



MBA Training  
25.09.-29.09.2006 Zagreb

# Quality Management

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# Structuring

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# Quality loop

Quality is generated by a performance process of an enterprise which orientates itself to quality objectives that is provided by all participants. That means quality is not depending on one quality department, but...

... Quality concerns all !

The Quality loop according to DIN helps to clarify the complexity of the quality term.

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# Quality loop



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# Agribusiness requirements

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# Background

Increase of the importance of quality from the point of view of all involved ones:

- Customer,
- Industry,
- Legislator.

In the last years the requirements of the legislator rose continuously regarding quality and documentation. All the parties in the agro-food-chain are concerned.

At the same time voluntary quality-increasing or securing quality marks are becoming more.

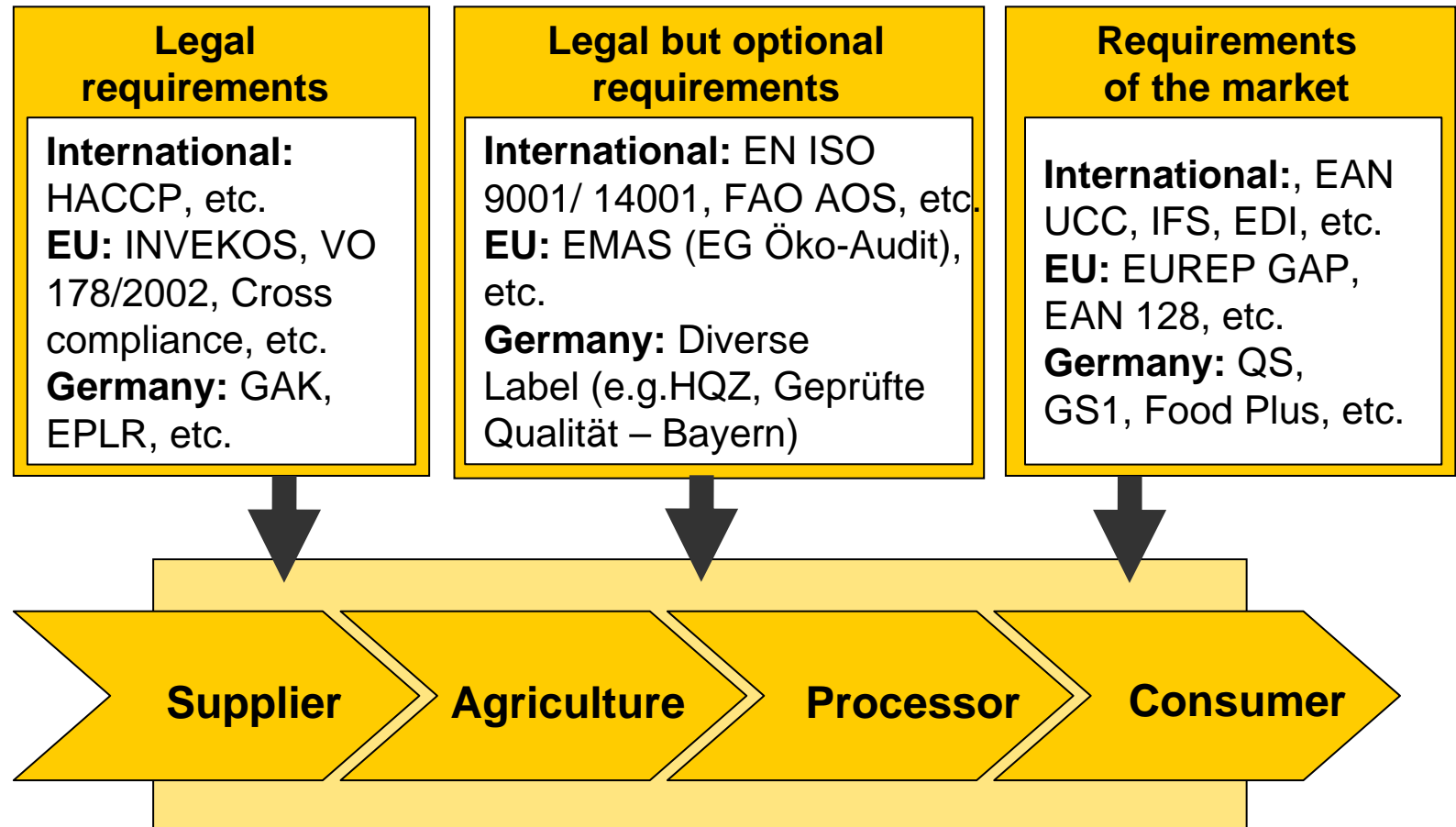
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# Different Stakeholders



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# Example: Information for consumers

## Die Eier-Kennzeichnung

Eine neue Kennzeichnung von Eiern der Güteklasse A ist EU-weit ab 2004 vorgeschrieben. In Deutschland wurde sie bereits im Oktober 2002 freiwillig eingeführt. Sie informiert die Verbraucher über Herkunft und Haltung von Legehennen.

### Haltungsform

- 0 = Ökologische Erzeugung
- 1 = Freilandhaltung
- 2 = Bodenhaltung
- 3 = Käfighaltung

### Herkunftsland

DE =  
Deutschland

### Betriebsnummer

(Legehennenstall)

### Stallnummer

(Stall innerhalb  
des Betriebes)

2-DE-091234-1

### Bundesland

Bei deutschen Eiern ist das Bundesland erkennbar, in dem der Betrieb liegt:

- 01 - Schleswig-Holstein
- 02 - Hamburg
- 03 - Niedersachsen
- 04 - Bremen
- 05 - Nordrhein-Westfalen
- 06 - Hessen
- 07 - Rheinland-Pfalz
- 08 - Baden-Württemberg
- 09 - Bayern
- 10 - Saarland
- 11 - Berlin
- 12 - Brandenburg
- 13 - Mecklenburg-Vorpommern
- 14 - Sachsen
- 15 - Sachsen-Anhalt
- 16 - Thüringen

Quelle: Deutscher Bauernverband

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# INVEKOS

**INVEKOS** (Integriertes Verwaltungs- und Kontrollsystem, integrated administration and control system):

- INVEKOS requires implementation of data bases from the EU member states. Only when implemented they get certain general aid.
- INVEKOS for example administrates operational data such as data for land use, collection of live stock etc.

Consists of:

1. System for marking and registration of animals
2. System for GIS based identification of agricultural used plots
3. System for treatment and payment of aid requests
4. Integrated control system

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# VO 178/2002

## VO 178/2002:

The regulation (EC) 178/2002 (article 18-20 traceability) wants to enable a targeted procedure for problems of food security.

