

# RAMP-UP II

Ramp-up management towards agile and resilient industries

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**german-french academy  
for the industry of the future**  
founded by IMT and TUM



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# RAMP-UP II context and objectives

## Context

- Recent crises unveiled issues in responding to high-volume demands of products and services, e.g., Personal Protective Equipment.
- Need for resilient and agile value networks for uncertain and dynamic environments in the context of manufacturing and healthcare service.

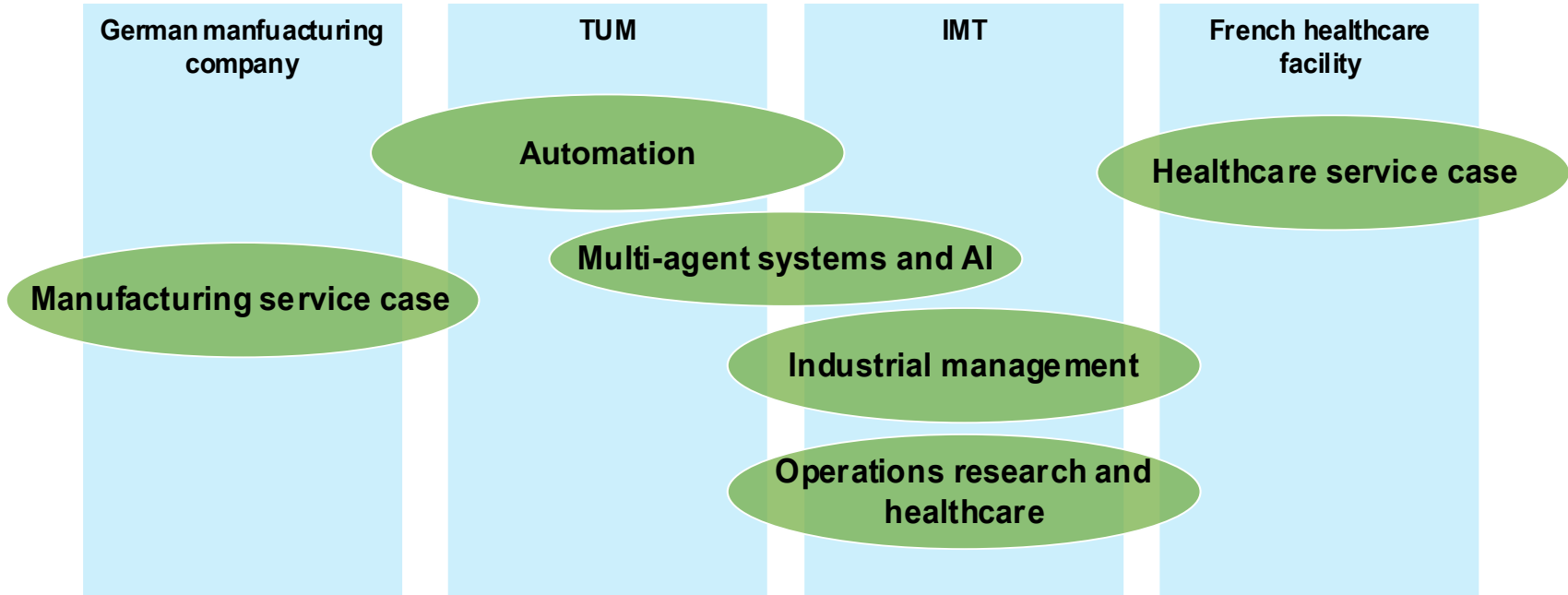


## RAMP-UP II ambition

- Improve value network traceability.
- Streamline the management of ramp-up projects.
- Improve agility and overall ramp-up projects performance.

*Ramp-up is a value creation phase starting with the completion of both product and process design and ends with the transition to series production*

