Freie Universität Berlin

• Food Hygiene

1. INTRODUCTION

State: February 12, 2004

• 1.1 Definition of VETERINARY PUBLIC HEALTH (VPH)

- World Health Organisation (WHO), 1999: "Future Trends in Veterinary Public Health", Conference, Teramo, Italy

" The contributions to the physical, mental and social well being of humans through an understanding and application of veterinary science"

- WHO Constitution, 1975

" a component of public health activities devoted to the application of professional skills, knowledge and resources to the protection and improvement of human health"

- WHO, 2000. „Health for all in the 20st century", WHO, Geneva

" Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"

- discussion / conclusion
- The definition of the term "health" needs discussion because of its extremely high demand ("Completely will-being") which is probably unrealistic

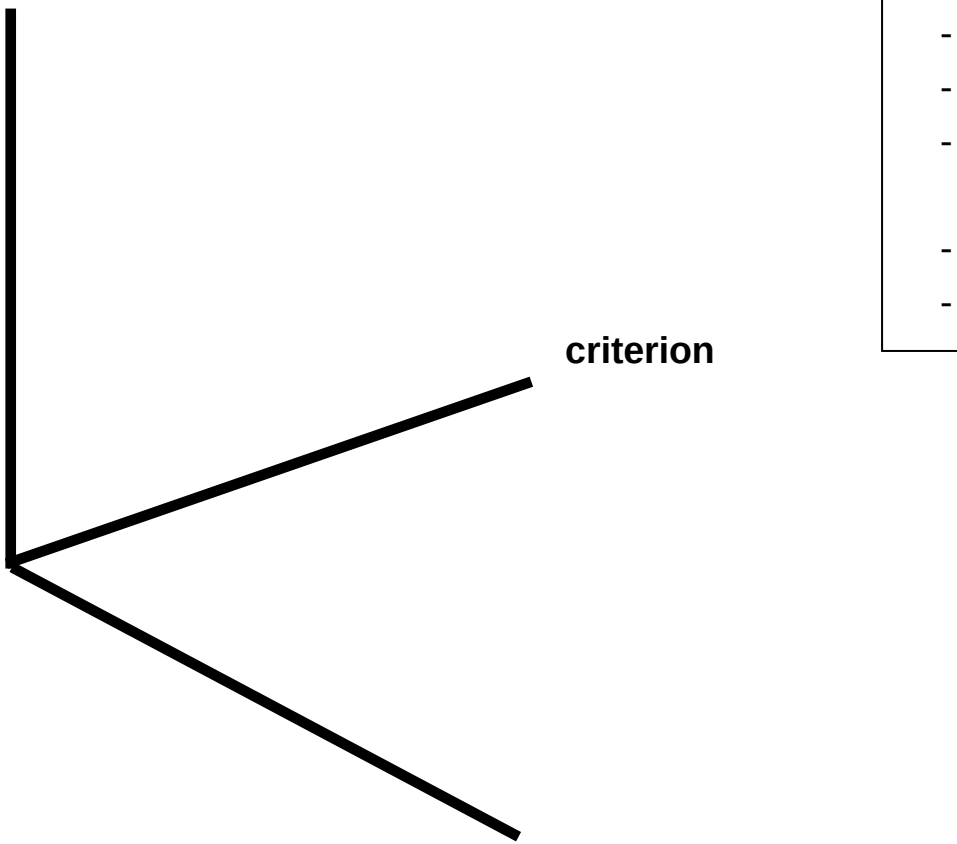
• 1.2 Three-dimensional System of Coordinates for Characterising the Subjects of Veterinary Public Health

- **1st Dimension: raw material / matrix**
  - **farm mammals**
  - **poultry**
  - **game**
  - **fishes**
  - **crustaceans, mussels,snails**
  - **milk**
  - **eggs**
  - **honey**
  - **water**
  - **plants**

- **2nd Dimension: position in the food chain**
  - **keeping and feeding**
  - **transport of living animals**
  - **harvesting, slaughtering and dissection**
  - **processing**
  - **distribution, storage, selling**
  - **preparation, consumption**

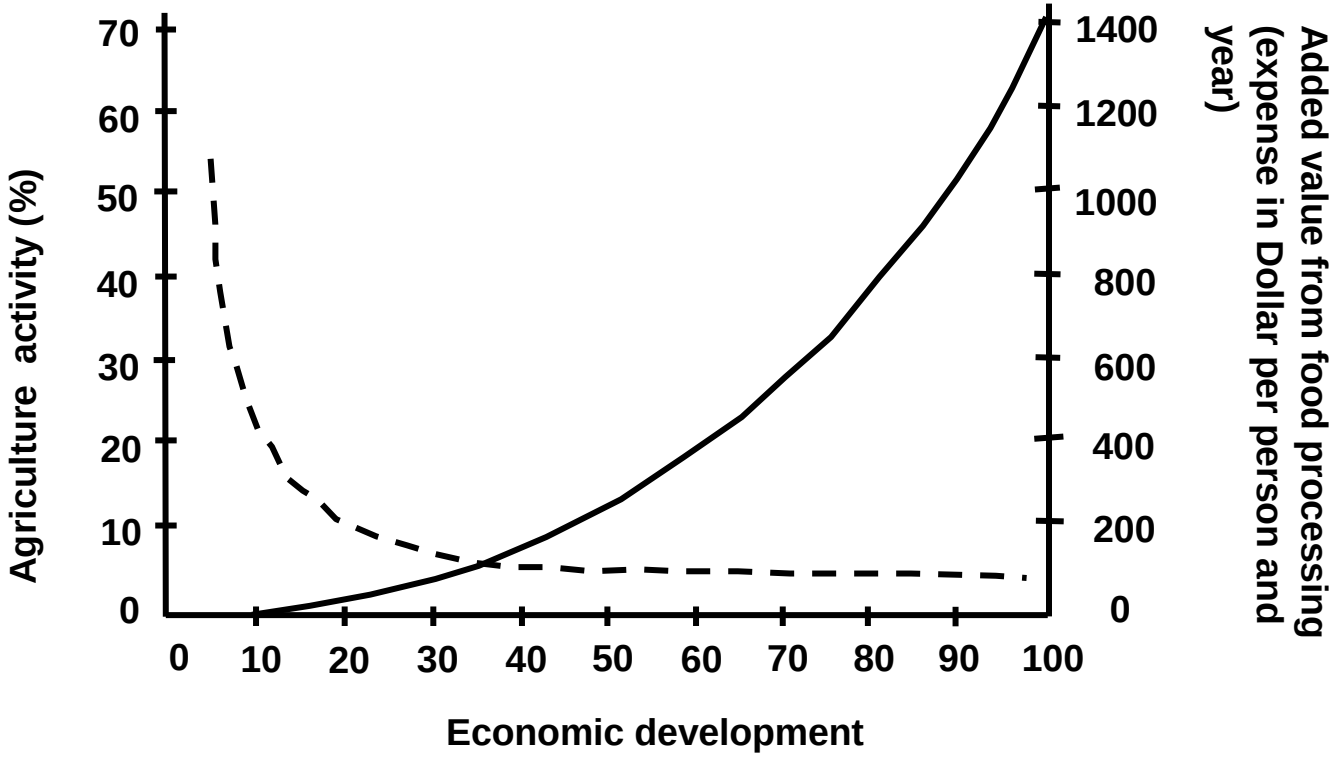
- **3rd Dimension: Criterion**
  - **nutritional value**
  - **sensory value**
  - **fitness for use**
  - **dietetic and functional value**
  - **socioethic value, animal welfare**
  - **hygiene profile of food / enterprises**
  - **health hazard**
    - **toxic residues and contaminants**
    - **bio toxins**
    - **pathogenic organisms (parasites, bacteria, viruses, prions)**

