TEACHING EVALUATION

Session 3 – Aggregation of results

Dr.-Ing. Dipl. Wirt.-Ing. Patrick Beaujean

Dipl. Wirt.-Ing. Lisa Graßler

Laboratory for Machine Tools and Production Engineering

Chair of Production Metrology and Quality Management

PRS
Technologie GmbH

Fraunhofer
IPT

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Aggregation of Evaluation Results

After an evaluation an aggregation of the different results is performed to simplify the interpretation through:

- Reduction to essential information

- Interpretation of achievements on top level *and*

- Basis for the preparation of reports
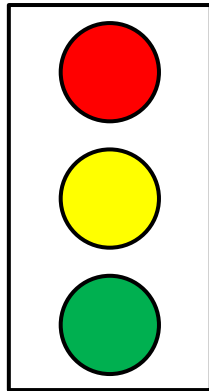
The set objective has <u>not</u> been achieved.

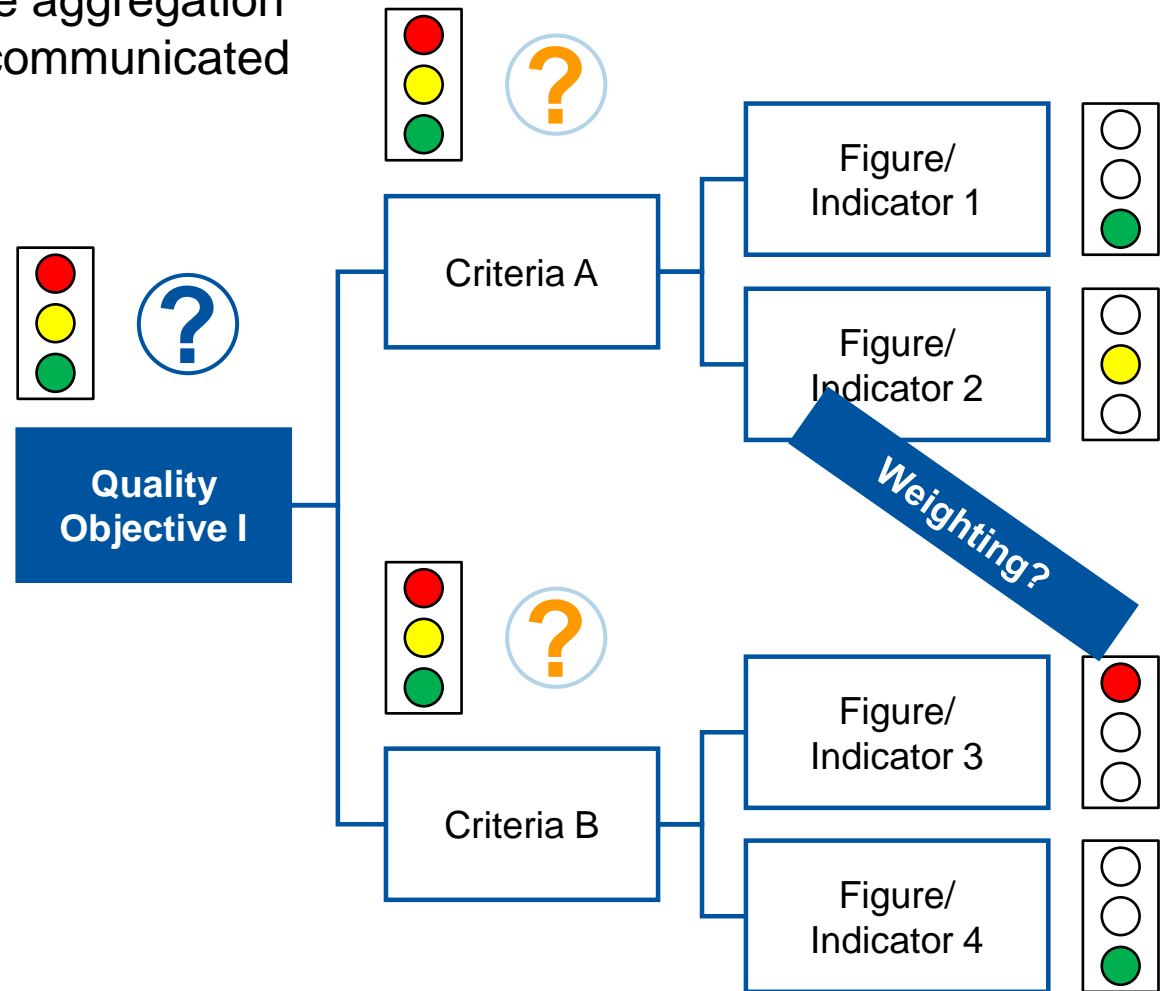The set objective has <u>just</u> been achieved.
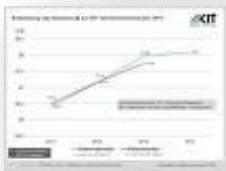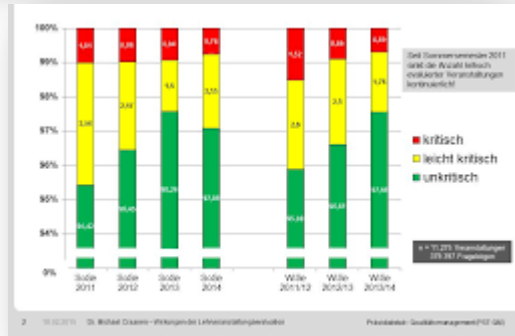
The set objective has been achieved.

Through an aggregation of figures and indicators, the achievement of Quality Objectives becomes apparent on the top level.

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RWTH Aachen University – Aggregation Method

■ A common understanding of how the aggregation is realized must be developed and communicated

Example

■ Evaluation of traffic lights on figure-/indicator-level with scale "3-2-1"

■ Summing up/ dividing through number of figure/indicators
3 + 2 = 5
5 / 2 = 2.5

■ Interpretation according to new criteria-scale
Green: 3.00 bis 2.50
Yellow: 2.49 bis 1.50
Red: 1.49 bis 1.00
Criteria A = 2.5 → ⬤

Quality Objective I

Criteria A

Criteria B

Figure/ Indicator 1

Figure/ Indicator 2

Figure/ Indicator 3

Figure/ Indicator 4

Weighting?

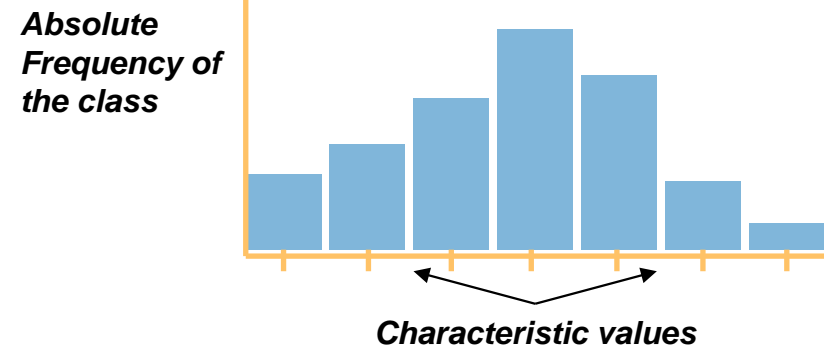# Teaching Quality Index of Karlsruhe Institute of Technology
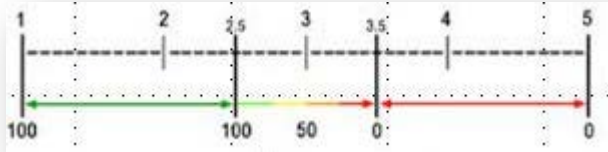
- **Target:**
  - Increasing the significance of aggregated reports

- **Responsible:**
  - Management and department for Quality Management

- **Concept:**
  - Based on five central questions of the teaching evaluation a "Teaching Quality Index" is calculated
  - The index functions as indicator for the satisfaction with the lecture

- **Conduction:**
  - The index values are transferred in a traffic light system
  - On this basis lectures are assigned to one of five groups, which are differentiated on a scale from "uncritical" to "critical"
  - For every group different follow-up actions are predefined; critical lectures are put on a "watch list"

➡ The index contributes to the continuous improvement of the range of courses and can be recommended as additional tool of a teaching evaluation. ⬅

Analysis and Result Report – Questions with Rating Scale

Histogram

- To create a histogram, the sampling values are divided into many intervals, which are also known as classes

- The bars represent the number of observations that lie within the individual classes (frequency).

