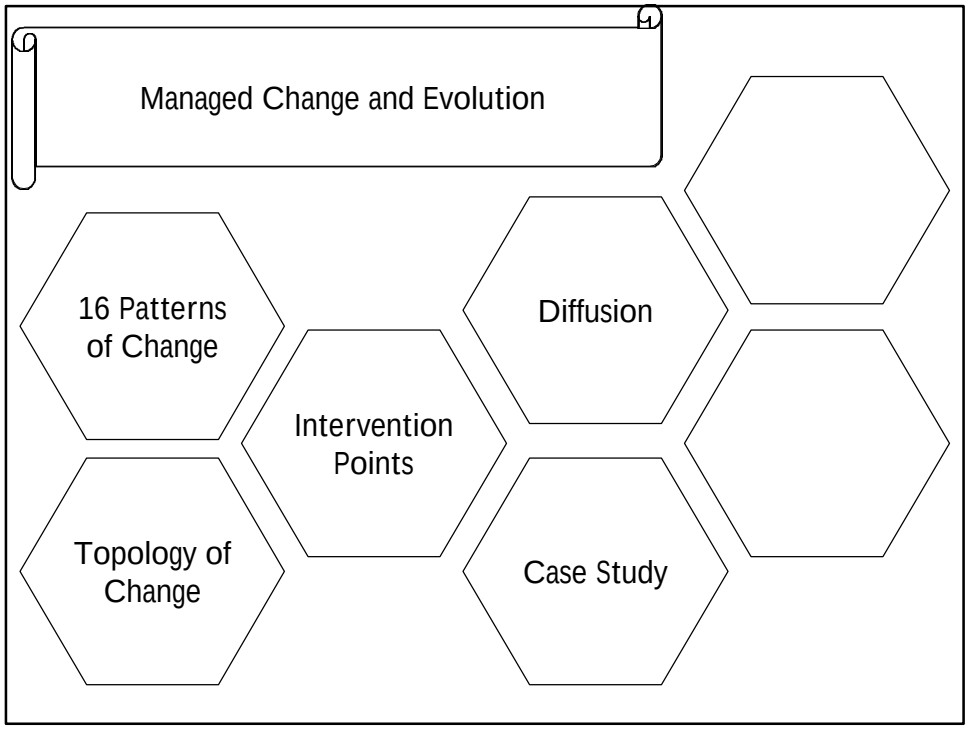

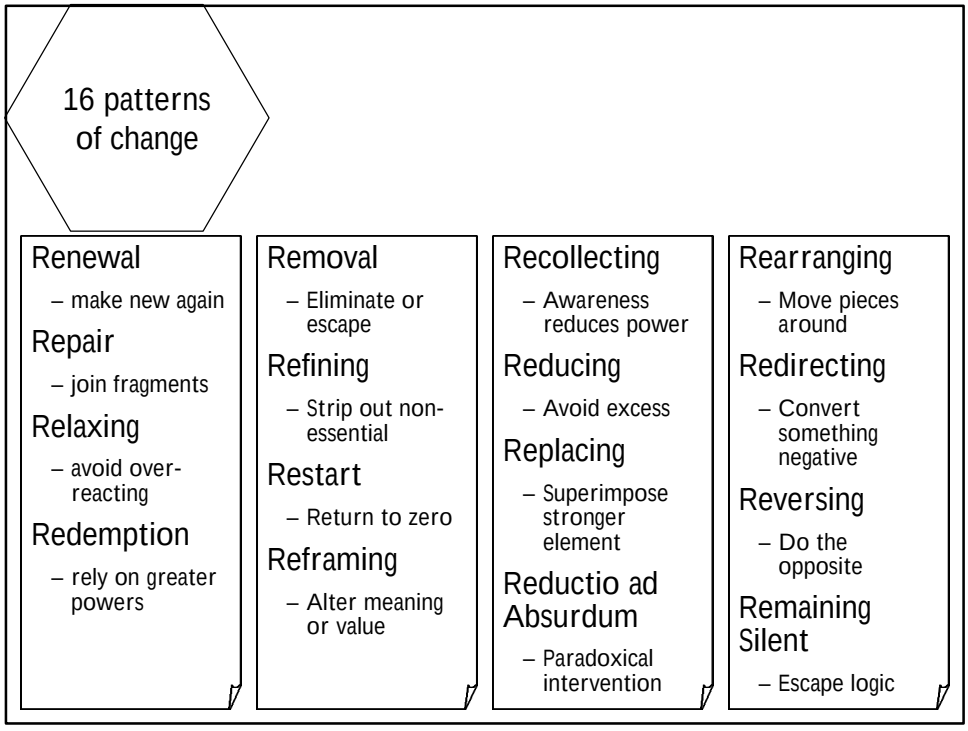

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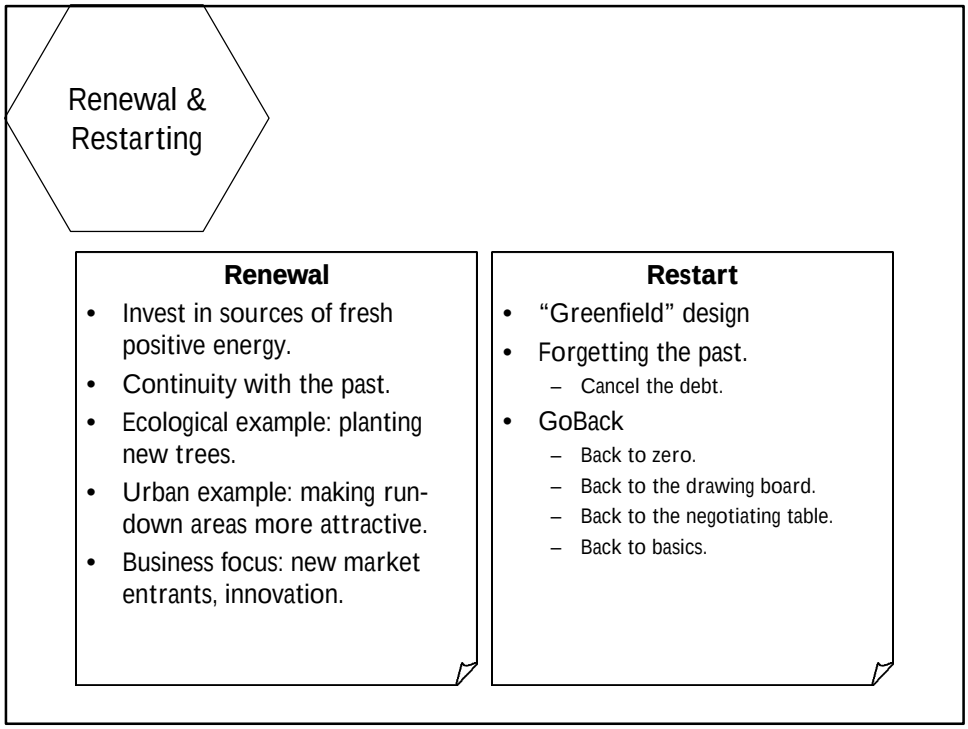

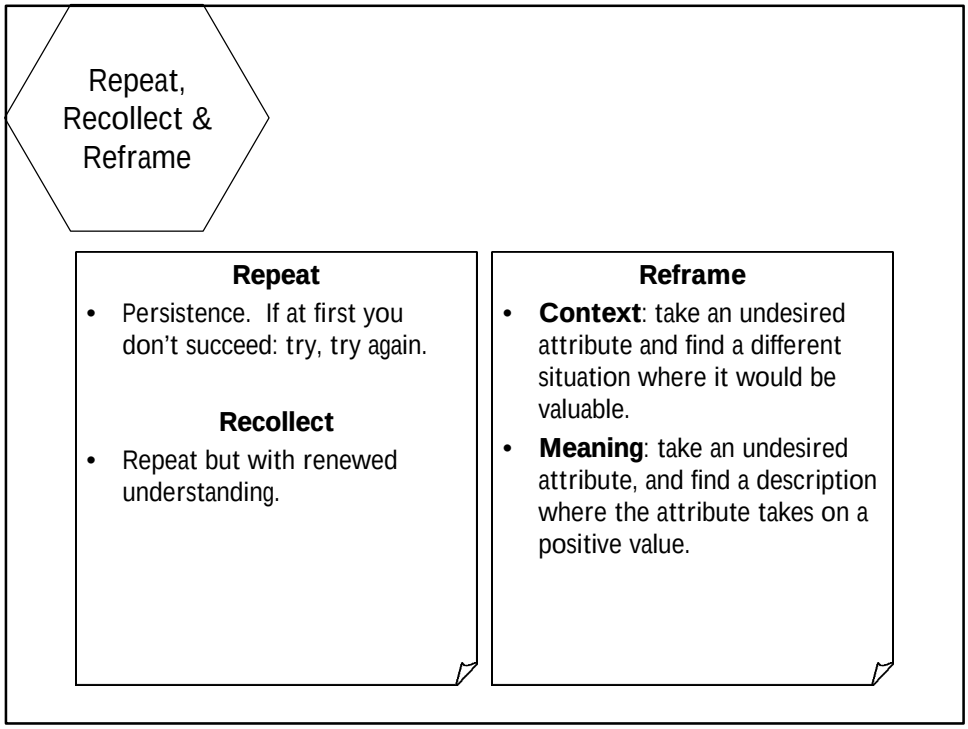

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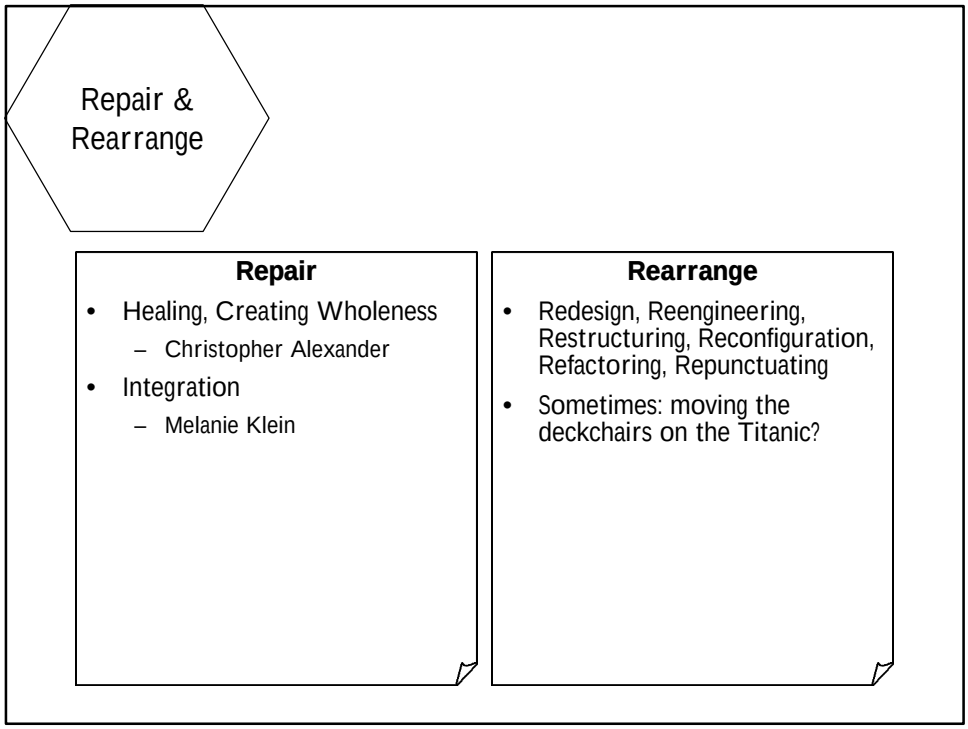

