

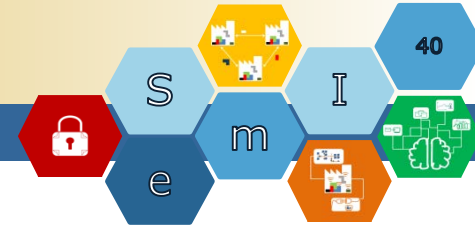
# A review of Decision Support Systems for Manufacturing Systems

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1. Introduction
2. Theoretical Foundations
3. Research Questions
4. Research Approach
5. Results
6. Conclusion and Further Research



*"...draws on transaction processing systems and interacts with the other parts of the overall information system to support the decision-making activities of managers..."*. (Sprague and Carlson, 1982)

## Decisions in the context of manufacturing:

- ❖ Product specifications
- ❖ Capacity management
- ❖ Resource allocation
- ❖ Scheduling
- ❖ Sourcing concepts
- ❖ ...

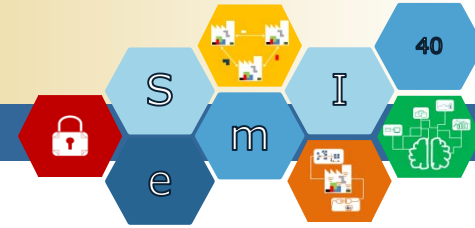


## DSS is characterized by:

- ❖ Drill-down analysis
- ❖ Methodologies including mathematical analysis, modelling, simulation, optimization, etc.
- ❖ Reporting flexibility
- ❖ Large amounts of data from various sources



- ❖ ***RQ 1: What is the current state of research in the field of decision support systems with regard to applied methodologies?***
- ❖ ***RQ 2: How can a decision making process be designed?***
- ❖ ***RQ 3: Which basic approaches do exist in DSS?***



## ❖ Literature review

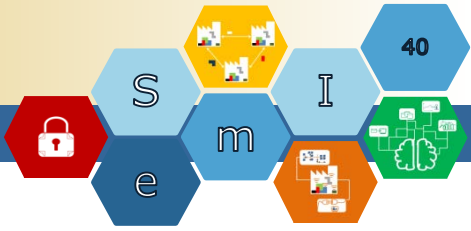
- Systematic, explicit and reproducible design for identifying, evaluating and interpreting the existing body of recorded documents (Fink 1998)
- Supports structuring a research field and is an essential part prior every research (Easterby-Smith et al. 2002)
- Contributes to theory development

