

Systems Thinking for Project Management: The Trialogue and The Homeostat

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PMI Seminar

Hewlett Packard, Bristol

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- ‘Grain Dryers in Northumbria reduce performance of ECML’
- ‘Snow on slip road prevents food deliveries’
- ‘Buses not running due to snow’
- ‘£50k fine for pollution that devastated river’

The Council for Science & Technology Report, 2009

‘An Infrastructure for the 21st Century’

The effects of serious NI failures on business and public confidence are likely to be far reaching and long-lasting, with inevitable economic and political consequences if that failure is localised in the UK.....

.....the last 50 years has been the gradual, but ultimately seismic, shift from a series of unconnected structures to an interconnected NI where failure in one part has a direct and damaging knock-on effect in others.....

.....The UK national infrastructure is now a network of networks

Transport

Energy

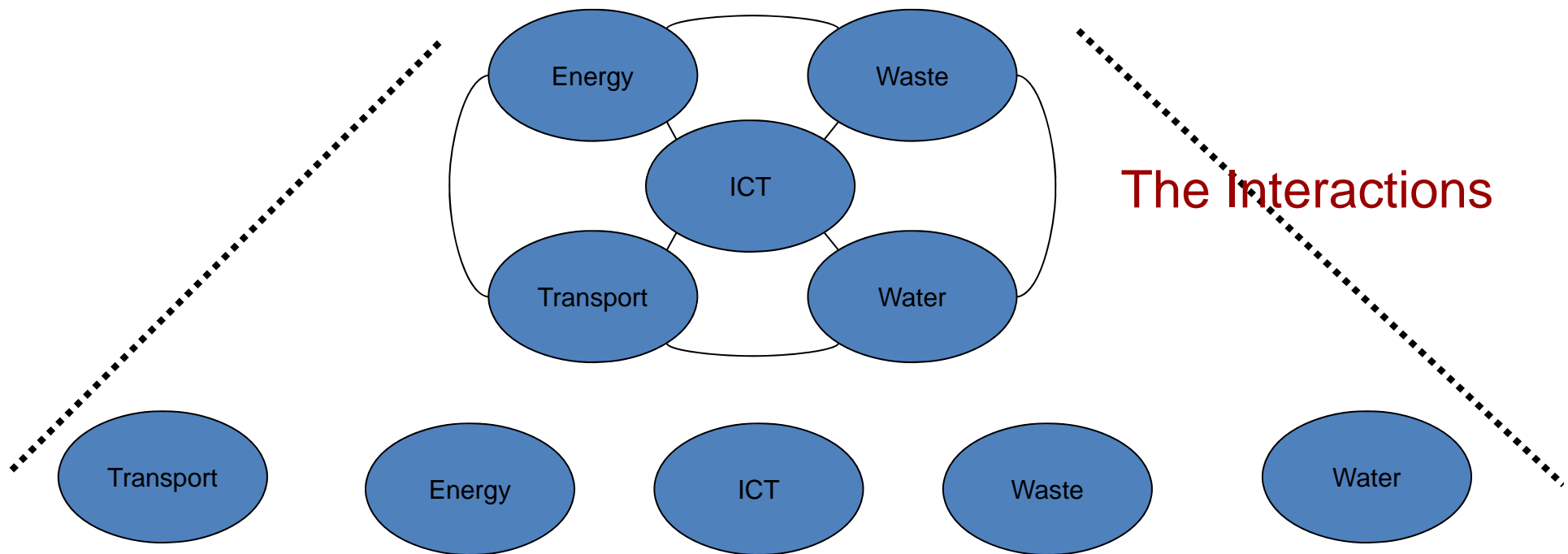
ICT

Waste

Water

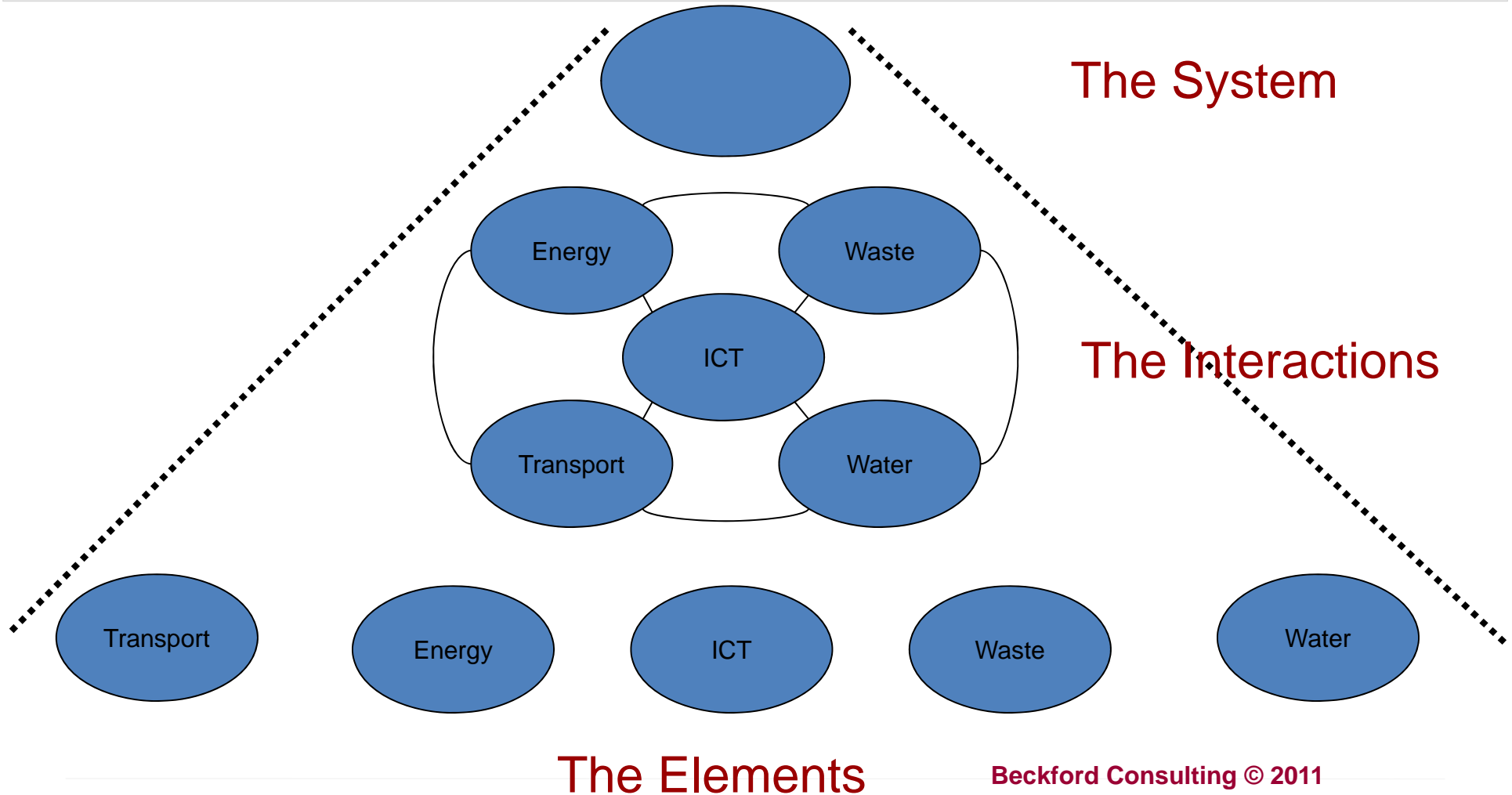
The Elements

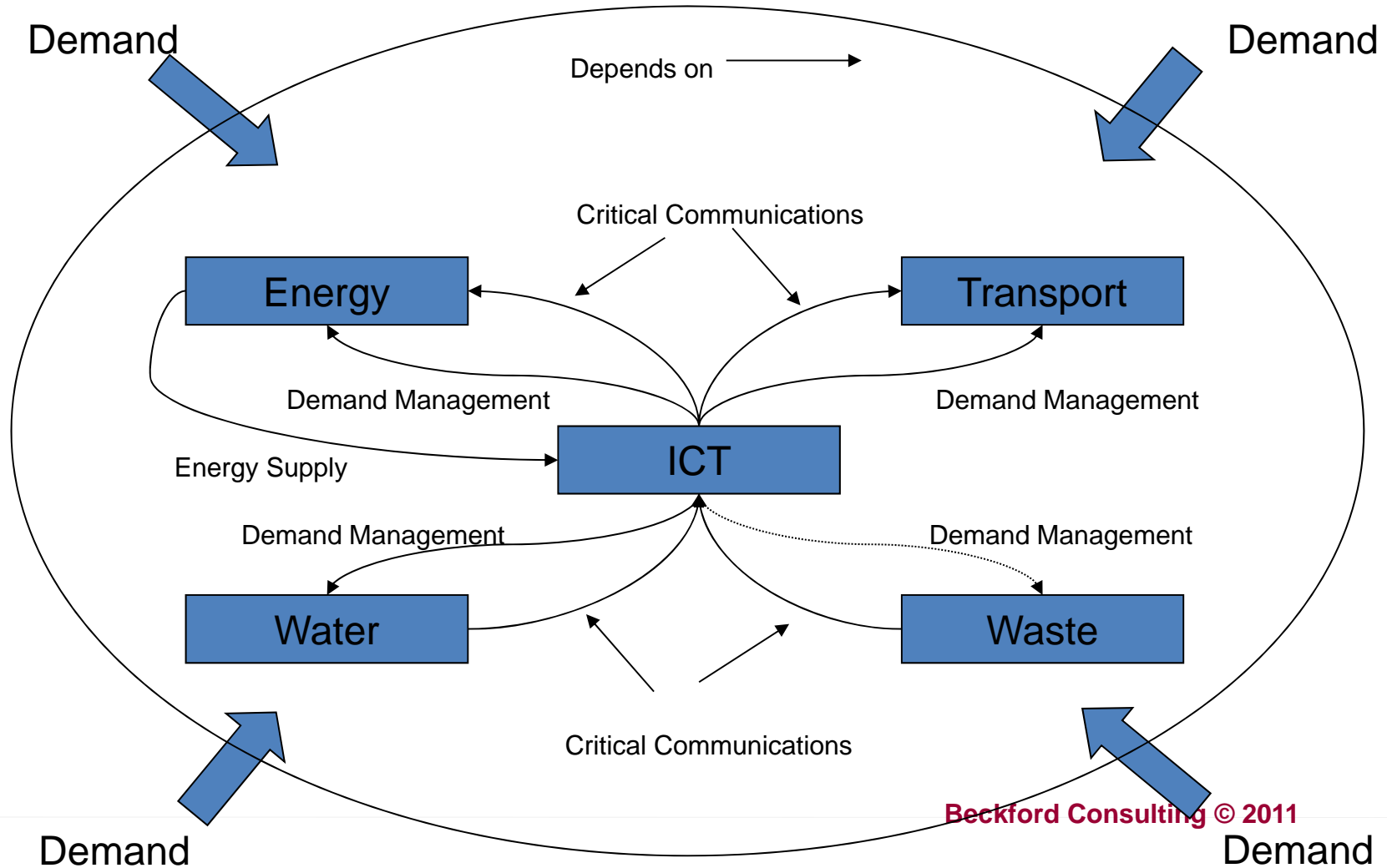
Beckford Consulting © 2011



The Elements

Systemic Interaction

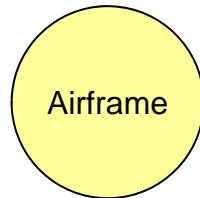




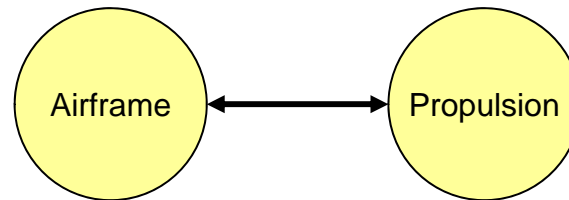
- Understanding Systemic Thinking
 - Interaction
 - The existence of ‘system’ is rooted in the connectivity of one element with others – this constitutes a network which must be dealt with in its totality – it is a ‘system’
 - Key ideas:
 - » Von Bertalanffy, Wiener, Checkland, Beer, Ackoff, Forrester

- Understanding Systemic Thinking
 - Interaction
 - The existence of ‘system’ is rooted in the connectivity of one element with others – this constitutes a network which must be dealt with in its totality – it is a ‘system’
 - Key ideas:
 - » Von Bertalanffy, Wiener, Checkland, Beer, Ackoff, Forrester
 - Interdependency
 - The functioning of one element of the infrastructure depends on one (or more) other elements
 - Issues cannot be resolved in isolation
 - Emergent properties
 - Systems exhibit properties that belong only to the system – not to any of its elements
 - » Flight