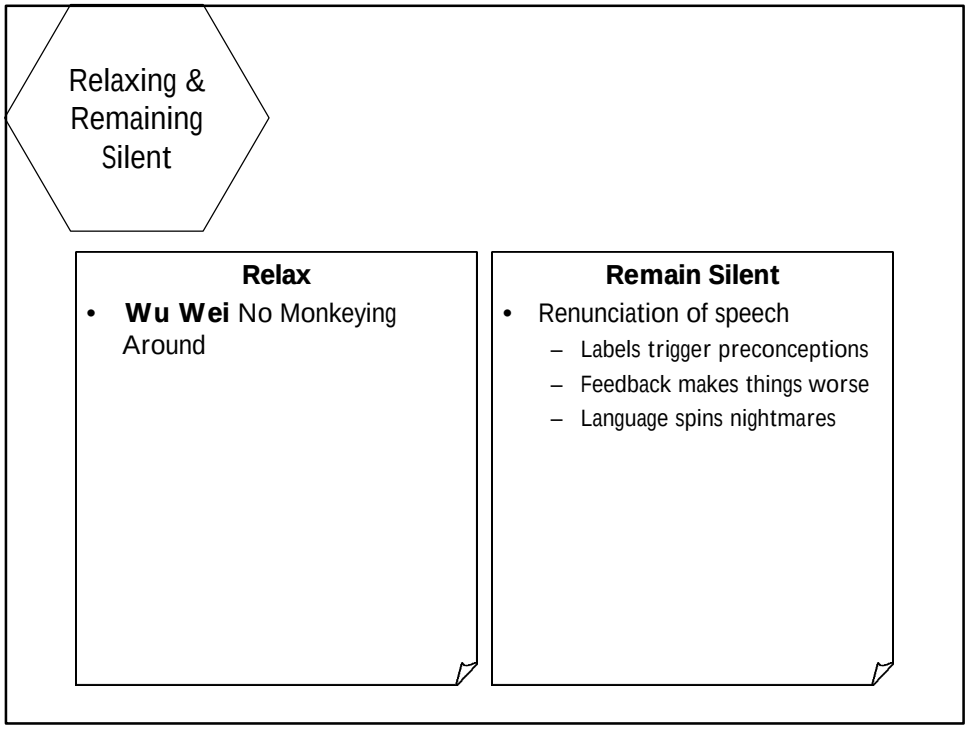

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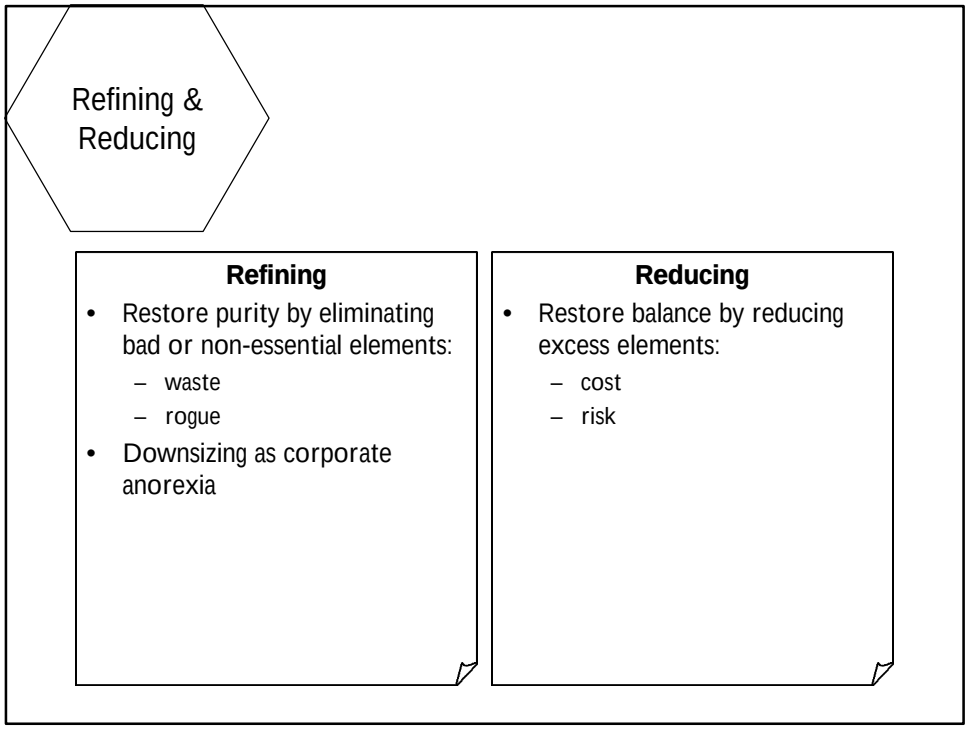

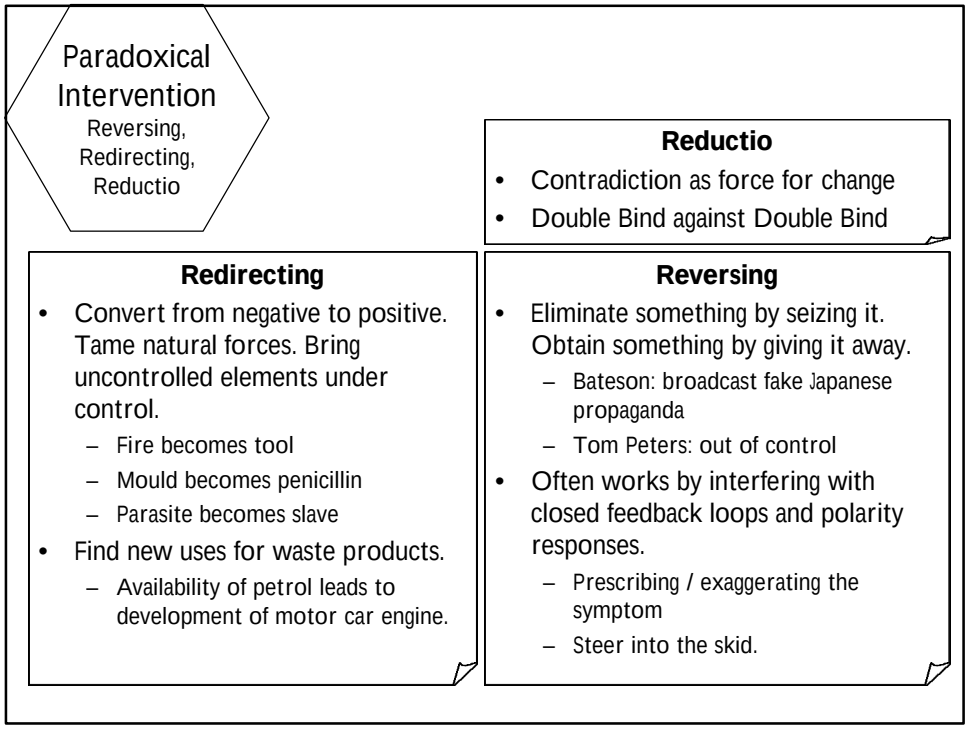

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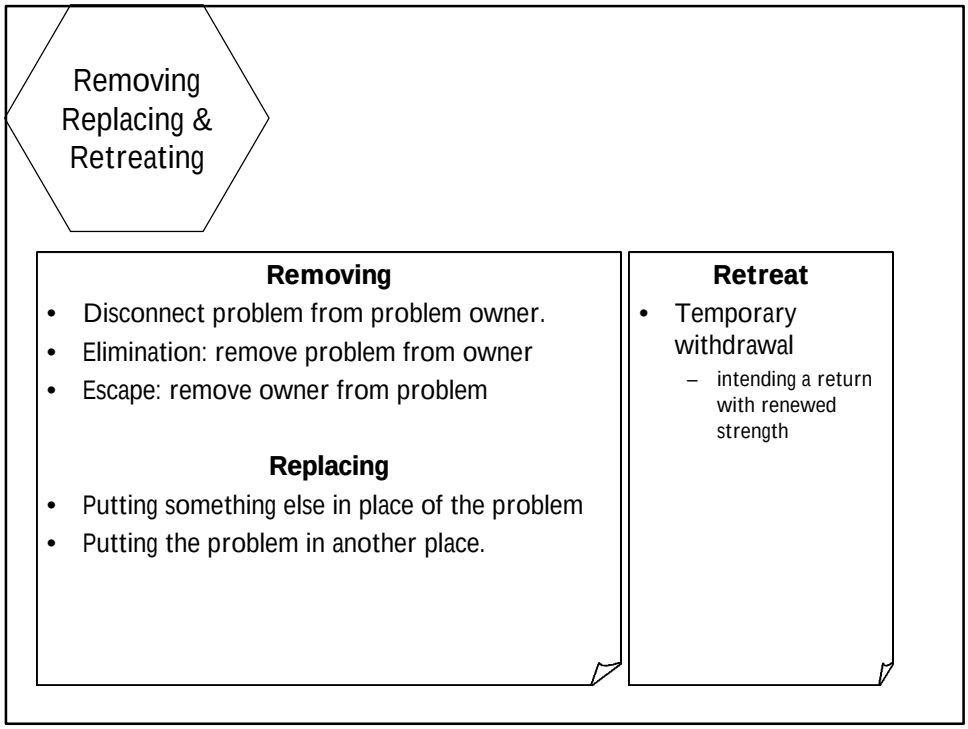

