introduction to
management information systems

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- Managementinformationssysteme -
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Purpose:
classification of management information systems

- Terms:
  - Management
  - Organization
  - System
  - Organizational Structure
  - Management System
  - Management Information System
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
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
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
Blue Print of a MIS (2):

- Historical Understanding of MIS (5)

Source: In Accordance to Zani 1970, p. 96
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
Other early Approaches of MIS:
- Layer Concept
- Pyramid, e.g.
Central Points of Reception:
- Validation of Assumptions of Manager Tasks
- Information Content of MIS
- Implementation 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
Enhancements of MIS Approaches in the late 1970ies and 1980ies:

- Substitution
- Extension
- Constriction
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
Tasks of Management Reporting Systems:
- Circular Standard Reports
- Exception Reports
- Demand Reports
- Query and Information Options
- Information Supplier, for further ICS
Characteristics of Decision Support Systems (DSS):

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

- Data Component
- Model Component
- Dialog Component
Components of Expert Systems (XPS):

- Knowledge Basis
- Knowledge Acquisition Component
- Inference or Problem Solving Component
- Dialog or Interview Component
- Explanation Component
Expert Systems:

- MIS as Expert Systems (2)

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)
Status of ICT-Support in Management End of the 1980ies:

- Acceptance of Attitudes versus Acceptance of Behavior
- Possible Barriers of Use
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)
Evolution of Terms and Concepts since mid of the 1980ies:

- Data Support Systems $\Rightarrow$ Management Reporting Systems
- Decision Support Systems (DSS)
- Executive Support Systems (ESS)

$\Rightarrow$ Management Support Systems (MSS)
**scope (22): conclusion of MIS concepts since mid of the 1980ies**

- **Functional Spectra of MIS Concepts:**

  ![Functional Spectra Diagram](image)

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