The Role of the Architect in a Turbulent World

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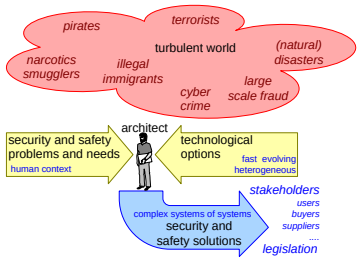
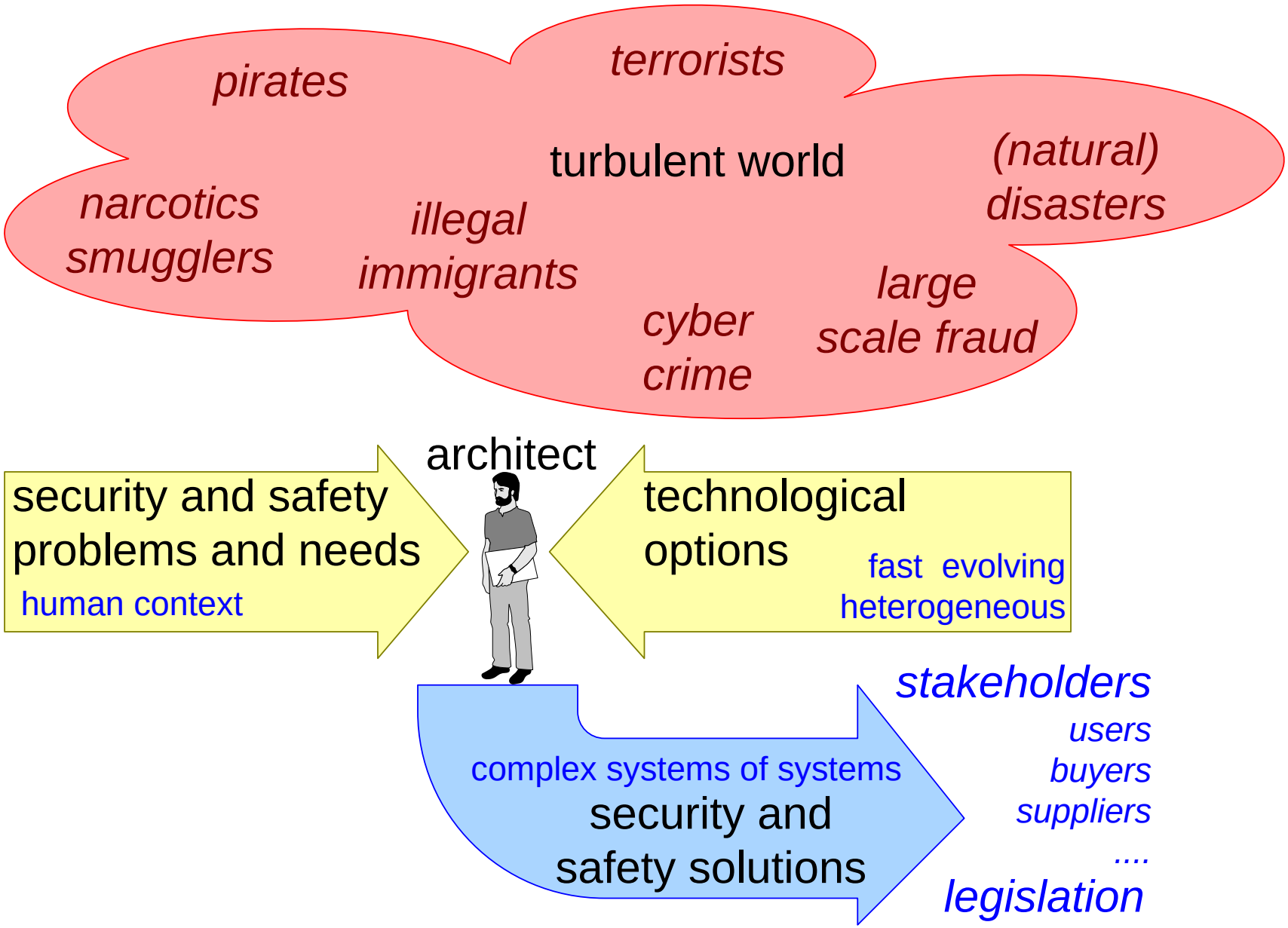
Abstract

The role of the architect in today's turbulent world is discussed. There is a need for systems that improve security, safety, and that provide threat analysis and prevention, and intelligence. These systems are build in an era full of technological opportunities; from biometrics to intelligent vision/analysis et cetera. However we are faced with many challenges: how to cope with huge amounts of information, how to cope with or how to prevent false positives and false negatives. At the same time system builders have to deal with complicating factors: human factor, many open systems in stead of a few closed systems, and the dynamics of the environment (politics, terrorists, nature, ...).
What is the role of the architect, how to cope with the challenges and complications, what methods and tools are available?

