

The Information Organisation: An Infrastructure Perspective

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29/01/2014

- **Consultant**
 - HM Treasury, BIS, DeFRA, DfT
 - Northumbrian Water – Asset Management Strategy and Systems
 - Railway Safety & Standards Board – TRaCCA2
 - Core Cities – Data and Information Sharing
- **Visiting Professor**
 - STEaPP, University College London
 - Centre for Information Science, Loughborough University
- **Author**
 - Reports to Government on Infrastructure Systems
 - Quality, Routledge, 2010, 3rd Edition
 - The Information Organisation, Routledge, Forthcoming

The Information Organisation

- If you always do what you have always done, you will always get what you have always got!

Mark Twain

- Madness – keeping on doing the same thing and expecting a different result

Albert Einstein

The Information Organisation

- The Information Challenge
- The Value of Information
- The Information Organisation
 - Generating Value
 - Enabling Value
- The Information Factory
- Managing Performance
- The Infrastructure Challenge

The Information Challenge

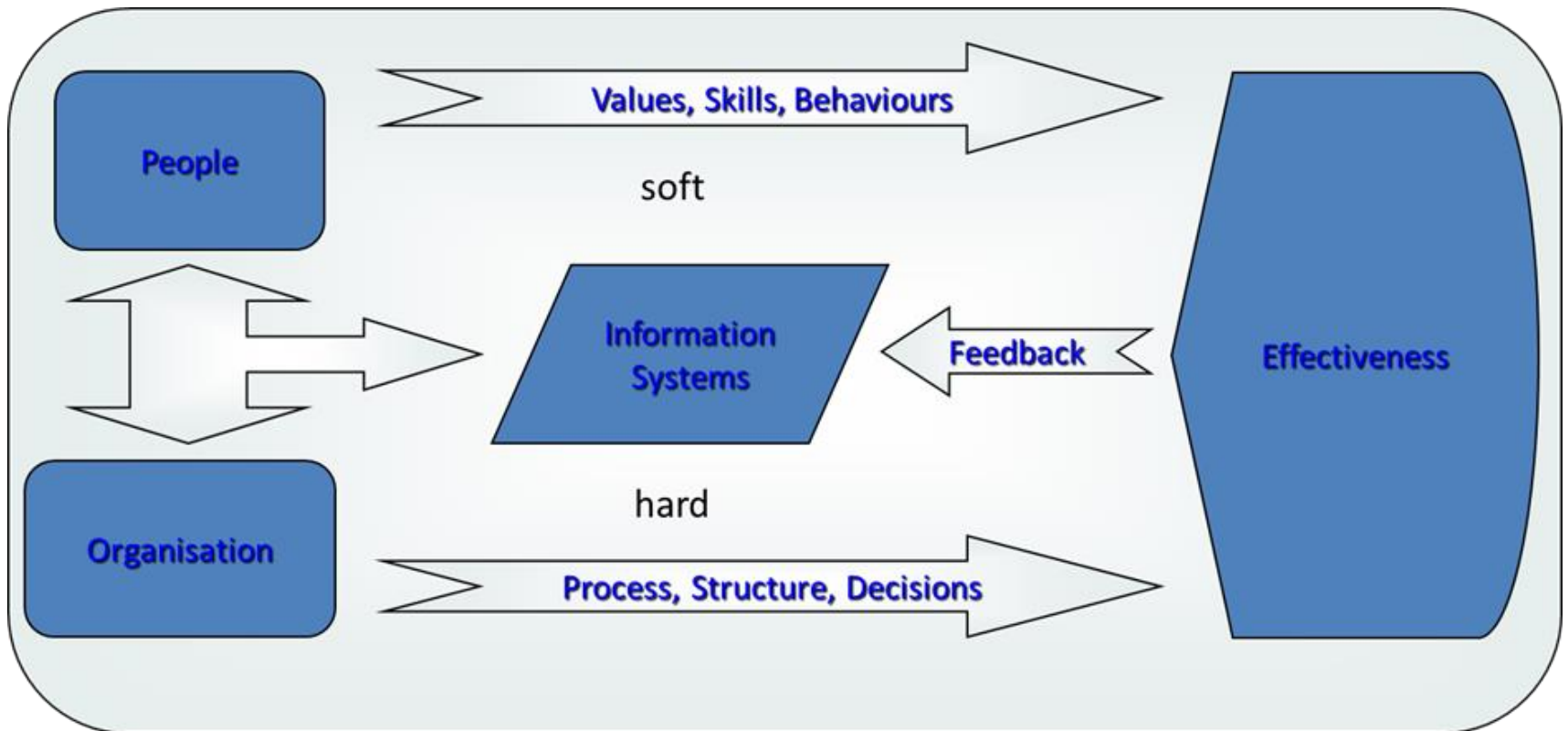
The Information Challenge

- Infrastructure Context –UK
 - Ageing Infrastructure
 - Chronic Historic Under-Investment
 - Privatised – Profit Motive
 - Economic & Performance Regulation
 - Limited Telemetry
- Water
 - Separation of Underground and Overground Assets
 - Functional Structure
 - Distorting effect - ‘Capex is good, Opex is bad’
 - Scale – 4500 asset sites, 14000+miles of pipe
 - Challenge – more effective investment, more effective operations

The Information Challenge

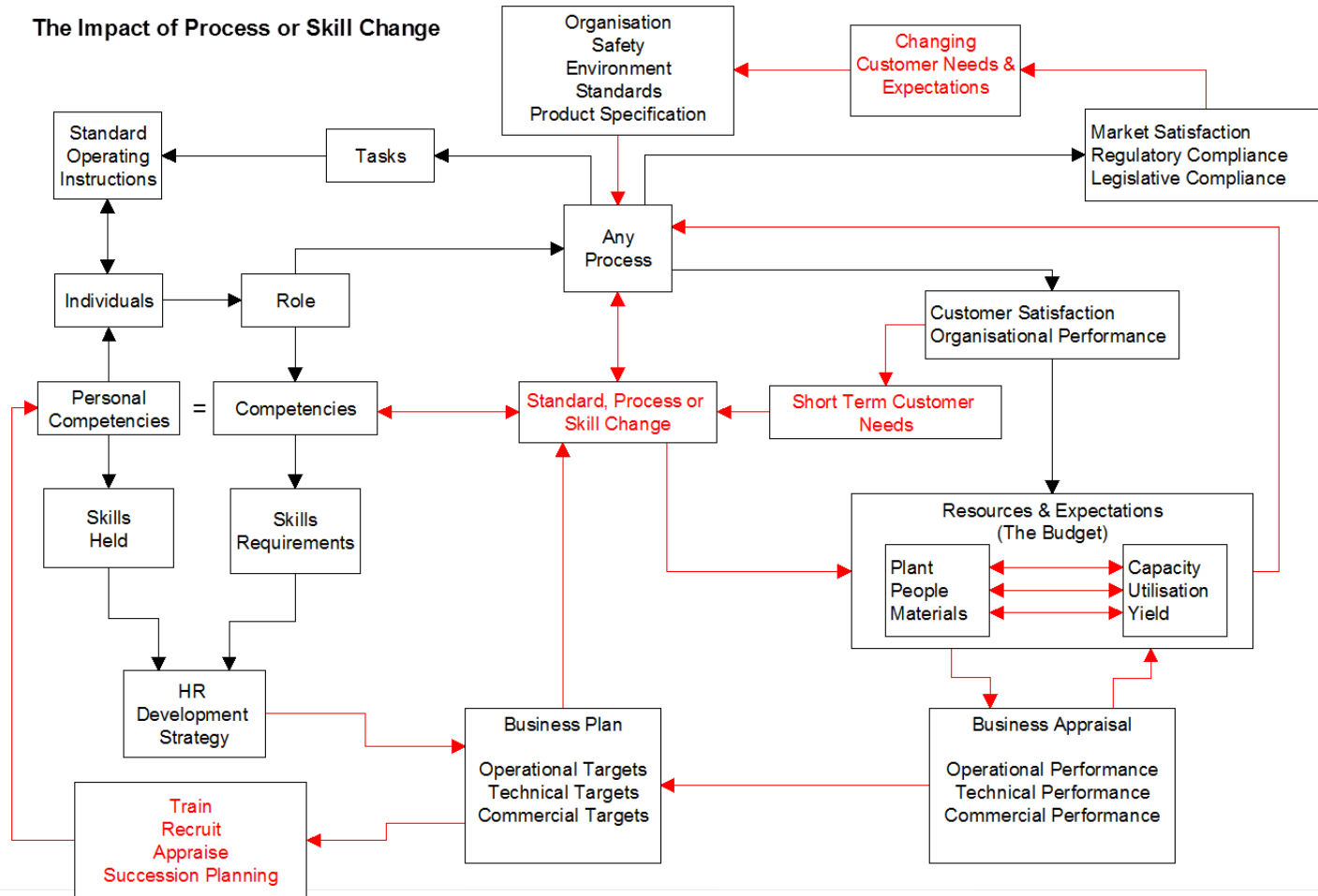
- Data is overwhelming our ability to process it
 - BEFORE 'big data' happens!
- Organisational revolution since the 1940's has been technological not informational
- Stupendous growth in ability to process, retrieve, store, transmit data
- Making effective use? Wombats are quicker!
- Too much data, not enough information
- Dysfunctional organisations rooted in historic structures
 - Centralising, bureaucratic, unaware, internally focused
- Information IS the organisation.

The Information Organisation



The Information Organisation

The Impact of Process or Skill Change



The Value of Information

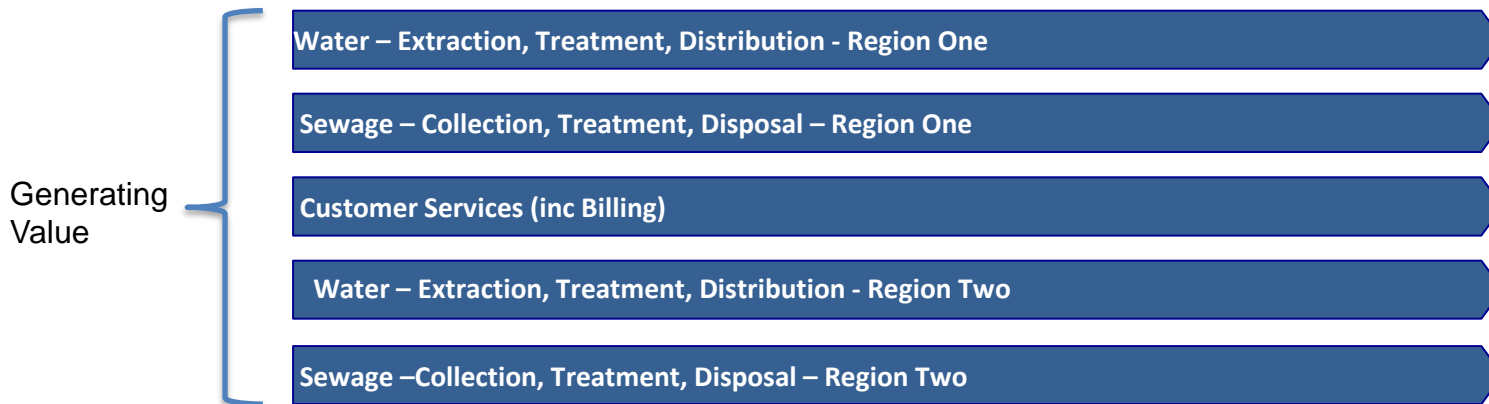
The Value of Information

- Information is valuable
- Investment in infrastructure, software and hardware is treated as a cost
- Benefit of information not measured!
- Water Utility – IS budget, £10m Capital, £12m operations – benefit – unmeasured!
- Logistics – Realisation of value of Information saved £4m+ per annum through better decisions
- What is:
 - The value of a happy customer?
 - The value of time in the market?
 - The true cost of failure?
 - The true benefit of failure prevention – think infrastructure & utilities!
 - The systemic organisational measure of productivity as opposed to the silo?
 - Paper manufacturing - +30% in output through optimising whole system performance - £105m per annum

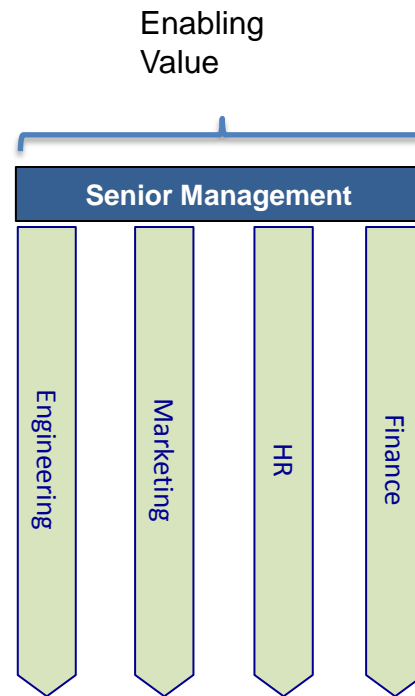
The Information Organisation

- ‘The purpose of an organisation is what it does’ (Beer, 1985)
- Consists in two principal interacting parts
 - A Value Generating Organisation
 - A Value Enabling Organisation
- Value?