- 178/2002 requires traceability over all steps of the value creation chain since 1.1.2005
- Enterprise-transcending documentation becomes obligation for all food and feed enterprises.
- Suitable systems and procedures have to be adapted
- Sufficient marking of the goods has to be guaranteed

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# Cross Compliance

## Cross Compliance:

The full grant of direct payments to agricultural enterprises is also associated with compliance of obligatory regulations of Cross Compliance. Regulations:

- Compliance of regulations has to be documented and handed out if necessary.
- Contain regulations regarding farmland, agricultural production and agricultural activity

## Regulations:

1. Compliance of basic requirements on management
2. Preservation of a good agricultural and ecological condition of the farmland
3. Preservation of the continuous grassland

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# Definitions

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# Different viewpoints of quality

Definitions of quality are based on different viewpoints:

- Product quality, i.e. the quality of the food itself.
- Process quality, i.e. the quality of the agricultural production or of the food processing.
- Other viewpoints

For example the organic farming – conventional production:

- Differences in the product quality are not secured.
- But: Process quality is more positively in general (positive environmental achievements confirmed by ecobalance, e.g. regarding bio diversity, resource usage, gas emission with climatic relevance, formation of cultural landscapes).

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# Quality definition approaches

## Different approaches:

E.g. metaphysical, marketing, micro economical, management or natural science based approach.

Objective approach: Quality is only what we can measure.

Subjective approach: Quality can't be described only realised.

Integrative approach: Quality can be realised partly described and is in any case more than what we can see.

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# Definitions of quality

1. Quality is fitness for use
2. Quality is the achieved in comparison with the realisable related to the amount that is desired.
3. Quality is defined by the degree to which a set of inherent characteristics fulfils requirements (DIN EN ISO 9000:2000)
4. Quality is defined by product, process, labour, system and enterprise.

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# Steps of Quality

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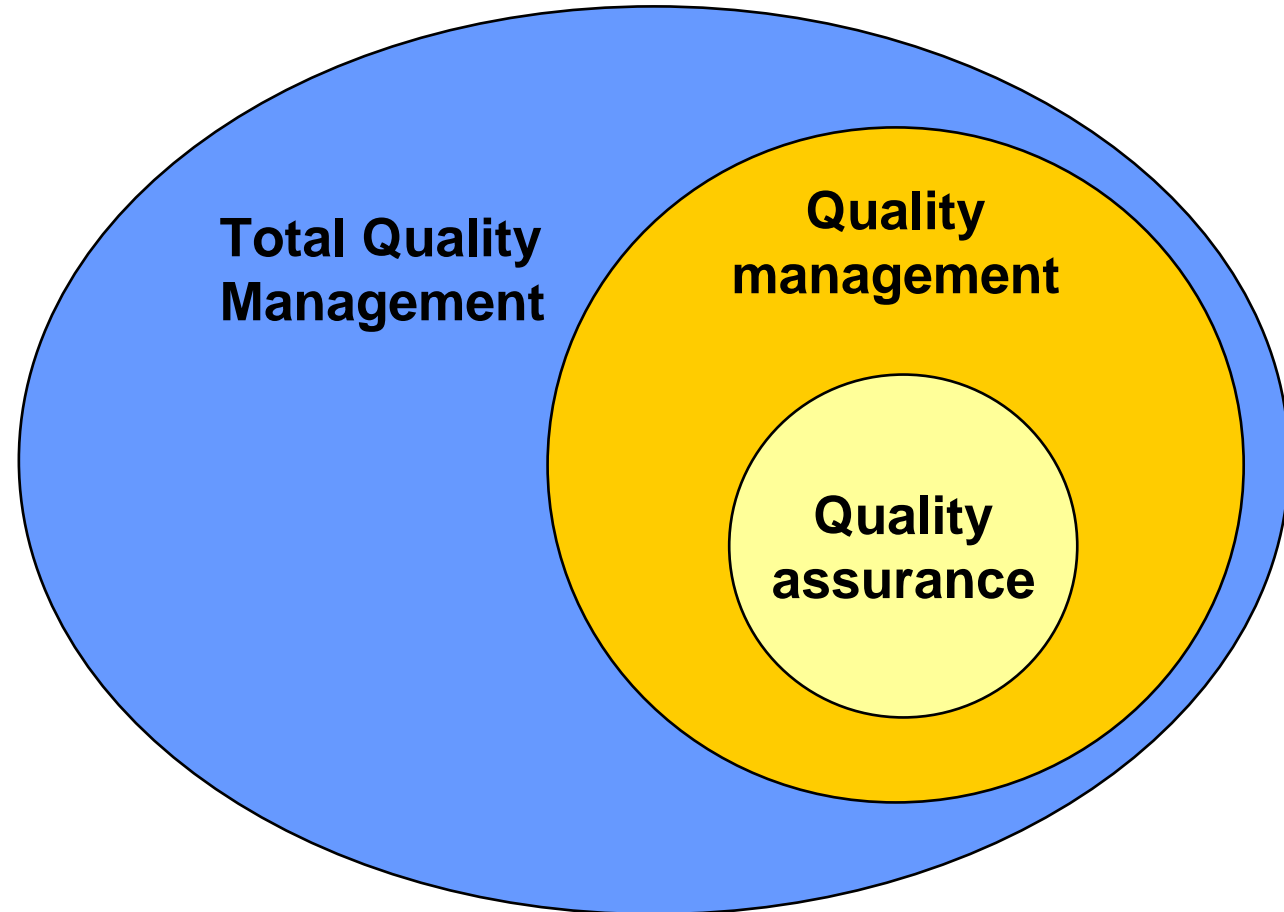
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# Systematic arrangement



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# Definition

## **Quality assurance** (part of Quality management):

All operational activities, which are to ensure preparing, accompanying and testing the defined quality.