1. Split set of values into classes (width of the rectangles)

2. Determine absolute class frequency (area of the rectangles)

3. Determine frequency density determined (height of the rectangles)

4. Represent histogram graphically

Absolute Frequency of the class

Characteristic values

Analysis and Result Report – Open Questions (1/2)

Categorization

Counting
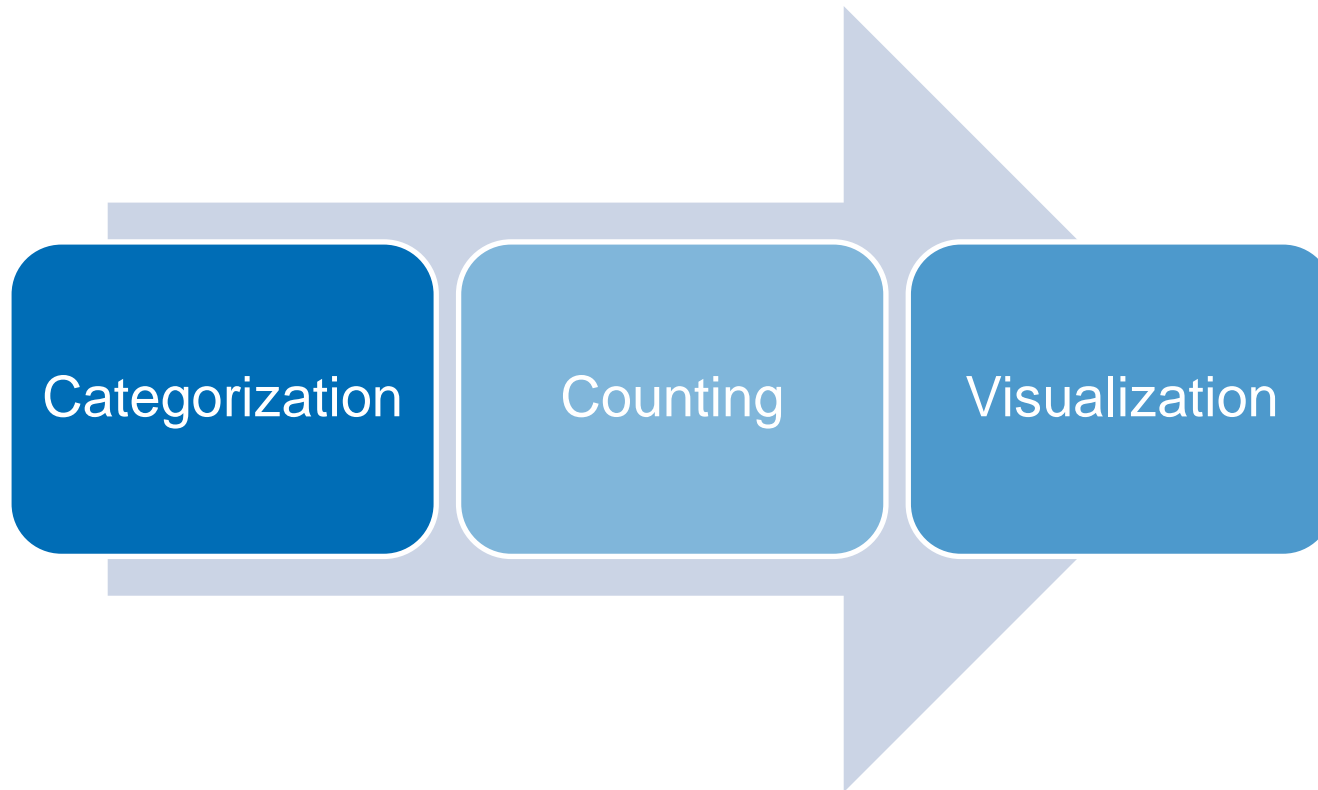
Visualization

For the visualization of the relevance based on frequencies the histogram can be used.

Analysis and Result Report – Open Questions (2/2)

- The problem being addressed will be written at the center of the sheet

- Around the center all aspects and thoughts are fixed very briefly (branches)

- Main branches are subdivided into individual aspects (lower branches) to create a coherent network

- Mind-Map closely matches the associative thinking process of people

- Support from MS Visio or other specific applications

A Mind-Map is a useful tool for the visualization of a thematic order.

TEACHING EVALUATION

Session 3 – Procedure and further instruments

Ulan Bator, 24th October 2015

Dr.-Ing. Dipl. Wirt.-Ing. Patrick Beaujean

Dipl. Wirt.-Ing. Lisa Graßler

Laboratory for Machine Tools and Production Engineering

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FH Aachen – Procedure of Student Course Evaluations

Questionnaires are completed and collected without access to lecturers

↓

Questionnaires and written comments are scanned

Summarization of results and comments are provided to the lecturers

Rough assessment with indicators is handed out to evaluation commission

Summarization are presented in the lecture and discussed with students

Critical results are discussed in the evaluation commission and rather with lecturer

Lecture is improved (maybe with additional external support)

Course of study or framework conditions are improved by the faculty

⇒ FH Aachen has implemented an "evaluation commission" consisting of academic staff and student representatives and a delegated representative as head. ⇐

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University of Regensburg – Procedure for the Course of Study Evaluation

Faculty internal evaluation	→	Faculty external evaluation	→	University management talks

Faculty internal evaluation

- Conduction of a self-assessment of the study programs by a workgroup "evaluation" of the faculty

- Self-assessment is based on statistical data and empirical findings

- The faculties are supported by the department of quality management (collection and analysis

- The evaluation report is closed with adoption in the faculty council

Faculty external evaluation

- Conduction by the workgroup "study and teaching" based on the evaluation report

- In addition conversations are conducted with students and expert representatives

- Preparation of a report with recommendations for the further development of the study programs

- Before the report is forwarded to the management, the faculty has the possibility to make a statement

Each study program or rather course is evaluated with an interval of five years

Leuphana University of Lüneburg – Participants and Ways of Feedback

The feedback process uses standardized instruments and is conducted on two levels: on the individual and on the organizational level.

Software Support – EvaSysEducation

- EvaSysEducation is a web-based platform for the conduction of paper-based and Online-Evaluations

- The software has a modular structure that allows central and decentral evaluations

- The evaluation sheet can be individually adapted, but the software provides also samples

- The program provides a frequency analysis of the given answers (including mean values, bar charts etc.)

- However, a further evaluation of survey results (test theoretical procedure), has to be conducted with an appropriate statistical software (e.g. SPSS)

Worldwide more than 800 Higher Education institutions have a campus license and use EvaSys.

EvaSysEducation – 5 Phases for Complete Evaluation

Source: EvaSys

Quality Standards for Evaluation
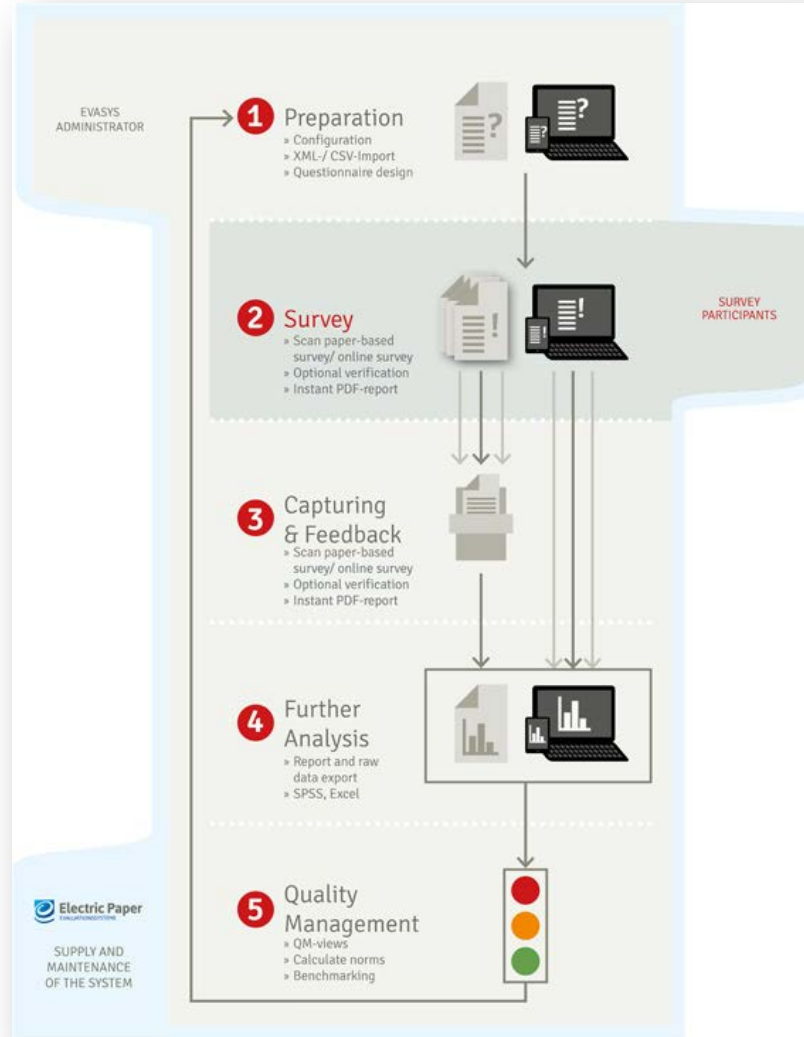
Usefulness

- The purposes of the evaluation must be clearly
- The evaluators must be credible and competent

Feasibility

- Appropriate procedures must be chosen
- Approach must be diplomatic in order to achieve acceptance

Fairness

- Evaluations must be completely
- Evaluations and reporting must be impartial
- Results need to be revealed to involved as much as possible

Accuracy

- Information sources must be sufficiently specified
- Information must be valid and reliable
- Conclusions must be sufficiently specified
- Evaluations must be documented

Understanding of Quality Management

Question

Do you know more instruments for Quality control in Higher education institutions?