## ❖ Content analysis

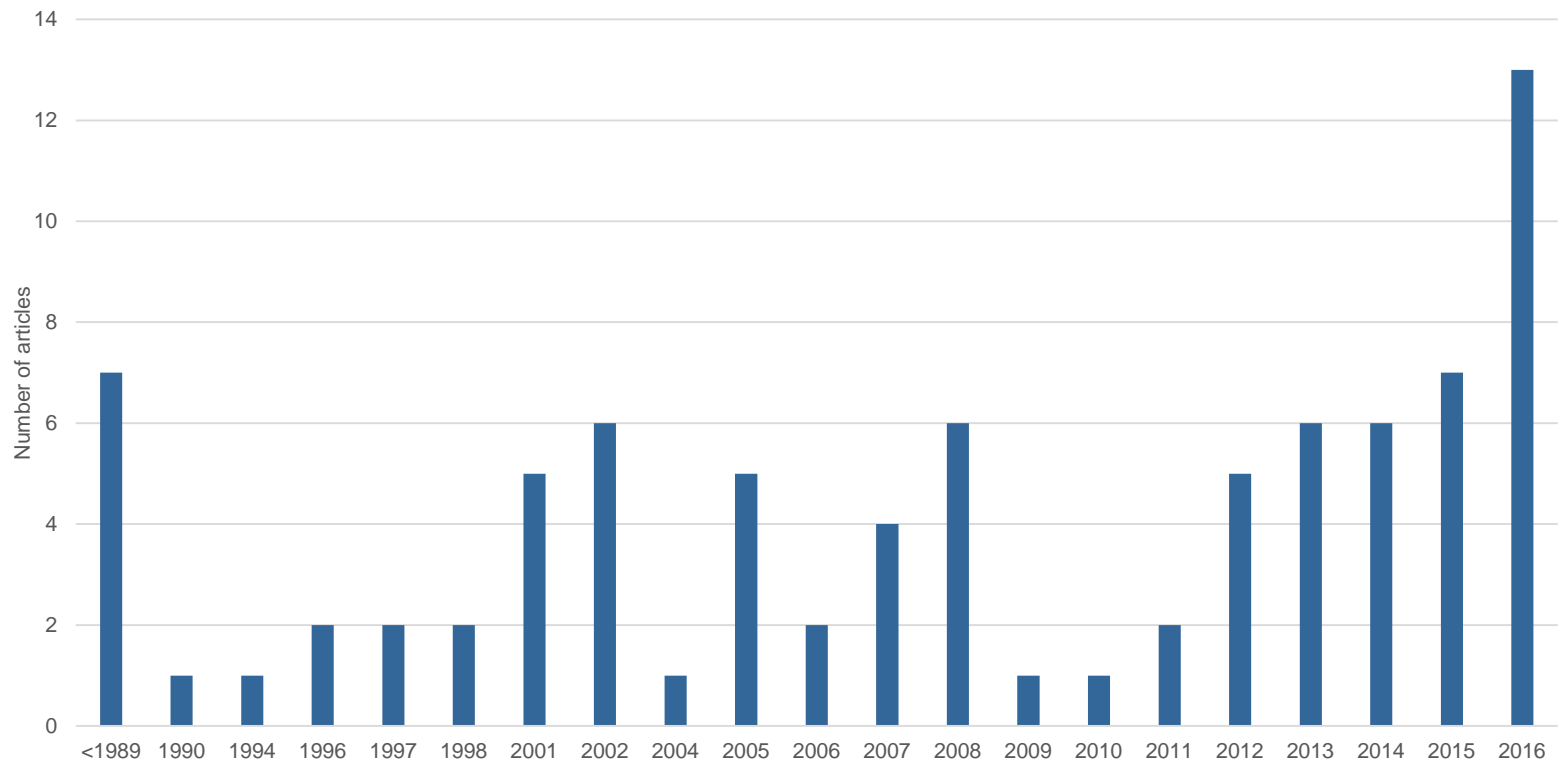
- Descriptive analysis
- Quantitative content analysis
- Qualitative content analysis

Sources: Seuring et al. (2005); Mayring (2003)

