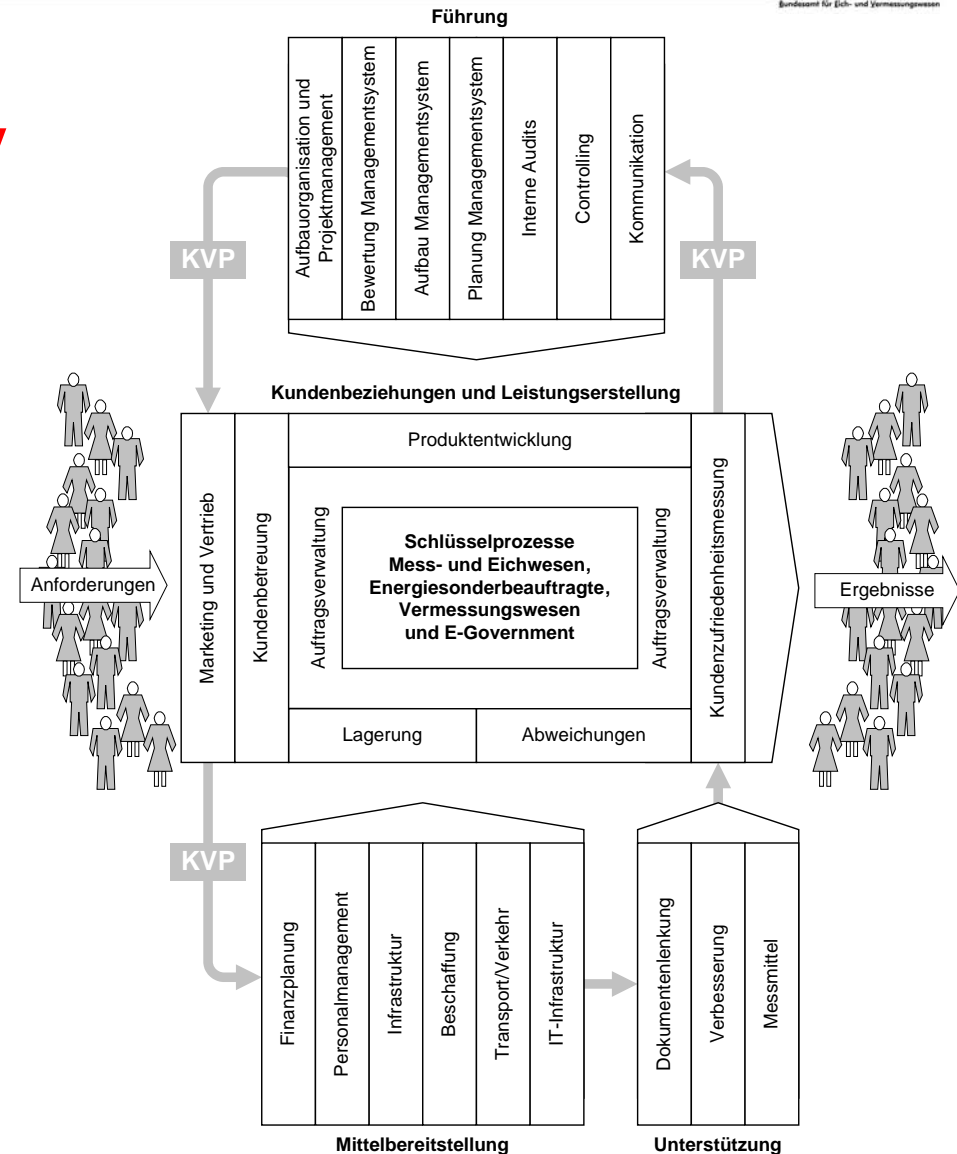
- **SAY** what you **DO**
- **DO** what you **SAY**
- **PROVE** it
- **IMPROVE** it