- For every subject - characterised by its place in the 3 - dimensional system - problem solving covers the following steps:
  - anamnesis, formulation of the question
  - activation of relevant scientific knowledge
  - analytical design (sampling plan, methods)
  - scientific interpretation of the results and discussion
  - judgement concerning foodlaw
  - conclusions, measures



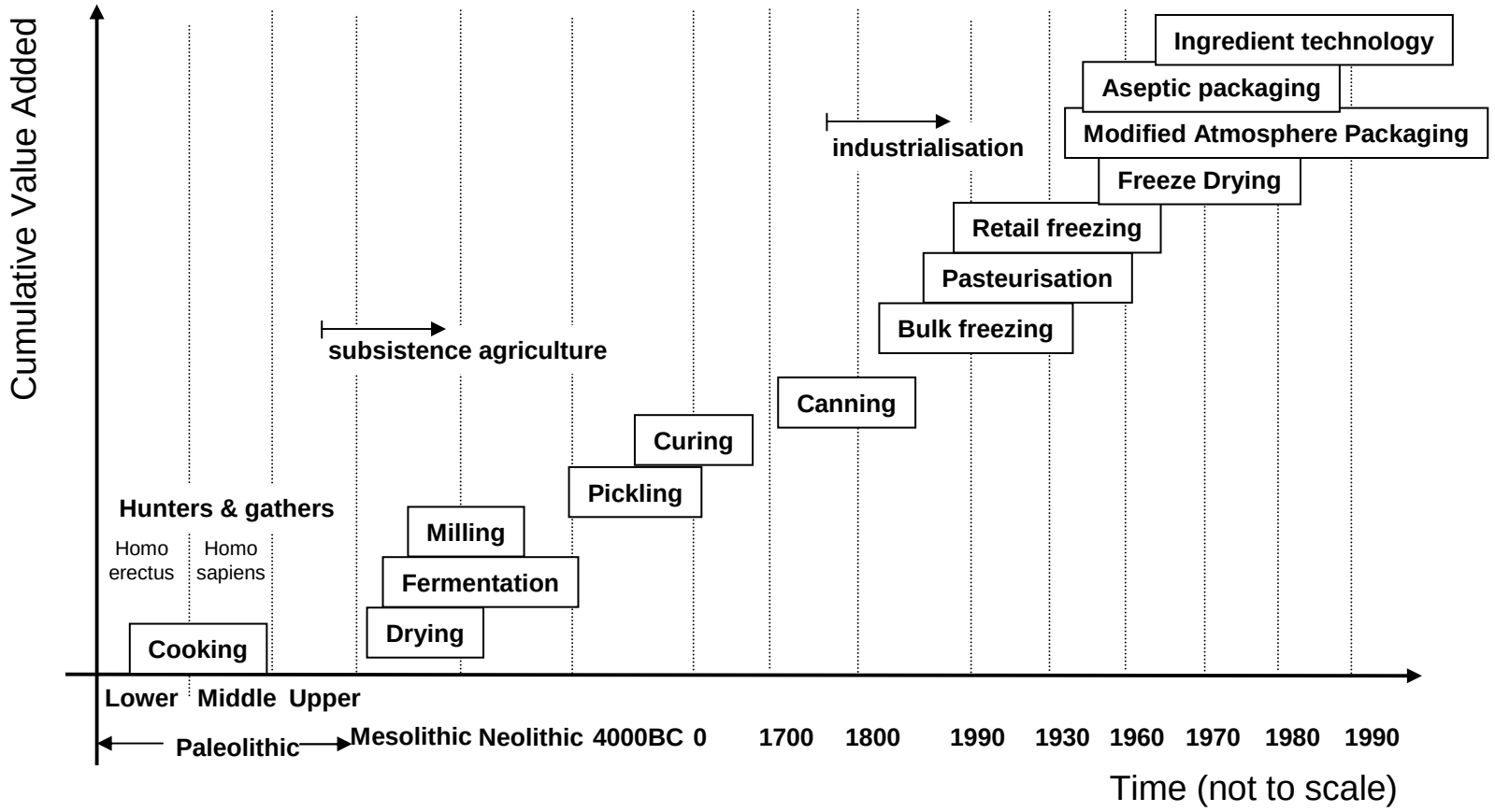
e.g.
matrix : trout
criterion : C. botulinum E
position : hot smoking

- **1.3 Relations between agricultural activity, economic development and processing profit**



