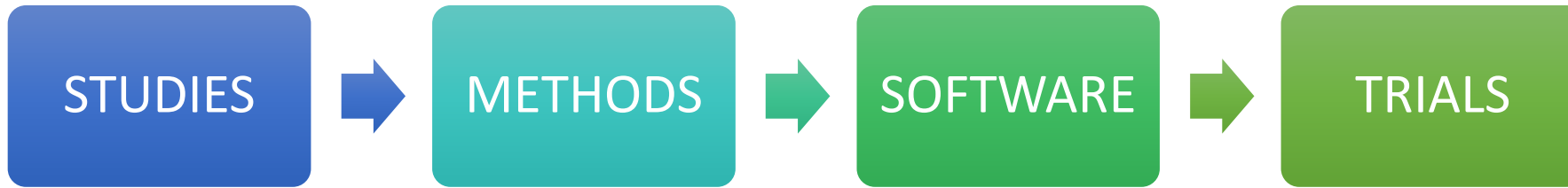# RESILOC

Research to Increase Understandings of Resilience in Communities

EnviroRisks 2020 / Sofia BG

Joe Cullen, TIHR
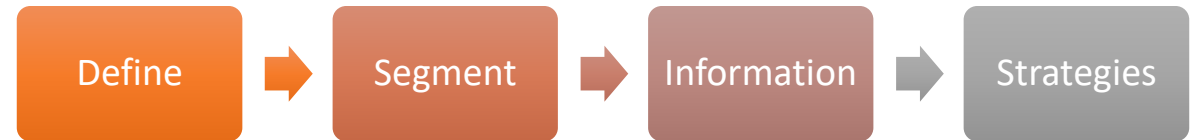
Where is research situated in RESILOC'S Objectives?
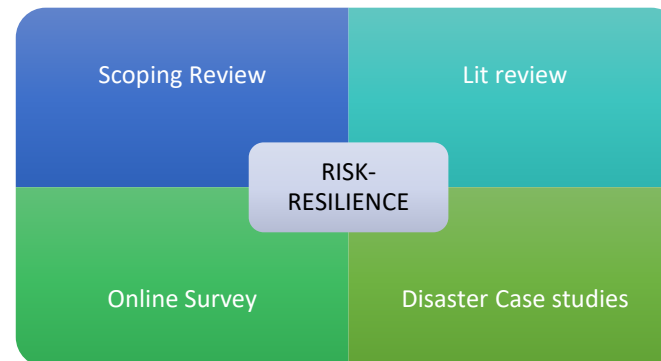
STUDIES → METHODS → SOFTWARE → TRIALS

New strategies for community preparedness & resilience

OBJ. 1: INCREASE UNDERSTANDING OF RESILIENCE IN SOCIETIES AND COMMUNITIES

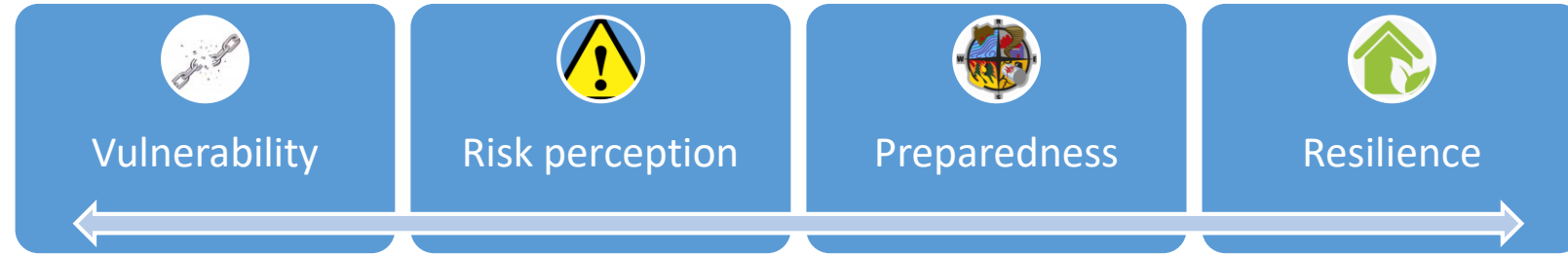Define → Segment → Information → Strategies

T2.1: ANALYSIS OF RISK PERCEPTION AND APPROACHES
T2.5: RESILIENCE APPROACHES EX-EU

Scoping Review | Lit review
RISK-RESILIENCE
Online Survey | Disaster Case studies

What are the key results?