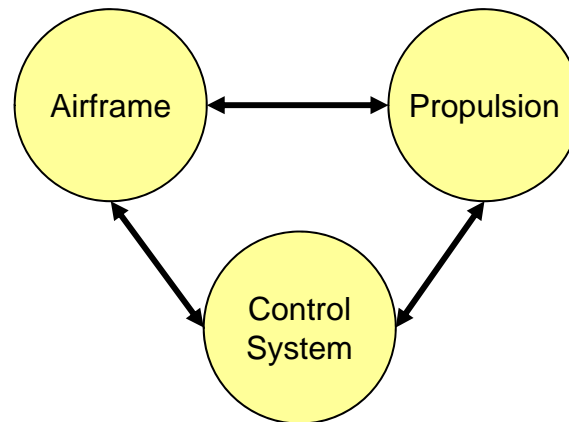
Systemic Interaction - flight



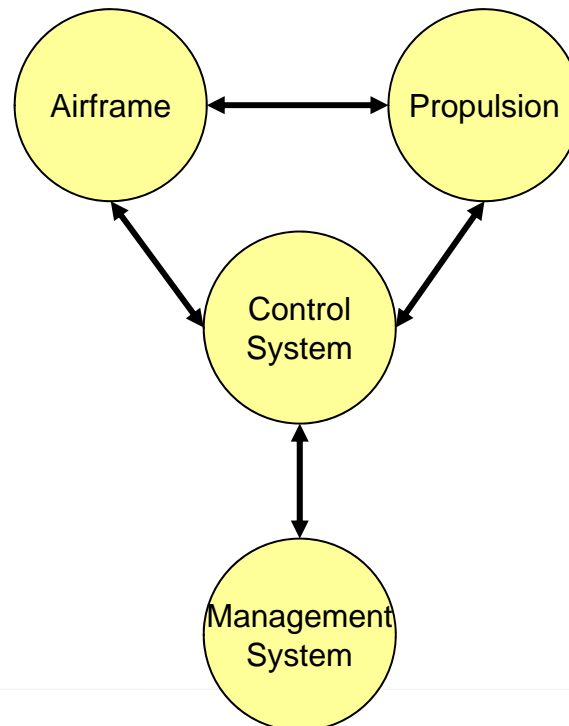
Systemic Interaction - flight



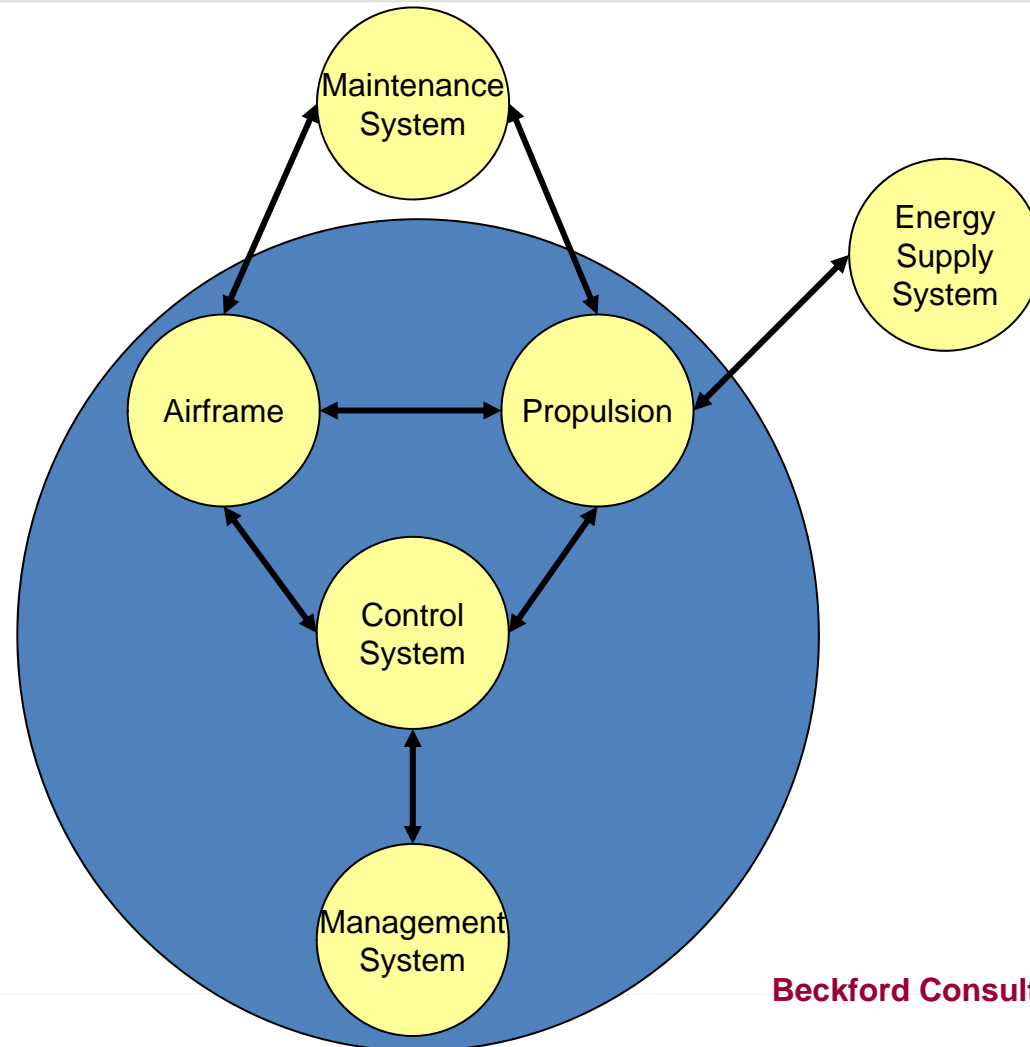
Systemic Interaction - flight



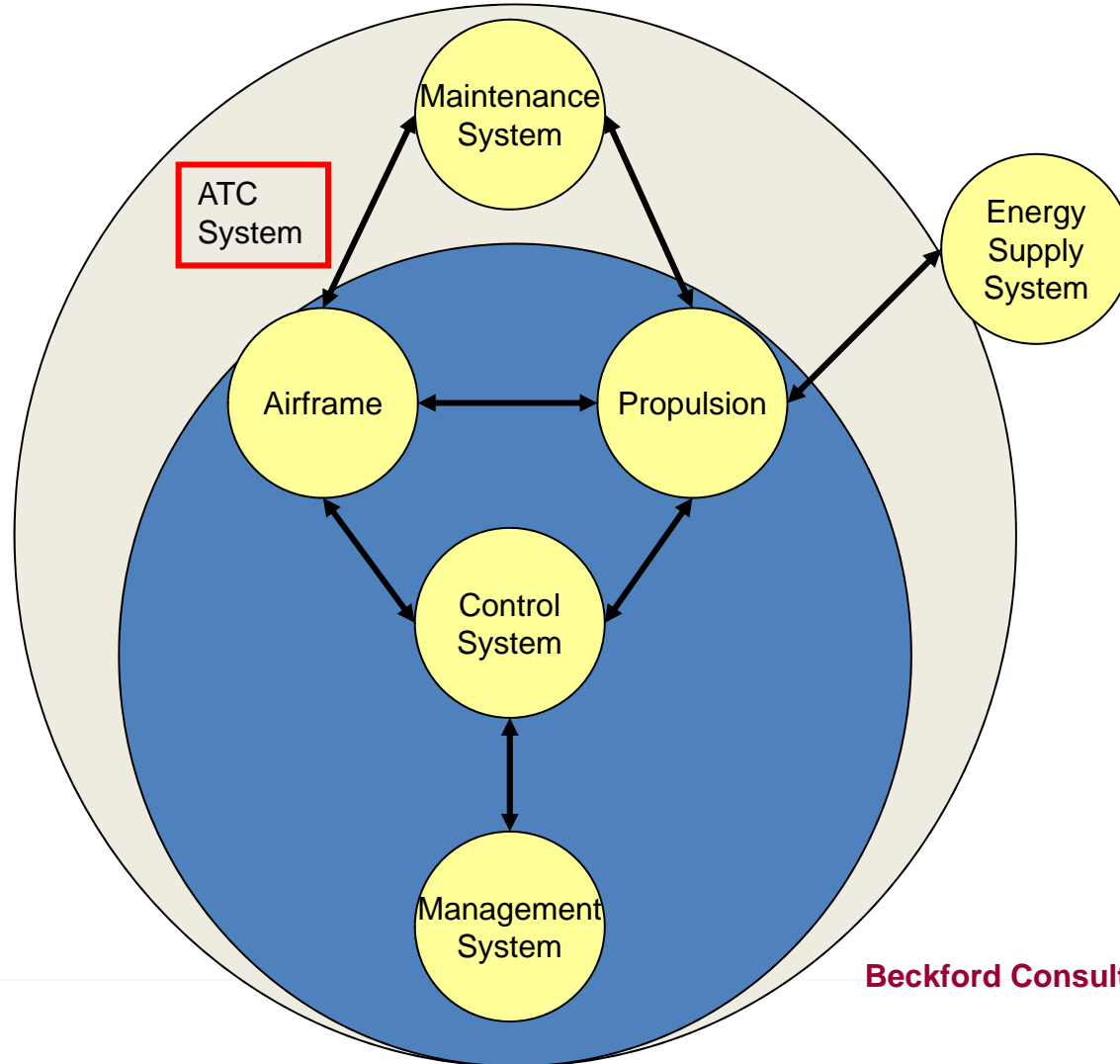
Systemic Interaction - flight



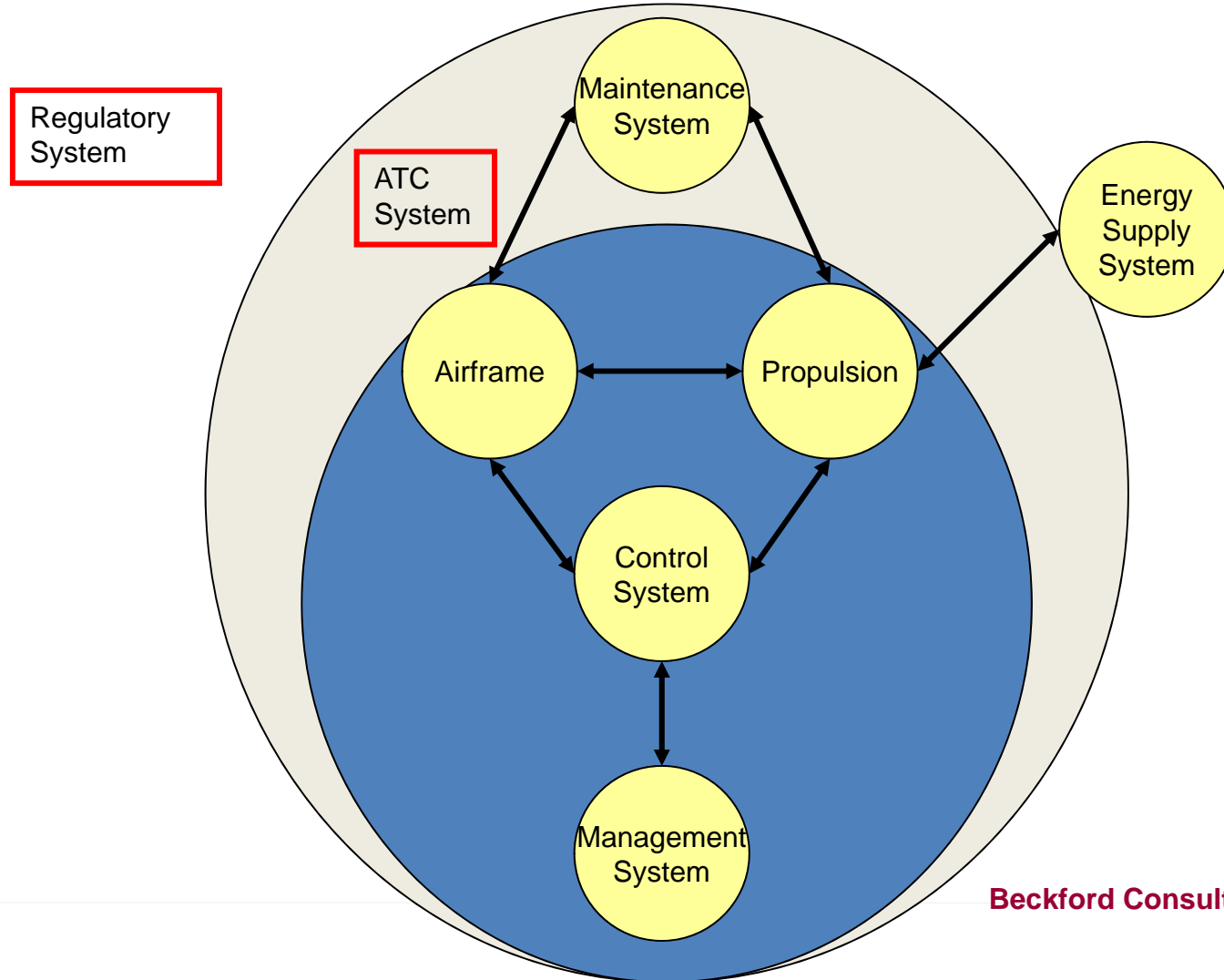
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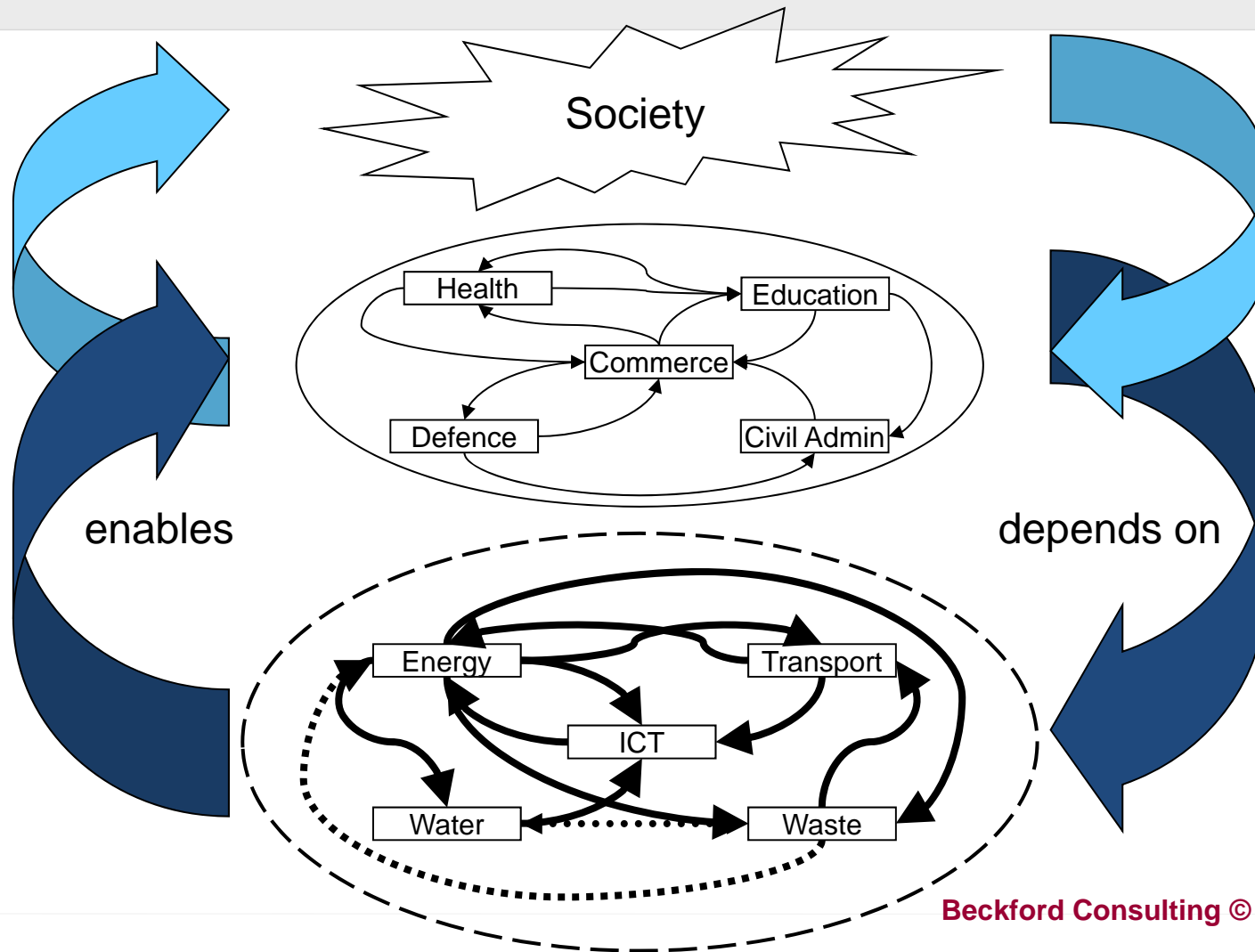
Systemic Interaction – safe flights



Systemic Interaction – regulated airspace



Systemic Interaction - society



- Why is this a challenge?
 - Current paradigm
 - (Relatively) linear, reductionist thinking
 - Solutions to THIS issue are developed in isolation from THOSE issues
 - But THOSE issues are interdependent with THIS one

- Why is this a challenge?
 - Sometimes, rather than solve issues they are moved or displaced:
 - The NHS displaces patients from one budget holder to another
 - » changes in GP contracts re out of hours surgery has displaced local practice volumes to A&E departments
 - » the number of people treated is, roughly, the same
 - Sometimes, issues in one area impose a cost burden in another – which is beyond our capacity to control
 - Healthcare for those involved in road accidents imposes costs on the NHS not the DSA
 - A project that ‘solves’ one problem while creating others?

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 - » HS2?
 - » Boris Island or 3rd Runway at Heathrow?

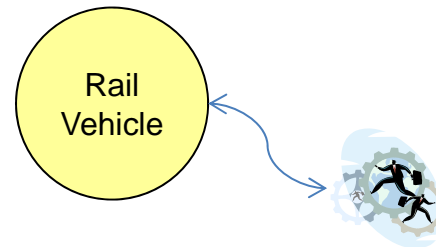
Systems Thinking in the UK

- The Good, the Bad and the Disinterested
 - Ideas around for about 90 years
 - Offers models which are both ends and means oriented – organisational, social and political perspectives
 - VSM, SSM, Systems Dynamics, SAST, CSH
 - ‘Systems’ or ‘holistic’ thinking beginning to be adopted
 - But not core in Academic or Professional Education
 - It is easier to work within the established paradigm than change the thinking (Machiavelli)
 - There is a dearth of truly systemic thinking in our approaches to problem solving
 - This may well exacerbate our challenges as systemic interactions become more complex
 - More widely – the language of systems is being used – but without meaning!
 - Projects are often narrowly bounded and tightly focused
 - ‘The operation was a great success, but the patient died’
 - The system works but the benefits are not realised!

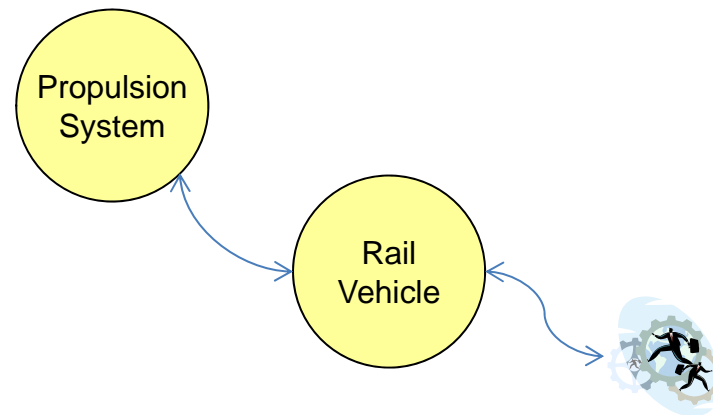
Systemic Interaction – The Journey

- Organisations, activities, systems ARE complex
- Let us recognise that and work with it