# Descriptive analysis



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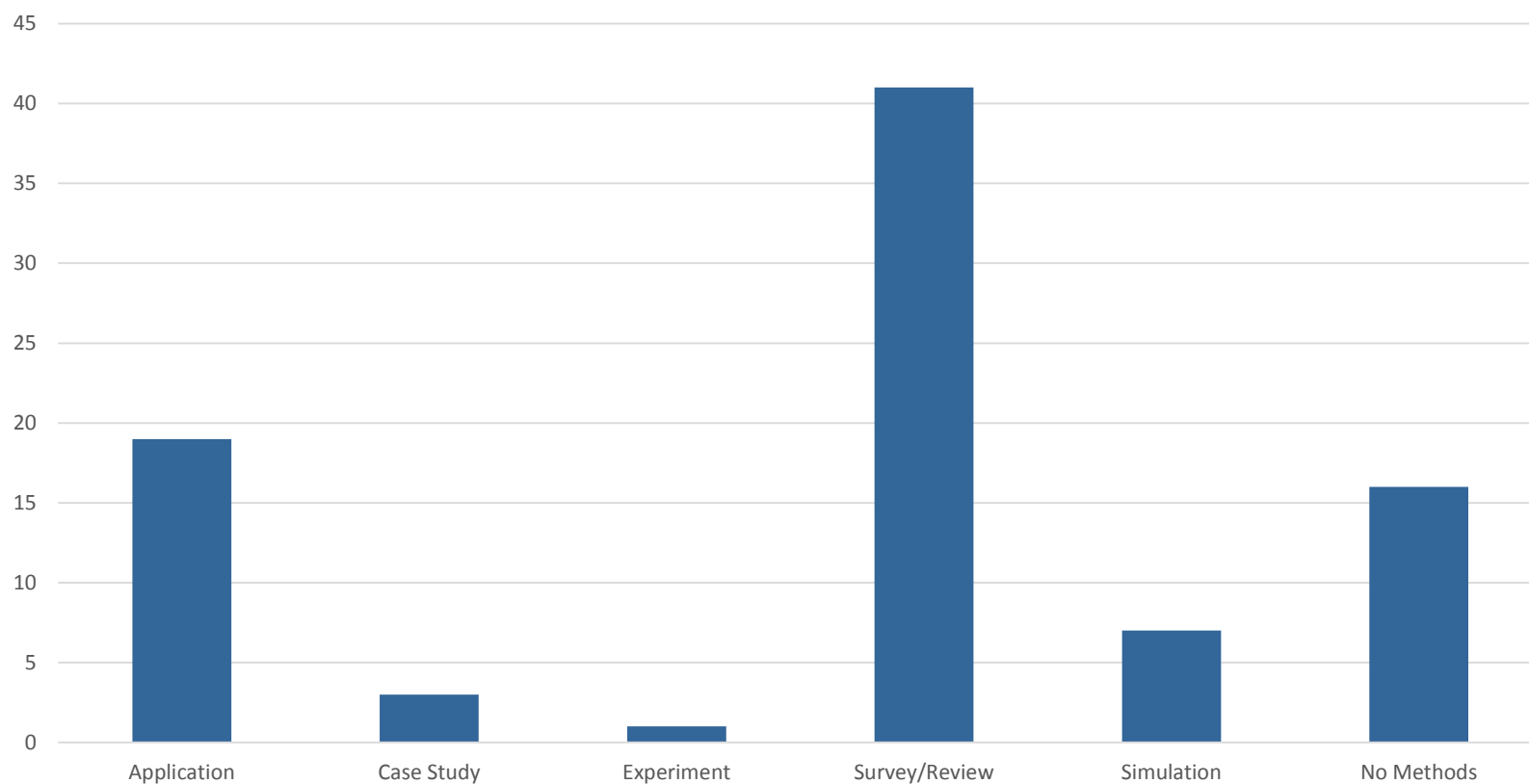


