

# *Systems Thinking for Sustainability*

Contrasting different perspectives

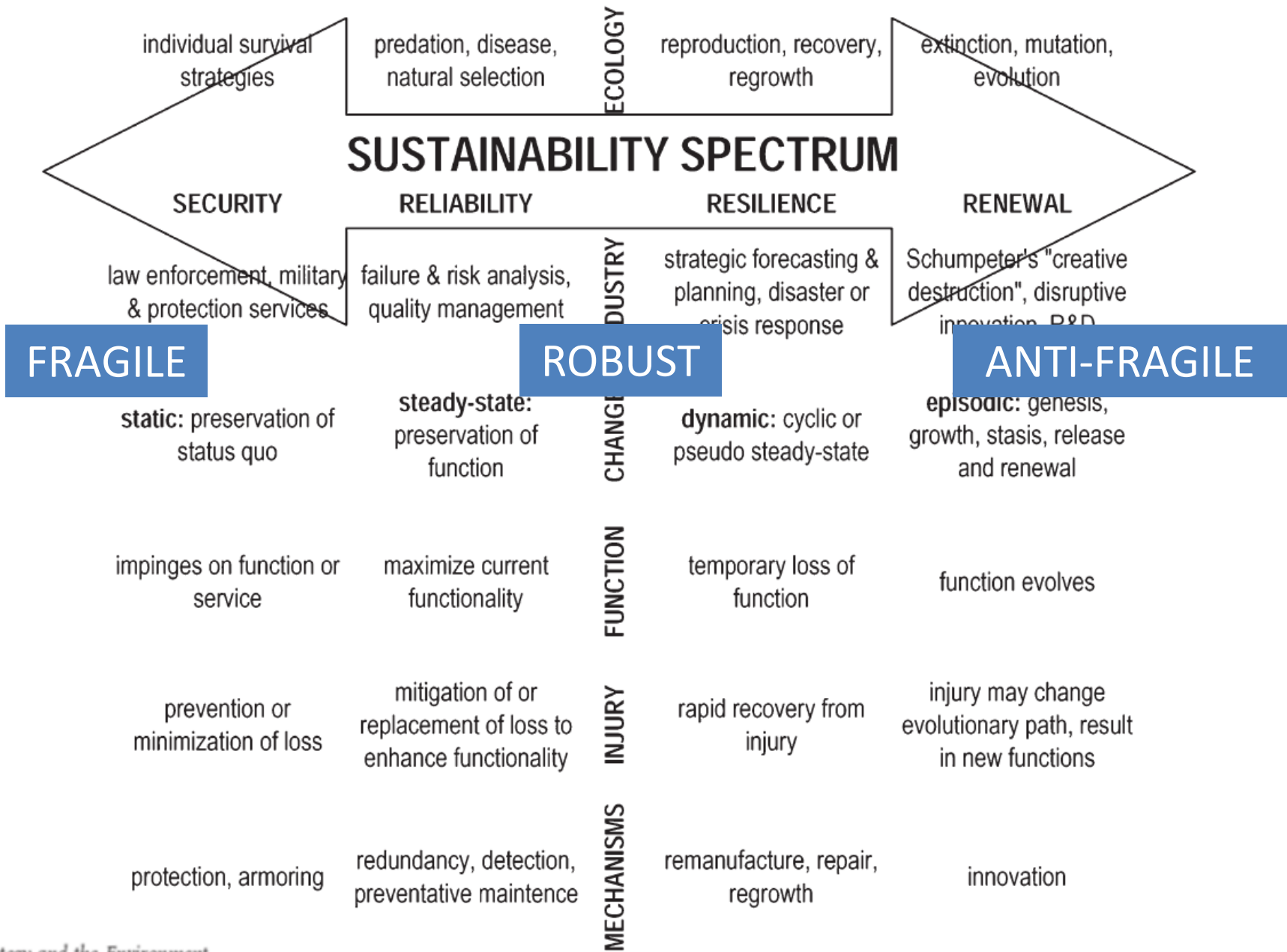
Thomas P Seager, Arizona State University

[Thomas.Seager@asu.edu](mailto:Thomas.Seager@asu.edu)