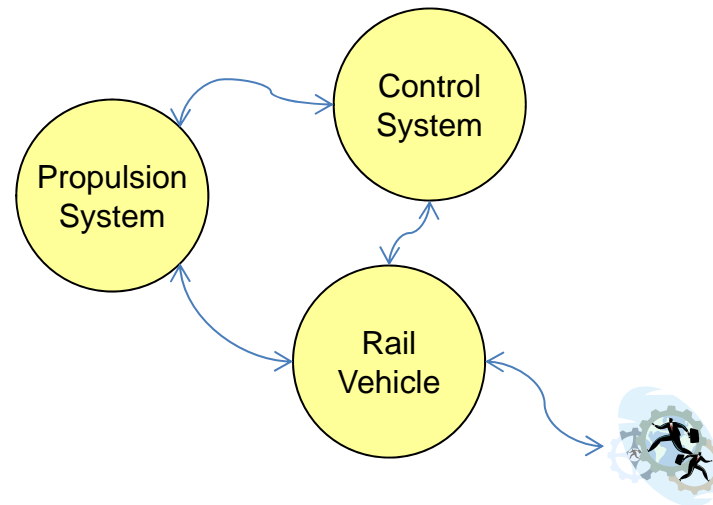
Systemic Interaction – The Journey



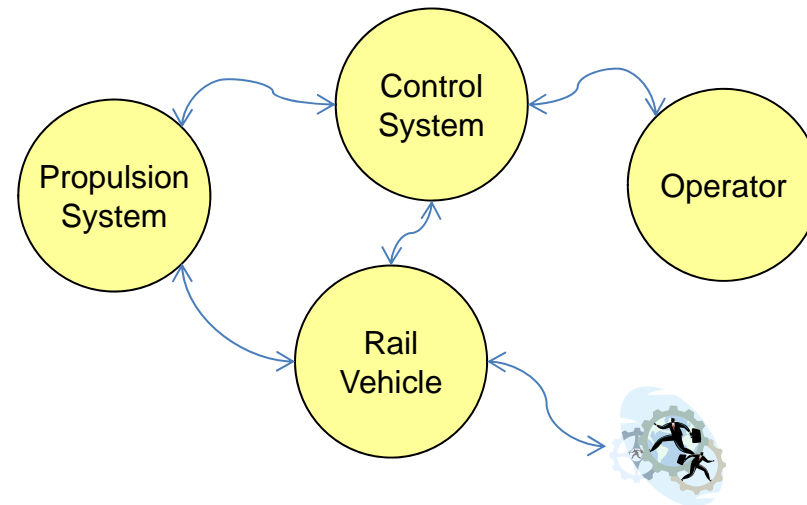
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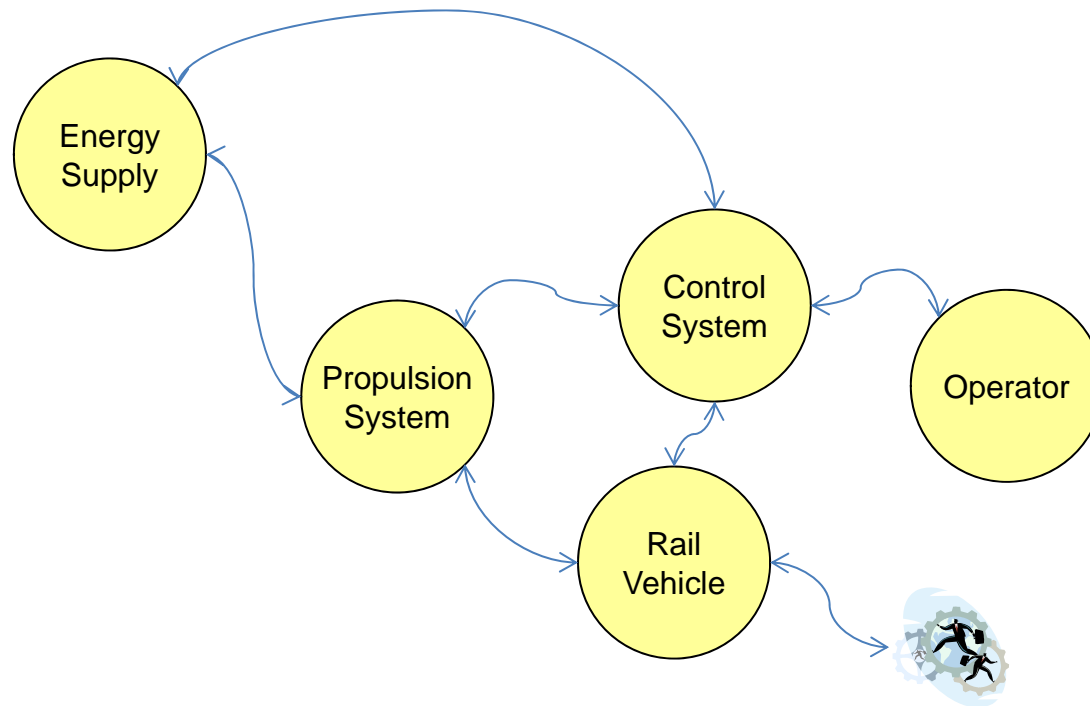
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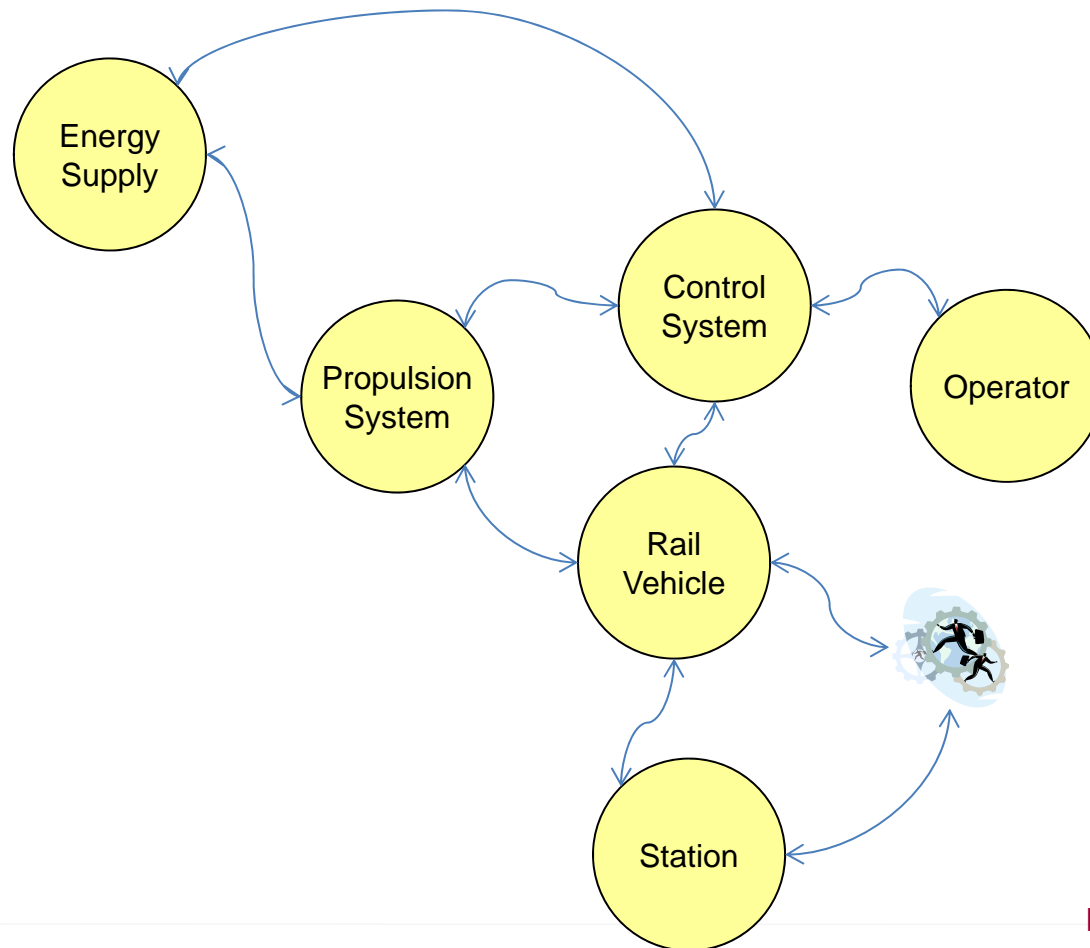
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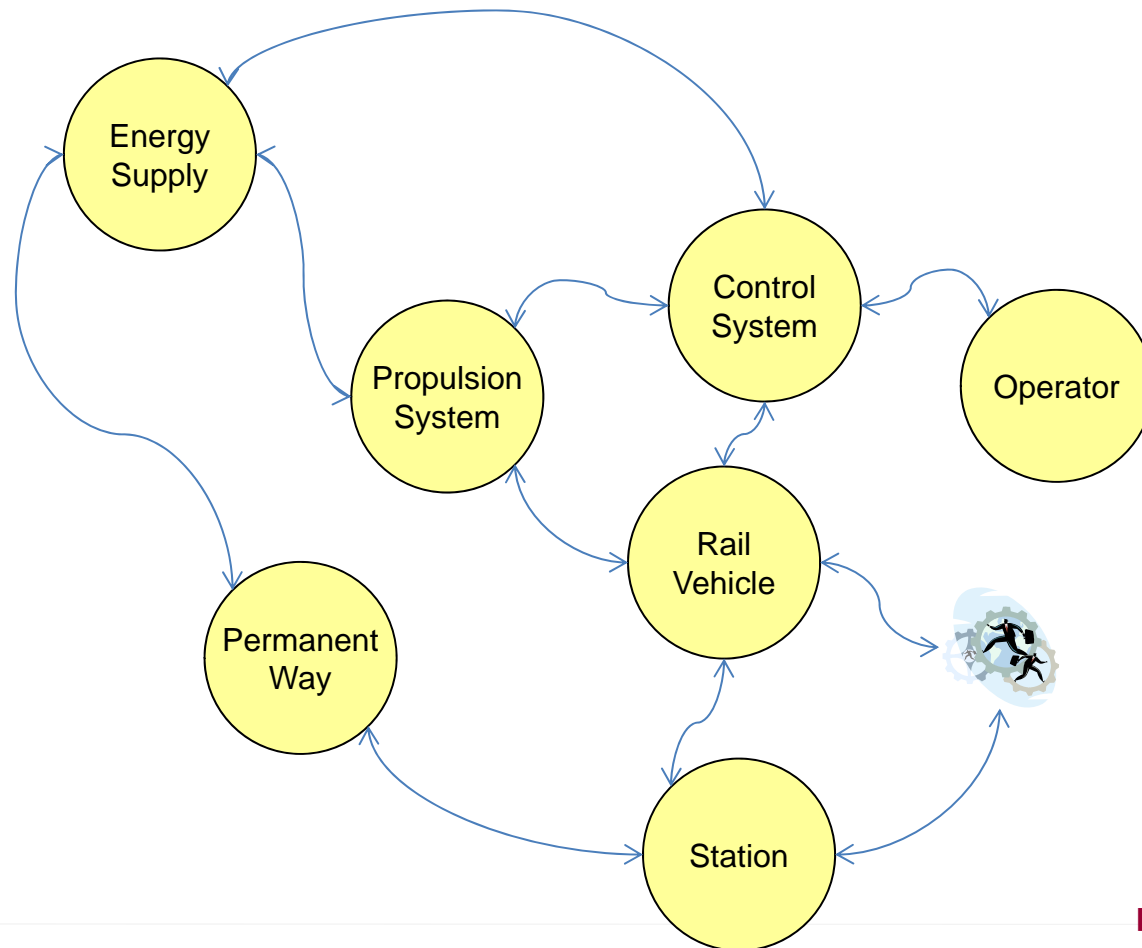
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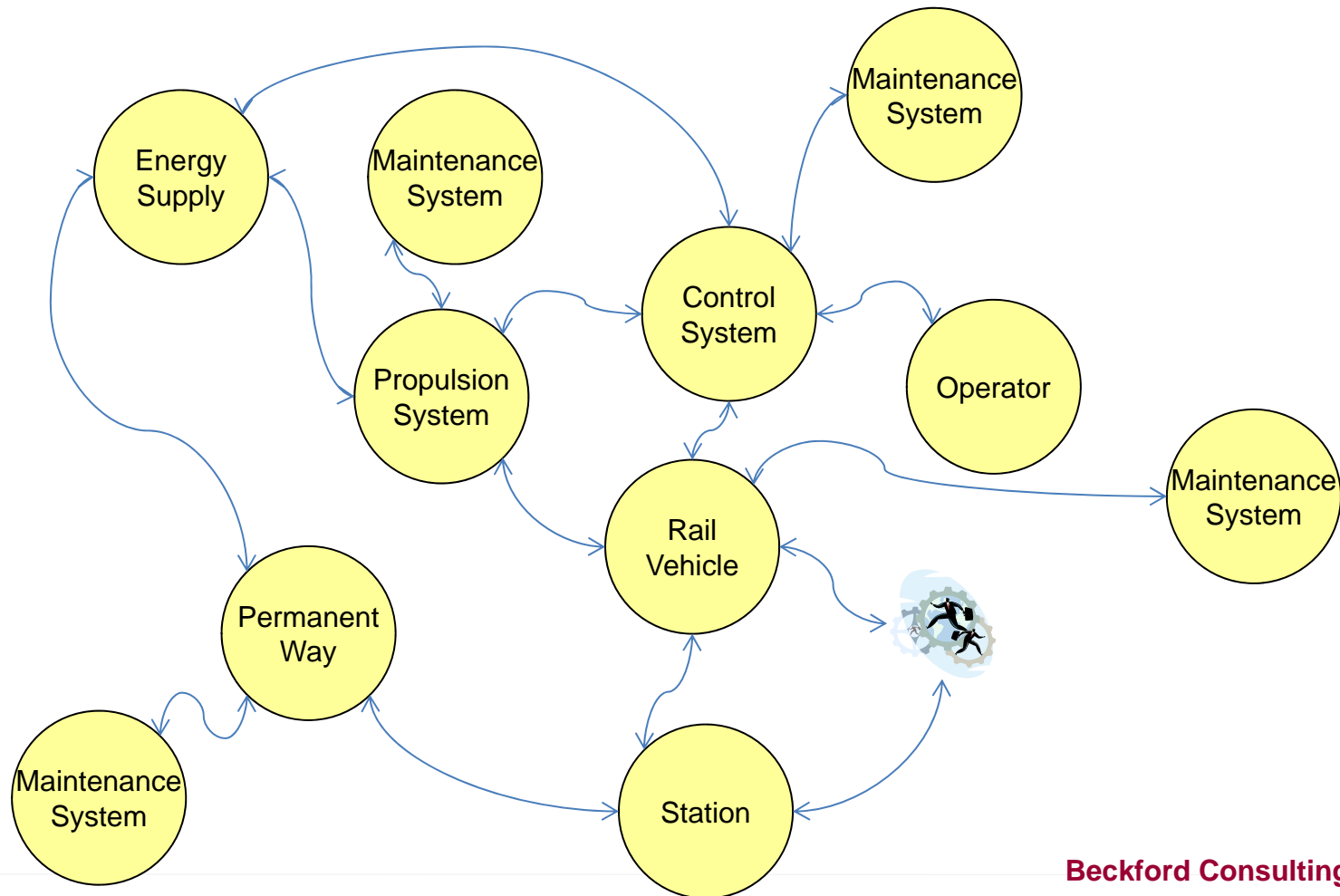
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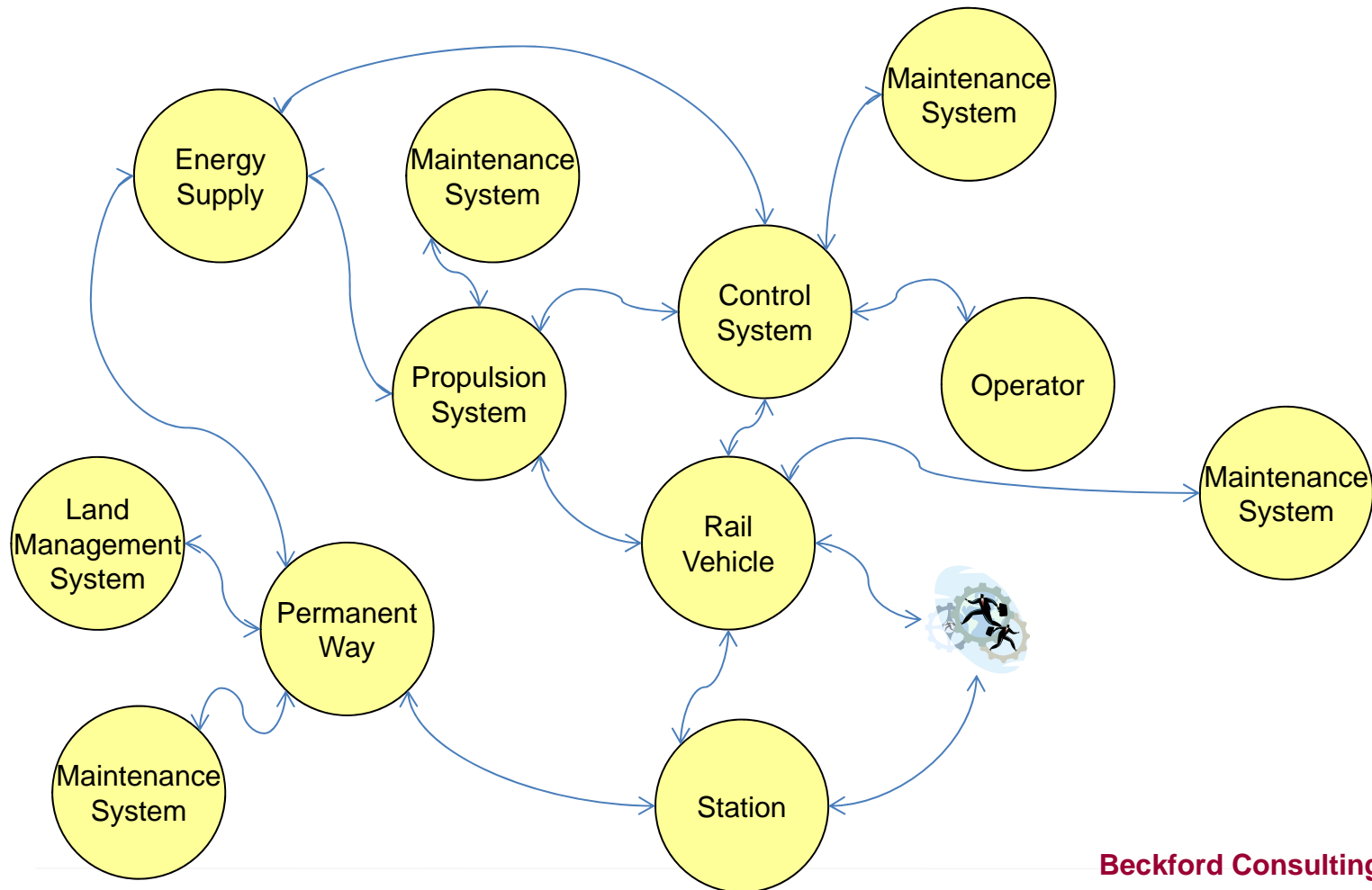
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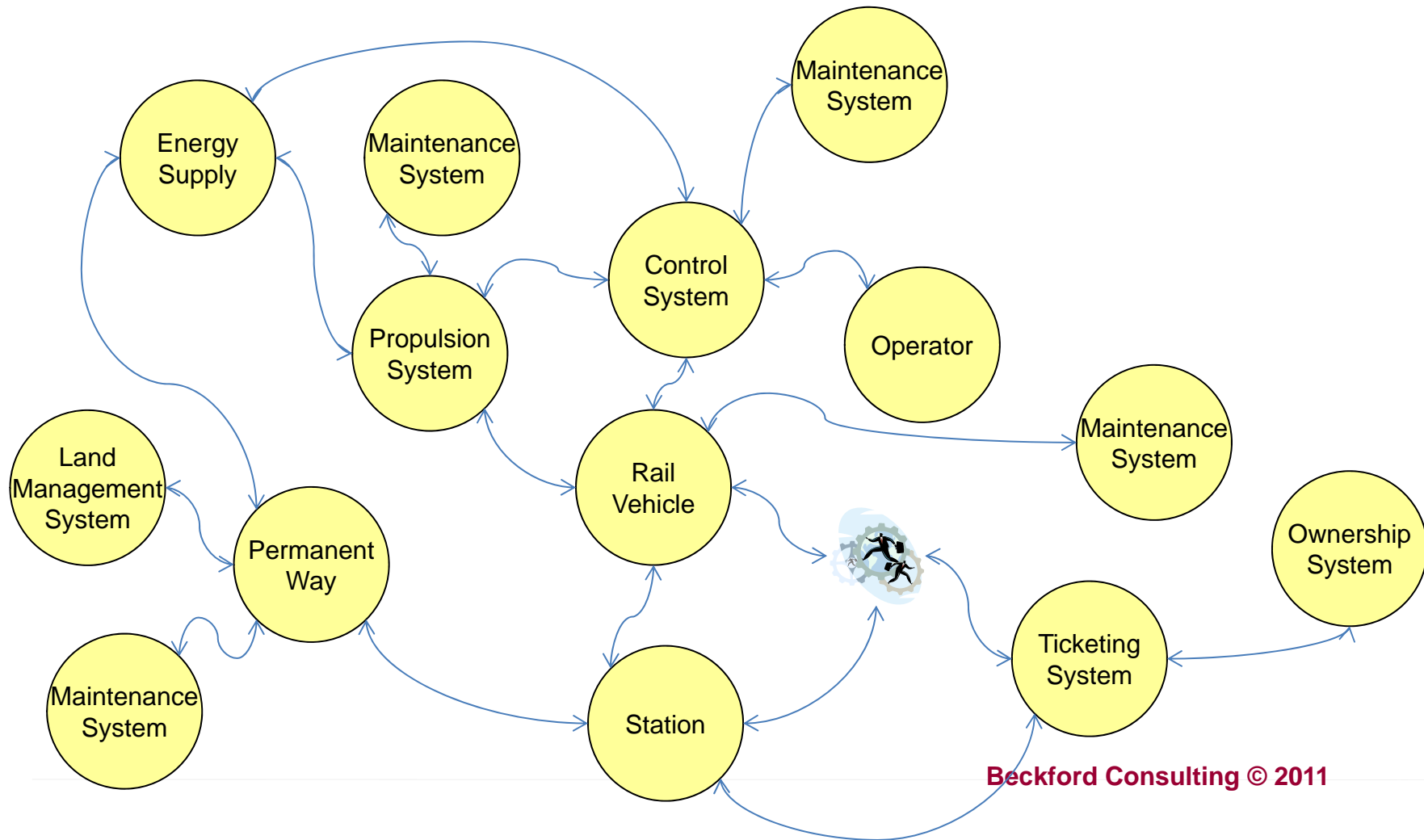