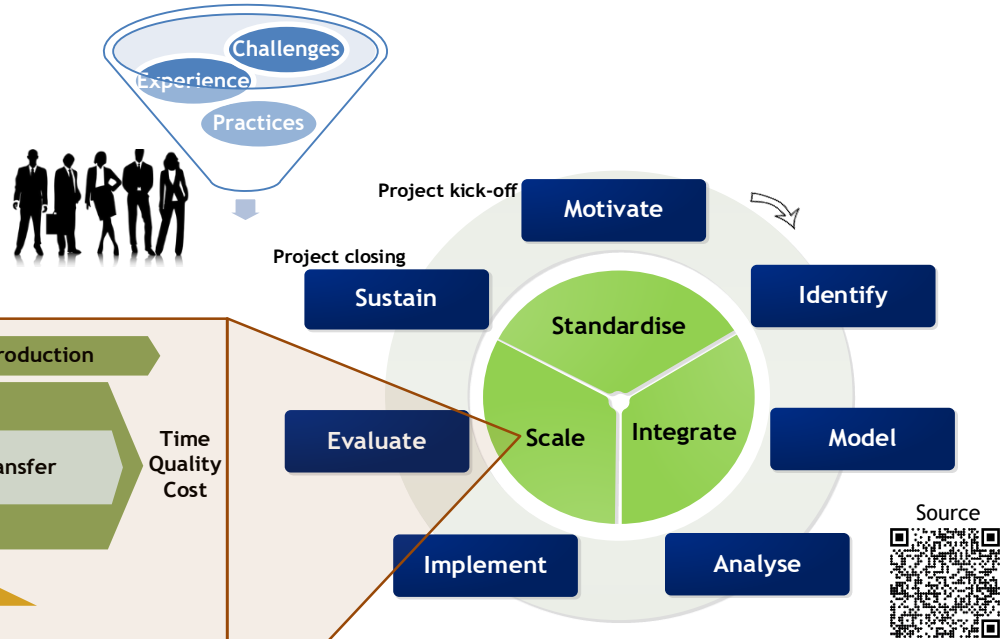
# Partners and multidisciplinary teams



# Project results overview

## Agile ramp-up management framework

- Design Science Research, empirical research
- Methodological guidance for agile ramp-up management

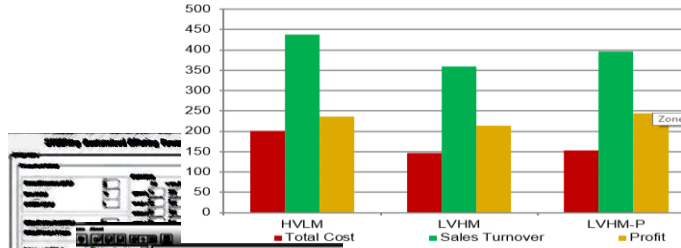


# Project results overview

## Resilient Decision Making with Multi-Agent-Systems

### Support Ramp-Up-Management

Assess different ramp-up strategies in multi-variant production context (e.g., cost, sales, profit)



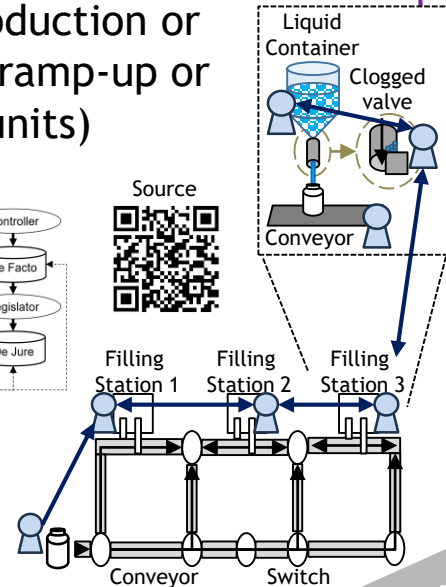
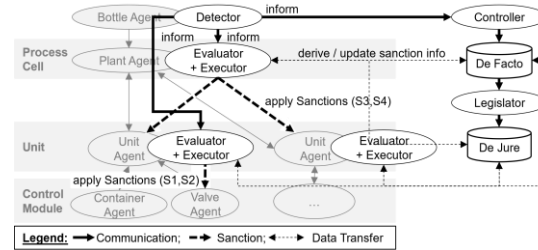
Source



### Autonomous Decision Making in Automation

Agents in wear-prone production or process plants decide to ramp-up or ramp-down production (units)

#### Agent Architecture



# Promising results opening interesting perspectives

## Follow-up work

- Ramp-up Management

Evaluation in more complex supply chain scenarios



Assess risks and opportunities by fast growing technologies, e.g., AI

- Autonomous Decision Making

Method refinement and demonstrator evaluation

- Joint publication in progress



## Future collaboration and projects



- GFA Researchers' **Mobilité**
- Joined follow-up **project** planned



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# Thank you for attention!



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