## **Quality management** based on DIN EN ISO 9000:2000:

„coordinated activities to direct and control an organization with regard to quality. Direction and control with regard to quality generally includes establishment of the quality policy and quality objectives, quality planning, quality control, quality assurance and quality improvement.“

## **Total Quality Management:**

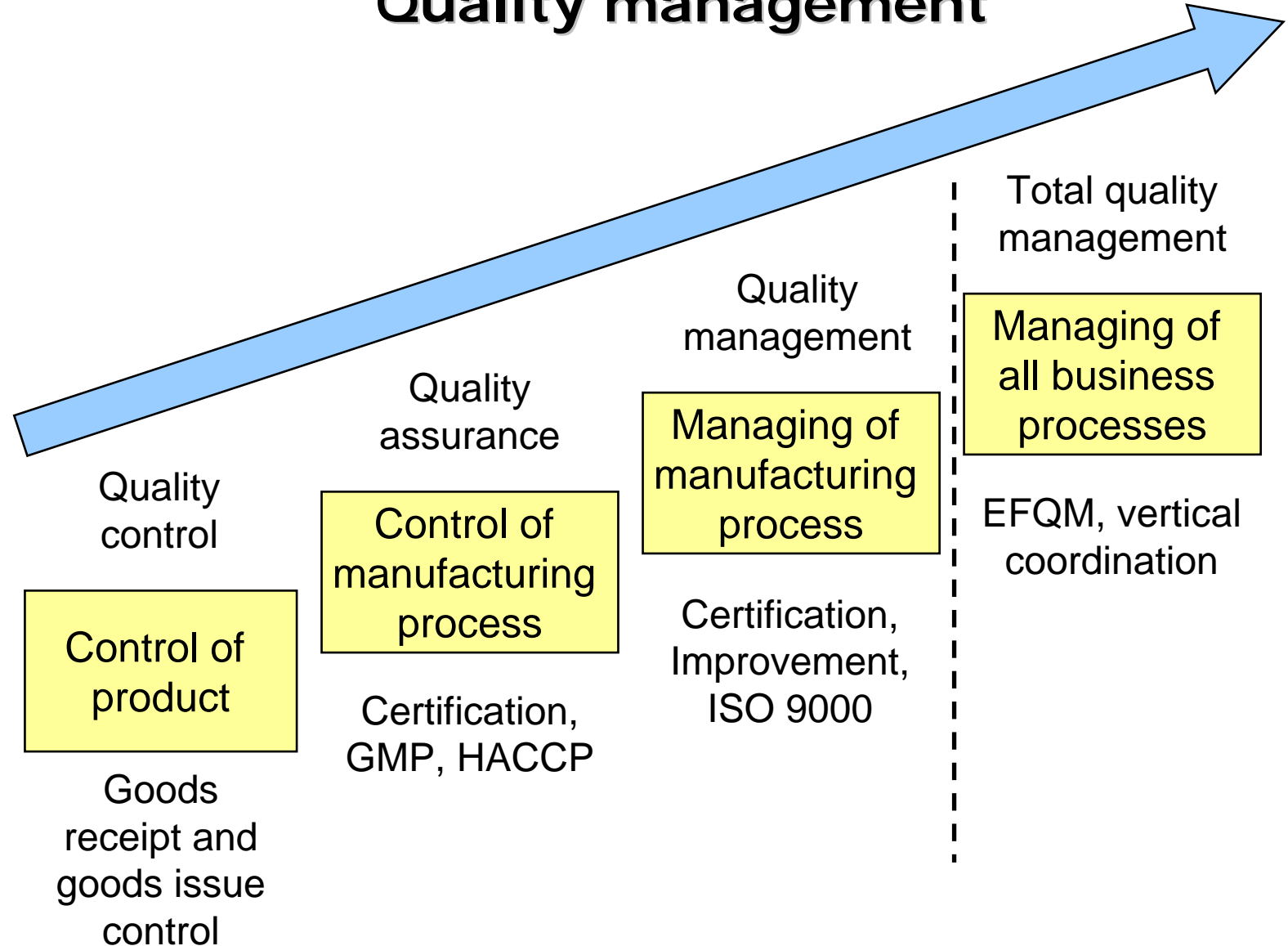
It is an enterprise philosophy, on which the quality is the most important objective (both strategical and operational) for the whole enterprise.

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# Steps of the strategic Quality management



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# Components of a QM-System

The Organizations are free in principle to arrange their QM-System. Popular are however the QM-Systems which are composed on the basis of international standards, in particular the ISO 9000 family.

These standards provide among other things:

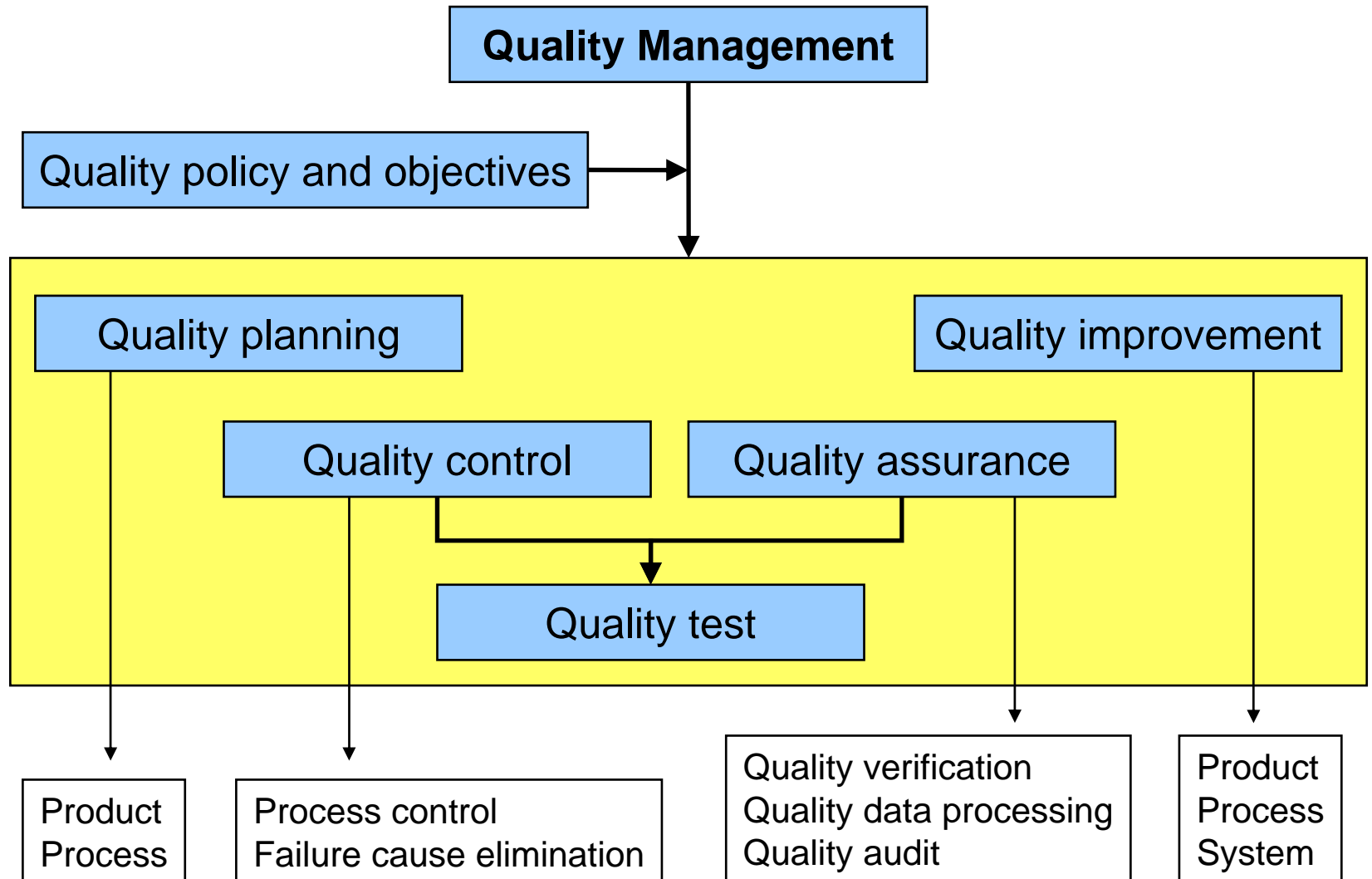
- Description of the QM-Systems in the QM-documents,
- QM-manual,
- QM-procedure documents,
- Job instructions (workplace oriented)