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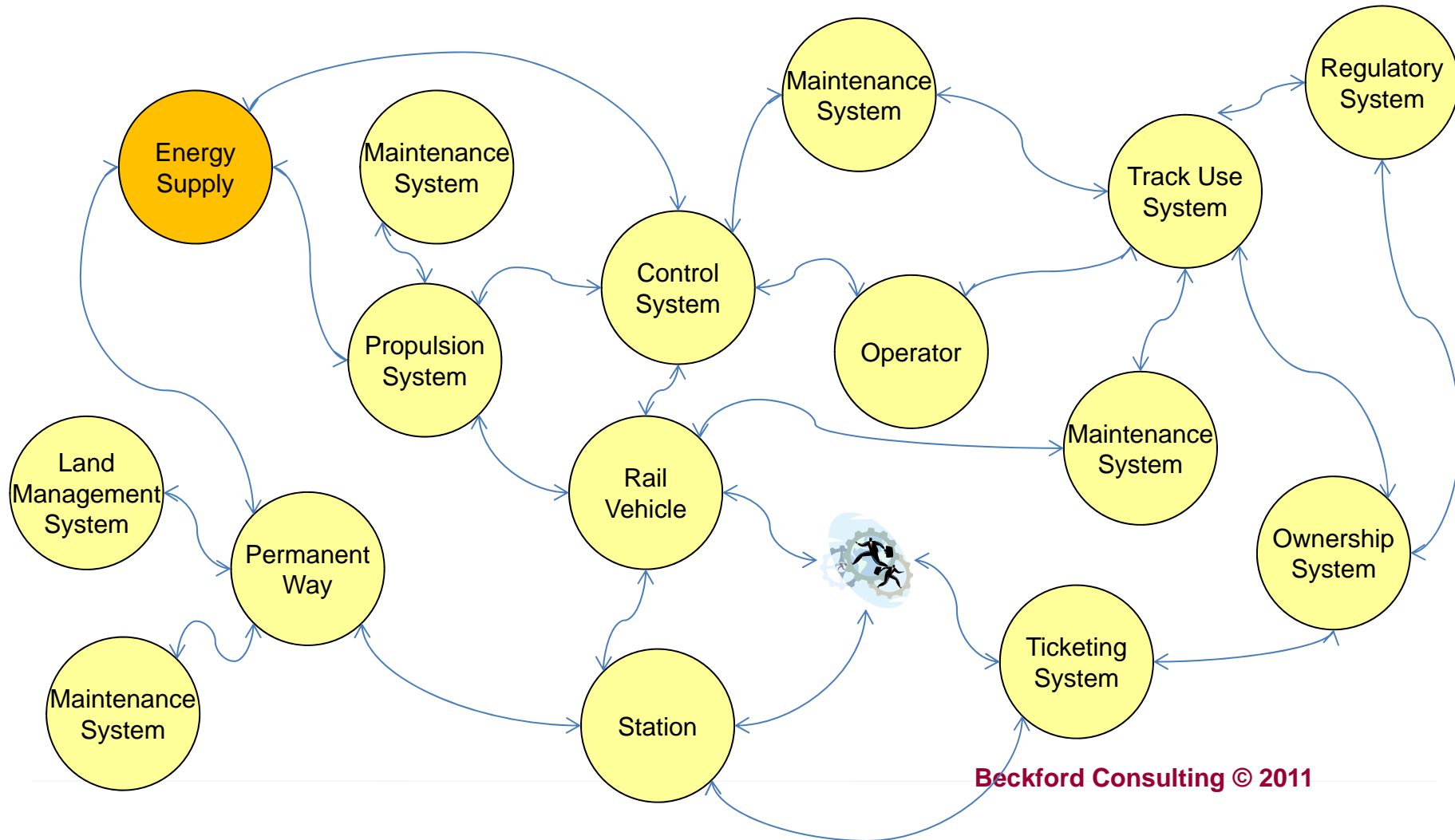
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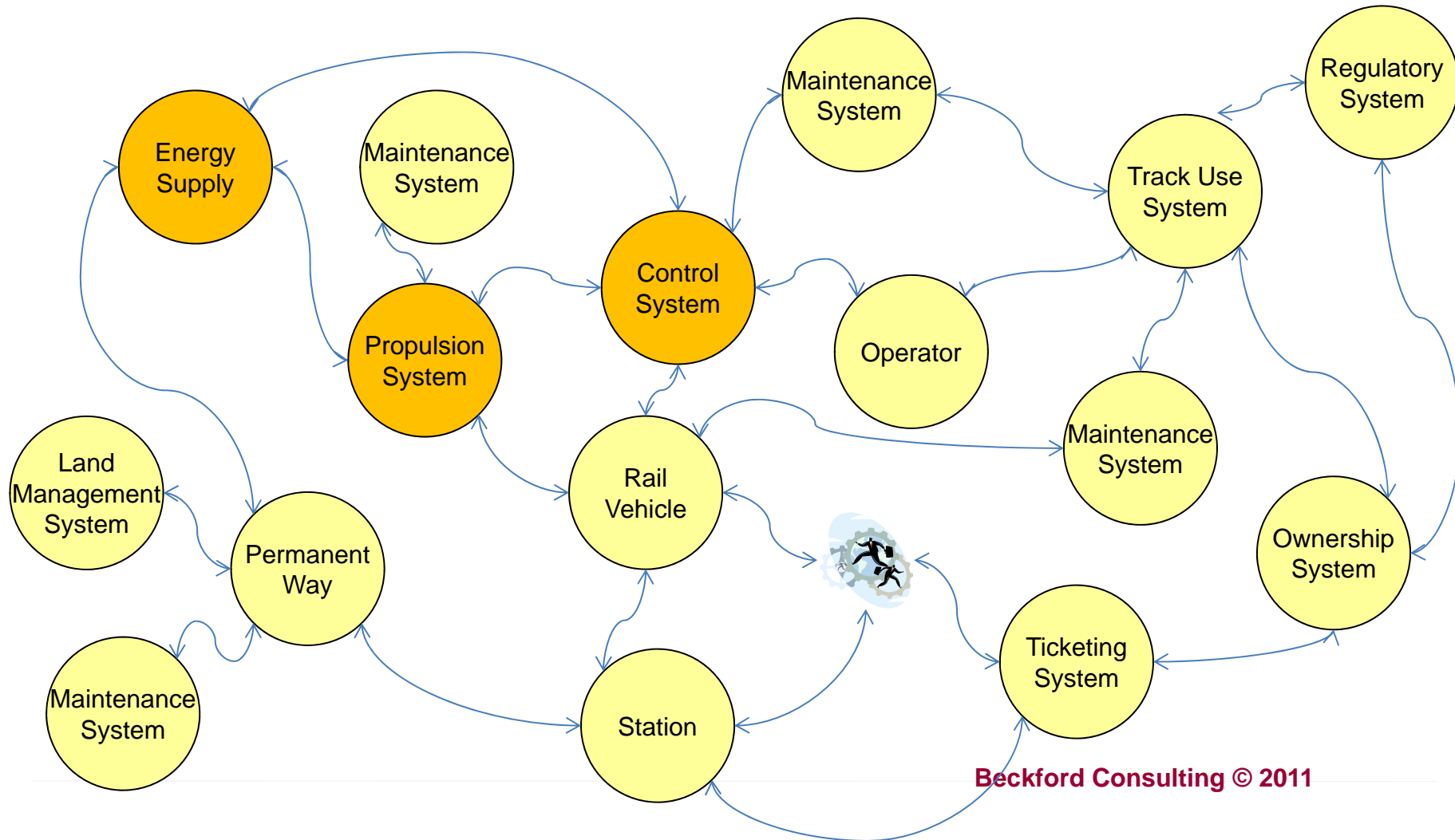
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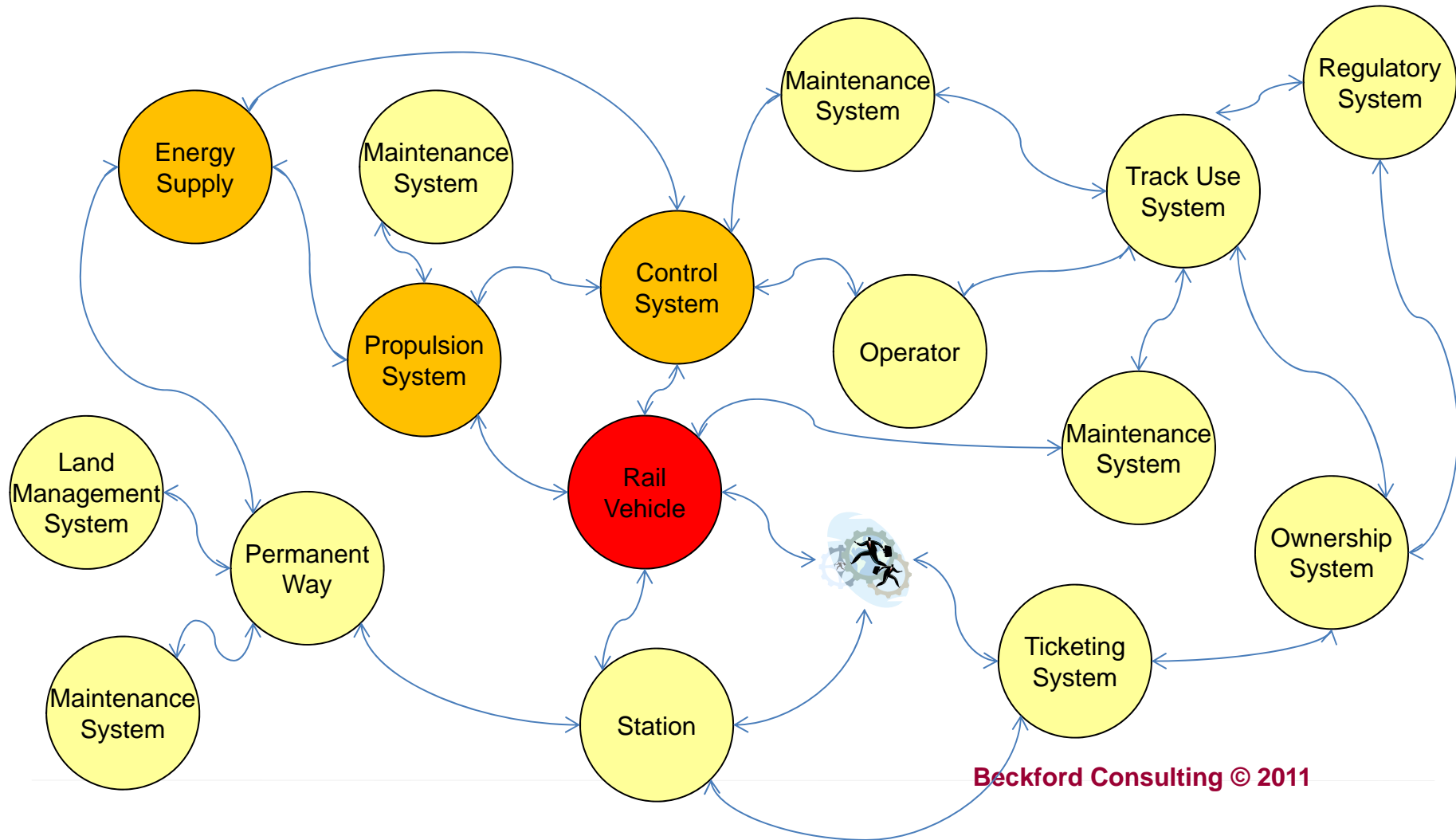
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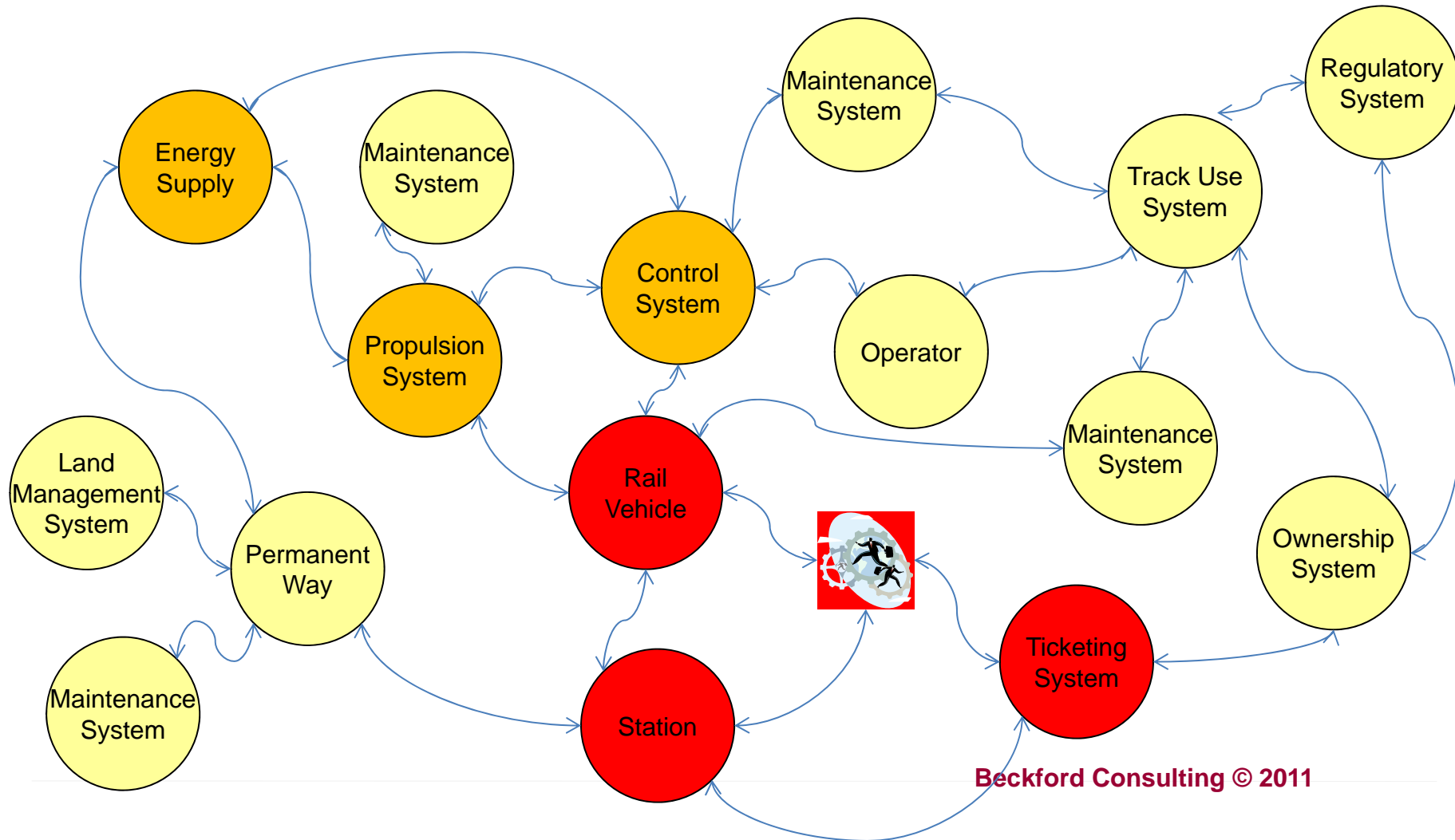
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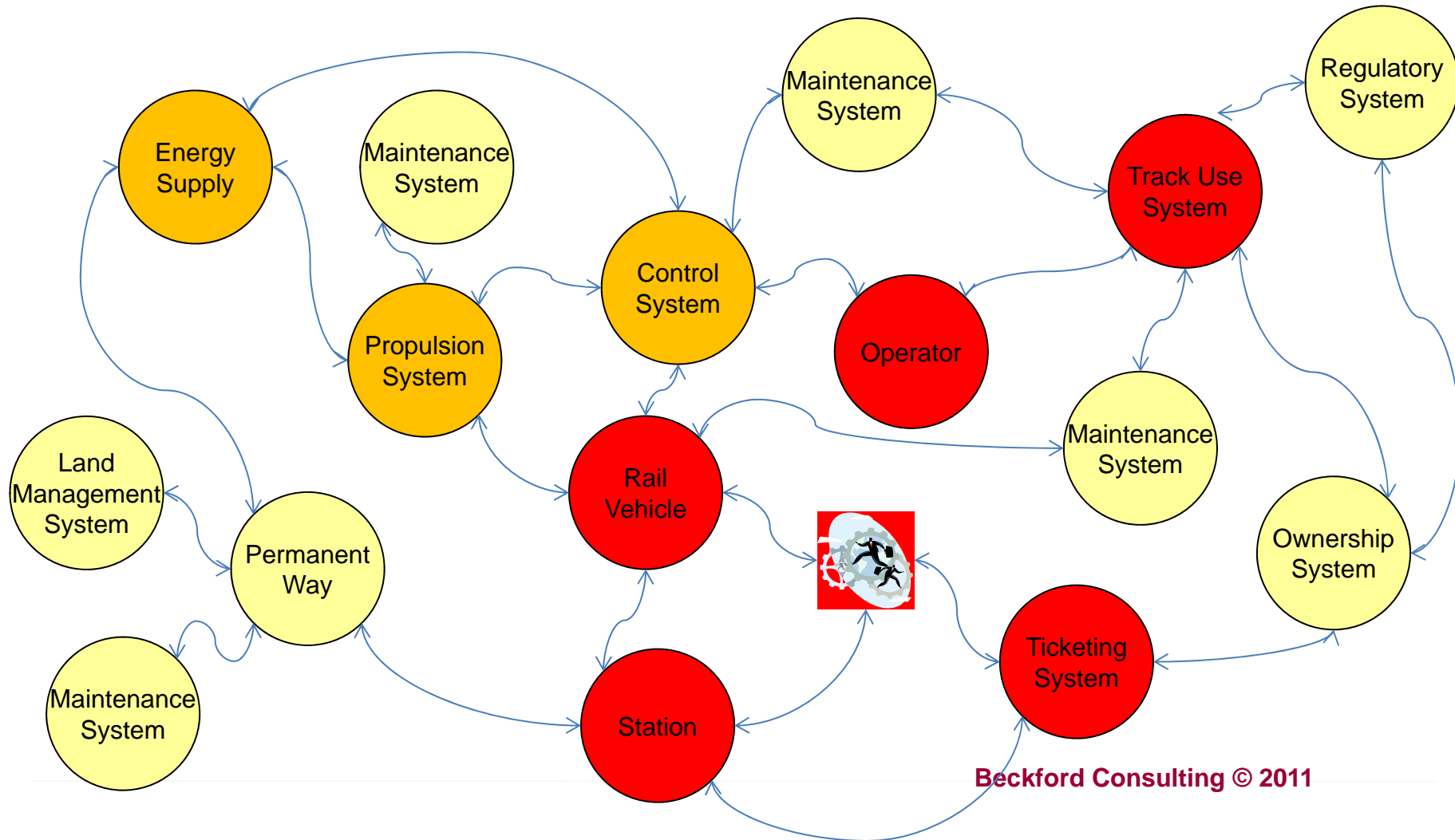
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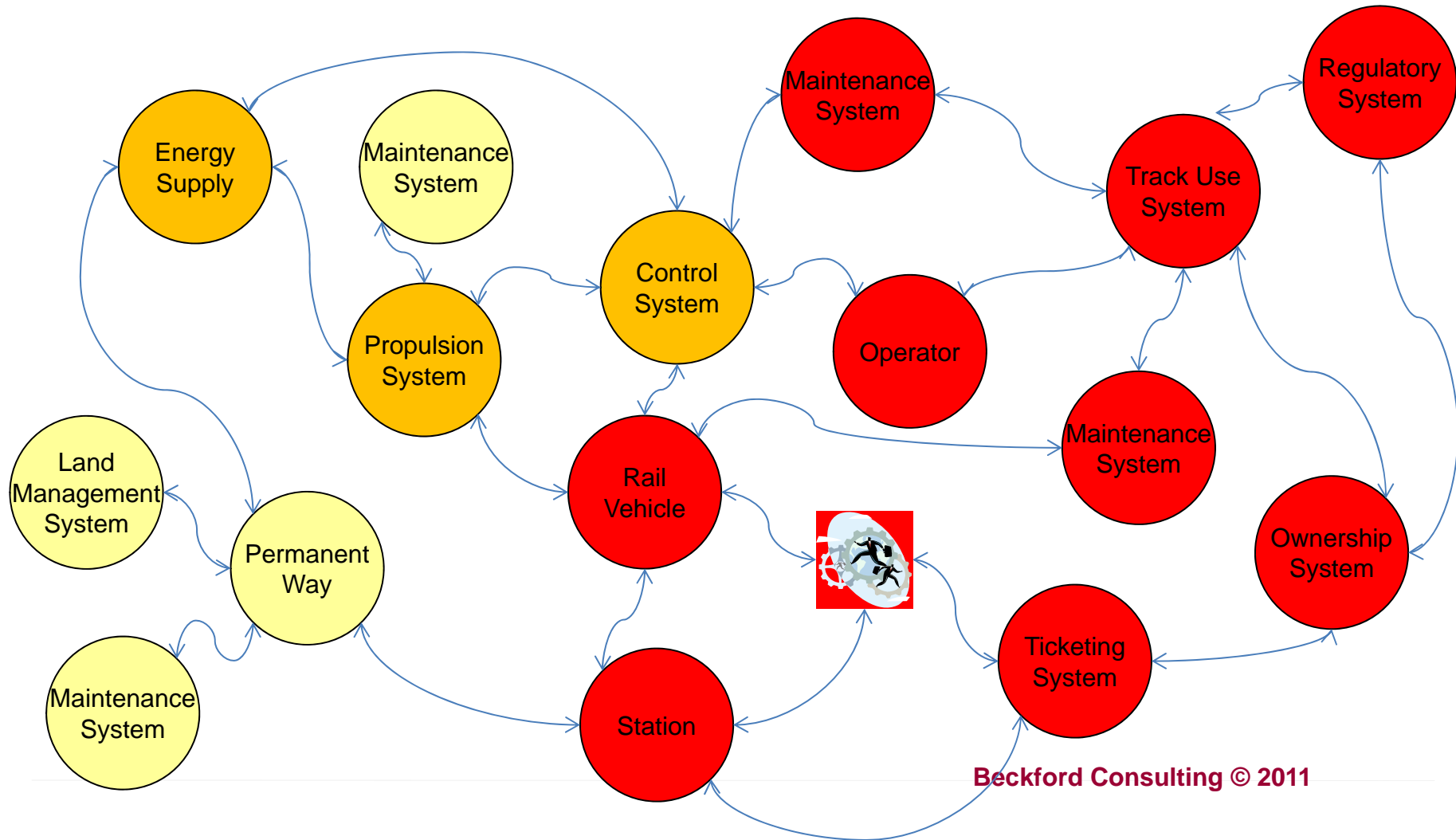
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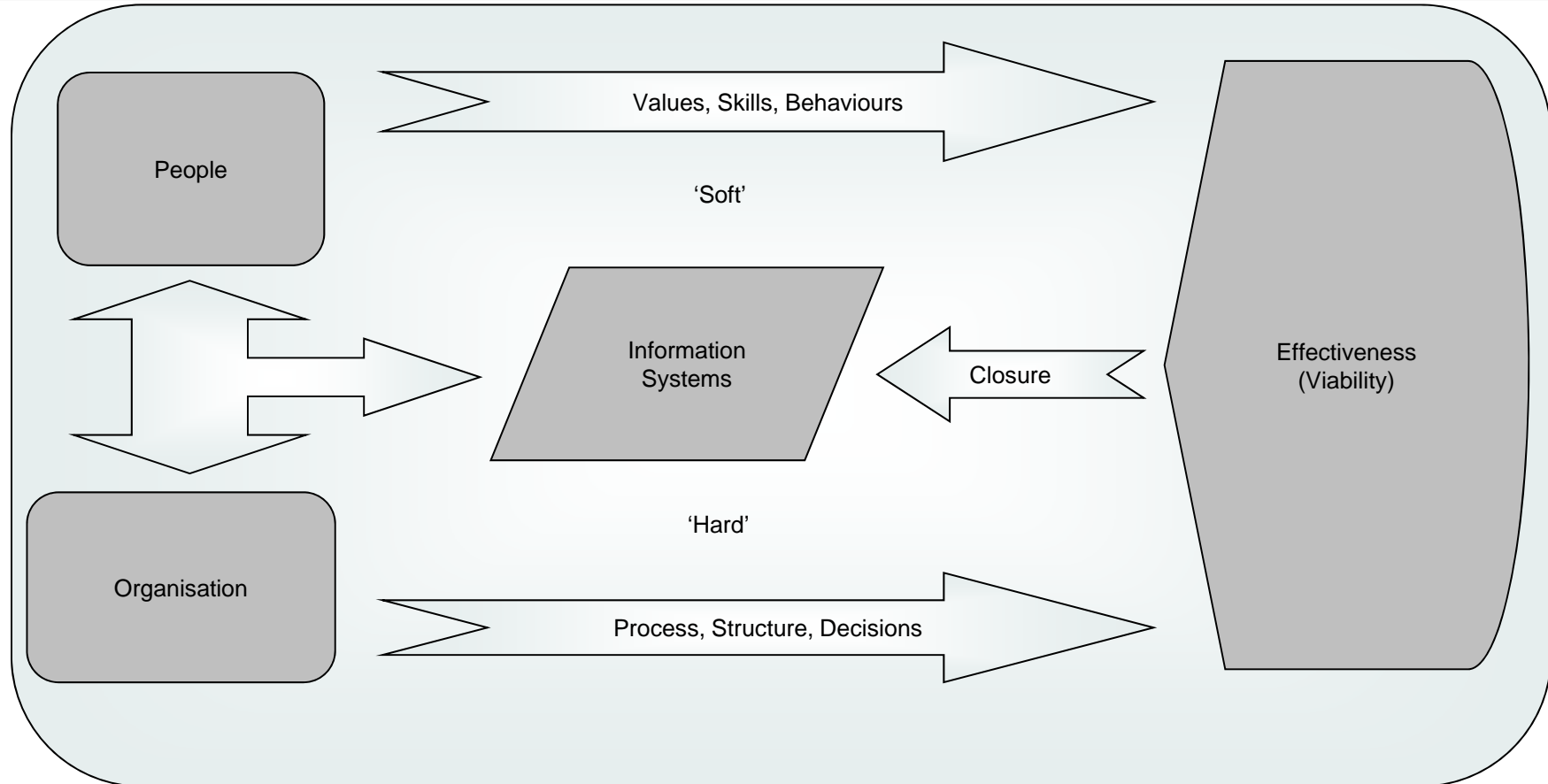