The Information Organisation



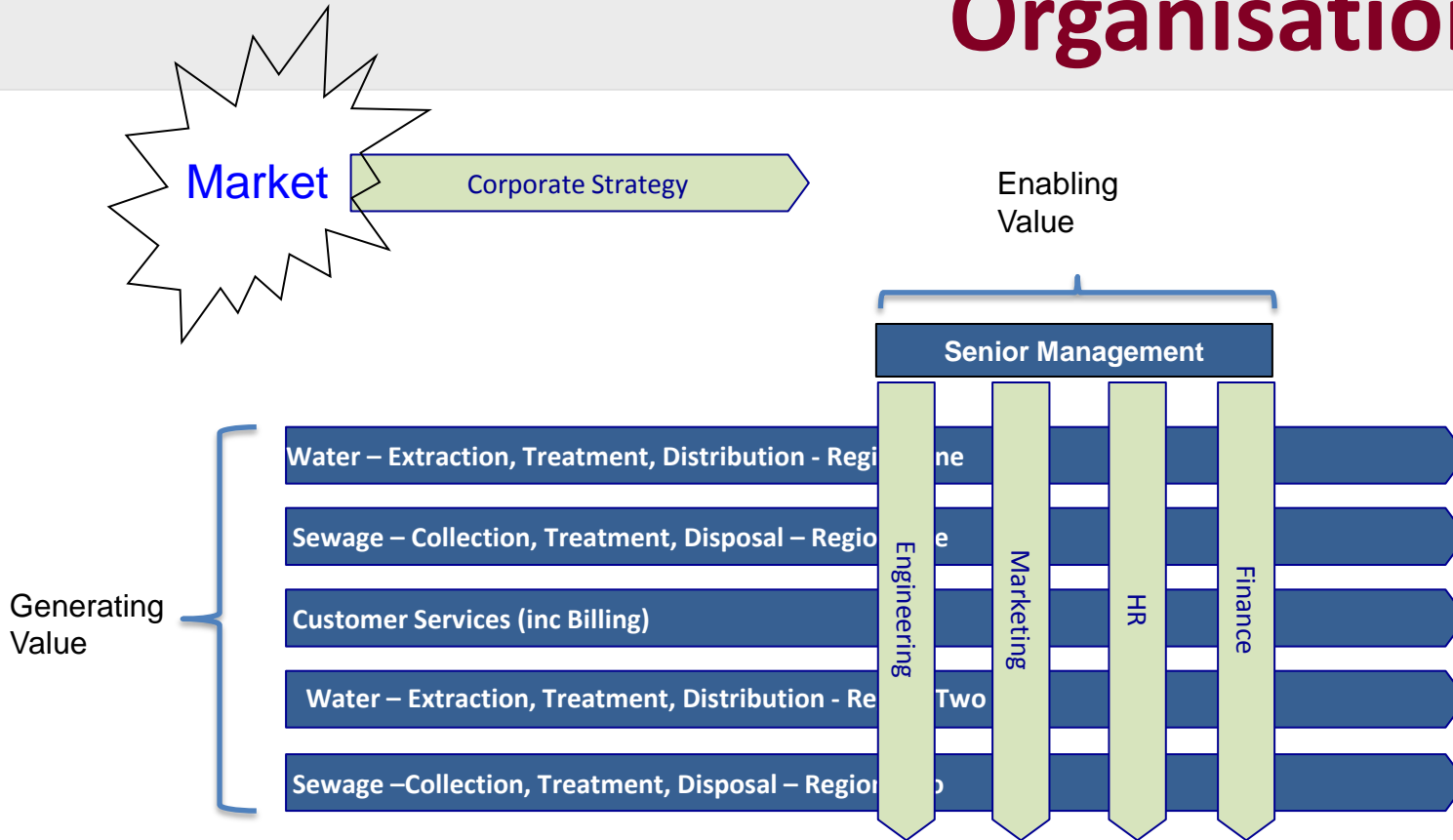
The Information Organisation



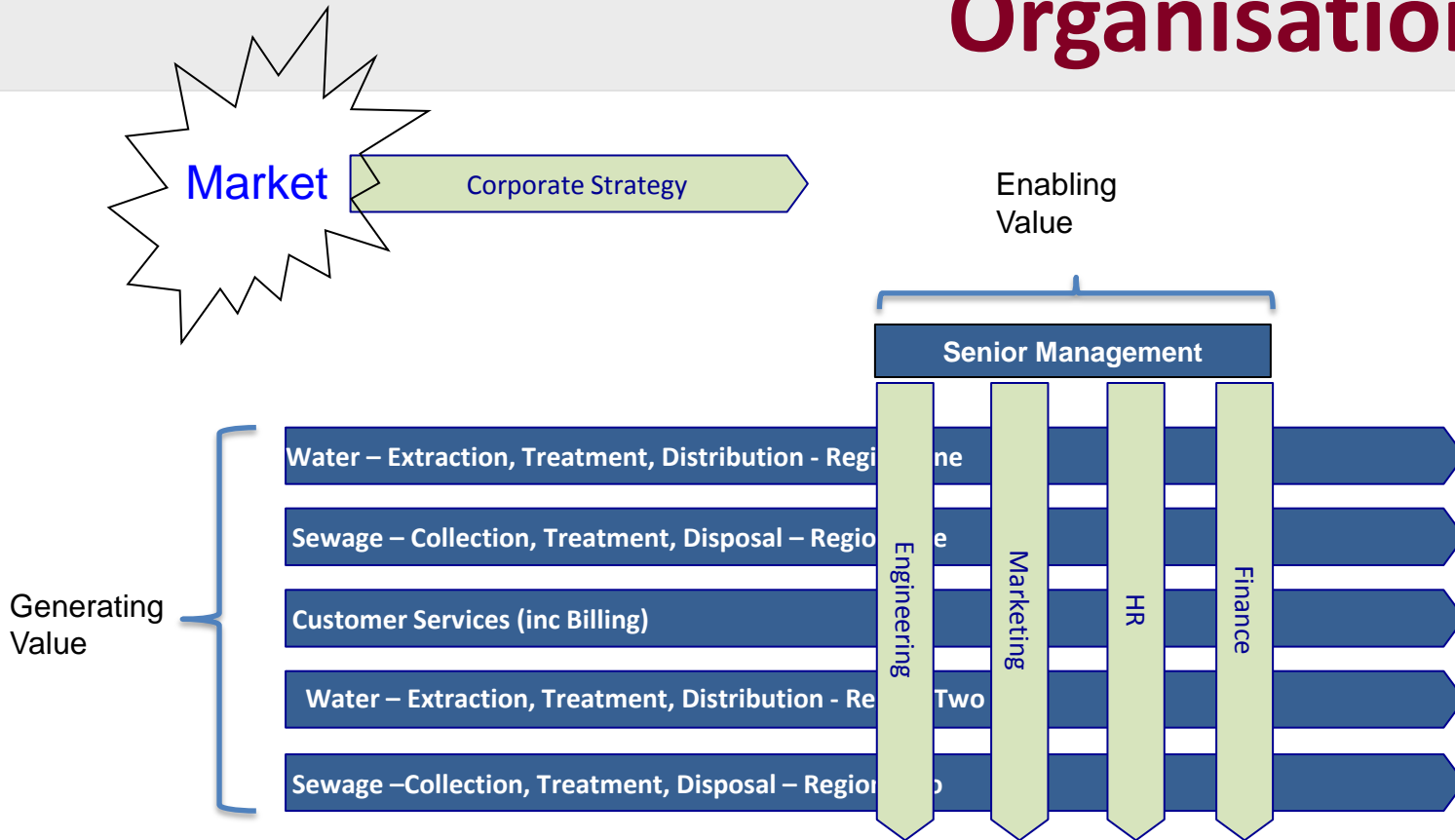
The Information Organisation



The Information Organisation



The Information Organisation

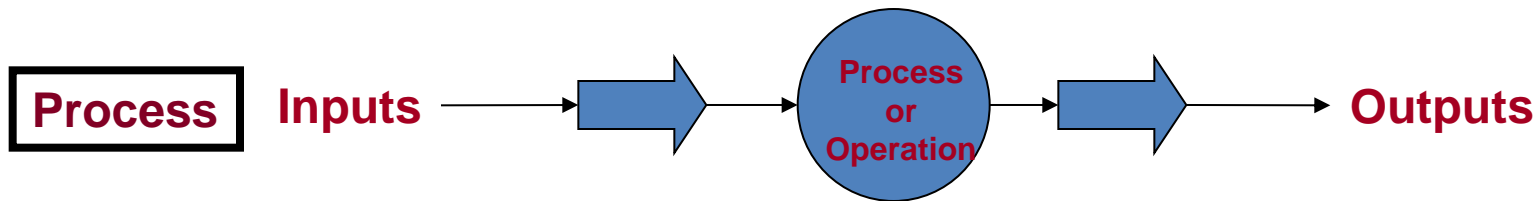


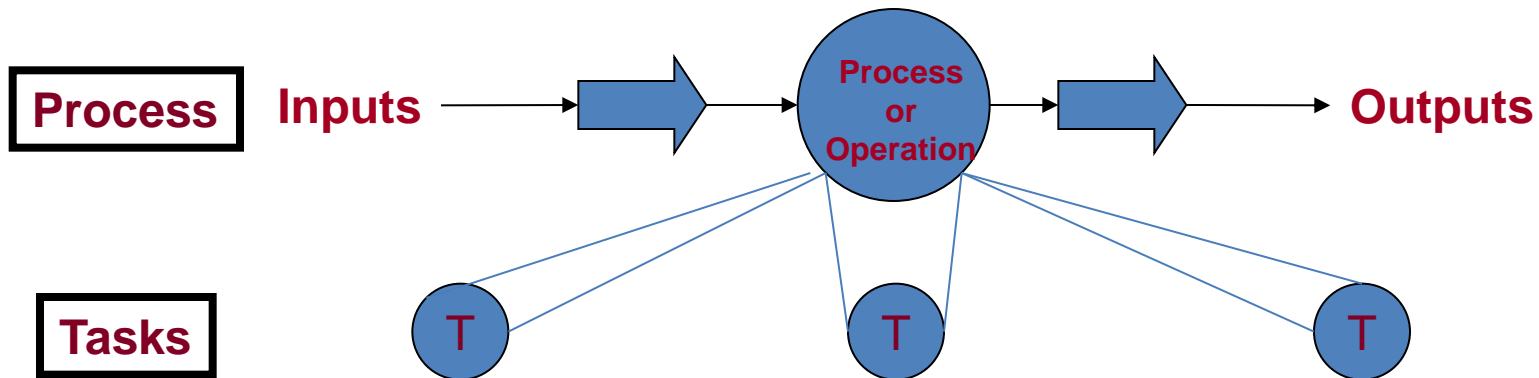
‘Senior Management’ only exists to enable Value Generation to work!

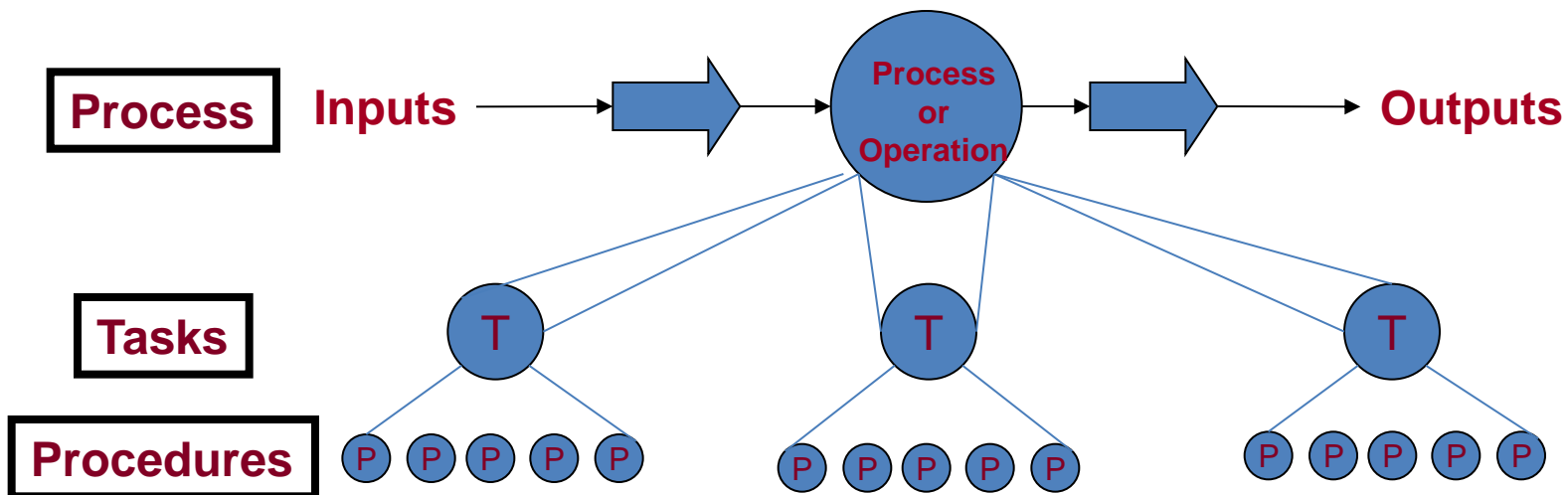
Does it add value?

