



wirtschaftsinformatik
managementinformationssysteme

introduction to management information systems

Strasbourg 2013/2014
Arbeitsgruppe Wirtschaftsinformatik
- Managementinformationssysteme -
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purpose:

classification of management information systems

- Terms:
 - Management
 - Organization
 - System
 - Organizational Structure
 - Management System
 - Management Information System



scope (I):

historical understanding of mis (I)

- Ideas of MIS in the 1960ies and early 1970ies:
 - Roots of MIS
 - Early MIS-Definitions



scope (2):

historical understanding of mis (2)

- Total Systems Approach as an early Approach of a MIS:
 - Cybernetics
 - Euphoria regarding Potentials of New Technologies
 - Overarching Computer-based Information System:
 - Not only for Information Tasks
 - But also for Supervision and Control Functions



scope (3):

historical understanding of mis (3)

- On-Line Real-Time (OLRT) System as an early Approach of a MIS:
 - Real Time Systems used by the Management for:
 - Continuous, Prompt Supervision of Active Business
 - Concentration on Exceptional Cases
 - Dialog Orientation regarding the Use of Information and Communication Systems
 - Prompt and Interactive Retrievals and Simulations in Case of Critical Situations



scope (4):

historical understanding of mis (4)

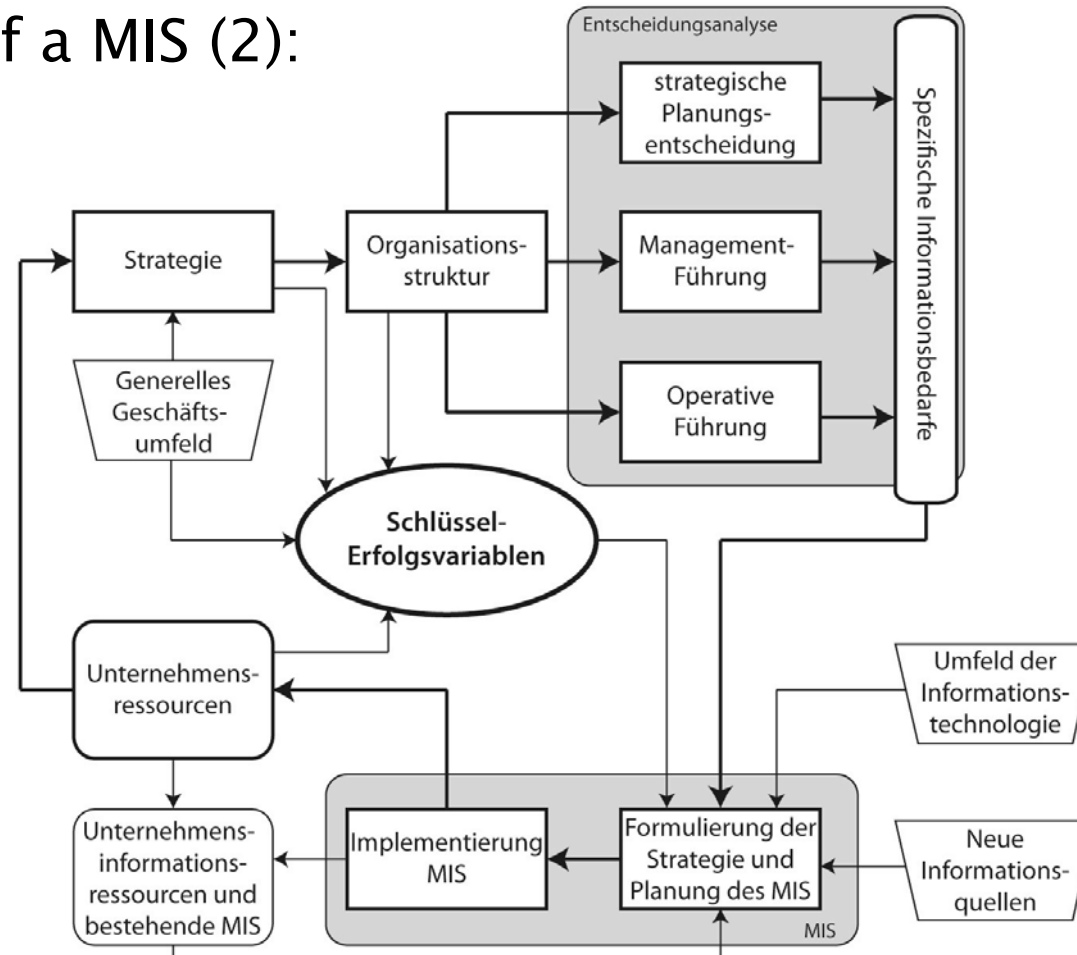
- Blue Print of MIS as an early Approach of a MIS (1):
 - Closed Loop Model
 - Specific Information Demand of Managers
 - Consideration of Parameters inside *and* outside the Organization
 - Analysis of the Decisions to be taken
 - “Top-Down” derived Key Performance Indicators