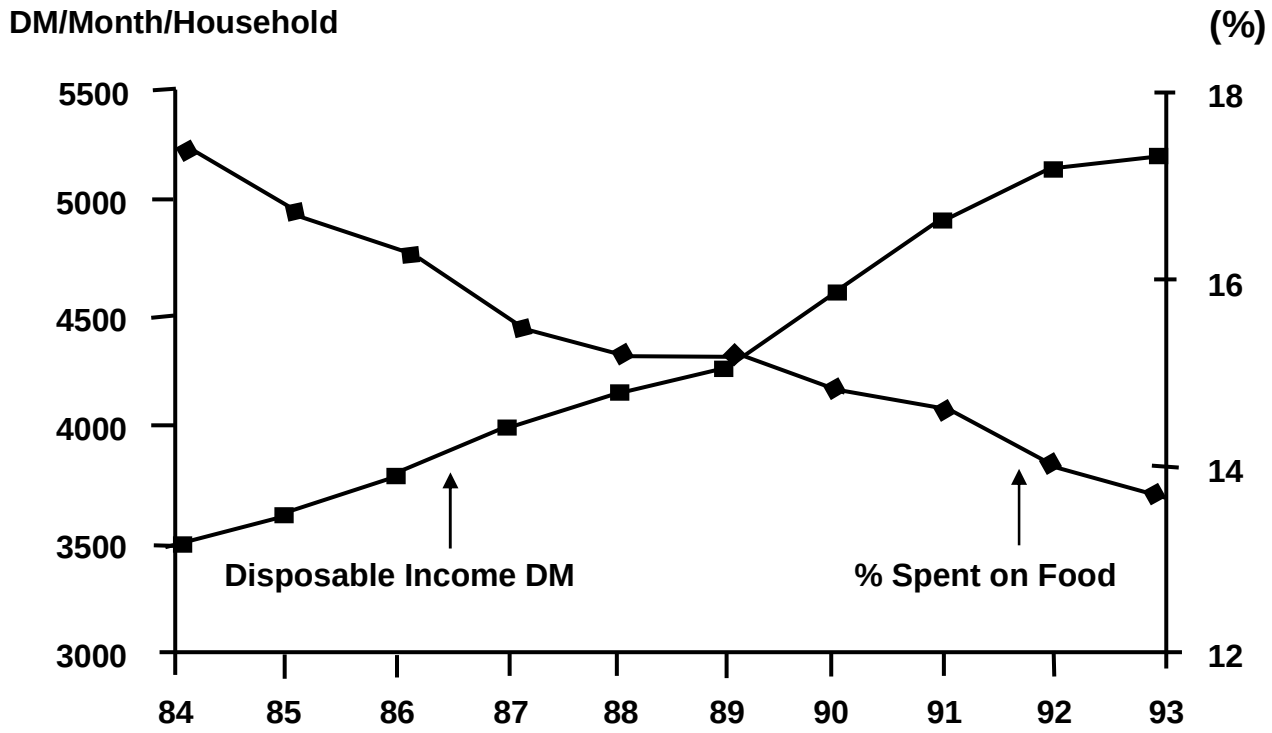
- discussion / conclusion
- To earn money the veterinarian food hygienist must be engaged in the post harvest food chain too.

• 1.4 Value Added of Food Processing Technology



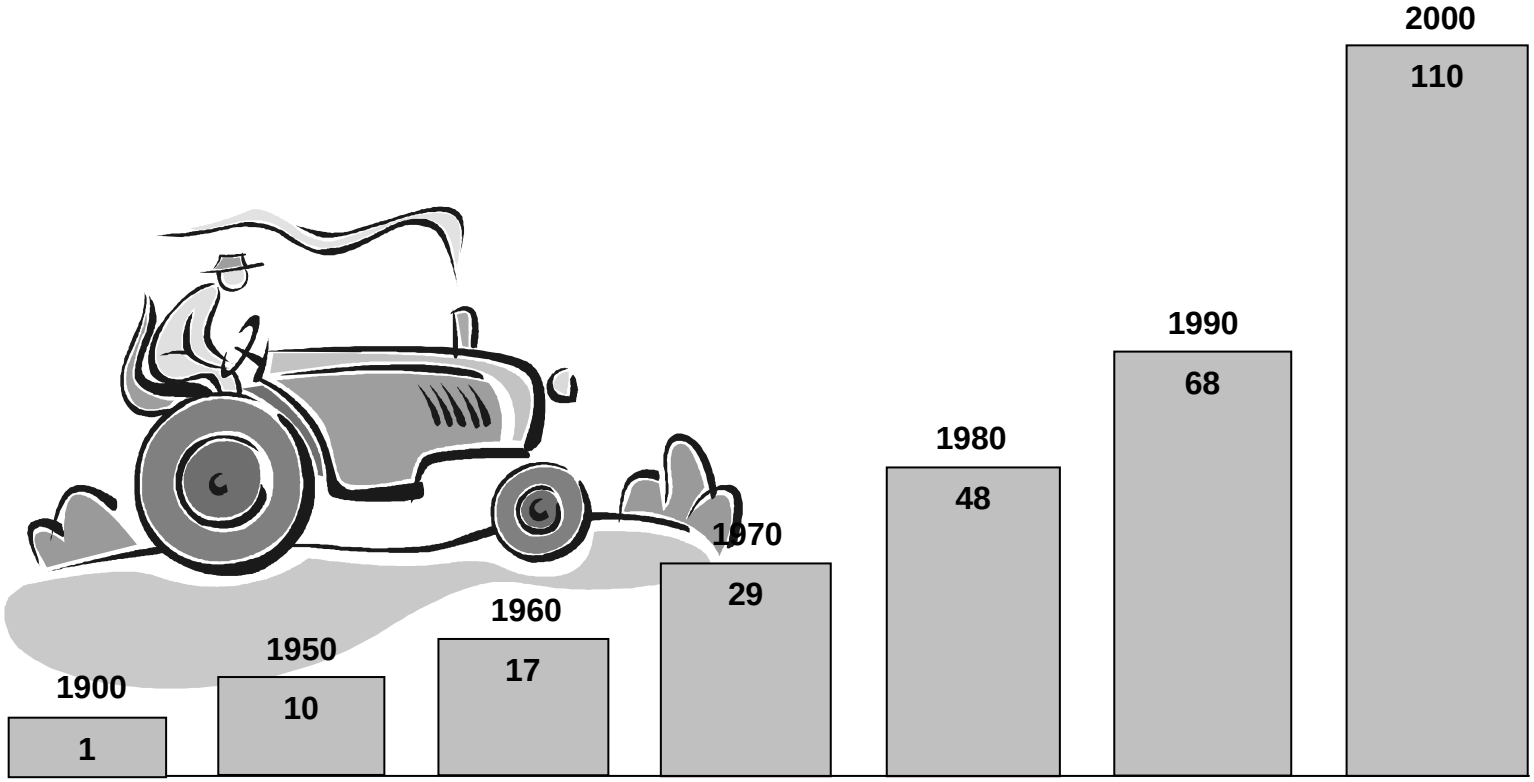
• discussion / conclusion	• deepening of fig. 1.3