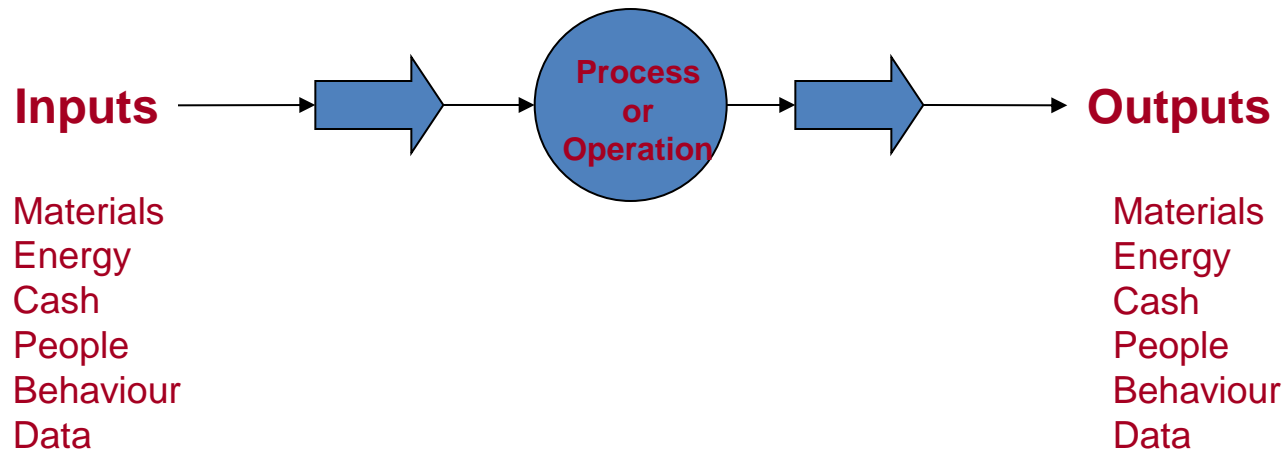
The Information Organisation

- Generating Value

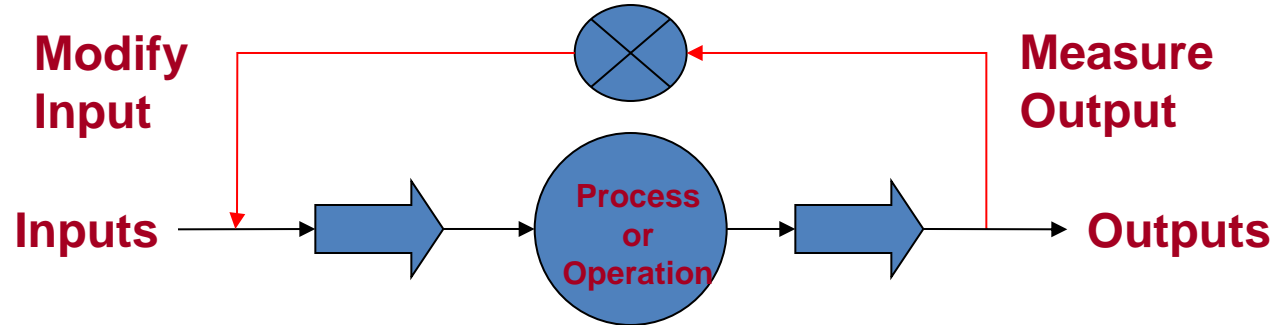


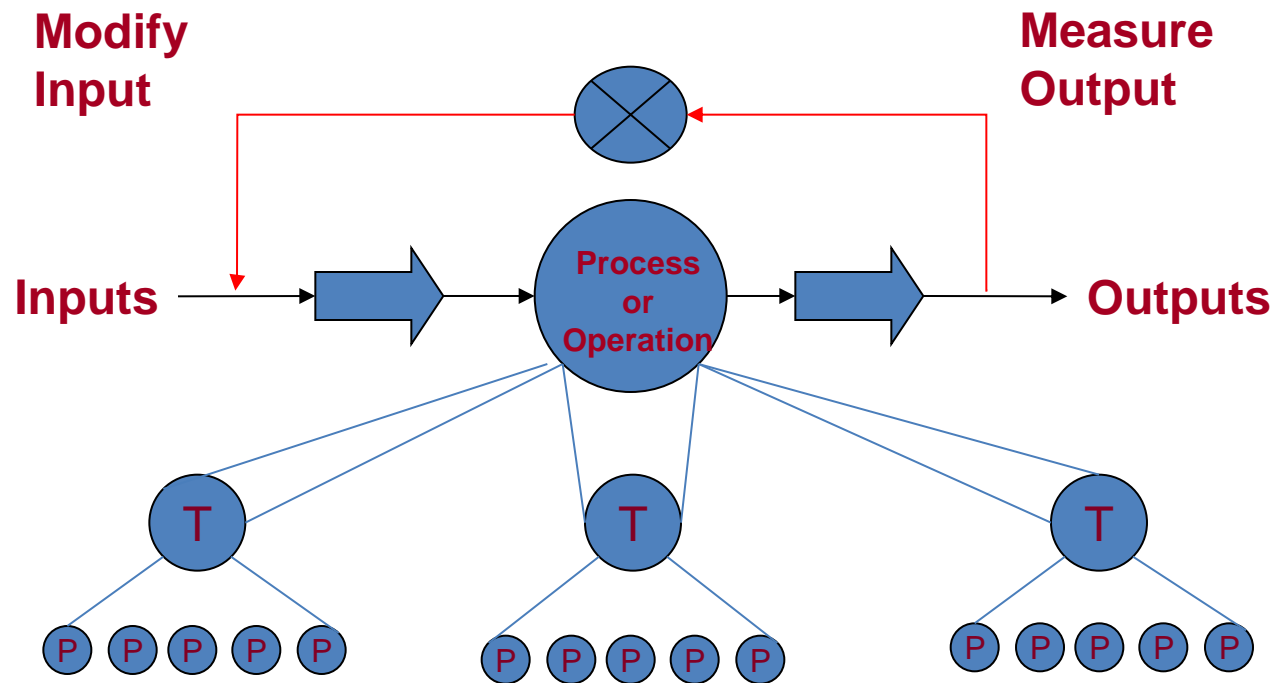






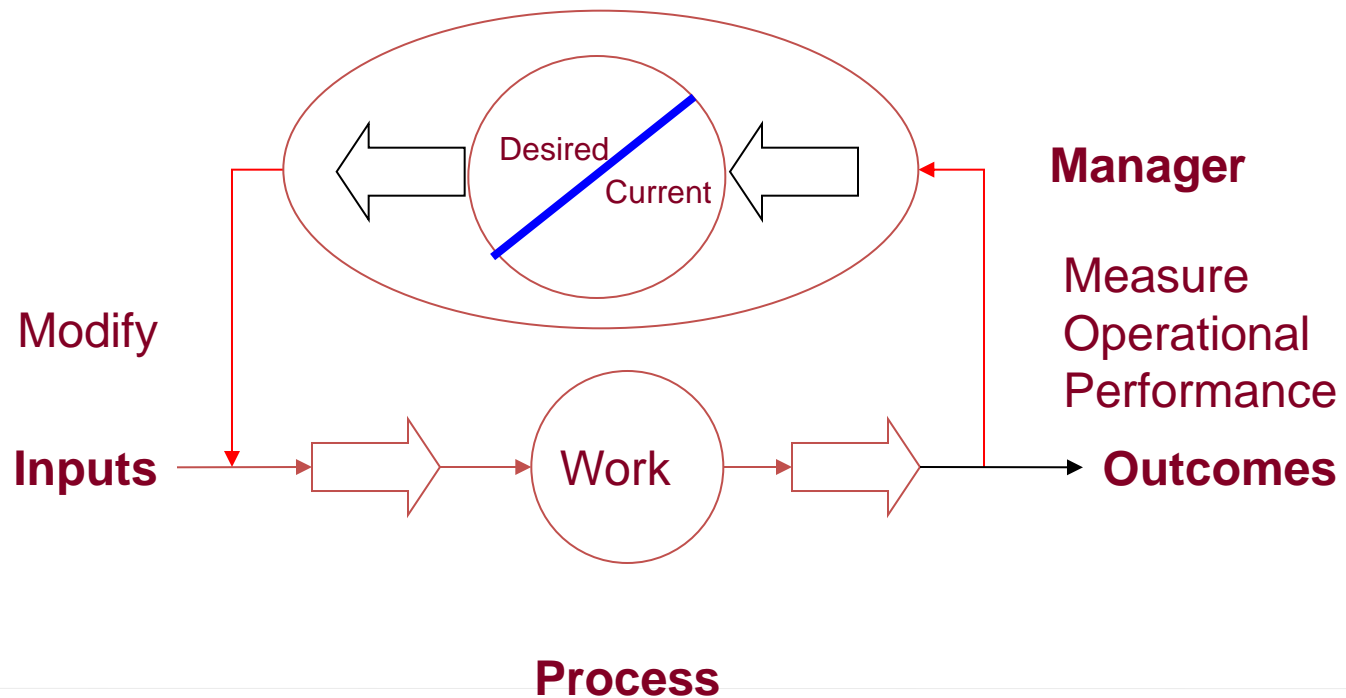
Information for Decisions





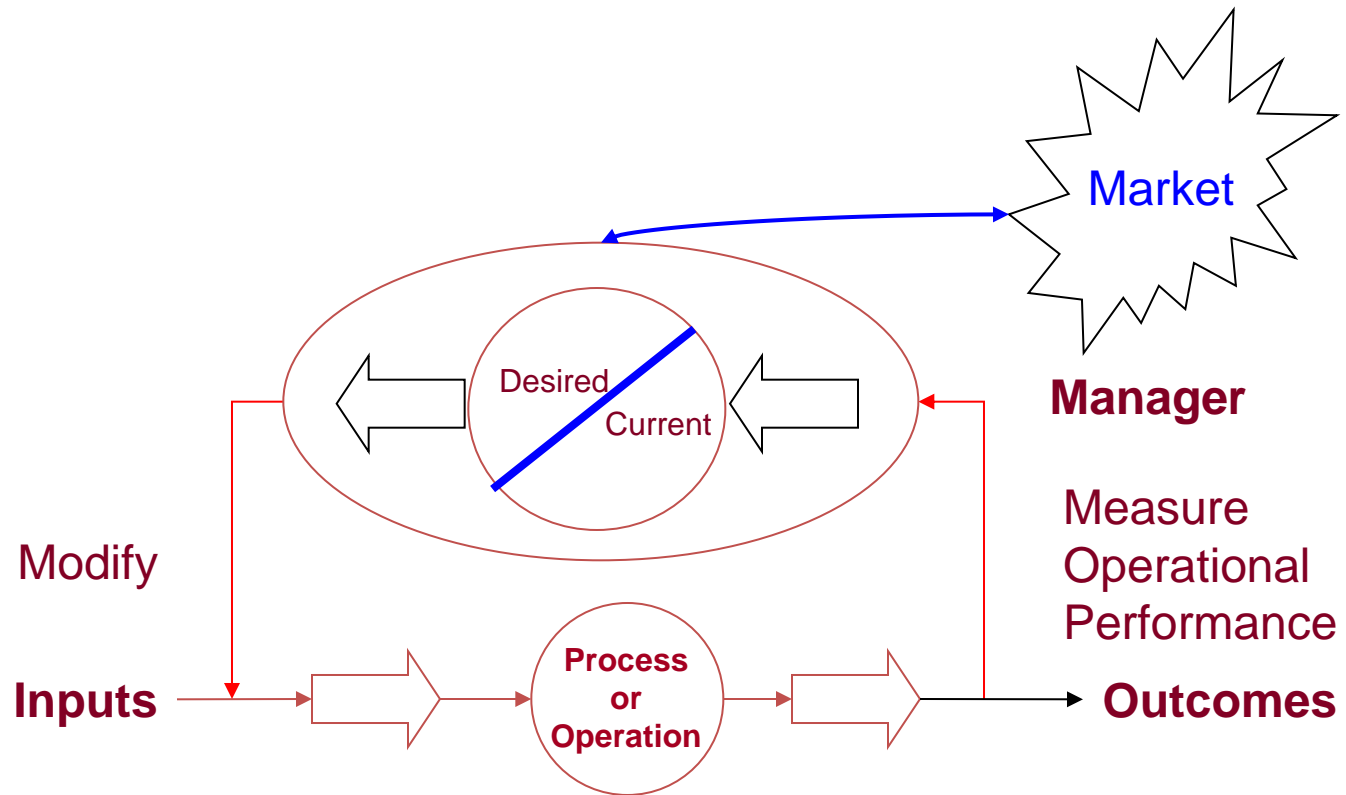
Direct Relevance:

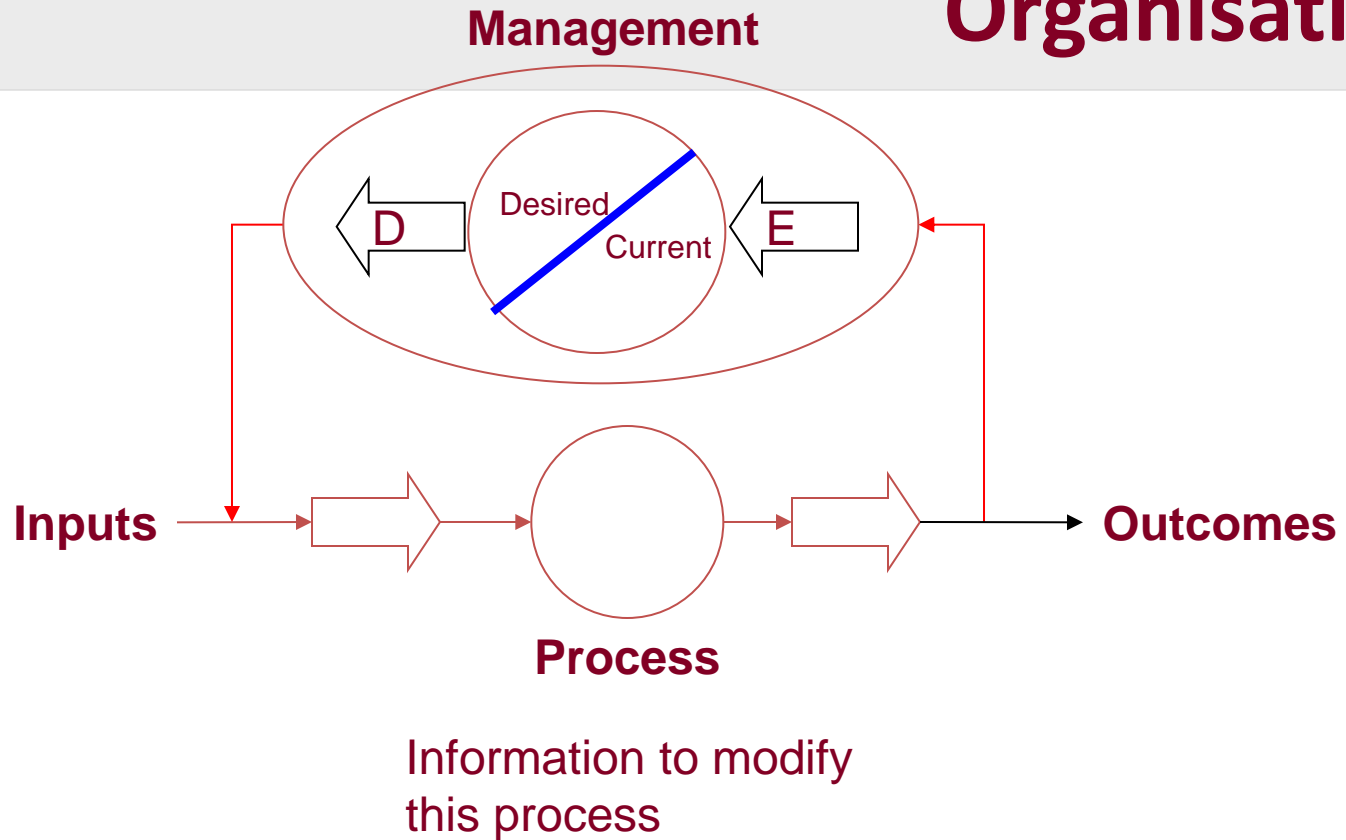
Did the actual (current) output of the process equal the desired output?

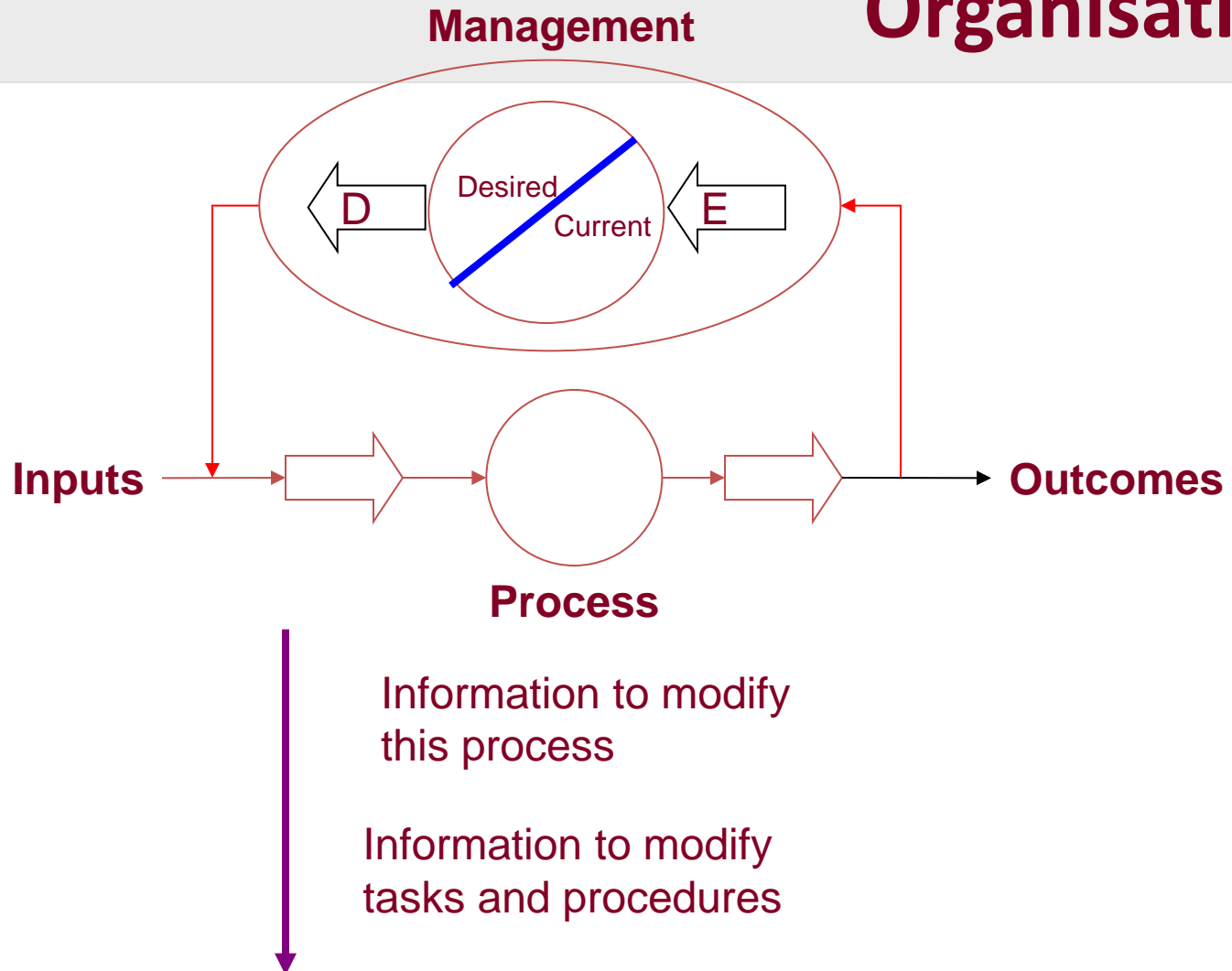


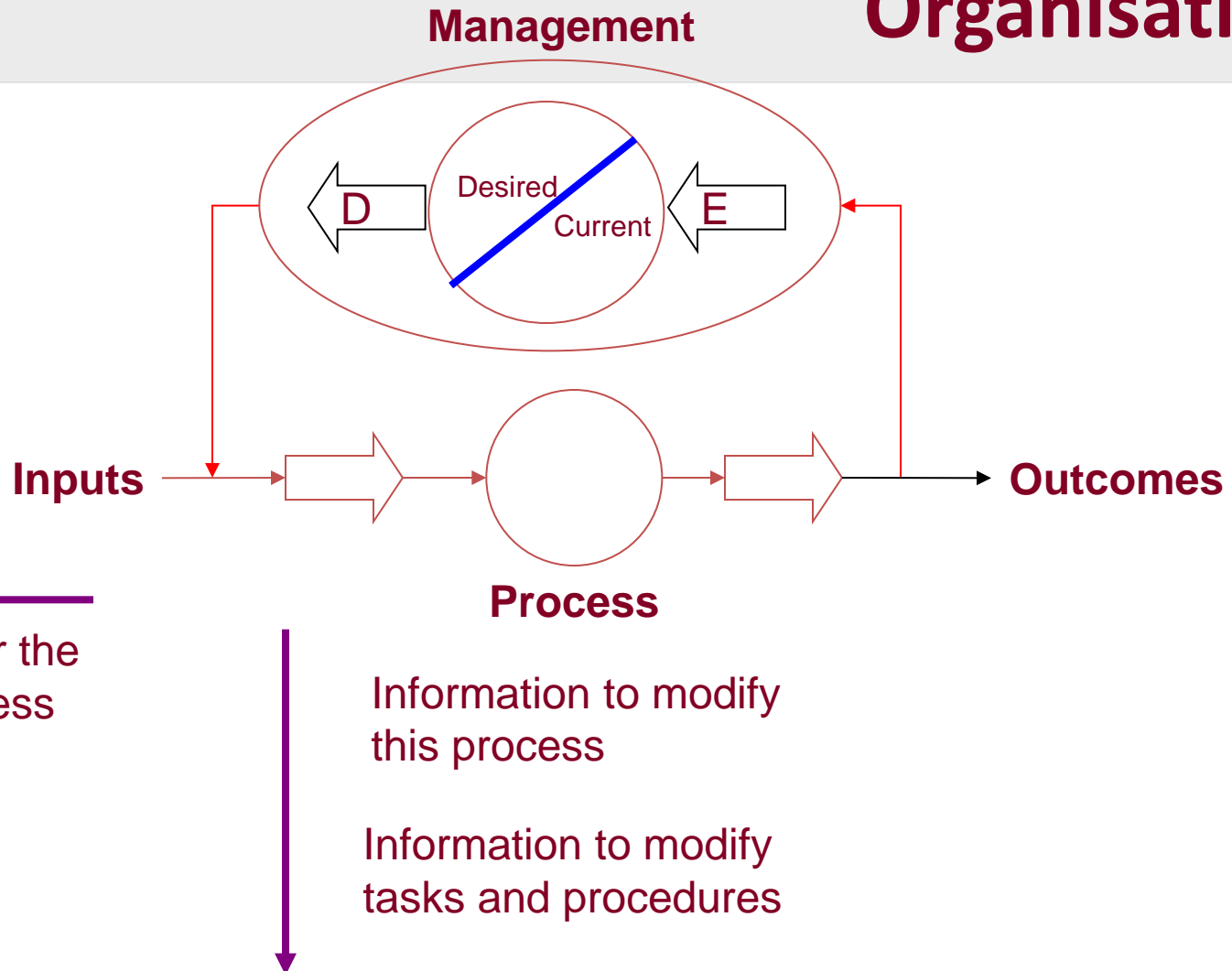
Contextual Relevance 1:

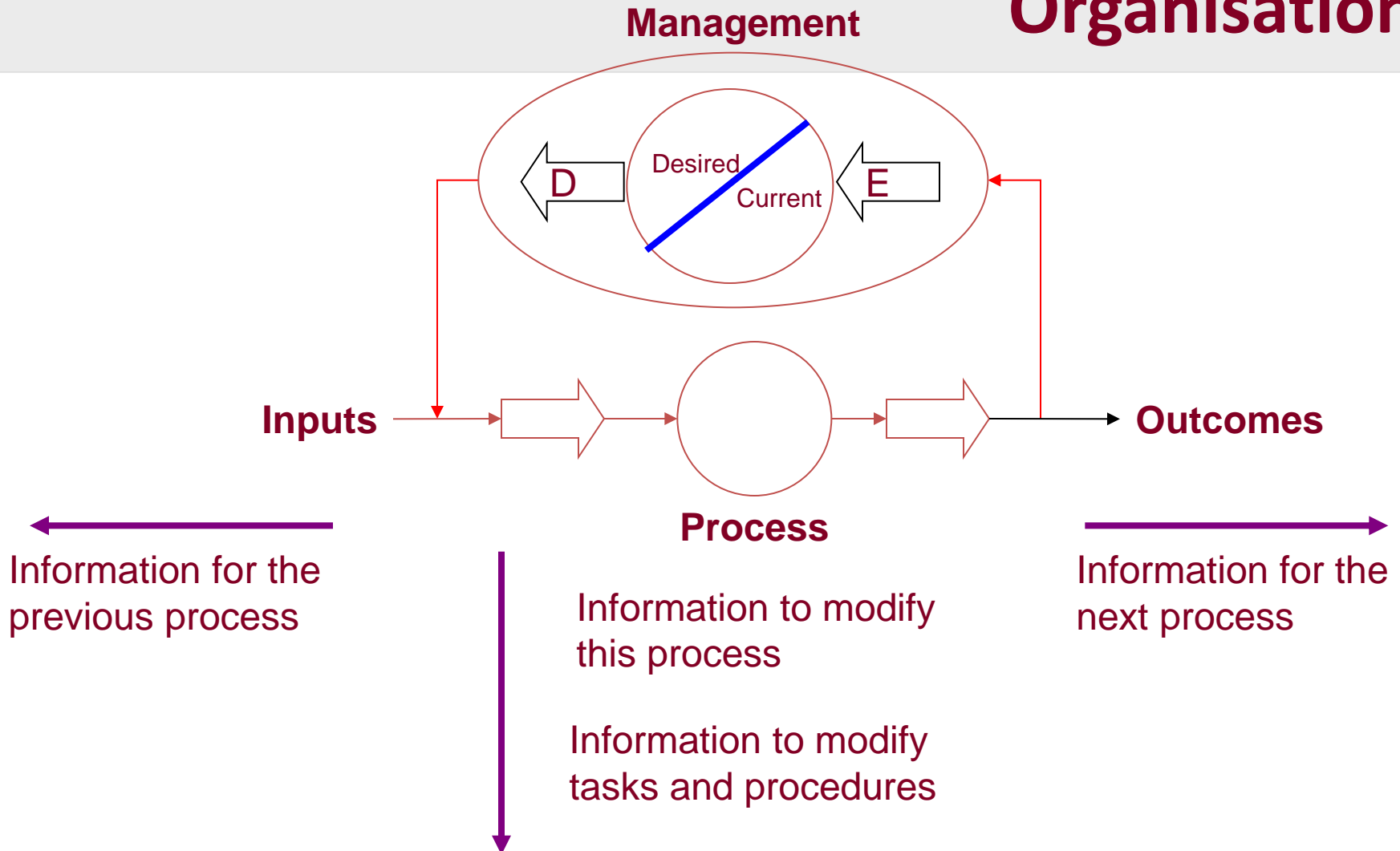
Did the actual (current) output of the process equal the needs of the market?