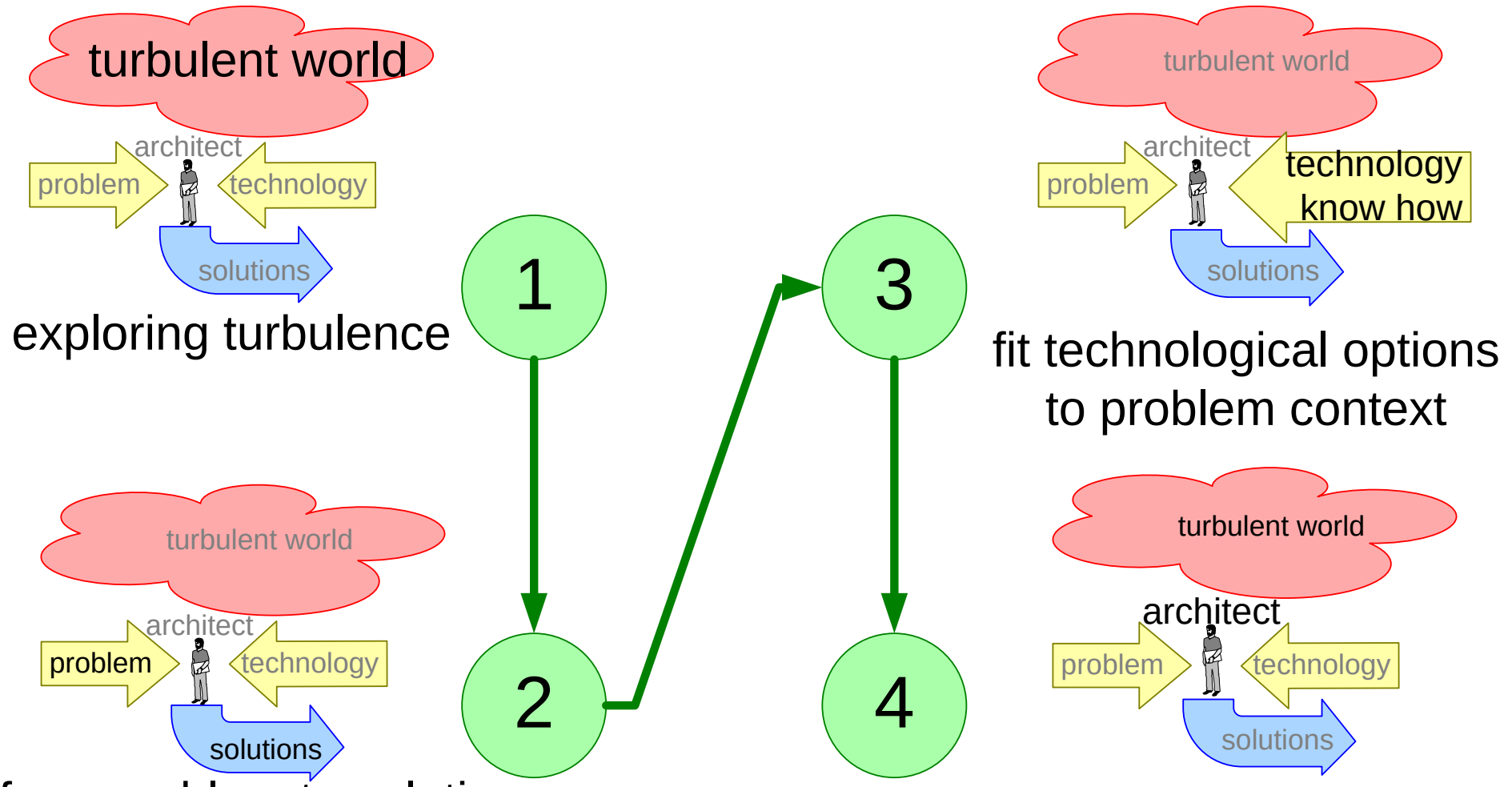


October 3, 2016
status: preliminary draft
version: 0

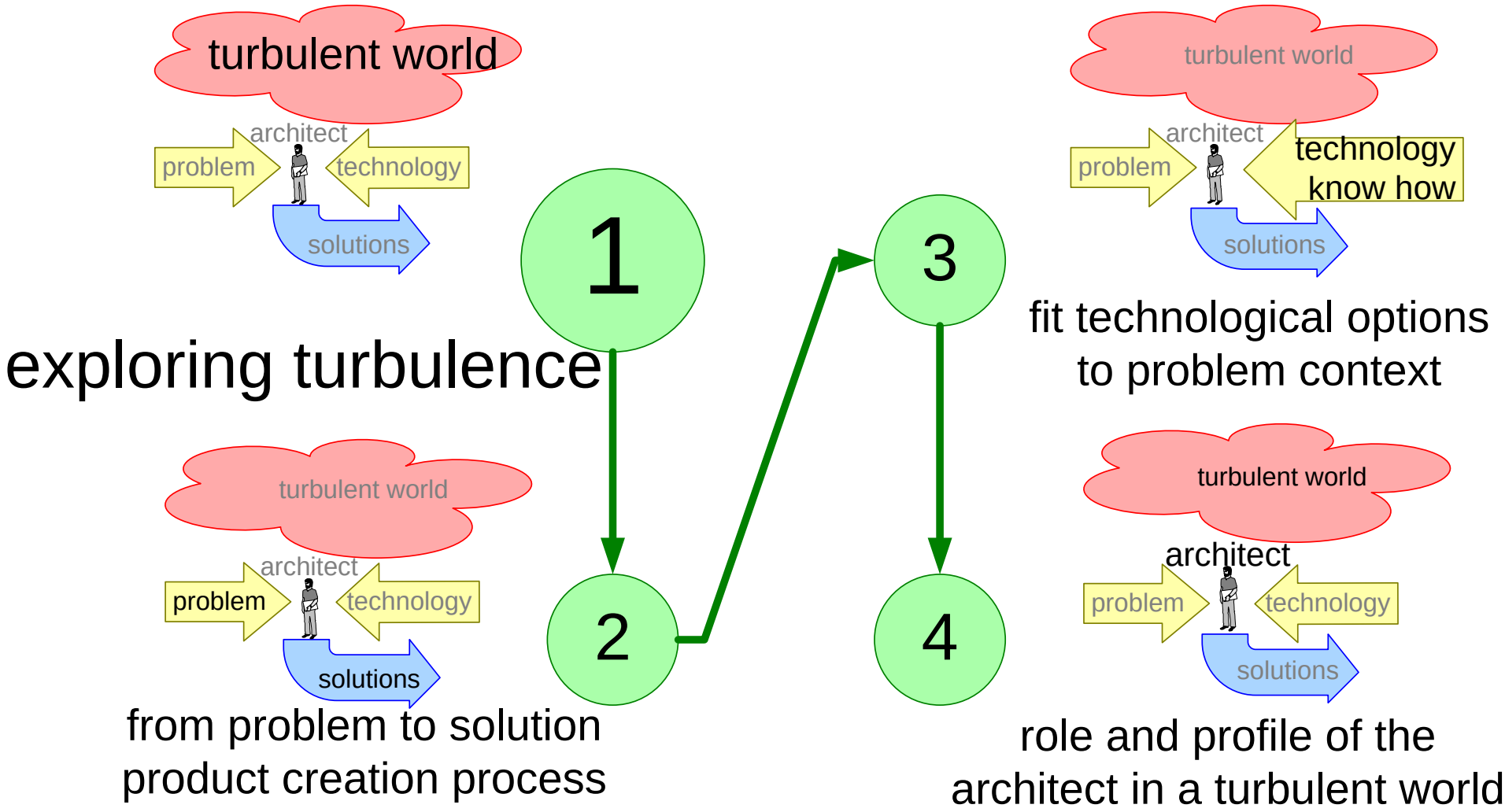
The Architect in a Turbulent World



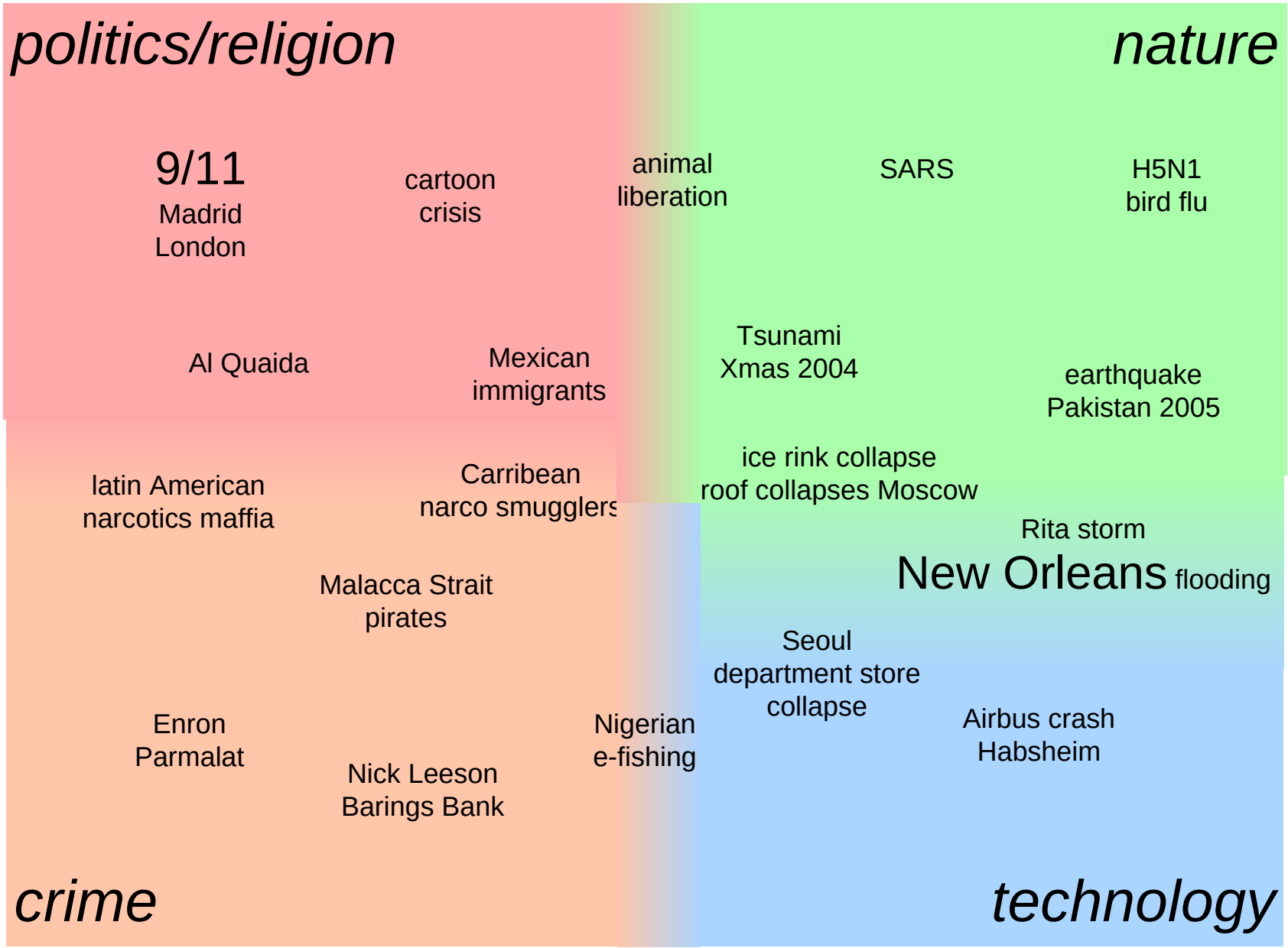
Structure of this Presentation



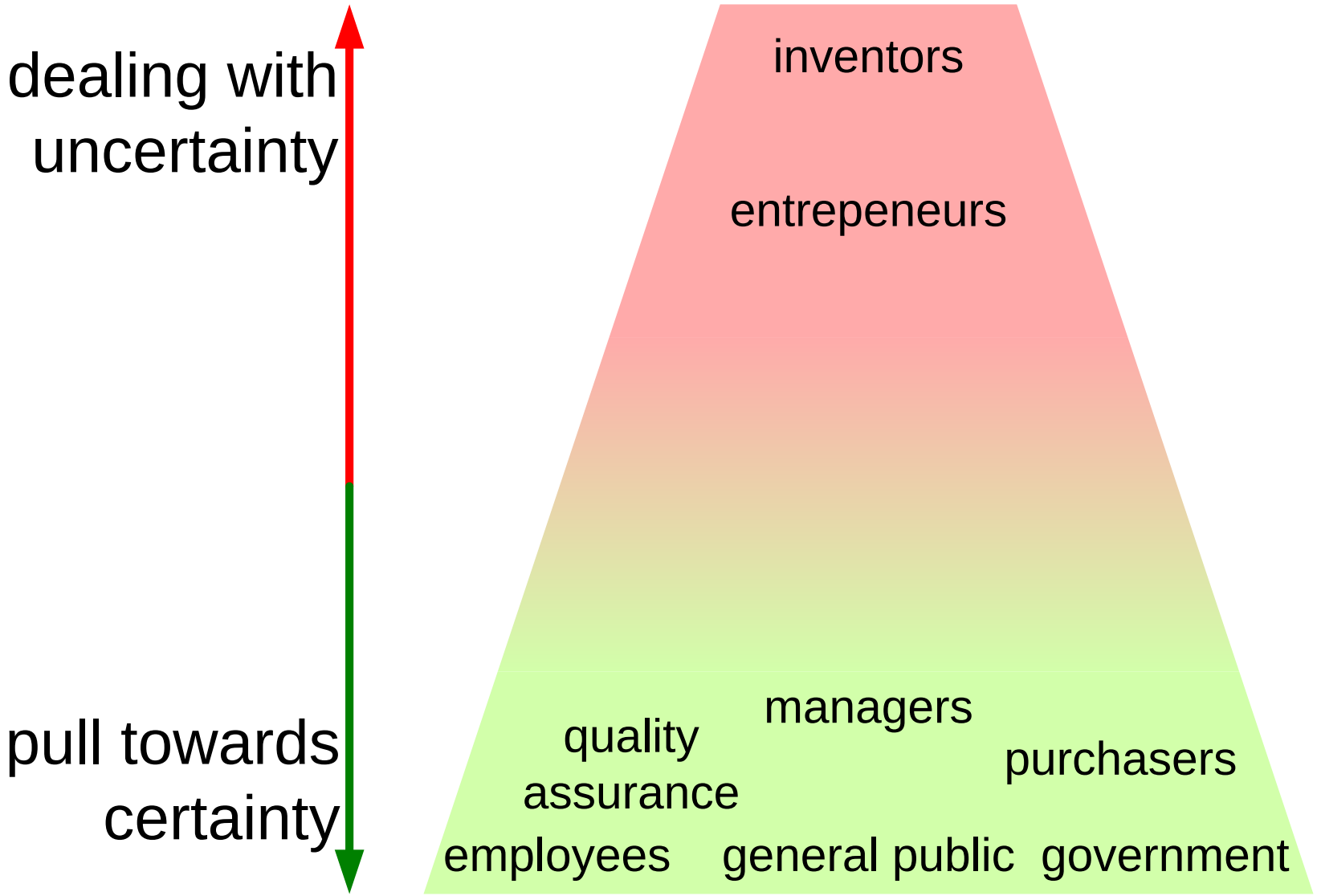
Exploring Turbulence



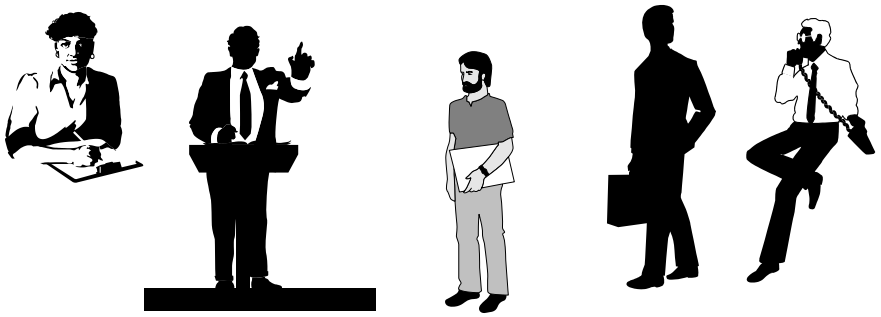
Sources of Turbulence: Mega Events



Most Stakeholders Strive for Certainty



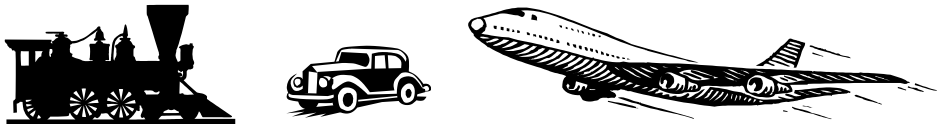
Contradiction: Humans as Champions of Adaptability