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# Quality Management

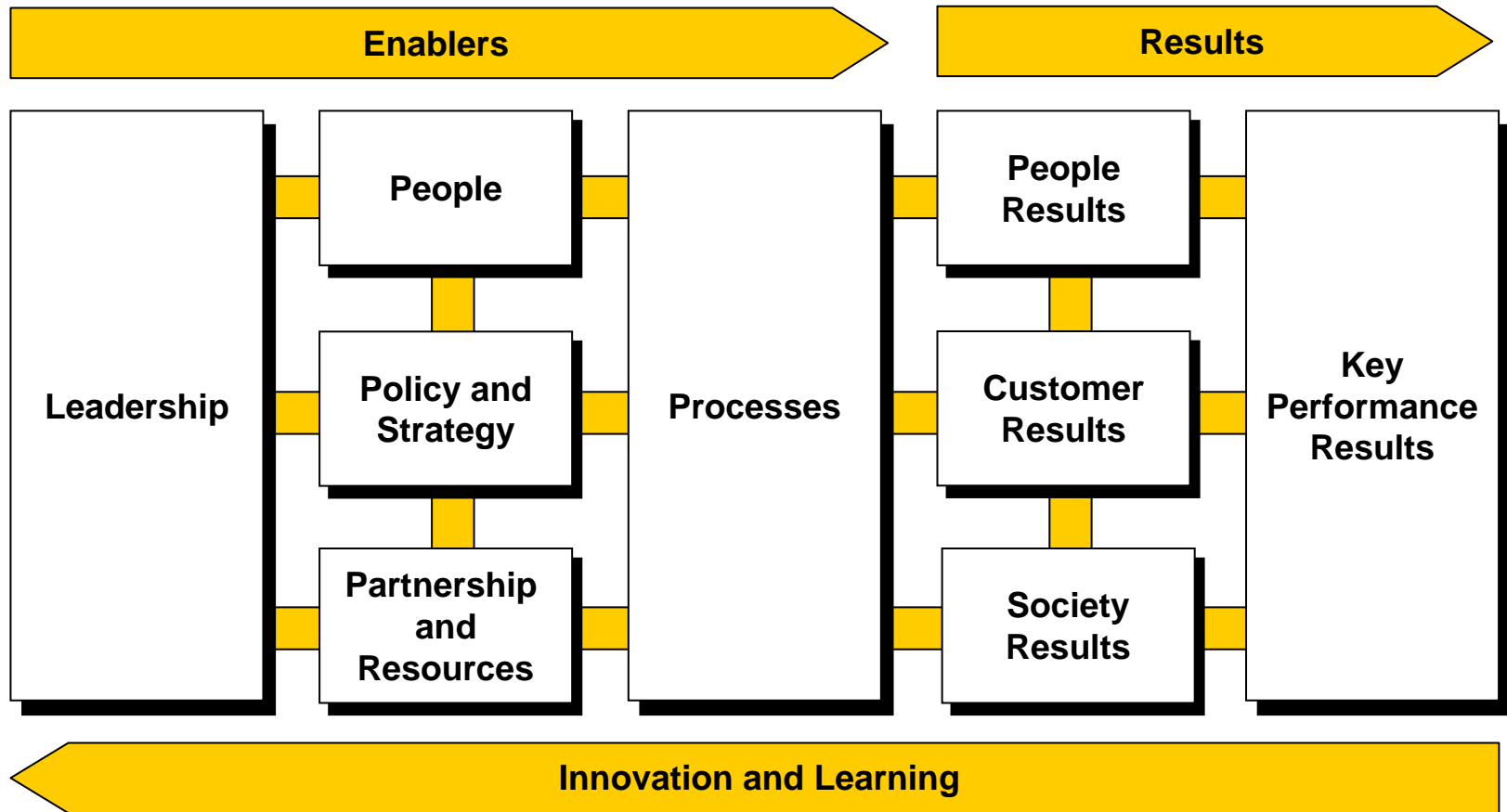


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# The Business Excellence Model (EFQM-Model)



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# ISO 9000

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# DIN EN ISO 9000:2000

- ISO (International Organization for Standardisation) was founded in 1947
- EN (Europäische Normungsbehörde)
- German member in ISO is DIN (Deutsches Institut für Normung)
- ISO 9000-Series (9000-9004). Developed in 1987 and updated in 1994 and 2000. Partially also in 2005.
- It standardizes procedure for quality assurance and documentation
- It does not serve to prove the fulfillment of quality requirements of a product but concerns exclusively the procedures for the quality assurance.

