



EXPLORING CLIMATE RESILIENCE

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Center for **Climate
Adaptation Science
and Solutions**

Thanks



THE UNIVERSITY
OF ARIZONA

Agnese Nelms Haury Program

in Environment and Social Justice



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Alliance for Resilient Campuses



Alliance for
Resilient Campuses



MISSION

Our mission is to proactively build a sustainable and positive global future through *initiating bold commitments, scaling successful actions, and accelerating innovative solutions* among leadership networks in higher education.

Why Resilience?



The Good:

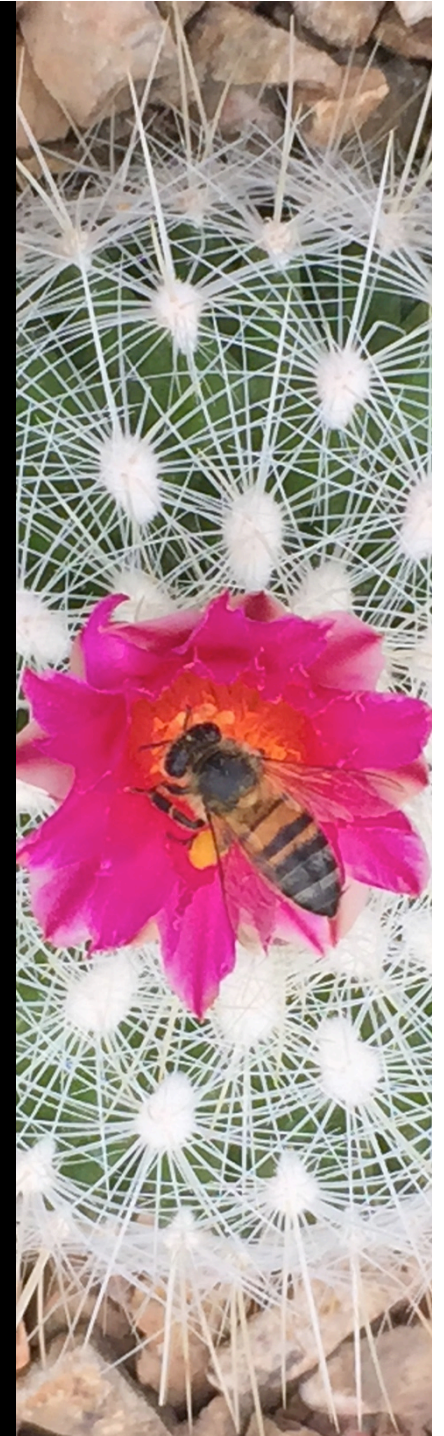
- Not only climate
- Inclusive of adaptation and mitigation
- Resonates
- Systems approach

The Bad:

- Confused with adaptation (not so bad)
- Too broad to understand
- Political expediency, easy sell
- Actionable?

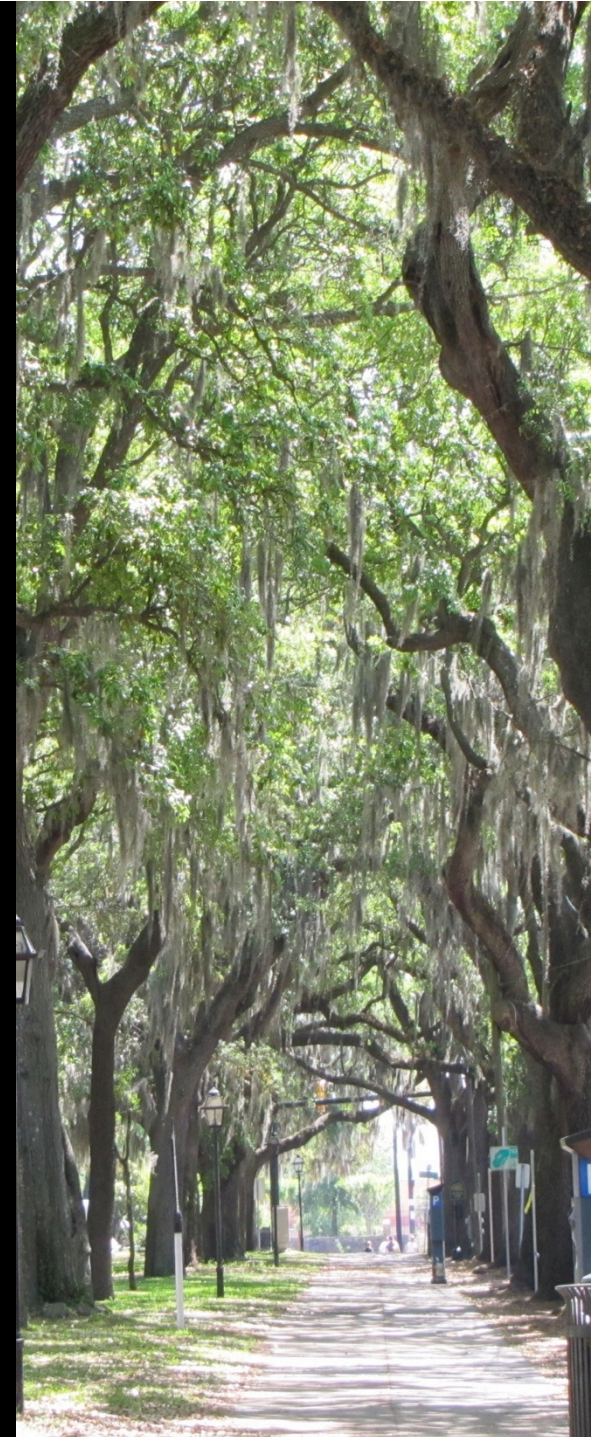
The Ugly:

- Means nothing/everything. New buzzword

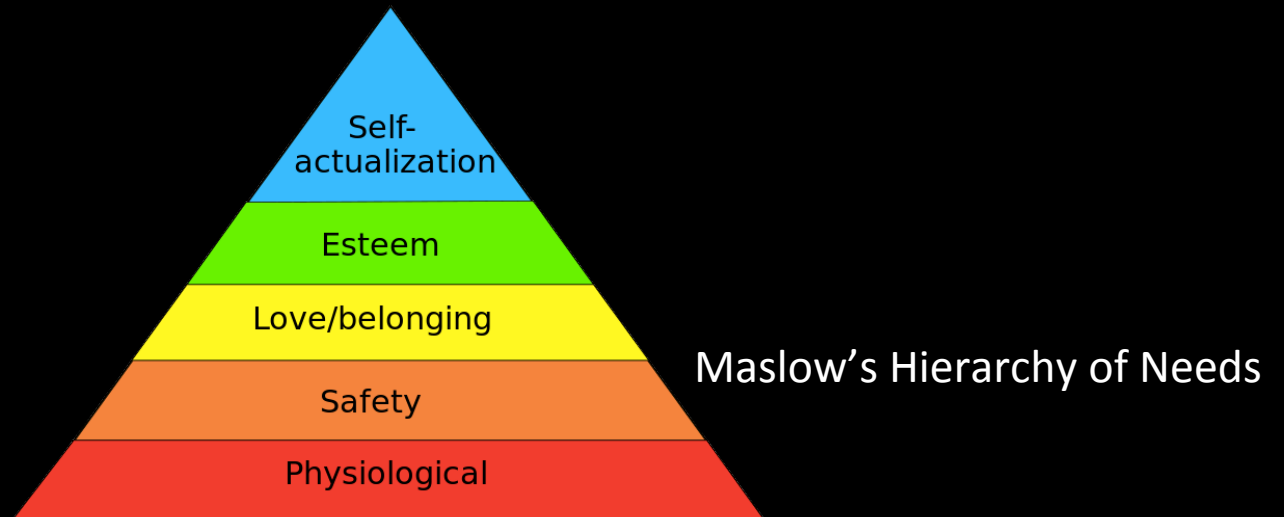
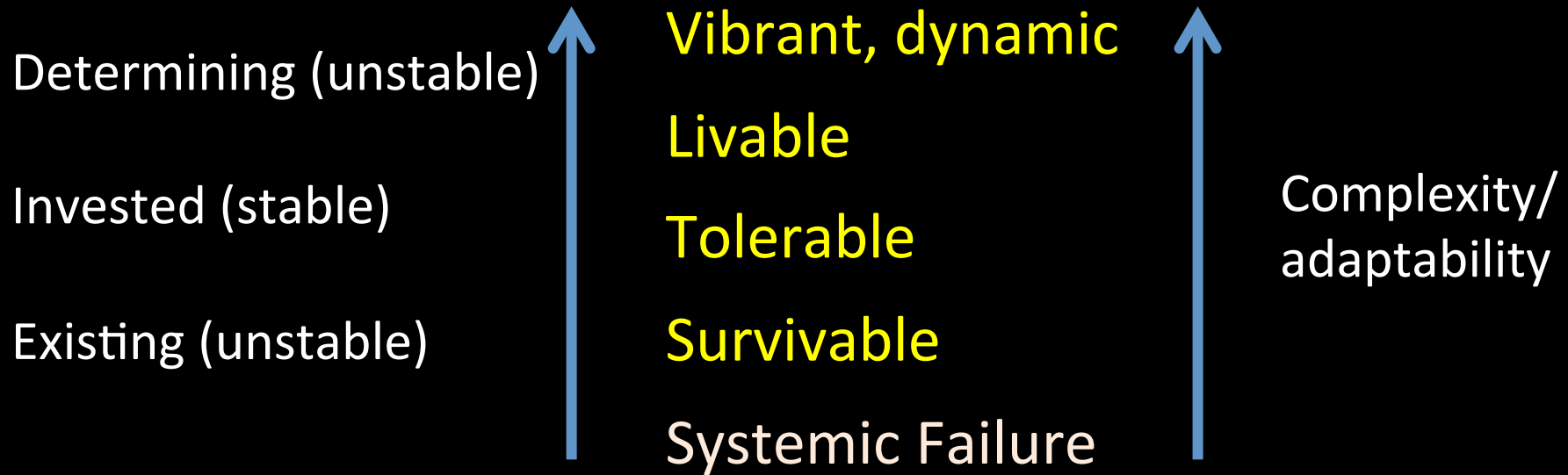