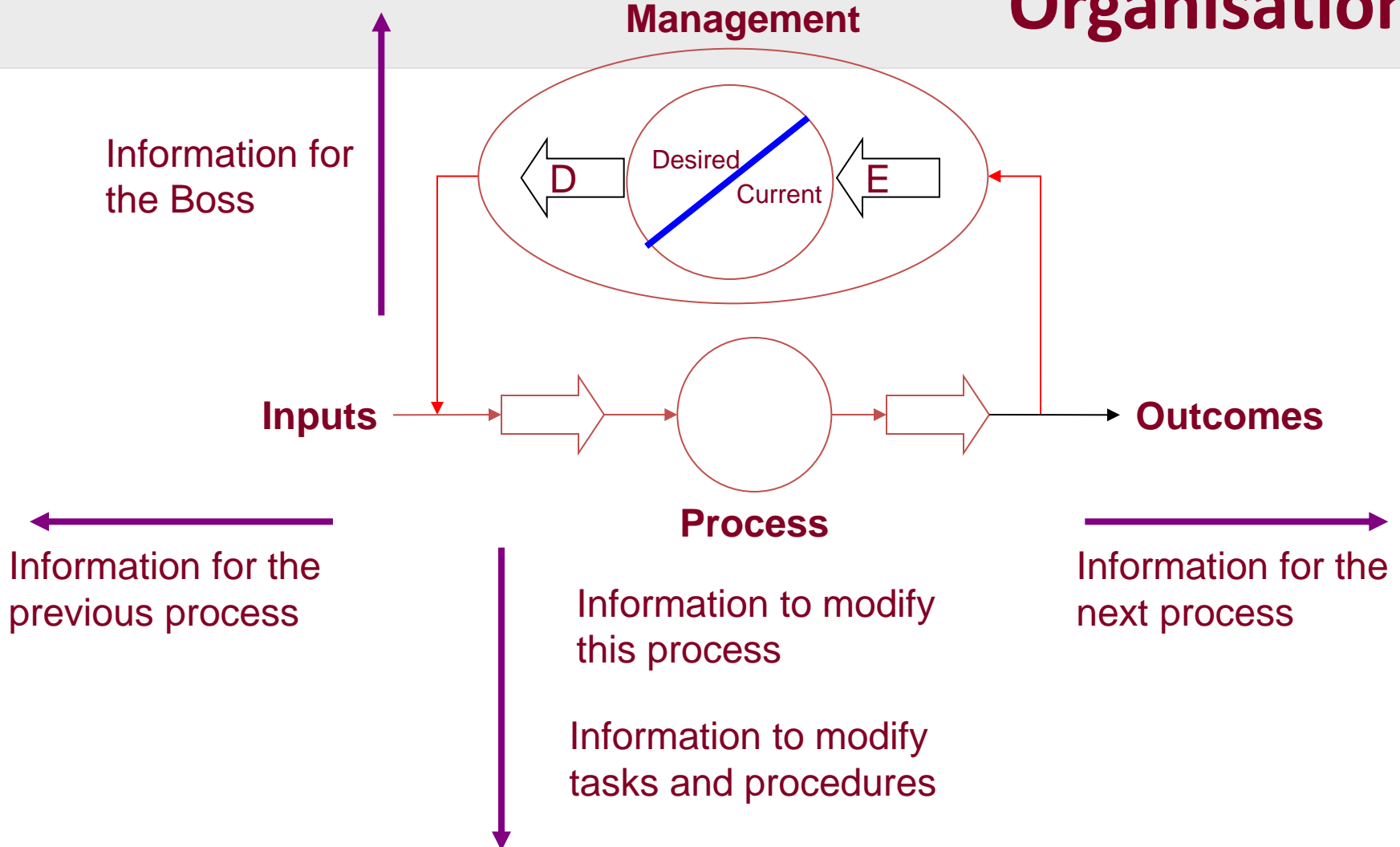




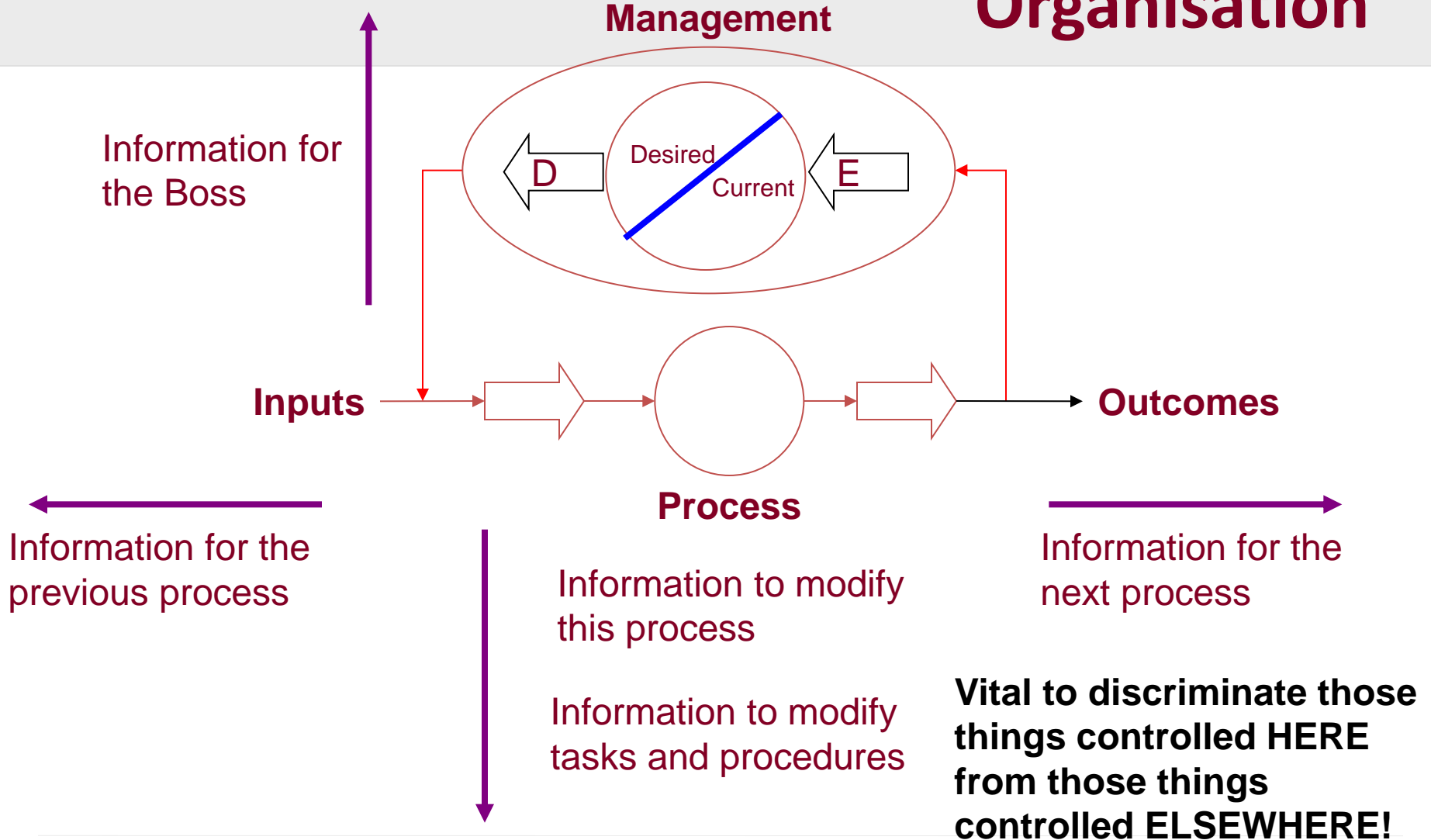




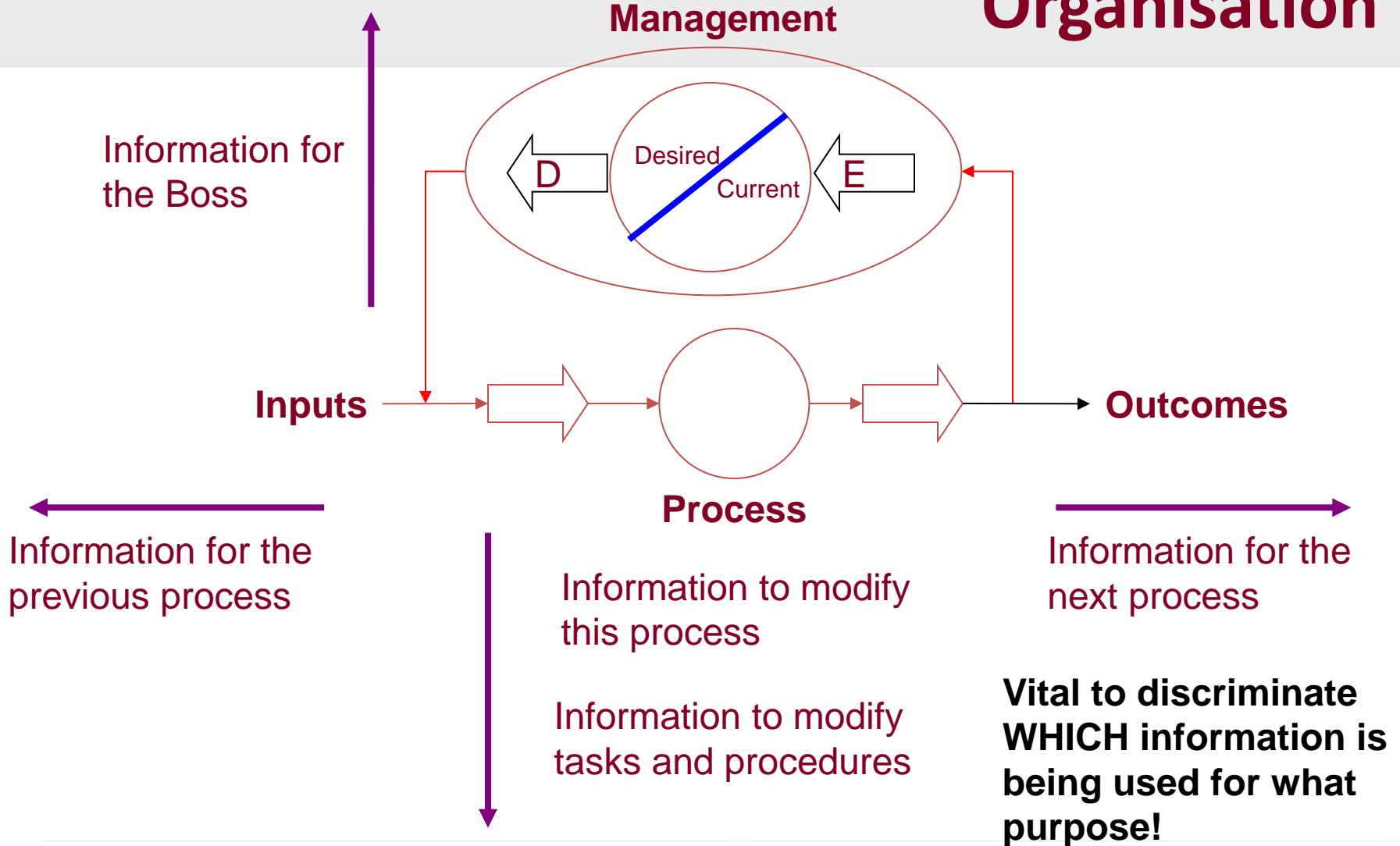




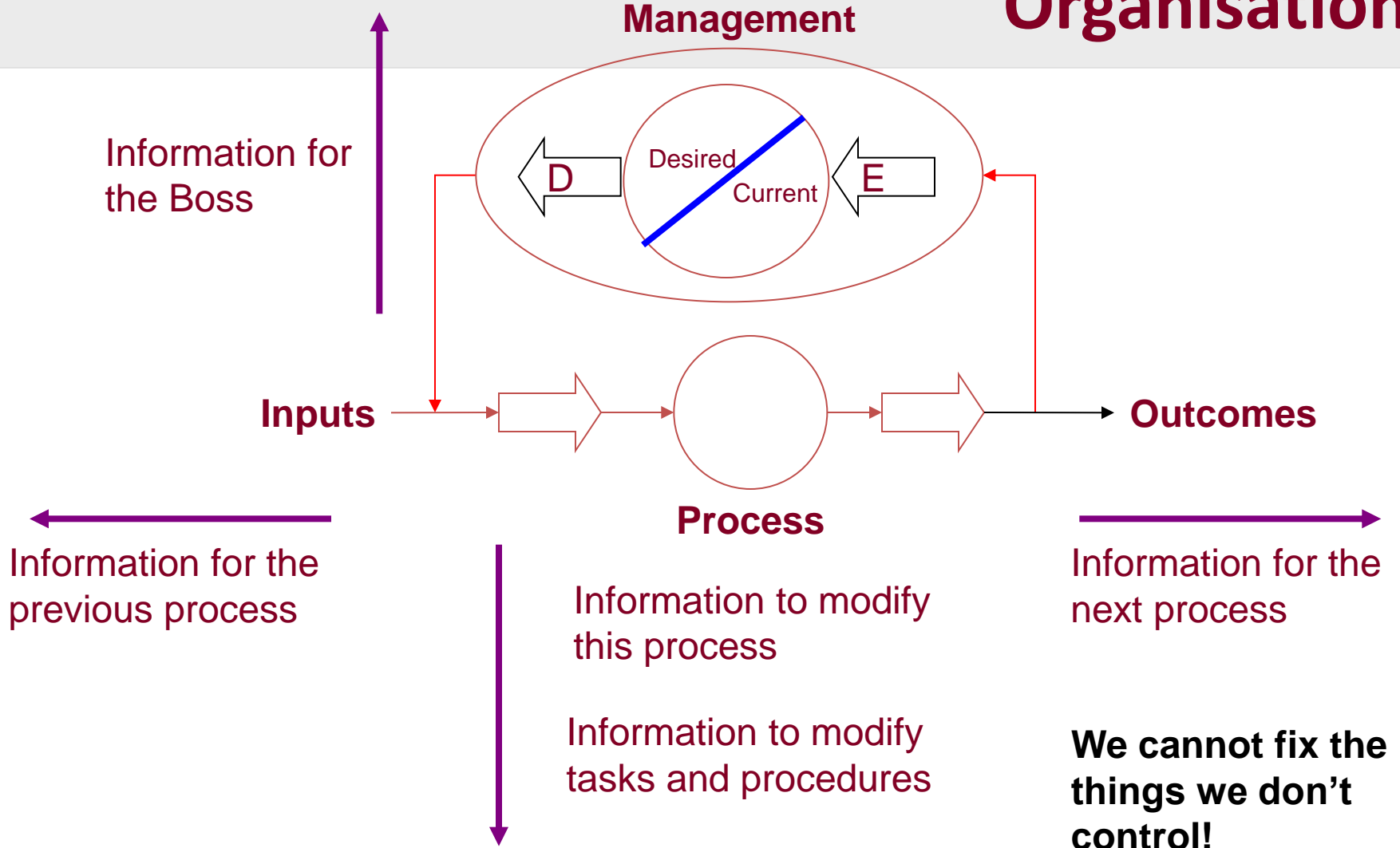
Information Organisation



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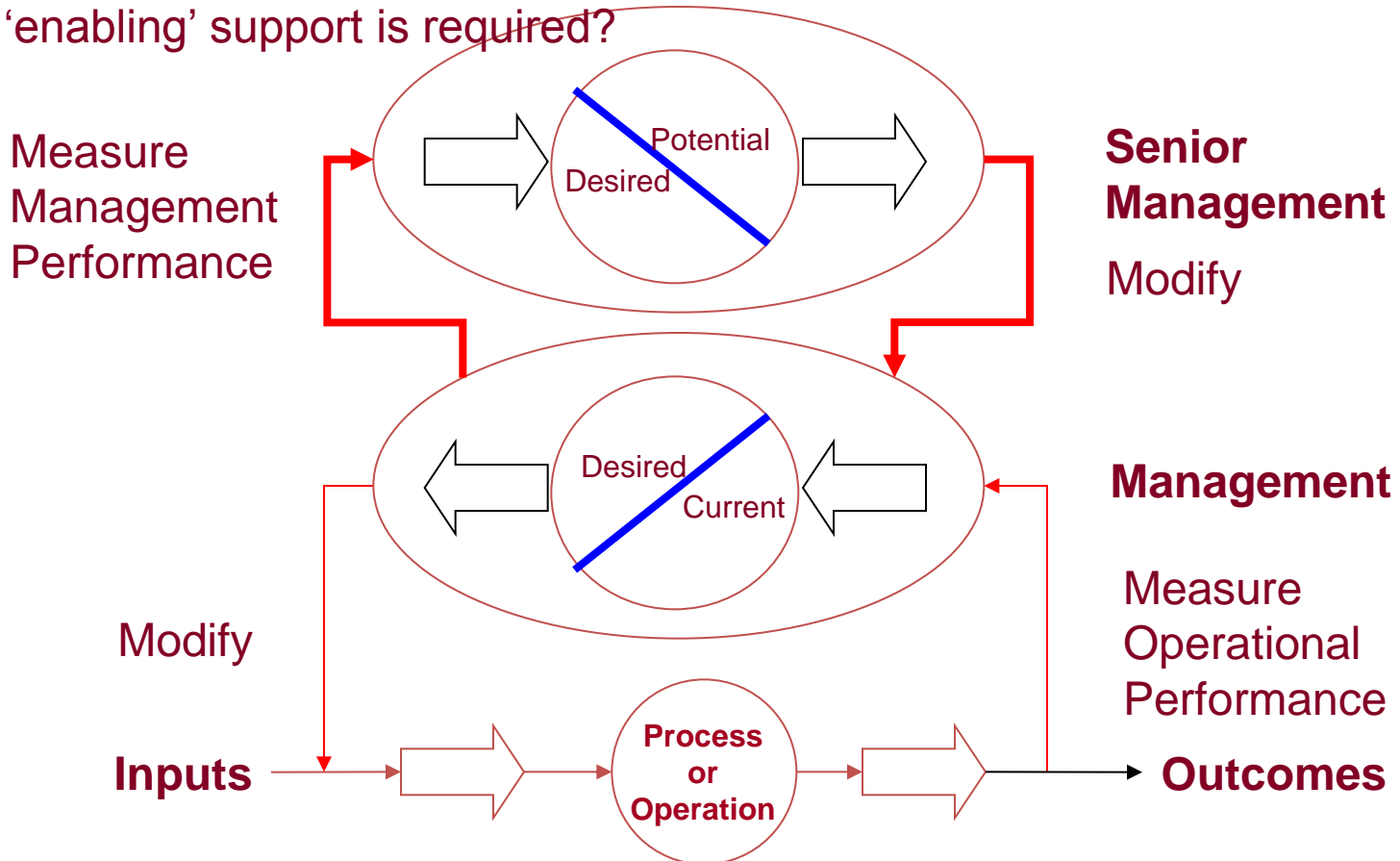