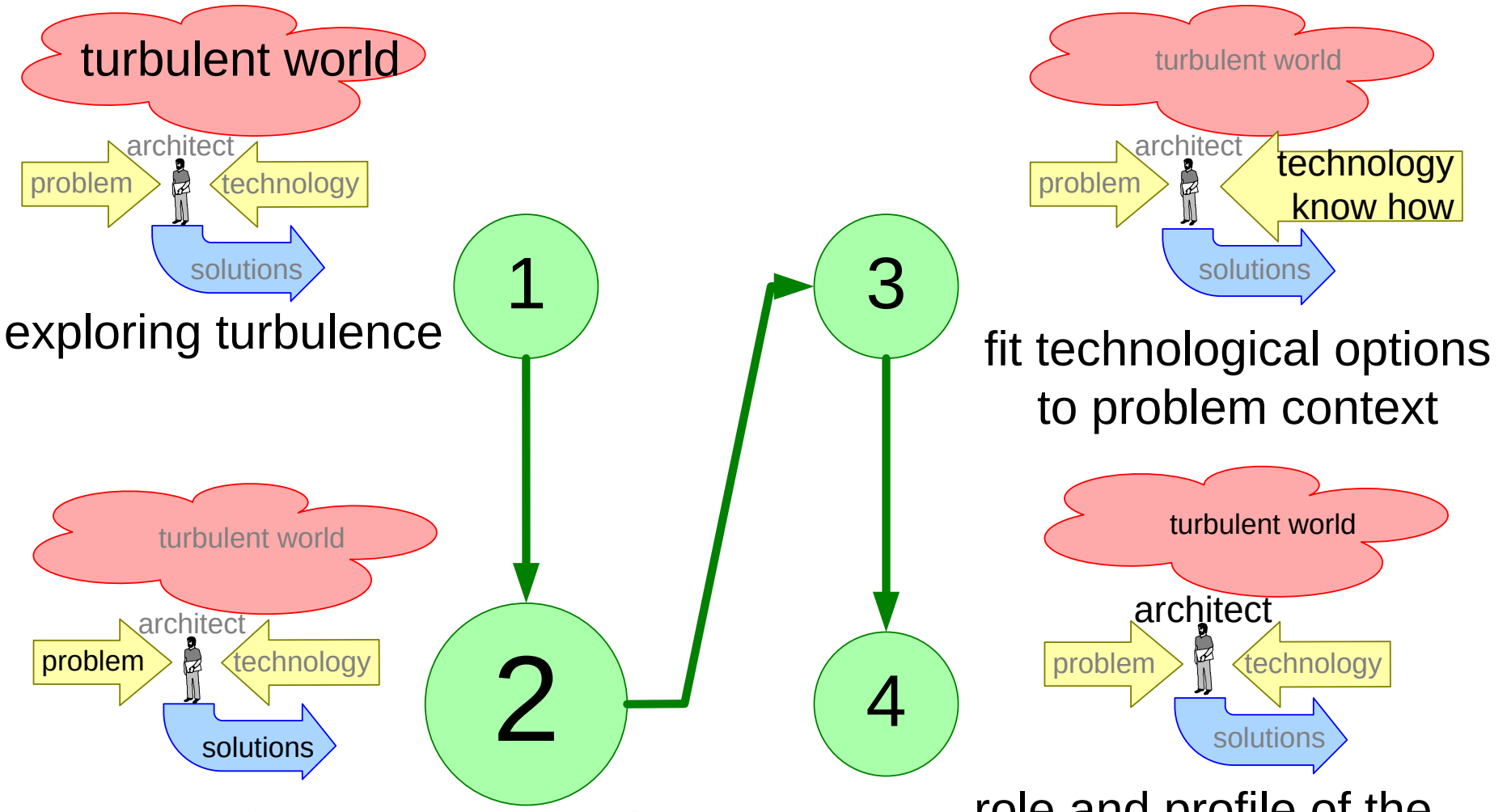
Homo Sapiens
thousands of years of adaptation

sea, desert, polar, mountain,
dehydration, flood, fire, famine,
war, plague, diseases

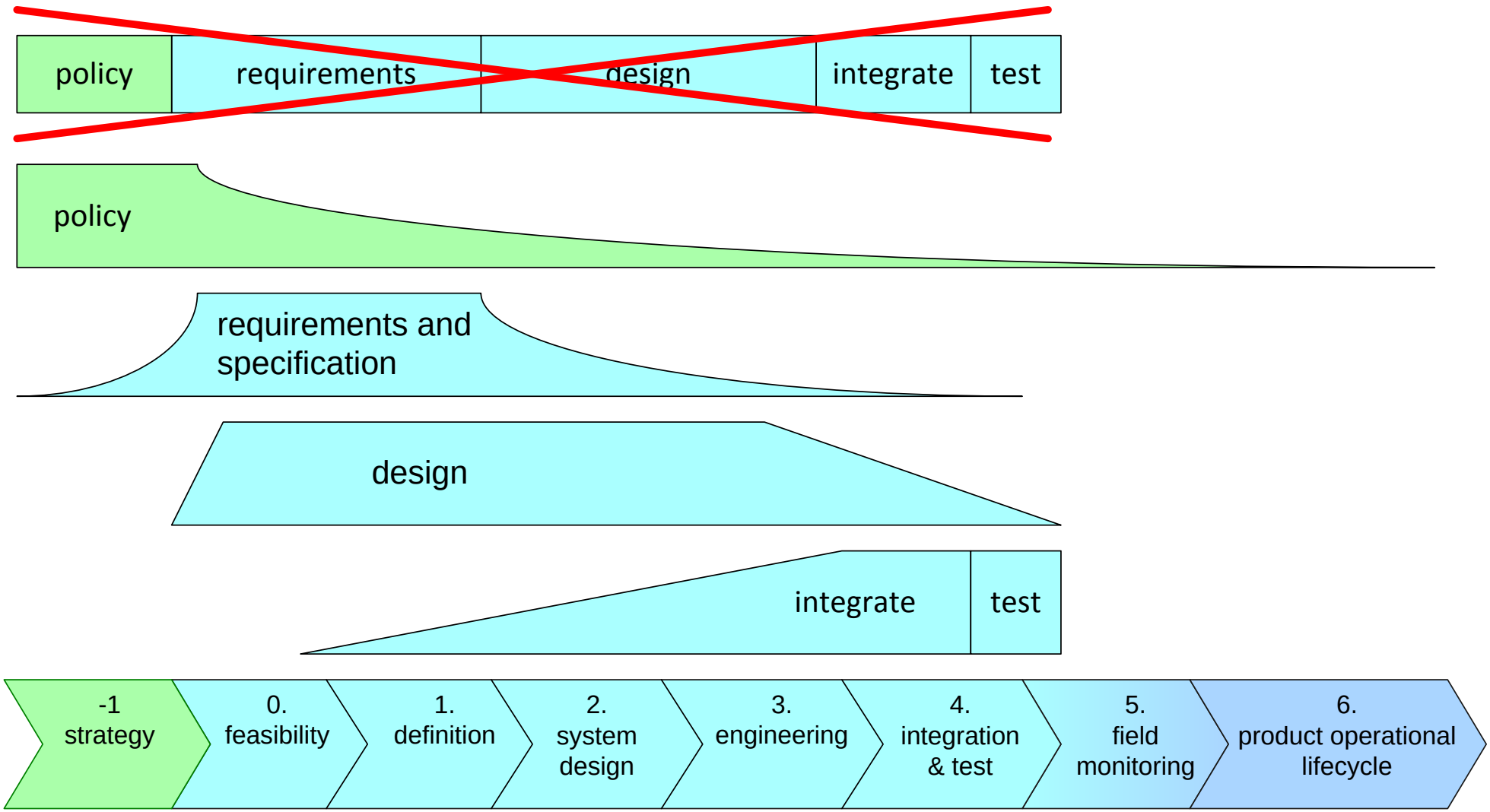
technological systems
hundreds of years of dedication



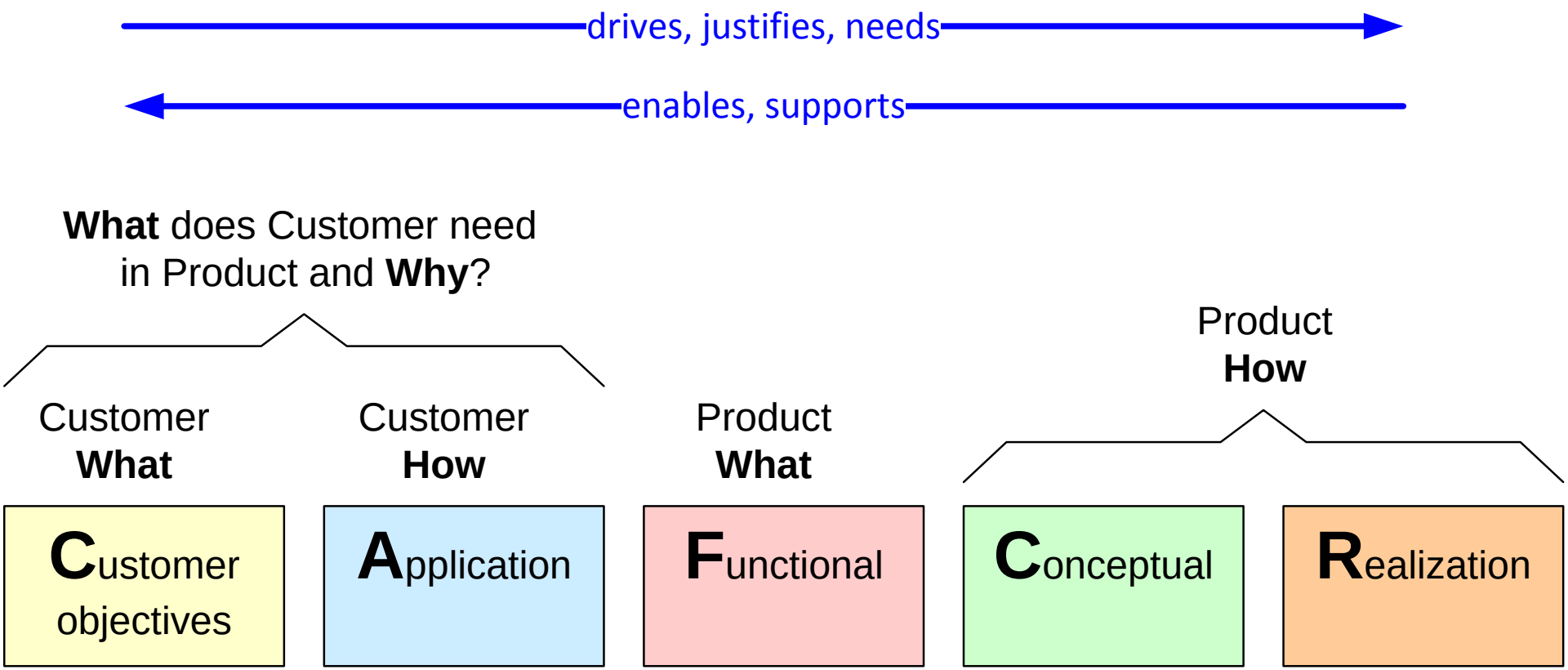
From Problem to Solution; Product Creation Process