- Organisations are Massively interconnected
- Infrastructure
 - Ageing
 - Congested
 - Beyond Design Capacity
 - Questionable Resilience
 - Embedded Potential for Systemic or Cascade Failure
 - Complexity
 - Rooted in increasing and often unrecognised interdependencies
 - Increasing reliance on ICT (new vehicles, signals, services)
- “The Infrastructure” is a system
 - Either it all works or none of it works!

“Something must be done!”

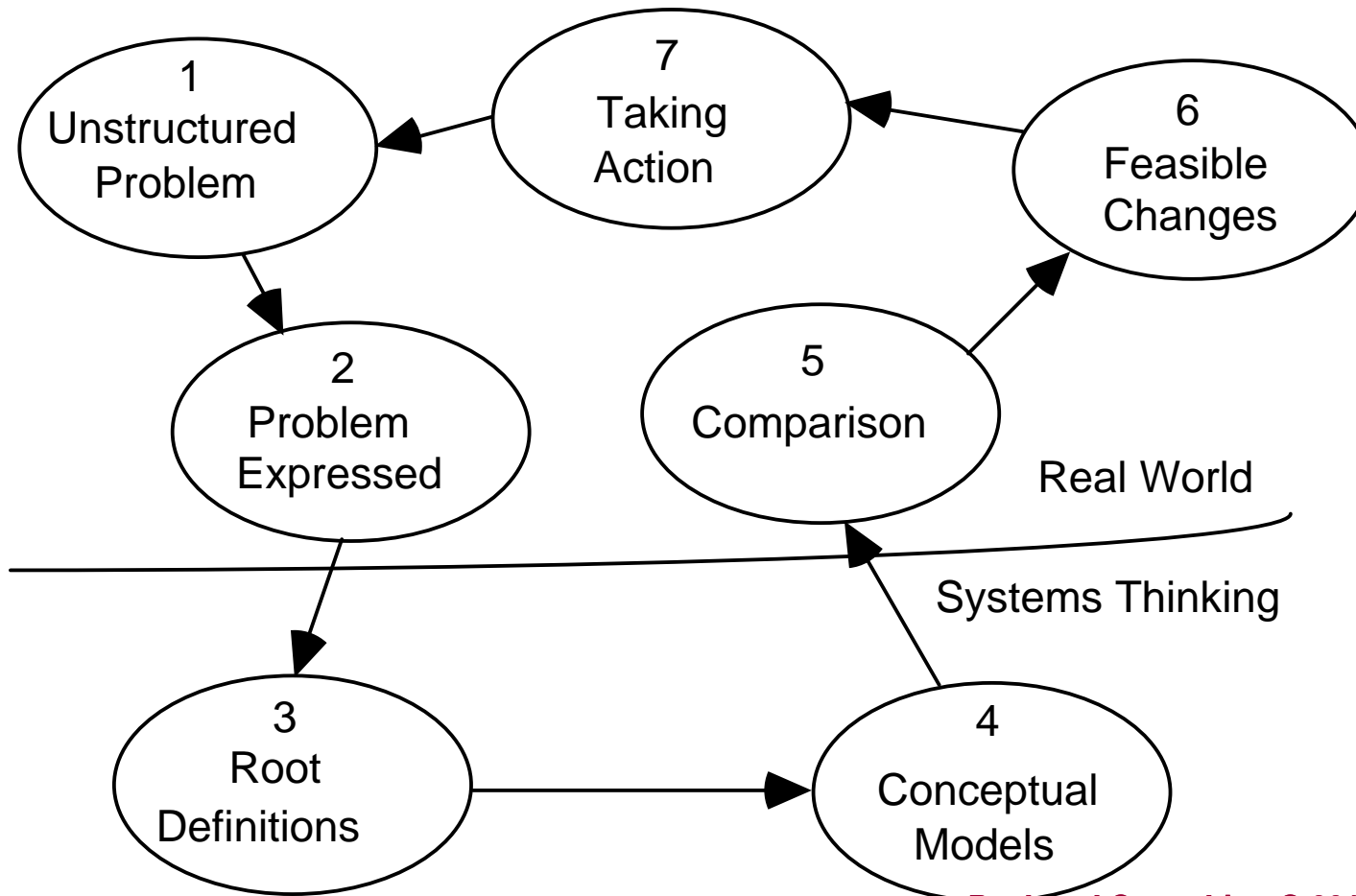
- Einstein on madness?
 - “Doing the same thing and expecting a different result”
- If we want to change the way things work (and it rather looks like we need to) then we need to adopt different methods

A Project: A 'whole' system?