• 1.5 West German Food Expenditures



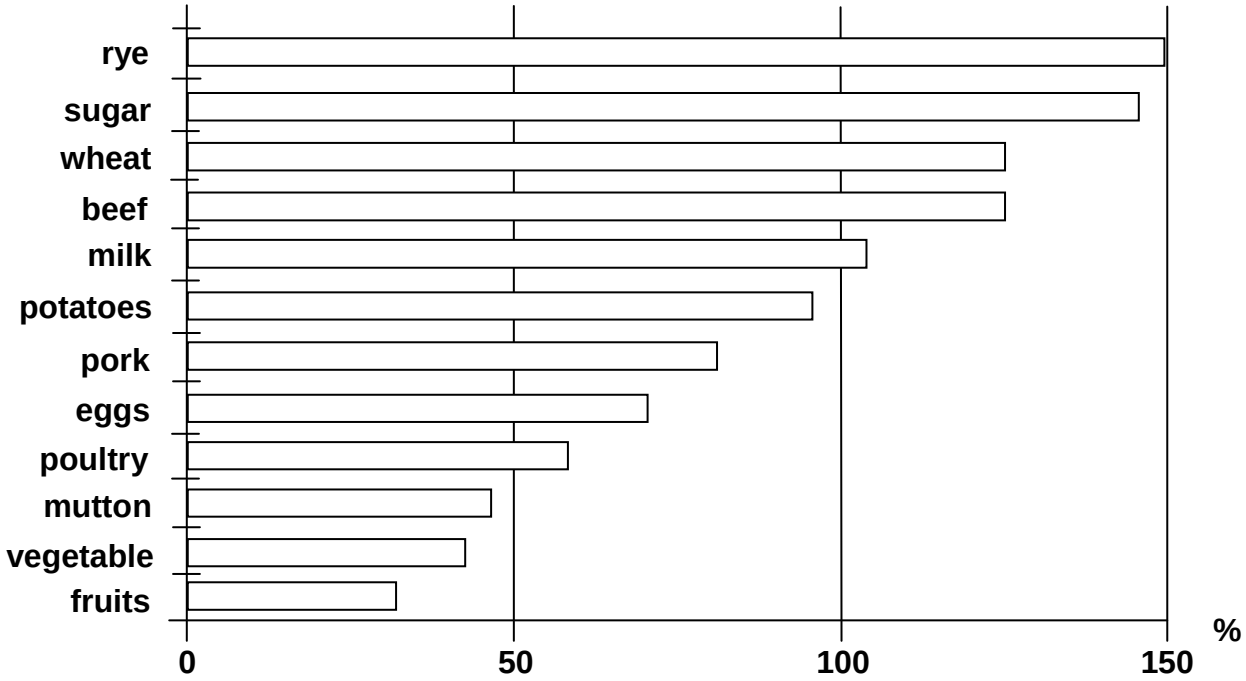
- discussion / conclusion
- With growing income the European Consumer spends (absolutely and relatively) less money to gain food. (On the other hand his demand for food safety increases.)

• 1.6 One German farmer maintains x persons



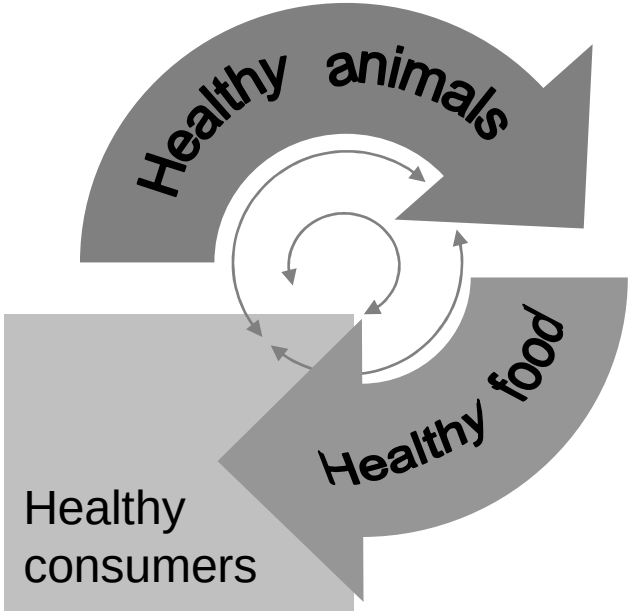
- discussion / conclusion
- additional information to fig. 1.3 : In developed countries like Germany the low agricultural activity is compensated by a high agricultural effectiveness (compare 1.6)

• 1.7 Rate of self-supply with agrarian products in Germany



- **discussion / conclusion**
- **additional information to fig. 1.3**
  Despite of a low agricultural activity developed nations show a high rate of self-supply with agrarian products. The food producers do not have difficulties with providing enough food but with selling the food in a limited market. The consumer wants cheap and safe food of high quality.

• 1.8 Veterinary Public Health and Food Safety



Longitudinally integrated quality management

- **from the stable to the table**
- **from pork to fork**
- **from fish to dish**
- **from conception to consumption**

- discussion / conclusion
- Holy Trinity
  - healthy animal
  - healthy food
  - healthy consumers
- But who trusts this message outside the community of scientists ?
- To promote the message the VPH-Specialist must speak
  - unisono
  - authentic
  - respecting contra - arguments
  - simple

• 1.9 Ranking of nutritional risks in the eyes of ...

Consumers	Scientists
- chemical residues and contaminants	*- nutritional behaviour*
- additives	*- pathogenic microorganisms*
- nutritional behaviour	*- biotoxins*
- pathogenic micro-organisms	*- chemical residues and contaminants*
	- additives

- **discussion / conclusion**
- **Ratio chemical risks: microbiological risks ≈ 1 : 40**

  → **one of the fundamental tasks in risk communication by VPH-specialists is to enlighten the ratio of risks.**

• Food Hygiene

40. HACCP: QUALITY MANAGEMENT (QM)

State: February 14, 2006

• 40.1 Introduction

40.1.1 General

The ISO 9000 family of standards listed below has been developed to assist organisations, of all types and sizes, to implement and operate effective quality management systems.

In the year 2005 the Technical Committee ISO/TC 34 the International Standard ISO 22000: 2005 (E) called “Food safety management systems – Requirements for any organization in the food chain”. Detailed informations are given in MSC 47.