Resilience and Adaptation

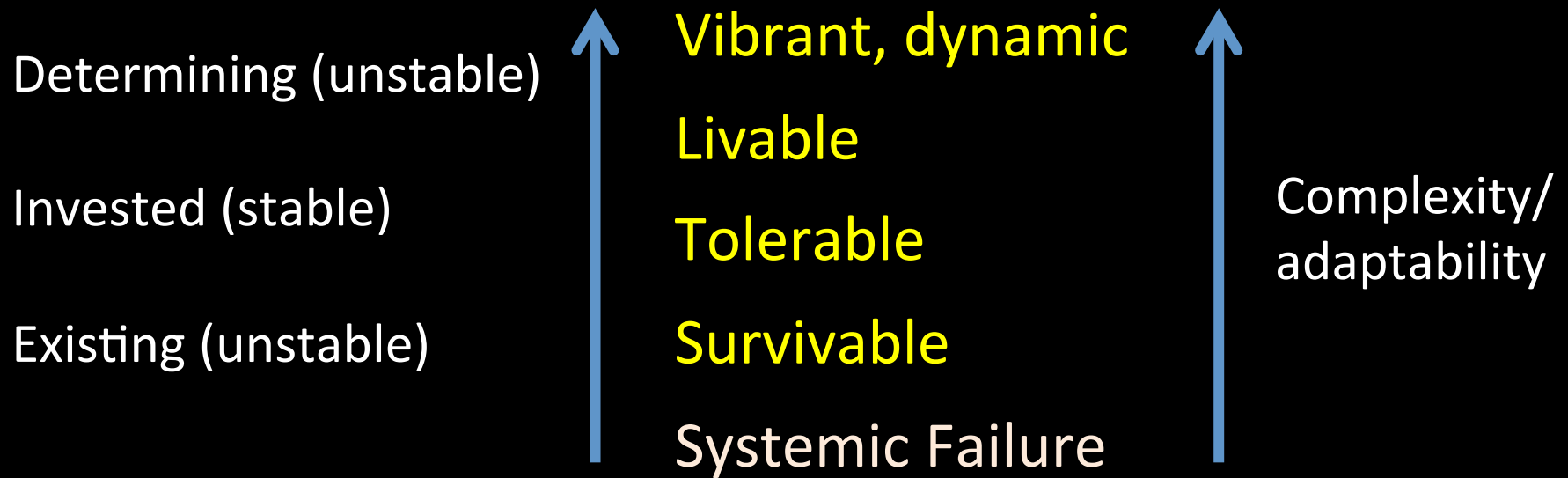
- Resilience is valuable even without climate change
- Provides a foundation of adaptive capacity – savings + investment
- Adaptation involves anticipated climate changes
- Natural allies



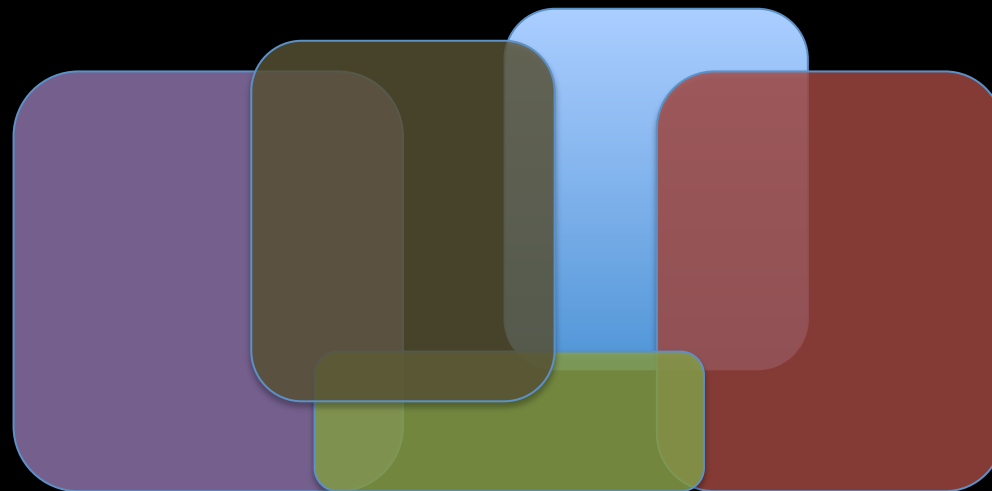
Stages/Levels of Resilience



Stages/Levels of Resilience

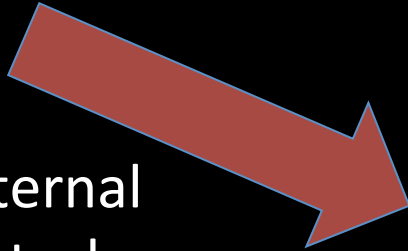


System 'Map'