Product Creation: Phasing of Process Steps



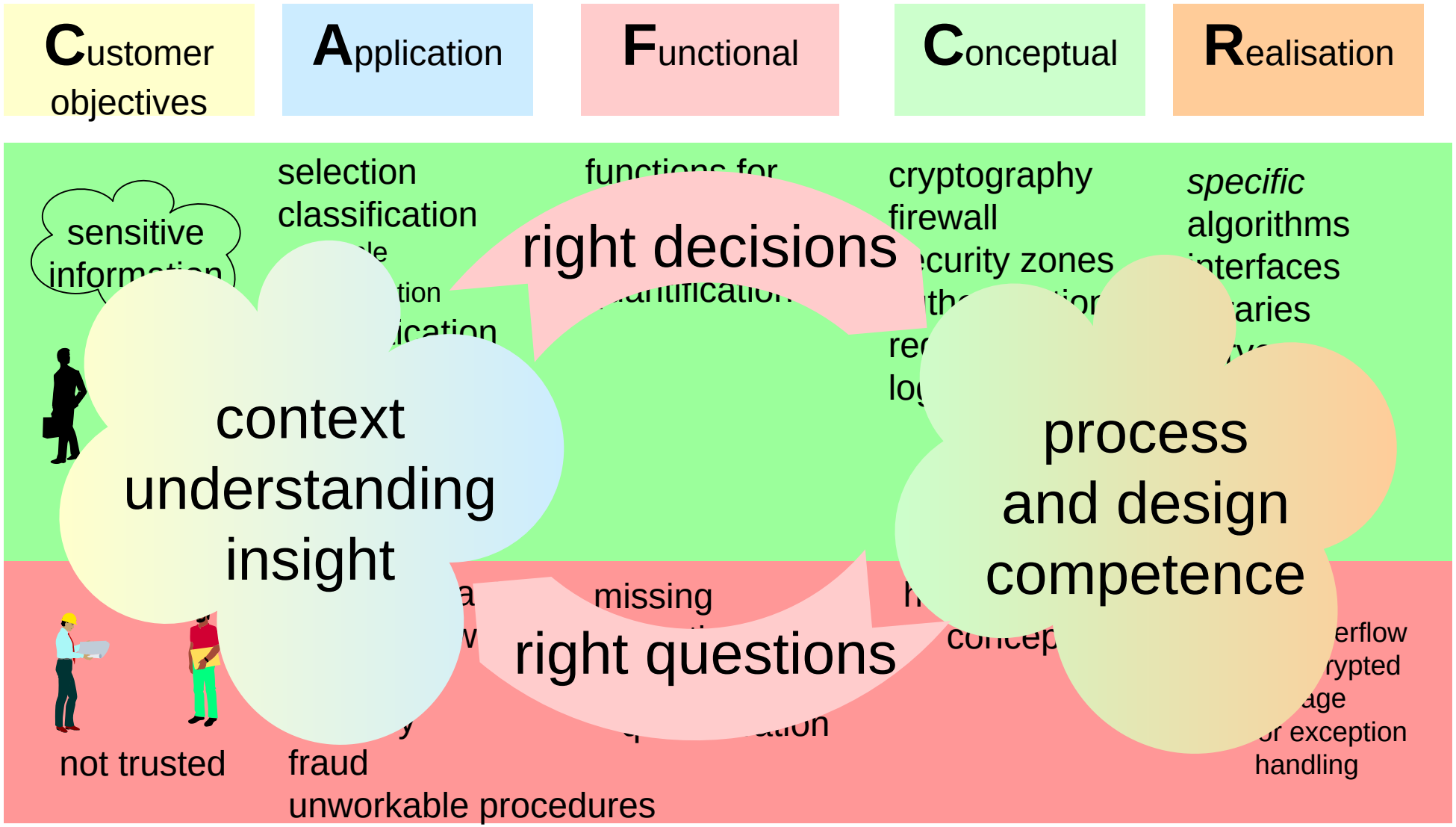
The “CAFCR” model



Security as example through all views

Customer objectives	**A**pplication	**F**unctional	**C**onceptual	**R**ealization
sensitive information  trusted	selection classification people information authentication badges passwords locks / walls guards administrators	functions for administration authentication intrusion detection logging quantification	cryptography firewall security zones authentication registry logging	*specific* algorithms interfaces libraries servers storage protocols
	desired characteristics, specifications & mechanisms			
 not trusted	social contacts open passwords blackmail burglary fraud unworkable procedures	missing functionality wrong quantification	holes between concepts	bugs buffer overflow non encrypted storage poor exception handling
			threats	

Connecting Problem Space and Solution Space



Example Questions

Customer objectives	Application	Functional	Conceptual	Realisation

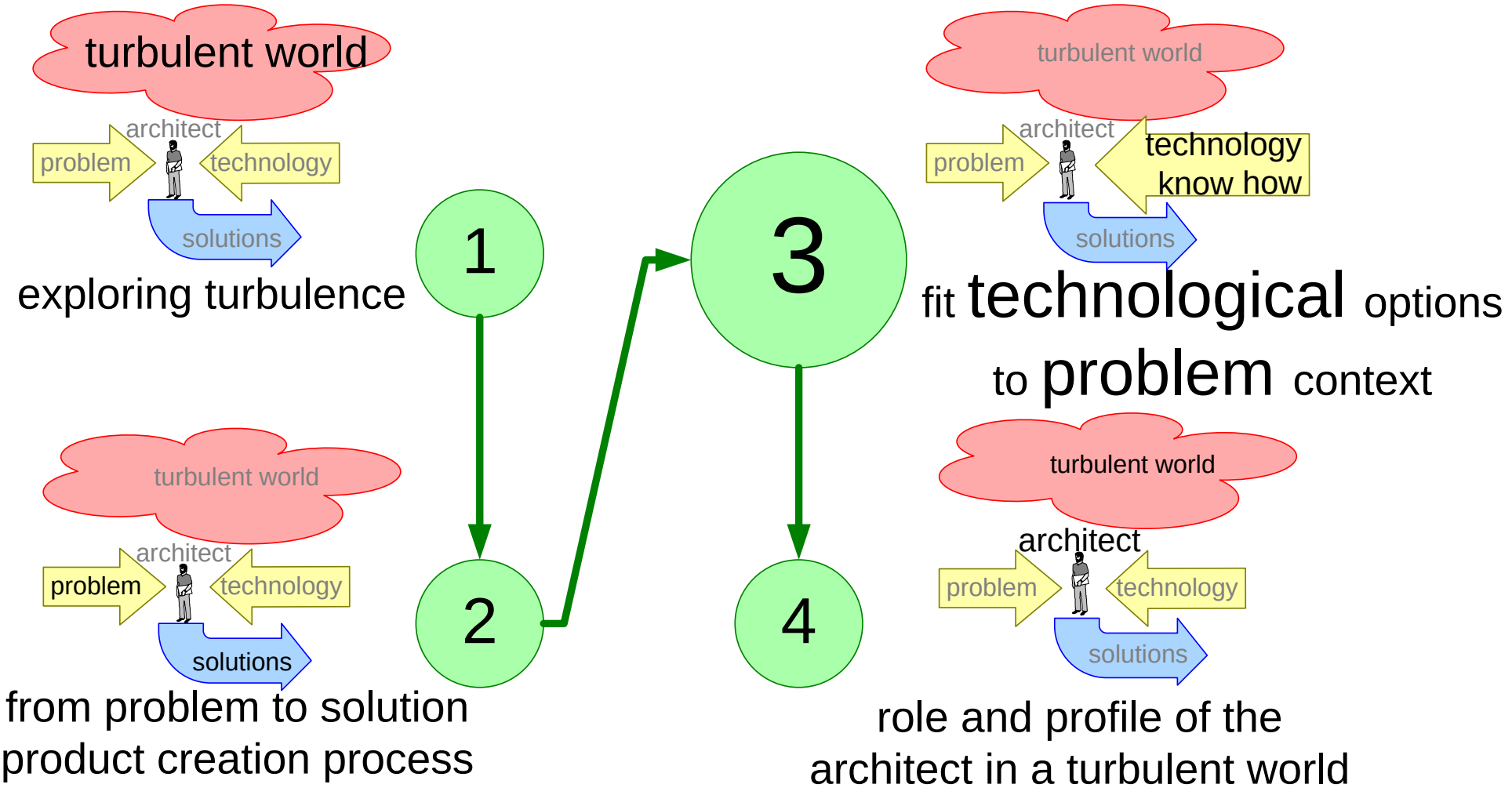
Will biometrics improve authentication?
Is encryption guaranteeing information security?

What are the implementation related security hazards?

What are the process assumptions?

Does the technological solution fit in the human mindset?

Fit Technological Options to Problem Context



What is Architecture?

Do the right things

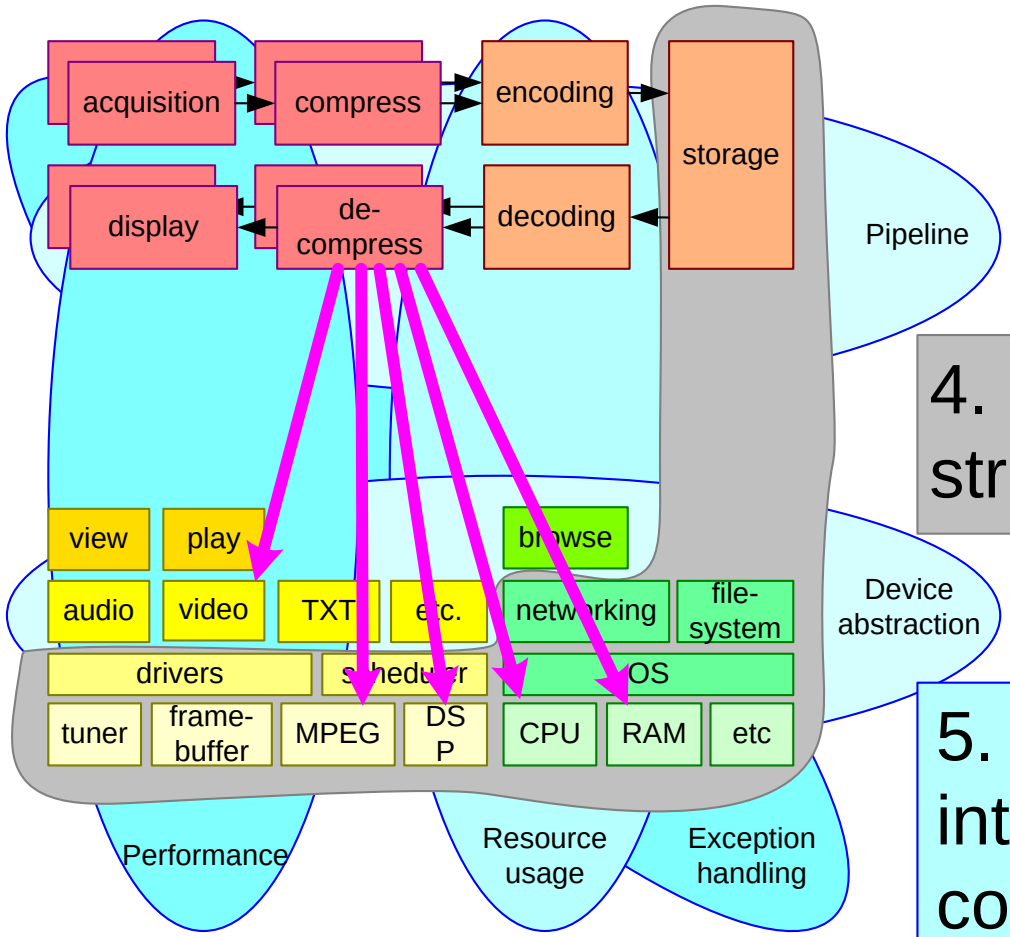
Do the things right

”Guiding How” by providing rules for:

1. Functional Decomposition

3. Allocation

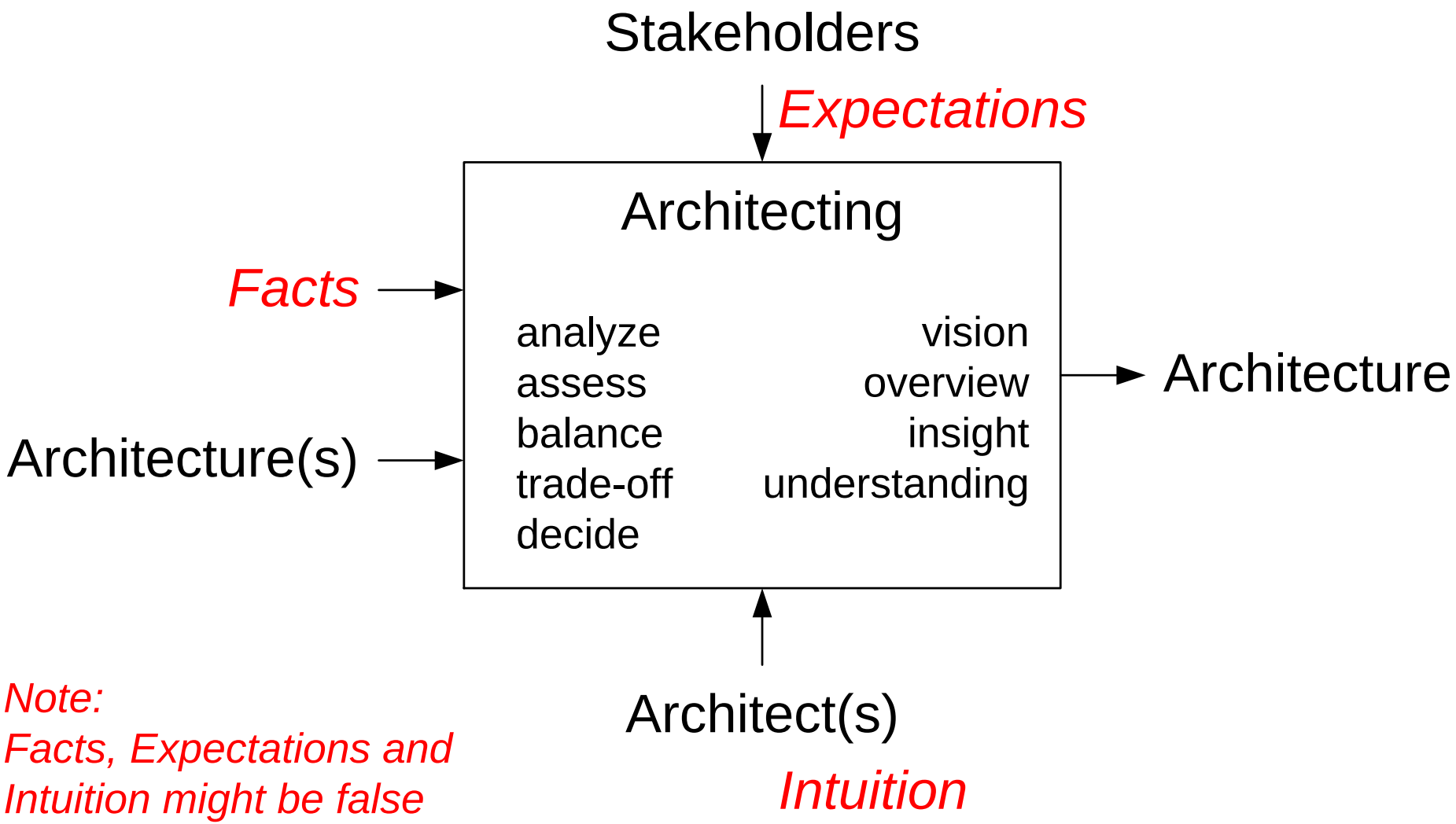
2. Construction Decomposition



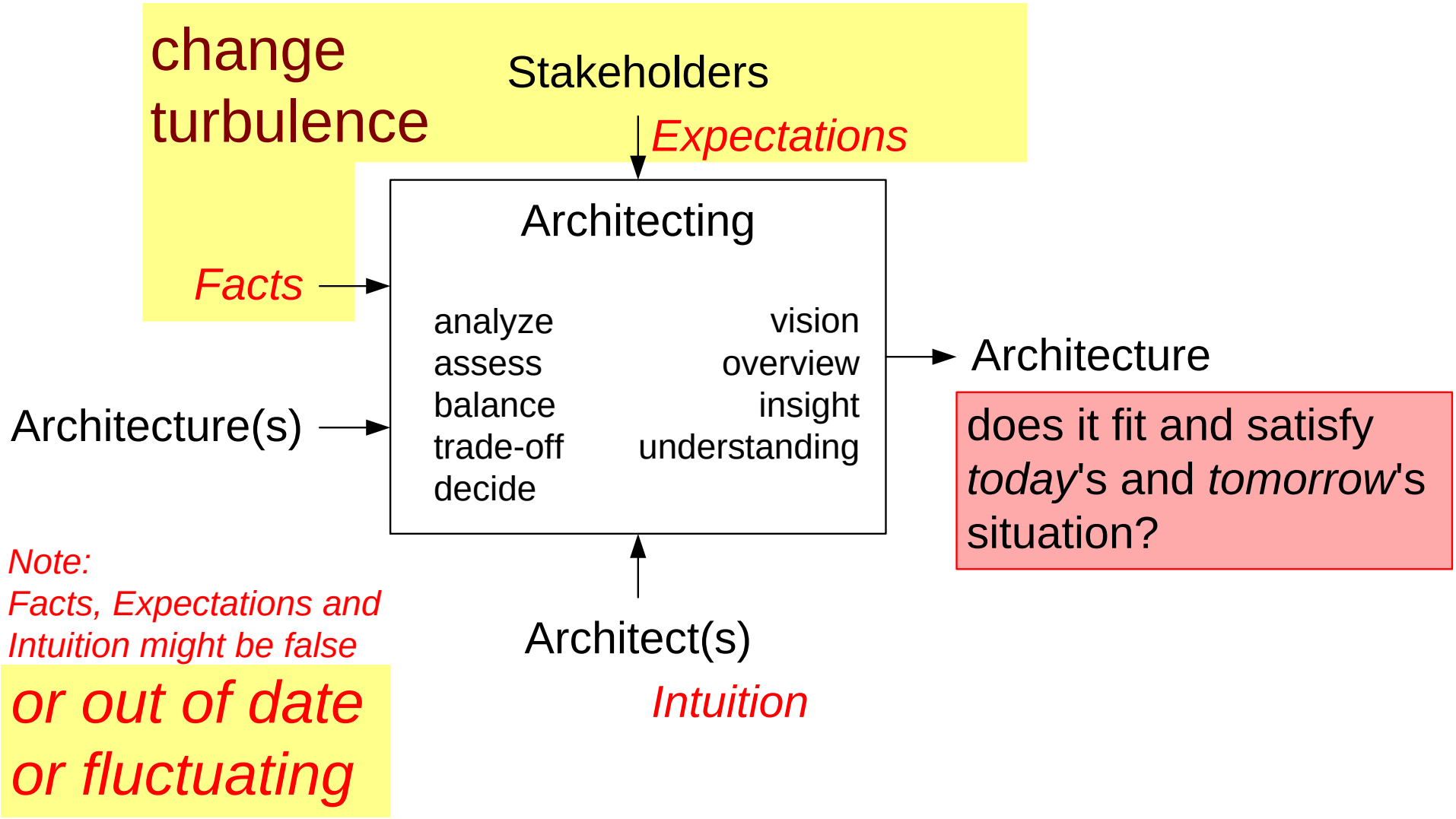
4. Infra-structure

5. Choice of integrating concepts

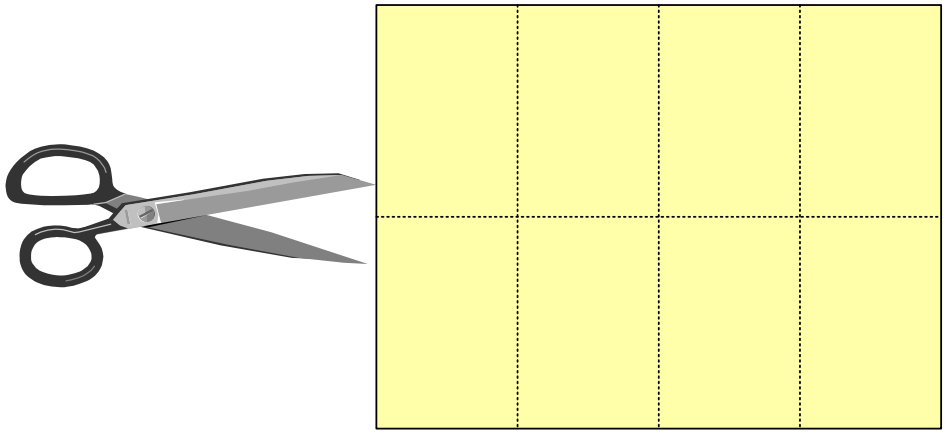
The Art of Architecting Anno 1990



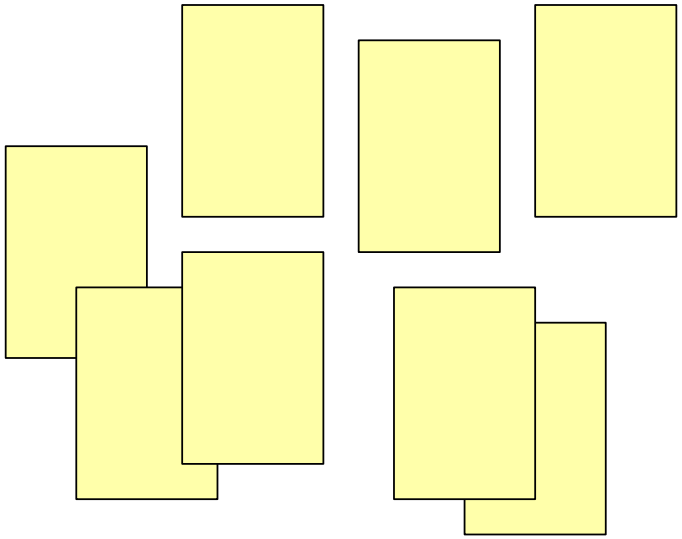
The Art of Architecting Anno 2006

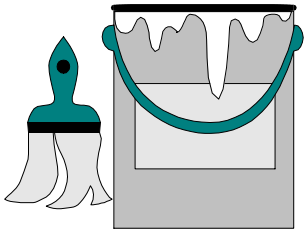


Architecting is much more than Decomposition

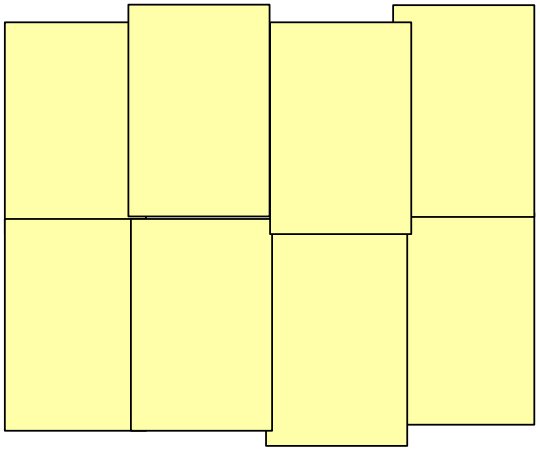


Decomposition is "easy"

