



„System Dynamics in Quality Certifications: Development of an Audit Quality Controlling System“

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international
food standard

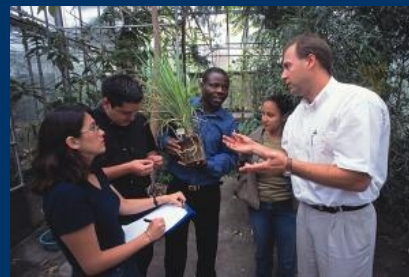
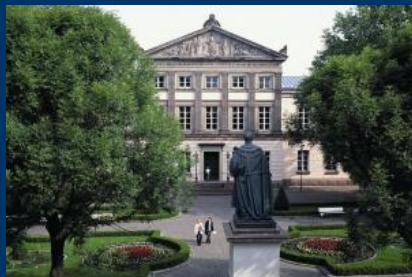


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QS – Ihr Prüfsystem
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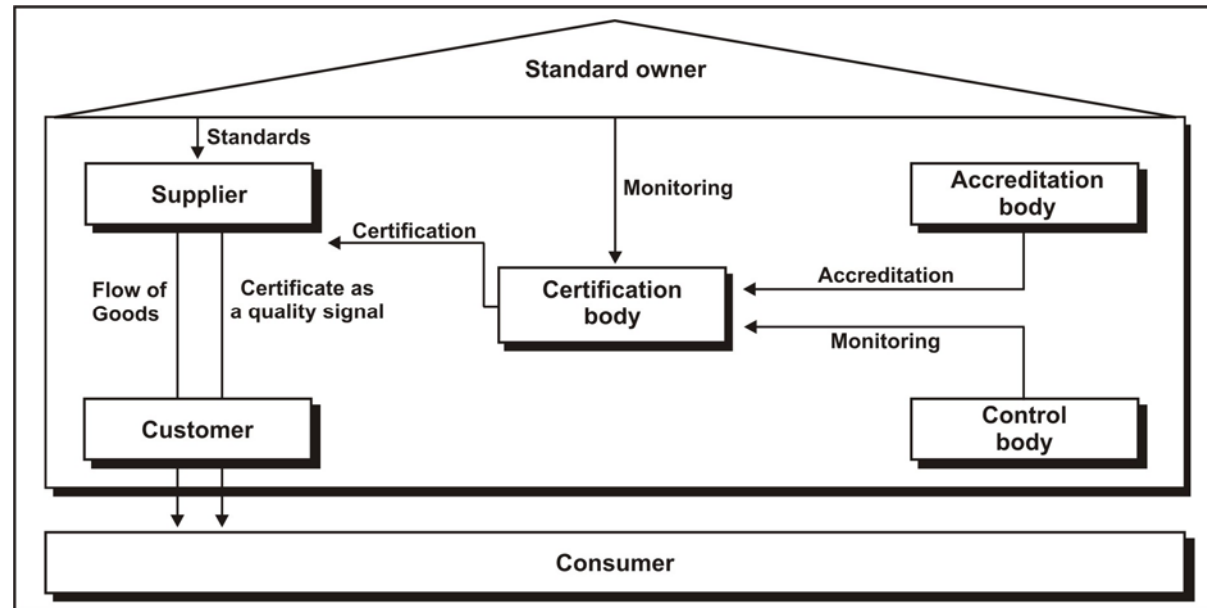
Introduction

- **Certification systems in the agribusiness sector have gained great importance**
 - **Reputation and status depend on the confidence in meeting the promises**
 - **Value is easy to doubt, if the standard is unable to come up to the expectations of consumers and business partners**
- **Worst case:** collapse of the entire system!

- **Quality assurance systems are very sensitive towards flaws and opportunistic behaviour**

- **Risk of scandals is generally high and increased by several developments**
 - rapid expansion and different products
 - stakeholder interests

- **A better understanding of the functioning of the system is needed!**



Research question

1. Are the respective certification approaches actually able to detect deficiencies within the systems?
2. Are they de facto able to prevent scandals and crises which may lead to the breakdown of the standard?

Composition of the study

- Theoretical basis: System Dynamics Approach
- Importance of System Dynamics in Certification Schemes
- Development of an Audit Quality Controlling System

System Dynamics (Forrester 1991, 1994; Sterman 1994; Ossimitz 1995)

- Systems are generally defined by the structure, characteristics and interplay among their elements

Systems thinking is “the art and science of making reliable inferences about behaviour by developing an increasingly deep understanding of underlying structure“ (Richmond 1994).

→ Concept of an improved perception and understanding of how objects in a complex (certification) system interact