scope (5):

historical understanding of mis (5)

- Blue Print of a MIS (2):



Source: In Accordance to Zani 1970, p. 96

scope (6):

historical understanding of mis (6)

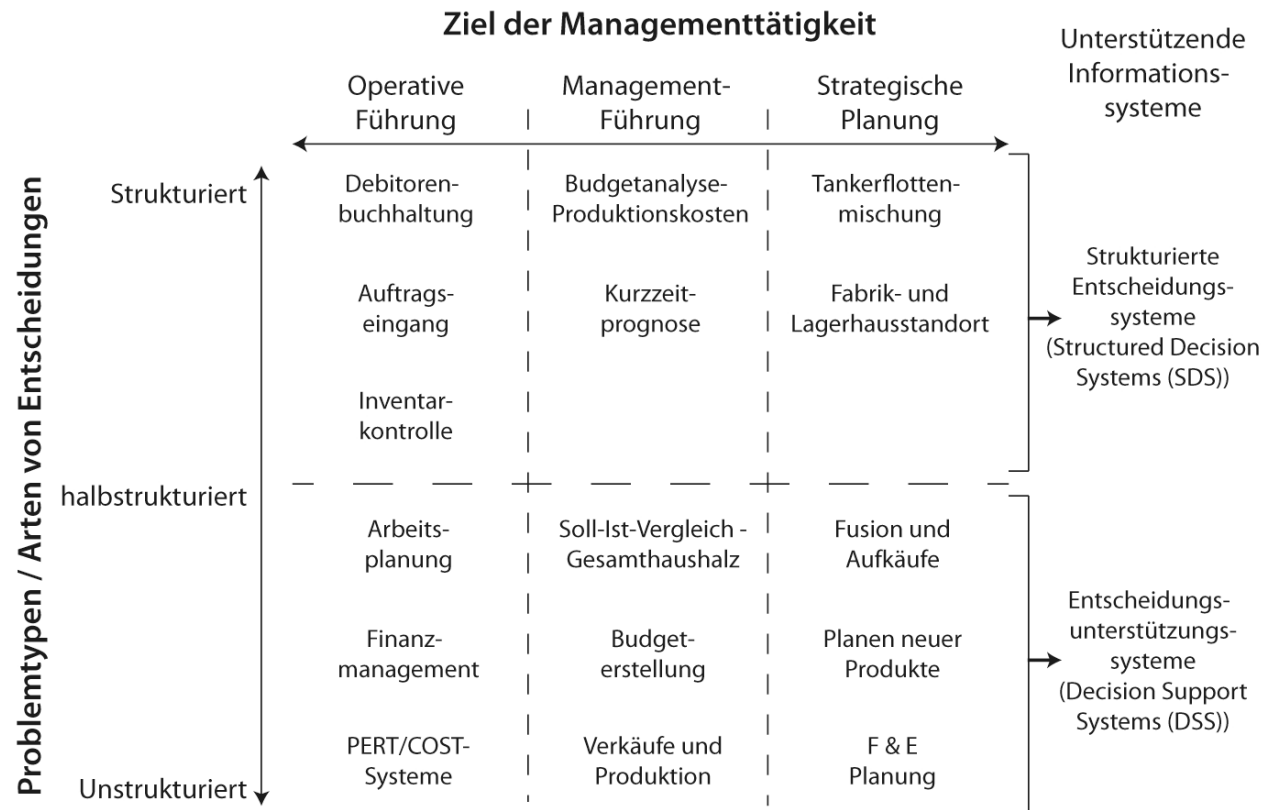
- Framework for MIS as an early Approach of a MIS (1):
 - Differentiation of Problems/Decisions in:
 - Structured
 - Semi-Structured
 - Unstructured
 - Differentiation of Management Activities in:
 - Strategic Planning
 - Management Control
 - Operational Control
 - Differentiation of ICS in:
 - Structured Decision Systems (SDS)
 - Decision Support Systems (DSS)