CONCEPT MAPPING

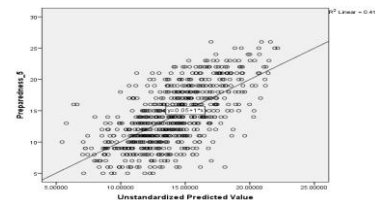| Vulnerability	Risk perception	Preparedness	Resilience

COMMUNITY BEHAVIOUR

COMPLEX SYSTEM   NON-LINEAR EMERGENT SELF-ORGANISED
DYNAMIC ADAPTATION PROCESS
PROXIMITY LEARNING MEMORY INTERACTIONS

COMMUNITY RESILIENCE DEFINITION

CAPACITIES COMPLEX SYSTEMS INTERACTIONS MITIGATE WITHSTAND RECOVER ADAPT KNOWLEDGE EXPERIENCE

PROXIES

Proxy measure	Source	Comment
Number of severe natural disasters in the area over the last 10 / 20 / 30 years	Administrative data	Measures temporal proximity to risk

RESILOC

Concept Mapping

- Explores relationship between vulnerability, risk perception, preparedness and resilience

- Relationship complex, contested and non-linear

- Context shapes the relationship and the meaning of it for citizens

- Relationship and meaning is infused with emotion, memory, community interactions and sense of place

- Link between previous experience of disasters, risk perception and people's future behaviour – but can be positive and negative

RESILOC

Community Behaviour

- Communities work as complex systems in disaster situations

- Behaviours are unpredictable, non-linear and self-organised

- Communities exhibit 'dynamic adaptation' – they use learning from previous disaster experiences to adapt

- Temporal and physical proximity is a significant predictor of risk perception and preparedness – but this relationship is not linear

- Risk perception and preparedness is of limited value if 'the system' fails to adequately engage with the community in a hazard situation

RESILOC

What we know/don't know about the relationship between vulnerability, risk perception, resilience and behaviour

"The relationship between 'risk perception', 'vulnerability', 'preparedness' and 'resilience' is complex, contested and not well-understood and the meanings and interpretations of these terms vary widely. Whilst it is commonly agreed that there is a link between these concepts, the link is neither clear nor linear" (From RESILOC D.2.1)

"it is debated whether resilience is a descriptive or a prescriptive concept and whether and how resilience differs from vulnerability or adaptive capacity" (Khulicke, 2020)

Strong link between risk perception and preparedness

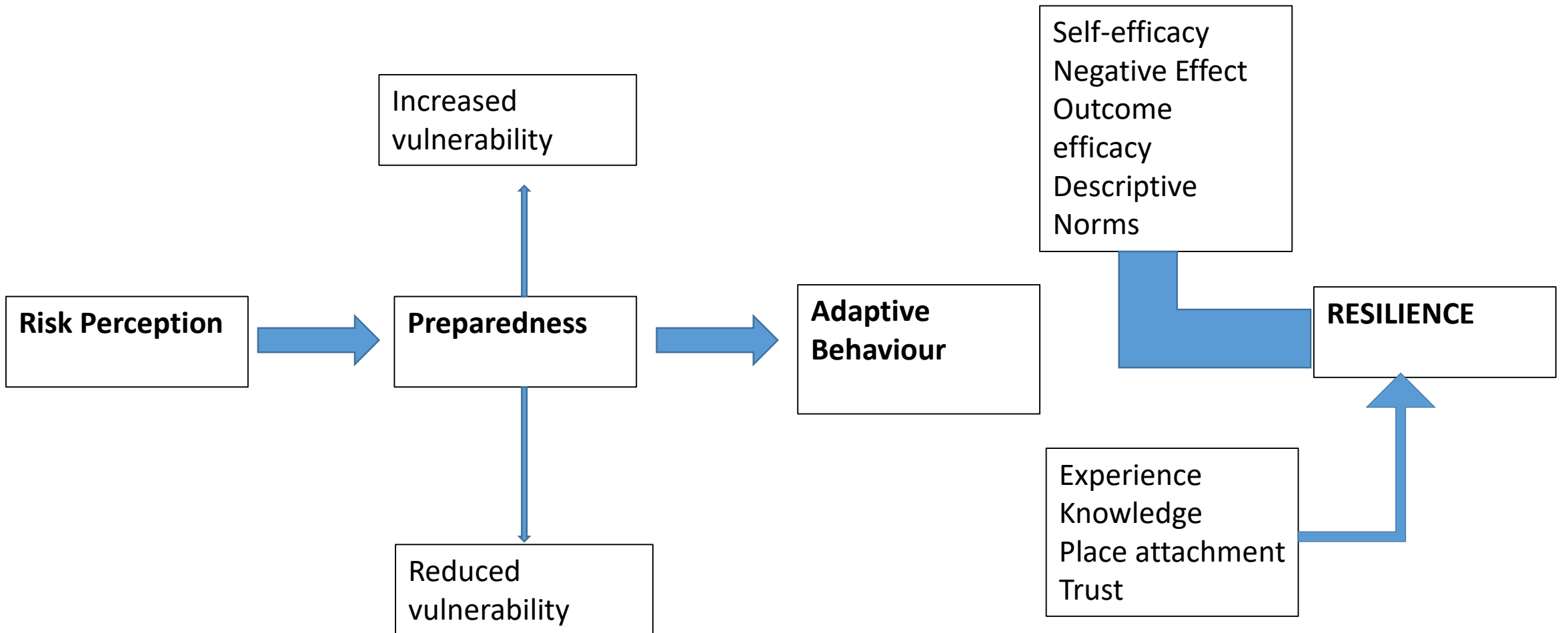Bi-directional link between preparedness and vulnerability