Key Performance Indicators

Key Performance Indicators

- Key Performance Indicators (KPI) are figures, which are used to evaluate important factors that are crucial to organizational success

- Through periodical investigation and comparison of KPIs the performance of an organization is investigated

Indicators help to control and to consolidate the objectives of a QM-System.

Which types of indicator do you know?

Definitions and Differences

Systems of Indicators

A system describes an ordered quantity of related indicators. Main purpose is to fully inform about a complex issue of a whole organization, certain division or individual topics
E.g. Academic Score Card (ASC)

Quantitative Indicators

This group describes indicators which are generated directly out of absolute economical quantities

E.g. number of credit points

Qualitative Indicators

This group of indicators is gained indirectly, e.g. through surveys, and is not related to direct feasible economical quantities
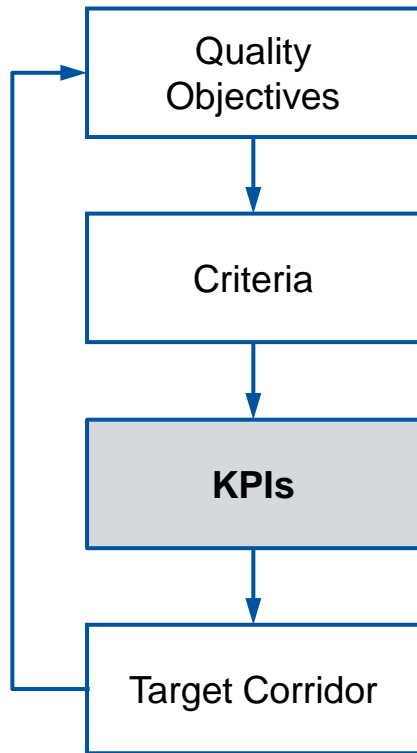
*E.g. description of educational objectives*

Indicator

An indicator describes a progress or fulfillment level of an important objective as well as a critical factor of success within an organization

KPIs for Measuring Criteria

```
┌──────────────┐
│   Quality    │
│  Objectives  │
└──────────────┘
       │
       ▼
┌──────────────┐
│   Criteria   │
└──────────────┘
       │
       ▼
┌──────────────┐
│    KPIs      │
└──────────────┘
       │
       ▼
┌──────────────┐
│Target Corridor│
└──────────────┘
```

?
- Measurability of criteria and objectives
- Comparability and transparency within the minimum requirements
- Enabling of "Best Practice" offers
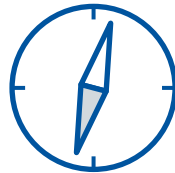
(compass)
- Utilization of available evaluation tools
- Possible extension/expansion of instruments
- Qualitative and quantitative figures and indicators

!
- Criteria traceability
- Information about degree of fulfillment

Key figures and indicators enable a traceability of Quality Objectives.

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Indicator Profile

Description

- Name
- Description
- Level of aggregation
- Assigned Quality Objectives and criteria

Data Collection

- Source system and determination method
- Indicator-owner
- Reference date and regular cycle
- Description of target corridor
- History

Access

- Authorized roles
- Reporting of indicator

Indicator Profile

Indicator Profile

Description

Name (public)
(Explicit Designation of the Indicator, no Description, Summary of Variants in one Profile if possible)

ID (Public)

Student Course Evaluation Benchmarking

001

Description (public)
(Short but understandable Description of the objective of the Indicator for the User)

Basis of the data is the Student Course Evaluation (SCE). According to the evaluation order, all professors are obliged to participate in the evaluation. Within the framework of third-party benchmarking funds professors are to be informed about the average results of lecturers and lecture notes of events from the current summer semester and the previous winter semester, which are registered under its institute's code

Aggregation Level (public)
(Allocation to Aggregation Levels regarding the Indicator as follows:
Course of Studies (incl. Type of Diploma)/ Types of Diploma / Profession / Faculty / Scientific Field / RWTH/ Gender / Nationality)

Professorchip Indicator

Assigned Quality Objective and Criteria (public)
(Assignment of Quality Objective & related Criteria which operates the Indicator)

Quality Objective: Students
Target: Securing the Feasibility of Courses of Study
Criteria: Optimization of the structure and organization of studies, including the coordination of course schedules and exams

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Audits

- Audits are investigation procedures within an organization performed by professional auditors

- Current states get compared to target states to identify potentials, problems and achieved objectives

Audits are important for implementing, checking and maintaining Quality Management Systems in Higher Education Institutions.

Internal Audit

- Internal Audits are performed by internal employees and characterized by two central questions:
1. Do the processes meet the requirements?
2. Where are problematic areas and potentials for optimization?

Type	Purpose
Quality System Audit	Completeness and effectiveness evaluation of the management system's basis requirements
Process Audit	Quality capability evaluation of the processes for special products and product groups
Product Audit	Quality characteristic evaluation of a specific number of final products and/or parts

Internal audits improve an organization. But for official accreditation and certification, external bodies must control if applicable standards are met.
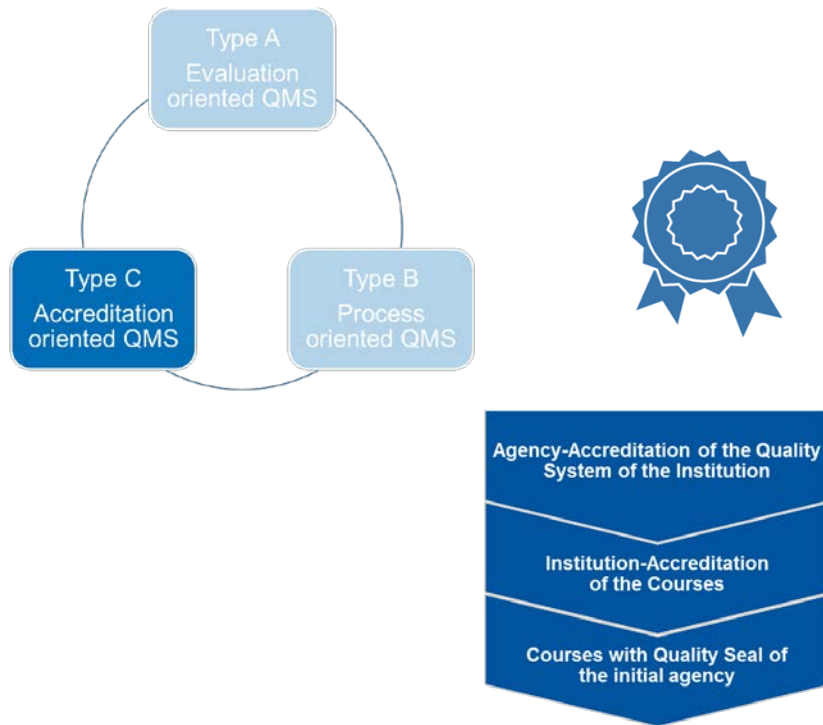
Accreditation Audit – Flashback

Workshop day 1
Session 1
Existing Approaches in HEI for the
Implementation of QMS

- **Program Accreditation**
  - Study programs are individually accredited
  - Programs remain unmodified in between accreditations
  - Validity: 5 years after initial accreditation (re-accreditation 7 years)
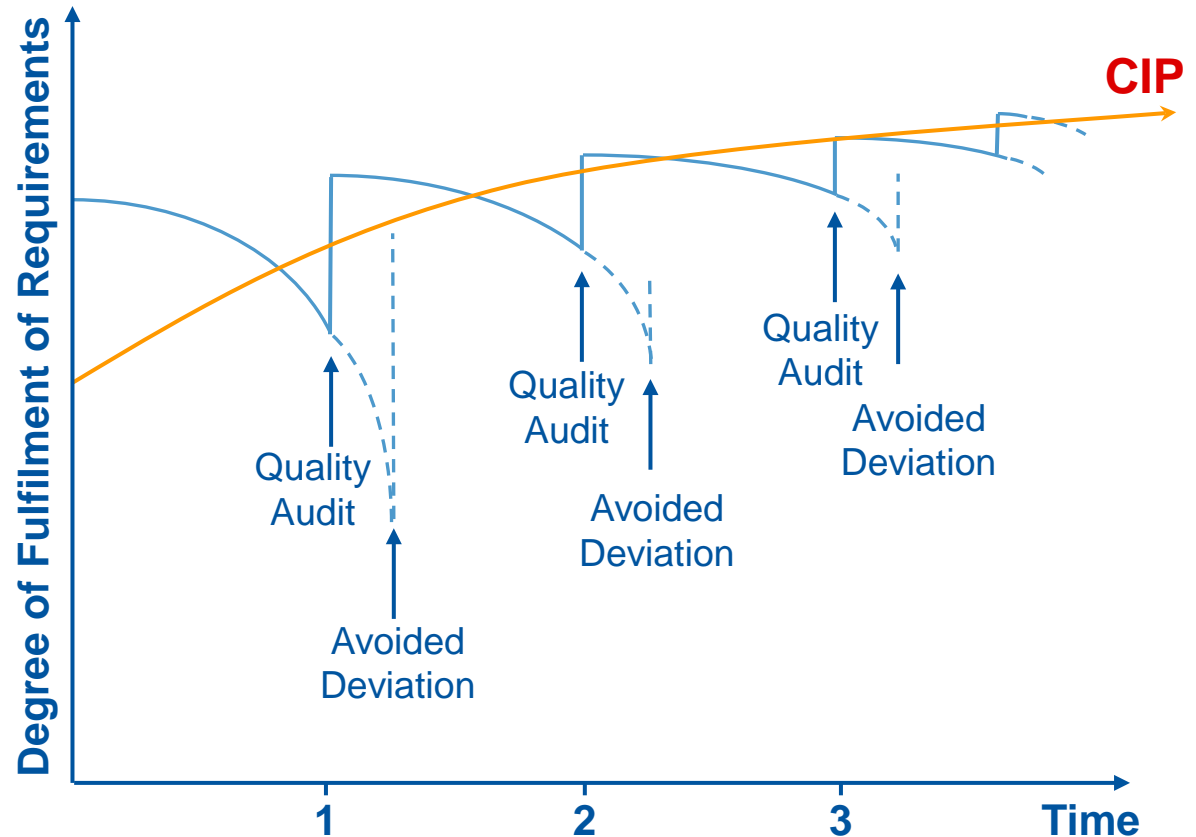- **System Accreditation**
  - Accreditation of the "QMS"
  - Continuous improvement possible
  - Individual responsibility and controllability of Higher Education Institutions is strengthened