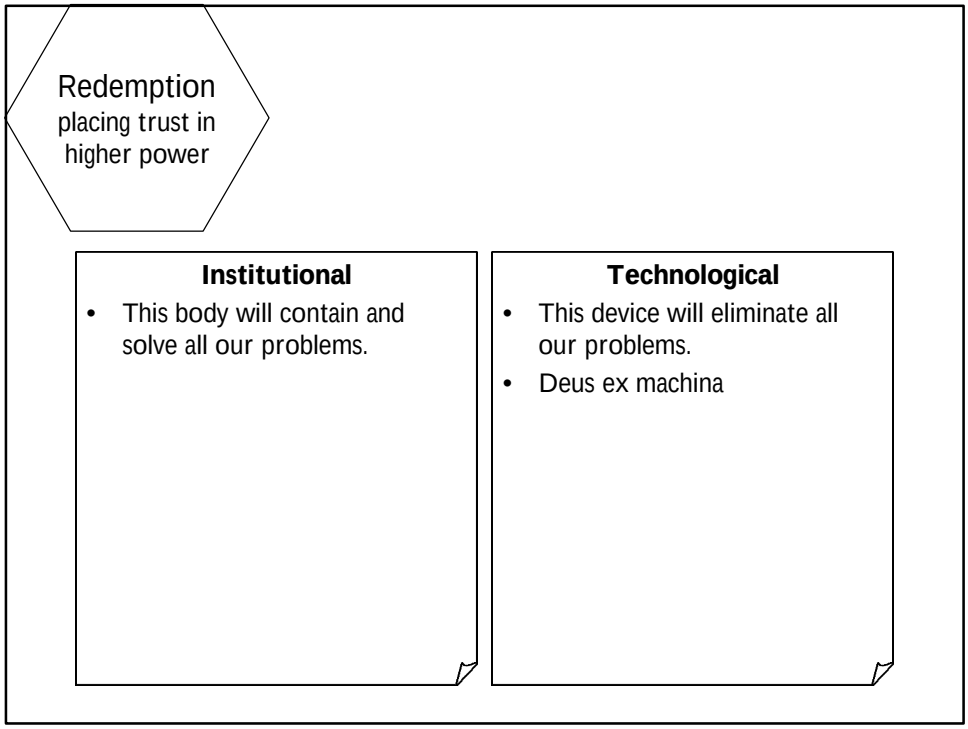

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Diffusion
Summary

- As a practitioner, I have a need for better ways of reasoning about matters of diffusion and value.
- Current diffusion theory seems inadequate to support my needs. I'm particularly concerned about various inadequacies that seem to be exposed by Component-Based Development (CBD).
- I see CBD not merely as a fashionable solution to some class of problem (what Bert Swanson in his talk referred to as an Organizing Vision) but also as an emergent phenomenon.

- CBD represents the progressive commoditization of software artefacts, and of the software process.
- Although there are powerful companies currently promoting this concept (including IBM, Microsoft and Sun), these companies are perhaps merely falling in line with the logic of capitalism - of irresistible economic forces towards commoditization.
- This presentation addresses the diffusion of individual software components. I state several empirical hypotheses which (to my knowledge) have not yet been seriously studied, and I challenge theoreticians to provide a better theoretical framework.

Explaining Components

FORM
- **loosely-coupled** business and system architectures
- separate **components** providing business **services** to one another via simple **interfaces**

PROCESS
- separate / **parallel responsibility** for whole and parts
  - *development*
  - *management*
- whole **procures** parts
- properties of parts contribute somehow to properties of whole.

PURPOSE
- accommodate rapid **change**
- economies of scale through **reuse.**

MATERIAL
- component as if real object
- coherent **package**
  - *software*
  - *business operations*
  - *knowledge / capability*
- component possesses **character**

… but is this what counts as a "good" component?

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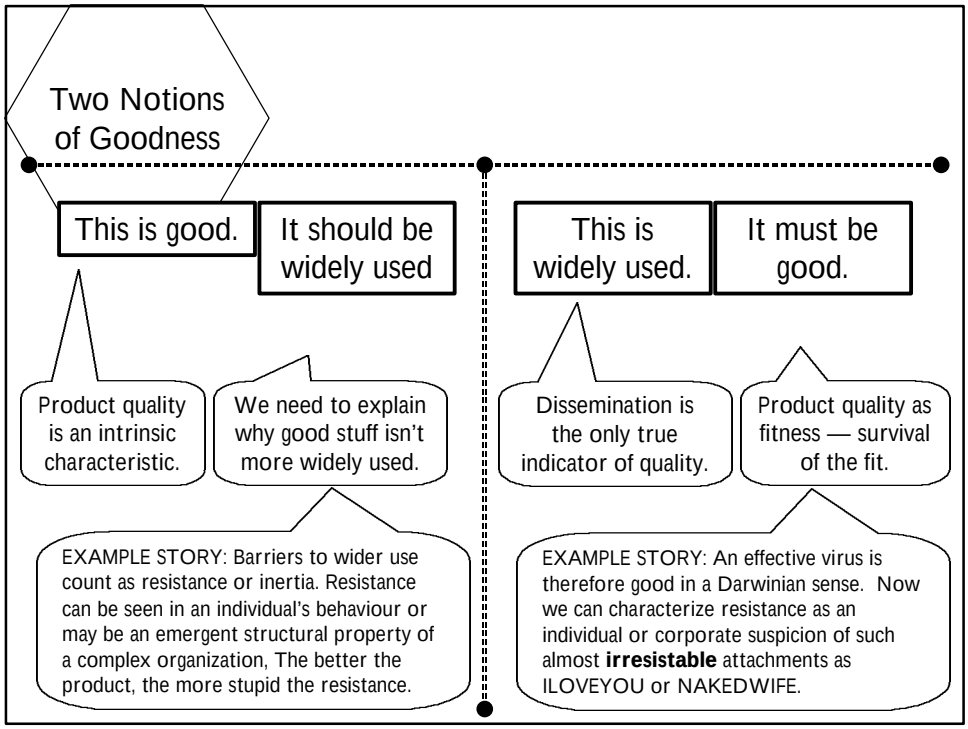

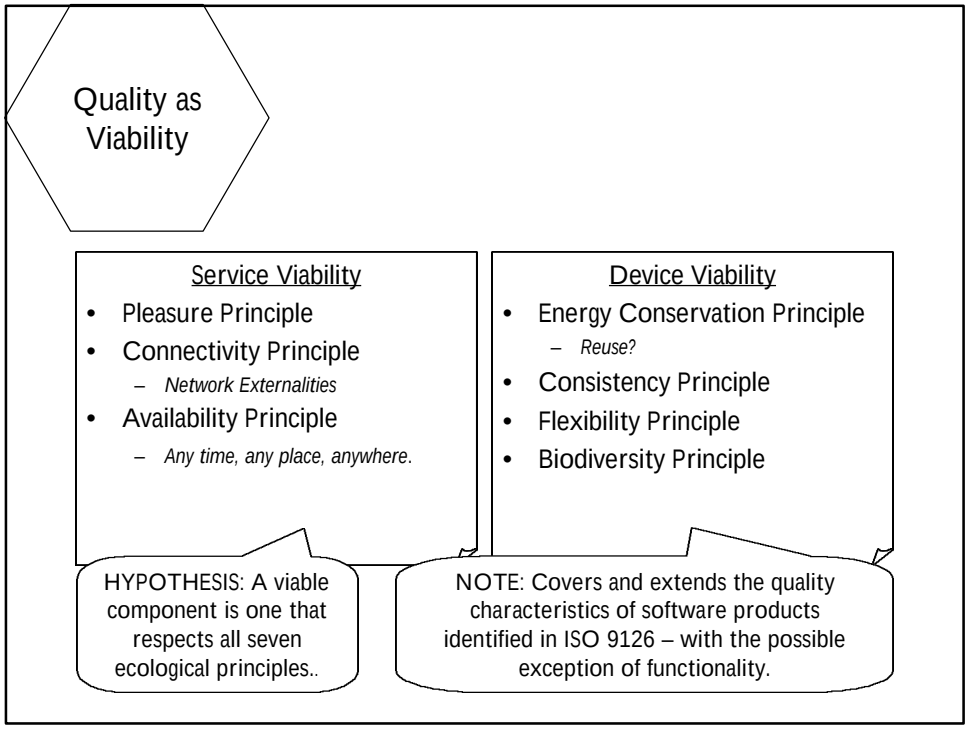

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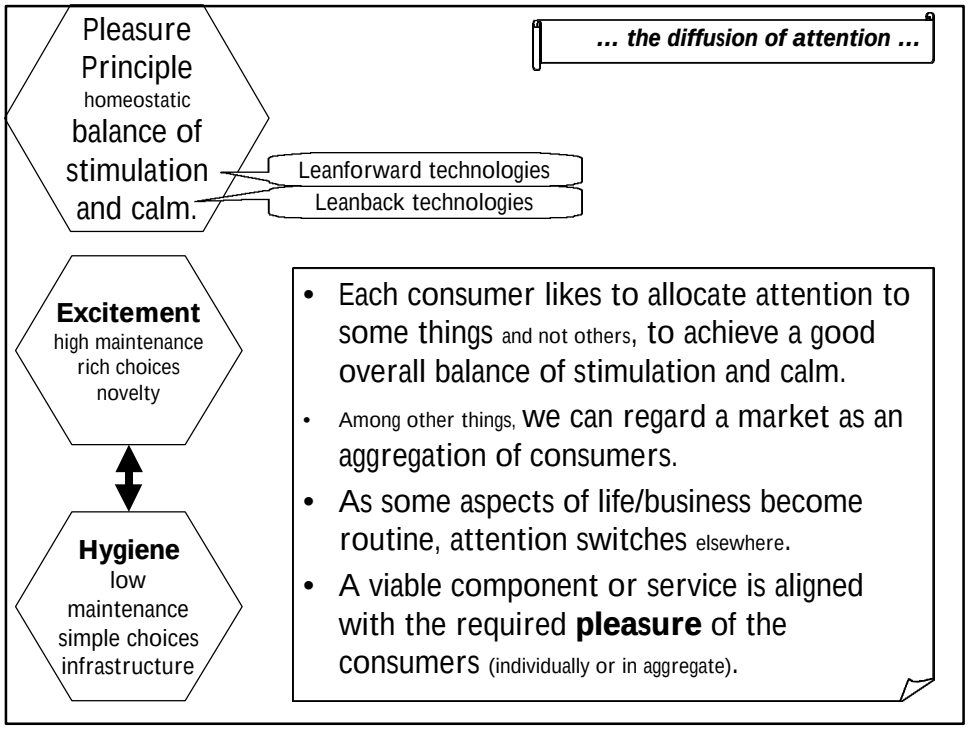