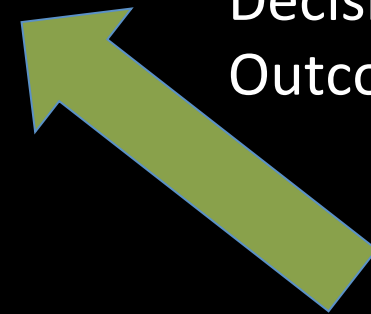
Stages/Levels of Resilience

External
Disturbance



- Vibrant, dynamic
- Livable
- Tolerable
- Survivable
- Systemic Failure

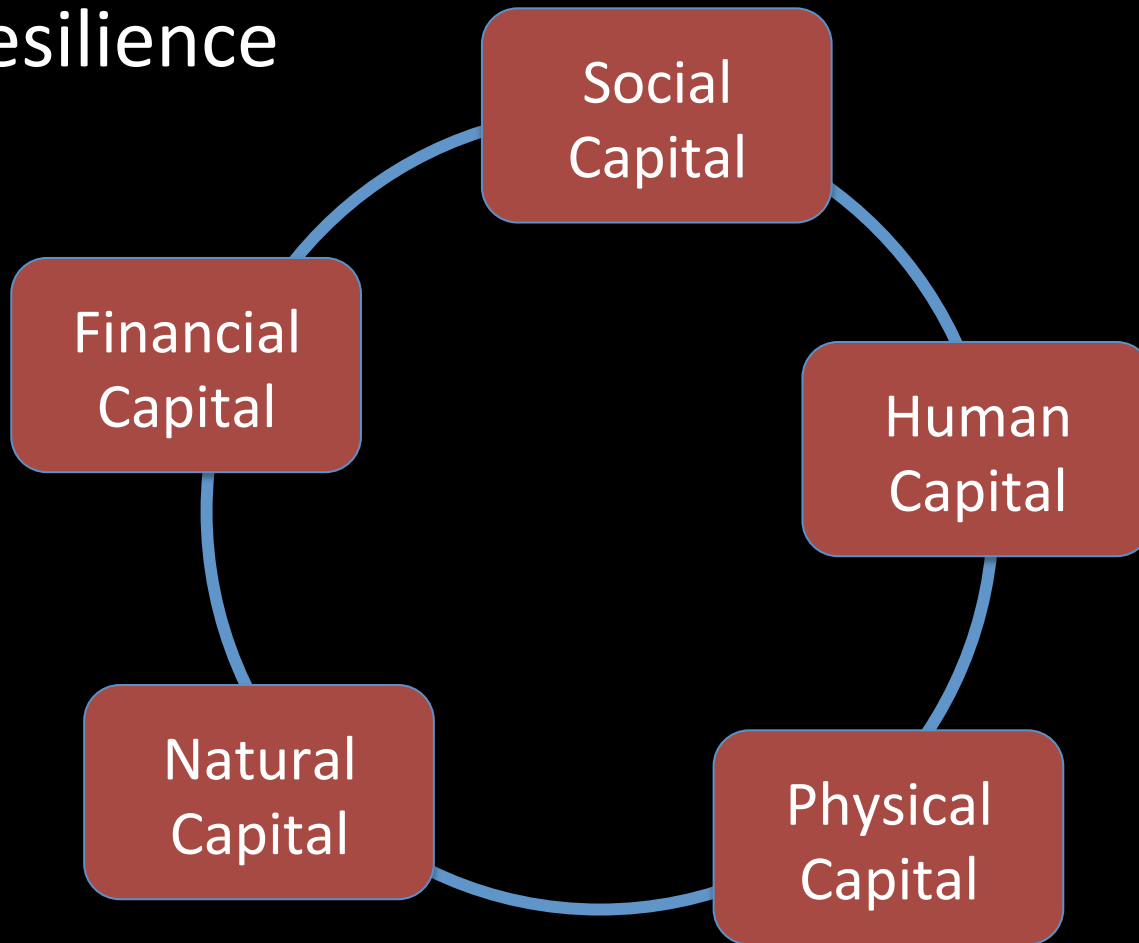
Decision
Outcomes



Resilience as Directional Change

- Not just a return to a prior state
- Drives towards an improved state: system and its components
 - Flexible
 - Diverse