Link between previous experience, risk perception and preparedness – informed by emotion rather than rational assessment

Link between disaster proximity, risk perception and preparedness

Link between trust, risk perception and preparedness – but shaped by previous experience and sense of community/local knowledge

Link between socioeconomic/cultural profile, risk perception and preparedness

Temporal dimension

Our Working Definition of Community Resilience

"Community resilience refers to the capacities of local communities as complex systems (involving the actions and interactions of local agencies, citizens, the built environment and critical infrastructures) to mitigate, withstand, and recover from the impacts of a disaster or emergency, as well as to adapt or transform themselves to be less vulnerable to future disasters or emergencies. Community resilience can be enhanced by the behaviour or preparedness of its citizens, building on their knowledge and experience of previous disasters or emergencies"

BUT – knowledge and experience works both ways

AND – whether 'enhanced resilience' is of benefit before, during or after a disaster depends on 'HUMAN AGENCY'

Human Agency Example: Lifeworld Analysis

Captures the 'lived experience' of communities in disaster situations

- Life-world
- Temporality
- Spatiality
- Embodiment
- Inter-subjectivity

KEY FINDINGS

- Interaction between environment and human agency crucial in shaping risk, preparedness and resilience
- Defined by power relations
- Responsible authorities had all the power and failed to reduce risk, and support community preparedness & resilience
- The Community self-organised to protect itself before, during and after the disaster
- Capturing the community 'lived experience' is important in developing the RESILOC tools
- Measuring community-system interaction and system accountability is important

Case Study
Grenfell Tower Fire
West London, UK
June, 2017
Source: fbu.org.uk

The Problem with Proxies

- Risk perception and preparedness are most strongly affected by citizens' spatial and temporal proximity to previous disaster

- The best way to measure these in the RESILOC tool is to collect data to determine citizens' previous experience of disasters, their awareness of risks locally, and what steps they have already taken to prepare for disasters

- Using a mixture of administrative data and surveys conducted in the local areas

- To produce proxy measures of risk perception and disaster preparedness

- Example (risk perception): Number of severe natural disasters in the area over the last 10 / 20 / 30 years - measures temporal proximity to risk