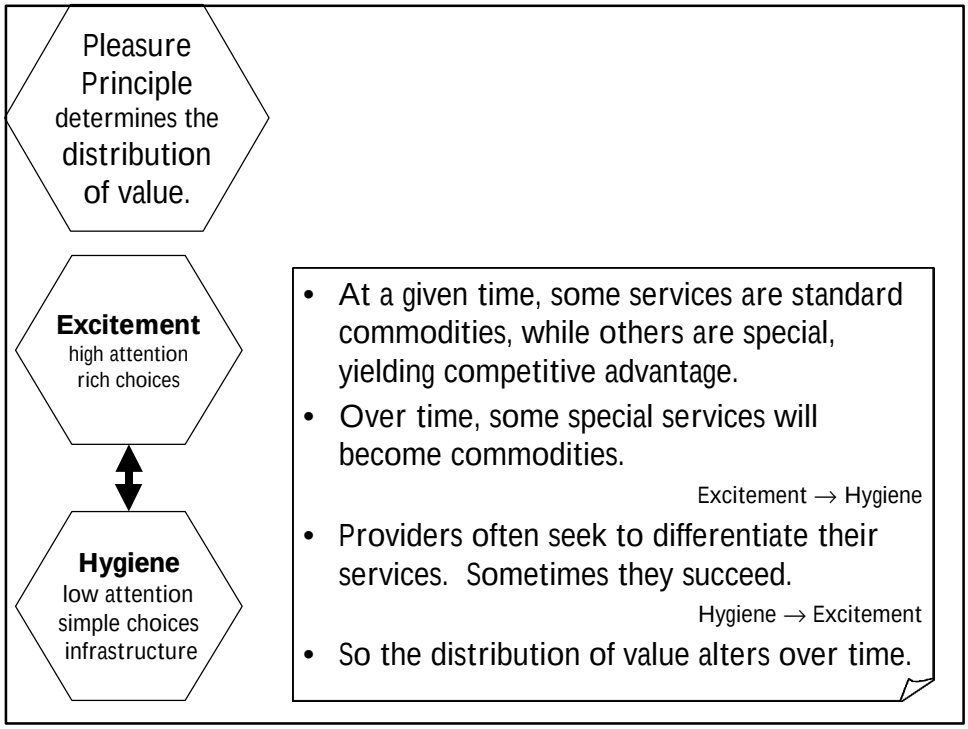

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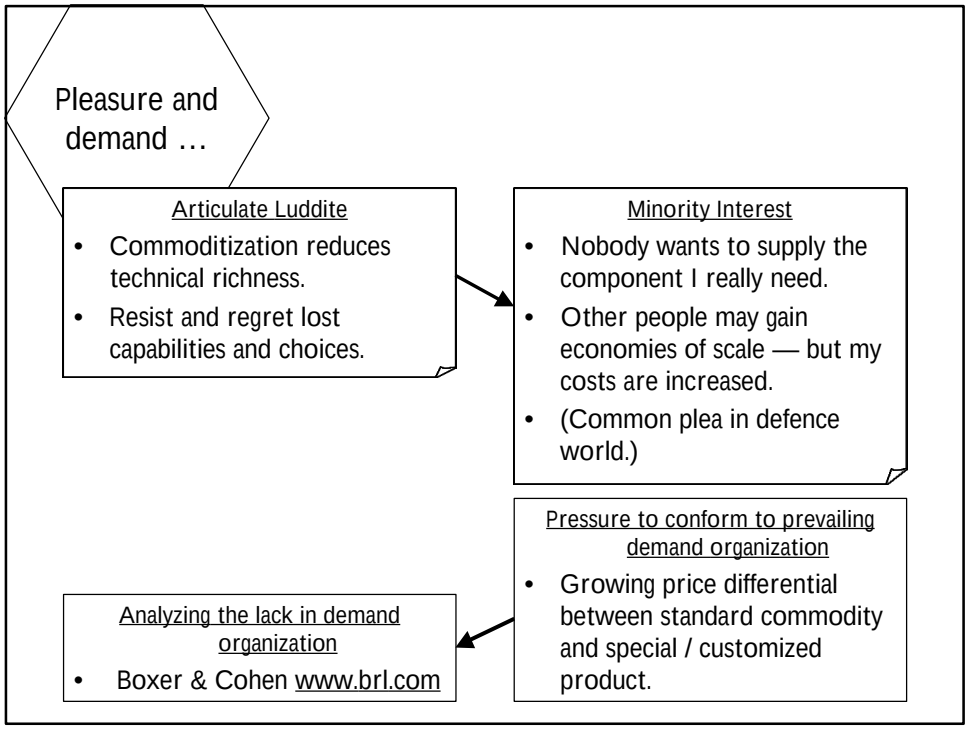

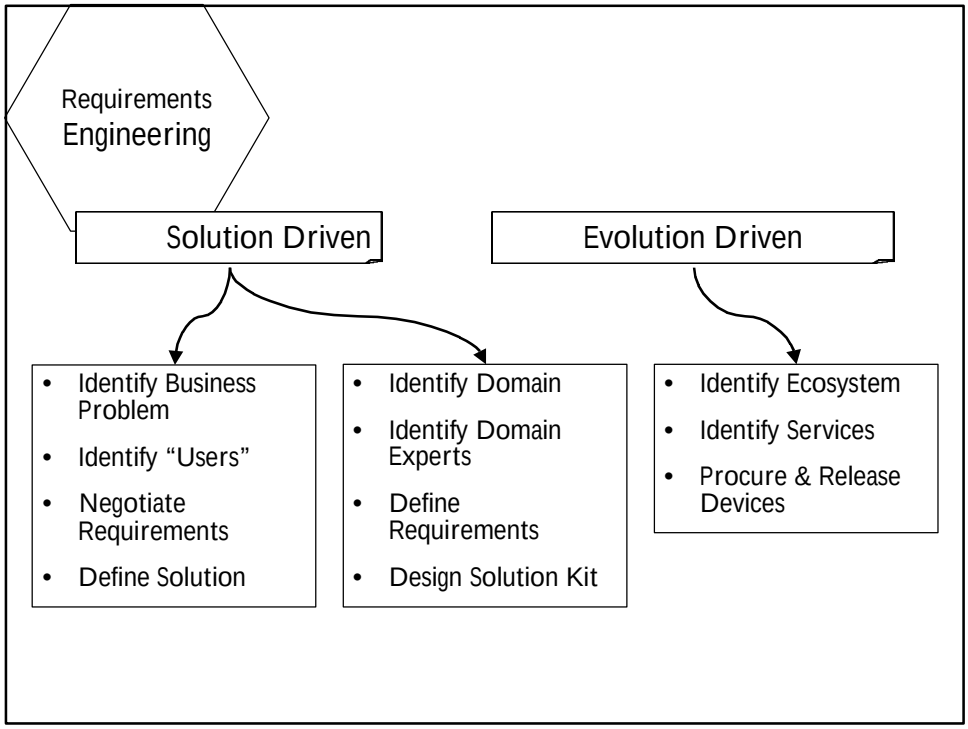

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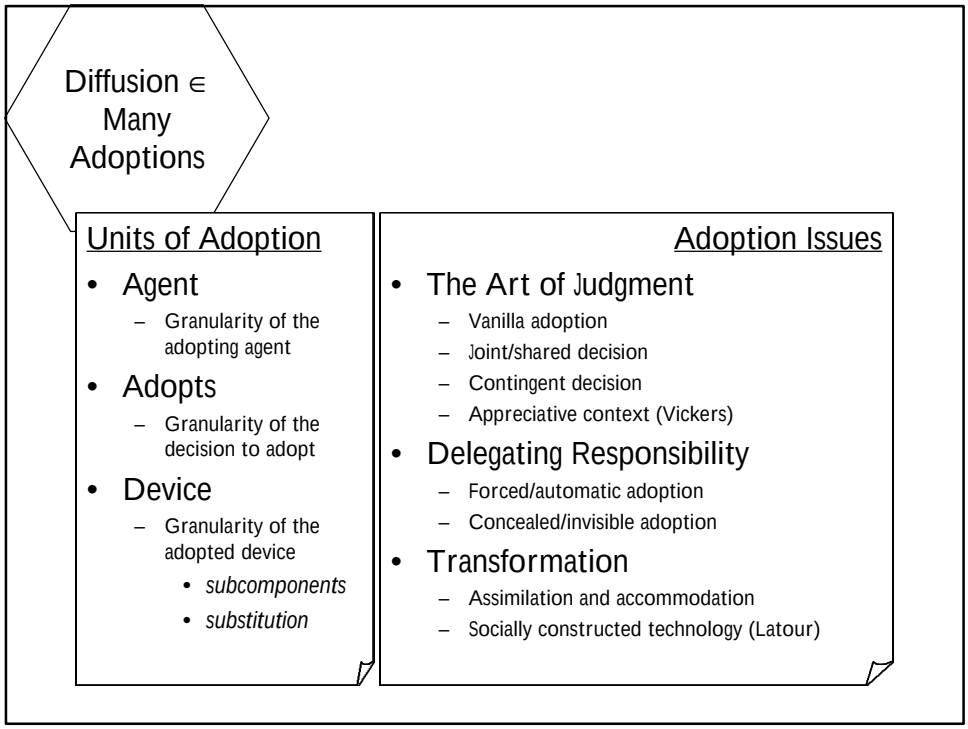