• 40.1.2 Quality management principles

To lead and operate an organization successfully, it is necessary to direct and control it in a systematic and transparent manner. Success can result from implementing and maintaining a management system that is designed to continually improve performance while addressing the needs of all interested parties. Managing an organization encompasses quality management amongst other management disciplines.

Eight quality management principles have been identified that can be used by top management in order to lead the organization towards improved performance.

• 40.2 Scope

This International Standard describes fundamentals of quality management systems, which form the subject of the ISO 9000 family, and defines related terms.

This International Standard is applicable to the following:

a) organisations seeking advantage through the implementation of a quality management system;

b) organisations seeking confidence from their suppliers that their product requirements will be satisfied;

c) user of the products;

d) those concerned with mutual understanding of the terminology;

e) those international or external to the organisation who assess the quality management system or audit it for conformity with the requirements of ISO 9001;

f) those international or external to the organisation who give advice or training on the quality management system appropriate to that organisation;

g) developers of related standards.

• 40.3 Fundamentals of quality management systems

40.3.1 Rationale for quality management systems

Quality management systems can assist organisations in enhancing customers satisfaction ...

• 40.3.2 Requirement

Need or expectation that is stated, generally implied or obligatory

NOTES 1 "Generally implied" means that it is custom or common practice for the organisation, its customers and other interested parties, that the need or expectation under consideration is implied.

NOTES 2 A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

NOTES 3 A specified requirement is one which is stated, for example, in a document .

NOTES 4 Requirements can be generated by different interested parties.

• 40.3.3 Requirements for quality management systems and requirements for products

The ISO 9000 family distinguishes between requirements for quality management systems and requirements for products (product = result of a process; process = set of interrelated or interacting activities which transforms inputs into outputs).

- Requirements for quality management systems are specified in ISO 9001.
  Requirements for quality management systems are generic and applicable to organisations in any industry or economic sector regardless of the offered product category. ISO 9001 itself does not establish requirements for products.

- (Requirements for products can be specified by customers or by the organisation in anticipation of customer requirements, or by regulation.
  The requirements for products and in some cases associated processes can be contained in, for example, technical specifications, product standards, process standards, contractual agreements and regulatory requirements).

- discussion / conclusion
- discuss the philosophy behind “requirements for QM”
  No quality by random: The best way to fulfill requirements for a product is the process-based quality management instead of inspection of the final product as done in former times. “Quality originates from the process!”

- **40.4. Terms relating to quality**

- **40.4.1 QUALITY**

degree to which a set of inherent characteristics fulfills requirements.

- **Note 1** **Characteristic means distinguishing feature**

- **Note 2** **"Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic.**

- **Note 3** **In many instances needs can change with time; this implies periodic revision of specifications.**

- **Note 4** **Characteristics may include aspects of usability, safety, availability, reliability, maintainability, economics and environment.**

- **Note 5** **Quality characteristic means inherent characteristic of a product or system related to a requirement.**

  A characteristic assigned to a product, process or system (e.g. the price of a product, the owner of a product) is not a quality characteristic of that product, process or system.

- **Note 6** The term “quality” is not used to express a degree of excellence in a comparative sense nor is it used in a quantitative sense for technical evaluations. In these ousted cases a qualifying adjective shall be used. For example, use can be made of the following terms:

  a) “relative quality” where products or services are ranked on a relative basis in the “degree of excellence” or “comparative” sense;

  b) “quality level” and “quality measure” where precise technical evaluations are carried out in a “quantitative sense”;

  c) In the terminology of ISO 9001 - 2000 “quality in a comparative sense” is called “grade” with the following definition:

grade:	category or rank given to different quality requirements for products, processes or systems having the same functional use
EXAMPLE:	Class of airline ticket and category of hotel in a hotel guide.
NOTE:	**When establishing a quality requirement, the grade is generally specified.**

  d) “capability” means the ability of an organisation, system or process to realise a product that will fulfil the requirements for that product

• 40.4.2 Nonconformity

The nonfulfilment of requirements (conformity = fulfilment of requirements)

NOTE A The definition covers the departure or absence of one or more quality characteristics or quality system elements from requirements.

NOTE B Nonconformances may cause hazardous or unsafe situations (= critical nonconformance) or injure utility severely (= major nonconformance) ore injure utility modestly (= minor nonconformance)

• 40.4.3 Defect

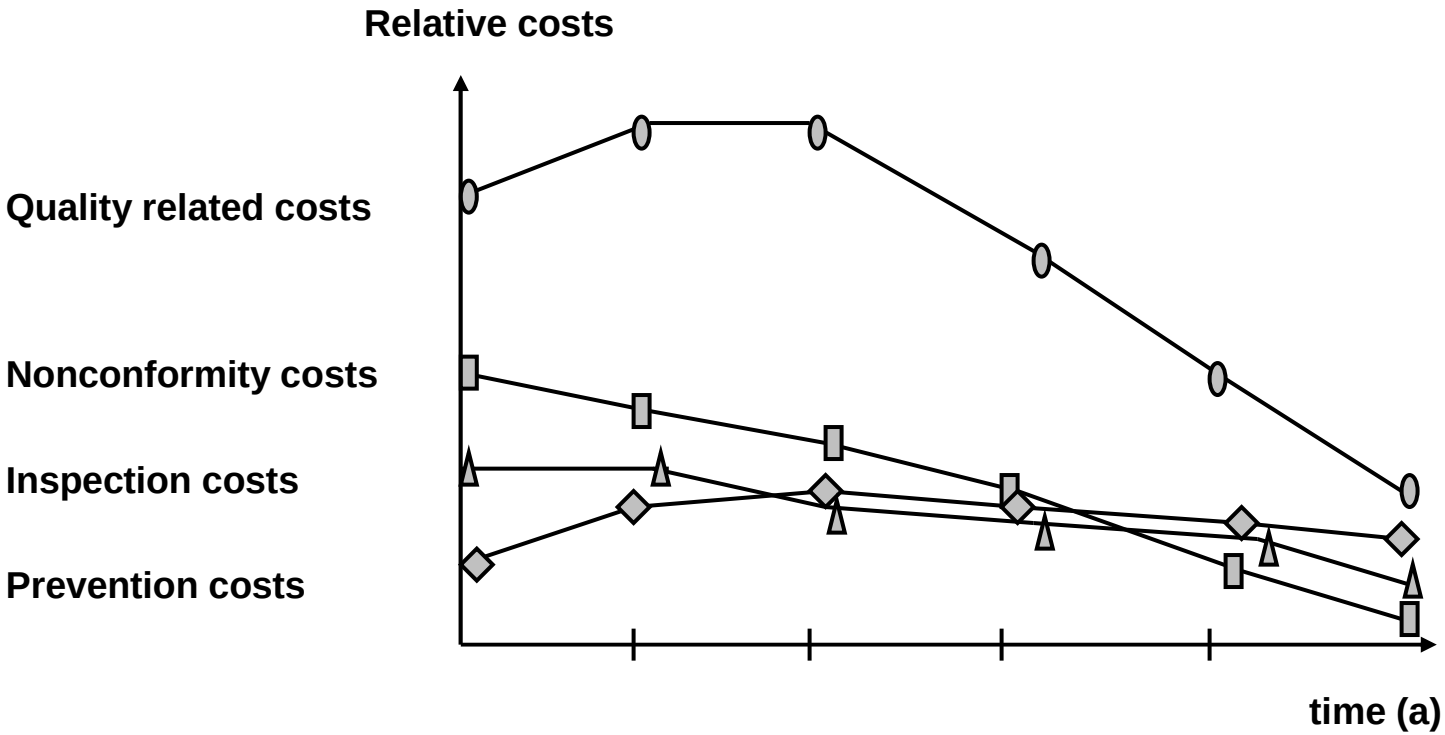
Nonfulfilment of a requirement related to an intended or specified to an intended or specified use