Type A
Evaluation oriented QMS

Type C
Accreditation oriented QMS

Type B
Process oriented QMS

Agency-Accreditation of the Quality System of the Institution

Institution-Accreditation of the Courses

Courses with Quality Seal of the initial agency

Motivation for Quality Audits

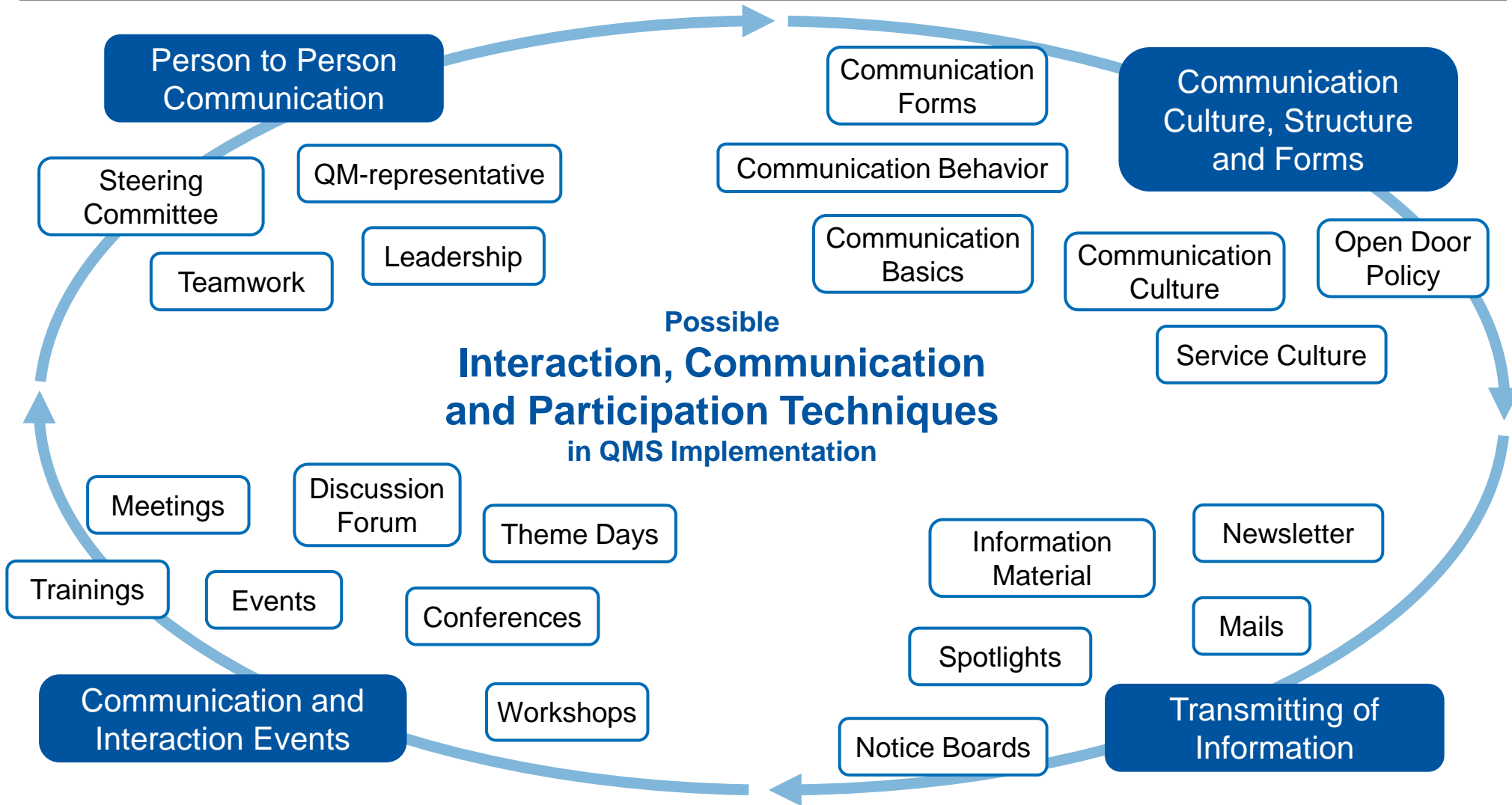Quality Audits support Continuous Improvement Processes (CIP).

Communication

Communi- cation

- The organizational structure of Higher Education Institutes is characterized by individual cultures of single units as faculties, administration, central institutions or institutes

- Communication in HEI relies particularly on the participation of as many of its members as possible

For a successful information- and communication-culture a QM-representative must maintain the information flow through the different ways of communication.

Communication Techniques

Person to Person Communication

Communication Forms

Communication Culture, Structure and Forms

Steering Committee

QM-representative

Communication Behavior

Leadership

Communication Basics

Communication Culture

Open Door Policy

Teamwork

Service Culture

Possible
Interaction, Communication and Participation Techniques
in QMS Implementation

Meetings

Discussion Forum

Theme Days

Information Material

Newsletter

Trainings

Events

Conferences

Mails

Spotlights

Communication and Interaction Events

Workshops

Notice Boards

Transmitting of Information

■ A good information- and communication culture requires different techniques and must consider various influence factors

Compensation Techniques

- ■ Introduction and continuous application of binding communication instruments
- ■ Experiencing known communication structures within the own organization unit
- ■ Permanent offering of particular communication settings through QM-representative

Influence Factors

- ■ Location, instruments and perspective
- ■ Mission, implementation phase and available resources

To implement a successful information- and communication-culture the strategic targets and their operationalization must be communicated appropriately.

What is Quality Management and what makes it a system?

Close Control Loops
- Action Tracking
- Control Loops
- Continuous Improvement
- Customer Satisfaction

Strengthen Targets & Values
- Vision, Targets, Strategy
- Structures
- Resources

Check Target Achievement
- Key Performance Indicators
- Audits
- Evaluation
- Communication

Act Responsible
- Support
- Process Documentation
- Responsibilities
- Continuing Education
- Templates, Guides

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Control Loops in Higher Education