BUT
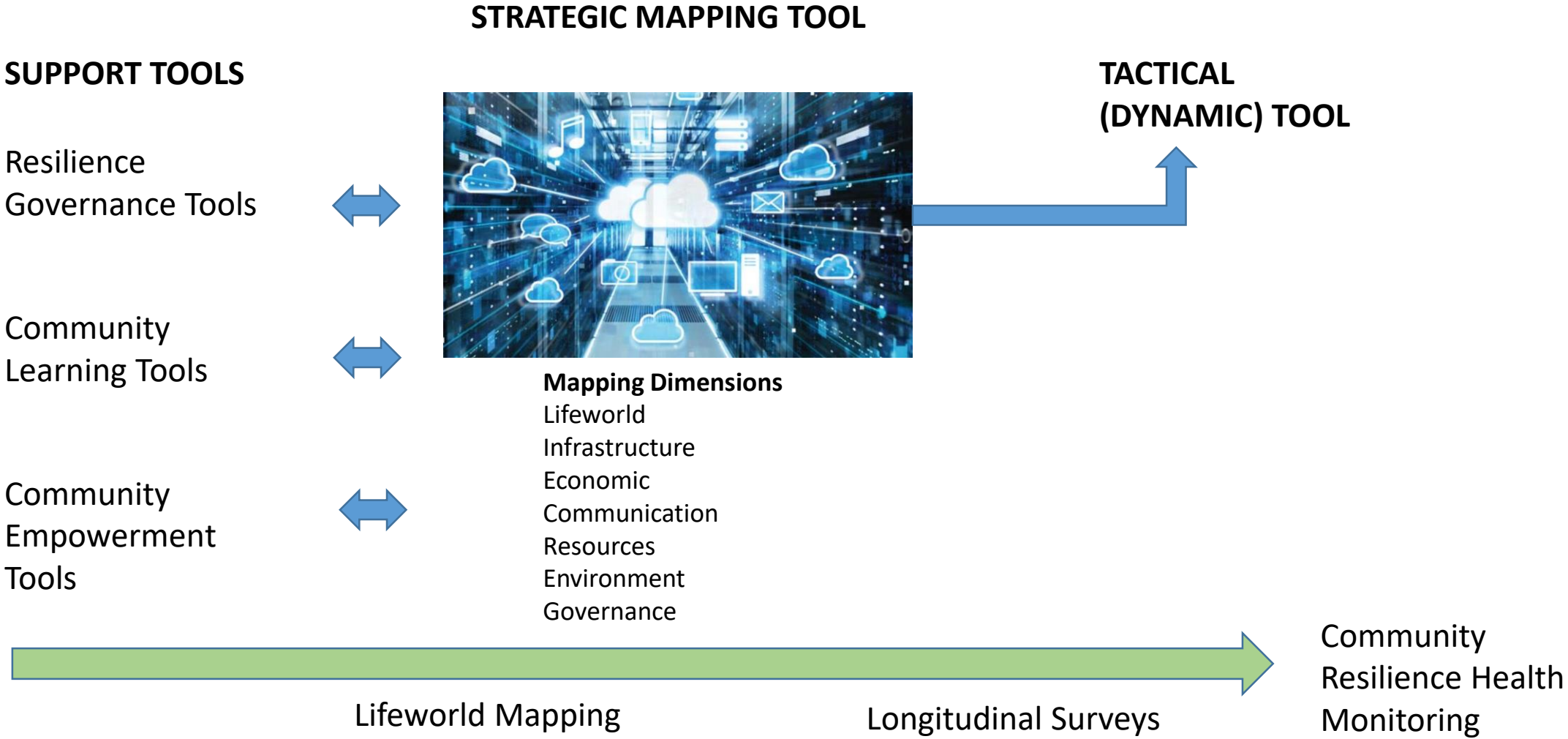Proximal factors seem more powerful predictors of risk perception and preparedness
AND
These factors are significantly determined by local context

RESILOC

Next Steps

- We need to know more about this complex relationship between vulnerability, risk perception, resilience and behaviour

- Community Resilience Definition needs to be revised to account for 'human agency'

- So do our Resilience dimensions indicators and proxies

- The key problems is accounting for 'context' and making the RESILOC tools flexible enough to cross boundaries and adapt to the complexities of communities

- Using 'mechanisms' and 'mid range theories' to develop 'change stories' for each dimension

RESILOC

Towards a RESILOC tool

STRATEGIC MAPPING TOOL

SUPPORT TOOLS

TACTICAL (DYNAMIC) TOOL

Resilience
Governance Tools

Community
Learning Tools

Community
Empowerment
Tools

Mapping Dimensions
Lifeworld
Infrastructure
Economic
Communication
Resources
Environment
Governance

Community
Resilience Health
Monitoring

Lifeworld Mapping

Longitudinal Surveys

RESILOC

RESILOC

This project has received funding from the European Union's Horizon 2020 research and

innovation programme under grant agreement No 833671