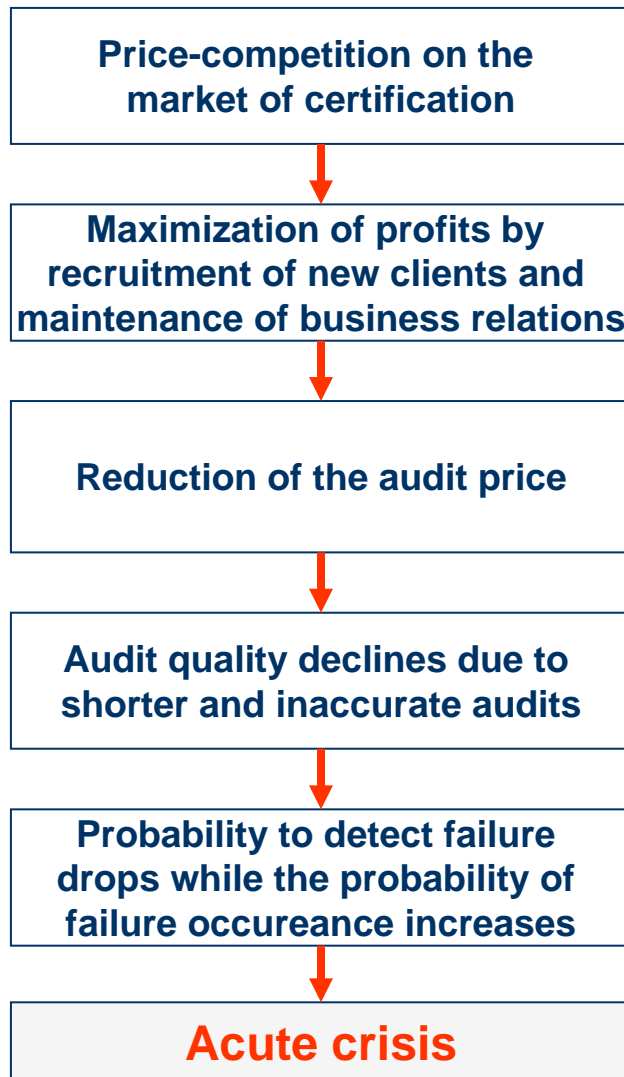
Importance of System Dynamics in Certification Schemes

Identification of interactions and feedback which will cause crisis
→ loss of reputation and credibility!

For example:

The auditor checks whether the companies have lived up to the standard requirements,
but the certifier himself has to comply with the requirements of proper certification

In reality: discrepancies in the audit results of different certification bodies and auditors (Schulze et al. 2006)

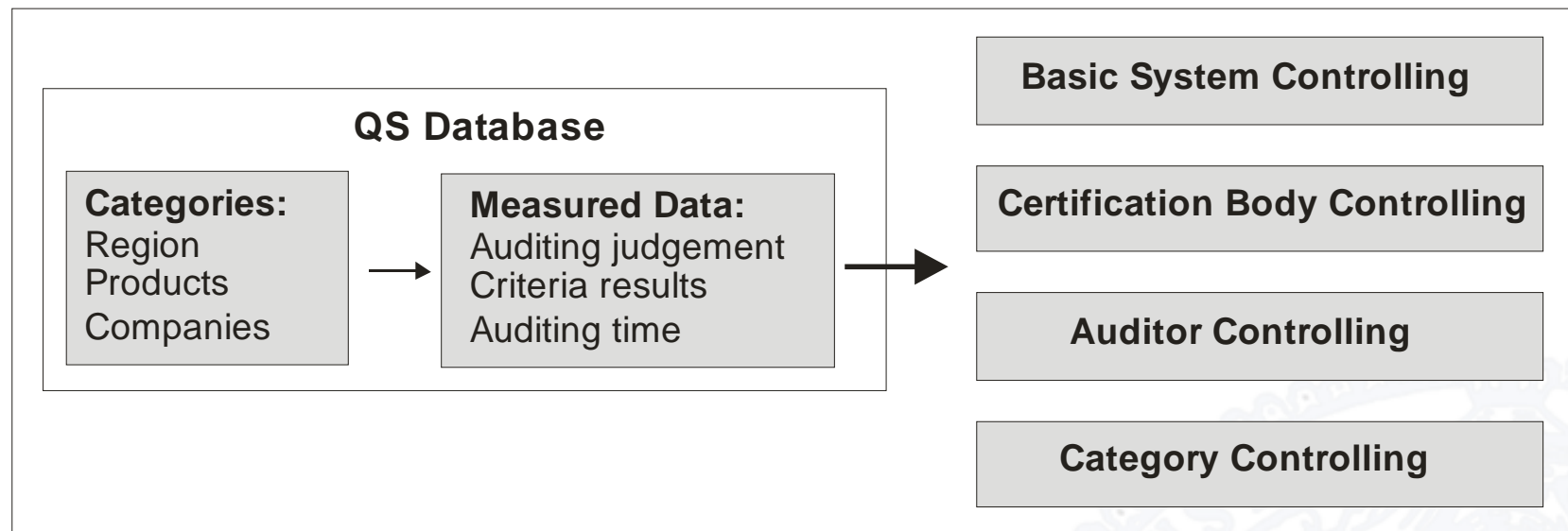


A change in one variable reinforces (positive) or balances (negative) other variables

→ Changes in the whole system

Development of an Audit Quality Controlling System

- To analyse the interactions and influencing factors the **risk oriented approach** can be used (Adams 1989; Alderman/Tabor 1989; Cushing/Loebbecke 1983; Graham 1985; Konrath 1989)
 - We applied the approach for the identification of risk factors for all elements of the system (auditor, certification body, company, standard owner)
- Risk factors can be identified by the “**Audit Quality Controlling System**”
 - analysis of the data bases of certification schemes (QS or IFS)



- **Basic System Controlling:** general information on main data (e.g. amount of audits)
- **Certification body and auditor controlling:** information on the conducted audits and audit results
- **Category Controlling:** separate analysis of different categories (region, products, production levels, etc.)

Conclusion

- **The Audit Quality Controlling System gives information about the status quo of the certification system**
 - **Based on this knowledge a dynamic improvement of the system's quality (reliability and validity) is possible.**
 - **Confidence and reputation can be strengthened**
- **The survival of the entire certification scheme will be ensured**

In reality

- Although presented to QS and IFS systemic thinking is not established in the mind of the standard owners
- Single controls by certification bodies are still predominating, only supplemented by e.g. sample audits or tests of the audit reports
- Main arguments against such new controlling tools are the higher costs which may lead to internal trade-offs and barriers to implementation.



**Thank you for
your attention!**



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Influencing factors within certification systems