Rectorate

Management Level

University Administration
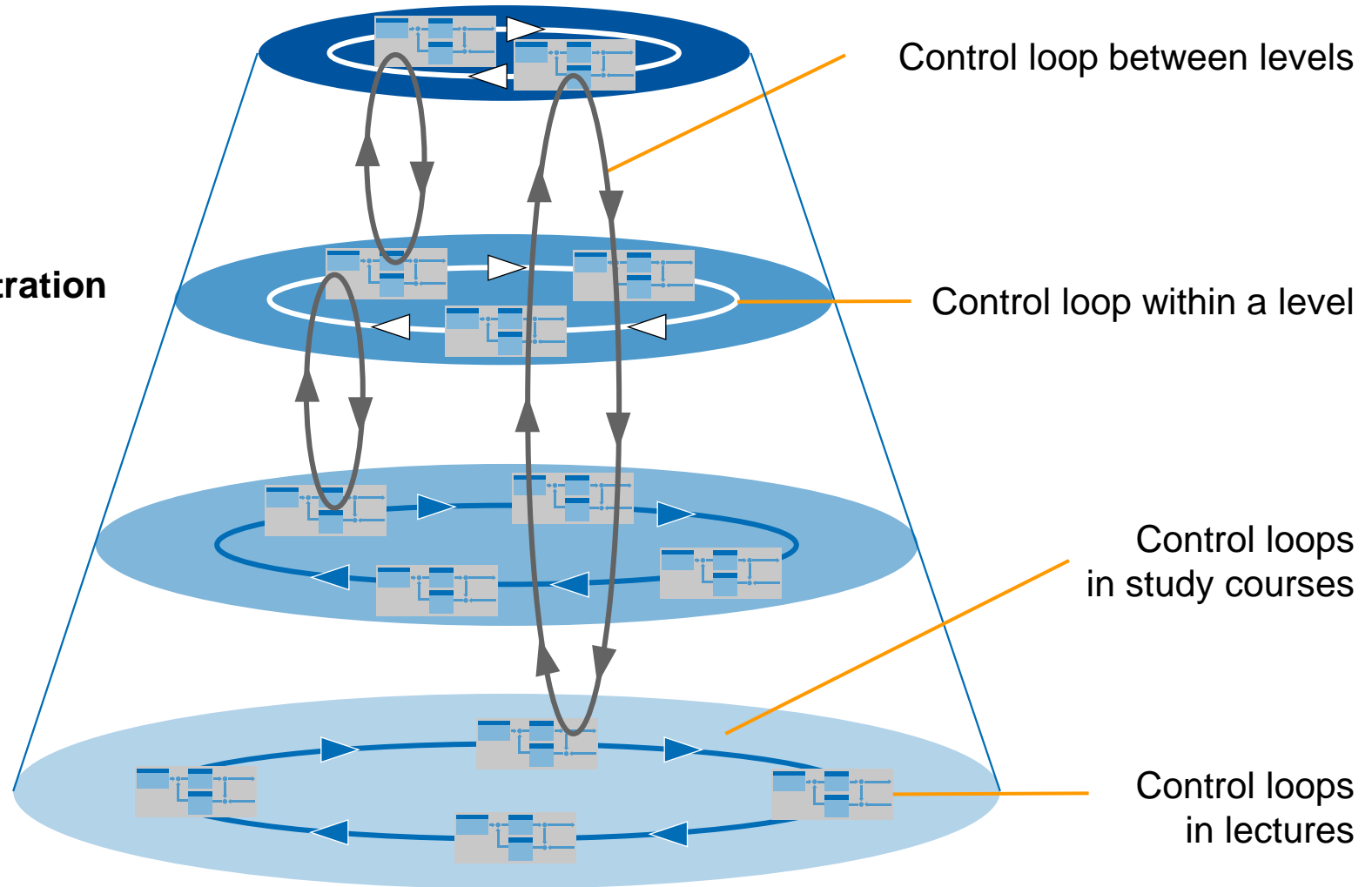
Planning Level

Faculties

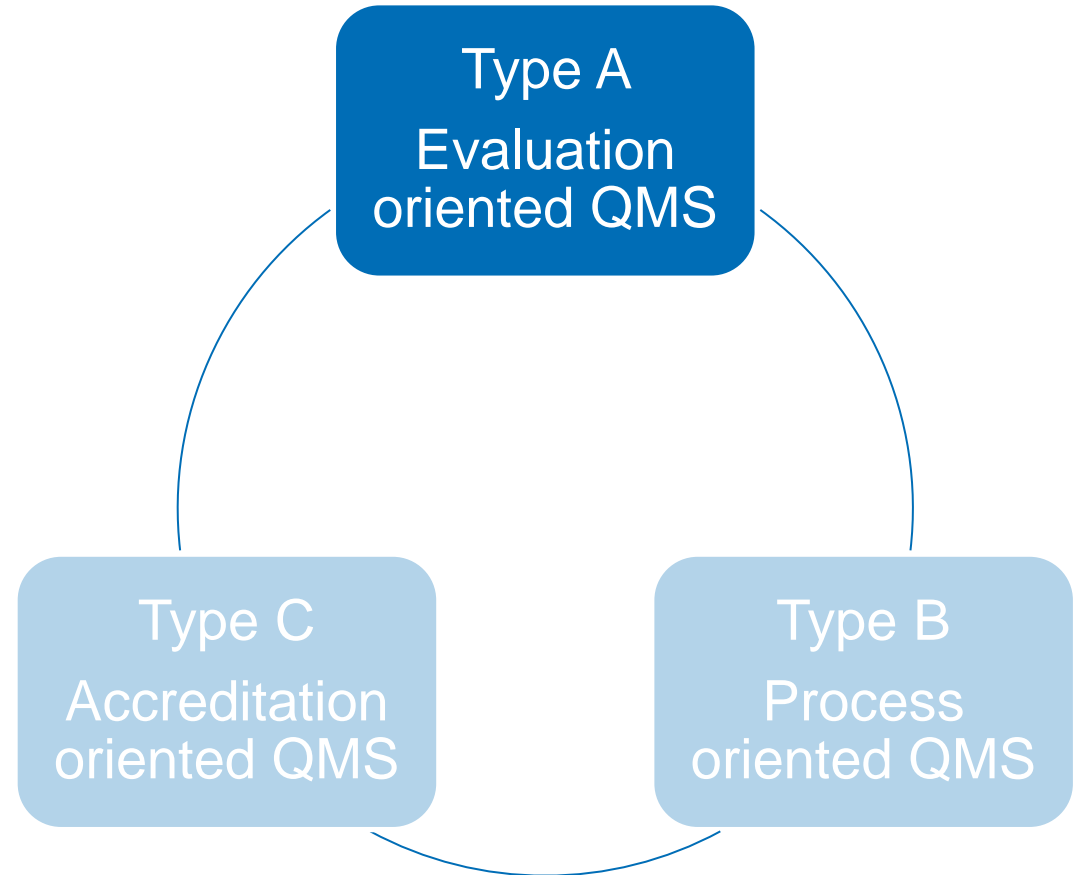*Steering Level*

Institutes/Lectures

Operational Level

Control loop between levels

Control loop within a level

Control loops
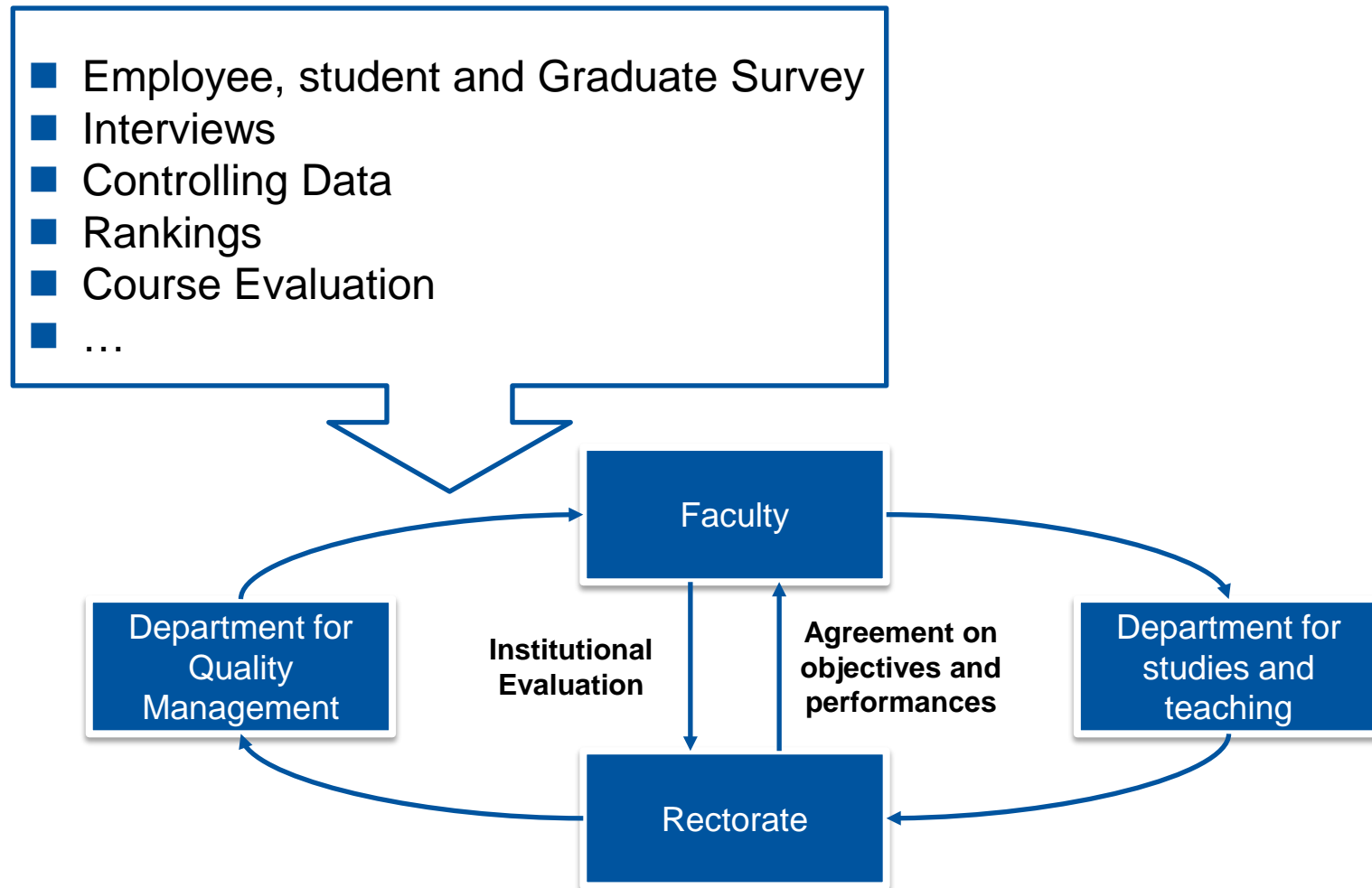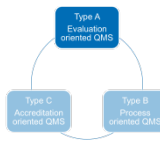in study courses