scope (7):

historical understanding of mis (7)

- Framework for MIS (2):



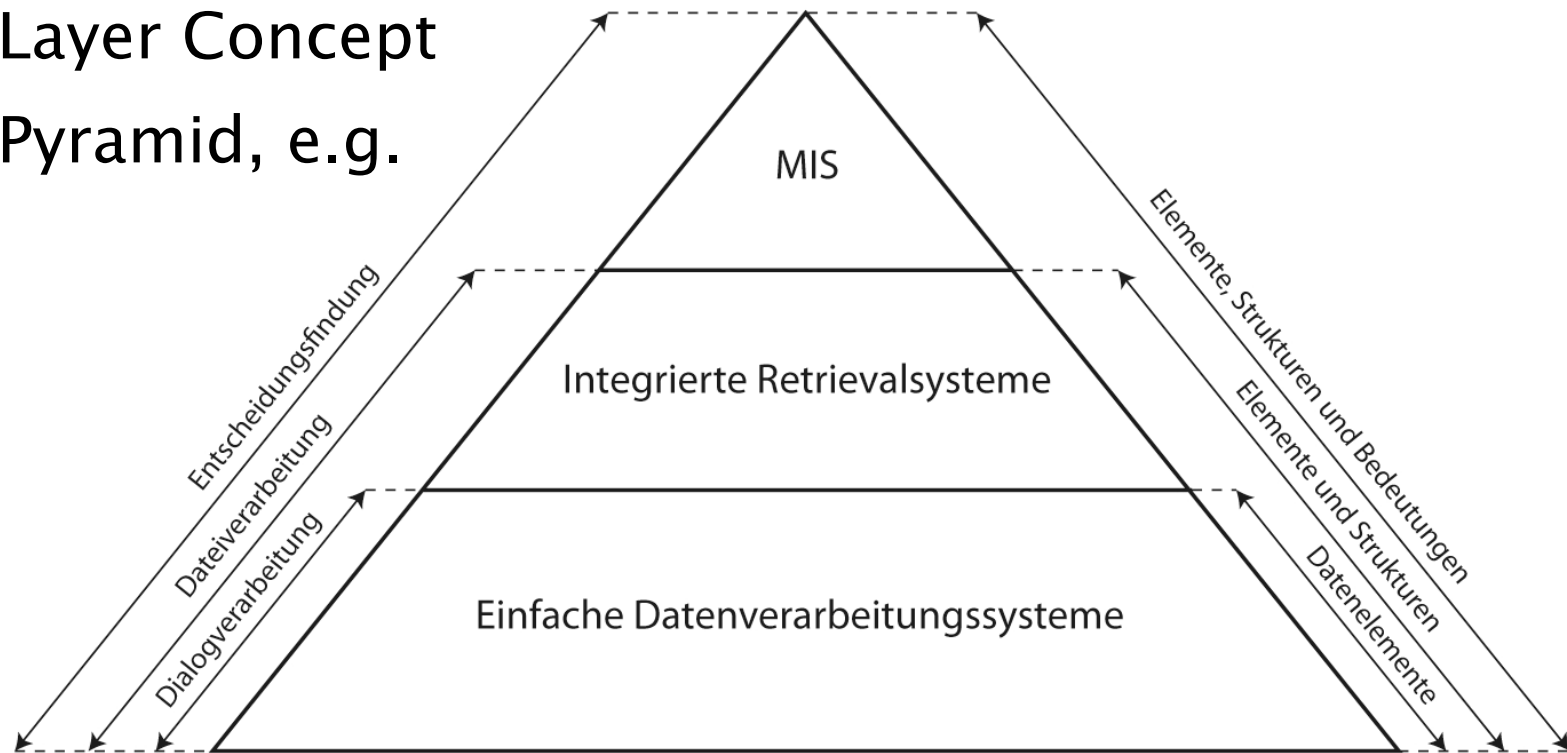
Source: In Accordance to Gorry und Scott Morton 1971, p. 16



