34th Annual **INCOSE** international symposium

hybrid event

Dublin, Ireland
July 2 - 6, 2024

Optimizing MBSE adoption

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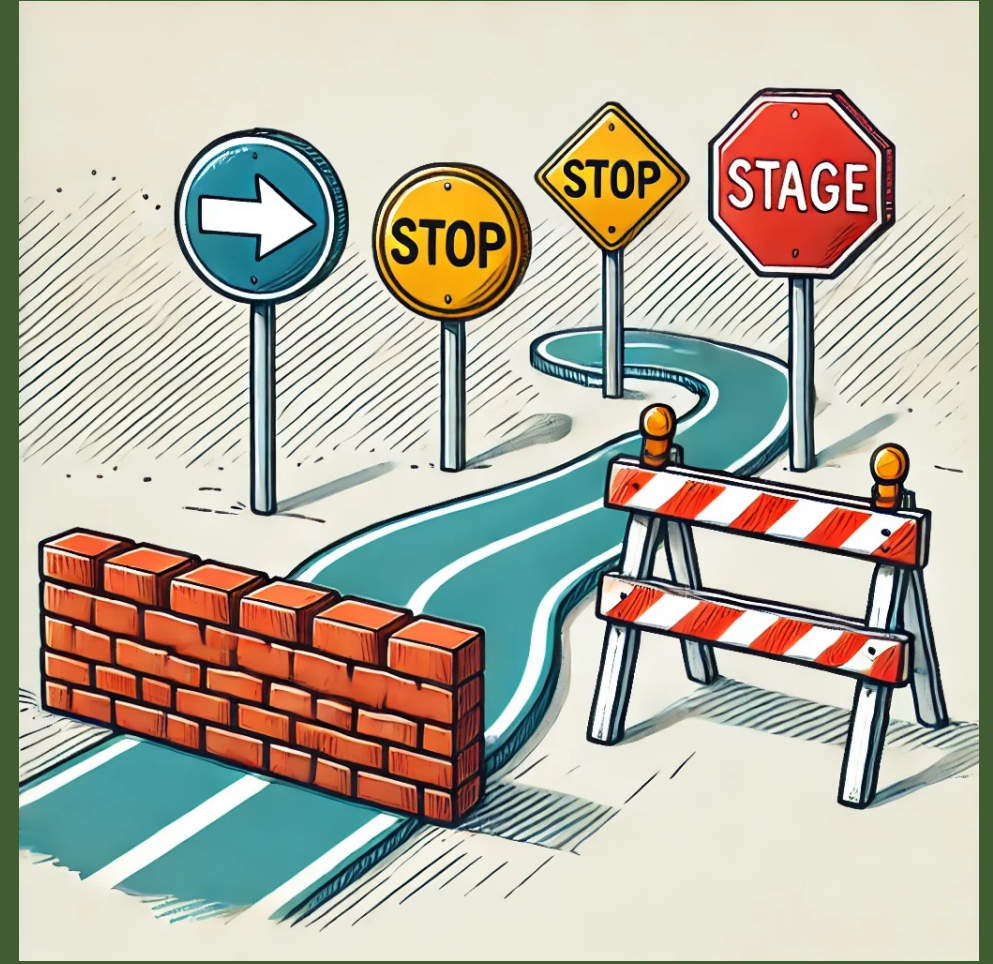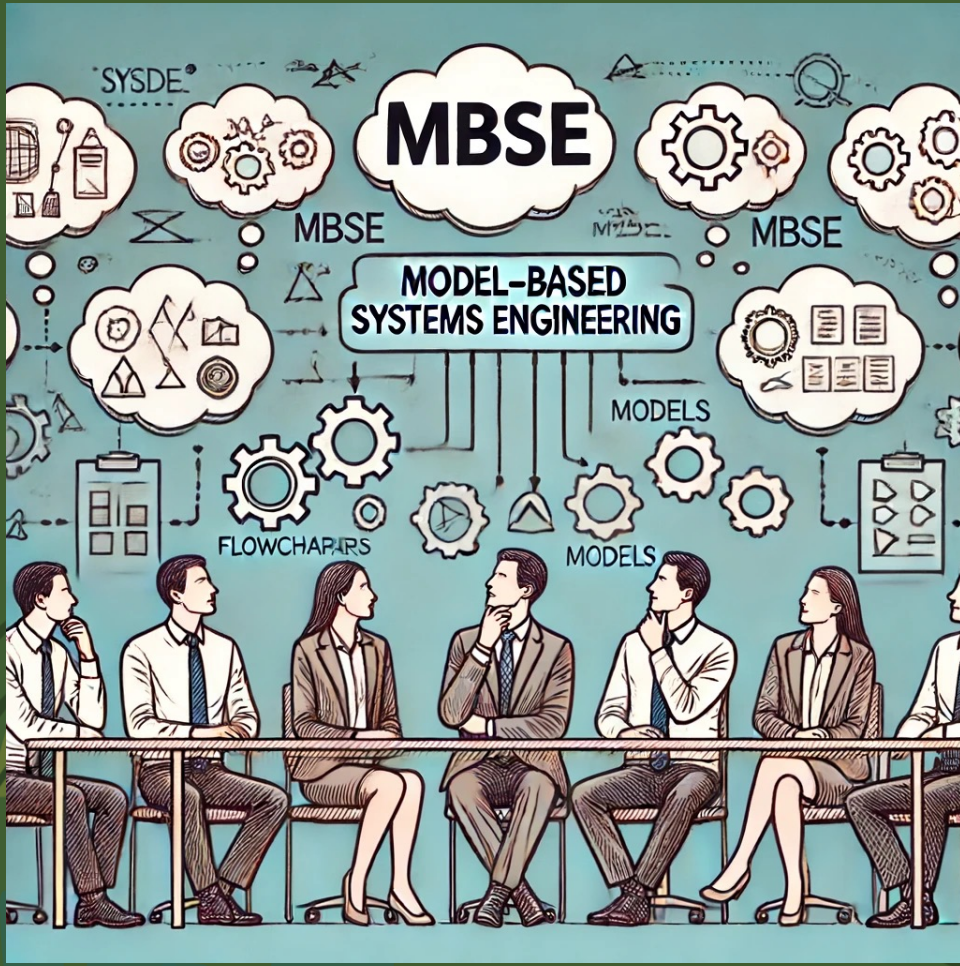University of Twente