NOTE The basic difference between "nonconformity" and "defect" is that specified requirements may differ from the requirements for the intended use. The distinction between the concepts defect and nonconformity is important as it has legal connotations, particularly those associated with product liability issues. Consequently the term "defect" should be used with extreme caution.

- discussion / conclusion
- In contrary to the popular language - where quality means "good quality" (= degree of excellence or quality level) - the term "quality" in the sense of QM does not depend on the quality level. To surpass documented requirements means "bad" or "faulty" quality (nonconformity) just as to fall below.

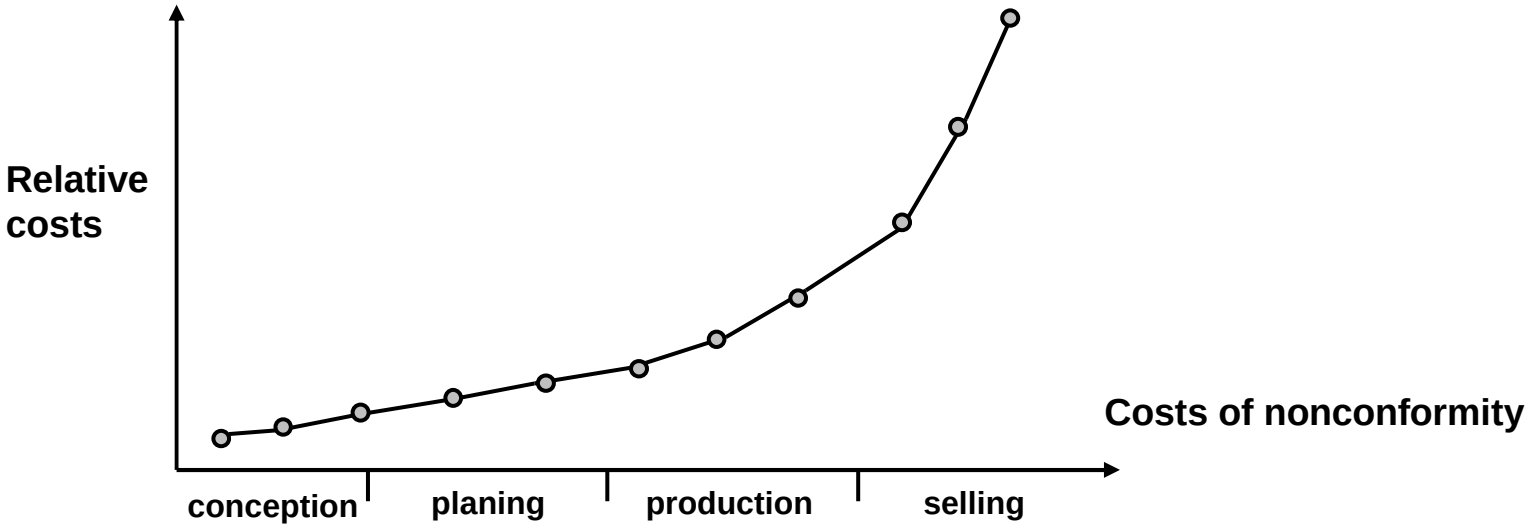
- **40.4.4 Quality relating costs**

- **40.4.4.1 <u>Trend of quality related costs (QRC)</u>**
  QRC = Nonconformity costs + Inspection costs + Prevention costs



(Nöhle 1994)

• 40.4.4.2 Ten-folding-rule for costs of nonconformity



<u>Cost of action</u>:

Official recall-campaign:	**5.000.000,- EUR**
Internal recall-action:	**500.000,- EUR**
Compensation for consumers:	**50.000,- EUR**
Repair / rework:	**5.000,- EUR**
Receipt quality control:	**500,- EUR**
Adaptation of the specifications of the supplied material:	**50,- EUR**
Implementing QMS at the supplier:	**-,- EUR**

• 40.4.5 Specification

The document that prescribes the requirements with which the product or service has to conform.

• 40.4.6 Terms relating to Management

• 40.4.6.1 Quality management

Coordinated activities to direct and control an organisation regard to quality.

A quality management systems direct and controls an organisation with regard to quality

40.4.6.2 Quality objective

something sought, or aimed for, related to quality

40.4.6.3 Quality policy

overall intentions and direction of an organisation with regard to quality

40.4.6.4 Quality planning

part of quality management focused on setting quality objectives and specifying necessary operational processes and related resources to fulfil the quality objectives

NOTE Establishing quality plans can be part of quality planning.

40.4.6.5 Quality control

part of quality management focused on fulfilling quality requirements.

40.4.6.6 Quality assurance

part of quality management focused on providing confidence that quality requirements will be fulfilled.

40.4.6.7 Quality improvement

part of quality management focused on increasing the ability to fulfil quality requirements

NOTE The requirements can be related to any aspect such as effectiveness efficiency or traceability.