scope (8):

historical understanding of mis (8)

- Other early Approaches of MIS:
 - Layer Concept
 - Pyramid, e.g.



Source: In Accordance to Aron 1969, p. 220



scope (9):

historical reception of early mis approaches

- Central Points of Reception:
 - Validation of Assumptions of Manager Tasks
 - Information Content of MIS
 - Implementation Approaches



scope (IO):

conclusion of early mis approaches

- Early MIS Approaches of 1960ies and early 1970ies failed in practice:
 - Rarely Use of Computers in Management
 - No Implementation of Fully Integrated (“Total”) MIS in Practice
 - Use of MIS only for Structured Tasks
 - Lack of Confidence in the MIS Approach



scope (II): enhancements of mis approaches

- Enhancements of MIS Approaches in the late 1970ies and 1980ies:
 - Substitution
 - Extension
 - Constriction



scope (I2): mis as management reporting systems (I)

- Characteristics of Management Reporting Systems (MRS):
 - Mainframe-based Systems
 - Data from available Transaction Systems
 - Minor Dialog Orientation
 - Data with strong Relationship to the Past
 - Target Groups: Lower to Middle Management



scope (13): mis as management reporting systems (2)

- Tasks of Management Reporting Systems:
 - Circular Standard Reports
 - Exception Reports
 - Demand Reports
 - Query and Information Options
 - Information Supplier, for further ICS



scope (I4): mis as decision support systems (I)

- Characteristics of Decision Support Systems (DSS):
 - Support
 - Semi-Structured Assignments of Tasks
 - Human Machine Dialog
 - Strong User Integration in the Development
 - Focus on Effectivity



scope (I5): mis as decision support systems (2)

- Components of Decision Support Systems:
 - Data Component
 - Model Component
 - Dialog Component



scope (16):