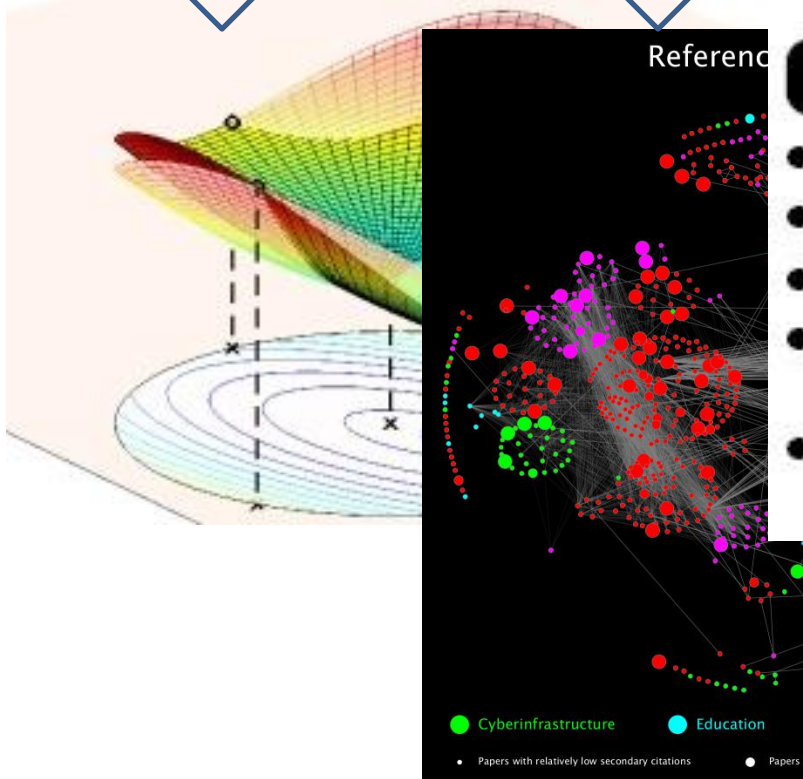
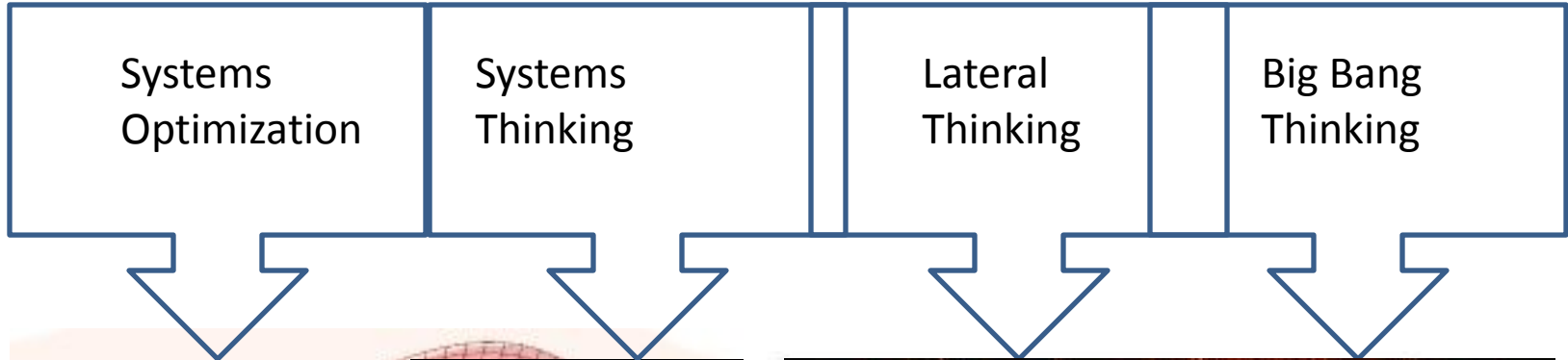
@seagertp

