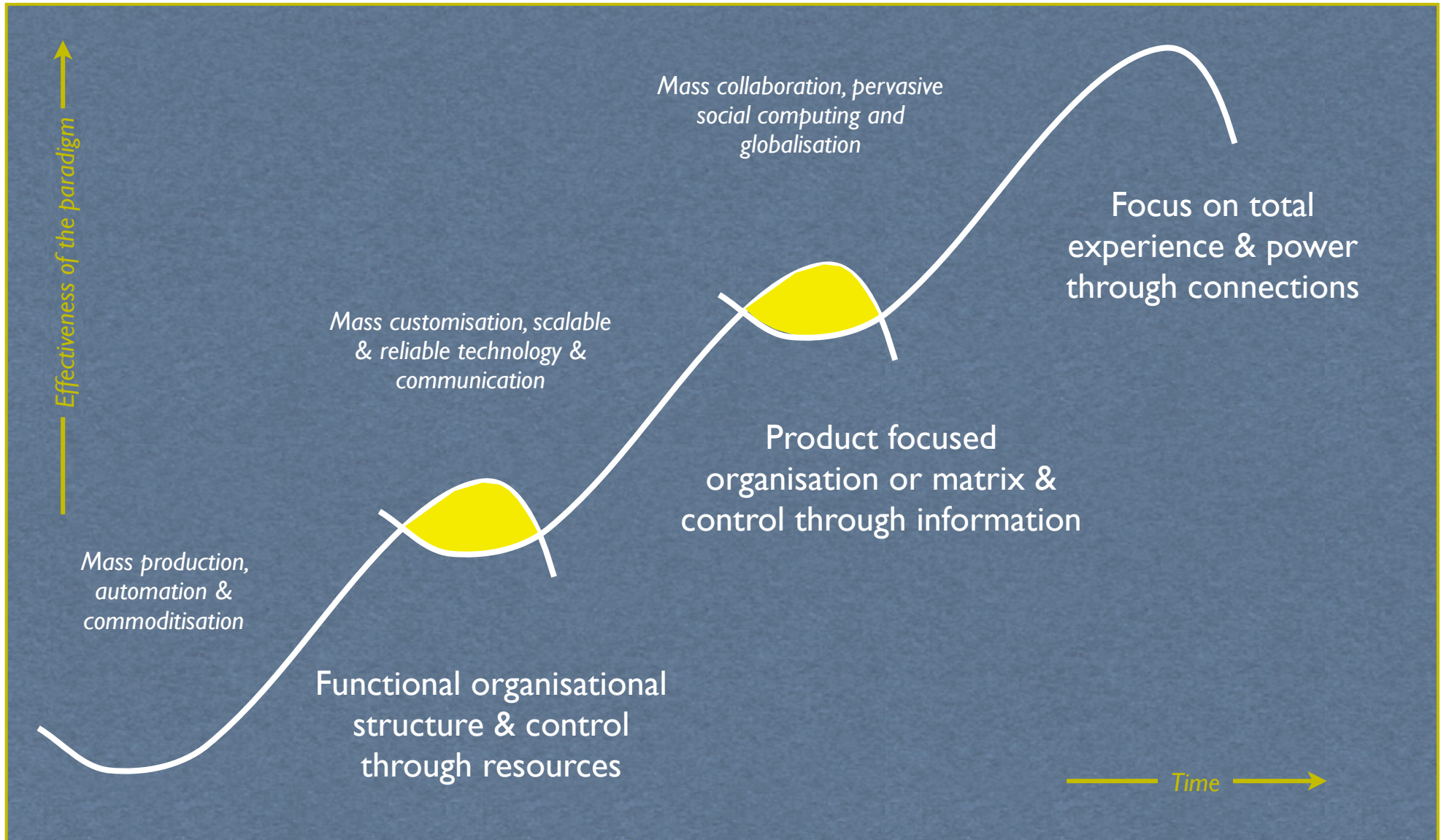


“We can succeed only by concert. It is not ‘can any of us imagine better?’ but, ‘can we all do better?’ The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise — with the occasion. As our case is new, so we must think anew, and act anew. We must disenthrall ourselves, and then we shall save our country.”

Abraham Lincoln, Annual Message to Congress, Dec. 1, 1862

Life cycles



The nature of systems

• Key language

- A system is any network that has coherence
it may be fuzzy, it may or may not have purpose
- An agent is anything which acts within the system
individual, group, idea etc.

• Three types of system

- **Ordered:** *system* constrains *agents*, reductionism & rules, deterministic, observer independence
- **Chaotic:** *agents* unconstrained & independent of each other, studied through statistics & probability
- **Complex:** *system* lightly constrains *agents*, *agents* modify *system* by their interaction with it and each other, they **co-evolve** (irreversibility). Operate in far from equilibrium situations, system effects are emergent not aggregative

“For now we see through a glass,
darkly; but then face to face: now
I know in part; but then shall I
know even as also I am known.”

1 Corinthians 13:12

Aspects of complexity

Characteristics

- Highly sensitive to small changes
- Proximity & connectivity of agents has high impact
- Meaning emerges through interaction
- **Hindsight** does not lead to **foresight**
Shift from **fail-safe** design to **safe-fail** experimentation

Consequences

- Use of distributed cognition
wisdom but not foolishness of crowds
- Work with finely granulated objects
information and organisational
- Disintermediation
Putting decision makers in direct contact with raw data

“Nor do people pour new wine into old wineskins. If they do, the skins will burst, the wine will spill out, and the skins will be ruined. Instead, they pour new wine into fresh wineskins, and both are preserved.”

Mark 9:17