

# INDUSTRIAL SYMBIOSIS EXCHANGES

Developing a guideline to realization

L. H. Tackmann, N. Boisen, J. K. Madsen, L. U. Nielsen

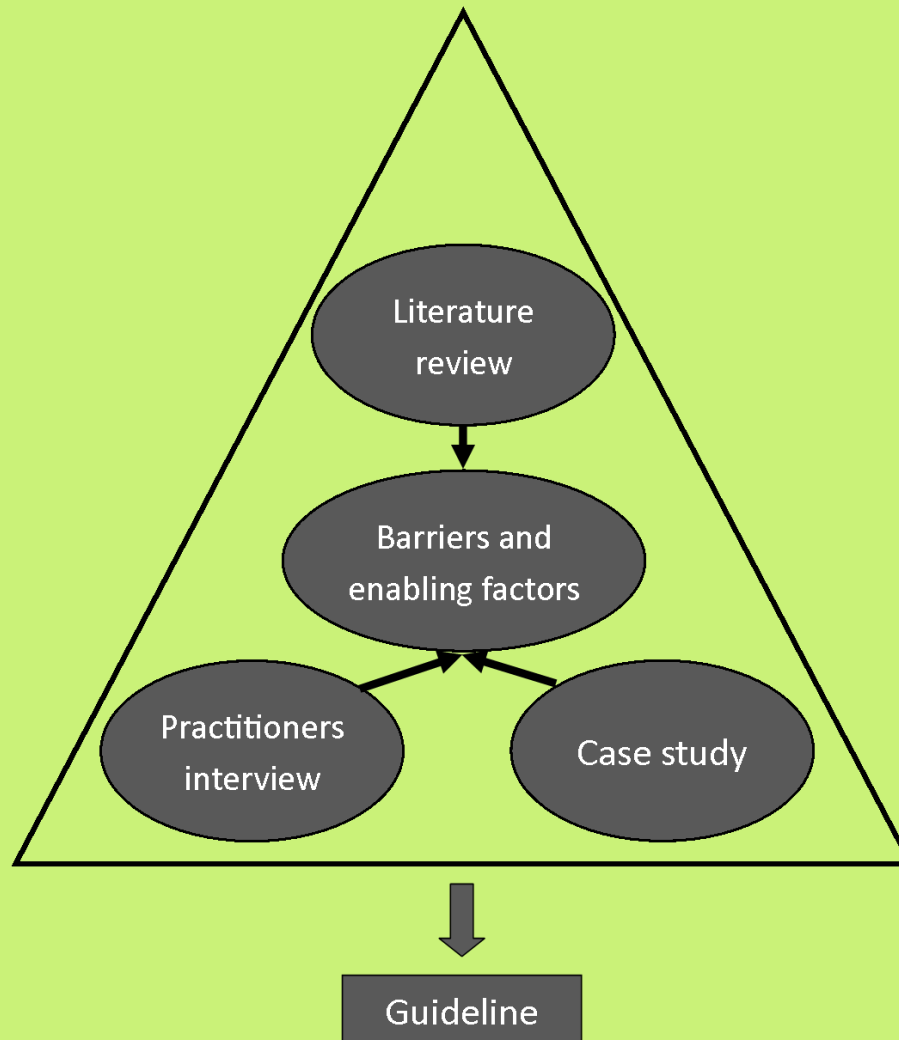
Aalborg University



# WHY DEVELOP A GUIDELINE?

- Much research on barriers and enabling factors to IS take a systemic approach
- Need to take systemic knowledge to company level
  - How to make current knowledge accessible to companies?

# HOW?



# BARRIERS AND ENABLING FACTORS - RESOURCES

- - Uncertain profit and non-core competencies → low priority
- - Lack of knowledge of neighboring companies
- + Expanding the company's network
- + Facilitators assist with resource demanding tasks
- + Expand company focus to include by-product streams

# BARRIERS AND ENABLING FACTORS - TECHNICAL ISSUES

- - Mismatch of quantities
- +/- Differences between companies
- + Collection schemes
- + Facilitation programs

# BARRIERS AND ENABLING FACTORS - COLLABORATION

- -/+Trust
- -/+Difference in company size
- - Difference in priority of collaboration

# SO WHAT'S NEW?

- Most of the barriers found corresponds with the literature
- However, enabling factors receive little attention in previous literature

# GUIDELINE CONTENT (I)

- Basic knowledge of the concept of IS
- Examples of benefits of IS from concrete projects



# GUIDELINE CONTENT (II)

- **Overview of facilitation programs (if such programs are available). The overview should include:**
  - **Services offered by the program**
  - **Possibilities for financial support, including:**
    - **Amount offered**
    - **Conditions**
    - **Deadlines for application**
  - **Contact information**

# GUIDELINE CONTENT (III)

- **What to be aware of if the companies take on IS themselves**
  - How to start thinking in terms of IS and circular economy
  - Ways to expand ones network
  - Barriers to communication due to company size and working processes
  - Looking into technical aspects of the project
  - Getting an overview of the relevant....
    - Legislation
    - Incentives
    - Area-specific regulations
  - Ways to deal with a mismatch of quantities

# PERSPECTIVES

- How to enable companies, researchers and politicians to better think in terms of circular economy?