Control loops
in lectures

Existing Approaches for the Implementation of QMS

- **Type A**
  - Combination of peer-evaluations and organizational steering

- **Type B**
  - Orientation towards TQM, EFQM, ISO standard and Balanced Scorecards

- **Type C**
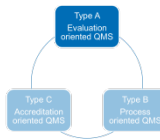 - Orientation towards fulfillment of requirements for Accreditations and Certifications

Type A
Evaluation
oriented QMS

Type C
Accreditation
oriented QMS

Type B
Process
oriented QMS

The Typical Procedure of an Institutional Evaluation

- Employee, student and Graduate Survey
- Interviews
- Controlling Data
- Rankings
- Course Evaluation
- …

Faculty

Department for Quality Management

Institutional Evaluation

Agreement on objectives and performances

Department for studies and teaching

Rectorate

Source: University of Duisburg-Essen

What is it good for and what are possible negative effects?

Challenges

- The approach does not fundamentally require that the evaluation is a **core element of the university management**

- But most of the approaches being practiced have only a **weak measure and control function**

- In institutional evaluations the focus is on **measuring the quality of output** – an assessment whether prescribed standards are met is usually not carried out
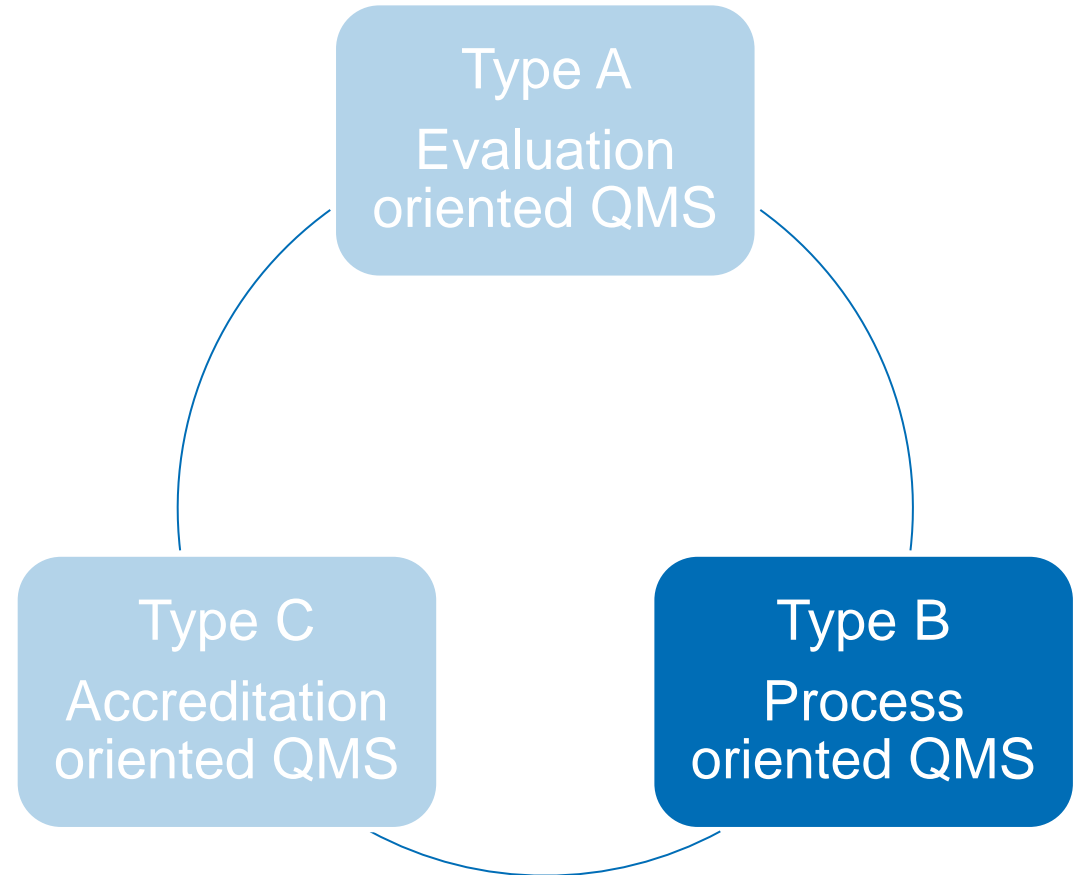
Benefits

- The approach emphasizes the **institutional responsibility** of the Higher Education Institution **for the quality** of their processes and services

- The standard process includes not only elements of quality assurance, but also supports the **development of quality management**

- An Institutional Evaluation follows the **concept of control loops** to some degree