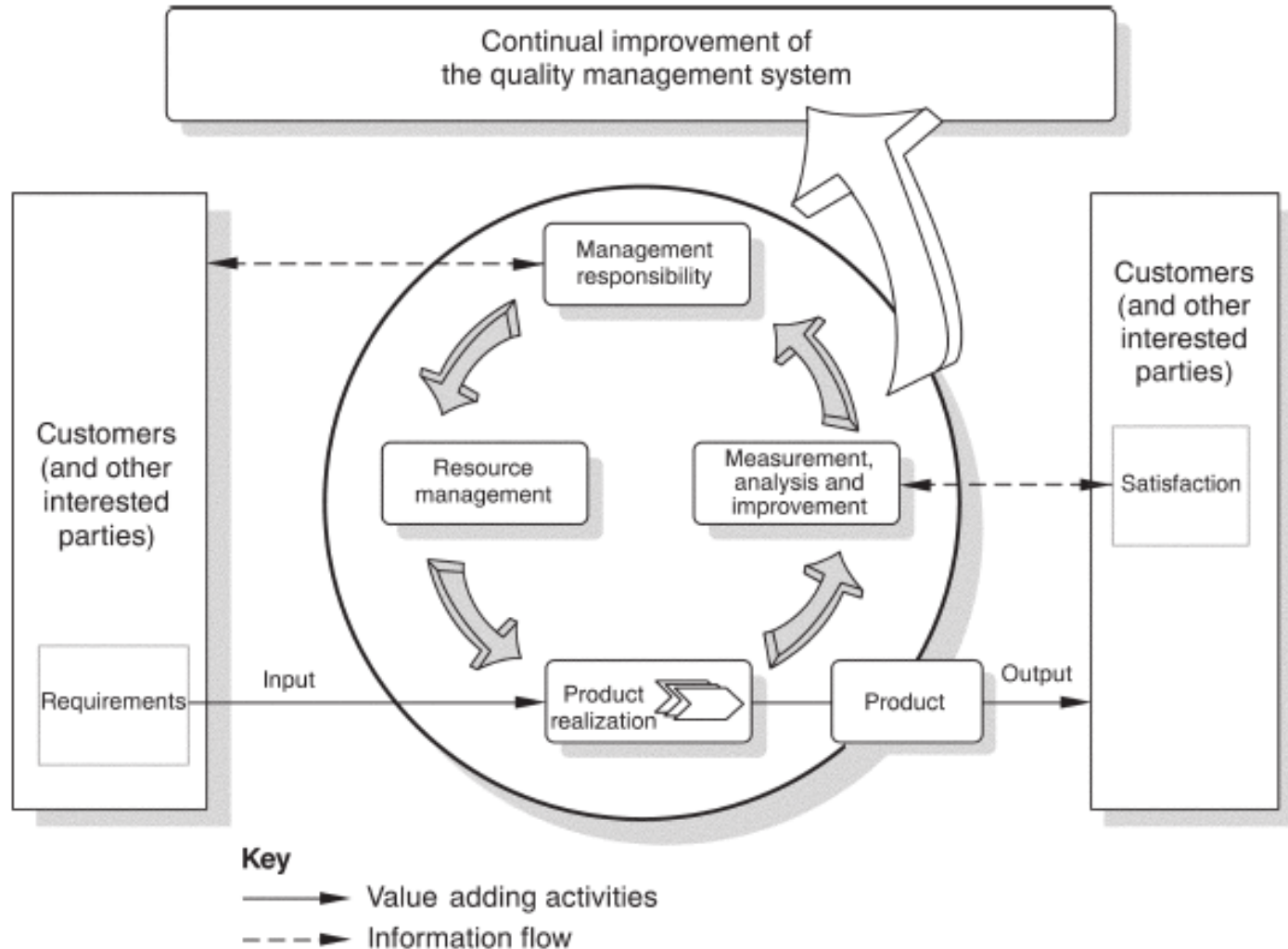
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# The process approach

## Model of a process-based quality management system



NOTE Statement in parantheses do not apply to ISO 9001.

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# Different Systems

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# HACCP

## **HACCP** (Hazard Analysis (of) Critical Control Points):

- Based on the European Union food hygiene regulation HACCP is obligatory for all enterprises, which have to do with food, but not the agricultural production.
- It focuses on keeping food security by early error prevention, as well as by self-control.
- HACCP plans a process analysis, identification of risks, test and monitoring procedures as well as a continuous examination of the whole procedure.
- Since 1998 HACCP is also in the food hygiene regulation.
- Since 1.1.2006 the new European Union food hygiene package is put into force: Among other things HACCP applies to traded and imported food.

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# QS

## QS:

- The value chain spanning quality assurance system “Qualität und Sicherheit” (QS) pursues with its system the increase of the consumer protection.
- The requirements depend at least on the legal regulations and partly also lie above them.
- Requirements are the system criteria for the total production chain, self-control and documentation of the enterprises and examination by neutral boards of control.
- All enterprises along the Agro-Food-chain can participate at QS, however not all products are integrated yet. At the moment feed, meat, potato fruit vegetable, agriculture and food trade is integrated.

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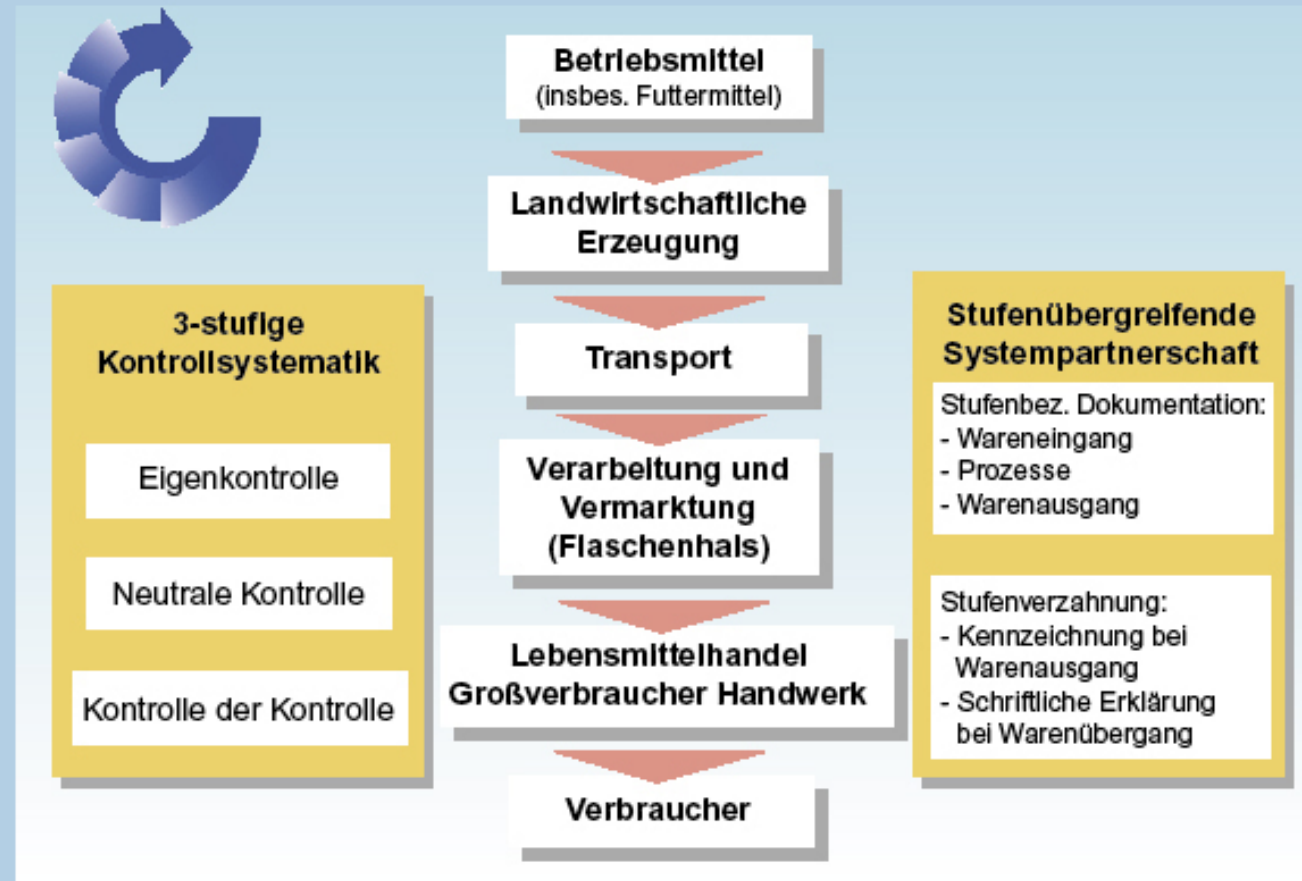
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# QS