# Process modell of BEV

## 5 Process categories:

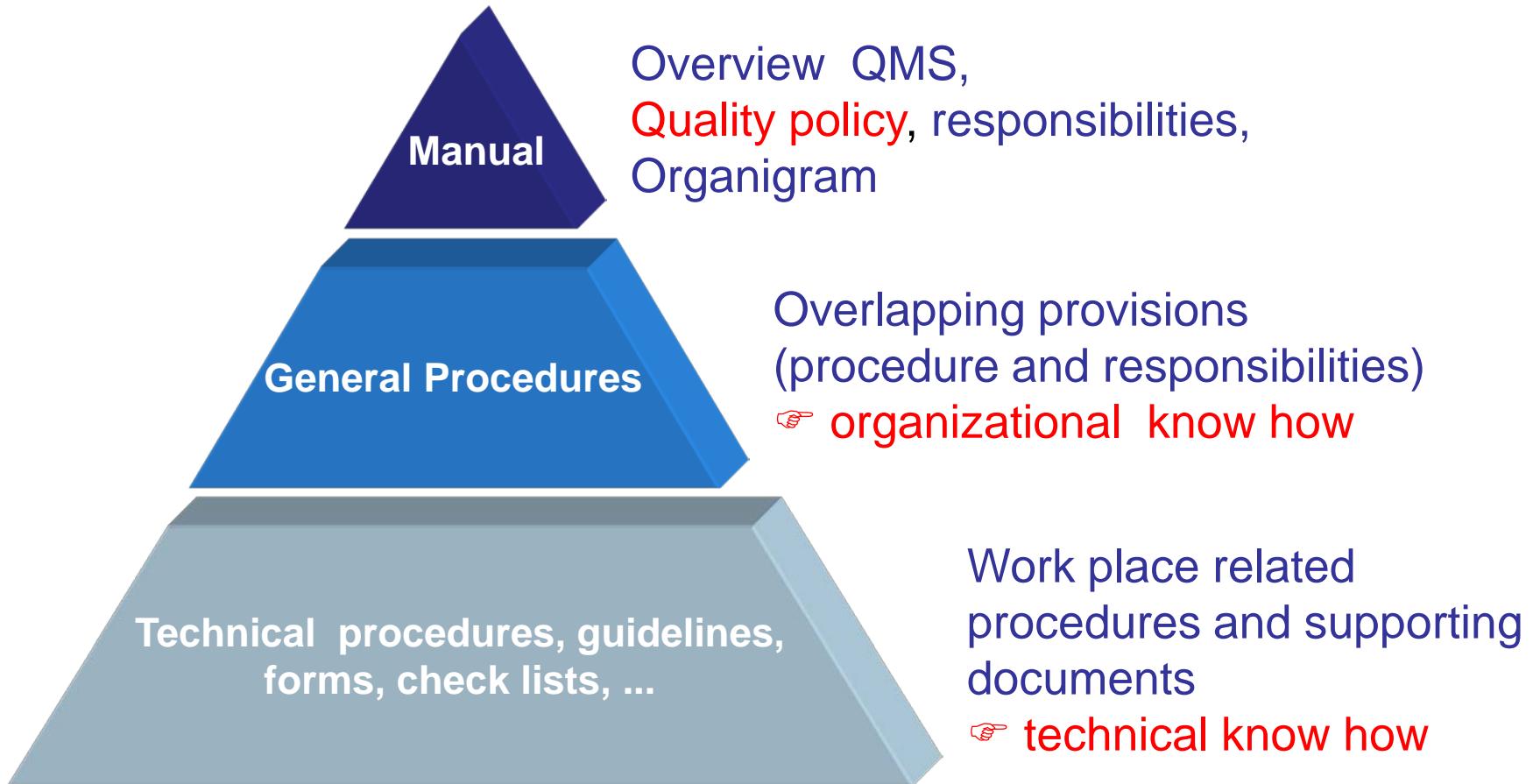
- Management processes
- Customer related processes
- Product realization processes
- Resource management processes
- Supporting processes



## Processes in BEV

- Management processes: 7
- Customer related processes: 5
- Product realization processes (key processes):
  - E-Government: 3
  - Metrology: 10
  - Energy: 4
  - Land surveying: 19
  - Superior processes for product realization: 3
- Resource management processes: 6
- Supporting processes: 3
- Total: 39 product realization processes, 21 other processes

