

# Moving towards **forward-looking, integrative** flood risk management approaches requires:

- A **transformation** of **governance regimes**;
- Enhanced **cross-sectoral** collaboration;
- Shared **value** systems;
- Adoption of **innovative** and **holistic approaches**.

## Towards improved flood resilience: integrating flood protection and spatial planning in urbanized deltas

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### Background

- Climate change induced weather events and urbanization further increases flood risks, impacting **flood resilience** of **socio-technical-environmental systems** (STE).
- Despite policy such as *multi-layered safety*, Dutch **flood risk management** (FRM) still relies on *flood prevention*, overlooking the potential *impacts* of floods.
- A shift towards more **diversified FRM strategies** is needed to enhance **flood resilience**, considering also the capacity to *absorb, recover, transform and adapt* to floods.
- Implementation of integrative FRM approaches has **proven problematic** due to required transformations of STE systems and the shift from sectoral to integrative and collaborative forms of governance.

### Research aim

- This PhD research aims to identify what needs to **change** in the prevailing **governance context, actor-issue interactions** and **value systems** to **implement** integrative FRM approaches.

### Research approach

- Using **abductive reasoning**, we iteratively move between theory and practical data.
- We employ a mixed methods approach combining social network analysis and qualitative research methods.
- In a broad consortium the research adopts an **engaged scholarship** approach, stressing that theory and practice should interact to create scientific and practical knowledge.

### Flood Resilient Landscapes

- The **Flood Resilient Landscapes approach** aims to integrate flood prevention and spatial planning in an integrative and forward-looking manner, explicitly considering the far future (*2100 and further*).
- By realizing **co-benefits and synergies**, and by actively considering future climatic and societal **uncertainties**, the approach aims to create **public value**.
- Further developed in a broad consortium in Zwolle, the approach provides **empirical insights** into both the **opportunities** and **challenges** involved in implementing integrative FRM approaches.