The Information Organisation

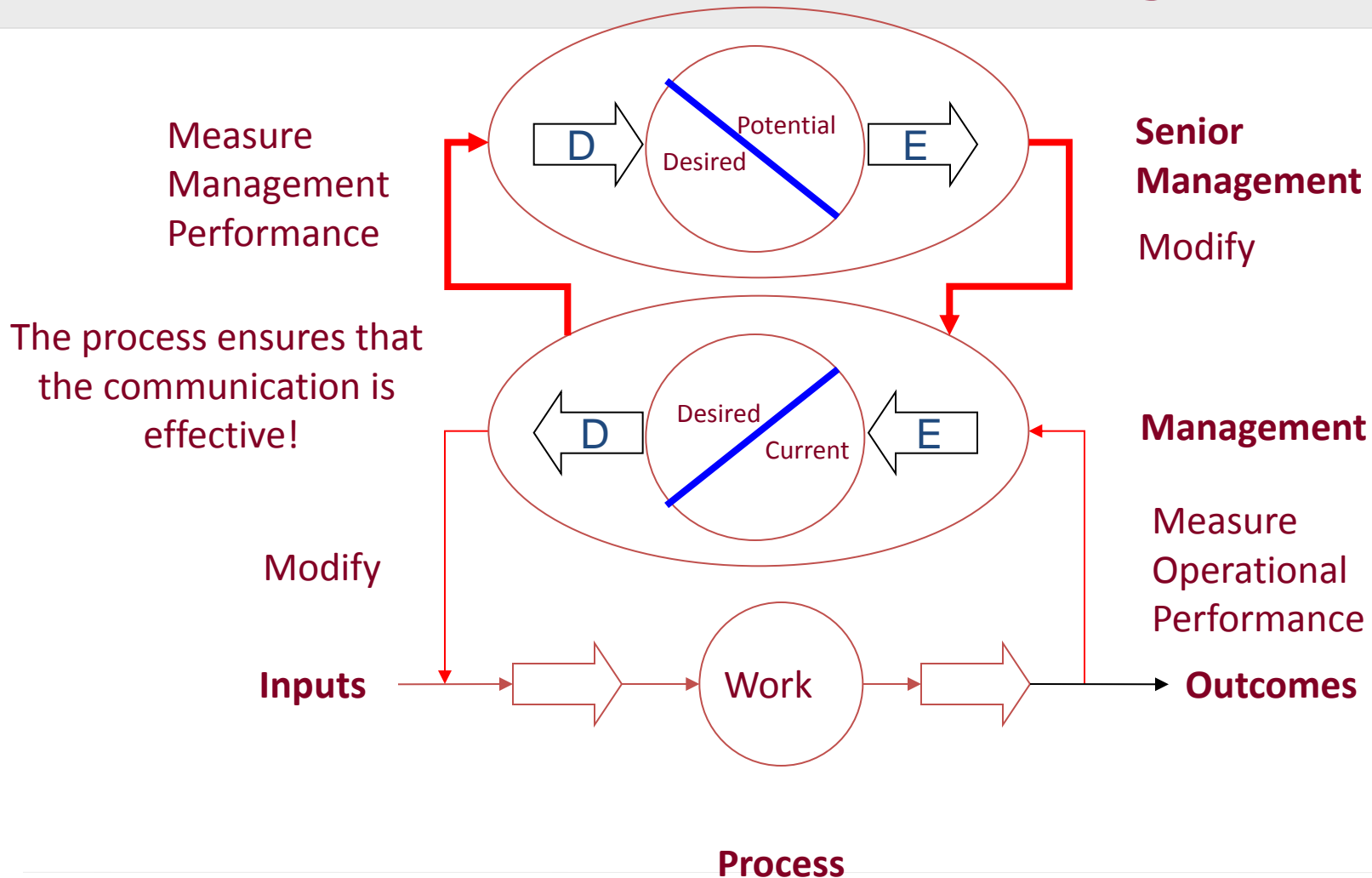
- Enabling Value

Contextual Relevance 2:

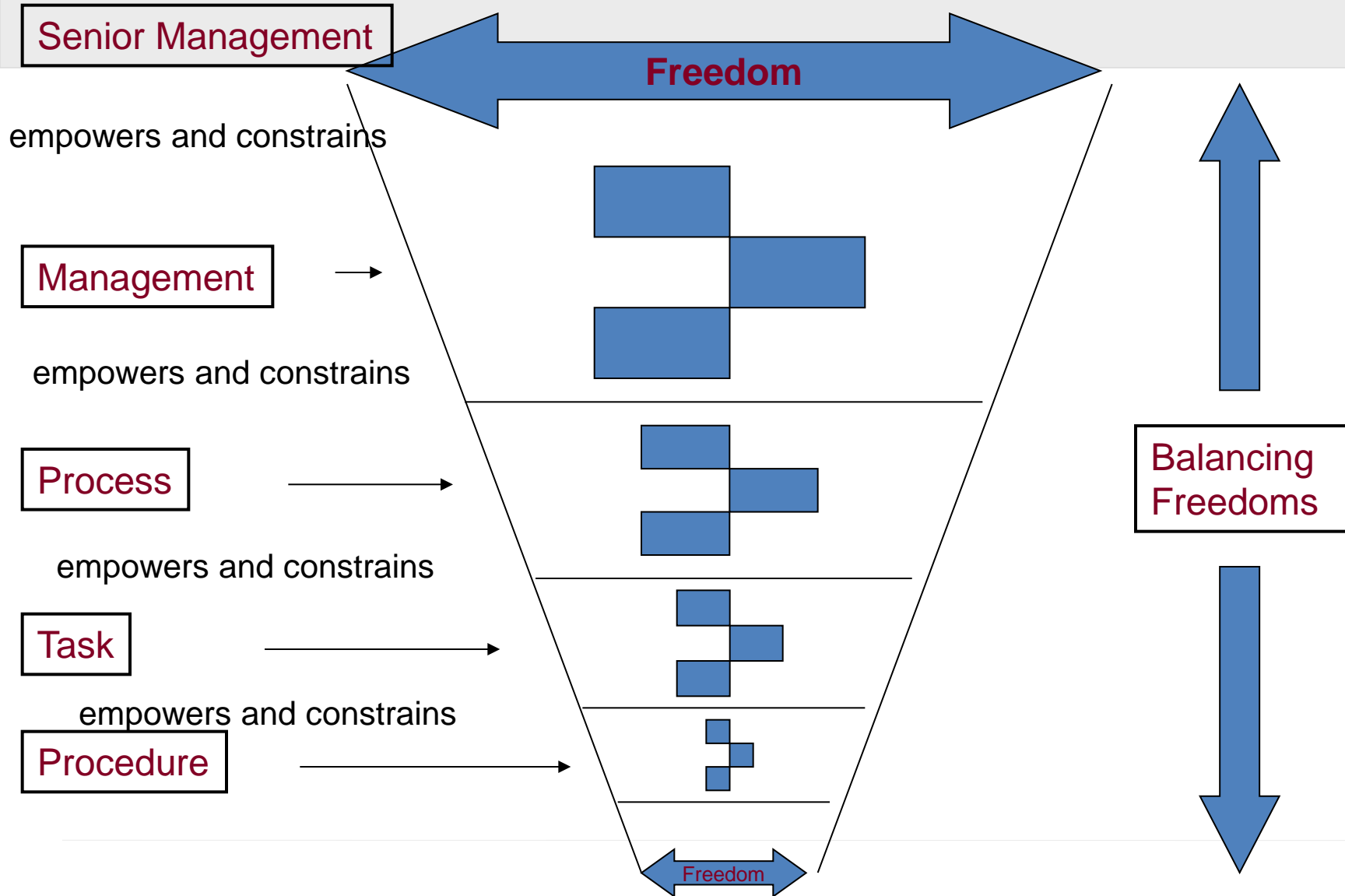
Did the actual (current) output of the process equal expectations?