Soft Systems Methodology

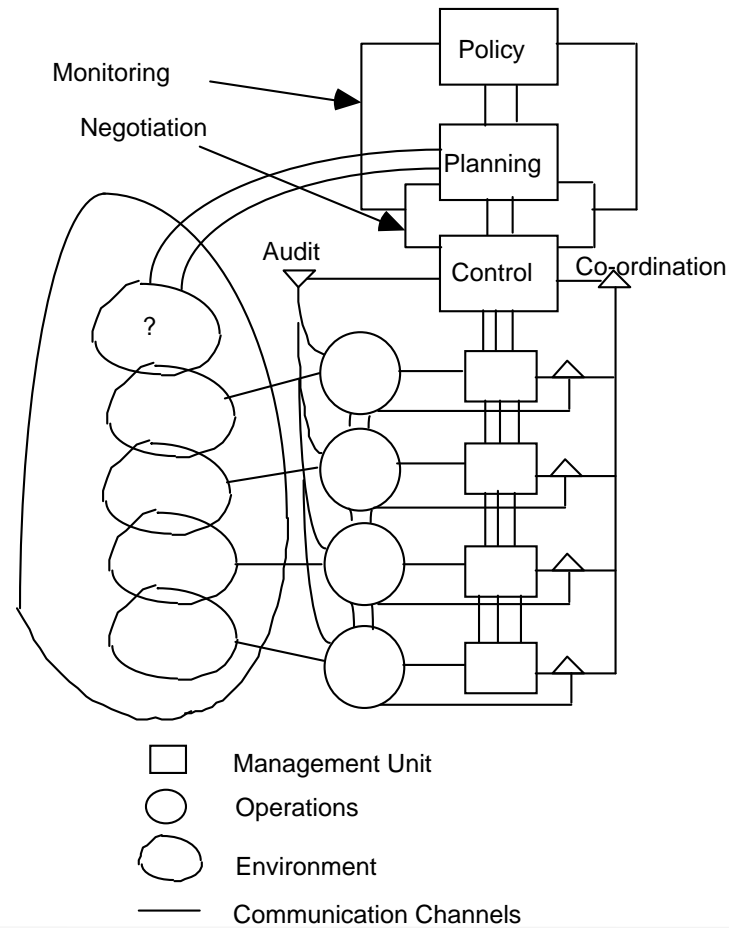
- Solving 'soft' problems



The Viable Systems Model

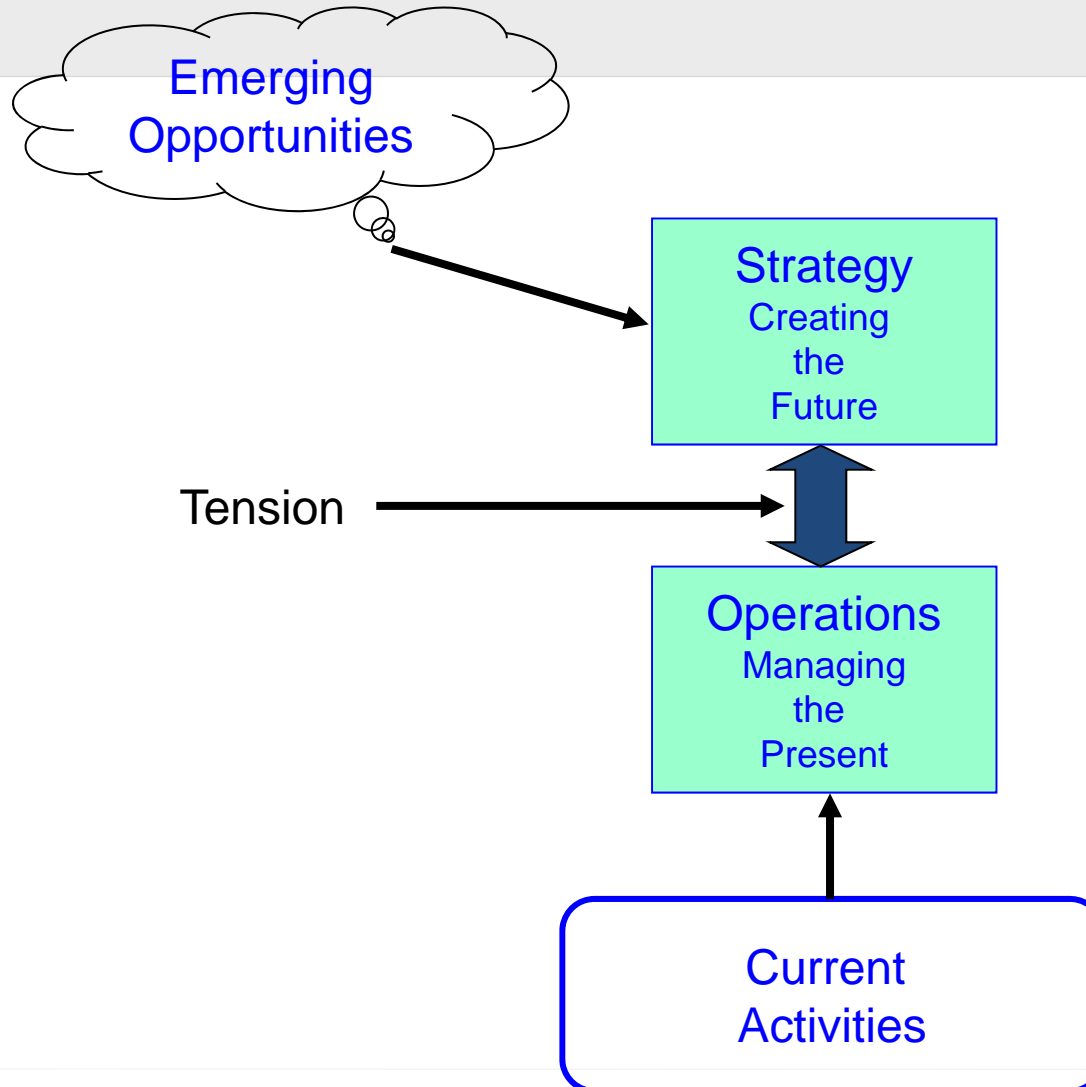
- Solving 'hard' problems

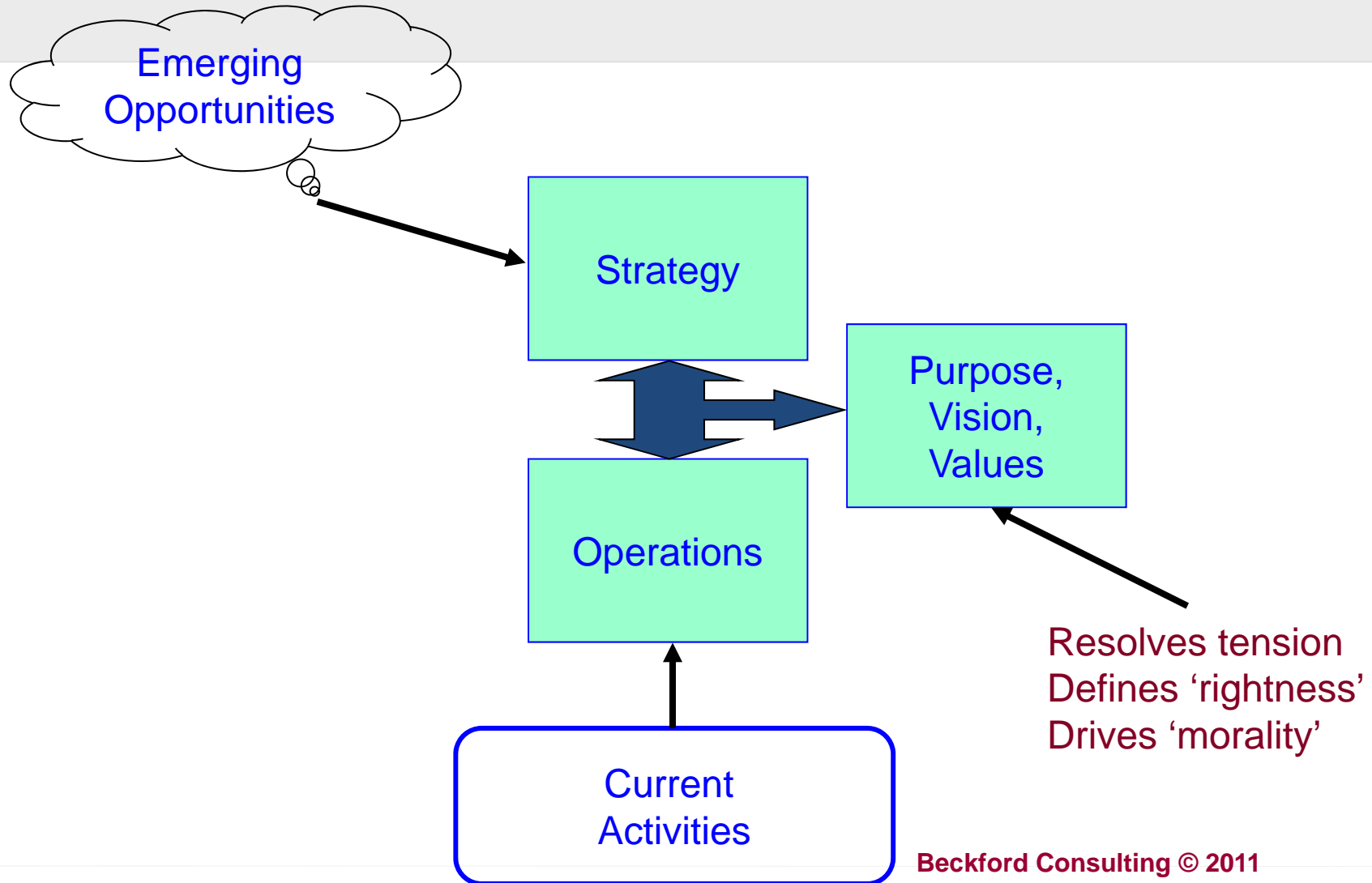
The Viable Systems Model





The Trialogue

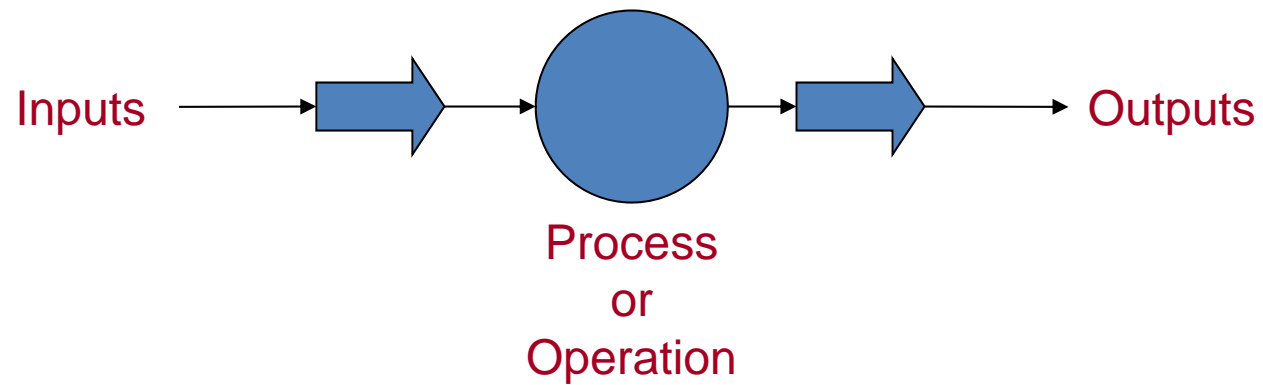




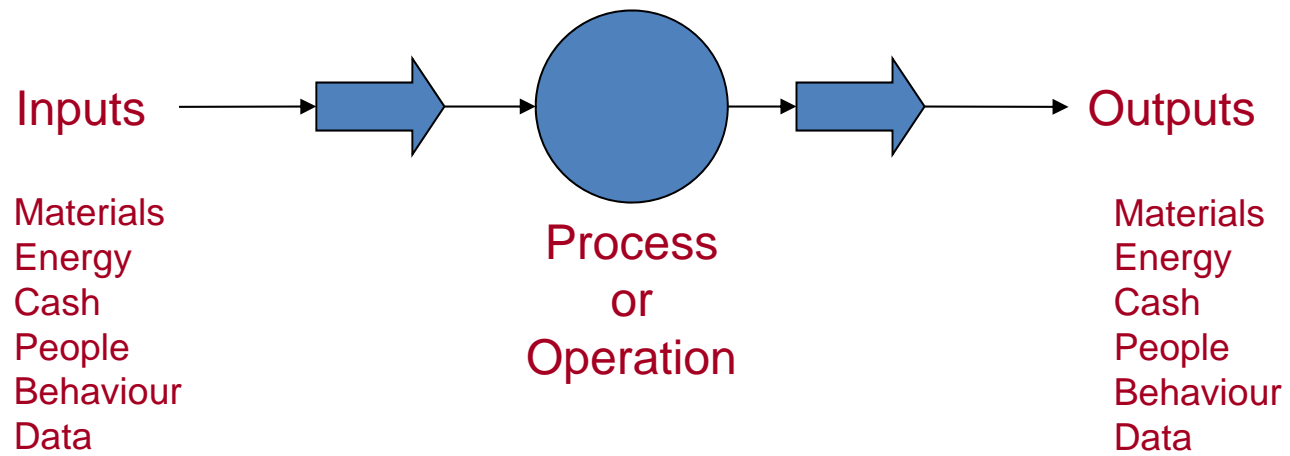


The Homeostat

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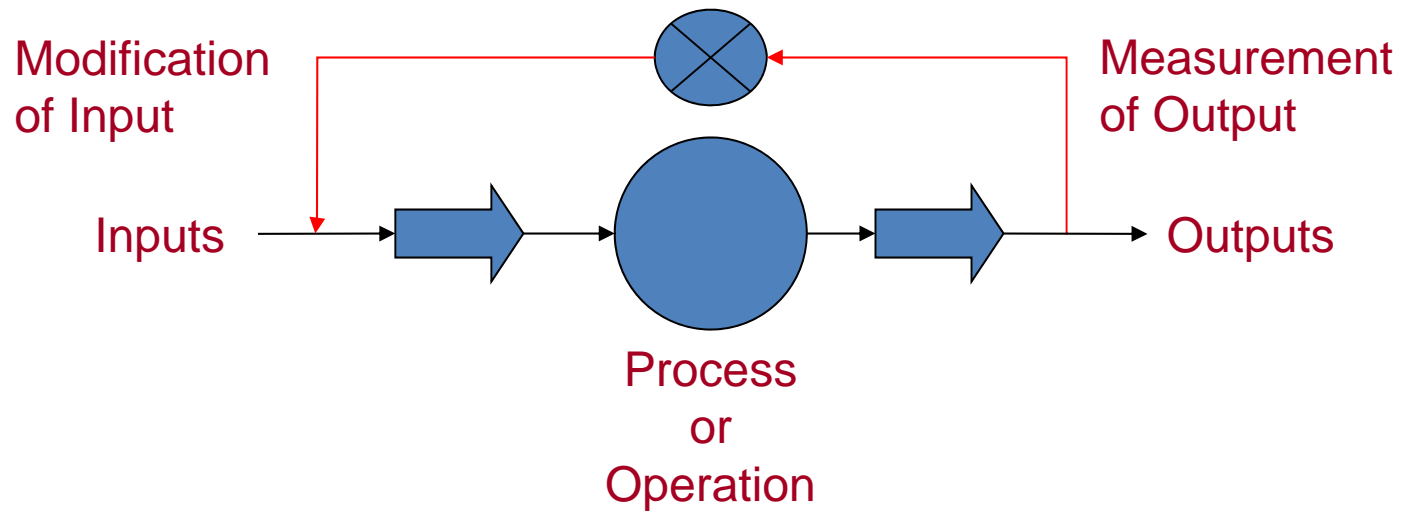


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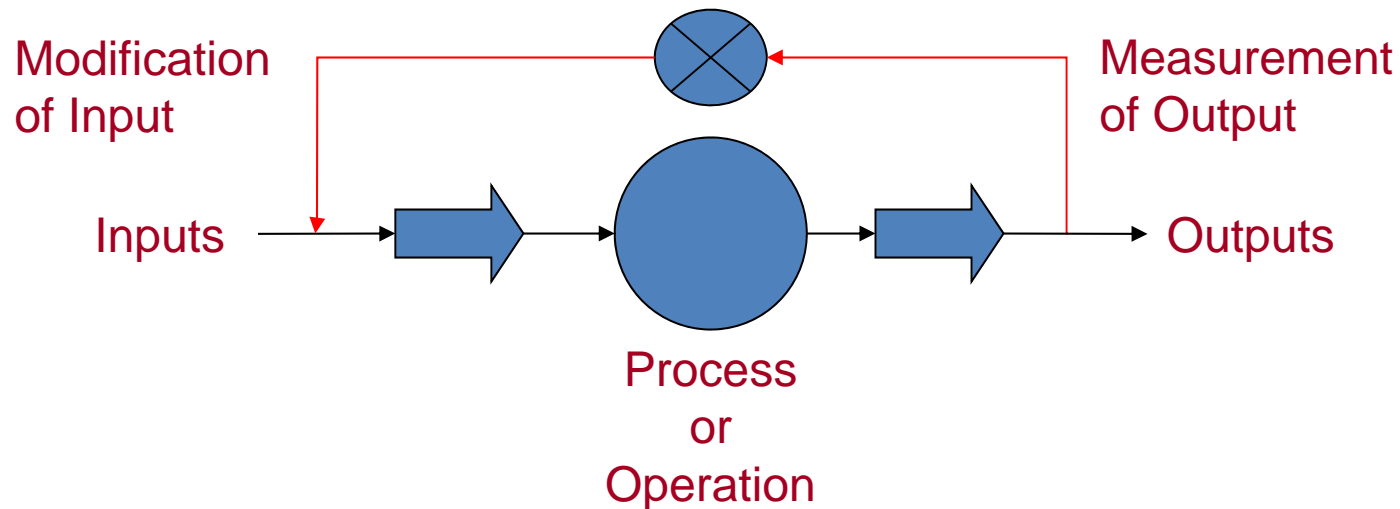
The Homeostat

Information for Decisions



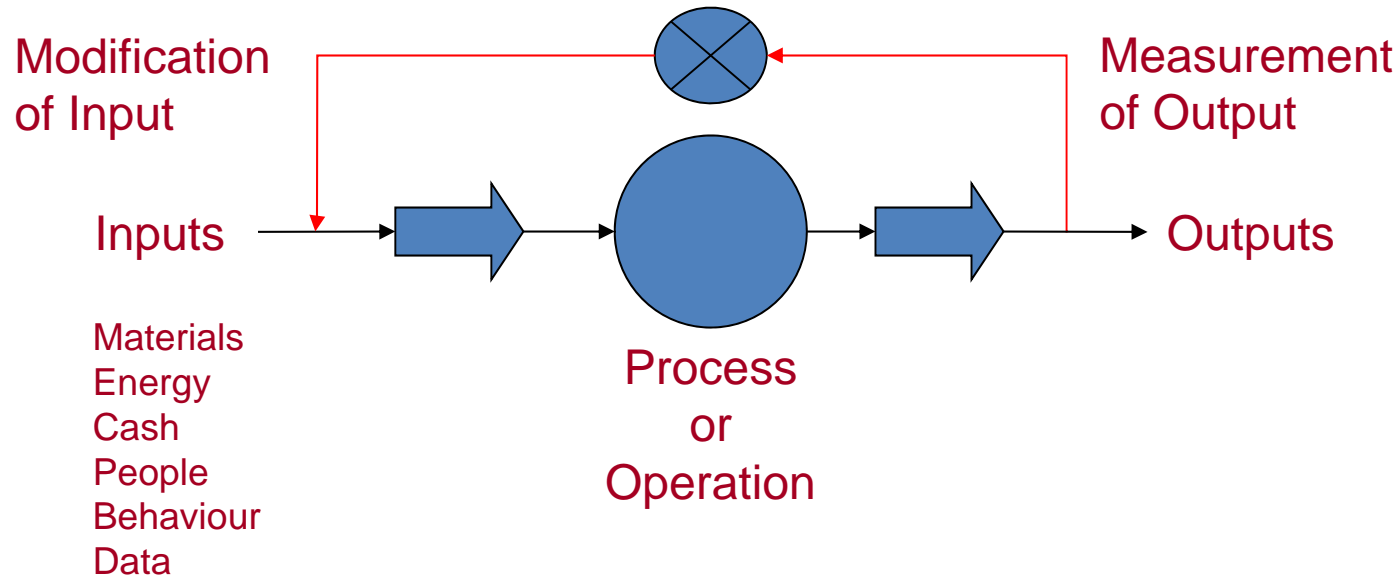
Did we do things right?
How could we do better?