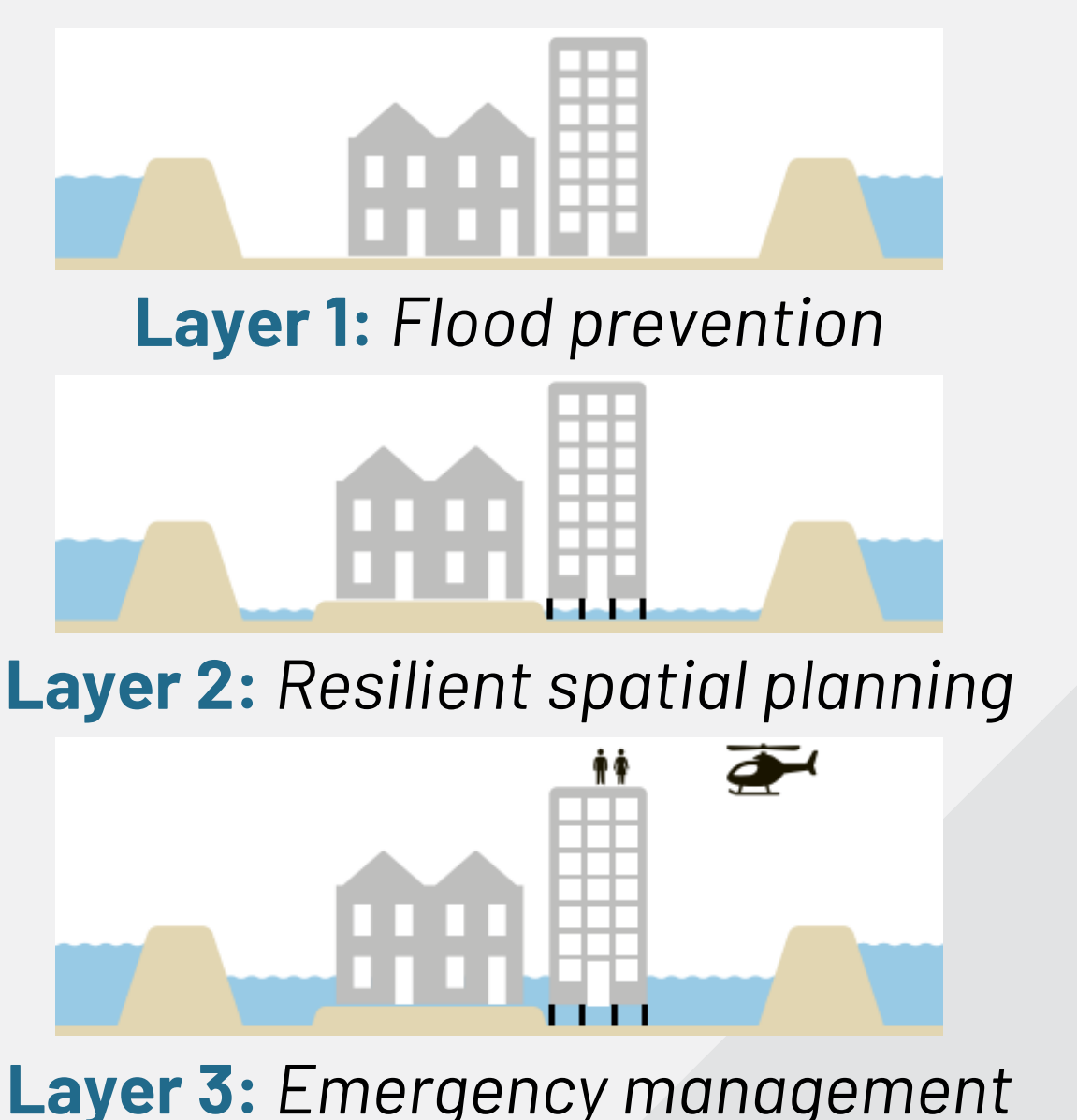
### Preliminary conclusions

- FRM approaches are currently **water-centred**, overlooking more **diversified FRM strategies**.
- Integrative FRM approaches **enhance cross-sectoral collaboration** by involving a broader range of actors within the STE system.
- **Diverging values** between flood protection and spatial planning highlight the need to bring sectors together and contribute **to common goals, value sets** and **public value creation**.
- Facilitating the shift towards more integrative approaches requires a **change in governance regimes**.

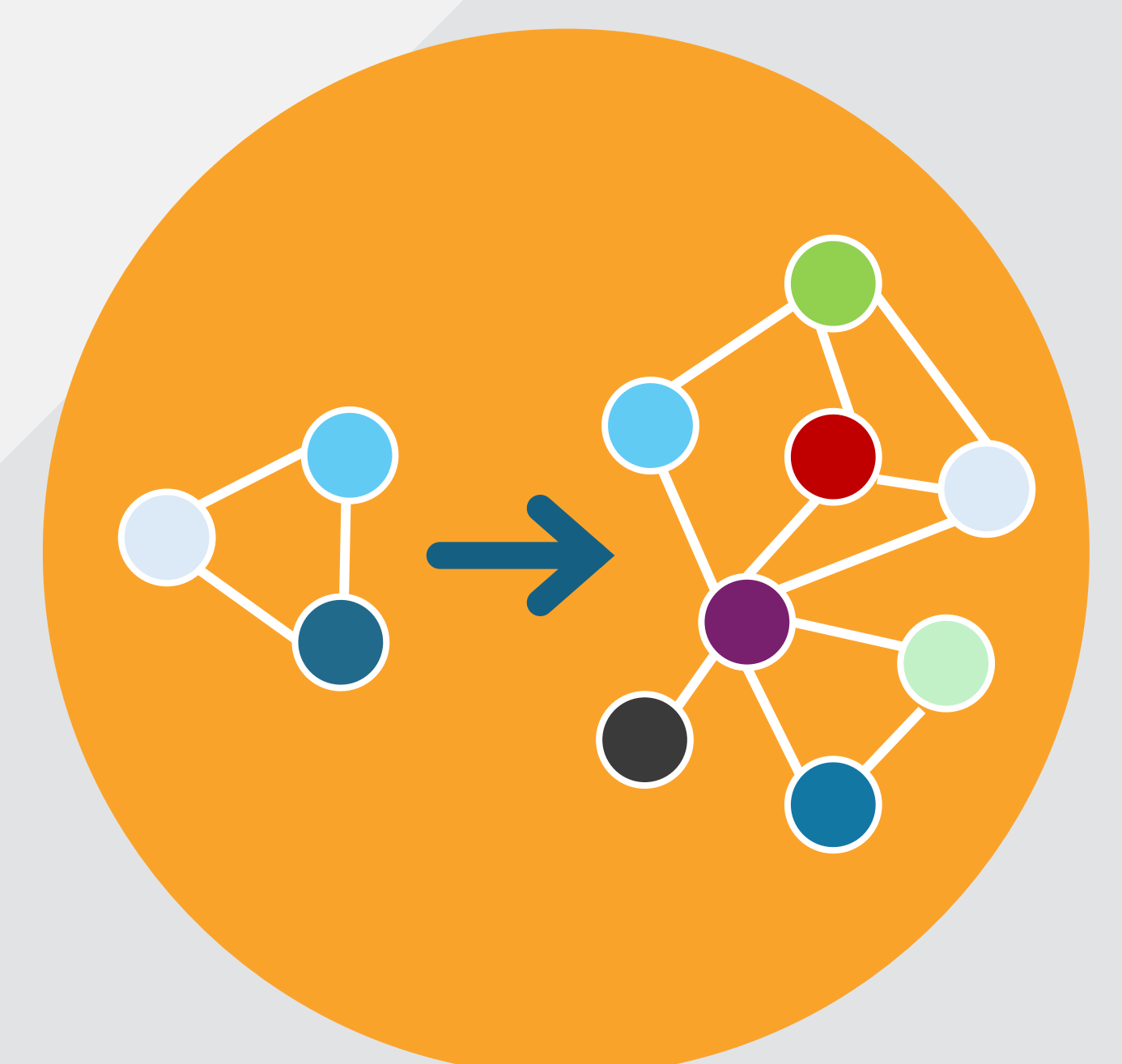
### Call to action

- To enhance flood resilience, practitioners must shift their focus to 2100, embracing **holistic approaches** that produce **system-based solutions** that transcend sectoral challenges.
- Practitioners in flood protection and spatial planning must collaborate on **interconnected, system-wide issues**, moving away from their **sectoral values**.