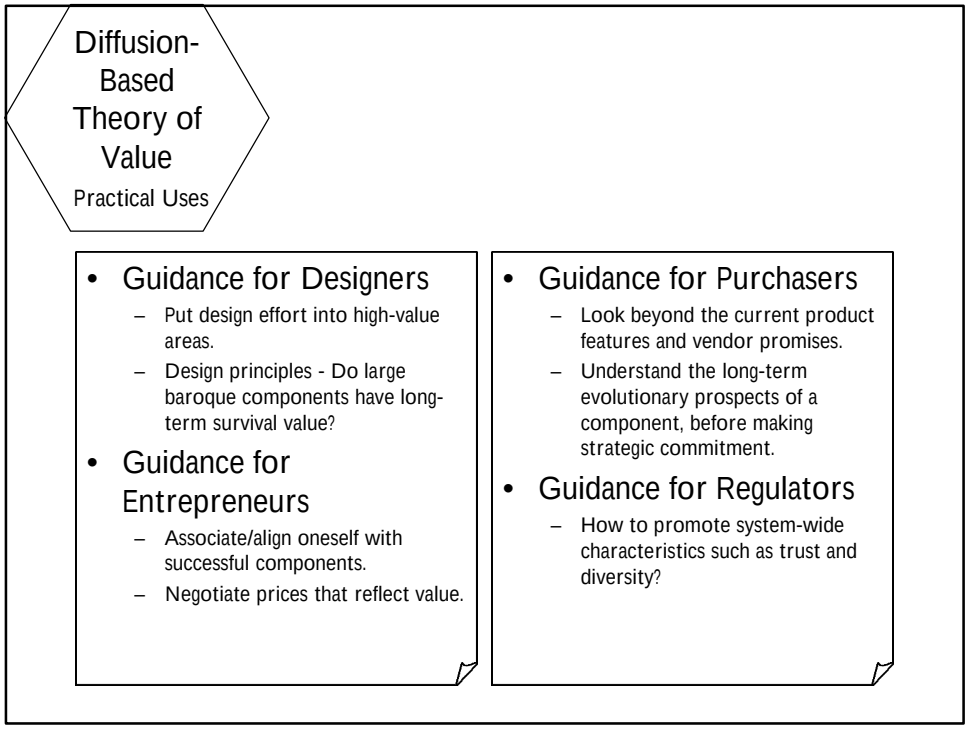

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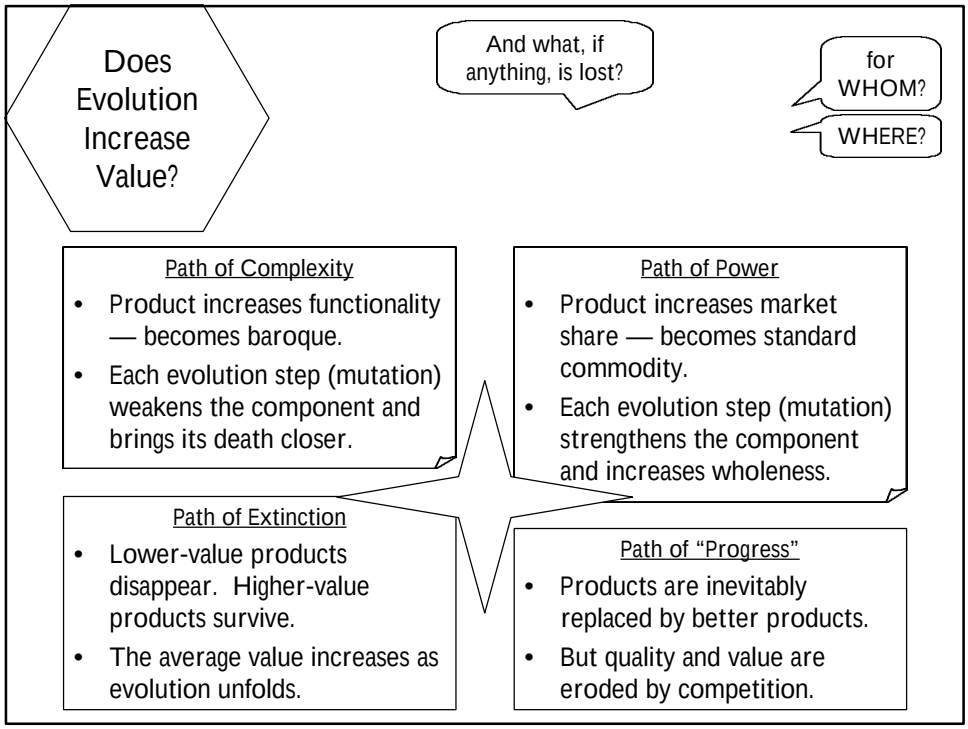

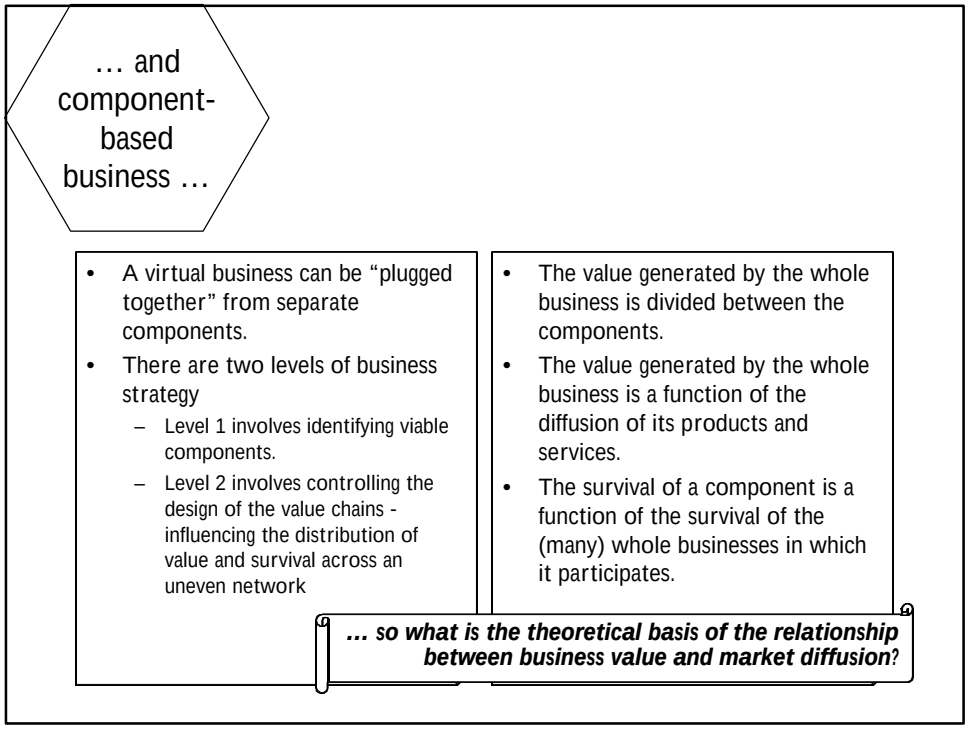

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Methodology

- Avoid taking sides (moral stance) on abstract notions, such as diffusion and resistance.
  - Many instances of diffusion have been obnoxious.
    - The language of diffusion is often arrogant and implies elitism and colonialism (McMaster).
  - By all means take an ethical position for a given product in a given context.
    - Sometimes you may wish to be on the side of diffusion,
    - Sometimes you may wish to be on the side of resistance.
- Look for ways of tying value and vitality.

References

- Albert Borgmann, Technology and the Character of Contemporary Life (Chicago 1984)
- Philip Boxer & Bernie Cohen, "Analysing the Lack of Demand Organization". http:/www.brl.com
- Richard Veryard, The Component-Based Business (Springer, 2001). See also http:/www.veryard.com and http:/www.cbdiforum.com
- Geoffrey Vickers, The Art of Judgment
- IFIP WG 8.6 Proceedings - Pittsburgh, Oslo, Ambleside, Helsinki, Banff.

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Case Study
Component-Based Change

Situation

- Established organization with single business.
- Possible termination of current business at known date.
  - Loss of licence / contract
  - Expiry of patent / licence
  - Regulatory change
- Excellent organization – could be reused for alternative business.

Challenges

- Operate business until termination date
- Retain all required components until termination date
- Find viable alternative business for organization
- Find viable alternative use for each component
  - business continuity
  - managing the assets
  - protecting the people

Component View

- Business is built from several components.
  - Call centre
  - Retail sales force
  - Technical network / infrastructure
  - Systems
  - Brand
  - …
- Each component provides one or more services to the business as a whole.

- Each component may play a different role in the organization's future – or none.
- Each component may undergo a transition into the future organization.
- Each transition may take place on a different schedule.

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Component Options

Retention

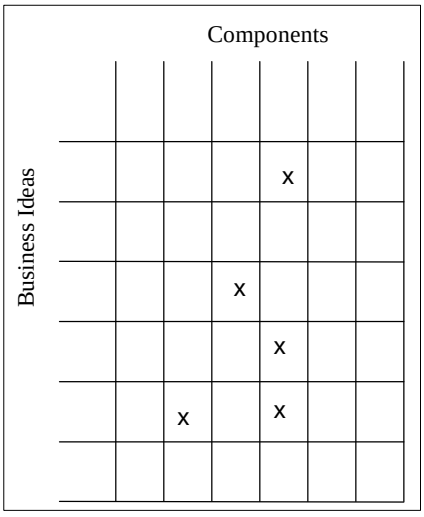
- Find alternative uses for component
- Build alternative business proposition in detail
- Transition component to new use
- Maintain service to old business until termination.

Disposal

- Find suitable partner to take over responsibility for component.
- Buy back services on a fixed-term contract until termination date
- Reserve option for future services.
- Partner develops alternative uses for component
  - better job prospects for staff?
  - better utilization of assets?

Component Selection Matrix

- Some components will not be needed for the most interesting business ideas.
- Some business ideas may use the same subset of components.



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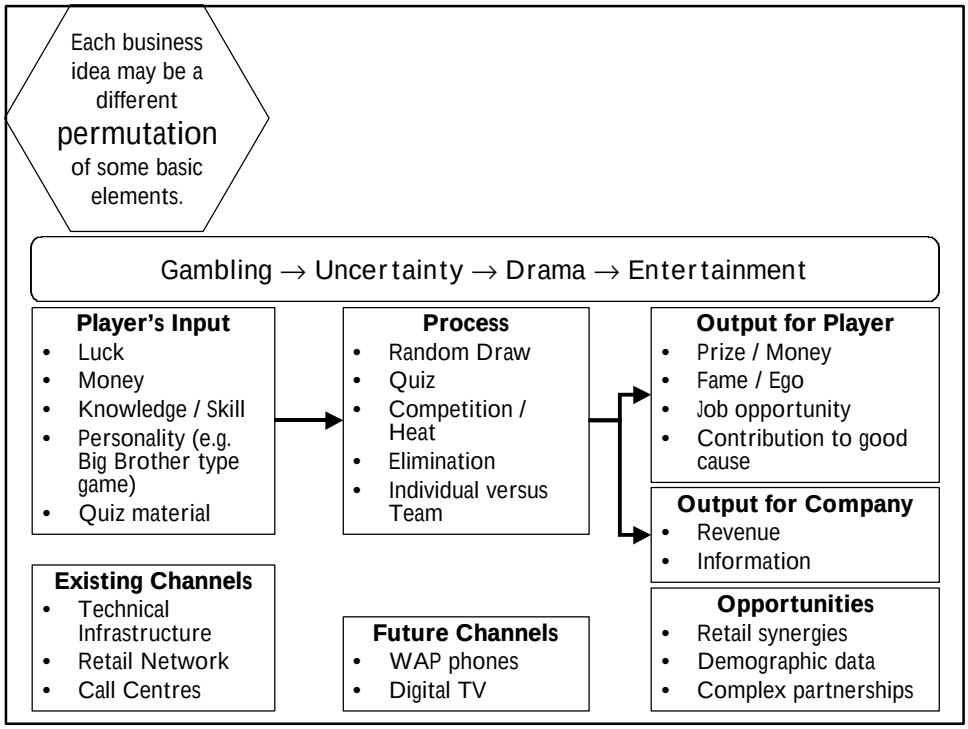