What 'enabling' support is required?

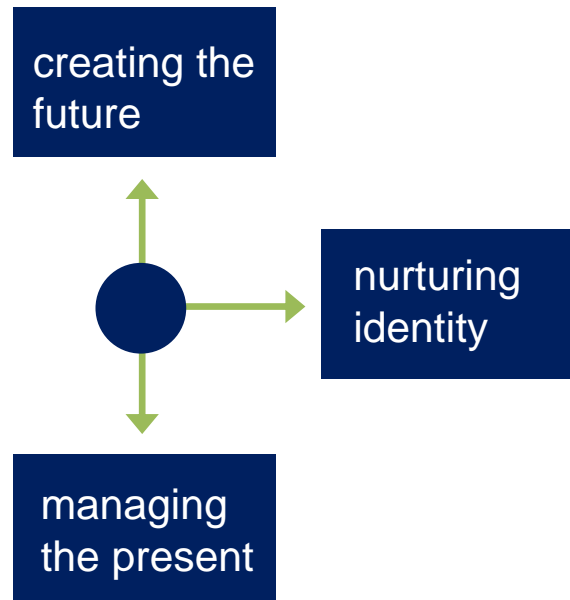




Defining Freedom



Enabling Value: Functions of Leadership



Enabling Value: Functions of Leadership

where we are going

Vision, strategy, business development, renewal and succession

creating the future

leadership resides at the intersection

who we are

nurturing identity

Purpose, values, behaviours, beliefs, policies, standards

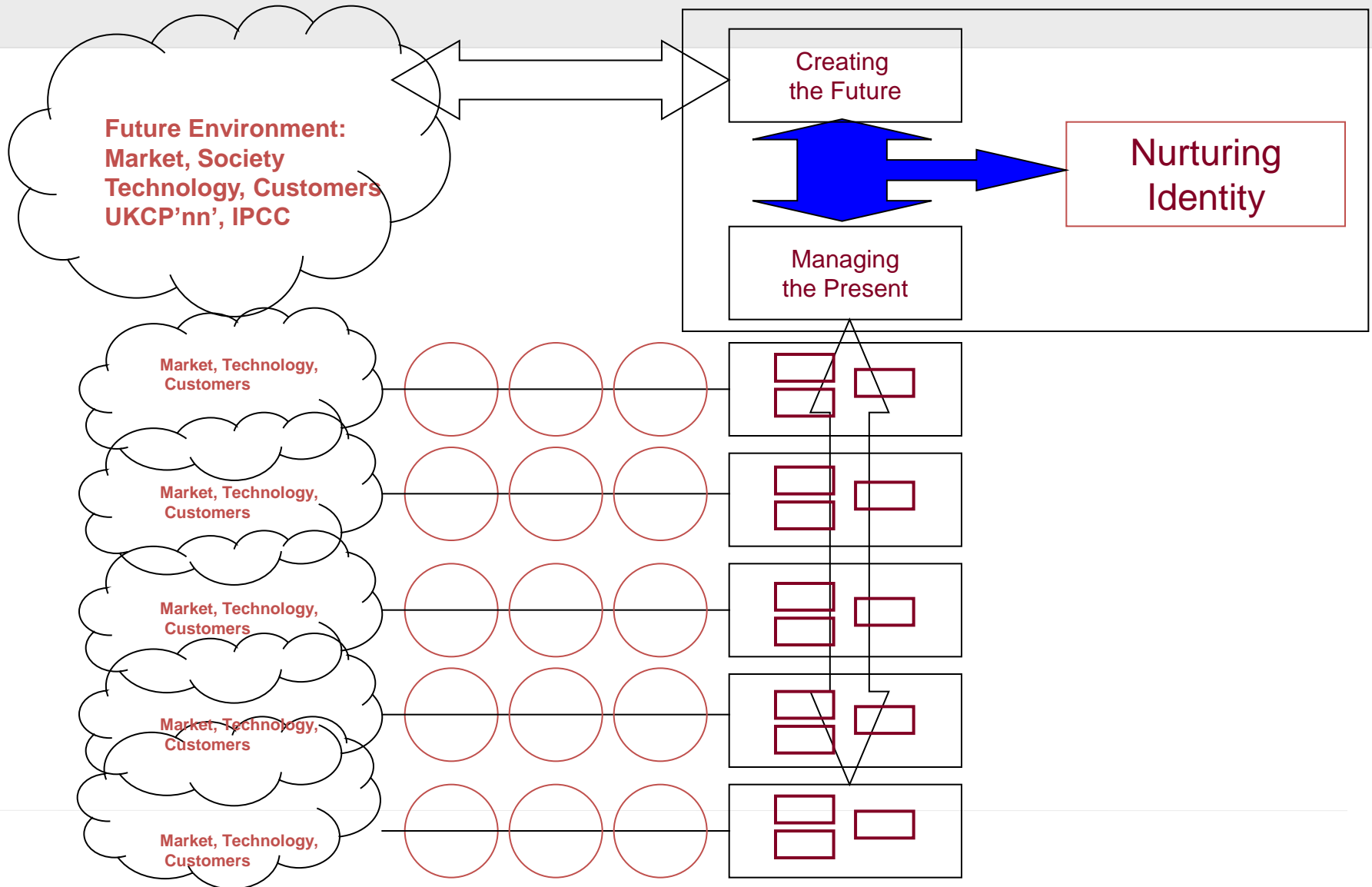
Allocation and management of resources, optimising performance, delivering results

managing the present

what we do



Information Organisation



The Information Factory

The Data Proliferation Engine

- How has this come about?
 - Our ability to process data has increased exponentially
 - Data is multiplied, often hundreds of times
 - Email chains?
 - We put so much time into data processing we have no time left for turning it into information

The Data Proliferation Engine

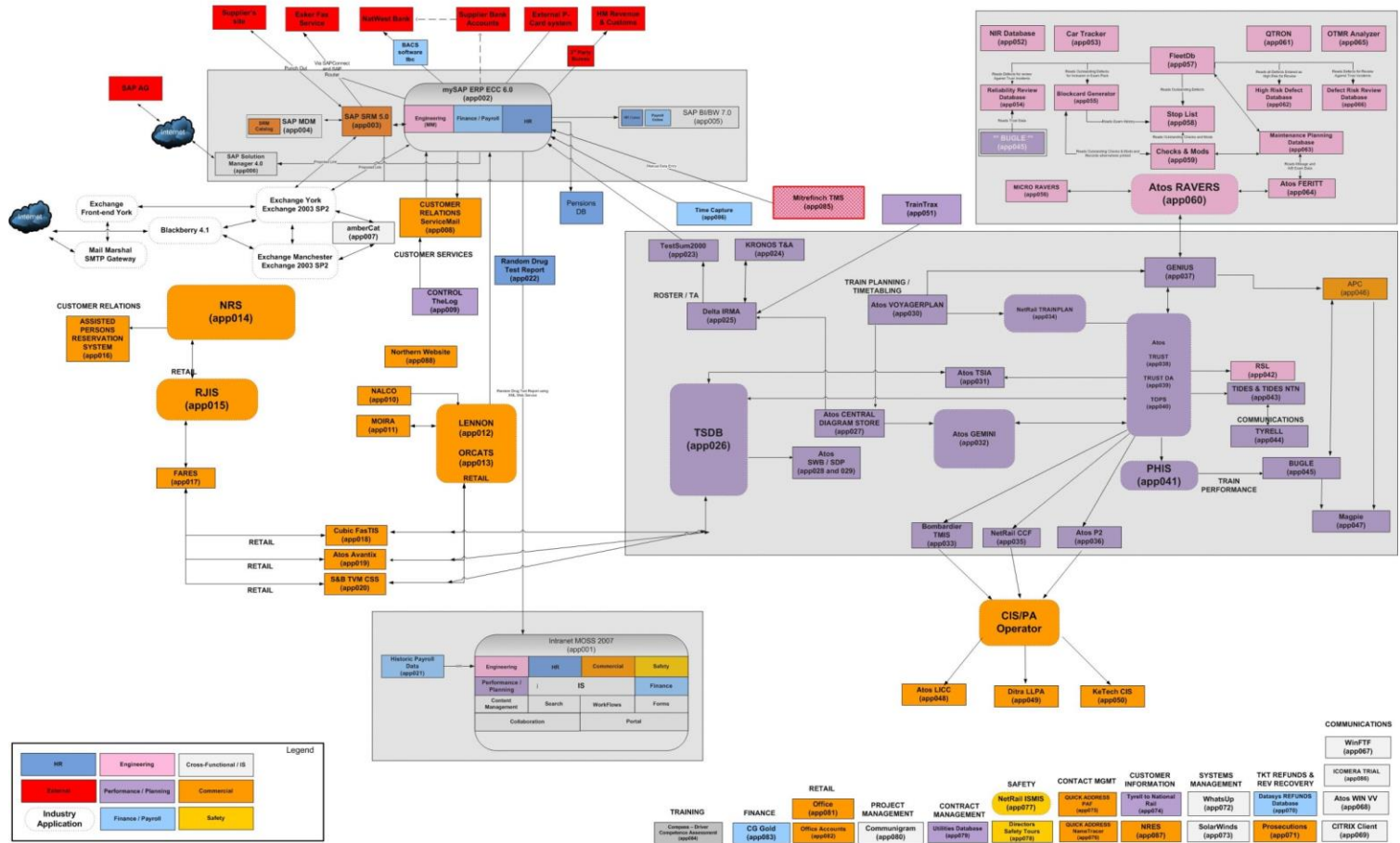
- How has this come about?
 - Our ability to process data has increased exponentially
 - Data is multiplied, often hundreds of times
 - Email chains?
 - We put so much time into data processing we have no time left for turning it into information
- Enablers?
 - Cheap, powerful devices
 - Cheap, fast, data transmission
 - Cheap, easy storage

The Data Proliferation Engine

- How has this come about?
 - Reductions in cost, increases in speed!
 - It is, relatively, easy to explain and justify grey boxes and bellwires
 - And they can be admired, polished, depreciated and pictured in the annual report
 - And they can be fitted into a 'rolling replacement' cycle!

The Data Proliferation Engine

- How has this come about?
 - Reductions in cost, increases in speed!
 - It is, relatively, easy to explain and justify grey boxes and bellwires
 - And they can be admired, polished, depreciated and pictured in the annual report
 - And they can be fitted into a ‘rolling replacement’ cycle!
 - It is, relatively, hard to explain information!
 - it is, largely, invisible
 - It is difficult to ‘count’ (so we don’t bother)
 - very hard to admire
 - it’s ‘value’ is poorly understood and, after the first report, the audience always wants more
 - ‘can you make it do.....?’
 - The ‘customer’ is always disappointed!



