

The Role of the Architect in a Turbulent World

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Abstract

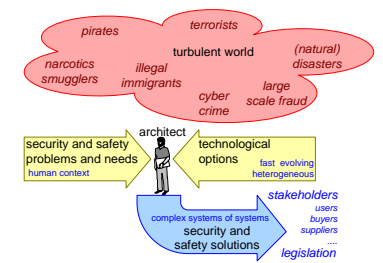
The role of the architect in today's turbulent world is discussed. There is a need for systems that improve security, safety, and that provide threat analysis and prevention, and intelligence. These systems are build in an era full of technological opportunities; from biometrics to intelligent vision/analysis 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?

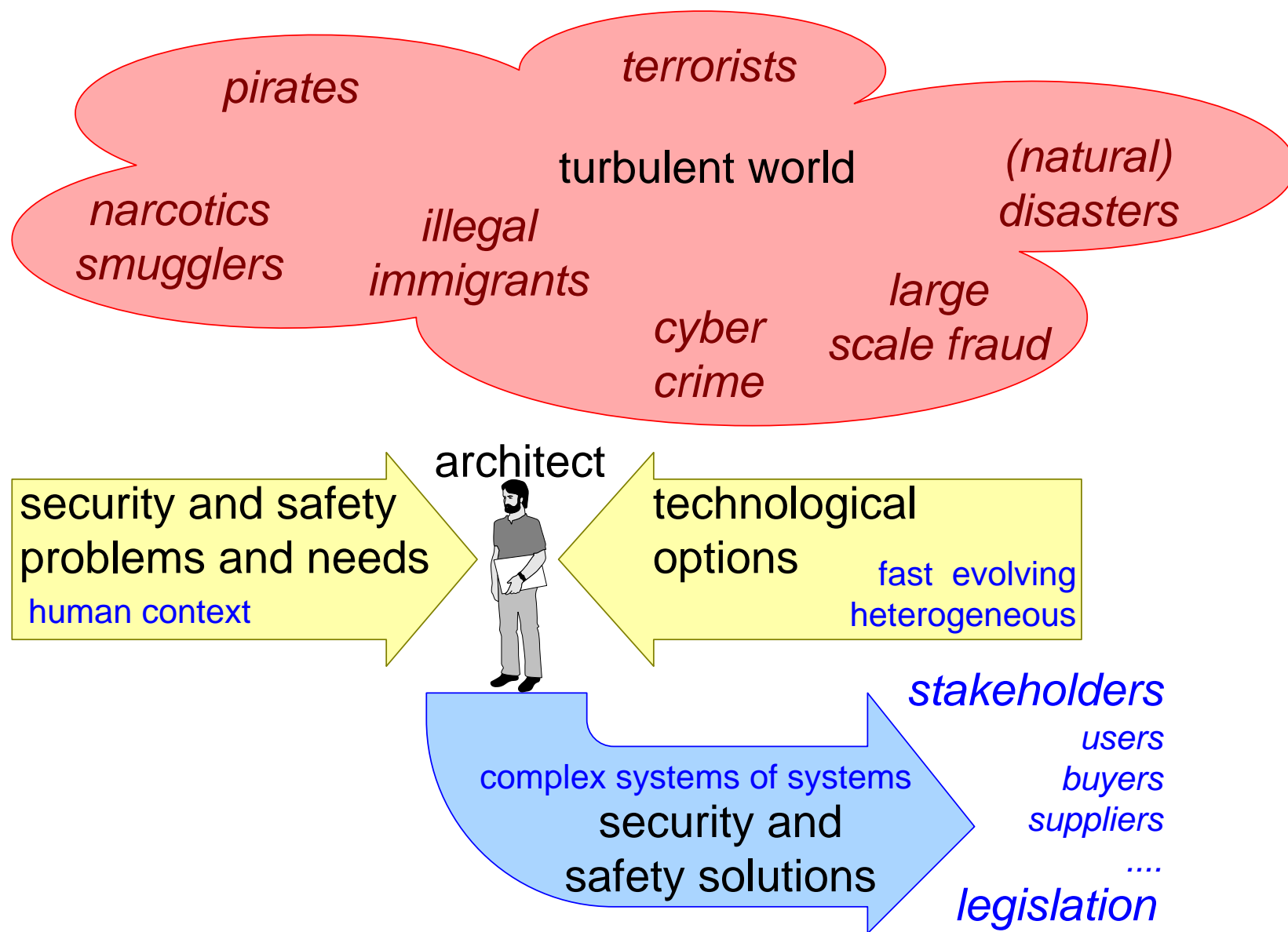
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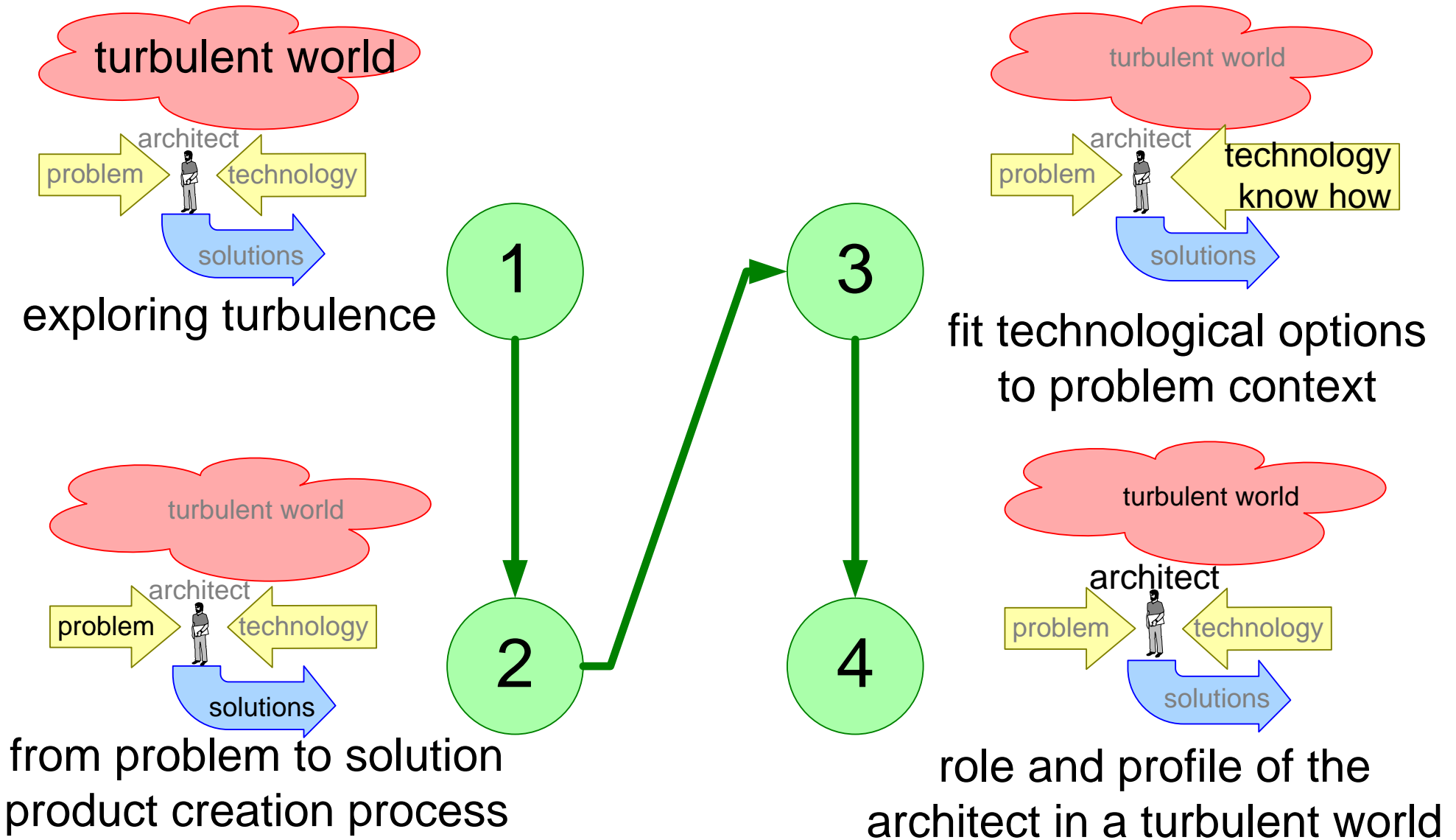
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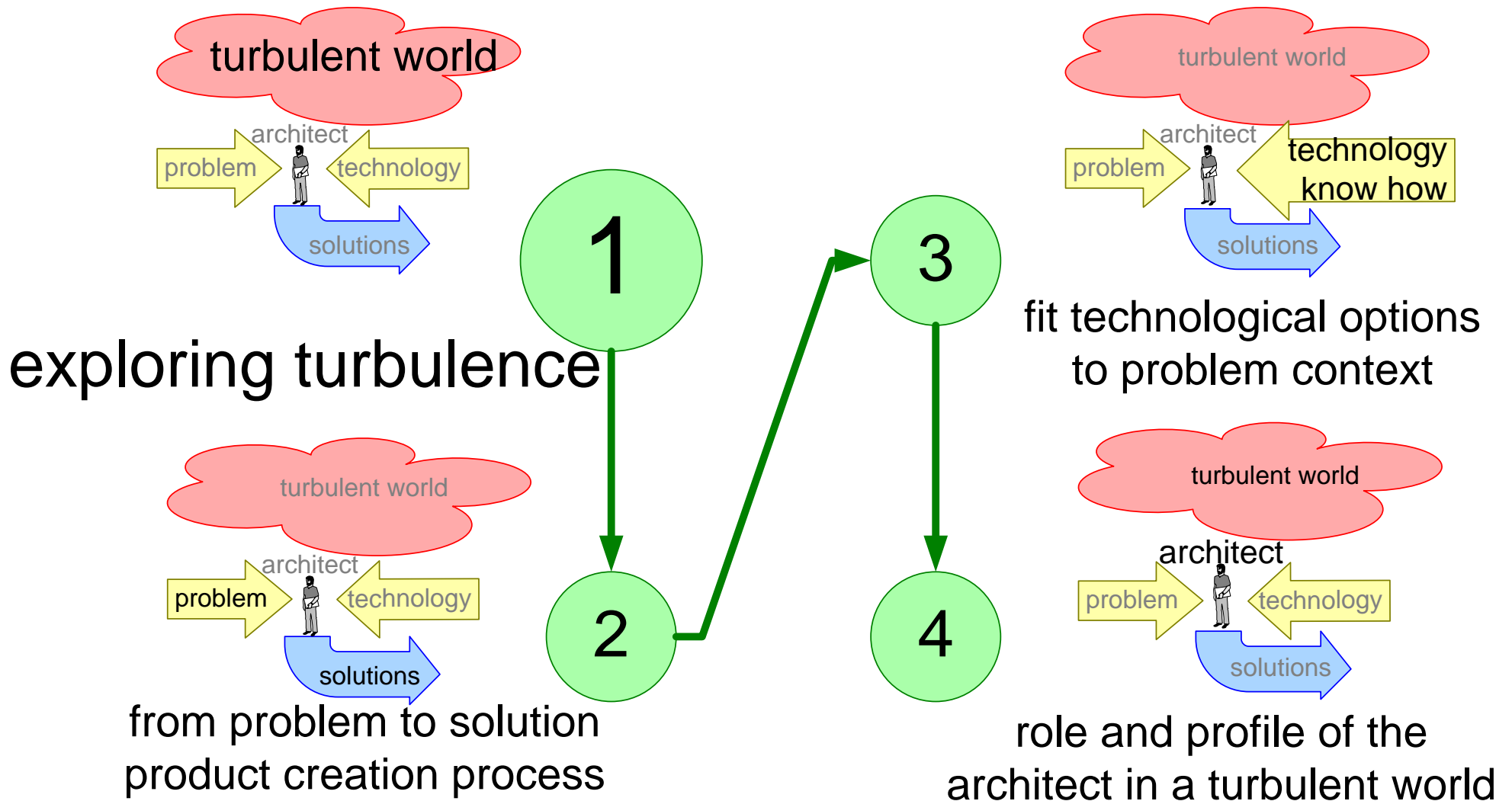
The Architect in a Turbulent World