Adaptive Capacity and Resilience

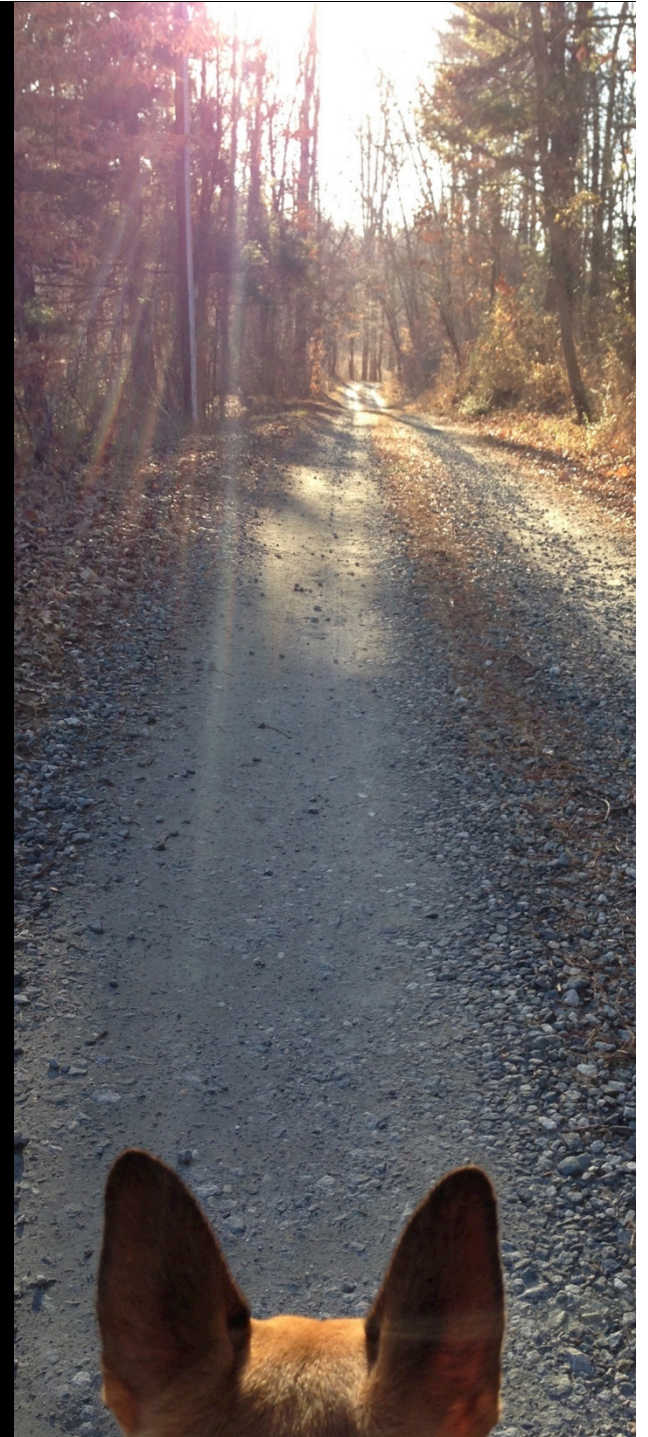


Ellis 2000, Nelson 2007

Adaptive Capacity and Resilience

- Social Capital
- Human Capital
- Physical Capital
- Natural Capital
- Financial capital

Basis for flexible but coherent indicators of change and direction



	Indicator	Variable	Rationale
Human	Human and physical health	Self assessed health	Capacity of land managers to undertake NRM based on their health status
		Age/ill health as a constraint to NRM	Limitation of land managers to undertake NRM based on old age or illness
	Education and training	Highest qualification in household	Knowledge that land managers have to manage natural resources
		Vocational training (number and type of accredited training)	Skills that land managers have to manage natural resources
	Retaining young people	The proportion of young people in regional populations	Talent available for current and future NRM
		Education levels of young people	Knowledge of future natural resource managers
Occupation and Industry	Successful industry transition	Ease with which natural resource managers can switch between livelihood options	
Social	Bonding	Personal trust	Capacity of family and community networks to support NRM
	Bridging	Generalised trust	Capacity of wider community networks to support NRM
		Participation in government programs	Generalised trust in government programs to support NRM
	Linking	Adoption rates of NRM practices on-farm	Effectiveness of linking with government programs to obtain ideas and resources to support NRM
Internet use		Collective capacity to undertake NRM through bonding, bridging and linking within communities, particularly remote communities, and potential access to NRM information	

Planning for Resilience

- Resilience as a foundation
- Levels defining whole system/ community or sub-components
- Applies to external changes and internal decisions
- Five areas of adaptive capacity underpinning resilience
- Implications for indicators

So what does this mean in terms of planning and action?



Planning for Resilience

Assessment of current resilience

Indicators, Long-term evaluation criteria, vulnerability

Decision Options and Actions

(moderating vulnerability AND towards preferred future)

Preferred futures
Inclusive process

Costs and Opportunities
(prioritization)