## Qualitätssicherung – Aufbau des QS-Systems



Quelle: QS-Qualität und Sicherheit

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**Anmeldung** des landwirtschaftlichen/ gärtnerischen Betriebes/ LEH-Betriebes beim **Bündler** (Systemteilnehmer)  
z.B. Erzeugerorganisationen, Verbände, LEH Unternehmen usw.

Teilnahme- und Vollmachtserklärung

Online **Anmeldung Systemteilnehmer** bei QS (Fruchthandel, Kartoffelgroßhandel)

**Neutrale Kontrolle durch Prüfinstitut (EN 45011)**  
- QS-Kriterien  
- QS-Zertifizierung

Ergebnis < 70 %  
oder K.O.

OK?

Ergebnis > 70 %

**Systemteilnahme**  
**Vertragsabschluss Systemteilnehmer**  
**QS Fachgesellschaft Obst-Gemüse-Kartoffeln GmbH**

Systemvertrag  
Sanktionsvertrag

**Zeichenvergabe**

**Vertragsabschluss Systemteilnehmer**

Zeichennutzungsvertrag

**QS**

Procedure for first certification

(for example fruit, vegetables, potatoes)

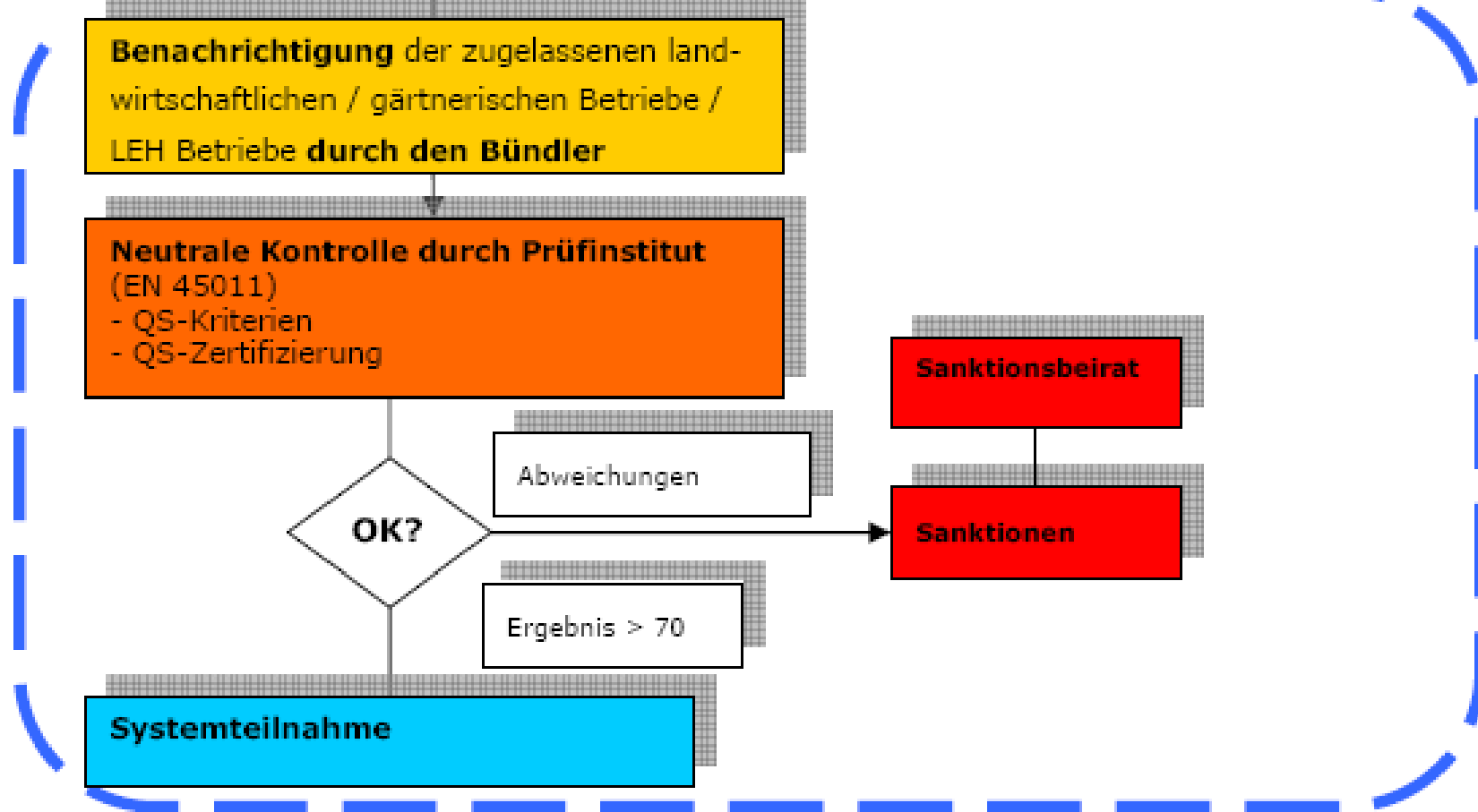
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# QS

## QS Systemteilnahme



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# QS

## Agricultural enterprises in the QS-System (meat and meat products)

**Stand 1.10. 2005**



<b>Teilnehmer insgesamt</b>	<b>52.992</b>
Baden-Württemberg	3.140
Bayern	23.177
Brandenburg	370
Hessen	455
Mecklenburg-Vorpommern	330
Niedersachsen	10.925
Nordrhein-Westfalen	9.425
Rheinland-Pfalz/ Saarland	350
Sachsen	390
Sachsen-Anhalt	450
Schleswig-Holstein	2.270
Thüringen	328
<b>Deutschland</b>	<b>51.610</b>
Weitere europ. Staaten	1.382
- darunter Niederlande	1.083

stem\*

3.11. 2004

	3.400
	21.000
	400
	600
ern	360
	13.300
	11.100
nd	230
	430
	560
	2.930
	370

er +  
dungen

Quelle: QS Qualität und Sicherheit GmbH

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# QZ BW

## QZ BW (old: HQZ):

- The revised quality mark „Gesicherte Qualität mit Herkunftsangabe“ (QZ BW) for agricultural products includes higher requirements for the producer.
- It contains 14 product ranges or product groups and requires higher quality standards, than the respective laws do.
- The quality and control requirements are transferable to other federal states.