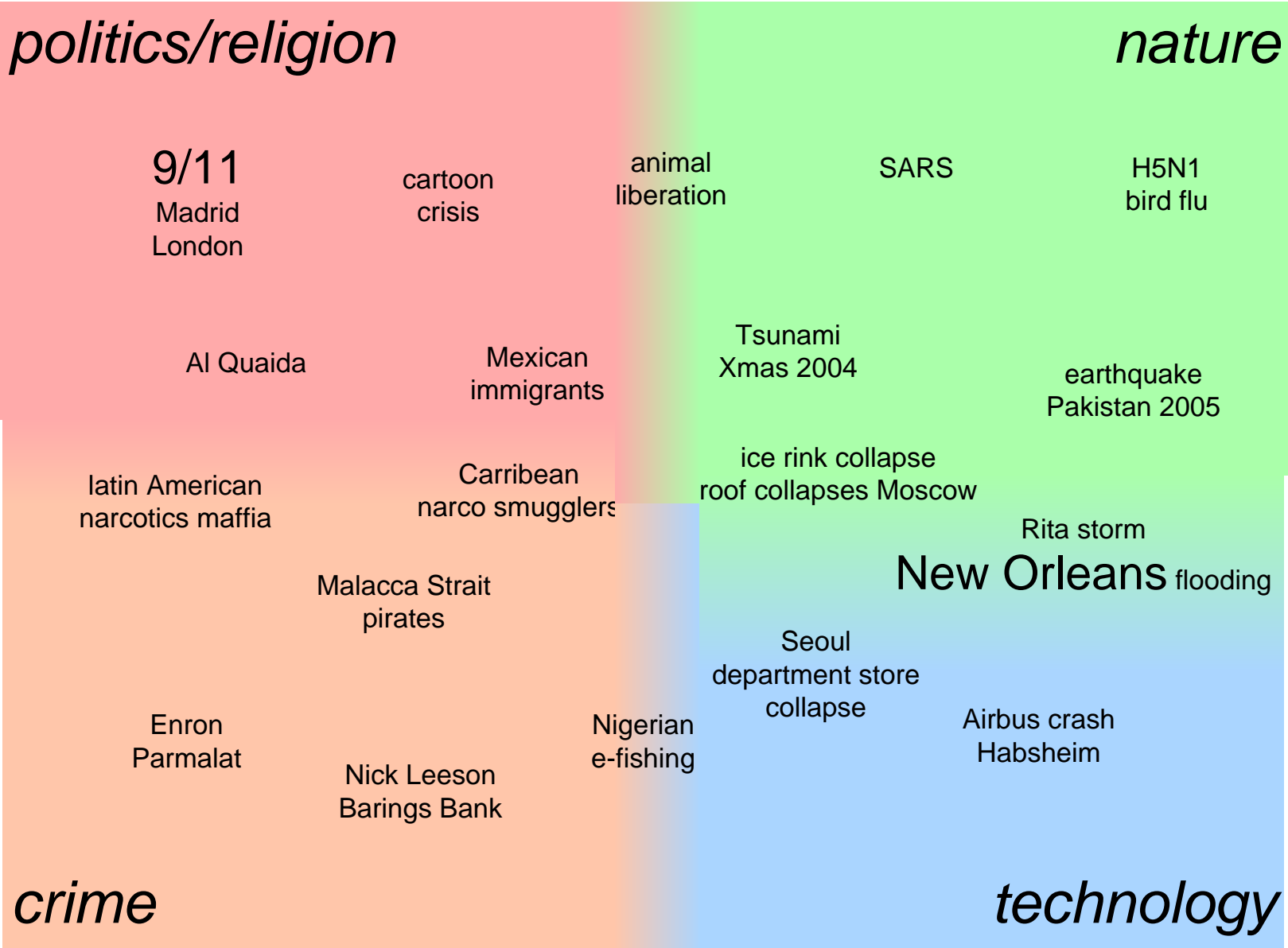
Structure of this Presentation



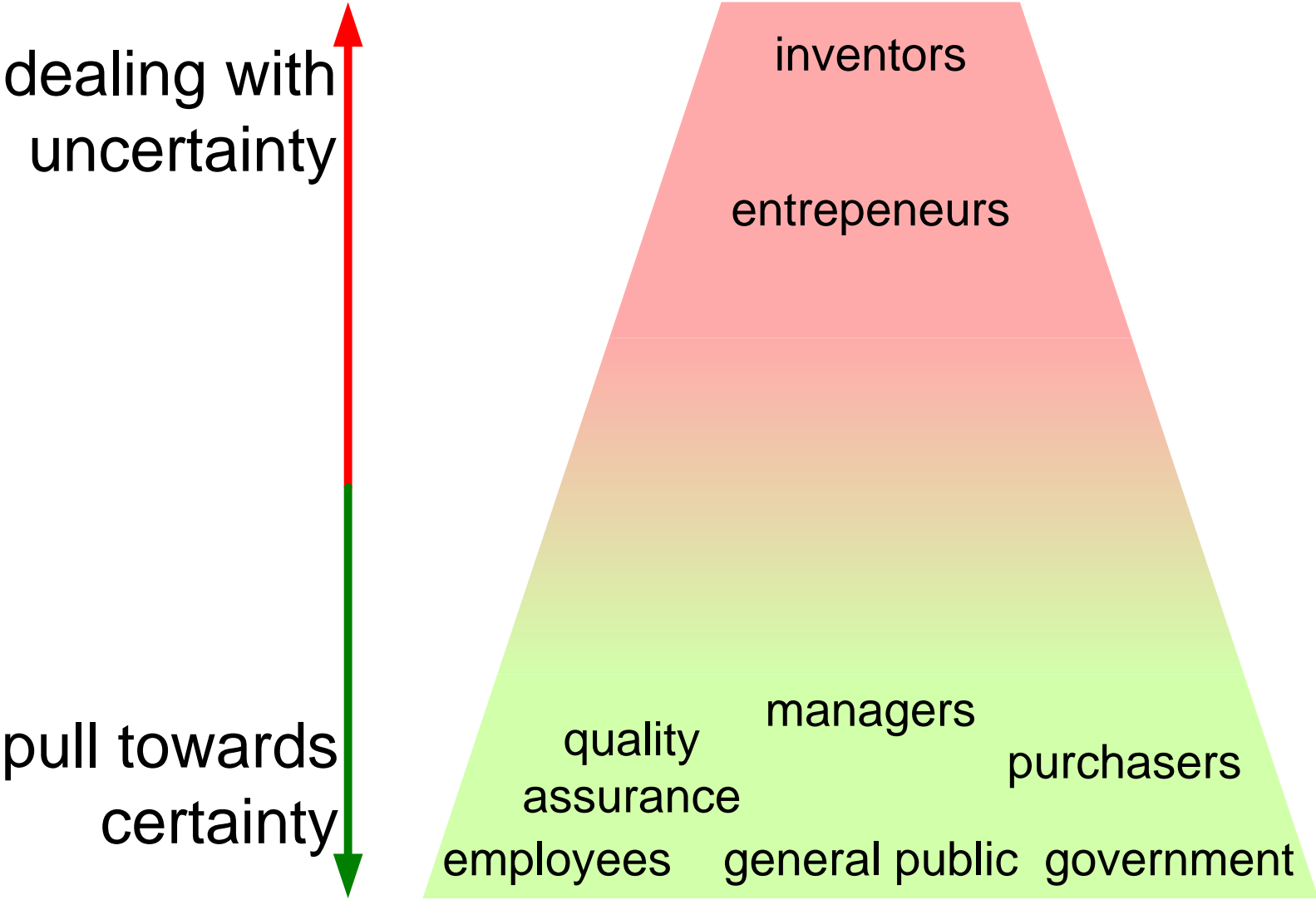
Exploring Turbulence



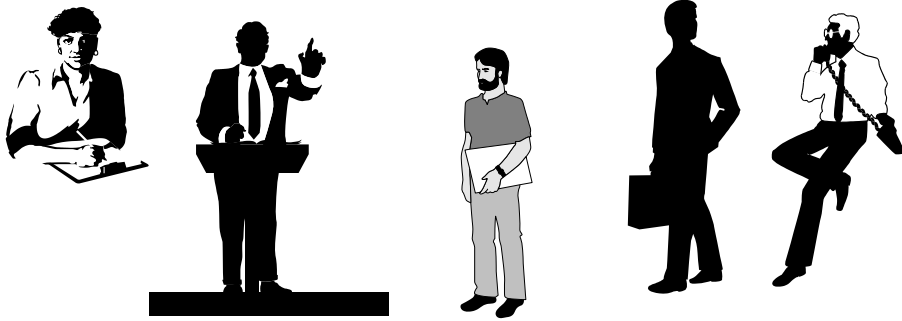
Sources of Turbulence: Mega Events



Most Stakeholders Strive for Certainty



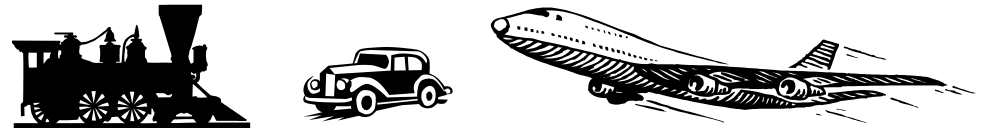
Contradiction: Humans as Champions of Adaptability