For the implementation of an holistic system in addition to a description and measurement of the object of reflection an adequate evaluation and optimization has to be conducted
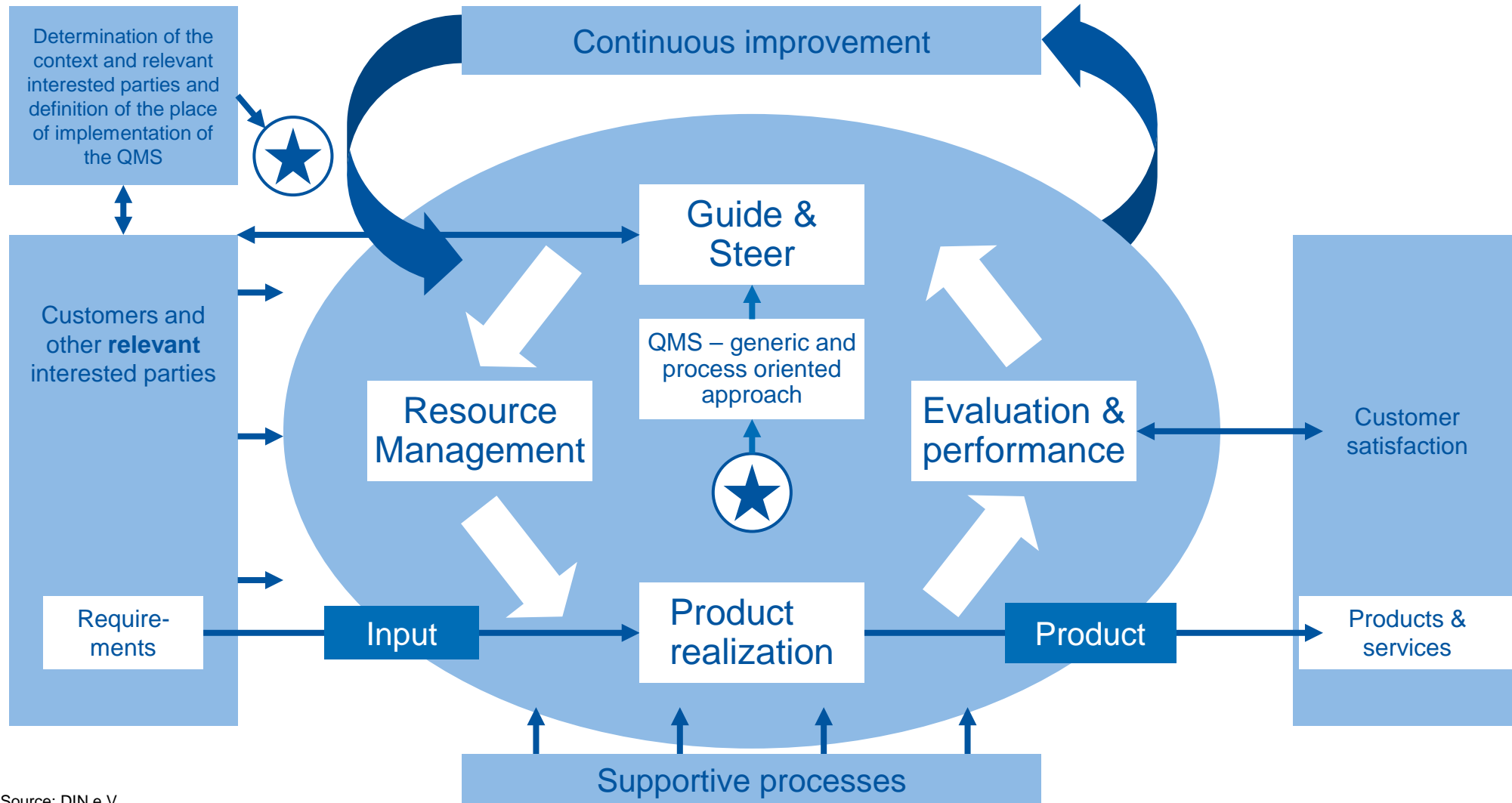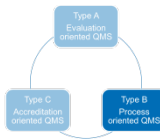
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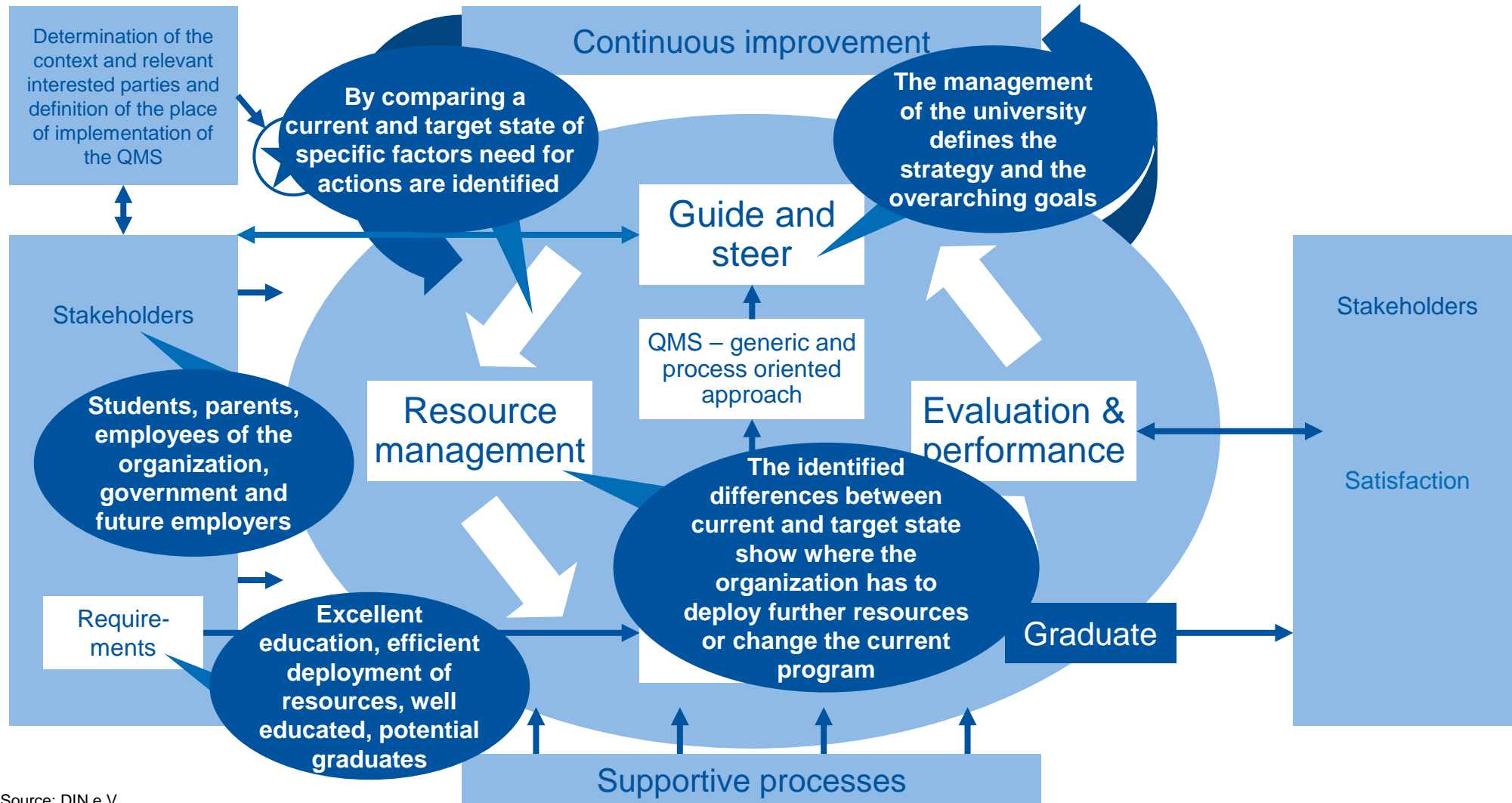 - Orientation towards fulfillment of requirements for Accreditations and Certifications

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Evaluation oriented QMS

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DIN EN ISO 9001:2015 – Process Model

Determination of the context and relevant interested parties and definition of the place of implementation of the QMS

Continuous improvement

Customers and other **relevant** interested parties

Guide & Steer

QMS – generic and process oriented approach

Resource Management

Evaluation & performance

Customer satisfaction

Require-ments

Input

Product realization

Product

Products & services

Supportive processes

Source: DIN e.V.

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Adaption of the Process Model for Higher Education

Determination of the context and relevant interested parties and definition of the place of implementation of the QMS

By comparing a current and target state of specific factors need for actions are identified

Continuous improvement

The management of the university defines the strategy and the overarching goals

Guide and steer

Stakeholders

Students, parents, employees of the organization, government and future employers

QMS – generic and process oriented approach

Resource management

Evaluation & performance

Stakeholders

Satisfaction

Require-ments

Excellent education, efficient deployment of resources, well educated, potential graduates

The identified differences between current and target state show where the organization has to deploy further resources or change the current program

Graduate

Supportive processes

Source: DIN e.V.

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What is it good for and what are possible negative effects?

Challenges

- The ISO 9000 series provides a collection of requirements on QMS – but **no guidelines for the specific design or implementation**

- It contains in fact three standards:
  - DIN EN ISO 9000: Basics of a QMS
  - DIN EN ISO 9001: Requirements for ISO 9000 certification
  - DIN EN ISO 9004: Guidelines for improved excellence of QMS

- The concepts and **terms used in the norm have to be interpreted** and adapted for the Higher Education context
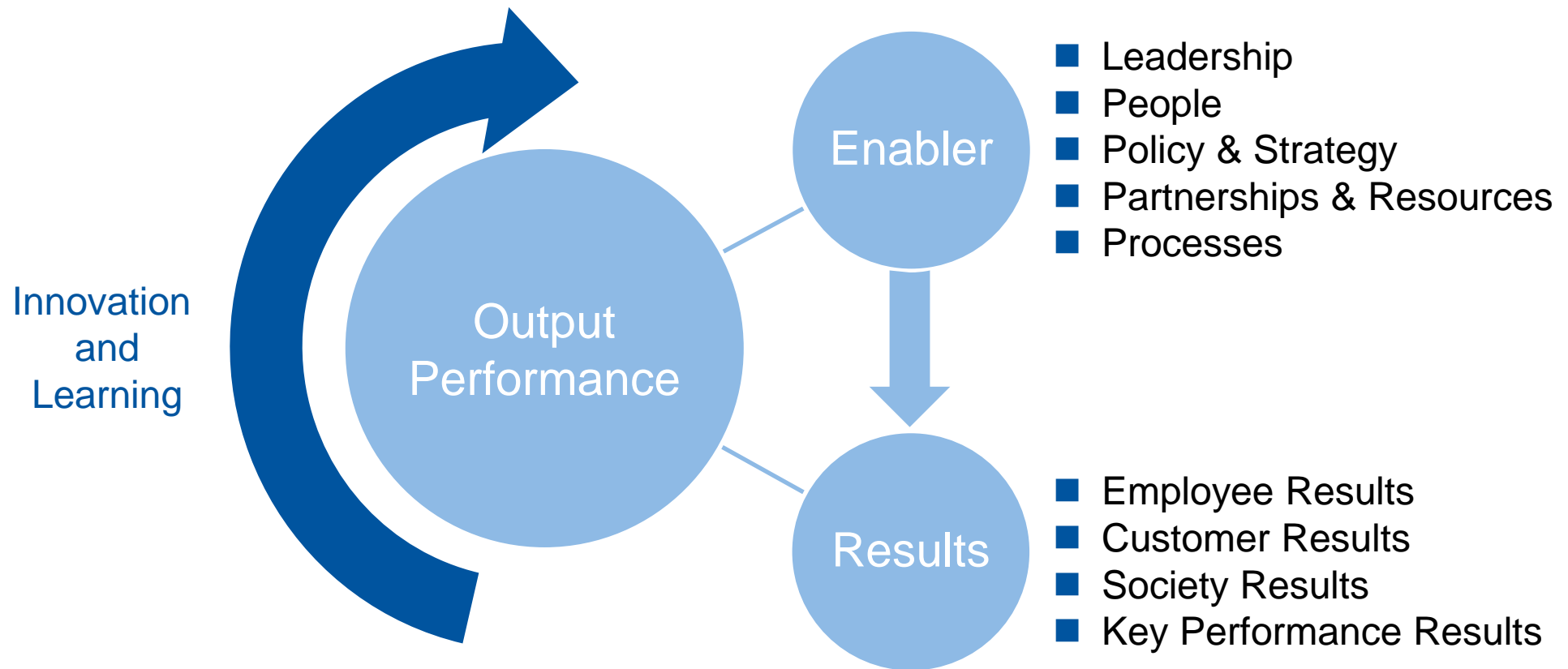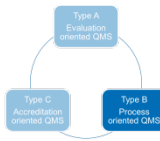
Benefits

- The requirements of the ISO 9000 series provide a **framework for the introduction and implementation** of a Quality Management System

- The norm attaches great importance on process management and orientation – **process quality** of administrative process **can be improved**

- Depending on the country the Certification is a legal requirement and the basis for governmental evaluations

The norm ensures the process quality but not the quality of the process object "teaching and learning" itself.