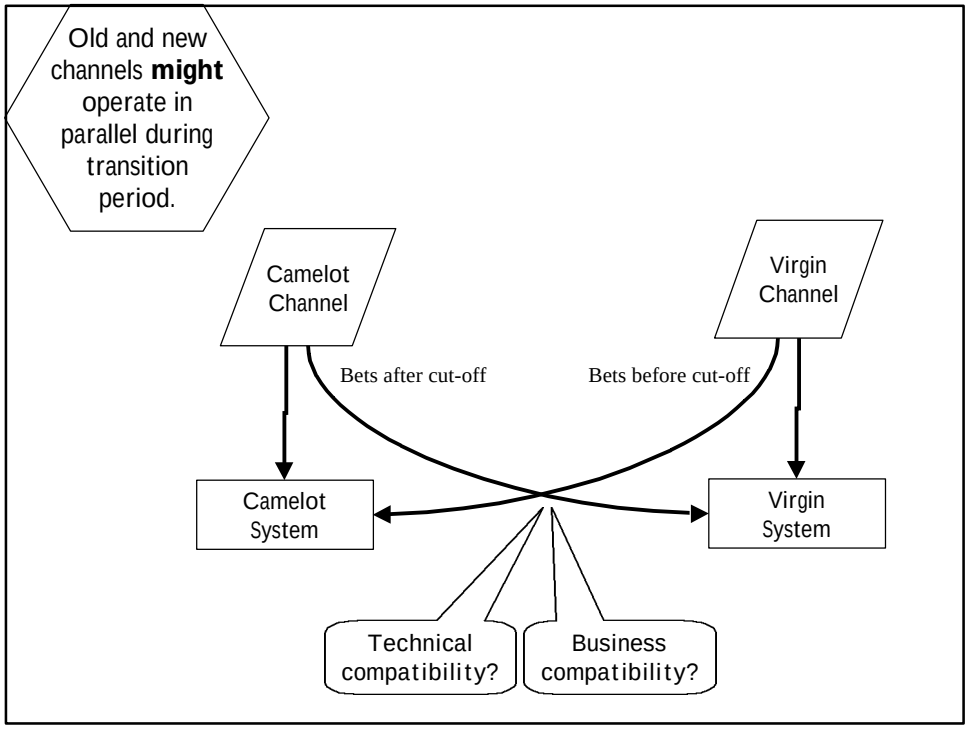

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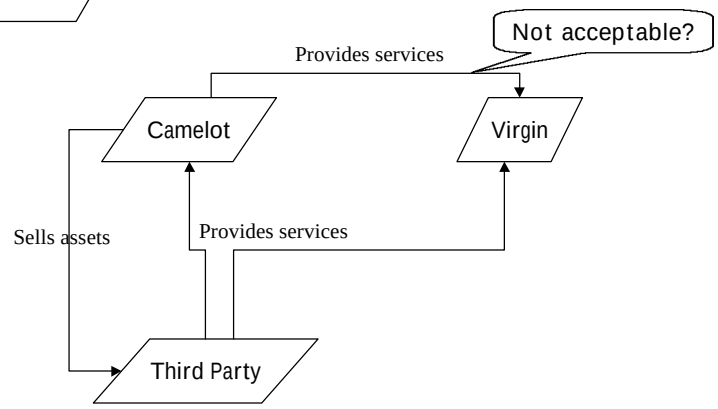
Old and new channels **might** collaborate as well as compete.



Case Study Summary

- Goal: simple yet striking proposition to players and spectators.
- Based on sophisticated technology
  - technical infrastructure
  - data & knowledge management
- Simple outside, complex inside - need to establish a good interface
- Highly flexible business architecture supports diversification and transition.

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Changing Challenges

Challenges

- CoEvolution of Whole and Part
  - Supply Chain Example
- Balance the Core and the Margins
- Emerging Wholeness
- Creating and Holding Value
- Evolution & Revolution

Evolution

- Focus on continuity with past.

Revolution

- Focus on break with past.
- Managed Change

Bricolage

- Improvisation

Intervention Points

9 Numbers (parameters)
  - Subsidies, Taxes, Standards

8 Material Stocks & Flows

7 Regulating negative feedback loops

6 Driving positive feedback loops

5 Information flows (glasnost)

4 The rules of the system
  - incentives, punishment, constraints, constitution

3 The power of self-organization

2 The goals of the system

1 The mindset or paradigm
  - out of which the goals, rules, feedback structure arise

0 The power to transcend paradigms

Donella Meadows, Places to Intervene in a System (Whole Earth Review, Winter 1997)

http://www.wholeearthmag.com/ArticleBin/109.html

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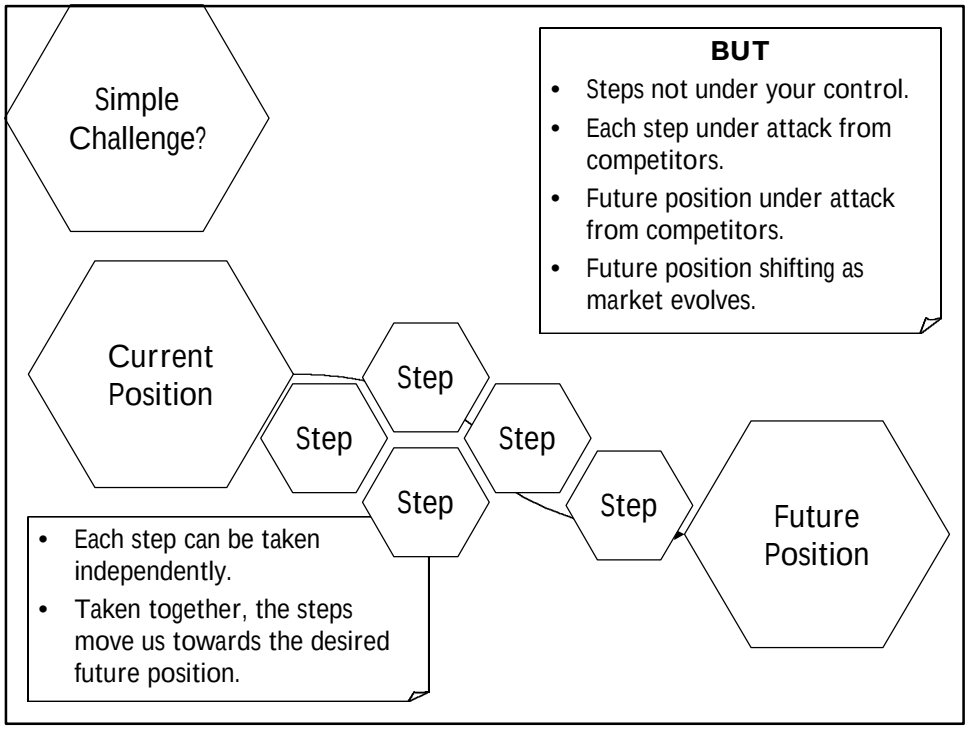

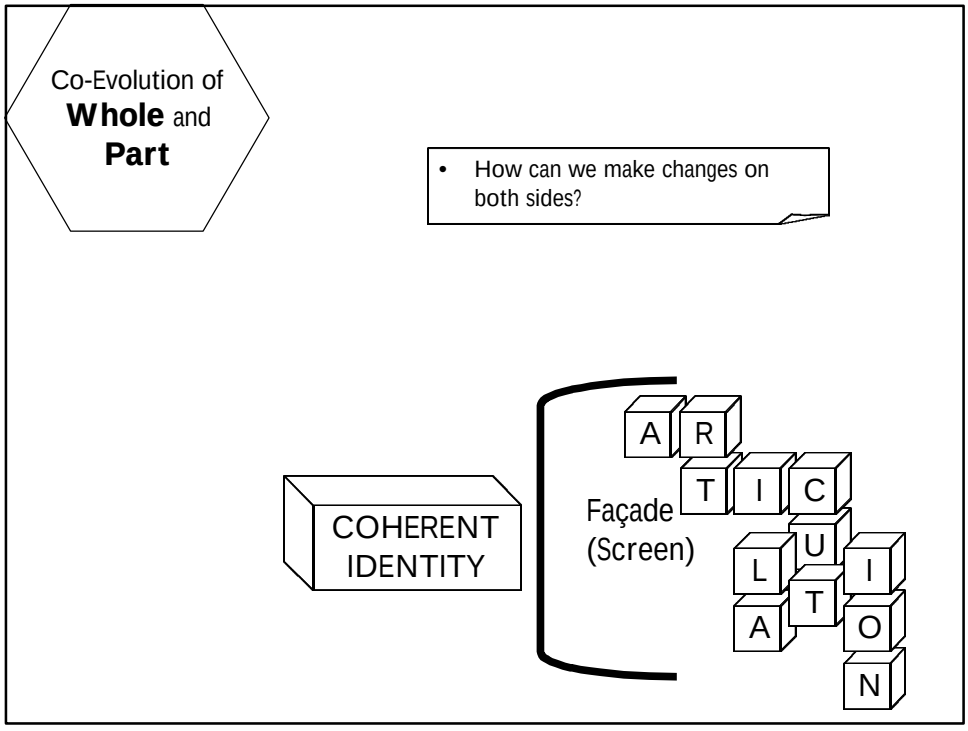

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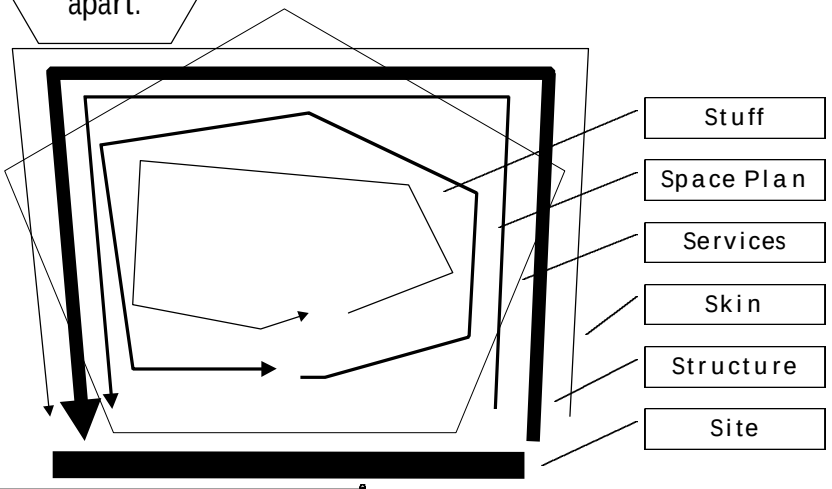
Shearing layers:
Complex artefacts tear themselves apart.



Source: Stewart Brand, How Buildings Learn

Managing the evolution of complex artefacts.

- The dynamics of the system will be dominated by the slow components.
  - Slow constrains quick, slow controls quick.
  - The slower processes gradually integrate trends of rapid change within them.
- An adaptive artefact has to allow slippage between the differently-paced systems.

Does "Enterprise" always mean slow?

"The slowest moving component of a business is its culture". Discuss.