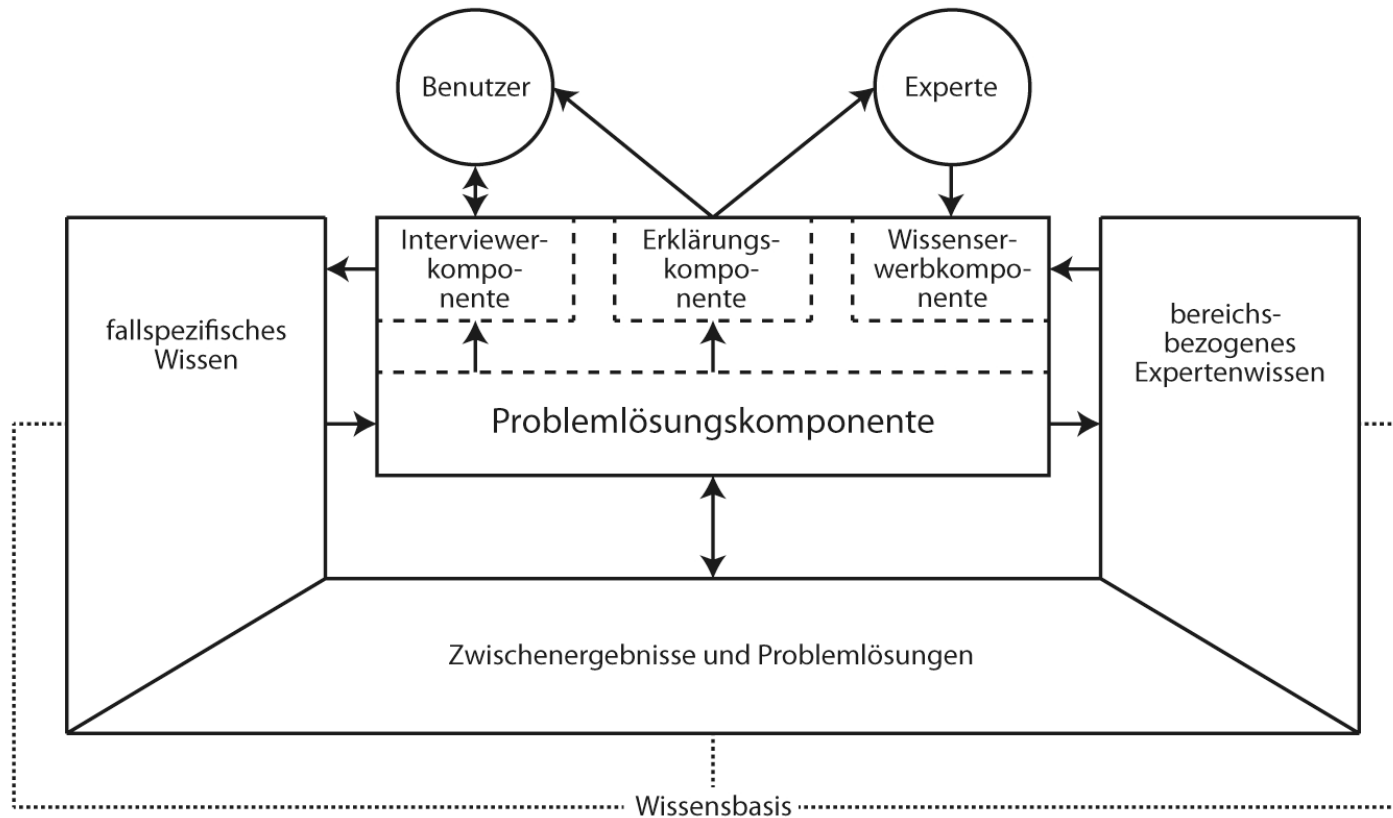
mis as expert systems (1)

- Components of Expert Systems (XPS):
 - Knowledge Basis
 - Knowledge Acquisition Component
 - Inference or Problem Solving Component
 - Dialog or Interview Component
 - Explanation Component



scope (17): mis as expert systems (2)

- Expert Systems:



Source: In Accordance to Puppe 1991, p. 13

scope (18):

office automation systems

- Developments within the Office Automation Systems (OAS):
 - Document Management
 - Message Handling
 - Conference Systems
 - Support of Group Work
- ⇒ Overlap with Computer Supported Cooperative Work (CSCW)



scope (19):

conclusion of mis approaches end of the 1980ies

- Status of ICT-Support in Management End of the 1980ies:
 - Acceptance of Attitudes versus Acceptance of Behavior
 - Possible Barriers of Use



scope (20):

mis concepts since mid of the 1980ies (1)

- Evolution of Terms and Concepts since mid of the 1980ies:
 - Effective Information Usage of Top Management for Planning and Control Process
 - Data Cubes (Online Analytical Processing (OLAP))
 - Ad hoc Information through Key Performance Indicators as well as individual Data Evaluation for Analytical Purposes
- ⇒ Executive Information Systems (EIS)



scope (21):

mis concepts since mid of the 1980ies (2)