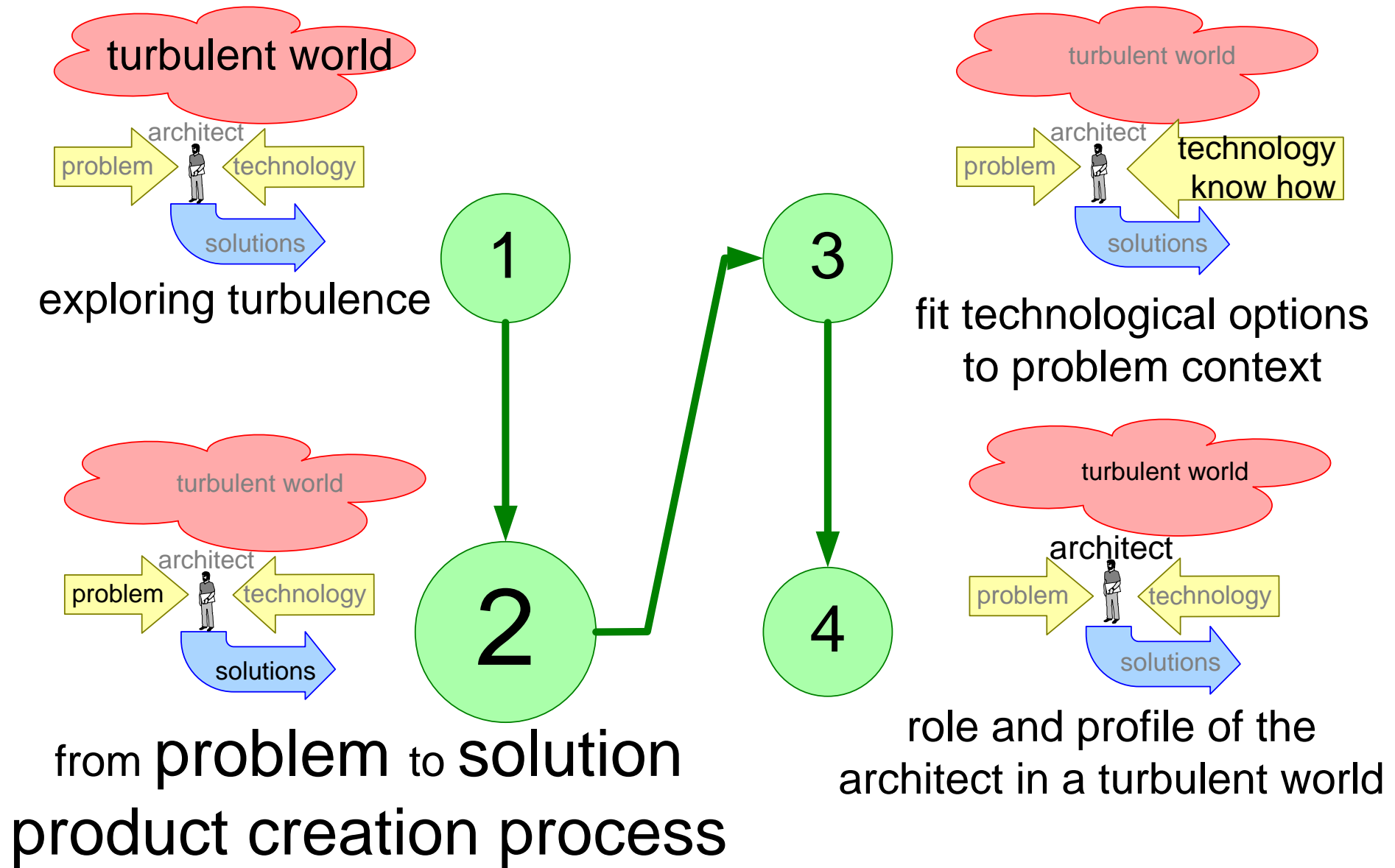
Homo Sapiens
thousands of years of adaptation

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

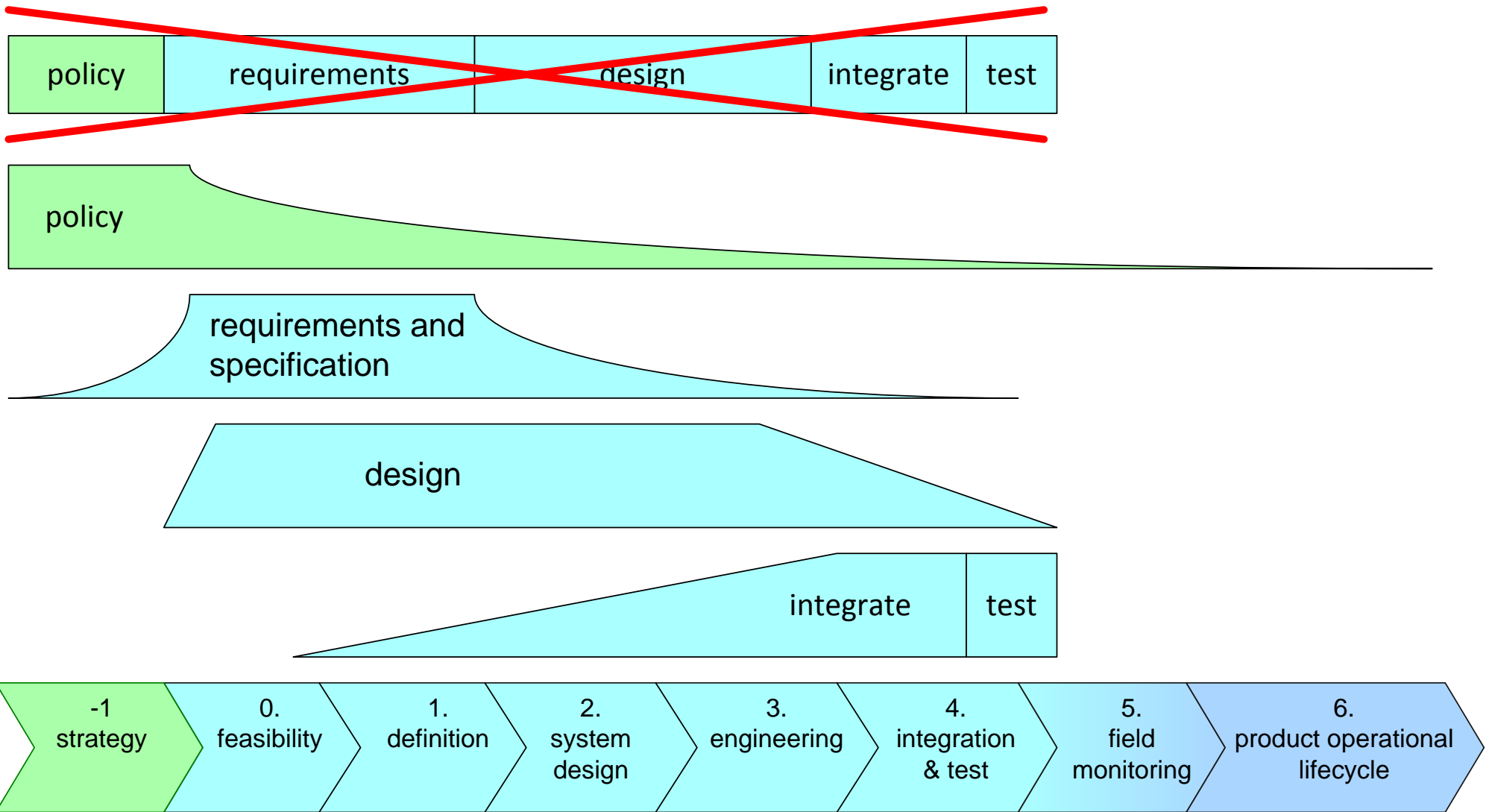
technological systems
hundreds of years of dedication



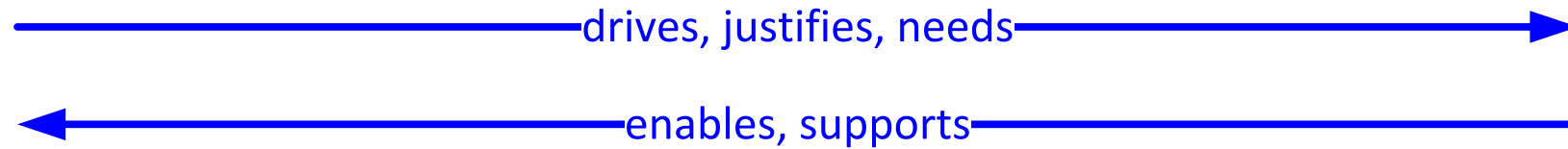
From Problem to Solution; Product Creation Process



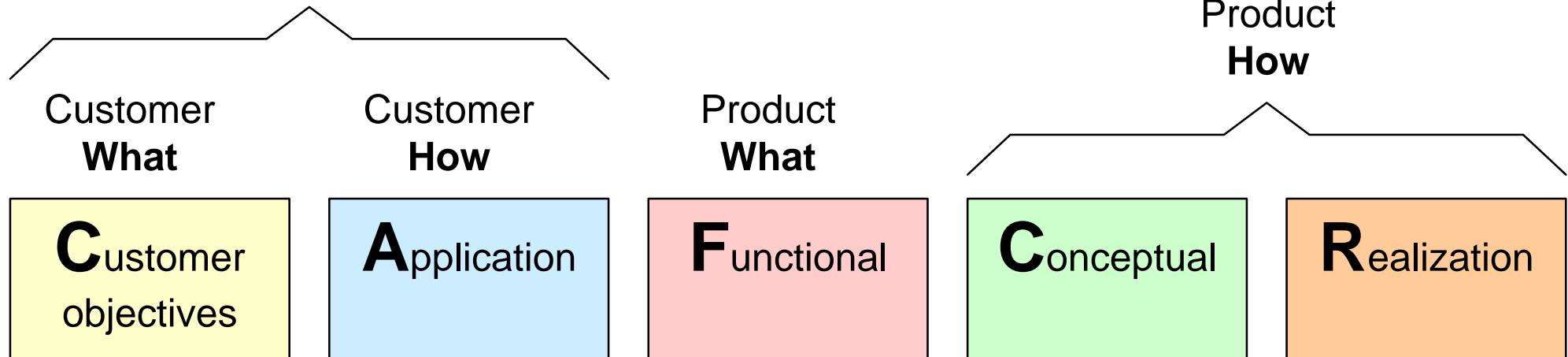
Product Creation: Phasing of Process Steps