# Quantitative content analysis

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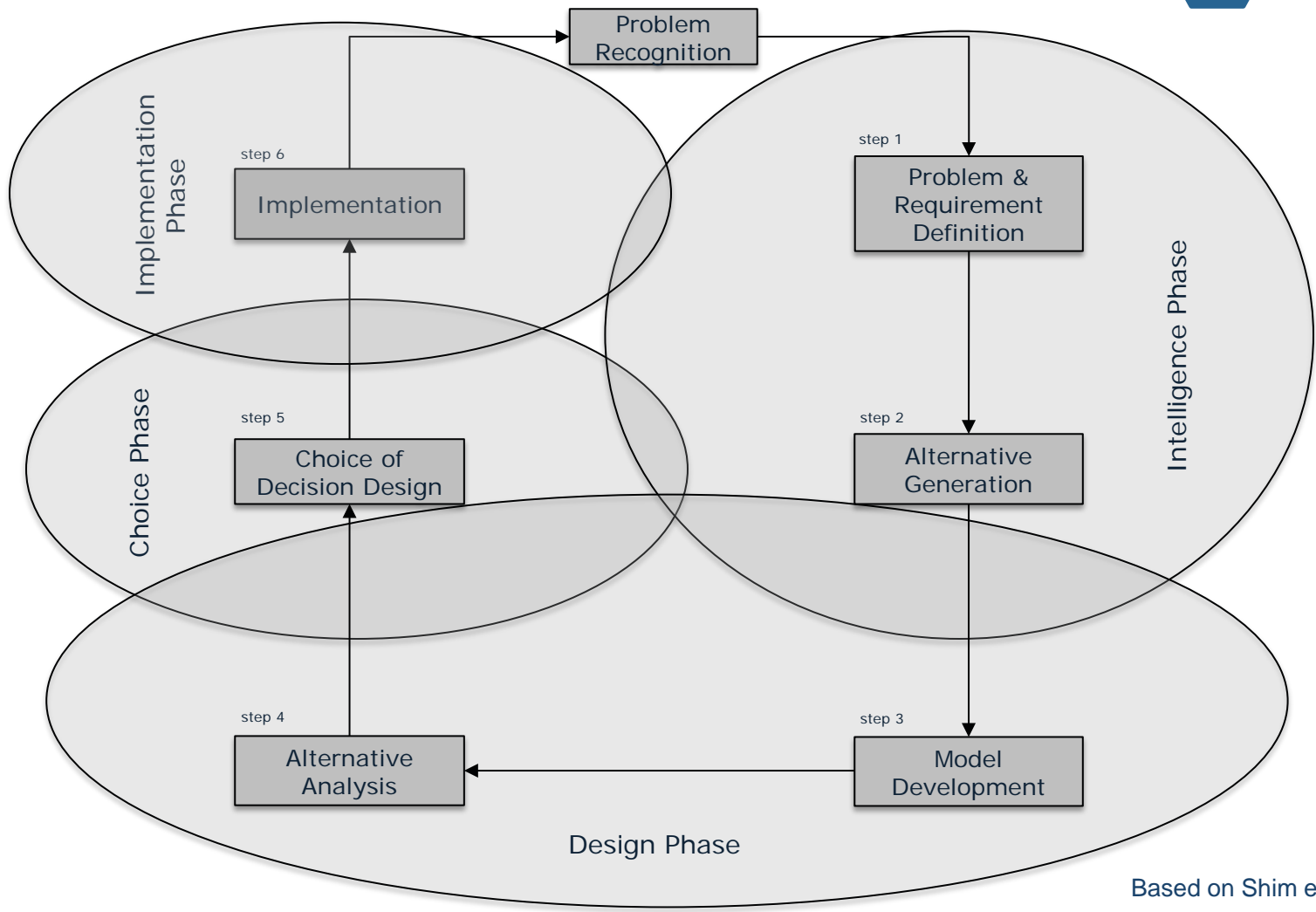
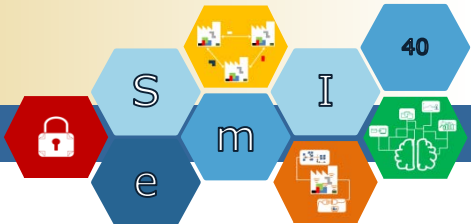


