

# Operational measures for resilience

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# Social resilience

## NOT just a spring coil!

Resilience is **more**:

- Recovery results from underlying mechanisms
  - Adaptation and adaptability
  - Willingness and capability to change
  - Aimed towards objective / function
  - Trade-offs
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- “Maintain function and identity under constant perturbations” (Walker et al., 2004)



# Quantifying social resilience

## Modelling

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### **GOAL:**

Develop quantitative methodologies and measures for quantifying resilience

Resilience is **more**:

- Include mechanisms
- Include stakeholder behaviour
- Numerical experimentation
- Analysis using different metrics

(Guus ten Broeke)

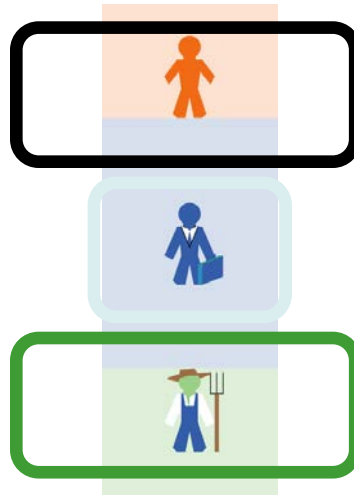
# Example: trade-off resilience and efficiency

Model with agents:

- Autonomous decisions
- Trading interactions
- Agents optimize

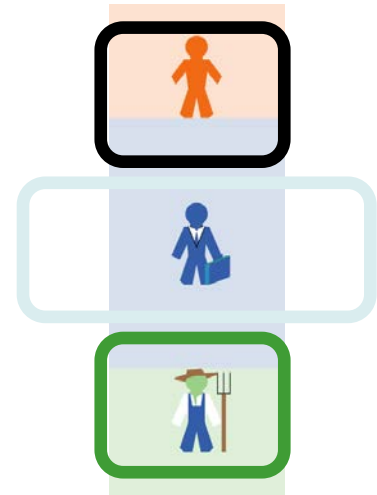
Network structure

- Function: consumer supply
- More efficient network =
- Less consumer supply



Hourglass

Highly efficient,  
susceptible to shocks



Diamond

Less efficient,  
robust to shocks

# Announcement: Summer School



4TU Resilience Summer School

Topic: Agent-Based Modelling for Resilience

Aiming for week in June 2020 at Wageningen

For: MSc, PhD, Post-Doc, TT'ers, regular academic staff, stakeholders and policy makers

30 slots for work on resilience methodology

Thank you for your attention!

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