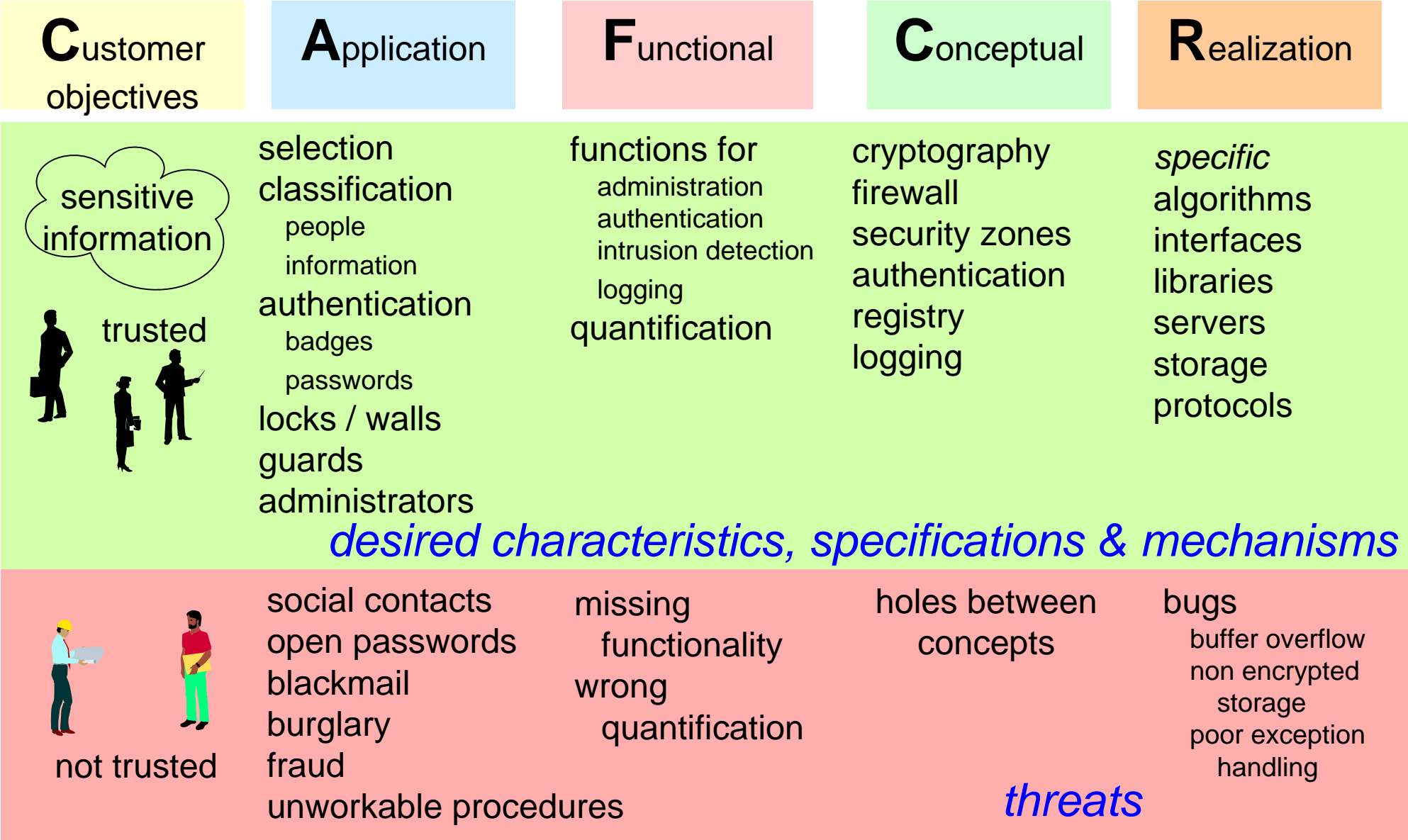
The "CAFCR" model



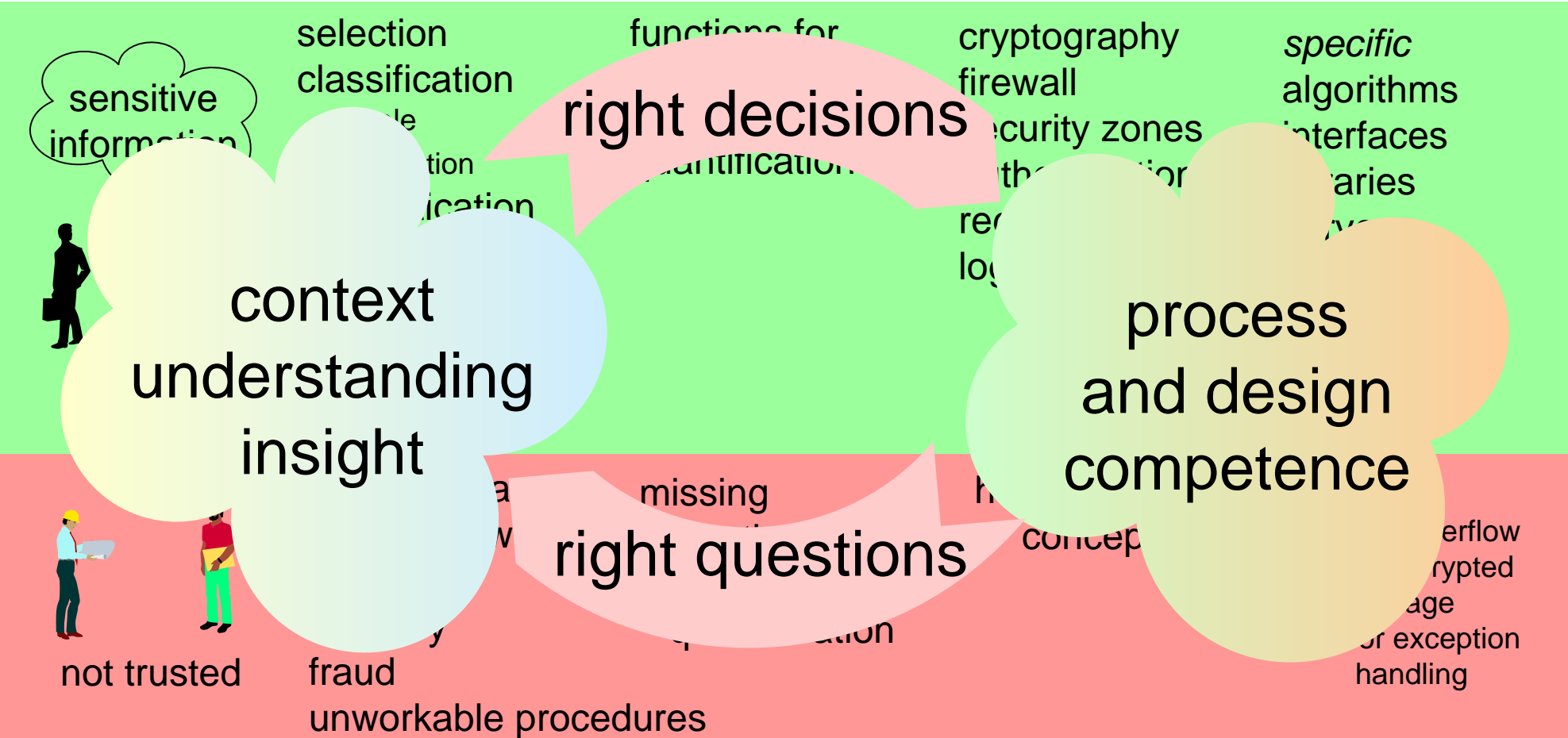
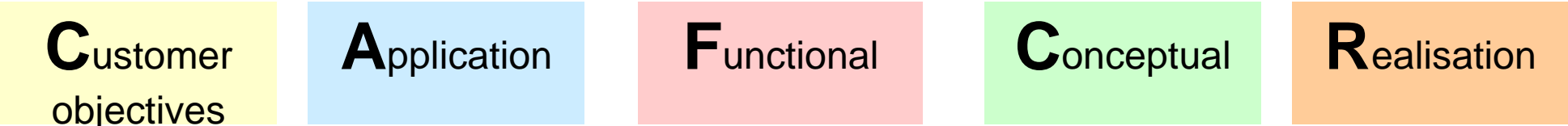
What does Customer need
in Product and **Why?**



Security as example through all views



Connecting Problem Space and Solution Space



Example Questions

Customer
objectives

Application

Functional

Conceptual

Realisation

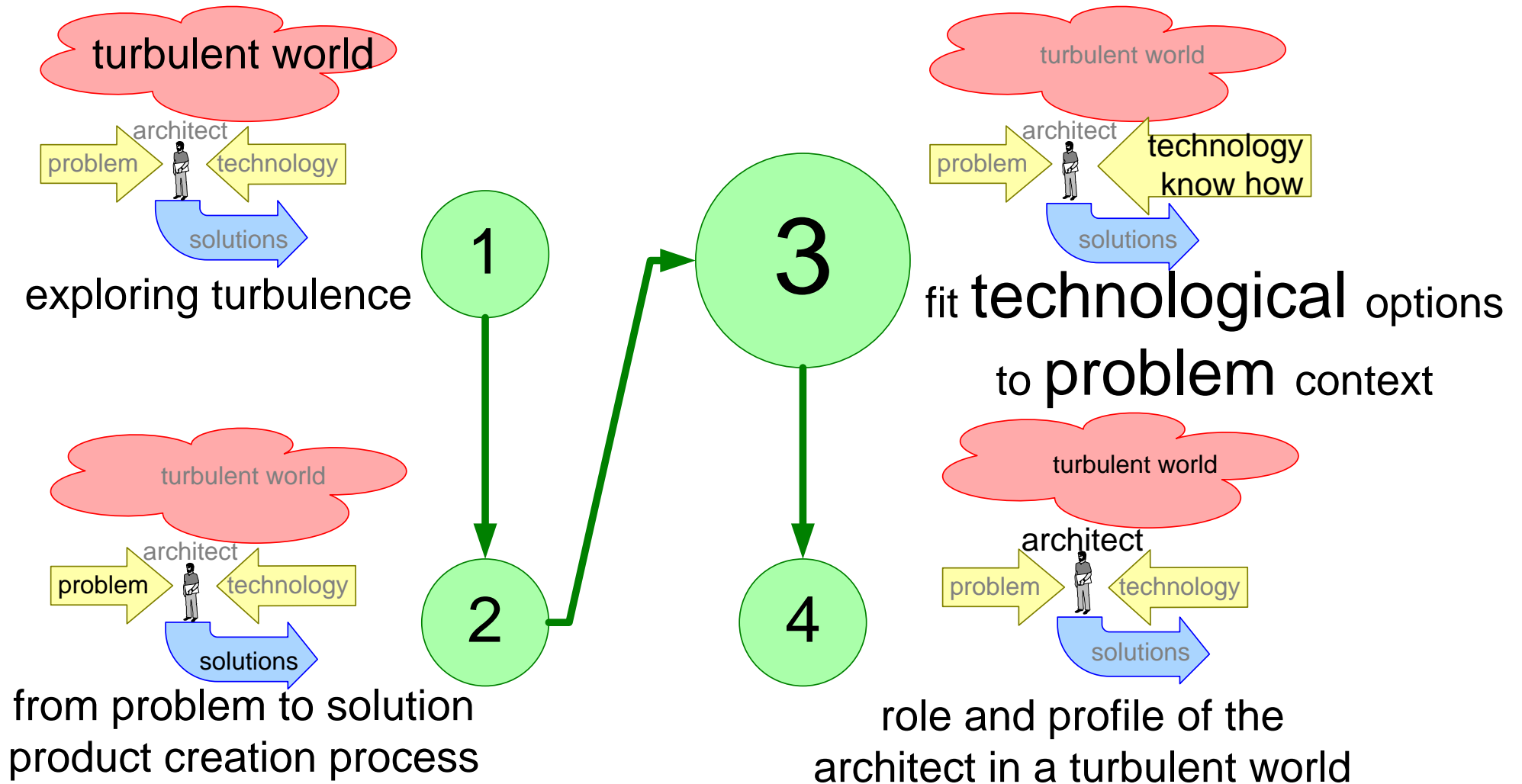
**Will biometrics improve authentication?
Is encryption guaranteeing information security?**