# Management system documentation BEV



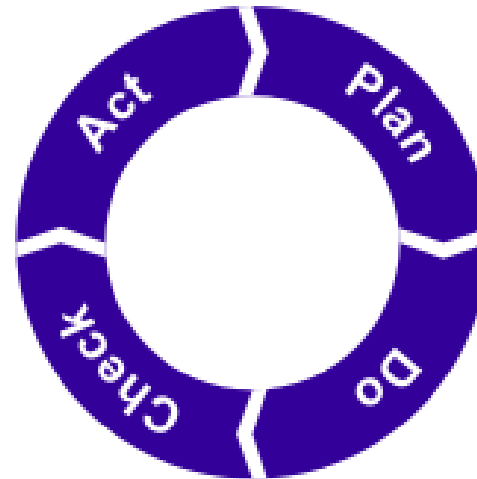


# Procedures

Ablauf / Tätigkeit Vorschlagswesen des BEV	Verantwortlich für Durchführung (D), Entscheidung (E), Mitarbeit (M), Information an (I)				← Vorgaben → Ergebnisse ⊗ Erläuterungen
	D	E	M	I	
<pre>                     graph TD                         A([Verbesserungsvorschlag dokumentieren]) --&gt; B{{prüfen, ob Verbesserungsvorschlag neu}}                         B --&gt; C{neu?}                         C -- Nein --&gt; D([Mitarbeiter über Status informieren])                         C -- Ja --&gt; E[Verbesserungsvorschlag registrieren]                         E --&gt; F[Verantwortliche/n (VE) ermitteln]                     </pre>	MA			QB (PZE) (L/QM)	→ FU200101 ⊗ 5.2.1 FU200101
	QB (PZE) (L/QM)				← FU200101 ← Verbesserungsvorschlagsübersicht ⊗ 5.2.2 Überprüfung
	QB (PZE) (L/QM)	QB (PZE) (L/QM)		MA	↔ FU200101 ↔ Verbesserungsvorschlagsübersicht ⊗ 5.2.3 Registrierung
	L/OEH (PZE) (L/QM)		QB (FK)	VE	⊗ 5.2.4 Verantwortliche/n ermitteln

## Management system of BEV

- SAY what you DO
- **DO what you SAY**
- PROVE it
- IMPROVE it

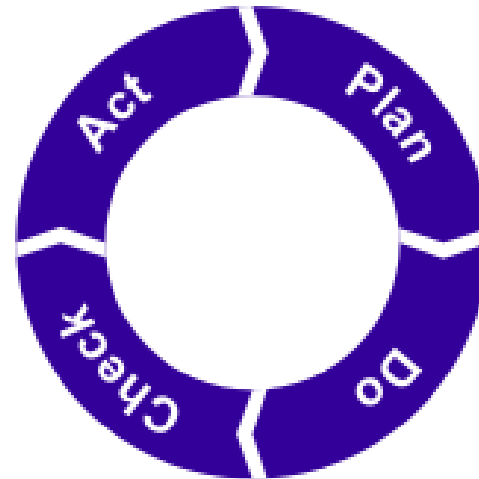


## Performance of the provisions

- The provisions defined in the quality documents have to be communicated to the staff by the management and have to be implemented in the daily work
- All staff has to record the required data according to the quality documents

## Management system of BEV

- SAY what you DO
- DO what you SAY
- **PROVE** it
- IMPROVE it



## Internal Audits

- **Audit:** systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which predetermined criteria are fulfilled  
and to determine needs for **improvement**
- The findings of an audit are recorded (check lists, audit reports)
- Non-conformities are identified on basis of the quality documents and quality records



## Internal Audits in BEV

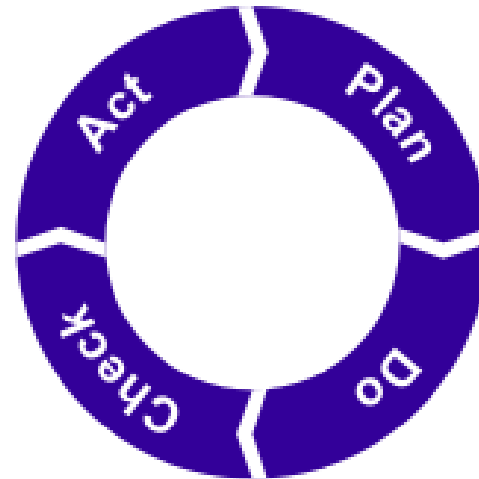
- All organisational units of BEV are audited once a year
- Different focus topics in every department
- Pool of well trained auditors
- auditors from other departments are used as far as possible (especially for audits of management)  
⇔ difficult for audits of key processes (lack of technical know how)

## External audits

- Since 2004 peer audit project together with METAS, Switzerland, and PTB, Germany:
- Every year audit in 2 laboratories with auditors from other institutes
- Benefit: exchange in quality and technical matters on very high level, learning from other institutes

## Management system of BEV

- SAY what you DO
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## Continual Improvement

- ❖ **Corrective actions** caused by
  - Complaints and other customer feedback (customer surveys), n.c. work, audit findings
  - Process data, reports, management review
- ❖ **Handling of proposals** (procedure)
  - Registration (form) + feedback to staff
  - Evaluation (who? Management?) + decision
  - Information to staff (blackboard, intranet, ...)
  - Monitoring the effectiveness
- ❖ **Preventive actions** (against potential risks)

## Management review

- **Management Review**  
= evaluation and improvement of the effectiveness of the management system
- **Input:** results of internal audits, analysis of customer complaints and non-conforming work, status of implemented corrective actions, ...
- **Output:** actions for improvement of the management system
- Performed once a year in every department and in a second stage on BEV level

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# Organisation QM/UM

L/QUM of BEV (100%):

DI Karl Haussteiner

L/QUM of departments (100%):

A: DI Hubert Plainer

E: DI Wolfgang Mikovits

I: vacant

R: vacant

V: vacant

QUB – Quality- and Environment Protection assistants (5%), Process Owners, Auditors