• 40.4.7 Terms relating to examination

40.4.7.1 Inspection

conformity evaluation by observation and judgement accompanied as appropriate by measurement, testing or ganging

40.4.7.2 Test

determination of one or more characteristics according to a procedure

40.4.7.3 Verification

confirmation, trough the provision of objective evidence that specified requirements have been fulfilled

40.4.7.4 Validation

confirmation, through the provision of objective evidence that the requirements for a specific intended use or application have been fulfilled

40.4.7.5 Qualification process

process to demonstrate the ability to fulfil specified requirements

40.4.7.6 Review

activity undertaken to determine the suitability, adequacy and effectiveness of the subject matter to achieve established objectives

• 40.4.8 Terms relating to actions in case of nonconformity

(= nonfulfilment of requirements)

40.4.8.1 Preventive action

action to eliminate the cause of a potential nonconformity or other undesirable potential situation

40.4.8.2 Corrective action

action to eliminate the cause of a detected nonconformity or other undesirable situation

NOTE Corrective action is taken to prevent recurrence where as preventive action is taken to prevent occurrence

40.4.8.3 Correction

action to eliminate a detected nonconformity

NOTE a) A correction can be made in conjunction with a corrective action

NOTE b) A correction can be, for example, rework or regrade.

40.4.8.4 Rework

action on a nonconforming product to make it conform to the requirements

40.4.8.5 Regrade

alteration of the grade of a non-conforming product in order to make it conform to requirements differing from the initial ones

40.4.8.6 Repair

action on a nonconforming product to make it acceptable for the intended use

NOTE Unlike rework repair can affect or change parts of the nonconforming product

40.4.8.7 Scrap

action on a nonconforming product to preclude its originally intended use

EXAMPLE Recycling, destruction

40.4.8.8 Concession

permission to use or release a product that does nor conform to specified requirements

40.4.8.9 Deviation permit

permission to depart from the originally specified requirements of a product prior to realisation

40.4.8.10 Release

permission to proceed to the next stage of a process

• 40.4.9 Terms relating to audit

40.4.9.1 Audit

systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which audit criteria are fulfilled. Beside of the ISO 9000 family there exist some audit-orientated QM-systems like the “International Food Standard”.

40.4.9.2 Audit programme

set of one or more audits planned for a specific time frame and directed towards a specific purpose

40.4.9.3 Audit criteria

set of policies, procedures or requirements used as a reference

40.4.9.4 Audit evidence

records, statements of fact or other information which are relevant to the audit criteria and verifiable

40.4.9.5 Audit findings

result of the evaluation of the collected audit evidence against audit criteria

40.4.9.6 Audit conclusion

outcome of an audit provided by the audit team after consideration of the audit objectives and all audit findings

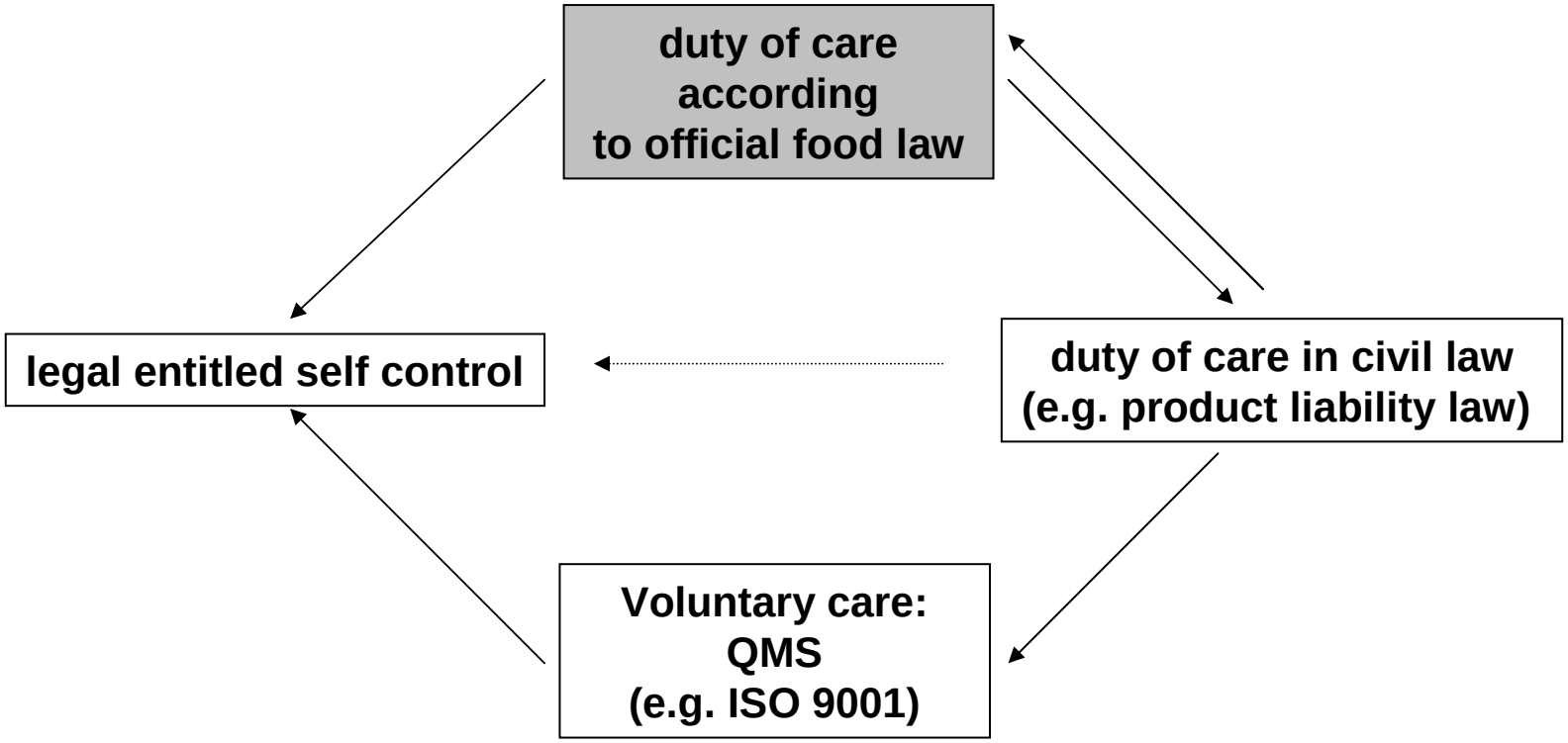
40.4.9.7 Audit client

organisation or person requesting an audit

40.4.9.8 Third-party audits

are conducted by external independent organizations. Such organizations, usually accredited, provide certification or registration of conformity with requirements such as those of ISO 9001.