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



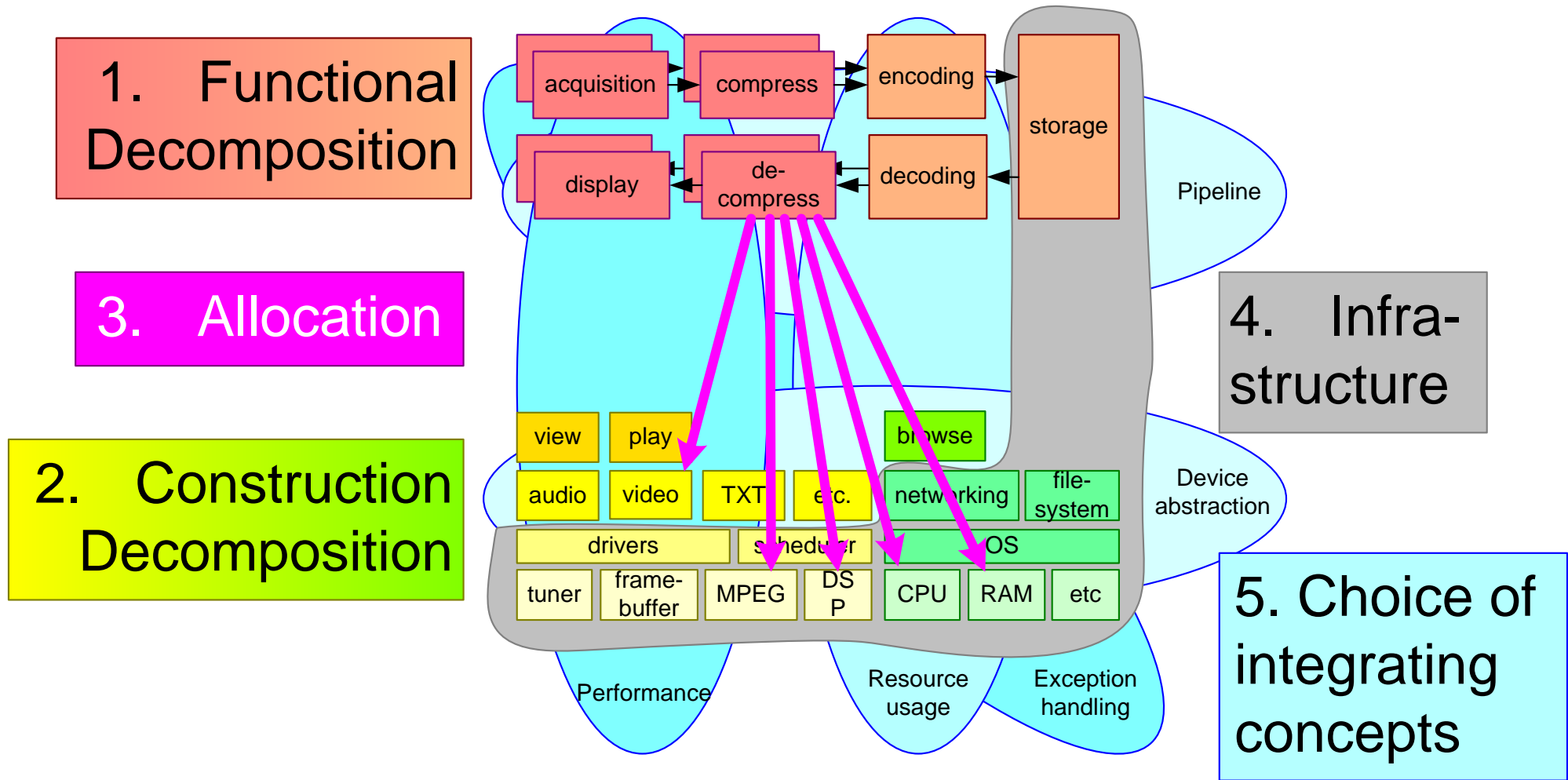
What is Architecture?



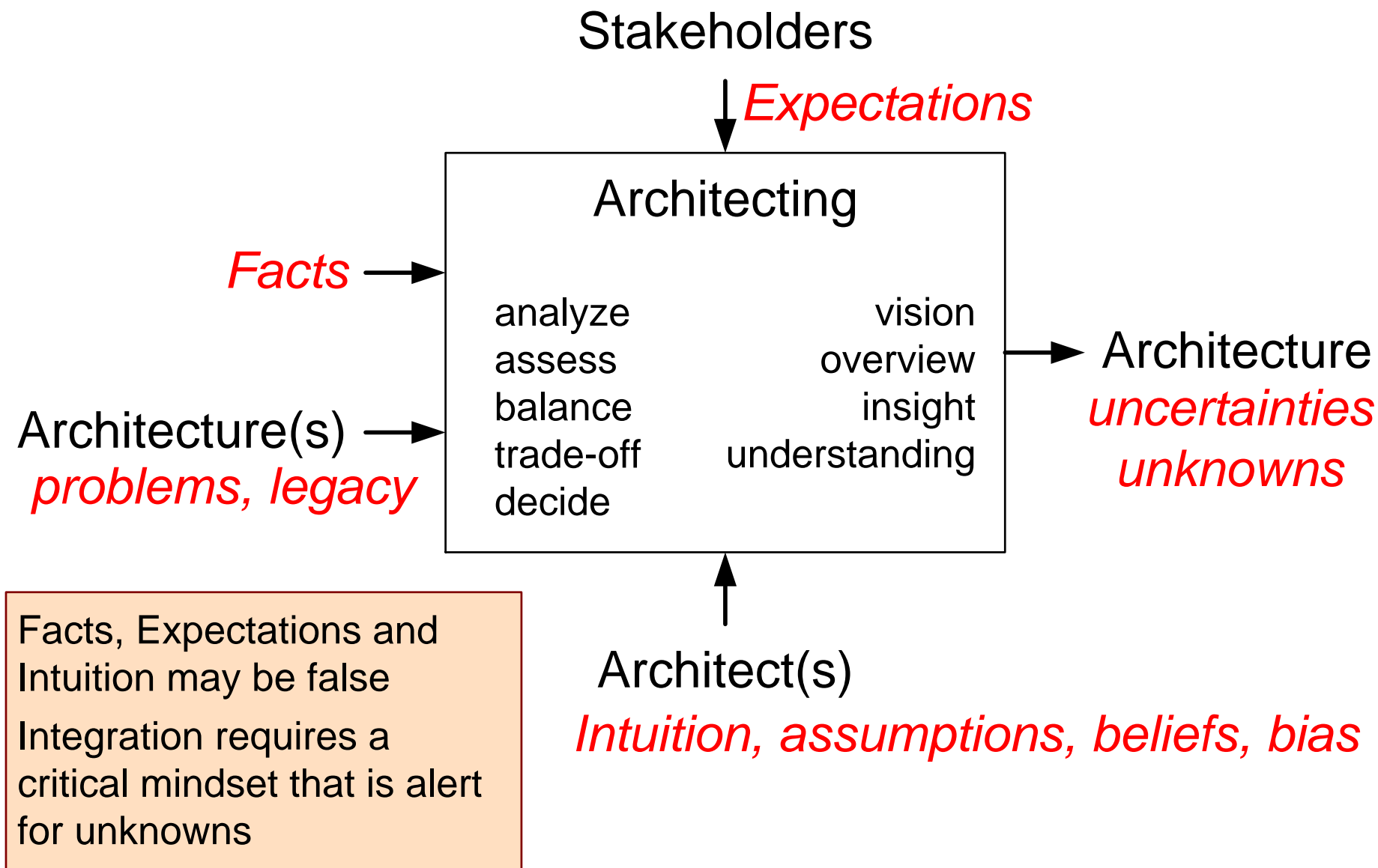
Do the right things

Do the things right

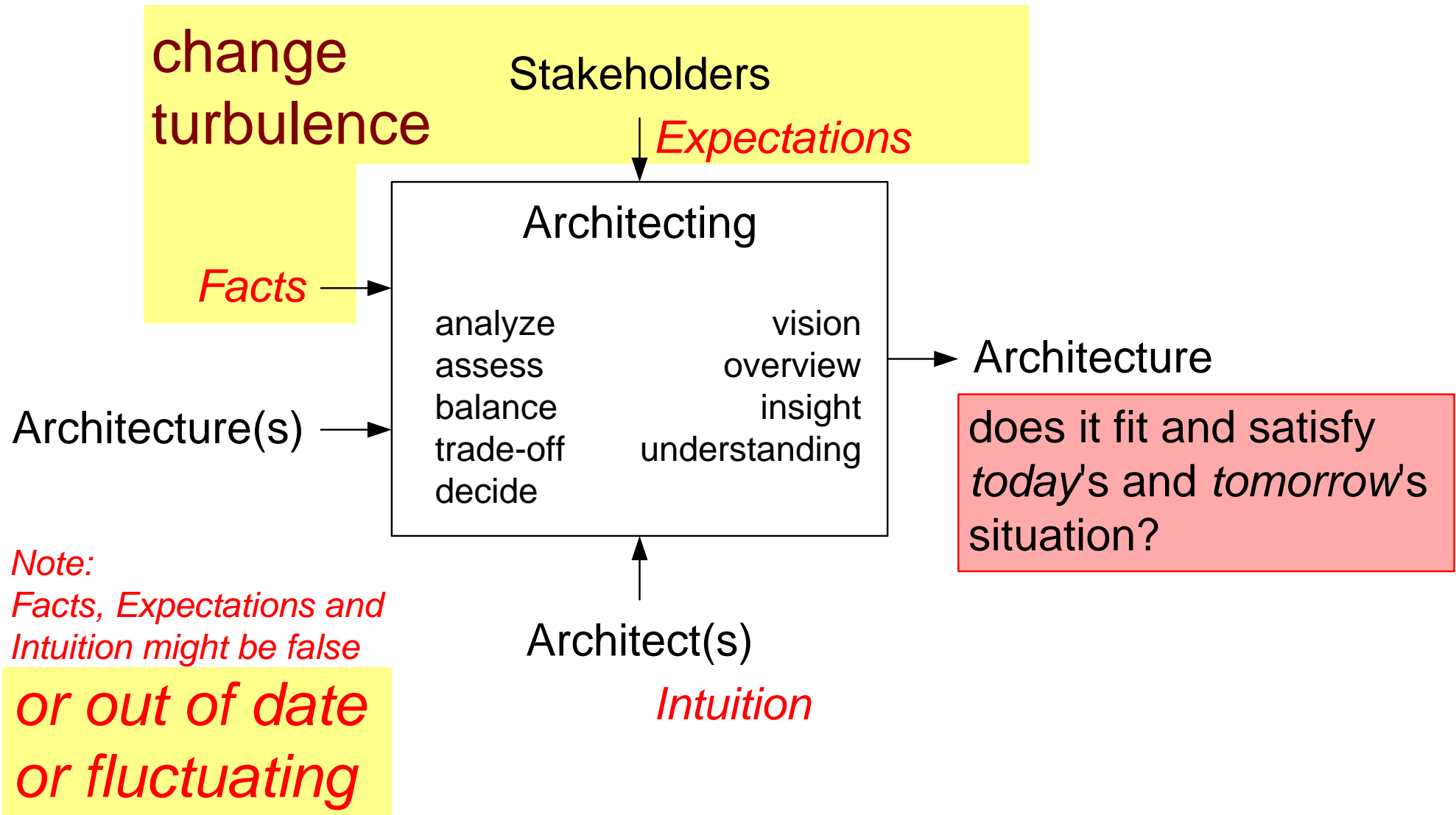
"Guiding How" by providing rules for:



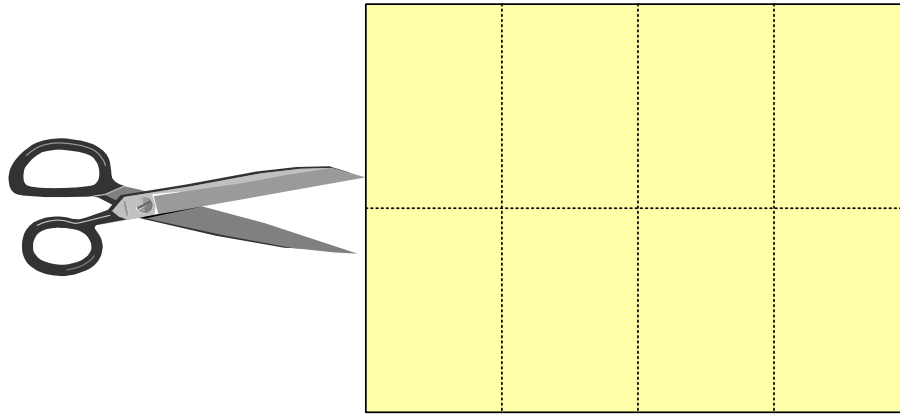
The Art of Architecting Anno 1990



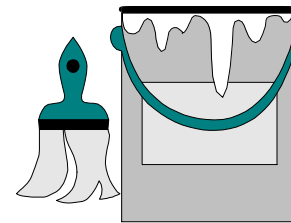
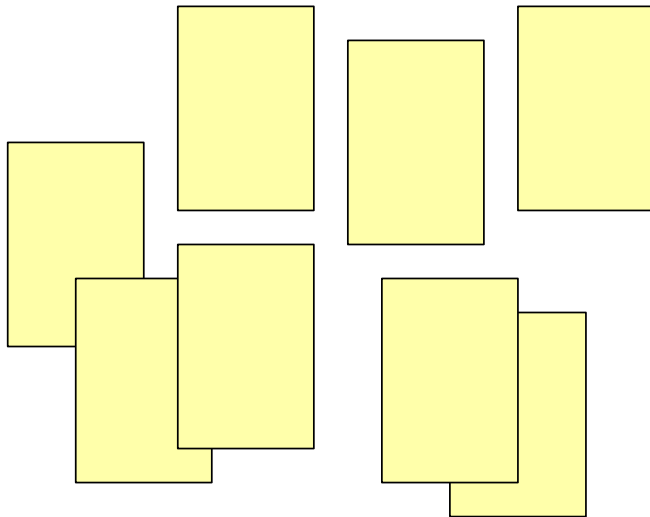
The Art of Architecting Anno 2006



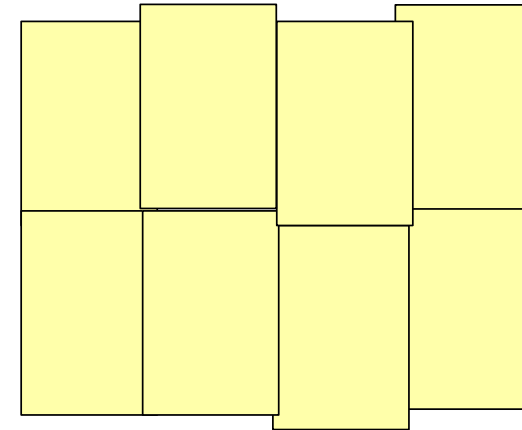
Architecting is much more than Decomposition



