



**HHL** LEIPZIG  
GRADUATE SCHOOL  
OF MANAGEMENT

**CLIC**  
CENTER FOR LEADING  
INNOVATION AND COOPERATION

# Master Thesis

*Center for Leading Innovation and Cooperation (CLIC)*



**HHL**

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## *Topic/Title:*

*Challenges in the adaptation of Industry 4.0 solutions  
in small and medium-sized enterprises:  
Developing a method to identify and address  
technical, economic, and cultural challenges*

## Context & Setup (1/2)

- The thesis will be **realized in the context of the research project “Co-TWIN: Collaborative Digital Twin in Value Creation Networks”**. The master student will receive the chance to **conduct the research on site of the participating companies** which offers great opportunities for collecting the data needed.
- The master student will gain insights into the processes of **different small and medium-sized enterprises** from one of Germany’s core industries: The **engineering sector**.
- The master student will work on challenges surrounding one of the core topics of **digital transformation**.

## Context & Setup (2/2)

- The thesis builds on **qualitative data analysis**. Throughout the process, **semi-structured interviews** will be conducted and analysed. Furthermore, the following deliverables need to be developed during the processing time and presented in the thesis:
- A **method** to identify and address challenges in the introduction of Industry 4.0 solutions in small and medium-sized enterprises
  - Utilize the method to **assess the companies of the Co-TWIN project** and derive existing challenges
  - **Recommendations/roadmap** on how to address the challenges that were identified in the previous step

# Research Question & Research Design (1/2)

## Research Question(s):

- How can challenges in introducing Industry 4.0 solutions in small and medium-sized enterprises be identified and addressed?

## Theoretical Lens:

- Review of existing literature on technology introduction and change management that focuses on digital transformation (e.g. Lee, J. 2020: Accelerating Organisation Culture Change) and Industry 4.0 (e.g Sarvari et al. 2019: Technology Roadmap for Industry 4.0)
- Further focus on challenges and introduction strategies in the context of small and medium-sized enterprises

## Research Question & Research Design (2/2)

### Method:

- Qualitative research approach
- Semi-structured interviews using an interview guide

### Data:

- (web-based) document and desk research (esp. for the literature review)
- Minimum ten to twelve semi-structured interviews with management and employees working with the Industry 4.0 solutions
- Transcription of interviews & coding (inductive & deductive coding)

## Further Information (1/2)

### – **Processing Time:**

- Ten / twelve weeks / six months of working time on the master thesis, depending on your study program
- Maximum two to four weeks of extension time possible. Therefore, reasonable arguments have to exist. In case, you want to extend the time please ask your mentor/supervisor at least two to three weeks in advance to get the extension permitted

### – **Language:** The master thesis has to be written in English

### – **Layout:** HHL Style Guide applies

### – **Length of the Thesis:** ~50 pages (+/- 10%)

## Further Information (2/2)

- **Supervising entity:** Center for Leading Innovation and Cooperation
- **Supervisor:** *Prof. Dr. Claudia Lehmann*
- **Mentor:** *Sebastian Schmidt*

### **Contact:**

Sebastian Schmidt

T: +49 (0) 341 9851 856

E: [s.schmidt@hhl.de](mailto:s.schmidt@hhl.de)