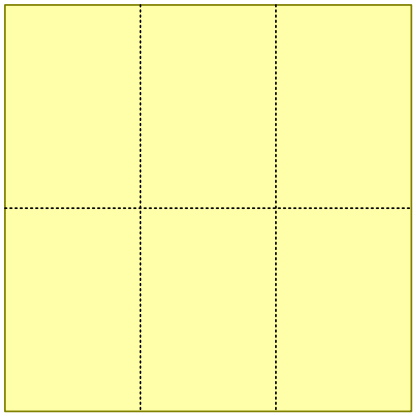




Integration is difficult

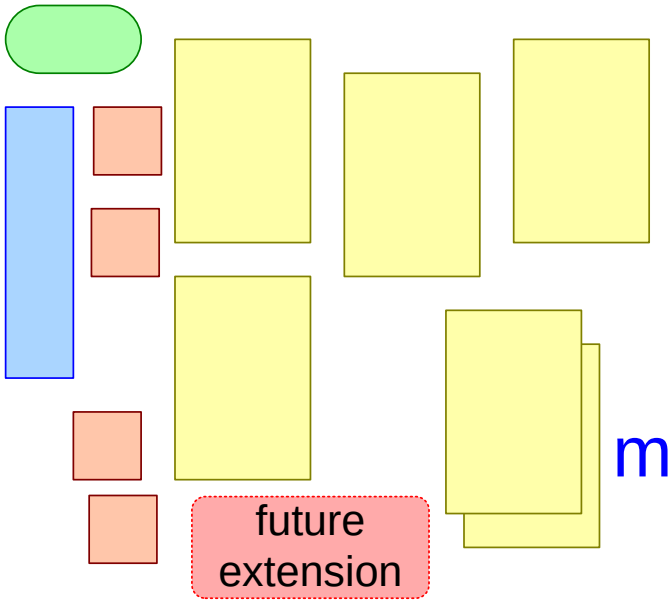


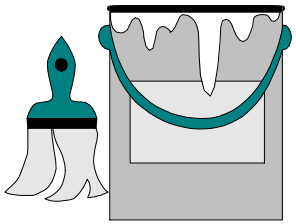
Architecting: Preparing for Integration



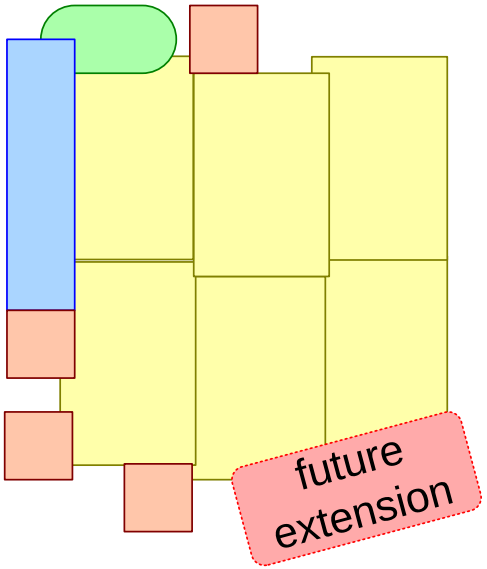
~~Decomposition is "easy"~~

Decomposition becomes minor part