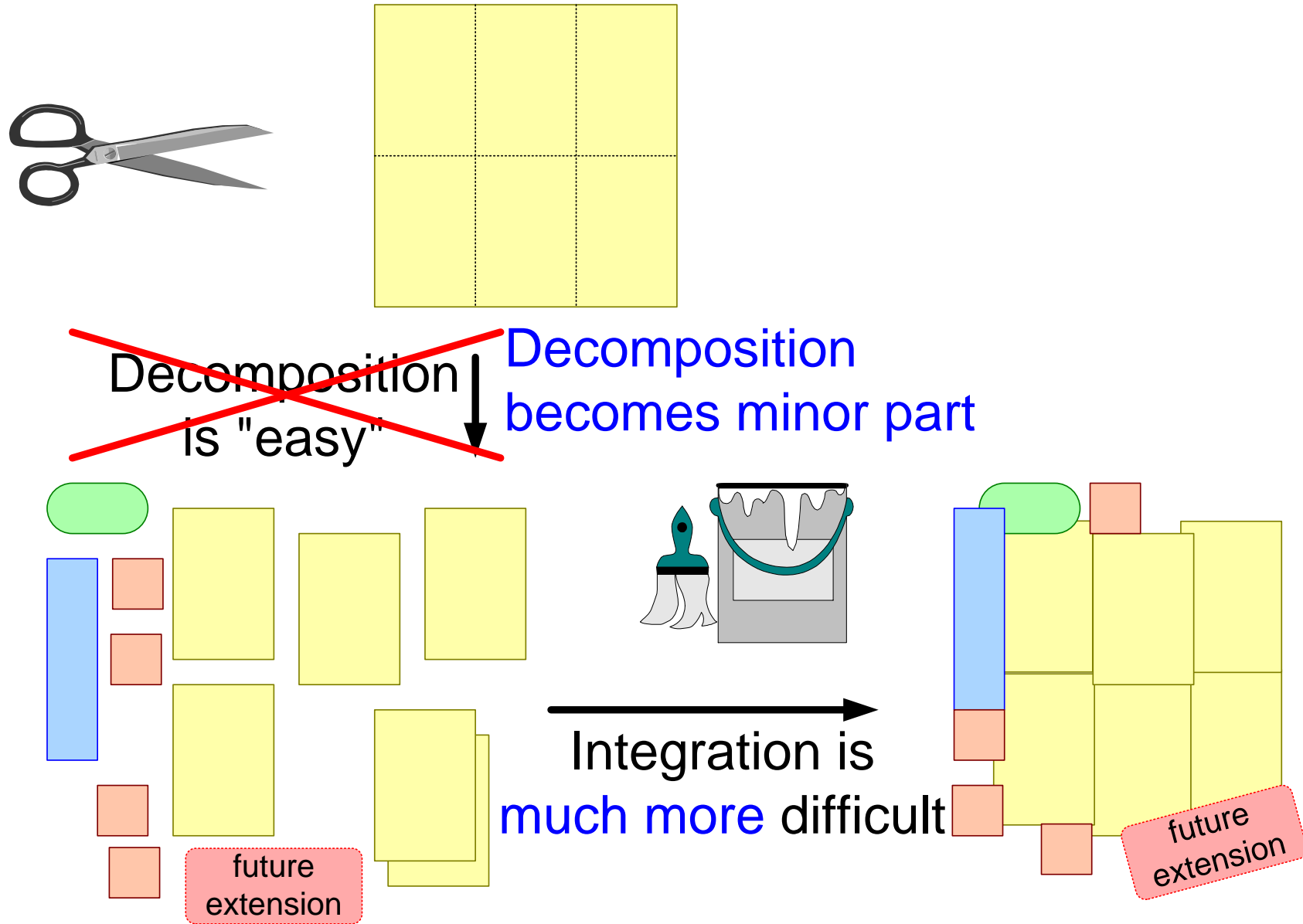
Decomposition
is "easy" ↓



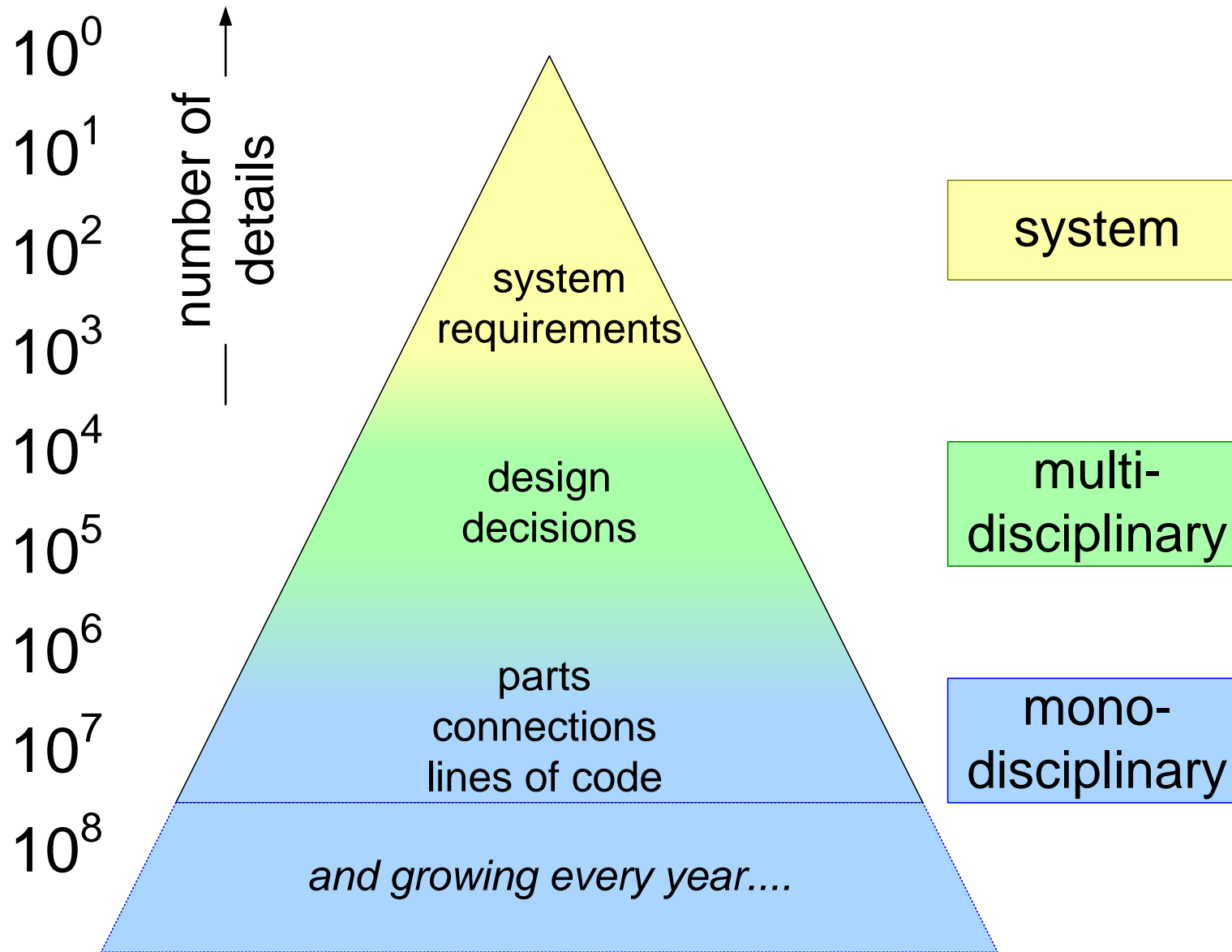
→
Integration is
difficult



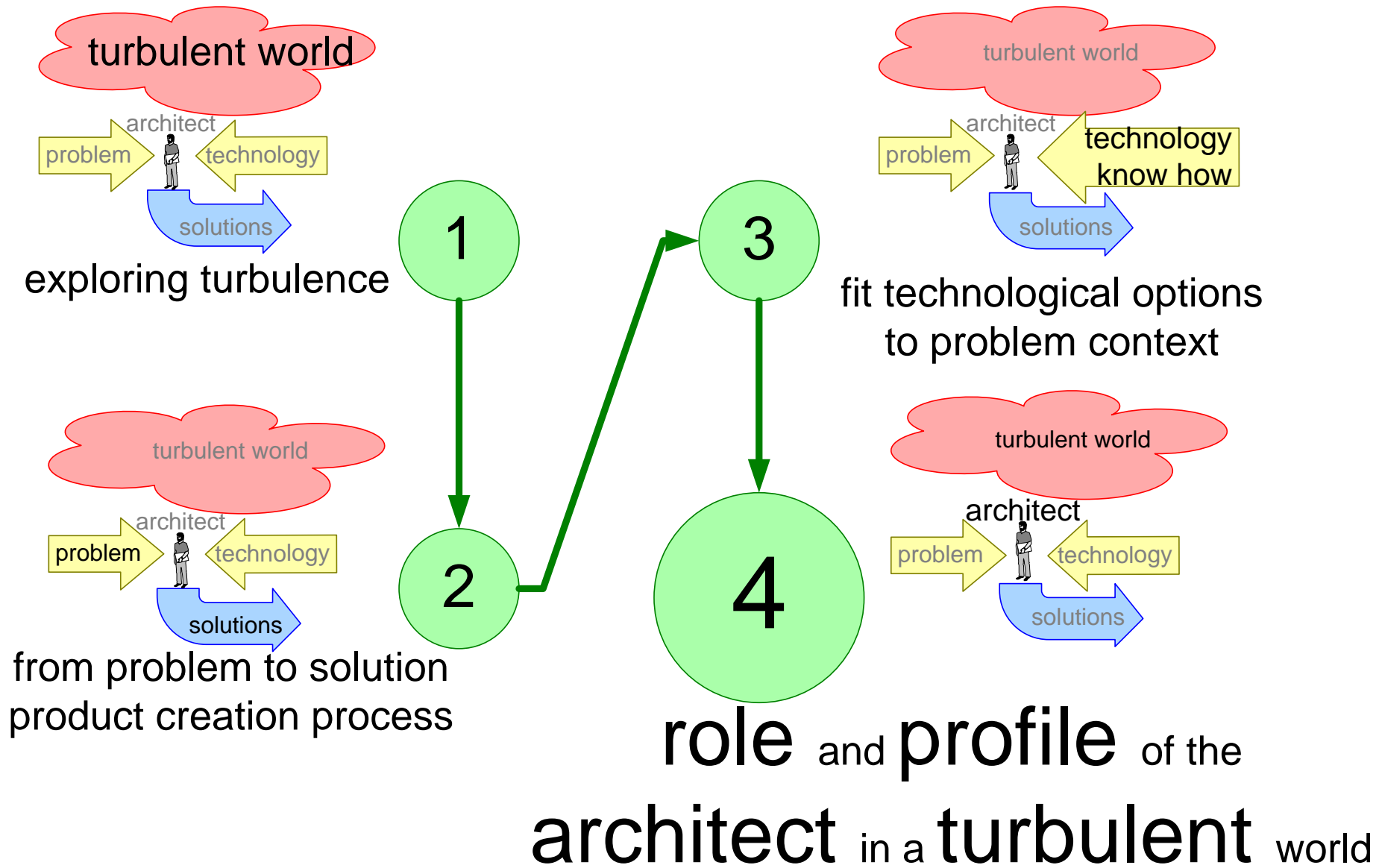
Architecting: Preparing for Integration



Technical Decisions Require Detailed Know How

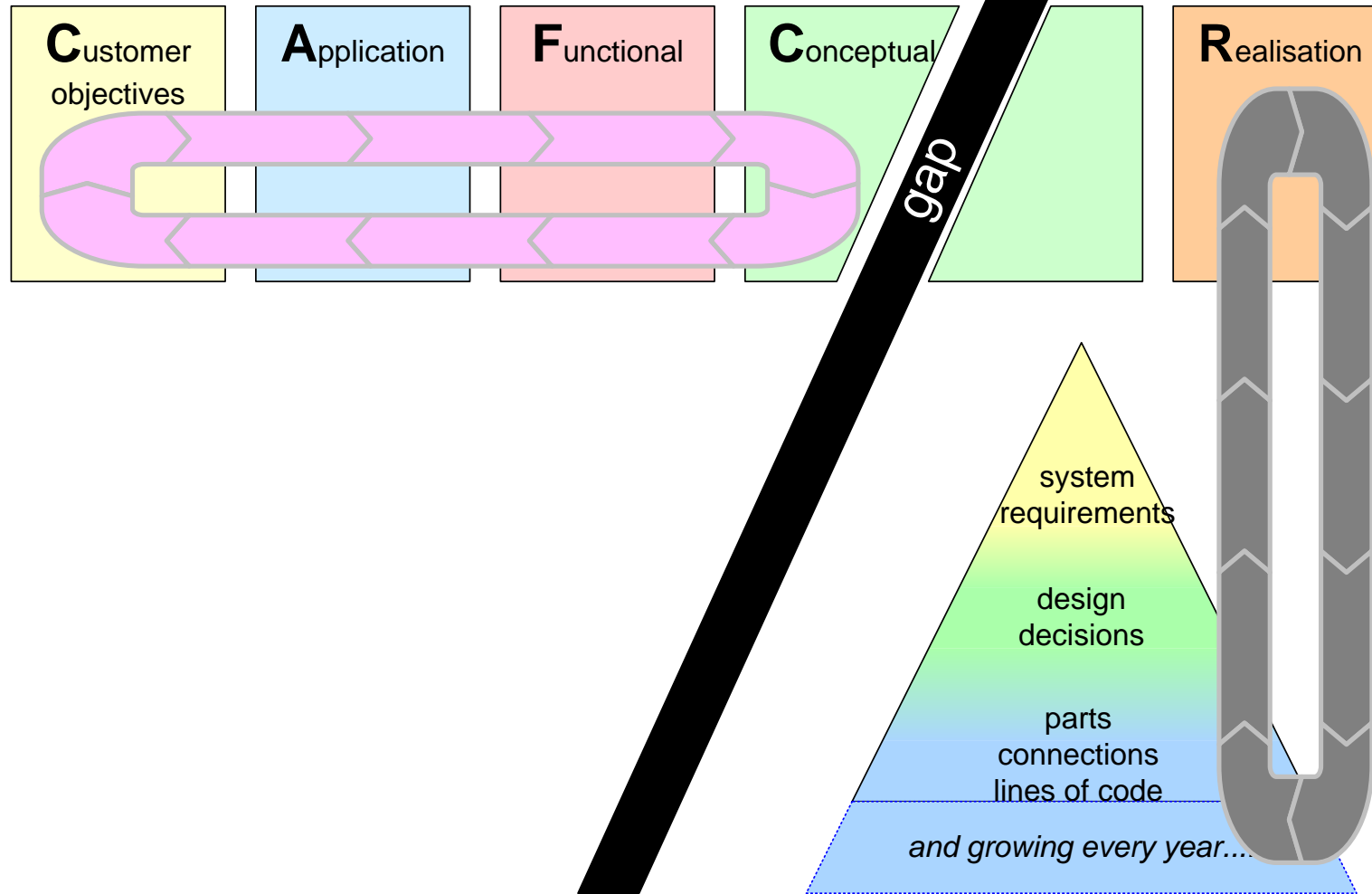


Role and Profile of the Architect in a Turbulent World



Organizational Problem: Disconnect

What does Customer need in Product and **Why?**

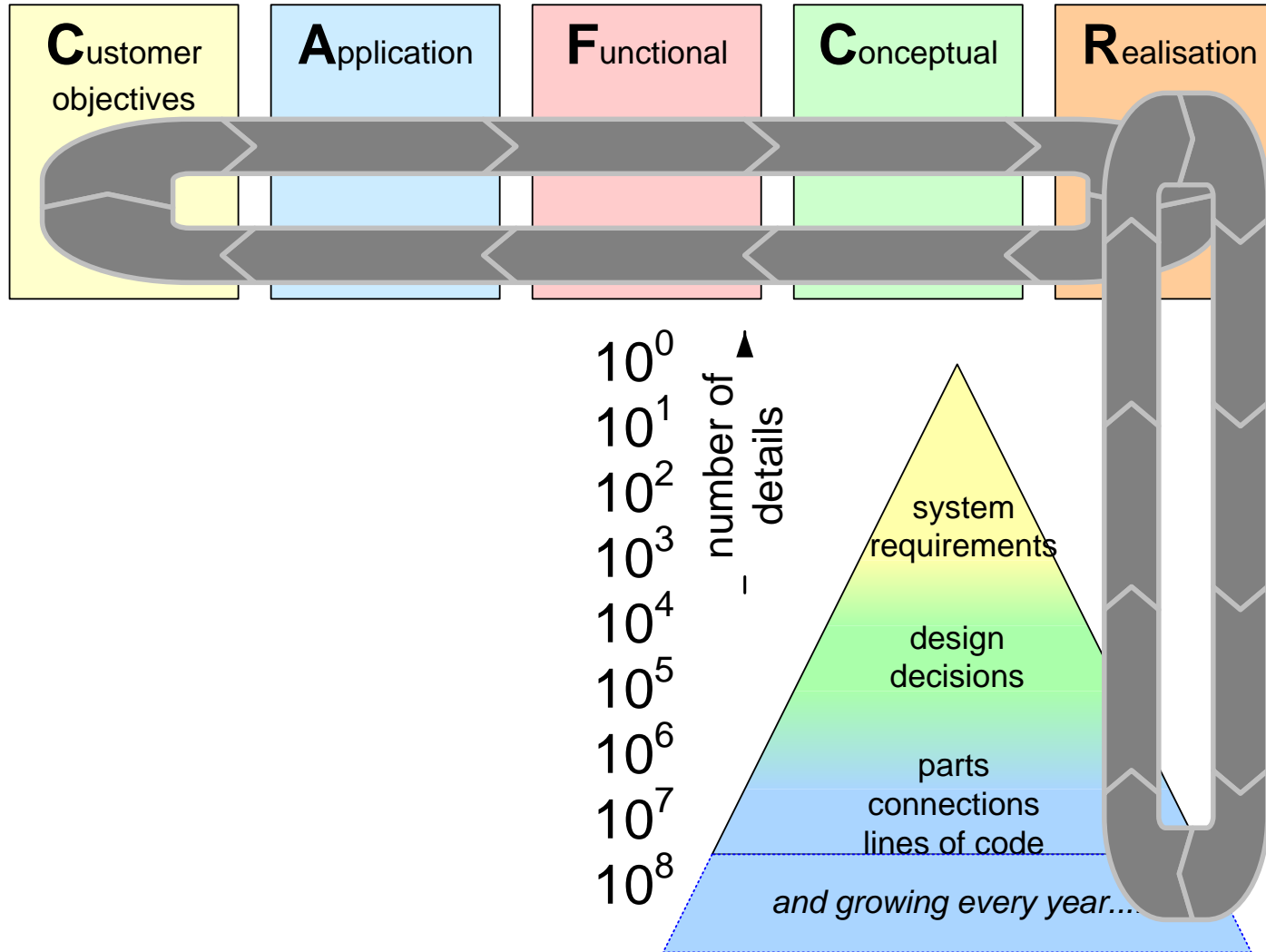


How can the product be realized
What are the critical decisions

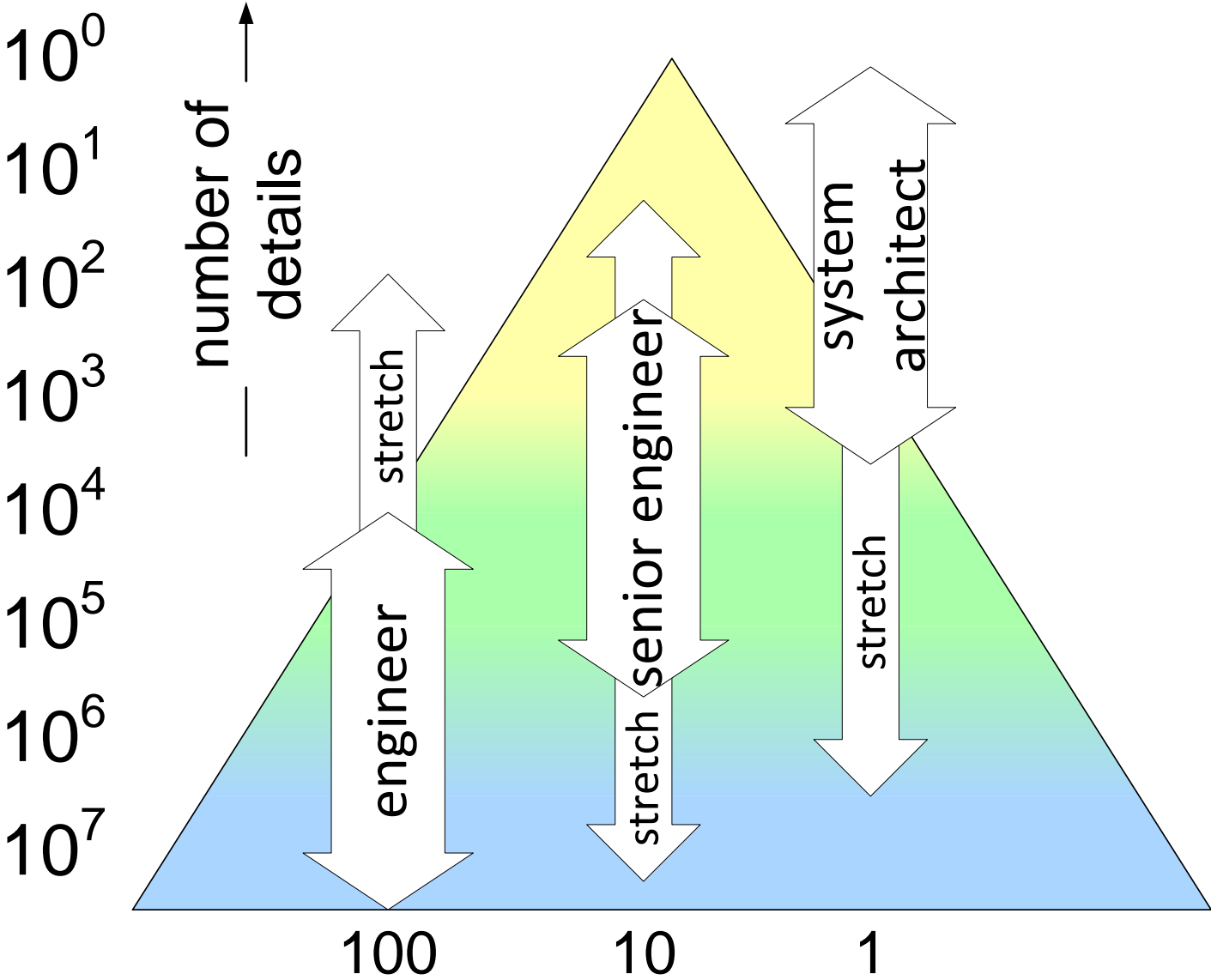
Architect: Connecting Problem and Technical Solution

What does Customer need in Product and **Why?**

How can the product be realized