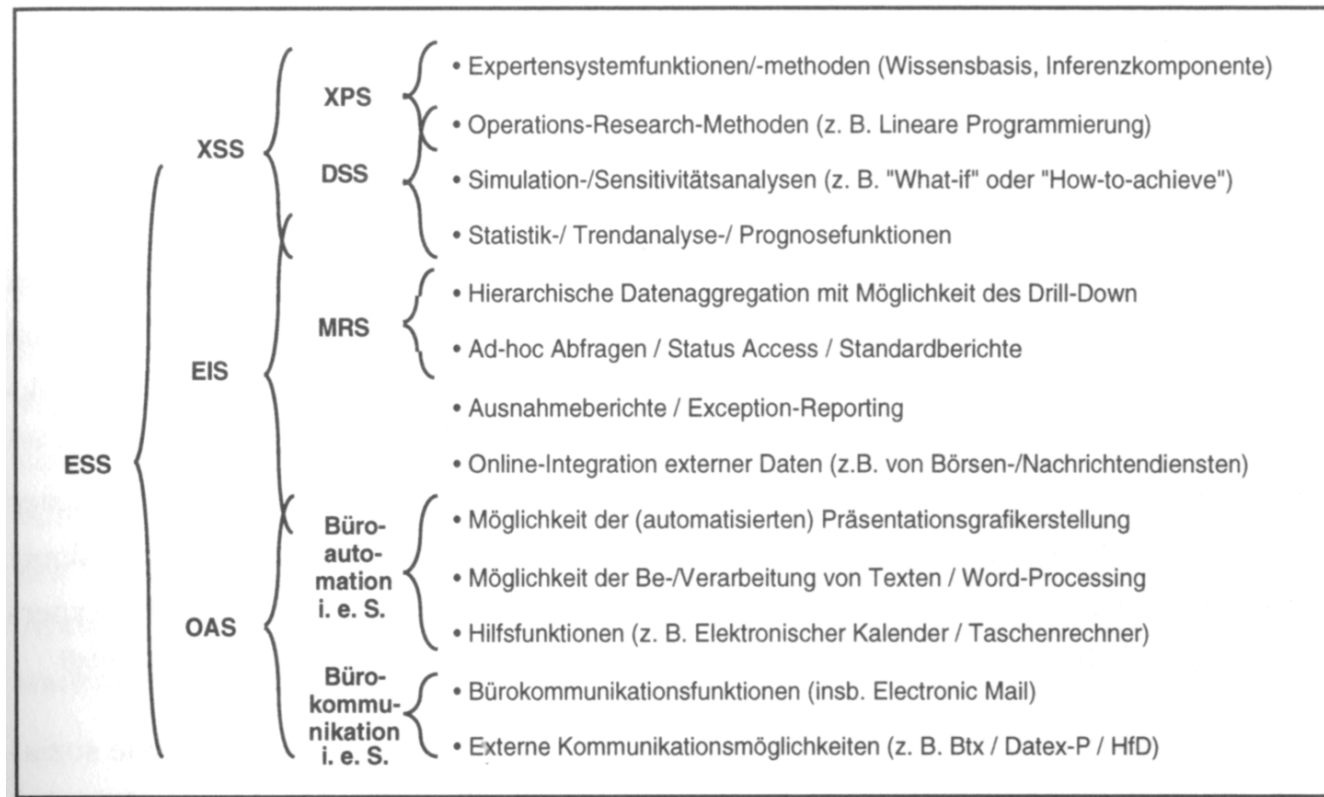
- Evolution of Terms and Concepts since mid of the 1980ies:
 - Data Support Systems ⇨ Management Reporting Systems
 - Decision Support Systems (DSS)
 - Executive Support Systems (ESS)
- ⇨ Management Support Systems (MSS)



scope (22):

conclusion of mis concepts since mid of the 1980ies

■ Functional Spectra of MIS Concepts:



Source: Oppelt: Computerunterstützung für das Management, 1995, p. 157