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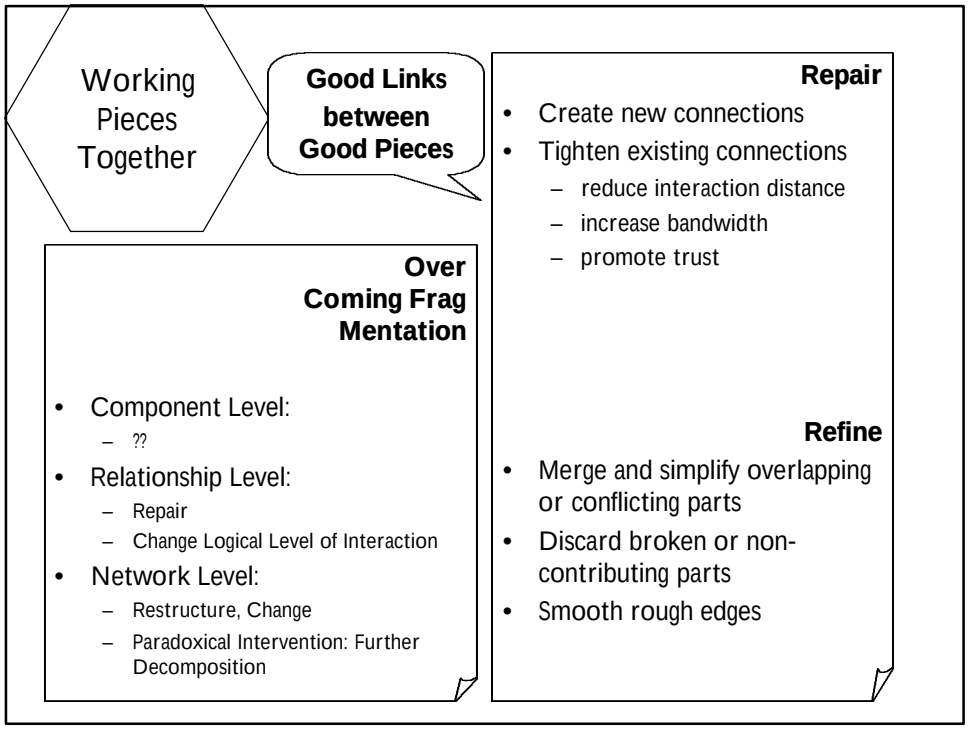

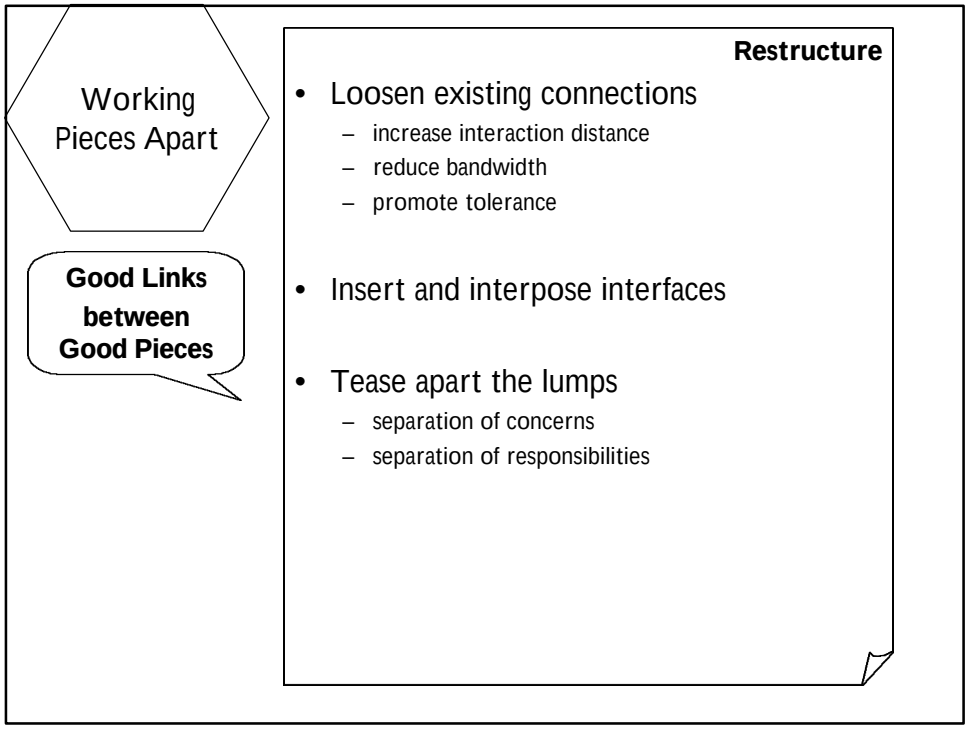

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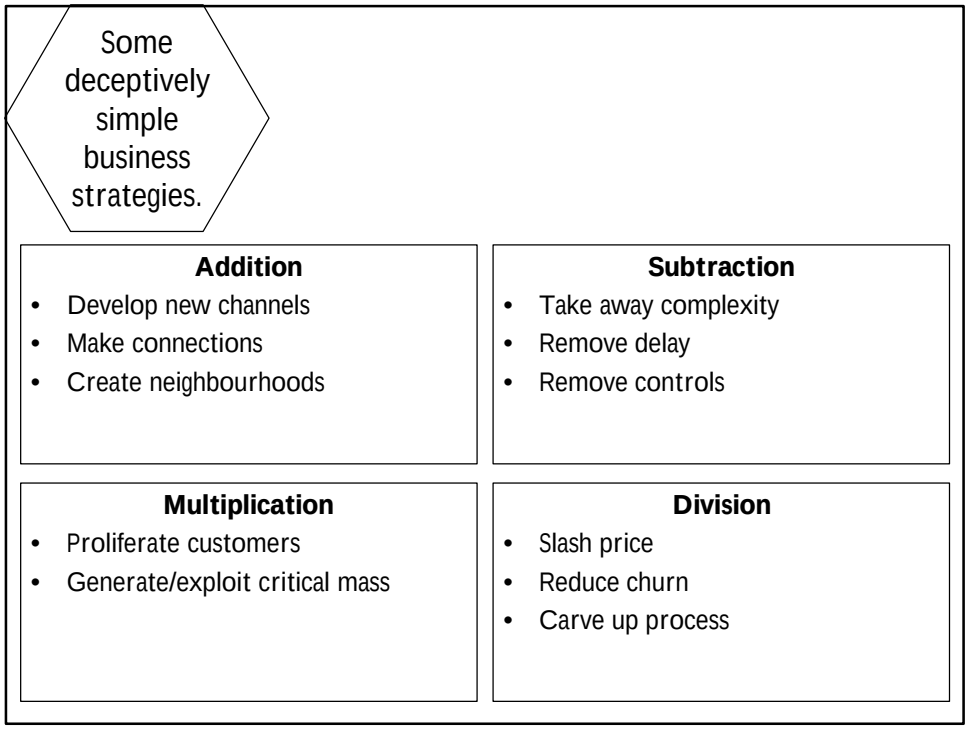

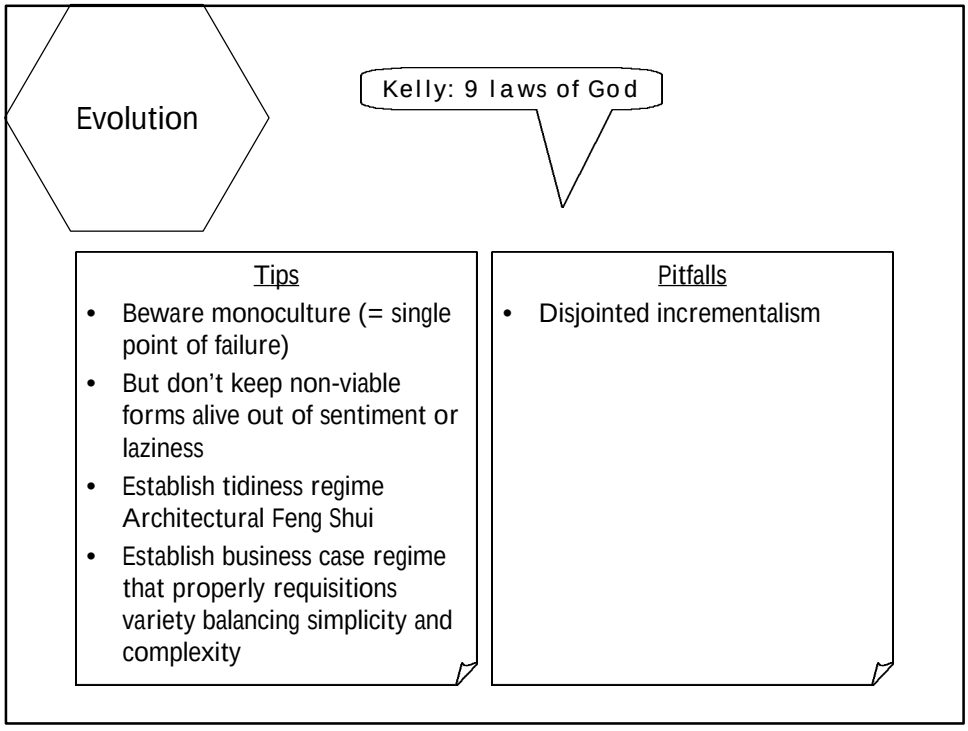

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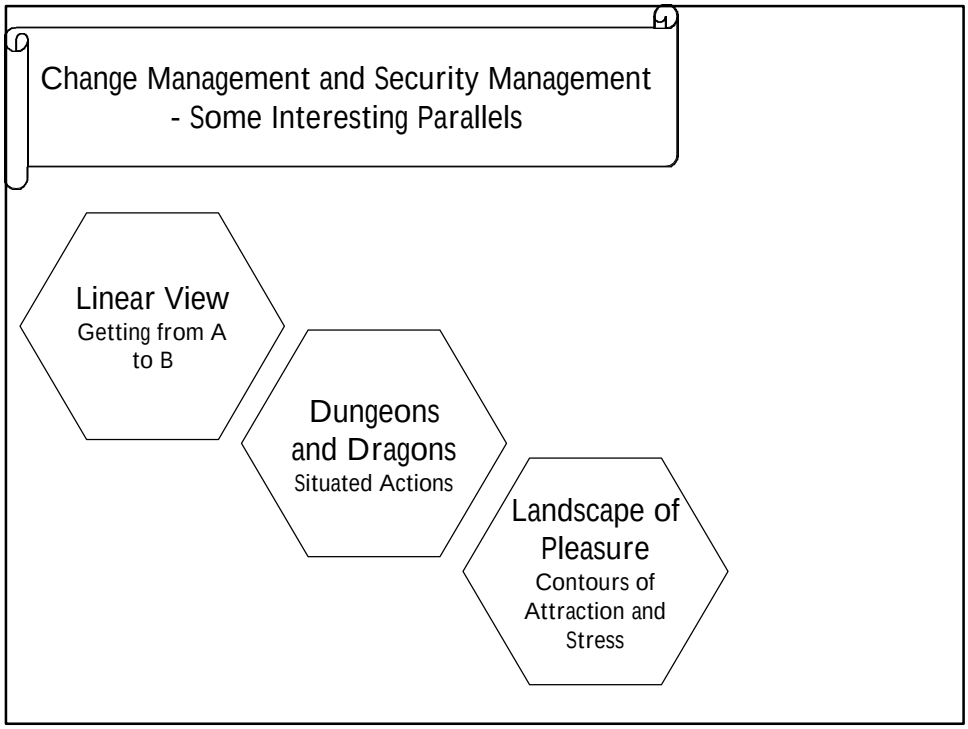