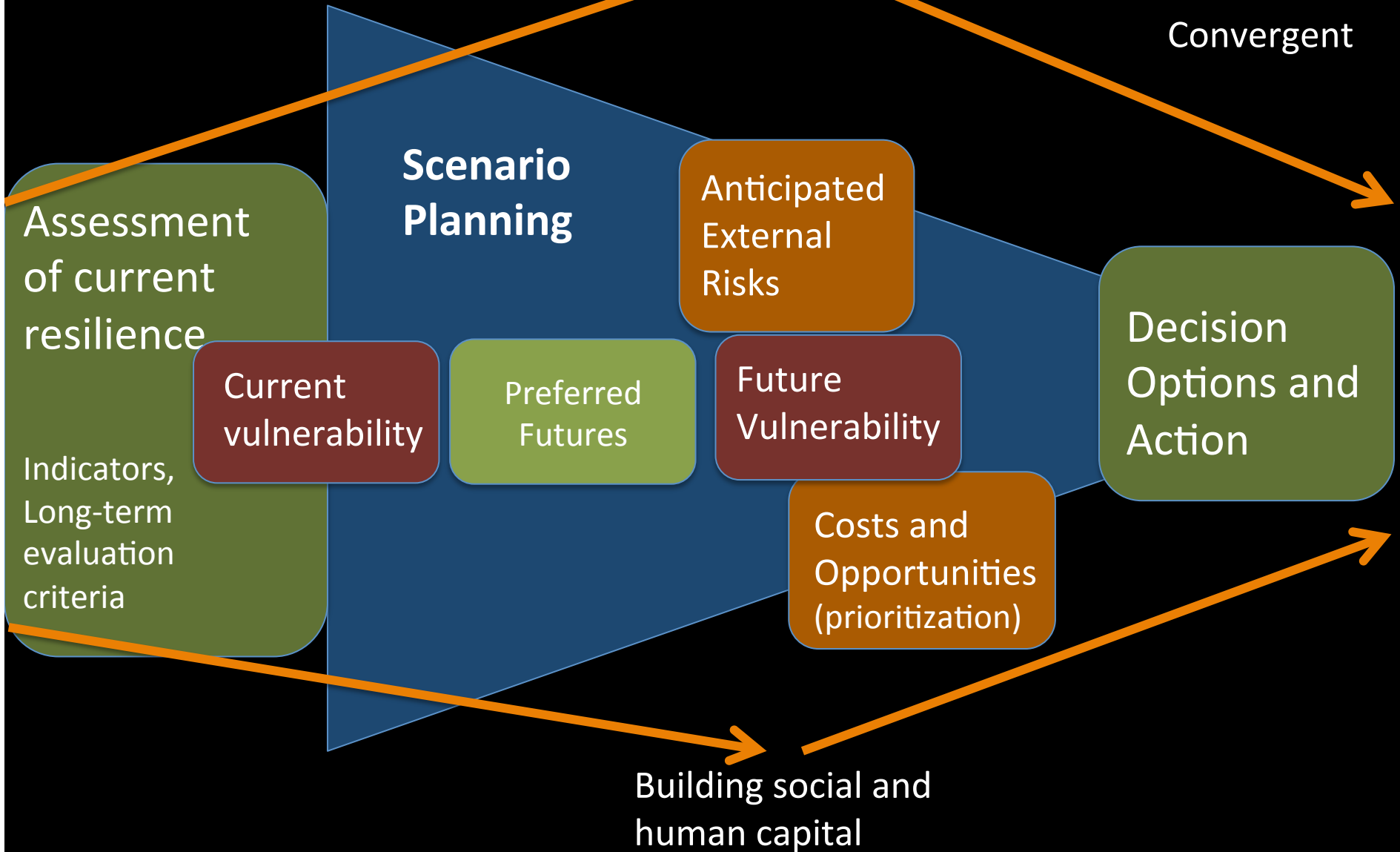
Anticipated External Risks

Vulnerability assessment

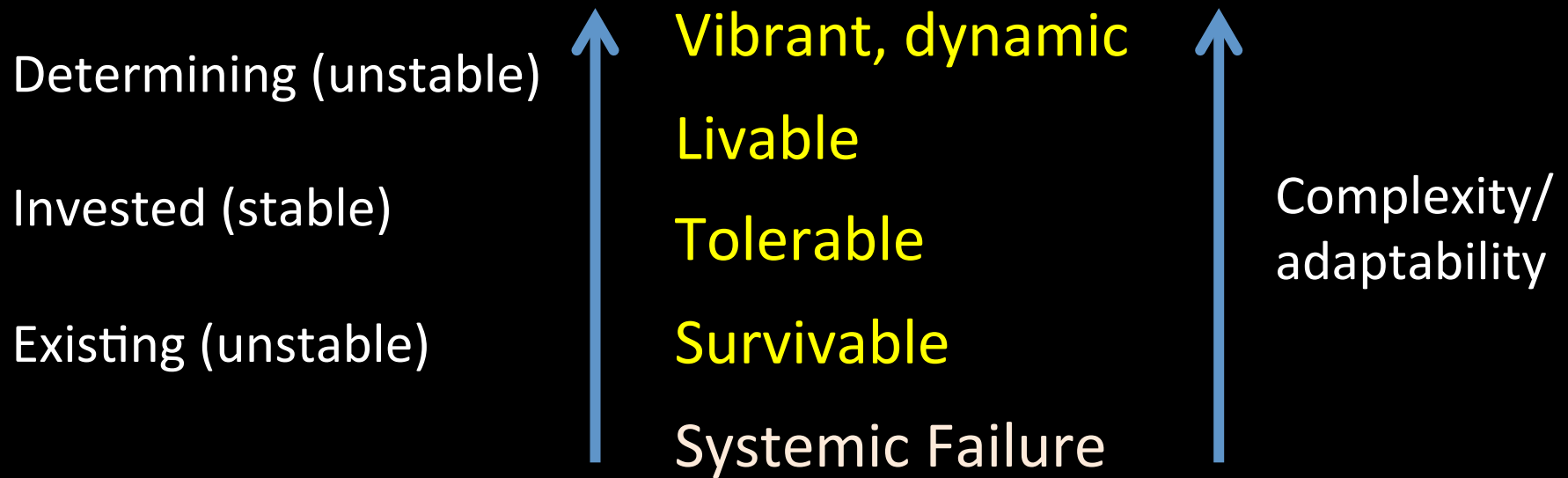
Scenarios as partial solution

Divergent

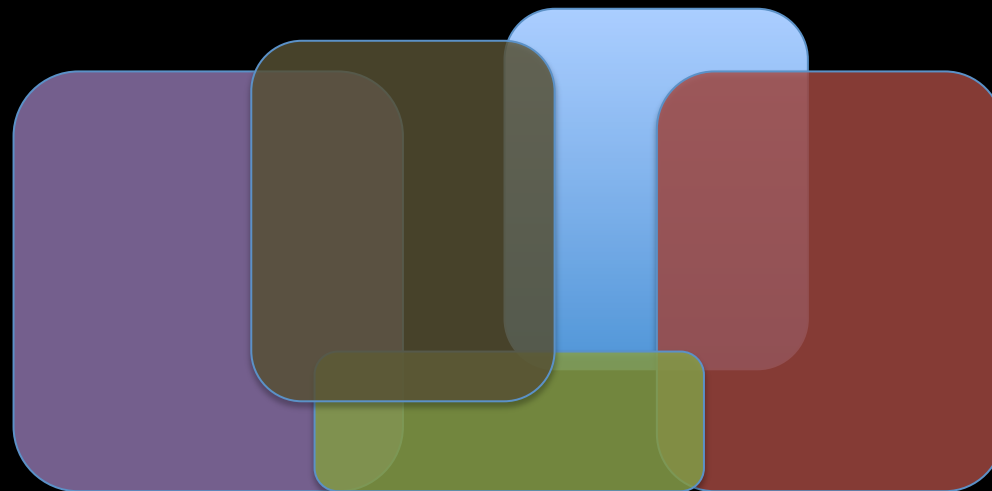
Convergent

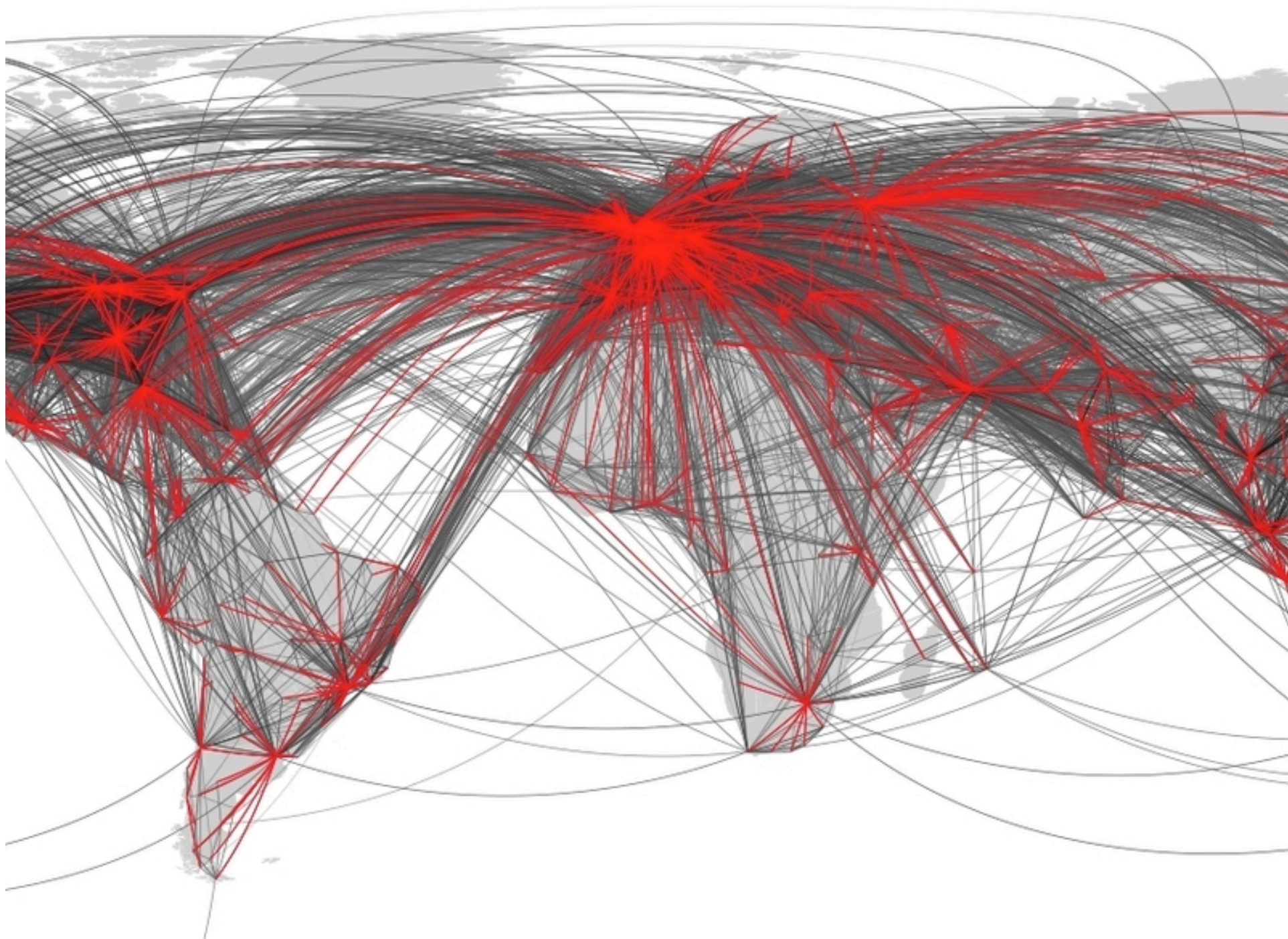


Stages/Levels of Resilience



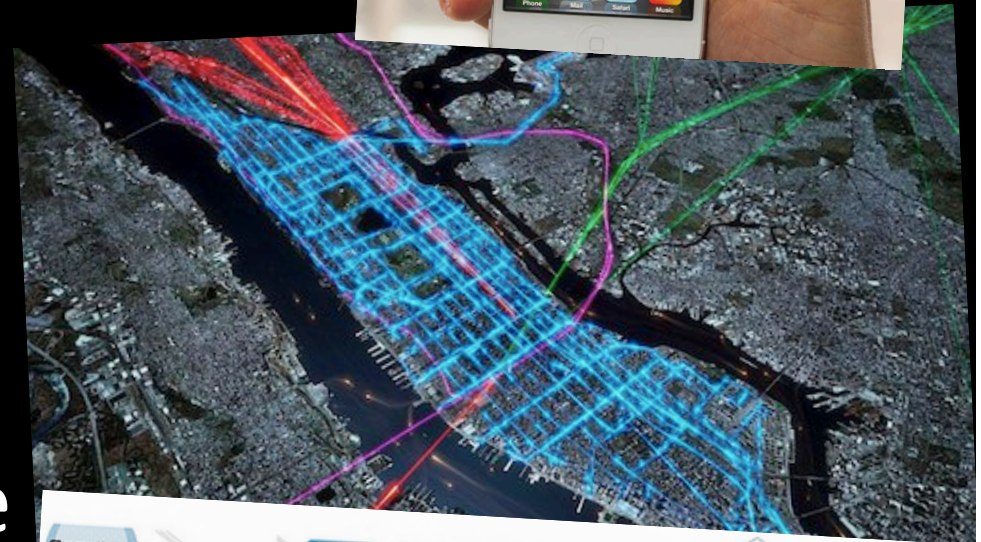
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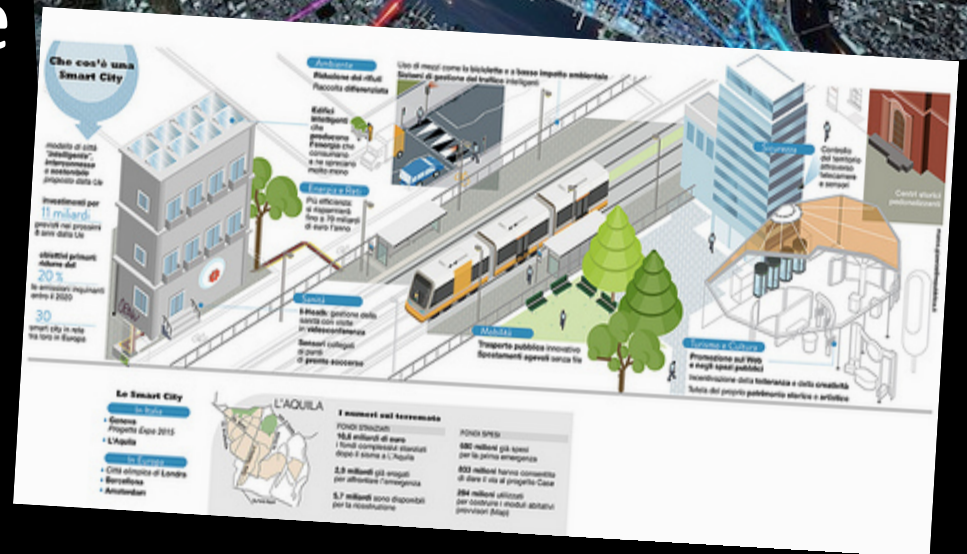


The Role of Tech (social)

- Citizen-data
- 'Smart' cities
- Connected
- Challenge and benefit to resilience



- Moving beyond 'reporting' to *dynamic assessment*



Role of Higher Education

- New kinds of knowledge generation
 - Technology as a tool and opportunity
 - Currently cities out in front
 - Currently limited scaled learning, analysis
- Integration of science and practice – formally
- Interdisciplinary opportunities
- Embedding learning, planning, and implementation

Resilience Planning

- Building capacity throughout the process as well as an intended outcome
- Scenarios and indicators as a component of sustained dynamic assessment
- Not just about reducing the future negatives.
Designing for:
 - Reducing the use of the 'rainy day' fund
 - Appropriate investment portfolio



THANK YOU

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