# How can an organization remain sustainably competitive?

Innovation and Learning

Output Performance

Enabler
- Leadership
- People
- Policy & Strategy
- Partnerships & Resources
- Processes

Results
- Employee Results
- Customer Results
- Society Results
- Key Performance Results

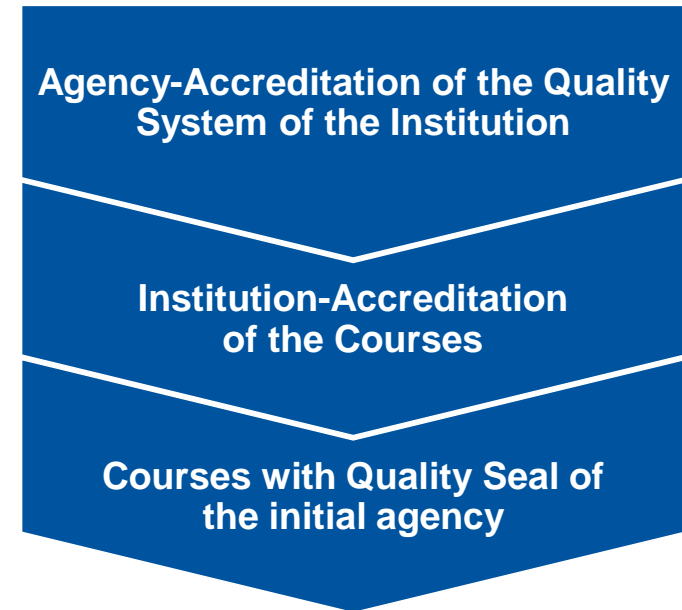# Existing Approaches for the Implementation of QMS

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Evaluation oriented QMS

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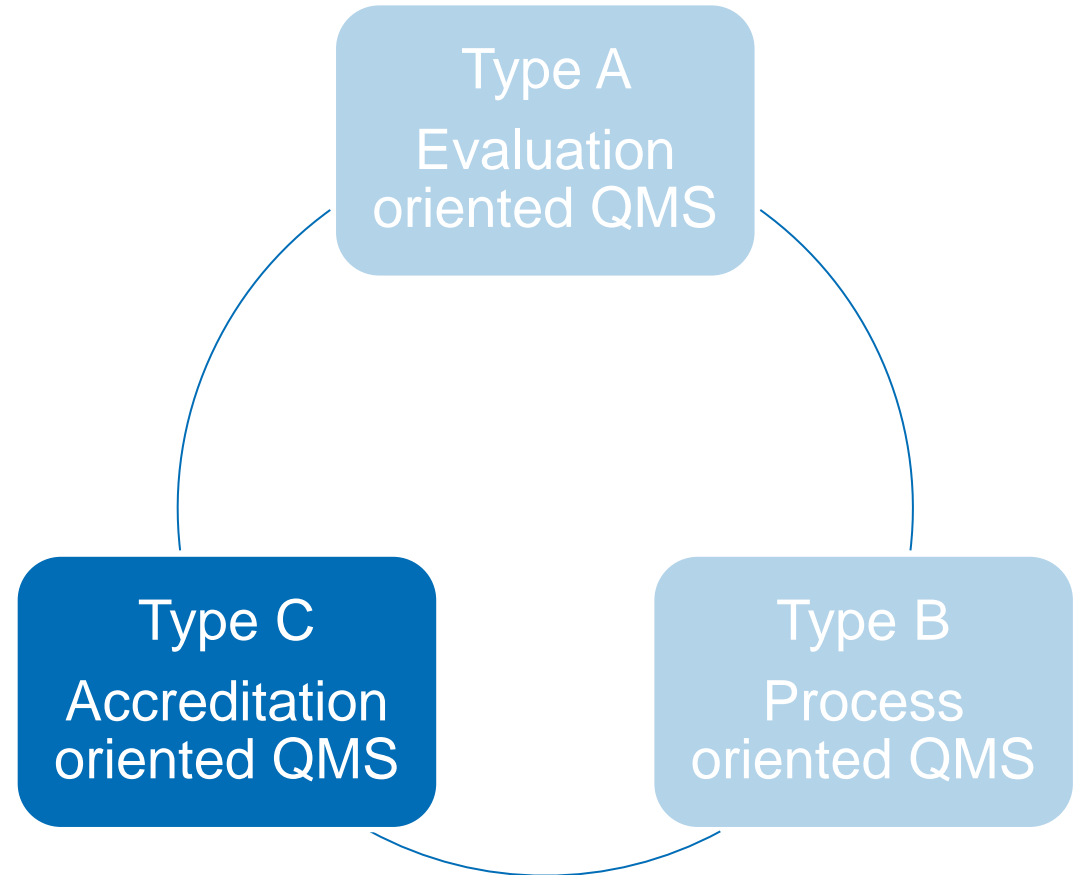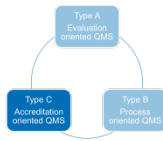
What is a System Accreditation?
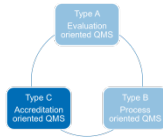
- The Program Accreditation was introduced in Germany in 1998 as a method to secure minimum quality standards of the newly introduced Bachelor's and Master's programs

- In 2008 the System Accreditation was additionally launched, whose subject is the internal "Quality Assurance System" of a university

- The Certificate confirms the university that this system is capable to ensure learning outcomes and Quality Standards of the study programs.

- The accreditation of the education "Quality Ensuring System" allows the institution to accredit their own programs

Agency-Accreditation of the Quality System of the Institution

Institution-Accreditation of the Courses

Courses with Quality Seal of the initial agency

System Accreditation leads to an indirect Accreditation through the agency whereas Program Accreditation leads to a direct accreditation through the agency of every single course.

Requirements for a System Accreditation

Requirements

- Fulfillment of all requirements of the program accreditation for new courses

- Systematic quality checks and quality development of all courses

- Transparency inwards and outwards

➢ Fulfillment of European Standards and Guidelines (ESG), requirements of the Standing Conference of Education Ministers and criteria of the Accreditation Council

Relevant Criteria

- Qualification goals

- Institution internal steering in the fields of teaching and studying

- Institution internal quality assurance

- Reporting system and data collection

- Responsibility

- Documentation

What is it good for and what are possible the negative effects?
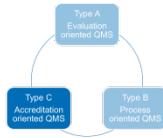
Challenges

- An organization wide QMS needs **additional employees** what causes high **follow-up costs**

- The **reputation of the courses may be higher** when accredited with an individual program accreditation

- Additional **bureaucratization** of the departments due to the central management

- **No clear and consistent standards** are defined when it comes to **the criteria of a successful accreditation** – this leads to inconsistent decisions

Benefits

- **Lower process costs** of a system accreditation compared to a whole program reaccreditation

- **Time savings**: the institution is no longer dependent on the time schedule of the accreditation agency

- **Relief of work in decentralized divisions** as the central management is responsible for most organizational tasks

A System Accreditation is no proper substitute for a comprehensive Quality Management System. The degree of support of the approach for the implementation is very low.

But What Are the Problems to Implement own Systems?

- Many different classifications and interpretations of terminology or rather a non careful usage of language rules

  ➢ **Inadequate operationalized definition of quality** **1**

No formalised Quality Management Procedure	60,7%
Others	23,0%
Procedures under DIN EN ISO 9000ff.	9,0%
Benchmarking-Procedures	8,0%
TQM/EFQM/Balanced Scorecard	4,7%

- Immediate and unsystematic-ad hoc start in the development of a requirement conform concept for the quality management system ("individual qualities")

  ➢ **Raw development of individual procedures which are independent from each other** **2**

- Inflationary use of quality management instruments and hence methodological quality is questionable

  ➢ **Existence of loose coupled systems for teaching and learning, research and service/ administration (control loops)** **3**

Universities need to implement Quality Management Systems without additional resources, but there is less knowledge about how a university adequate system can be designed.

Source: CHE (2014), Pasternack/Kreckel (2011), Borgwardt/John-Ohnesorg (2011), Kehm (2007), HRK (2010), Lange (2006), Mitterauer (2013)

THANK YOU FOR YOUR ATTENTION

ANY QUESTIONS OR COMMENTS?

Dr.-Ing. Dipl. Wirt.-Ing. Patrick Beaujean

Dipl. Wirt.-Ing. Lisa Graßler

Laboratory for Machine Tools and Production Engineering

Chair of Production Metrology and Quality Management

PRS
Technologie GmbH

Fraunhofer
IPT

WZL | RWTH AACHEN UNIVERSITY

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