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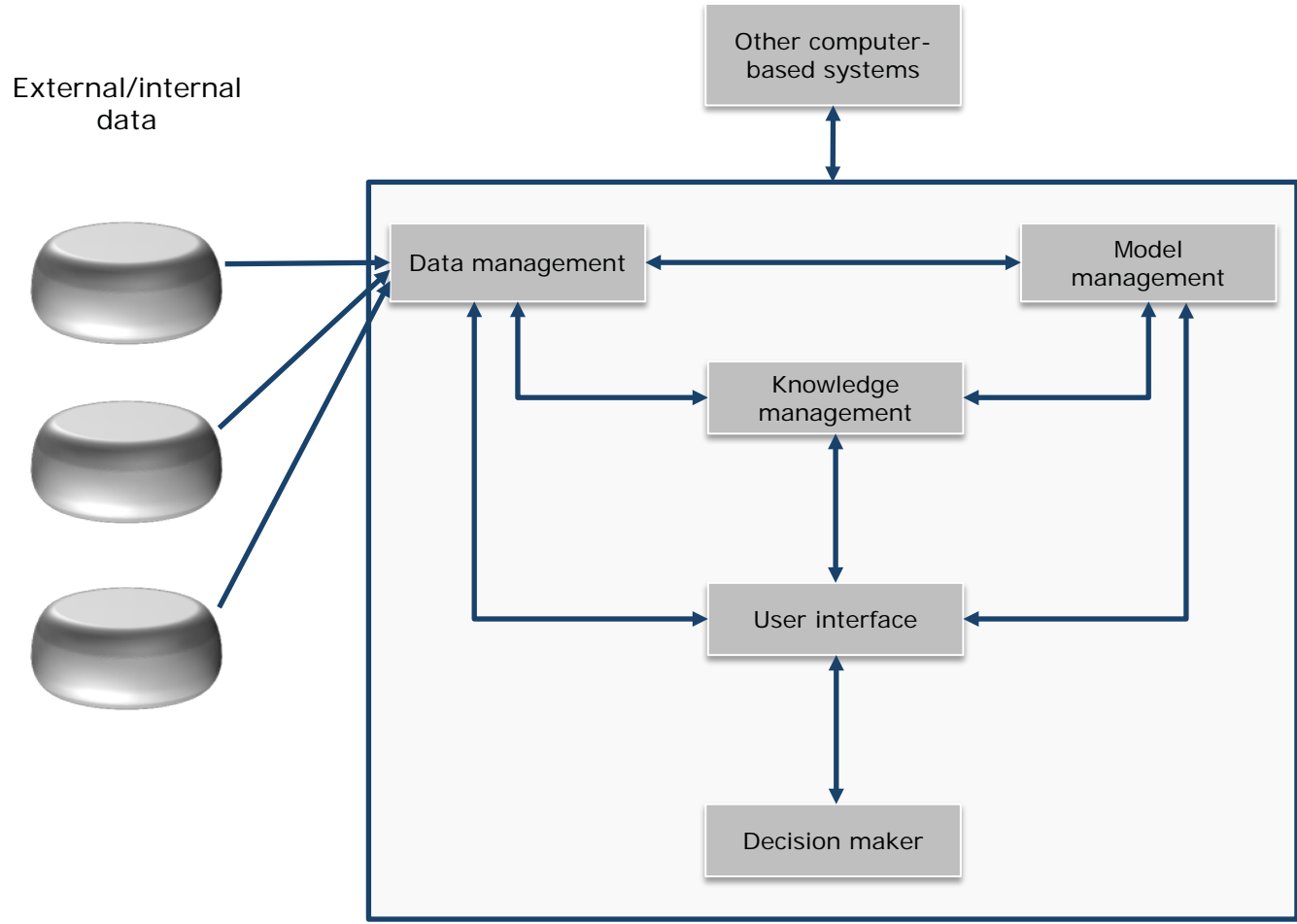
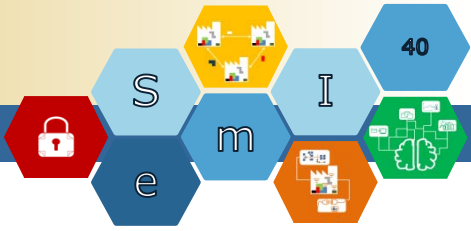


# Results – Qualitative analysis I



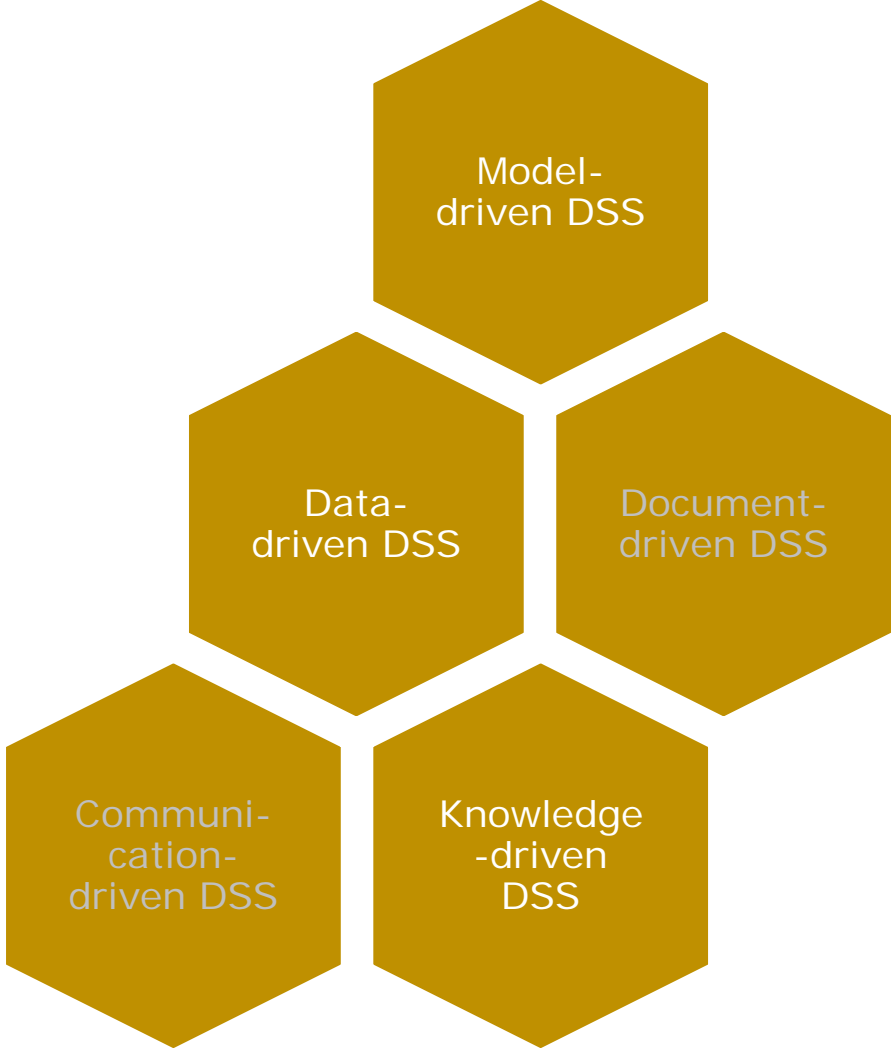
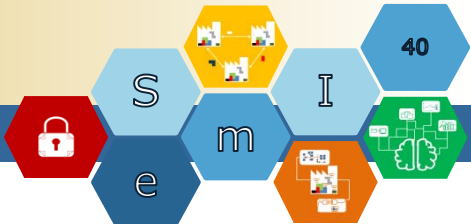
Based on Shim et al. (2002)