### Multi-layered safety

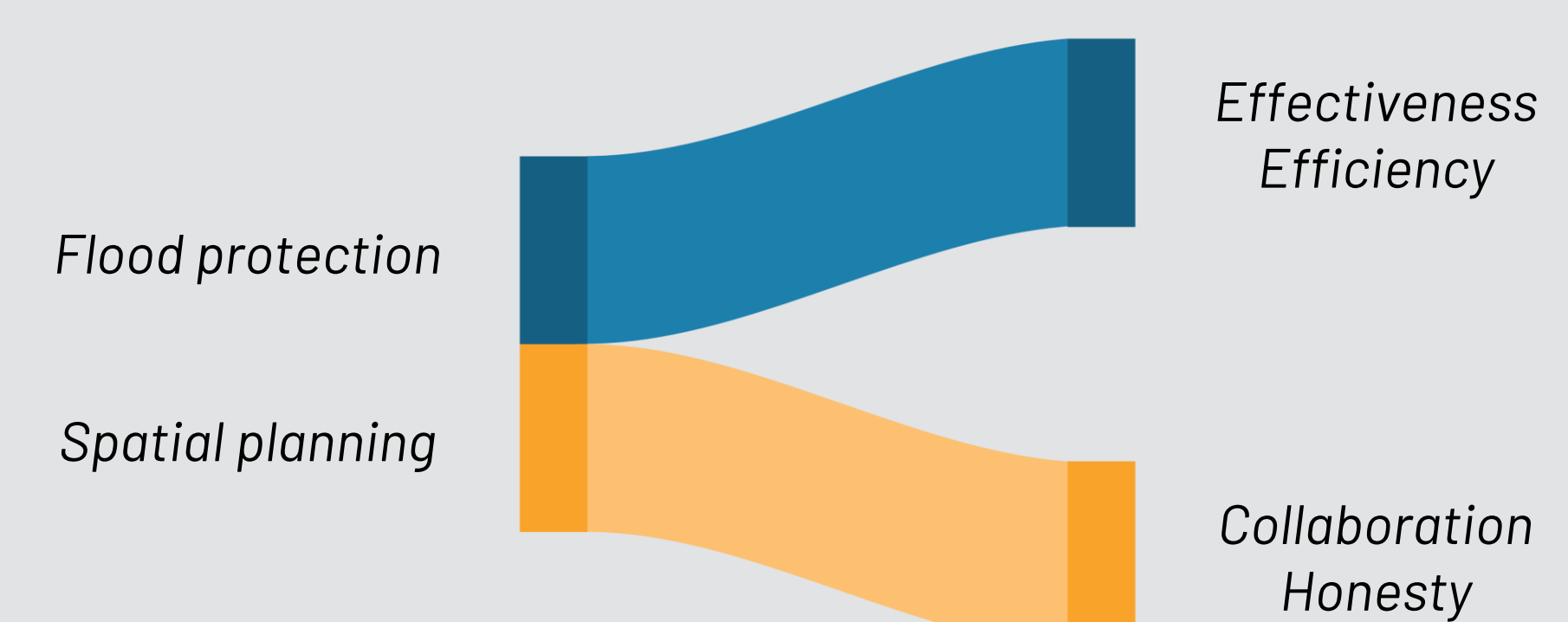


### Cross-sectoral collaboration



A shift from preventive to integrative FRM requires incorporation of more actors, moving towards a socio-technical-environmental system perspective

### Diverging values

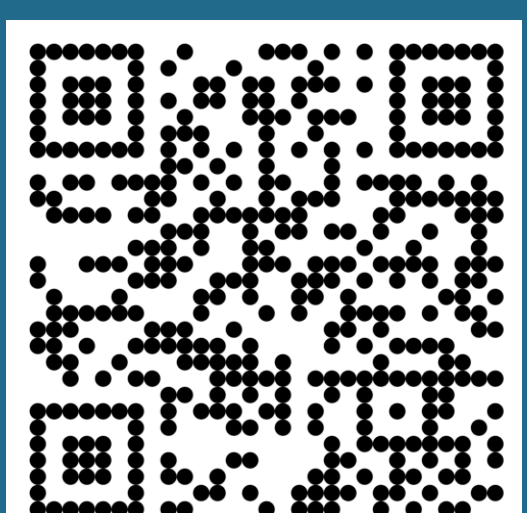


Values diverge between flood protection (performance values) and spatial planning (procedural values)

### Research partners



Research, government, and design partners further develop the flood resilient landscapes approach



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