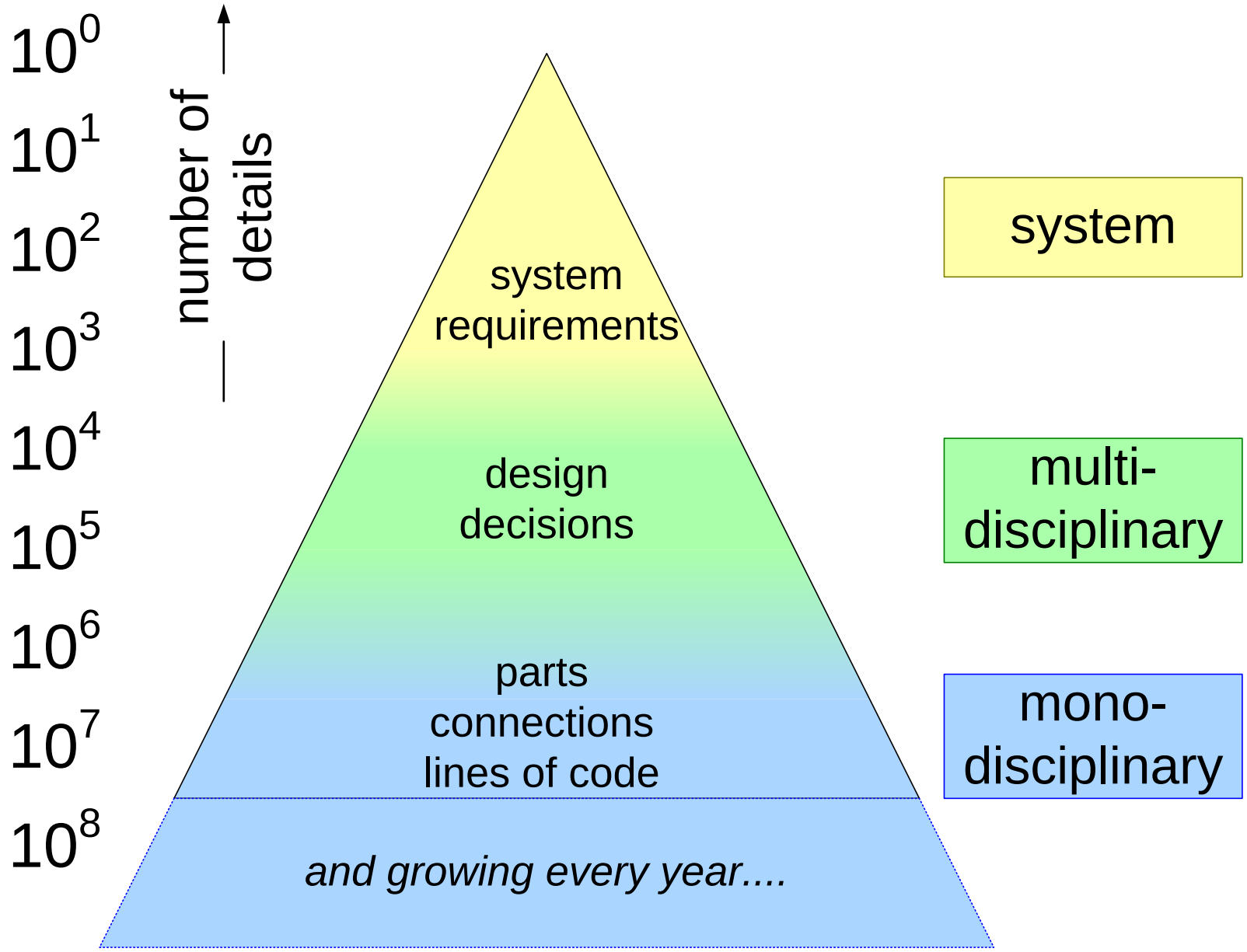




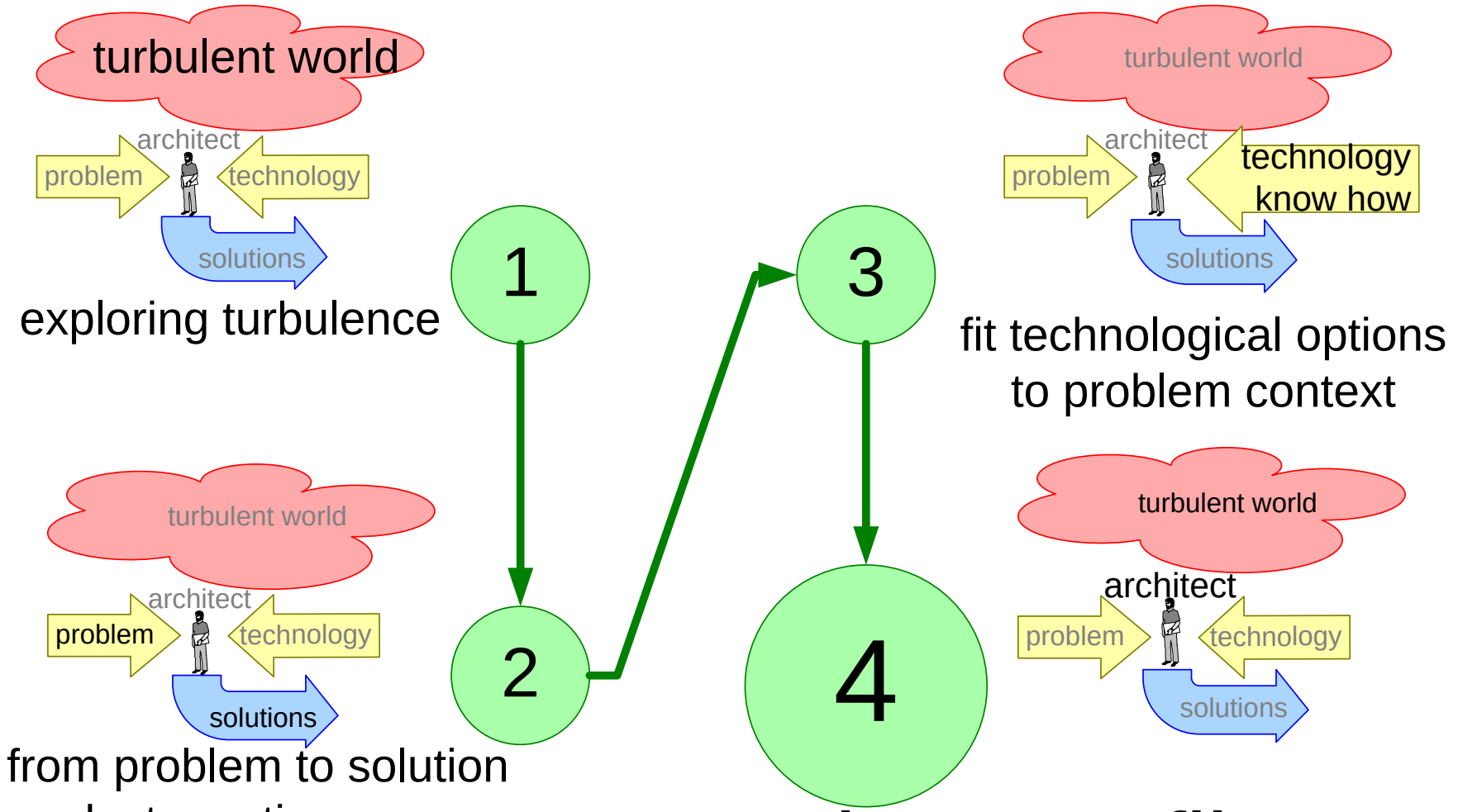
Integration is much more difficult



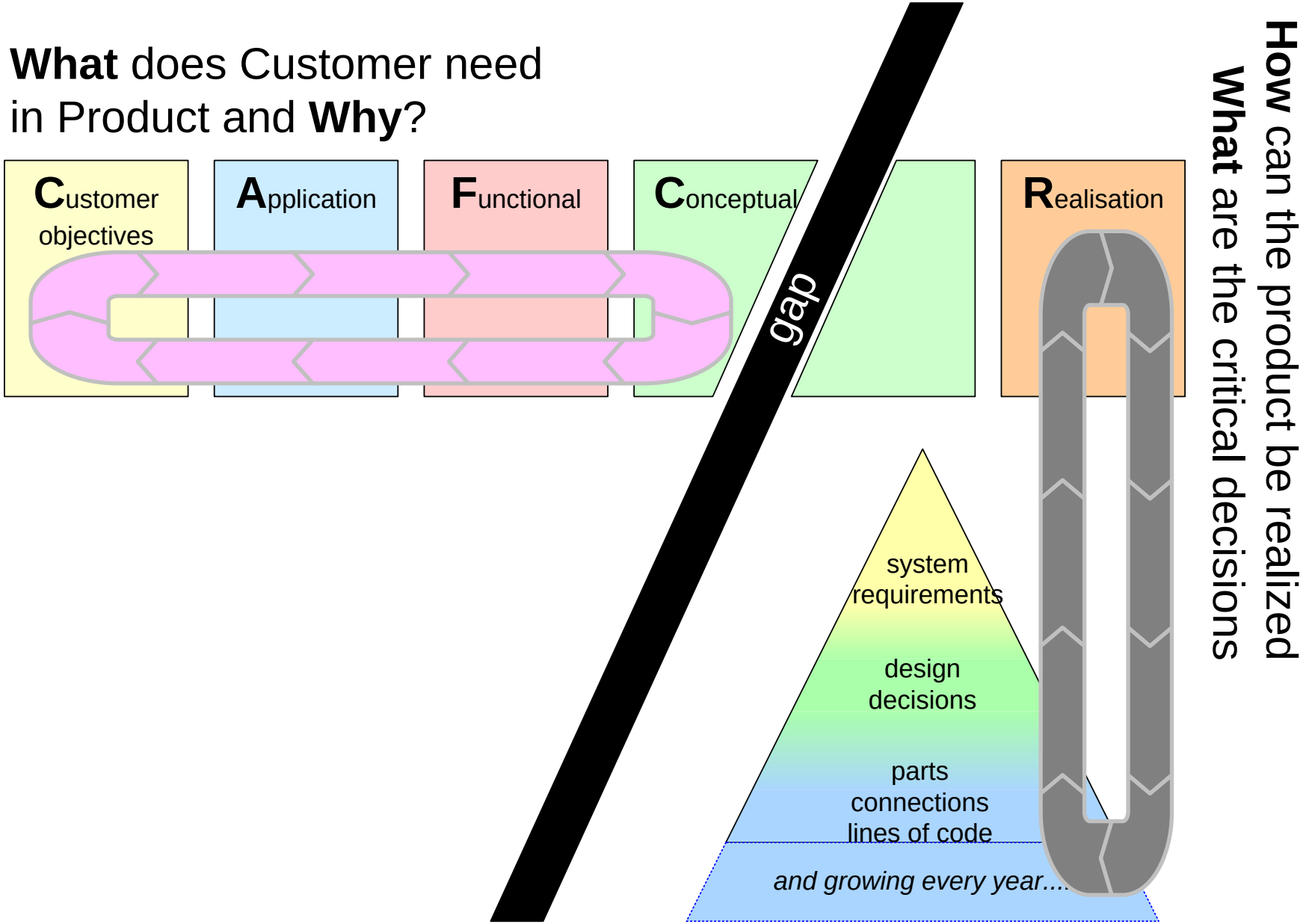
Technical Decisions Require Detailed Know How



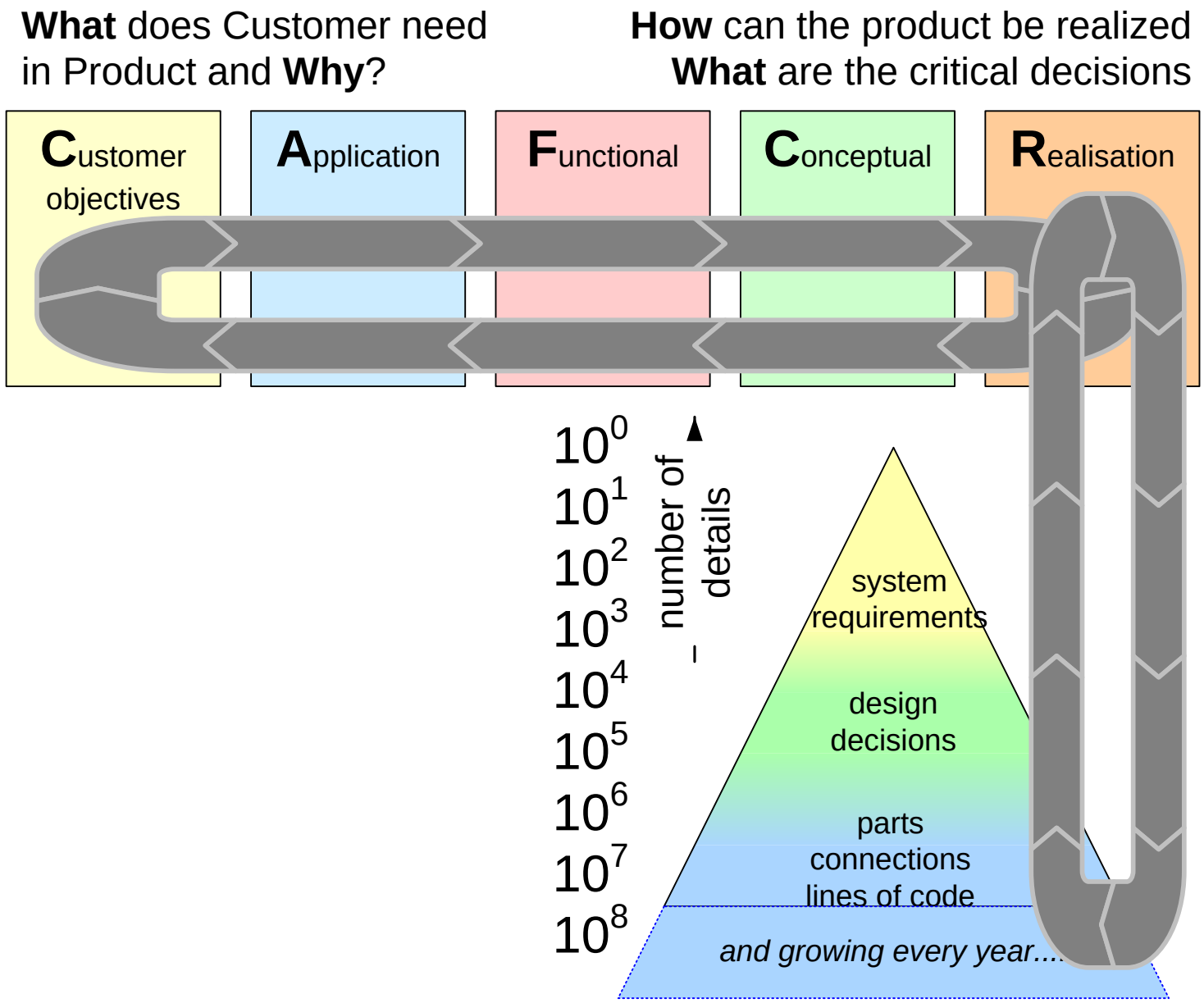
Role and Profile of the Architect in a Turbulent World