Are you interested in adopting MBSE at your organization?

What challenges do you face?

MBSE adoption and it's challenges
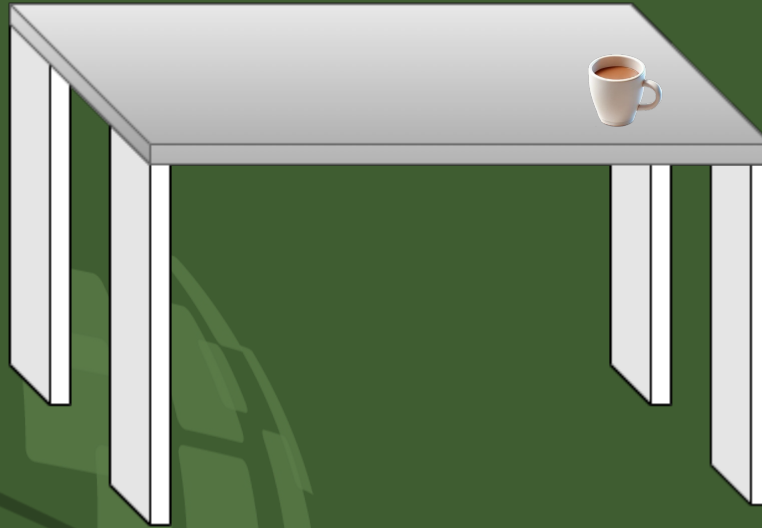
Research objectives

To understand and manage MBSE adoption, we need to:

- Identify **both** driving and restraining forces influencing MBSE adoption

- Determine **dependencies** between forces

- Develop a **practical** approach for prioritizing forces to direct attention

Current research gap
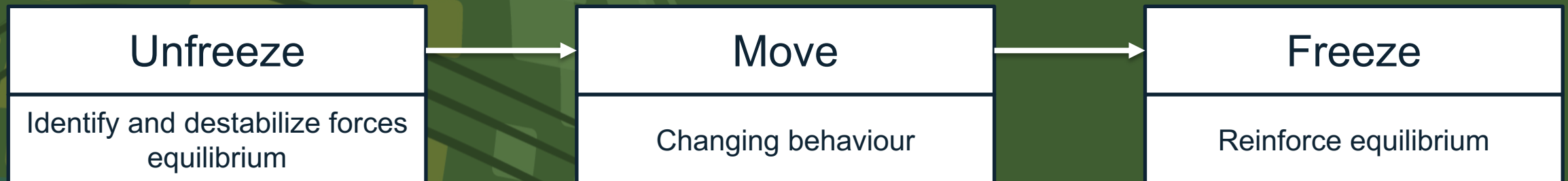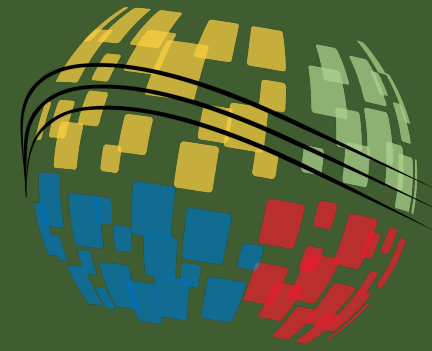
Why holistic perspective?

Why holistic perspective?

Adoption from an organizational change perspective

- Kurt Lewin's Field Theory
  - Behaviour determined by environment
  - Environment exists out of driving and restraining forces
  - Forces are in a quasi-equilibrium
  - Forces are interdependent

- 3-Step planned change

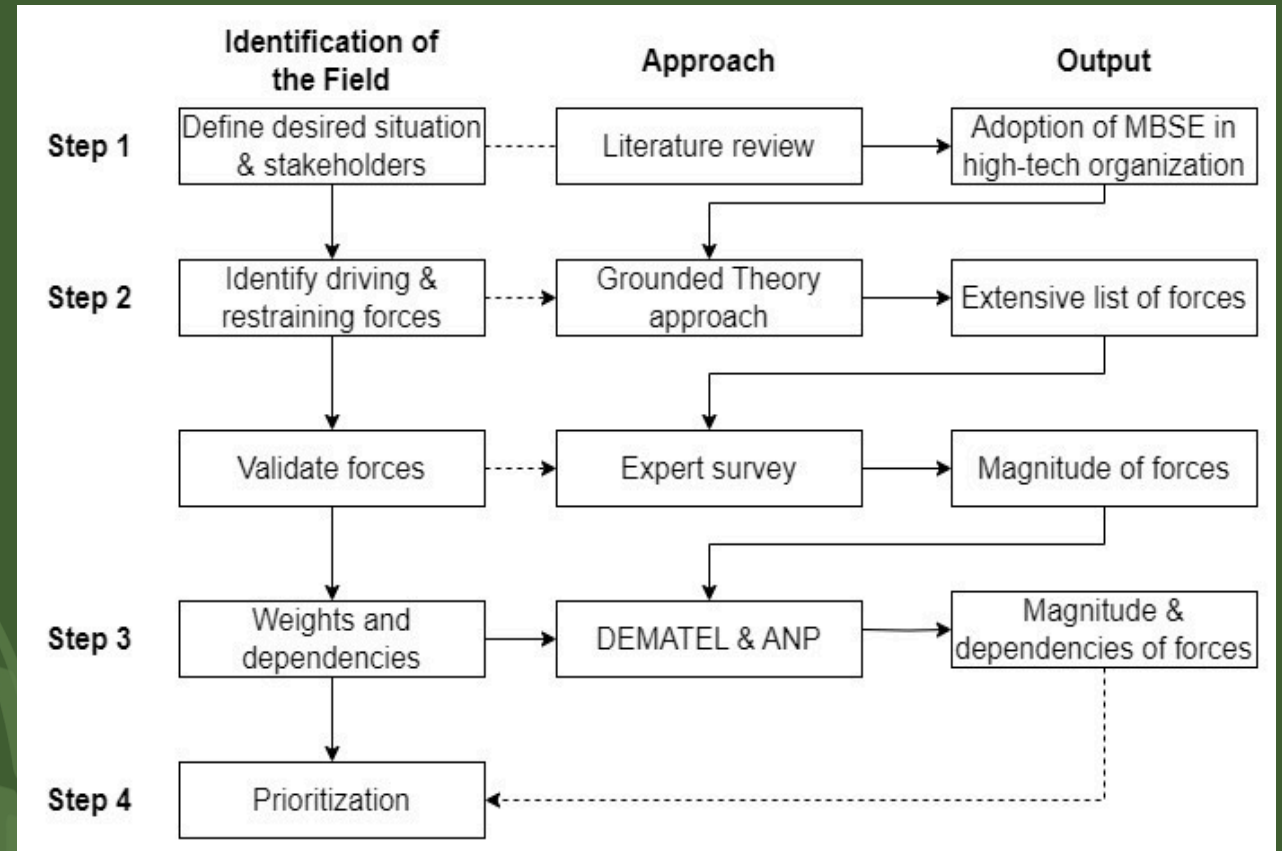| Unfreeze	Move	Freeze
Identify and destabilize forces equilibrium	Changing behaviour	Reinforce equilibrium