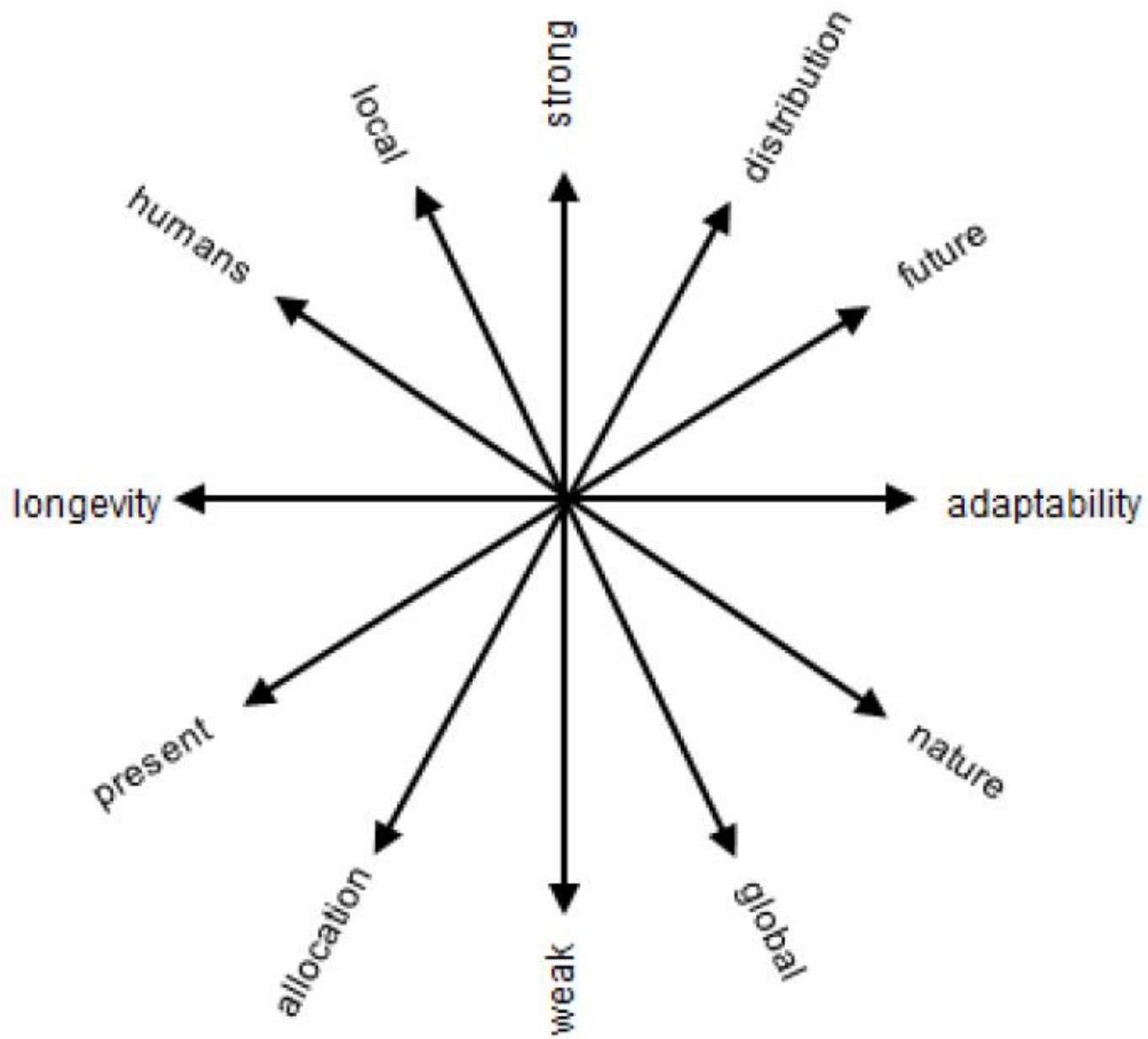
1 Aug 2013, IEEE SusTech





# Systems Thinking for Sustainability





**Table 1: Science & Technology Orientations Towards Sustainability**

		<b>Attitude towards Technology</b>	<b>Focus</b>	<b>Expert &amp; Ethical Culture</b>	<b>Approach to Complexity</b>	<b>Approach to Conflicting Views</b>
<b>BUSINESS-AS-USUAL</b>		Optimism	Creating new things, resources. Ignores scale & efficiency.	Depth in a single sub-discipline. Professional ethics.	Simplification & reduction	Defense of techno-industrial ethos. Denial of opposing perspectives.
<b>SYSTEMS ENGINEERING</b>	<b>Engineering within ecological constraints</b>	Pragmatism	Cost optimization of maturing technology. Ignores scale.	Compartmentalized, multi-disciplinary teams. Social ethics.	Cost-benefit optimization & efficiency	Litigation & regulation
	<b>Sustainable engineering</b>		Optimization for triple bottom line. Ignores scale.		Risk minimization	Structured participation
<b>SUSTAINABLE ENGINEERING SCIENCE</b>		Skepticism	Sustainability as a wicked problem.	Interactional expertise. Macro ethics.	Anticipation, Adaptation & resilience	Cooperation & deliberation