Information for Decisions



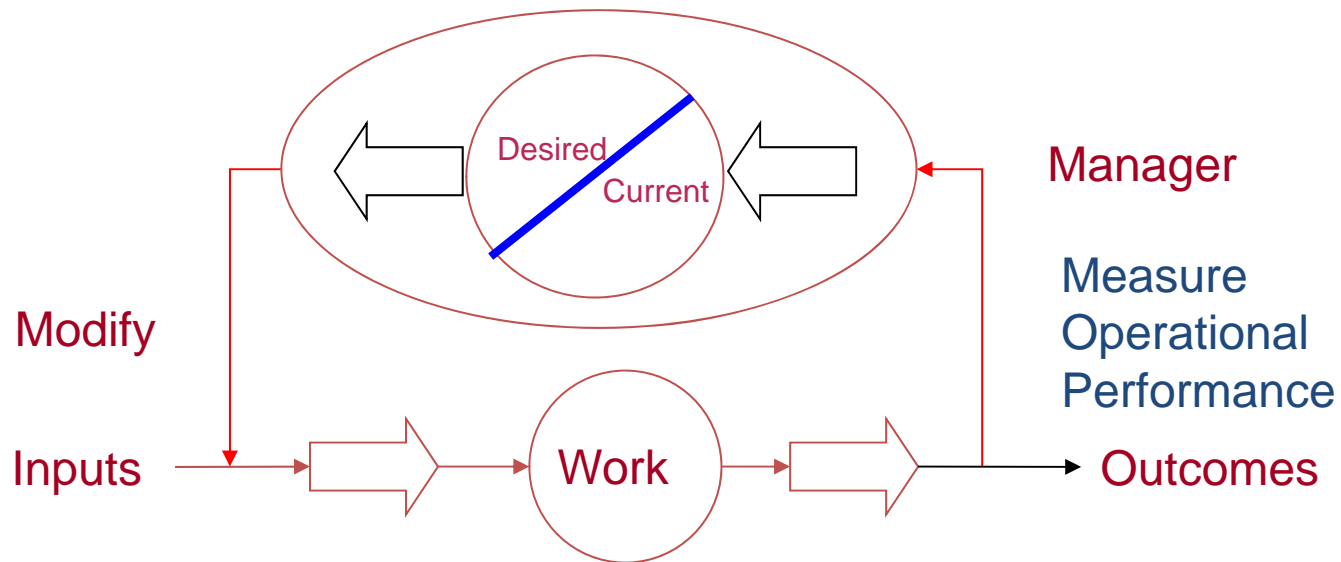
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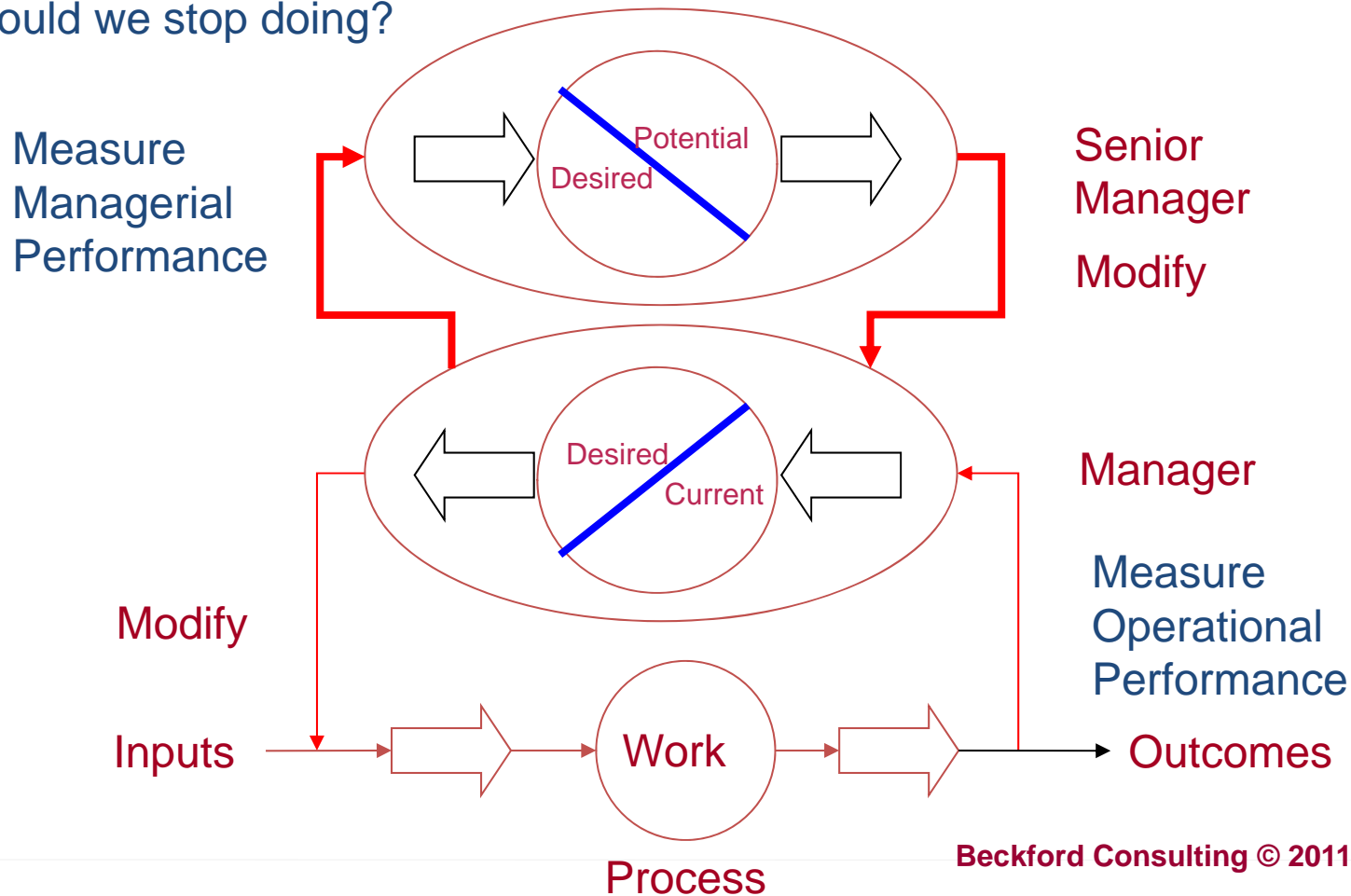
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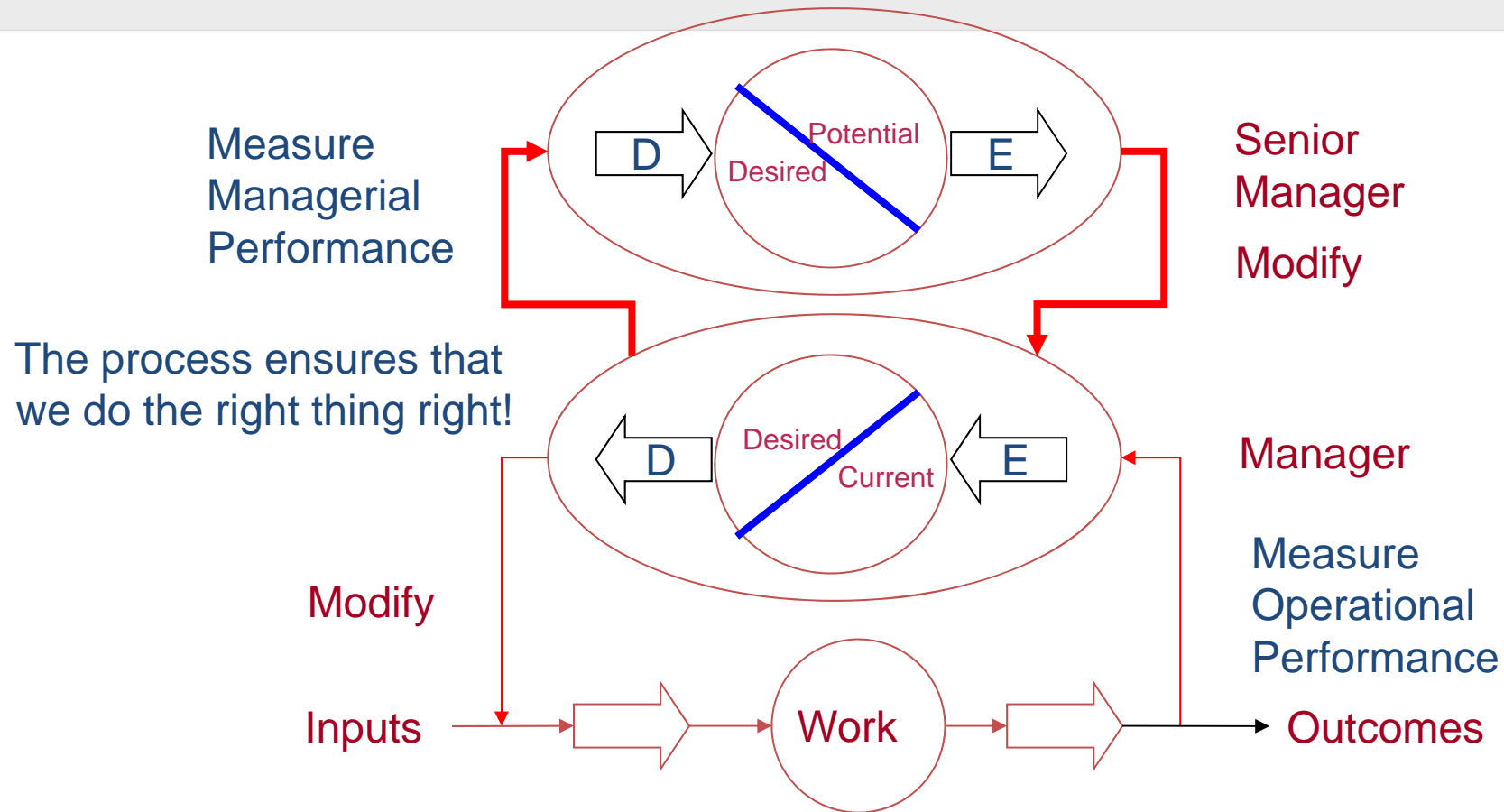


The Homeostat

Did we do right things?
What else could we do?
What should we stop doing?

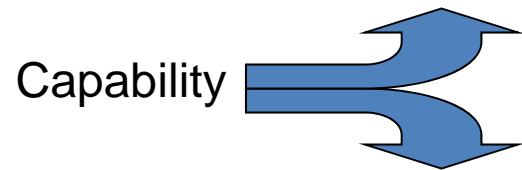


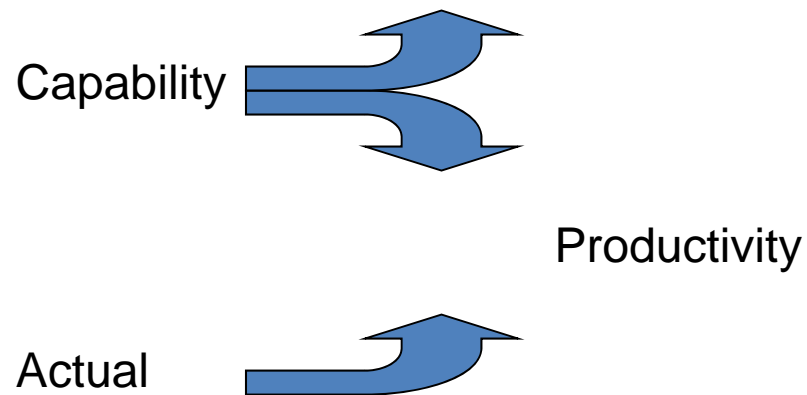
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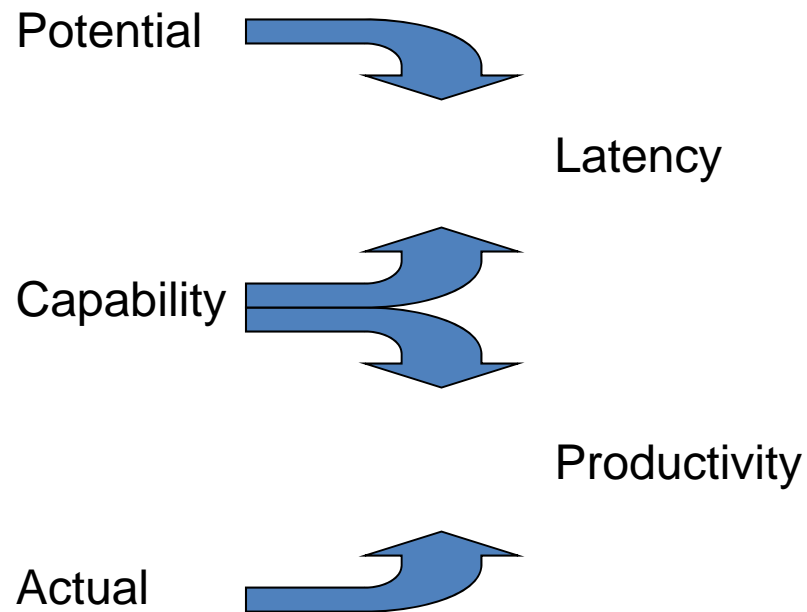