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# EUREP GAP

## EUREP GAP:

- EUREP GAP is a Quality System for the agricultural step of the value chain.
- Approximately 10.000 agricultural producers are participated worldwide.
- It contains the respective national right, good agrarian practice, reduction of plant protection, documentation of storage management and defines minimum requirements in the field of food safety, traceability, safety of work, social conditions and environment.
- It is a full-fledged, accredited certification system.

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# IFS

## International Food Standard:

- The standard can apply for all steps of the food processing industry which are on the downstream of agricultural production.
- IFS is applied in Germany and France
- The appliance of IFS in Poland, Austria, Belgium, the Netherlands, UK and Italy is discussed with wholesalers and retailers and their federations.

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# GQS-BW

## Gesamtbetriebliche Qualitäts-Sicherung für landwirtschaftliche Unternehmen in Baden-Württemberg :

- to combine documentation of different systems

			Anforderungen	Erfüllung			Bemerkungen
				Ja	Nein	Entf.	

### A Betrieb

#### 1. Lebens- und Futtermittelsicherheit

			<b>1.1 Nicht sichere Futtermittel</b>			
			wenn Hinweise (z.B. Untersuchungsergebnisse) auf unzulässige, unerwünschte oder verbotene Stoffe im Futtermittel vorliegen			
CC			➤ Verfütterungsverbot eingehalten und Verfütterung durch Dritte sicher verhindert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC			➤ Vermarktungsverbot eingehalten und Vermarktung durch Dritte sicher verhindert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC			➤ ggf. Rücknahme und Rückruf veranlasst	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC			➤ ggf. zuständiges Regierungspräsidium unverzüglich informiert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CC			➤ notwendige Vorkehrungen zur Vermeidung eines Wiederholungsfalles getroffen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



# Quality approaches

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# Quality approach

The use of quality methods (also mentioned quality techniques, quality procedures) serves the improvement of product or process attributes in organizations.

Some methods are very generally usable and can be split in seven basic quality techniques (**Q7**) and seven management tools (**M7**).

Further applied methods (QFD, FMEA, statistic process control,...) are more complex and are primarily used in certain phases of a development process.

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## Q 7

- Brainstorming (Brainwriting)
- Fehlersammelkarte (inspection chart)
- Histogramm (histogramm)
- Korrelationsdiagramm (correlations diagramm)
- Paretodiagramm (pareto diagramm)
- Qualitätsregelkarte (**Control chart/ Quality control chart**)
- Ursache-Wirkungs-Diagramm/ Fishbone-Analyse/ Ishikawa-Diagramm (cause-effect-diagramm)

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## M 7

- Affinitätsdiagramm (affinity diagramm)
- Relationendiagramm (relations diagramm)
- Entscheidungsbaum/ Baumdiagramm (decision tree)
- Matrixdiagramm (matrix diagramm)
- Portfolio (portfolio)
- Netzplan (network plan)
- Problem-Entscheidungs-Plan (problem decision plan)

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# Example: Process Control

**Process control:** The statistic process control is one of the most well-known quality techniques. With so-called **Quality control charts** the statistic behavior of a process is described.

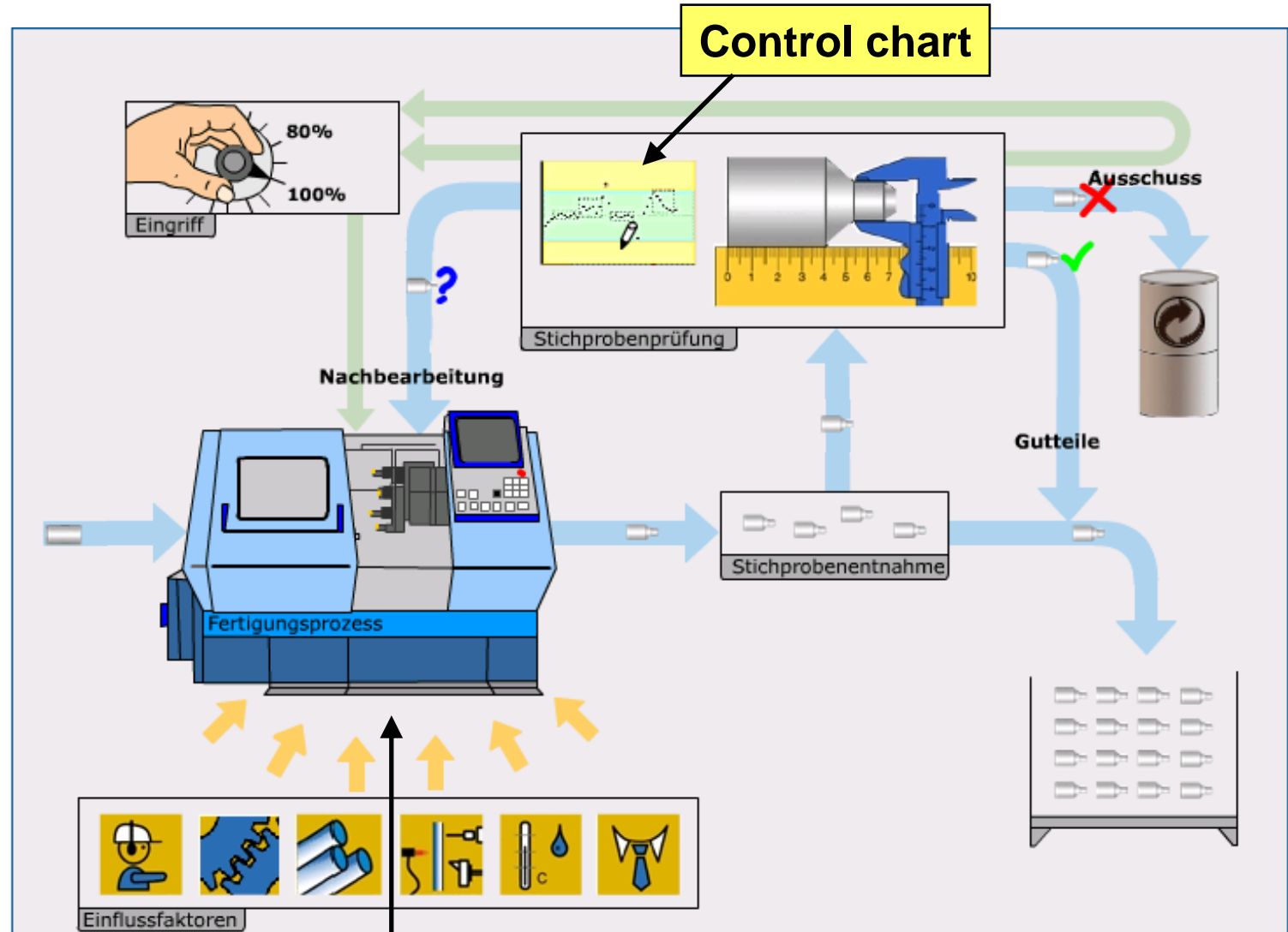
**Quality control chart:** A Quality control chart represents a sequential statistic test, which points out whether a taken sample from a ongoing production lies within calculated stochastic margins or deviates systematically. We can use Quality rule maps for handling processes.