# Results – Qualitative analysis II



Based on Turban et al. (2005)

# Results – Qualitative analysis III



Based on Power (2002)

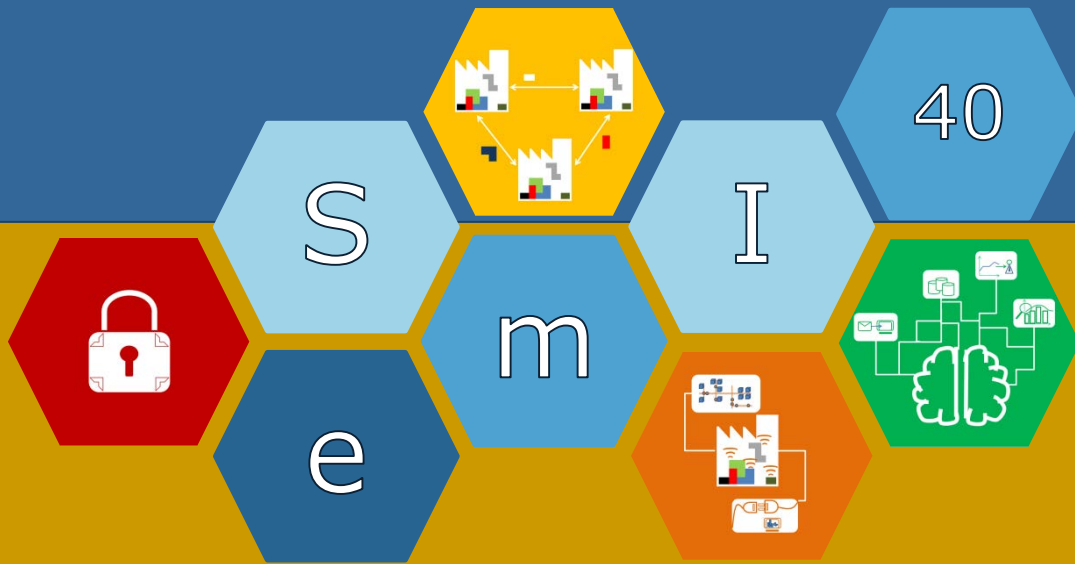
# Conclusion and Further Research

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- ❖ Data-driven DSS will use real-time access to larger and better integrated databases.
- ❖ The complexity and level of details of model-driven DSS will increase significantly.
- ❖ Communication-driven DSS will have more real-time video communication support and the research on collaborative decision support systems reaches a new era.
- ❖ Knowledge-driven DSS are getting more and more rich in content.

# Thank you!



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