Research methodology

Research methodology
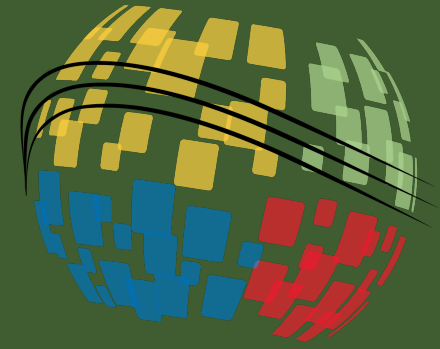
Research steps:

1. Define the desired situation
2. Identification & validation of forces
3. Determine weights & dependencies of the forces
4. Prioritization

Identified driving & restraining forces

Top driving forces – Unfreeze phase

Top driving forces – Move phase

Top driving forces – Freeze phase

Top driving forces – Freeze phase
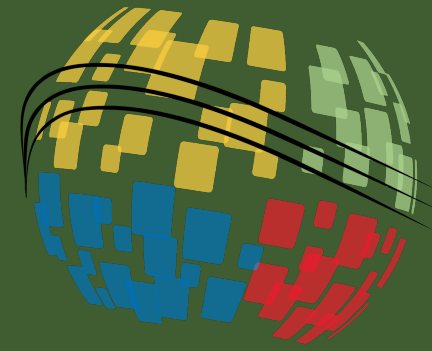
Top restraining forces – Unfreeze phase

Top restraining forces – Move phase

Top restraining forces – Freeze phase

Weights and dependencies of forces

Interdependencies between forces

Causal Diagram of Total Relationships - RF Move
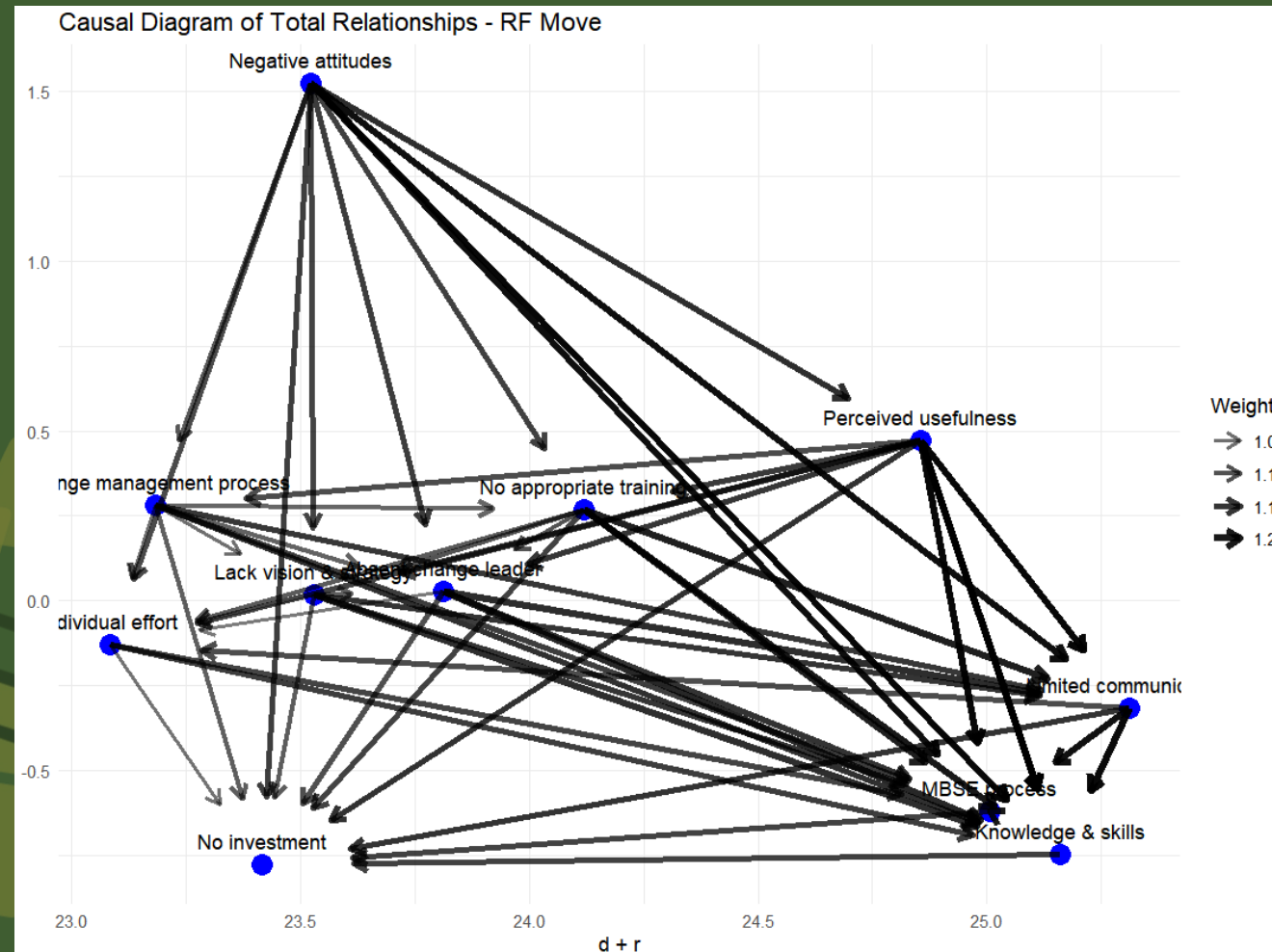
Practical implications