The Potentiometer

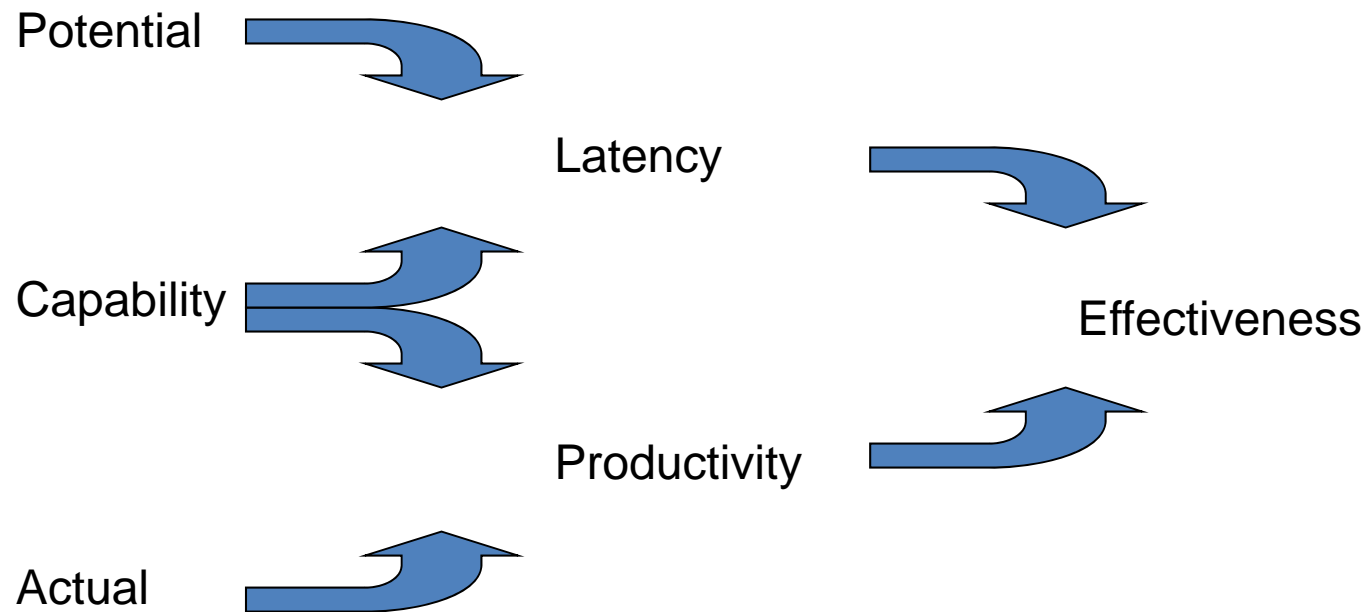
A device for measuring effectiveness



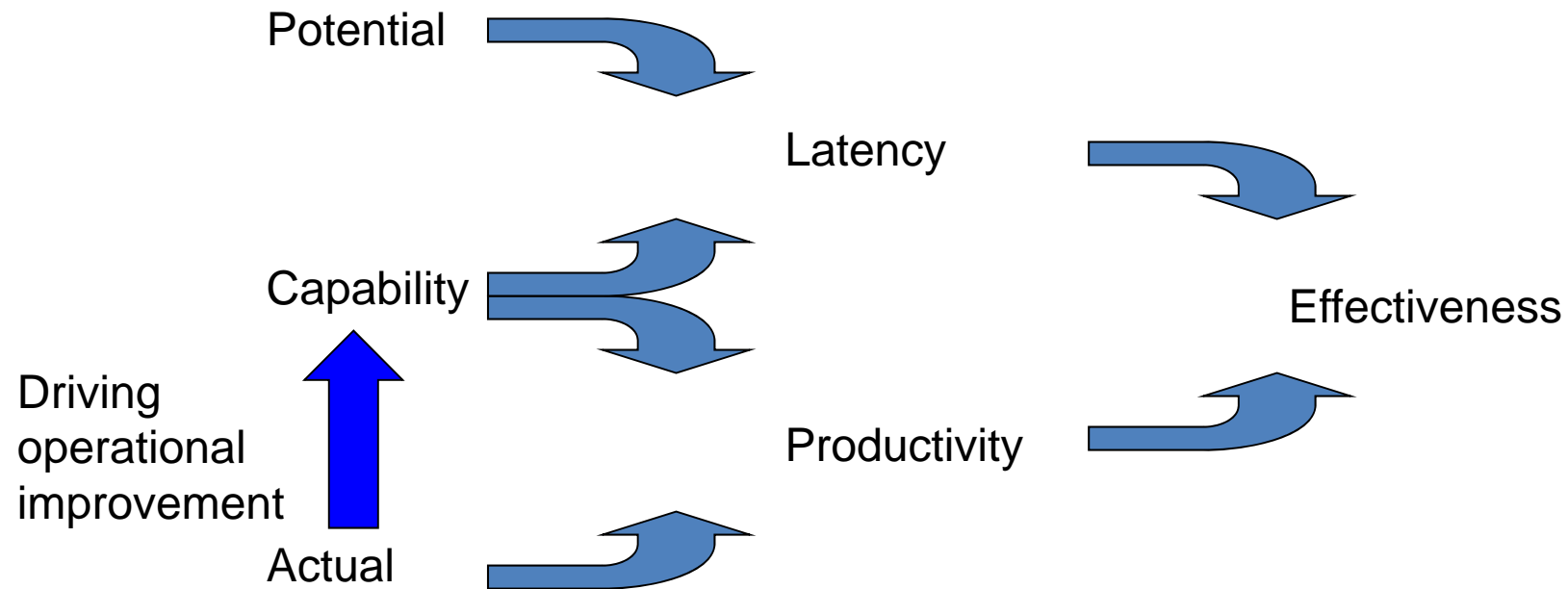




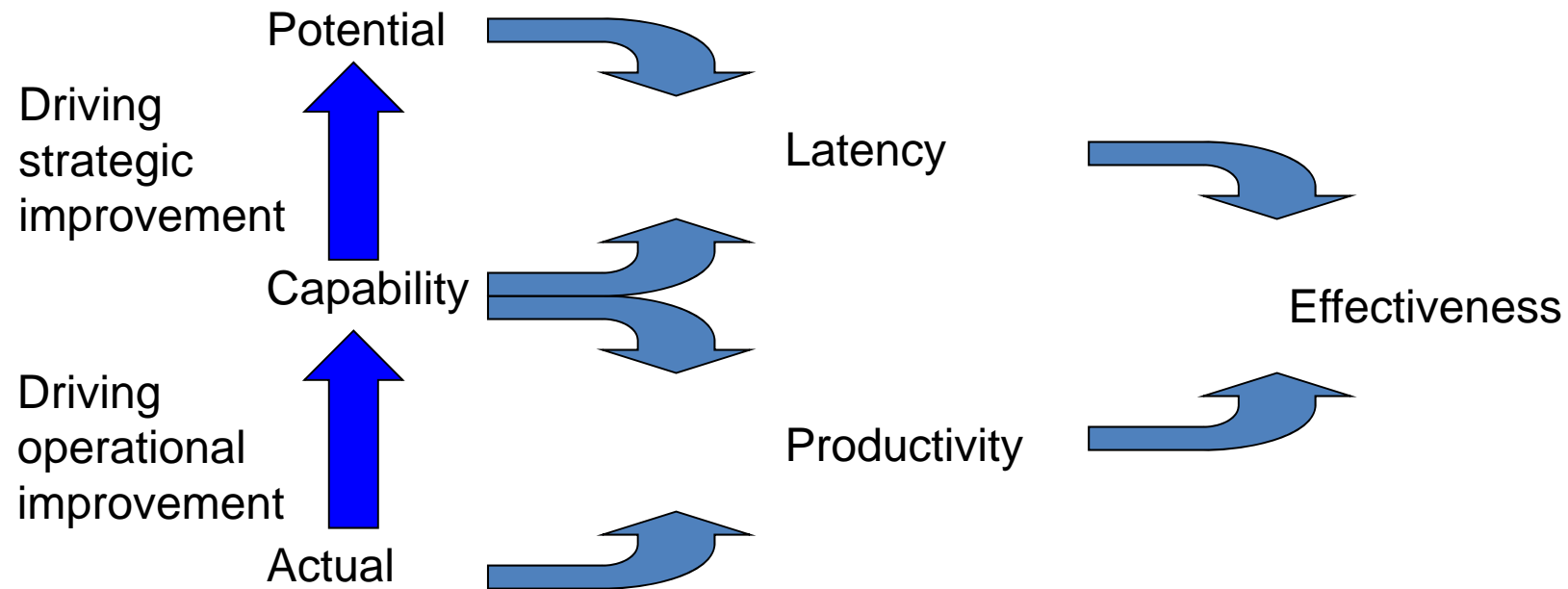
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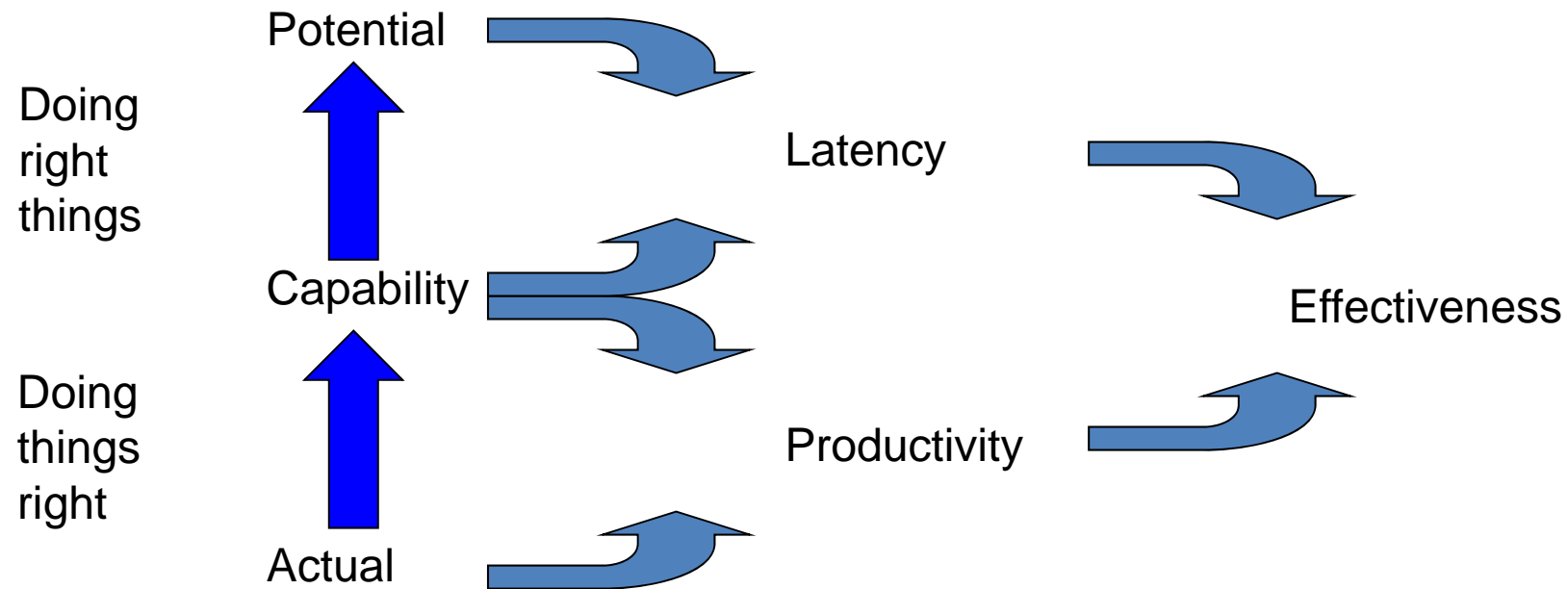
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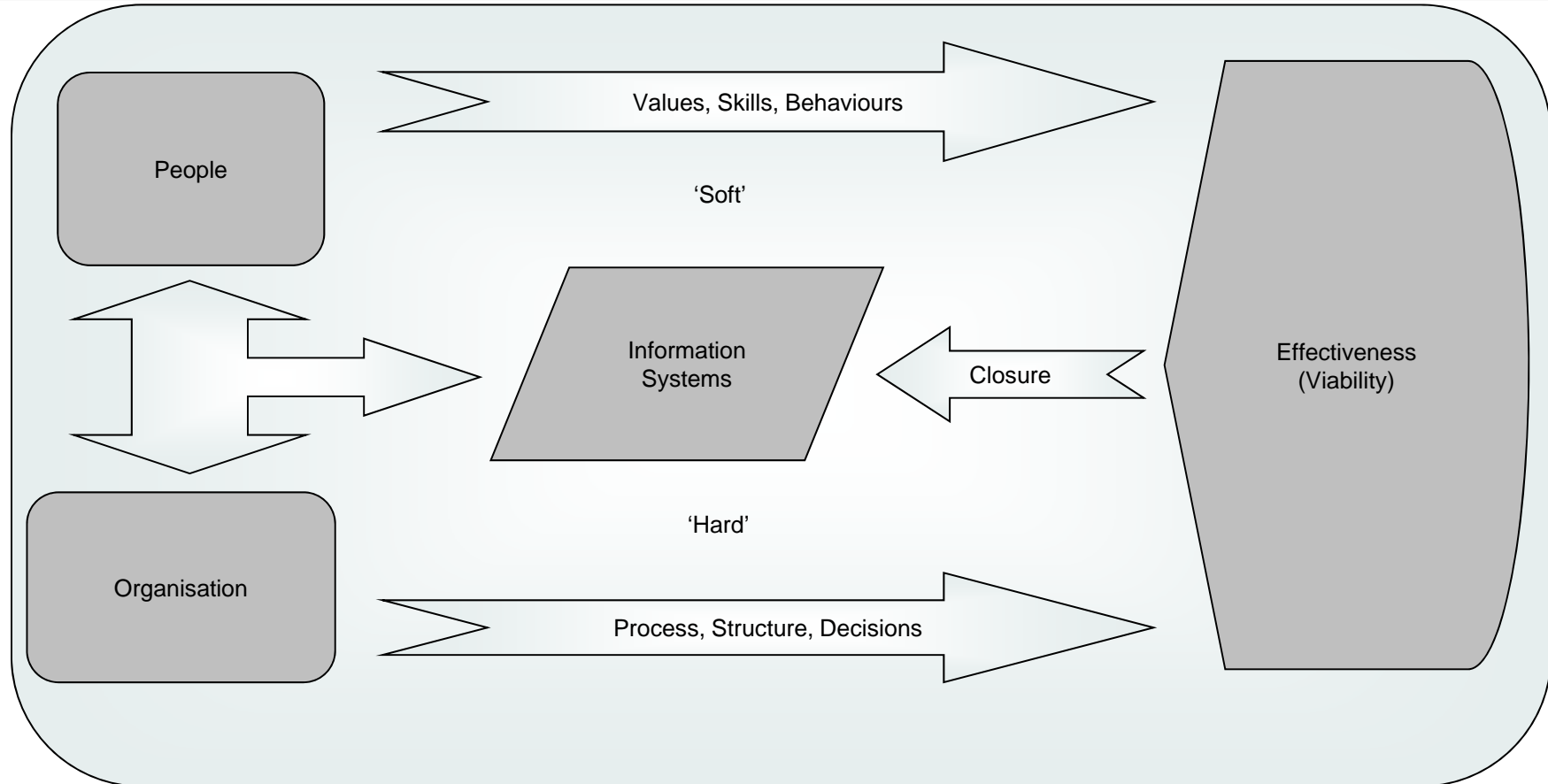
The Potentiometer



The Potentiometer



Project Management?





Information Projects

Information Projects

Understand the information
needed to manage the business

Business Effectiveness

Information Projects

Understand the information
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Business Effectiveness

Understand the value to the business
of having that information

Business Financial Performance

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Develop an Information Strategy

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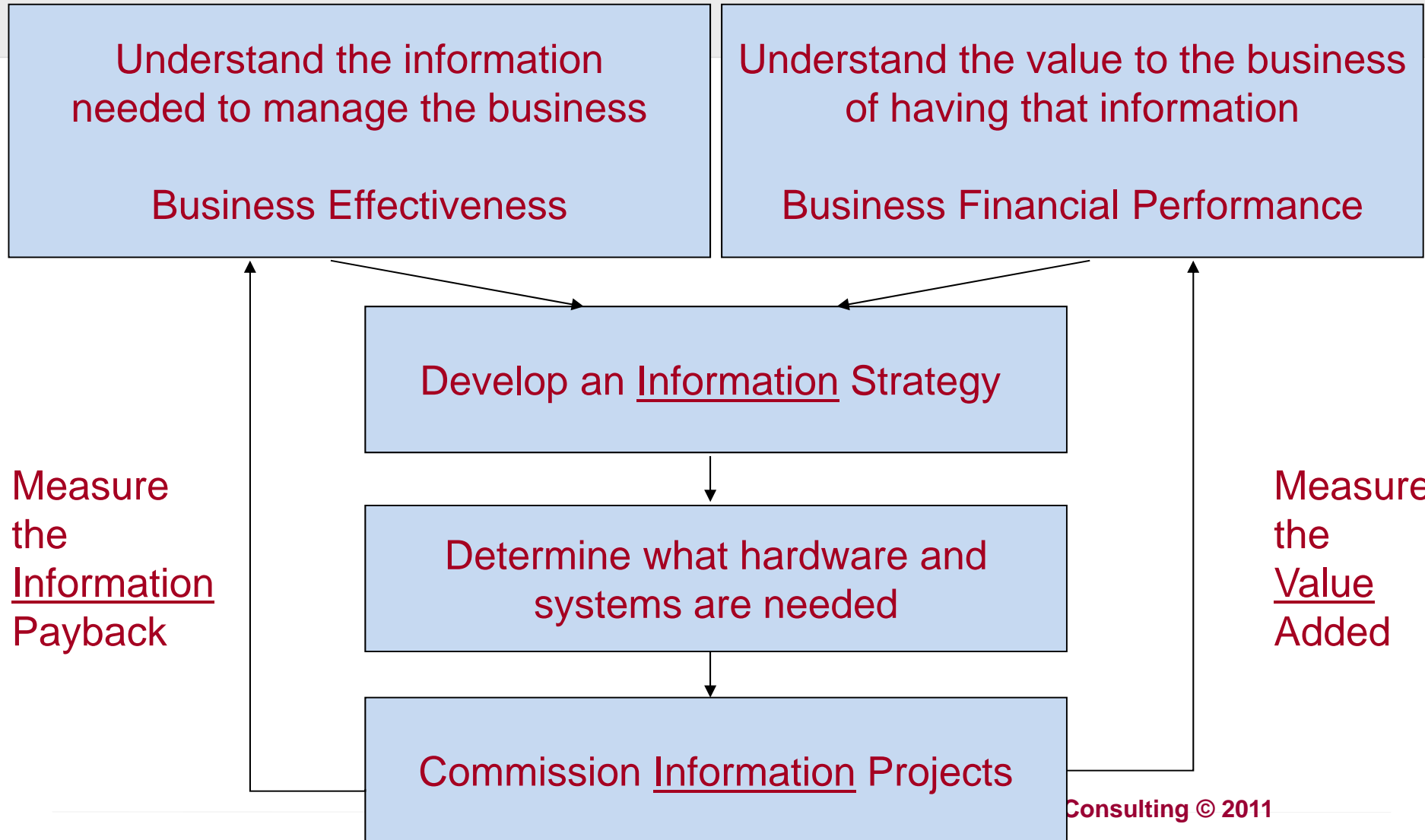
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Commission Information Projects

Measure
the
Information
Payback

Information Projects



- Systemic Interaction
- Systems Thinking
- Soft Systems Methodology
- Viable Systems Methodology
- The Trialogue
- The Homeostat
- Information Projects
- The Potentiometer

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