• 40.4.10 Duty of care



- discussion / conclusion
- Theoretically the product specifications for quality characteristics must not cover all legal requirements.
  A sensible QMS implants legal prescribed selfcontrol into the voluntary QMS

• 40.4.11 QMS and Food safety

• 40.4.11.1 Food safety and buying power benefit

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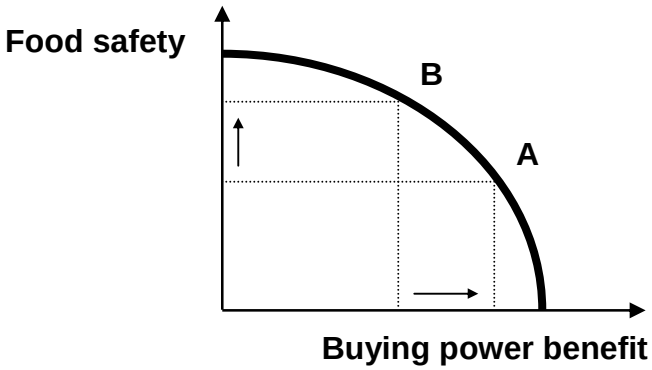

• 40.4.11.2 Food safety and using up resources

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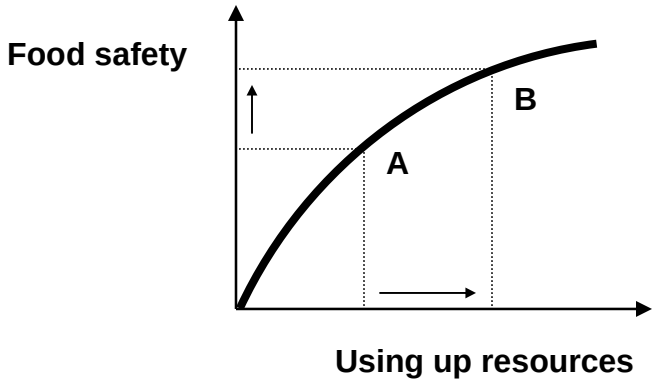

- discussion / conclusion
- Food safety as an essential quality characteristic is not free of charge

- **40.5 Certificate**

Certificate means a document containing an authoritative statement that requirements are fulfilled. Certifying organizations must be accreditated.

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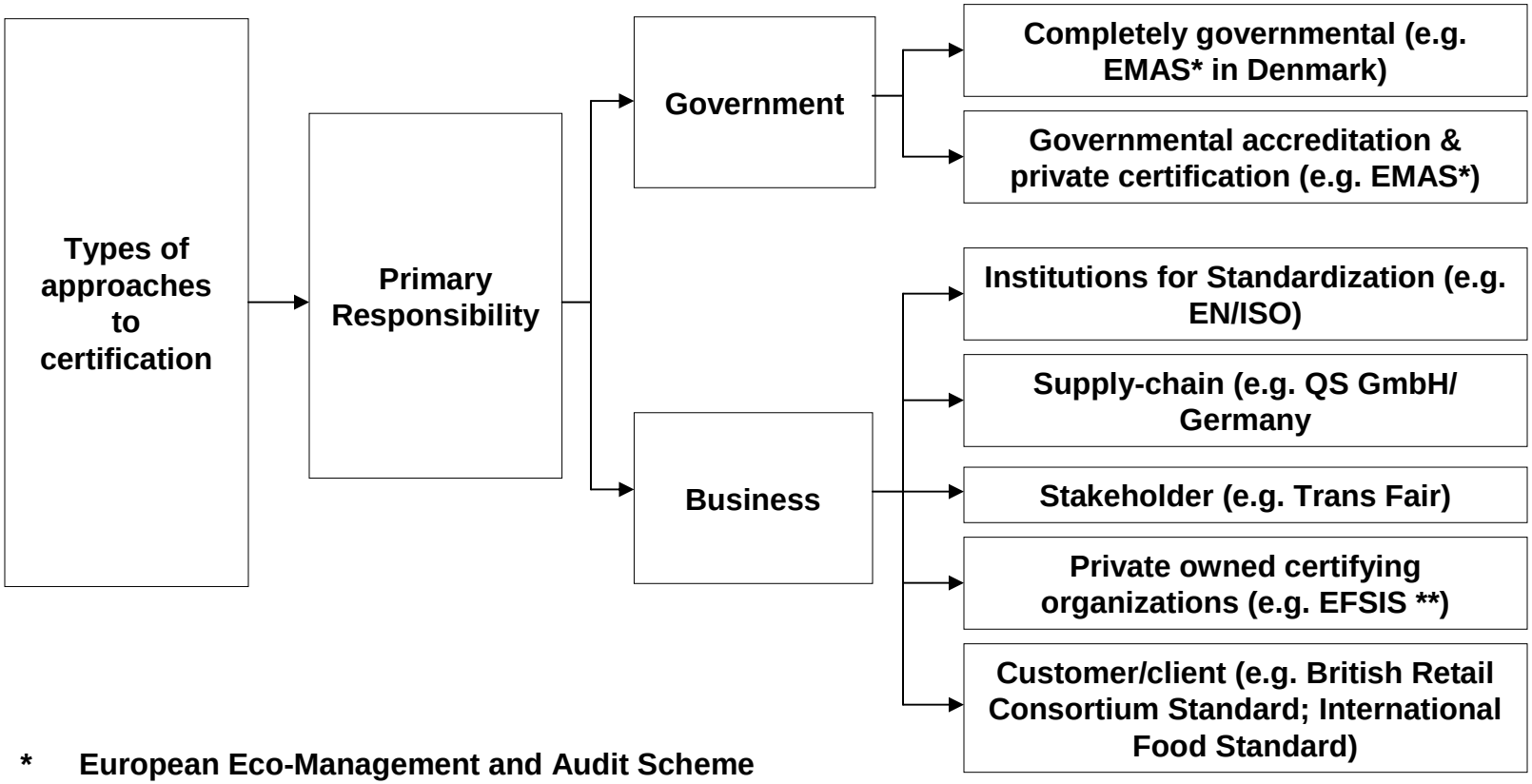

* European Eco-Management and Audit Scheme
** European Ford Safety Inspection Service