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# Statistical Process Control



Minimum 6 influencing factors: Man, machine, material, method, environment, management



# Quality Planning

## **Product Planning with Quality Function Deployment (QFD):**

Constant planning method for the customer-oriented adjustment of all considerations, decisions and definitions in all phases of the production (was developed in Japan in the middle of the 70's). QFD helps the systematic collection and structured conversion of the customer's requests to technical characteristics.

**House of Quality:** The „House of Quality“ (HoQ) serves to document the single steps of Quality Function deployment (QFD) from the product conception to the process and inspection planning.

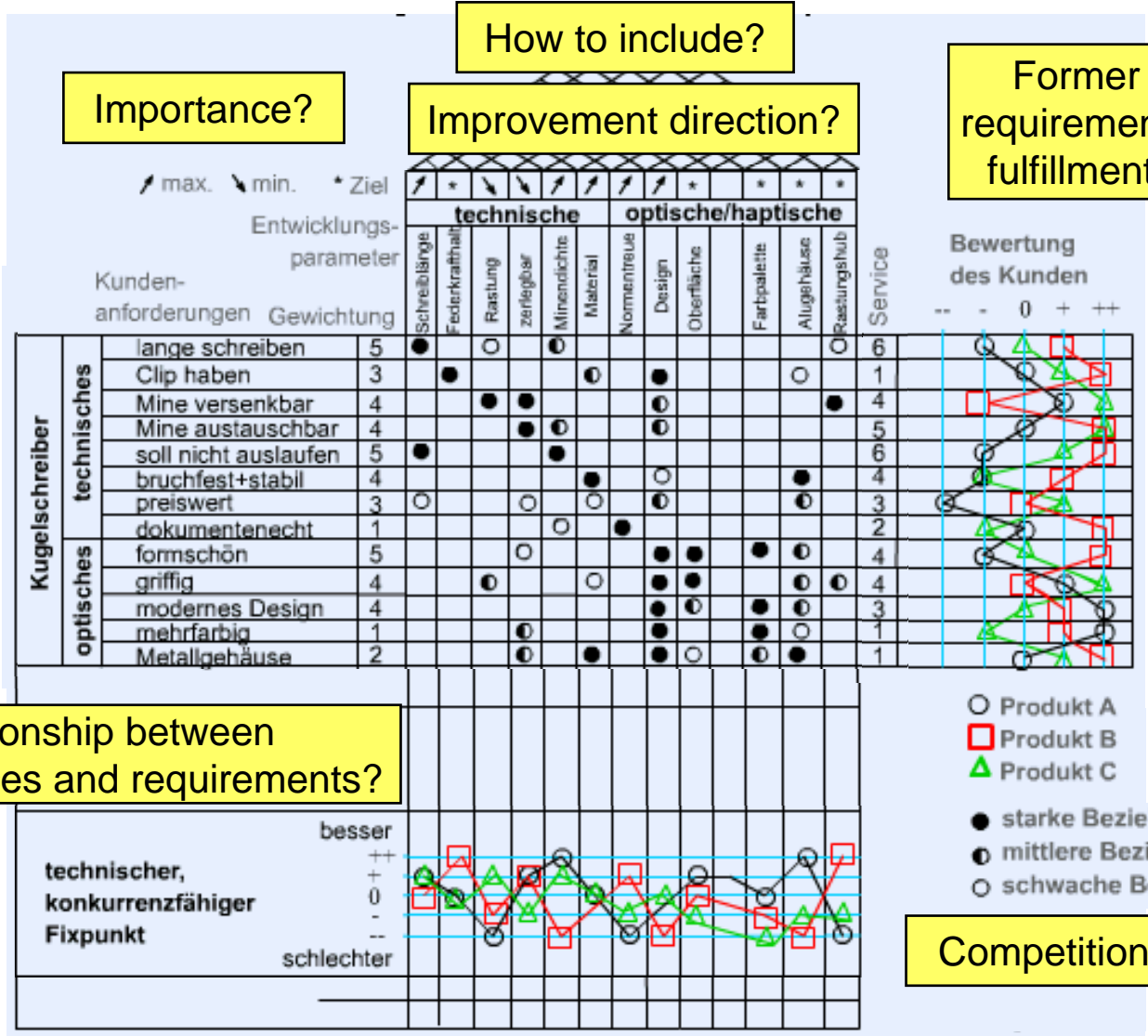
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# Example for Quality Planning: House of Quality

What does the customer wants?



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# Literature / Internet

- <http://www.q-s.info/index.php?id=92&L=1>
- <http://www.qualityfood.be/en/pages/framen.htm>
- <http://www.iso.ch>
- <http://www.eurepgap.org>
- <http://www.kompaktnet.de>
- <http://www.rueckverfolgbarkeit.de>
- <http://www.verbraucherministerium.de>
- [http://ec.europa.eu/food/index\\_en.htm](http://ec.europa.eu/food/index_en.htm)
- <http://www.ean.de>
- <http://www.food-care.info>
- <http://www.fao.org/agris/aos>
- <http://europa.eu/scadplus/leg/en/lvb/l33034.htm>
- [www.gqs-bw.de](http://www.gqs-bw.de)
- u.a.

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# Questions ?

Thanks for your attention

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