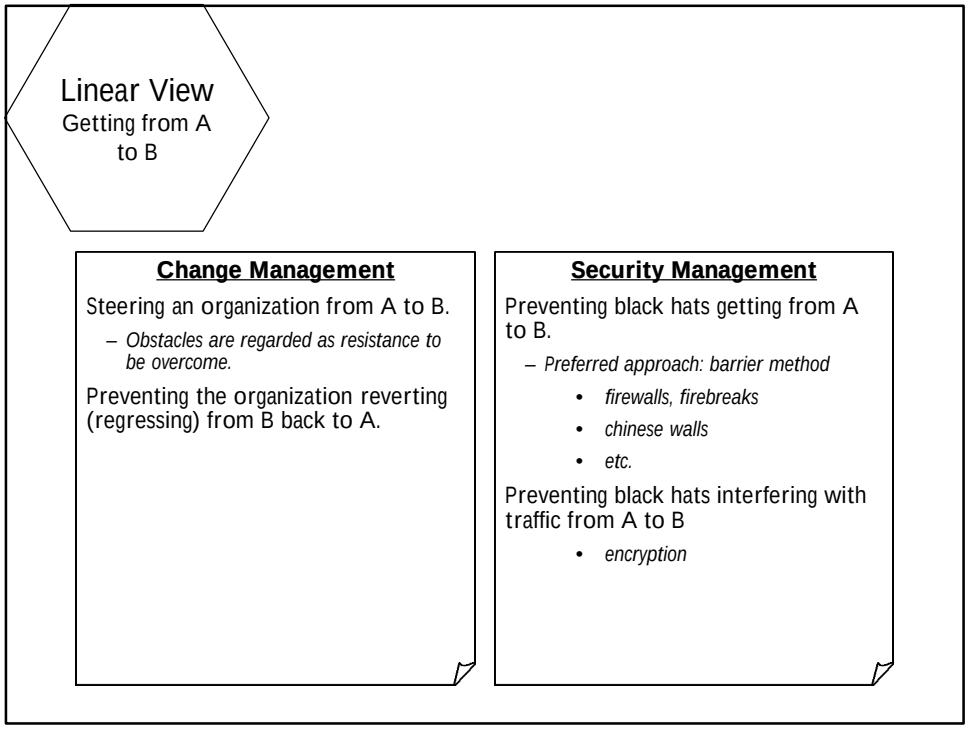

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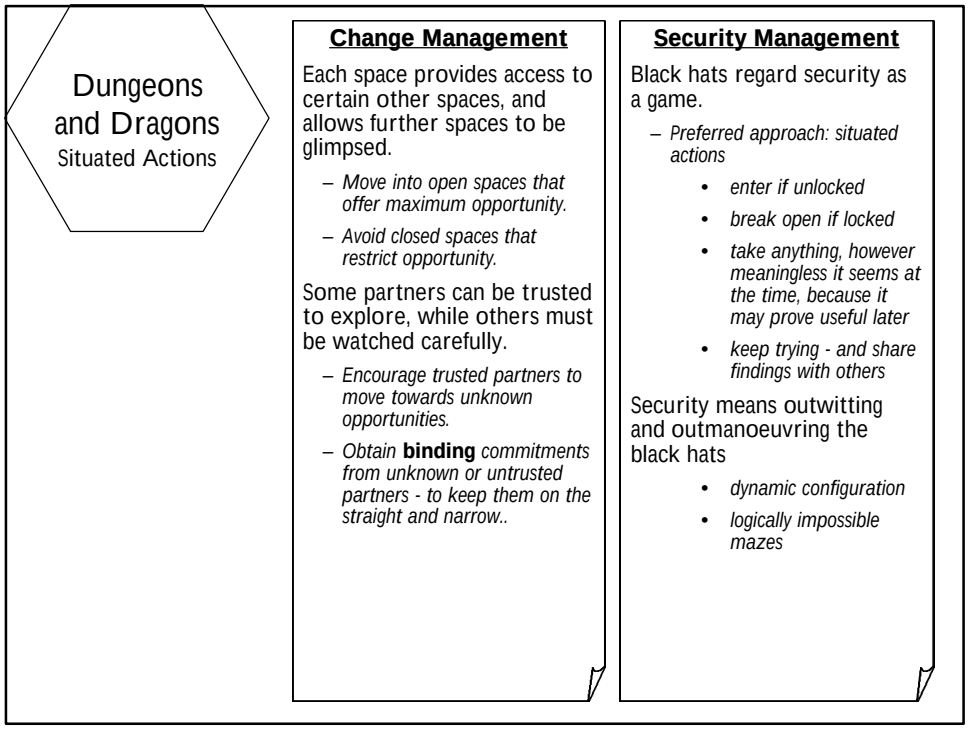

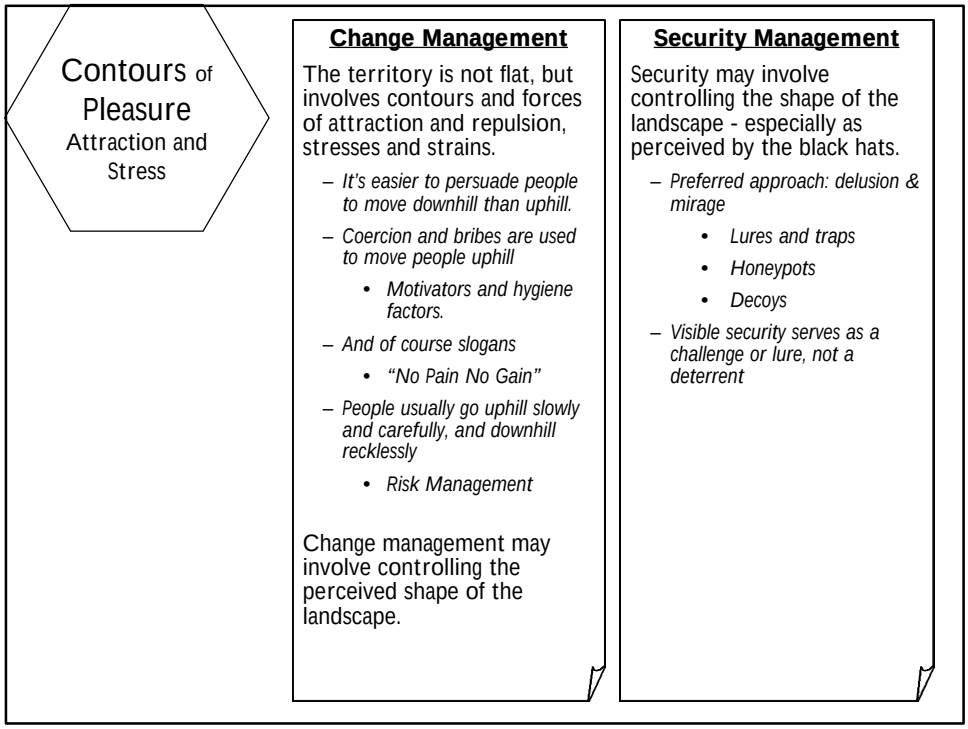

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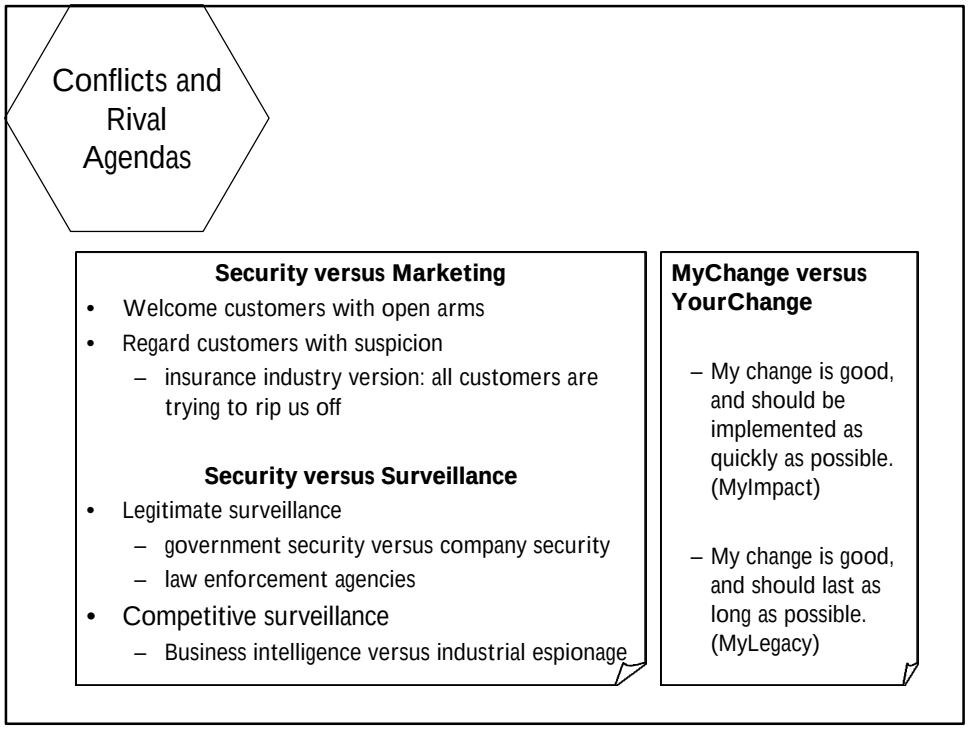

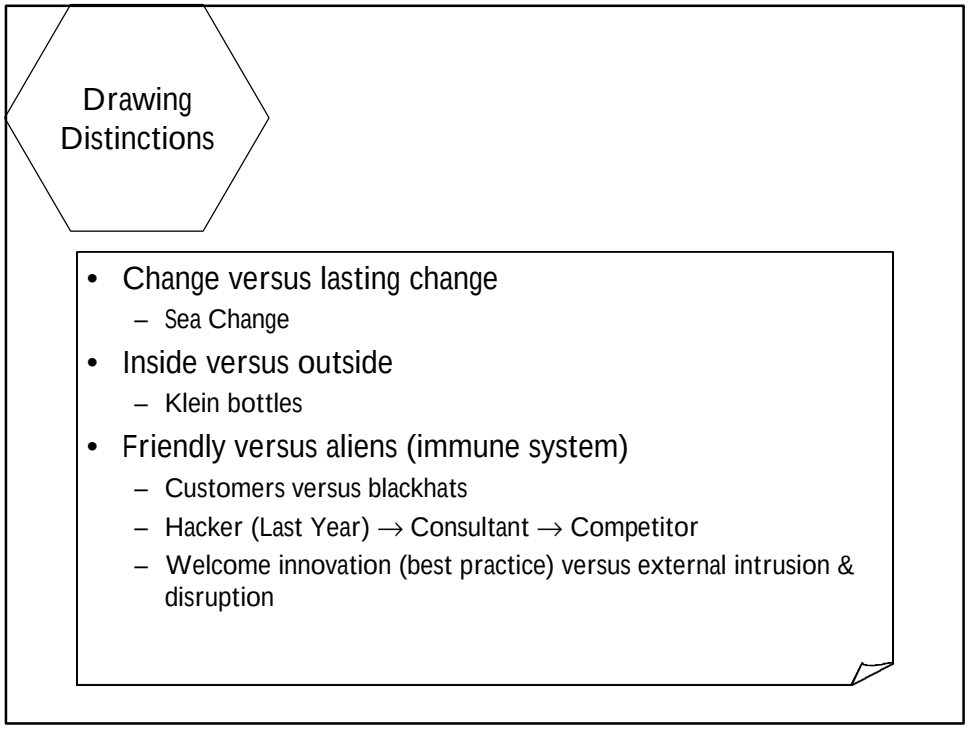

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