What are the critical decisions



Major Bottleneck: Mental Dynamic Range

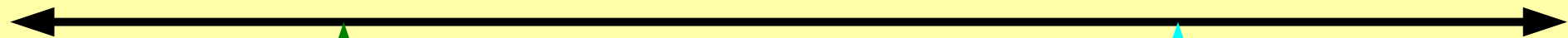


Opposing, but Complementary Skills and Cultures

based on: "Some Future Trends and Implications for Systems and Software Engineering Processes" by Barry Boehm, Systems Engineering, Spring 2006

agility
people

plan-oriented
people



thriving
on chaos



?

?

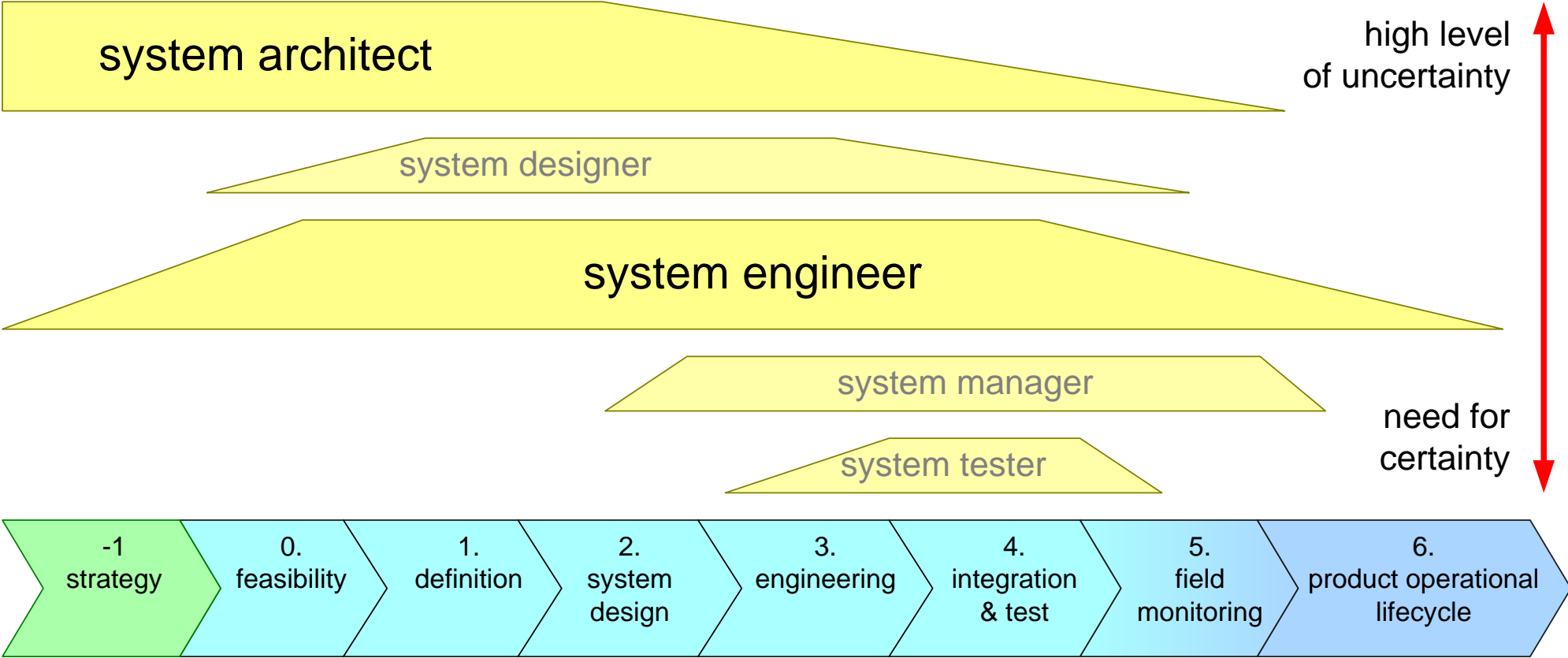


thriving
on order

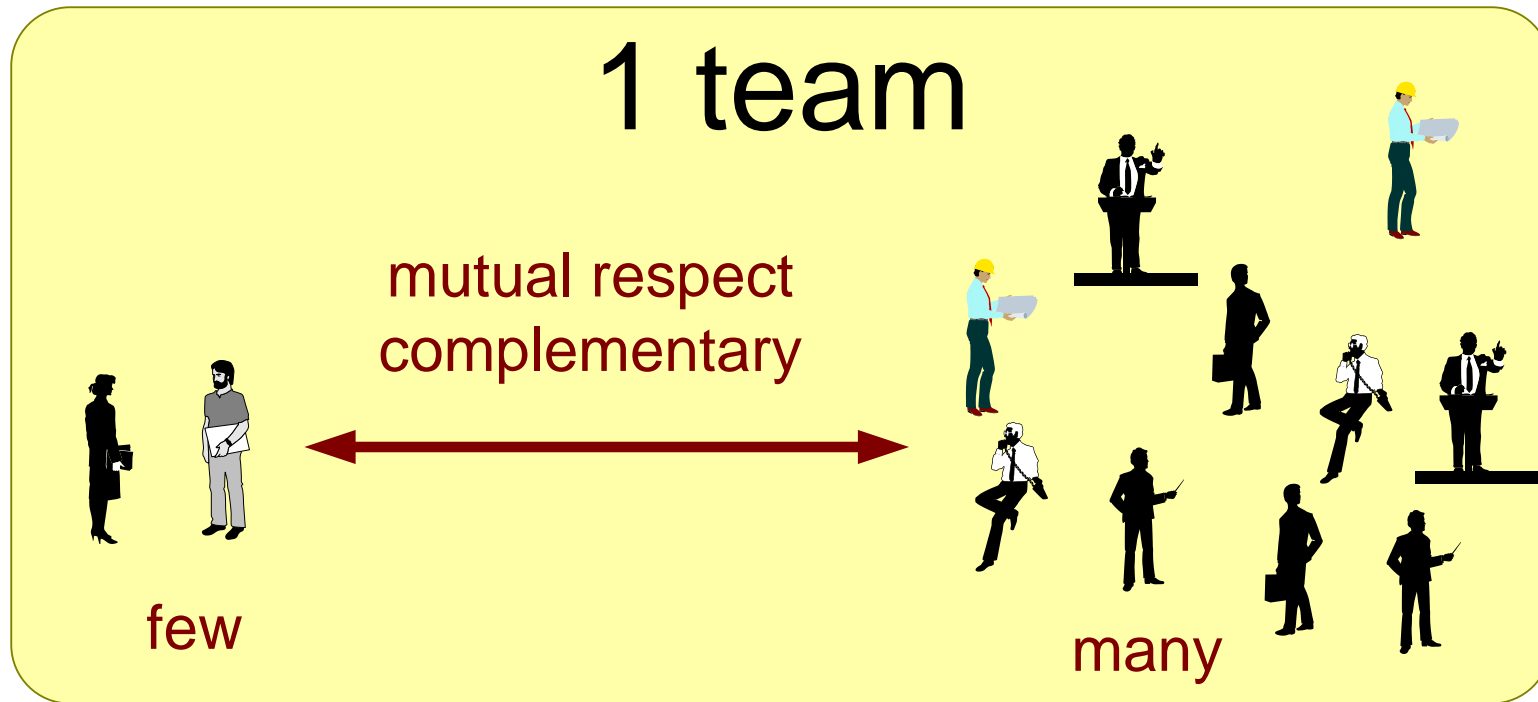
*system architects:
create some order in chaos
but fear dogmatic use of
procedures and policies*

*system engineers:
create reliable, reproducible,
maintainable, manageable systems
introducing procedures and policies*

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