Managerial implications – Case organization

The high-tech organization

- Multinational with multiple locations in the Netherlands
- Defence sector
- 2000 employees in the Netherlands

The method

- Focused on a single location in the Netherlands
- Analysis of employee perception of forces
- Comparison of perception to the magnitude of forces
- Prioritize forces

Practical application – Benchmarking

- Negative employee attitudes - Moderate

- Low perceived usefulness tool - Weak

- No change management process - Moderate
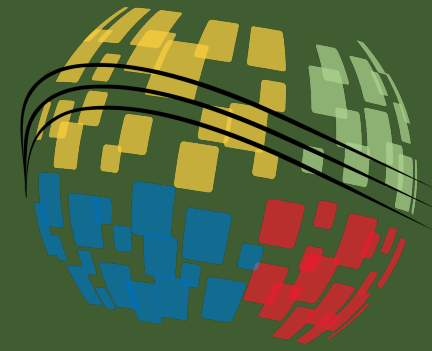
Conclusion

Conclusion & future research directions

Contributions:

- We created a novel and useful approach to apply Field theory that helps understand and manage MBSE adoption

- Validated list of forces influencing MBSE adoption

- Prioritized forces influencing MBSE adoption to help direct managerial attention and their investments

Future research directions:

- Application of the approach in other organizations (generalization)
- Changing the Force Field to stimulate MBSE adoption
- Track the MBSE adoption based on the Force Field

Interested in…

- More information?
- Analysis of your situation?
- Participation in the research?
- Leave your email!
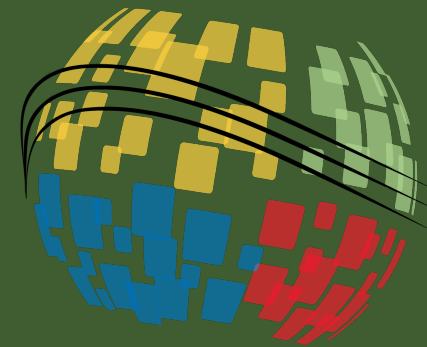
Q&A

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www.incose.org/symp2024
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Top driving forces

Unfreeze	Move	Freeze
Identify and destabilize forces equilibrium	Changing behaviour	Reinforce equilibrium
• Digital transformation trend • Enhanced communication • Improved system design	• Perceived usefulness tool • Employee attitude • Change empowerment	• Proven benefits • Document generation • System generation & configuration

Top restraining forces

Unfreeze	Move	Freeze
Identify and destabilize forces equilibrium	Changing behaviour	Reinforce equilibrium
• High upfront investment • Adoption risks • Legacy information	• No resource investment • Lack of vision & strategy • Limited employee knowledge & skills	• Lack of proven benefits • Underemphasized quick wins • Changing tool suite