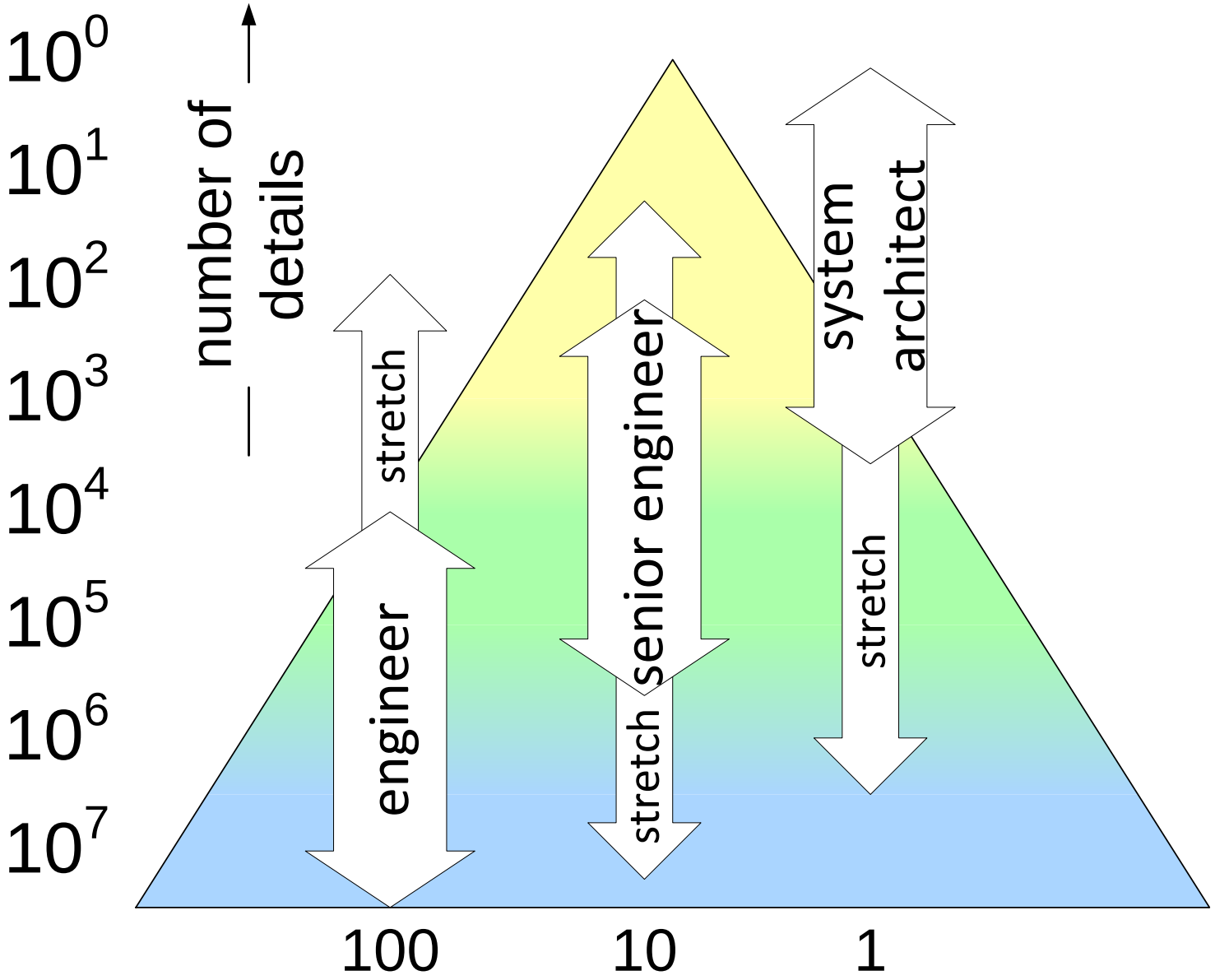
Organizational Problem: Disconnect



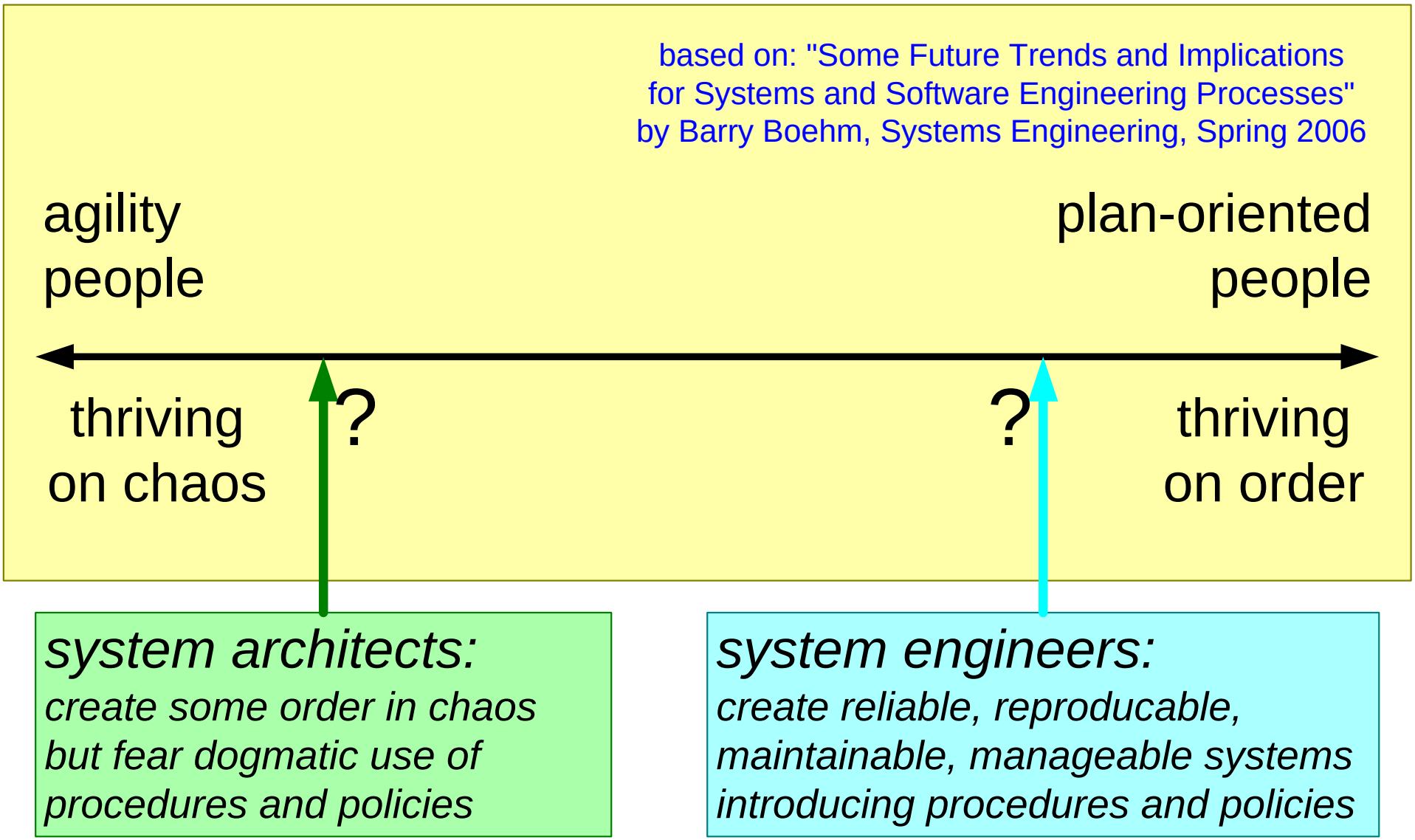
Architect: Connecting Problem and Technical Solution



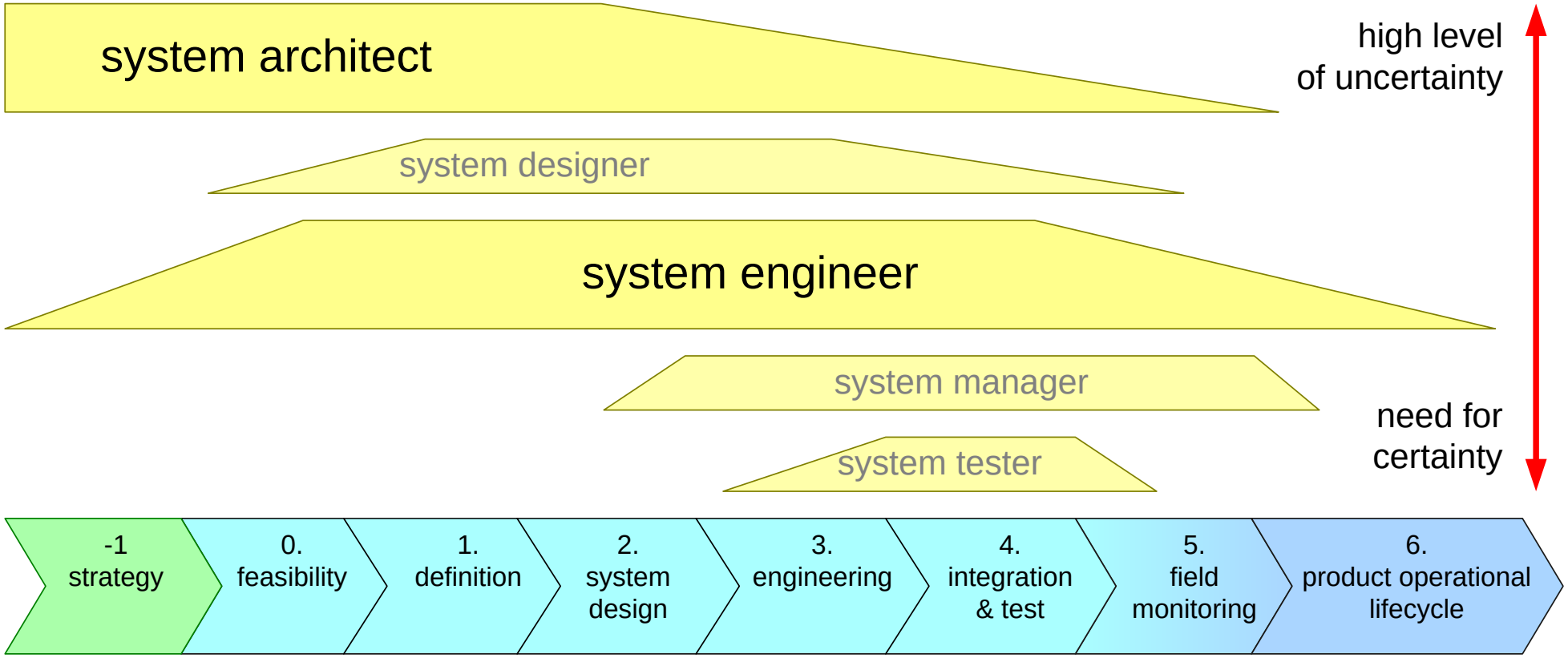
Major Bottleneck: Mental Dynamic Range



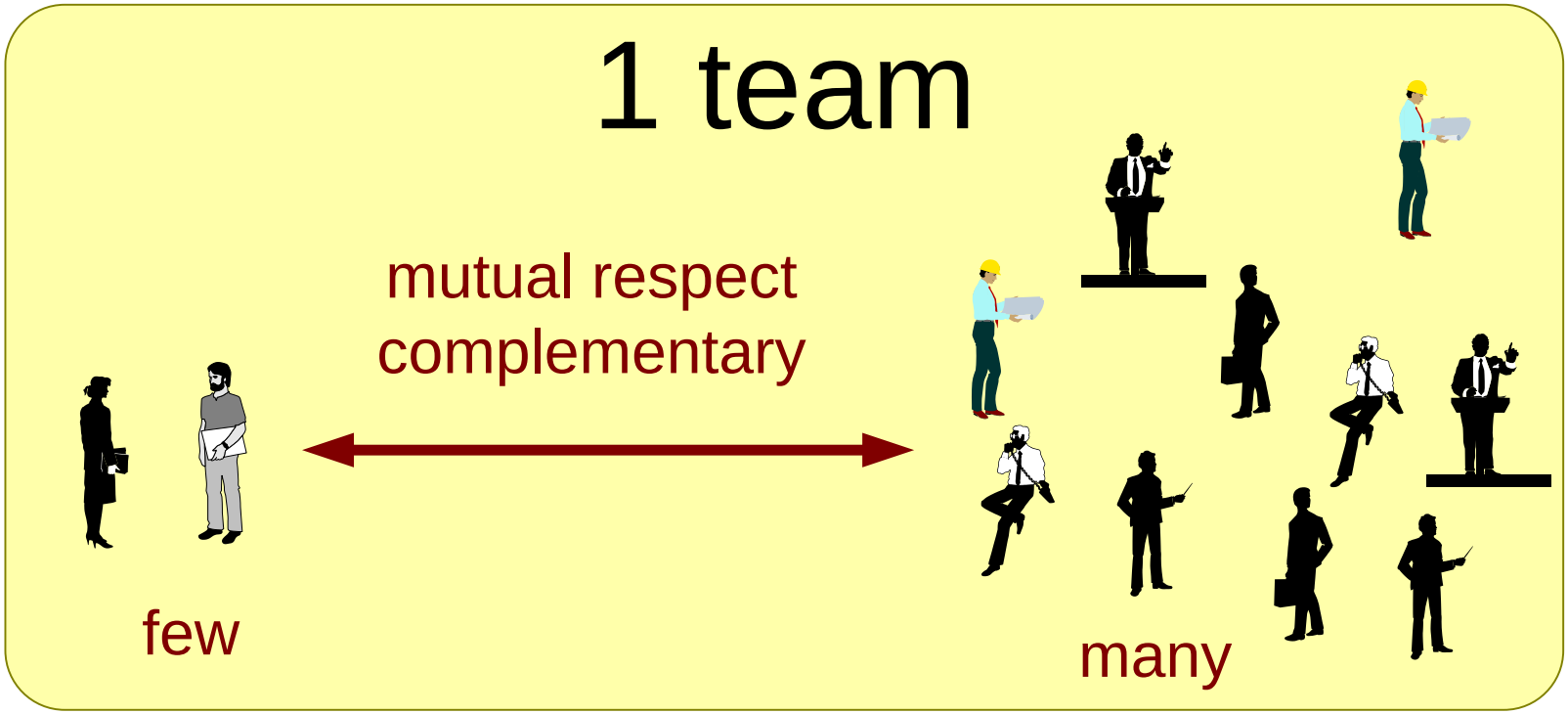
Opposing, but Complementary Skills and Cultures



System Roles: Company Culture Dependent



Recommendation 1: Team Work



agility
people

plan-oriented
people

thriving
on chaos

thriving
on order

Recommendation 2: Symbiose via Workshops