COMMUNICATIONS

WinPTF (app007)
ICOMEA TRAIL (app010)
Atos Wm VV (app068)
Atos Wm VV (app068)
CITRIX Client (app069)

TRAINING	FINANCE	RETAIL	PROJECT MANAGEMENT	CONTRACT MANAGEMENT	SAFETY	CONTACT MGMT	CUSTOMER INFORMATION	SYSTEMS MANAGEMENT	TKT REFUNDS & REV RECOVERY
Complex - Other (app001)	CG Guid (app083)	Office Accounts (app012)	Comms/Program (app086)	System Database (app079)	North TMS (app077)	Quick Access PAP (app077)	Type to Release (app077)	Whistle (app072)	Display Refunds Database (app071)
					Directors Safety Tours (app077)	SWR ADDRESS (app077)	NRS (app087)	SolarWinds (app073)	Proseccions (app071)

150k excel spreadsheets



5000 access databases

Board Meeting

Exec Group

103 business systems

Business Review Group

507 locations

Direct 1 to 1s

352 managers

Department Meetings

5 regulators

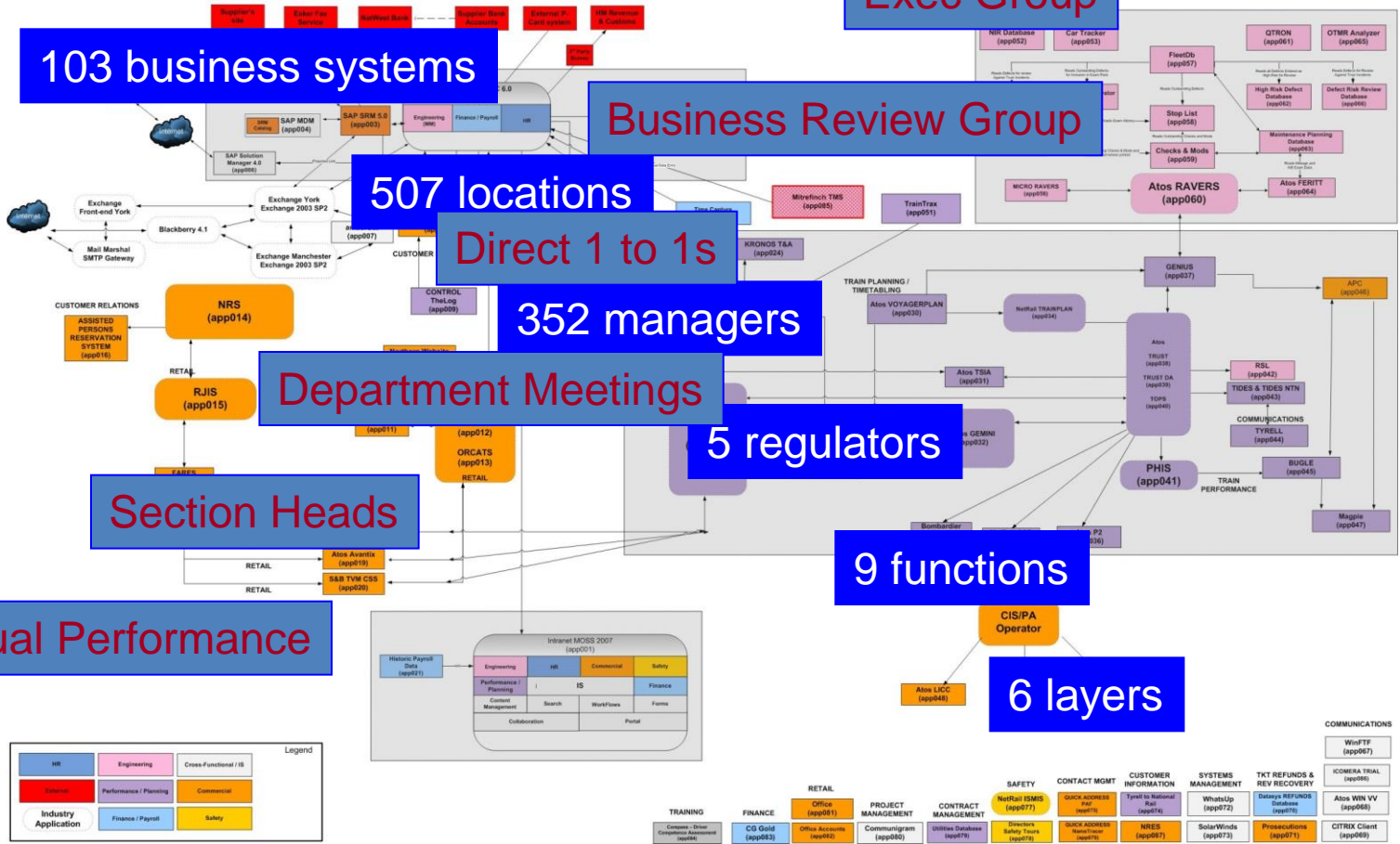
Section Heads

9 functions

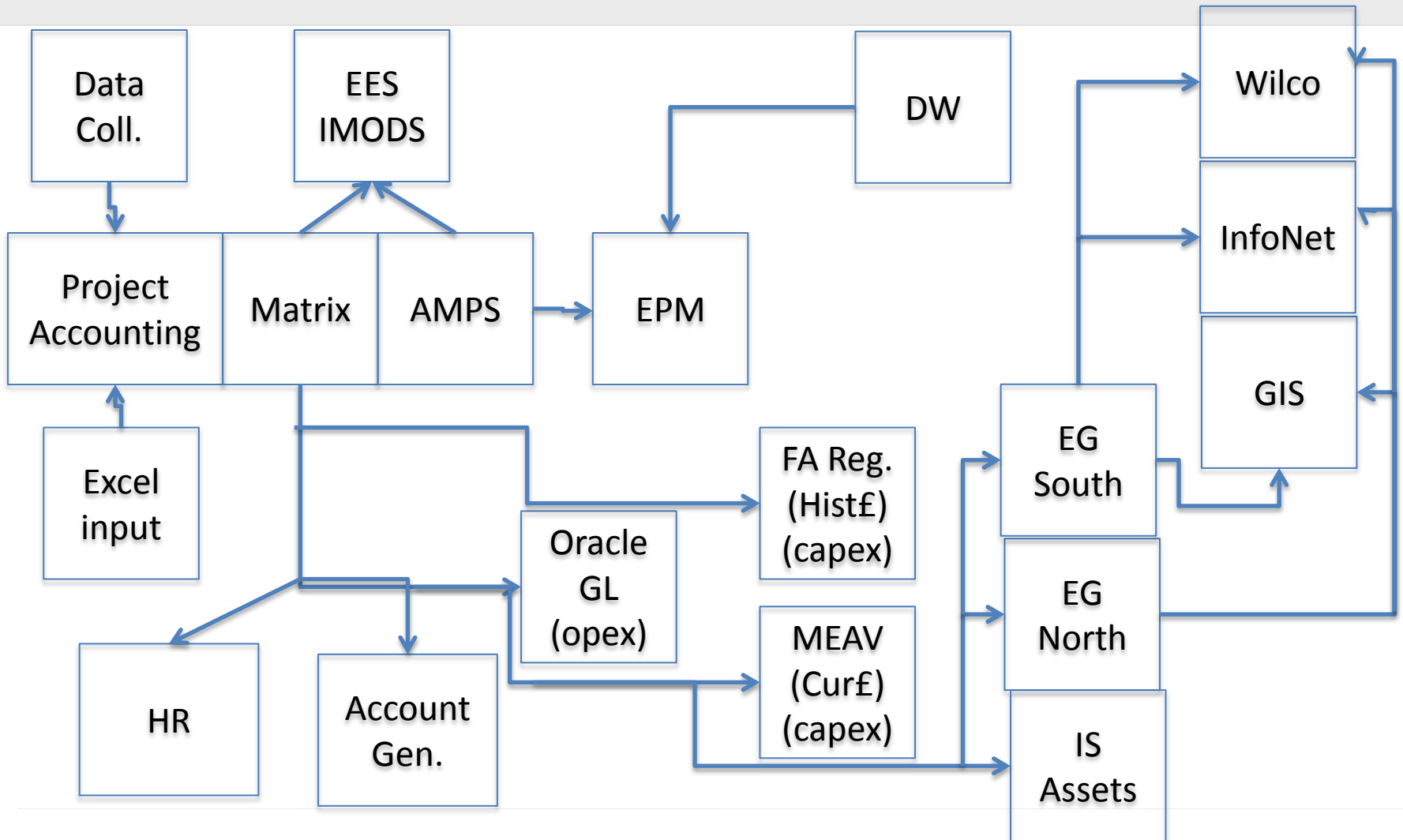
Individual Performance

6 layers

Project Reviews



The Data Proliferation Engine



- Moores Law
 - processing speed doubles every 2 years
 - a driver of the growth in cheap, fast machines
 - we get a lot more bang for our buck!

Beckford's Law!

- Beckford's Law
 - Data proliferates as a function of:

Beckford's Law!

- Beckford's Law
 - Data proliferates as a function of:
 - the number of users

- Beckford's Law
 - Data proliferates as a function of:
 - the number of users
 - multiplied by the number of devices

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 - multiplied by the number of applications

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 - Data proliferates as a function of:
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 - multiplied by the number of devices
 - multiplied by the number of applications
 - multiplied by ease of transmission (the propagation rate)

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 - Information proliferation is the inverse function!

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 - the number of users
 - multiplied by the number of devices
 - multiplied by the number of applications
 - multiplied by ease of transmission (the propagation rate)
 - Information proliferation is the inverse function!
- Data proliferation is therefore exponential in volume and frequency
- Information declines in proportion
- Upshot – the more data, the less information!

- And, 'as evry fule kno' this:
 - Answers to the law of second law of thermodynamics
 - Reflects the notions of entropy (chaos) and negentropy (organisation):
 - Chaotic systems are higher energy/less organisation
 - Stable systems are lower energy/higher organisation
 - Data is free (unconstrained) energy – generating chaos
 - Information is constrained energy – generating order

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 - Data is free (unconstrained) energy– generating chaos
 - Information is constrained energy – generating order
 - Order is the basis of management
 - The key to consistency, coherence, performance

Information Projects

Information Projects

Understand the information
needed to manage the business

Business Effectiveness

Information Projects

Understand the information
needed to manage the business

Business Effectiveness

Understand the value to the business
of having that information

Business Financial Performance

Information Projects

Understand the information
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Business Effectiveness

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Business Financial Performance

Develop an Information Strategy

```
graph TD; A[Understand the information needed to manage the business  
Business Effectiveness] --> C[Develop an Information Strategy]; B[Understand the value to the business of having that information  
Business Financial Performance] --> C;
```


Information Projects

Understand the information
needed to manage the business

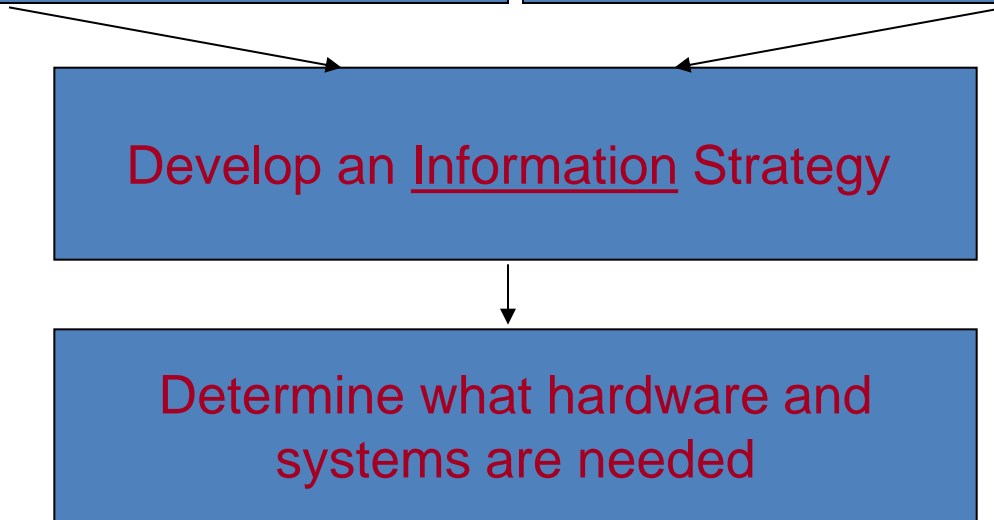
Business Effectiveness

Understand the value to the business
of having that information

Business Financial Performance

Develop an Information Strategy

Determine what hardware and
systems are needed



Information Projects

Understand the information
needed to manage the business

Business Effectiveness

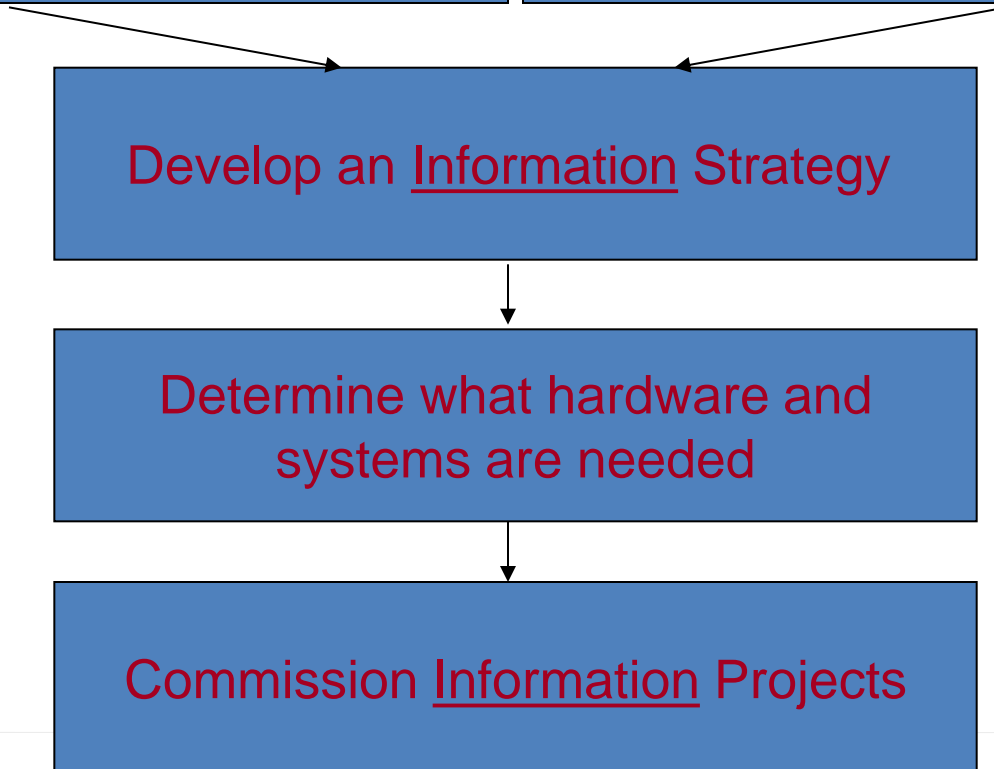
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Business Financial Performance

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Commission Information Projects



Information Projects

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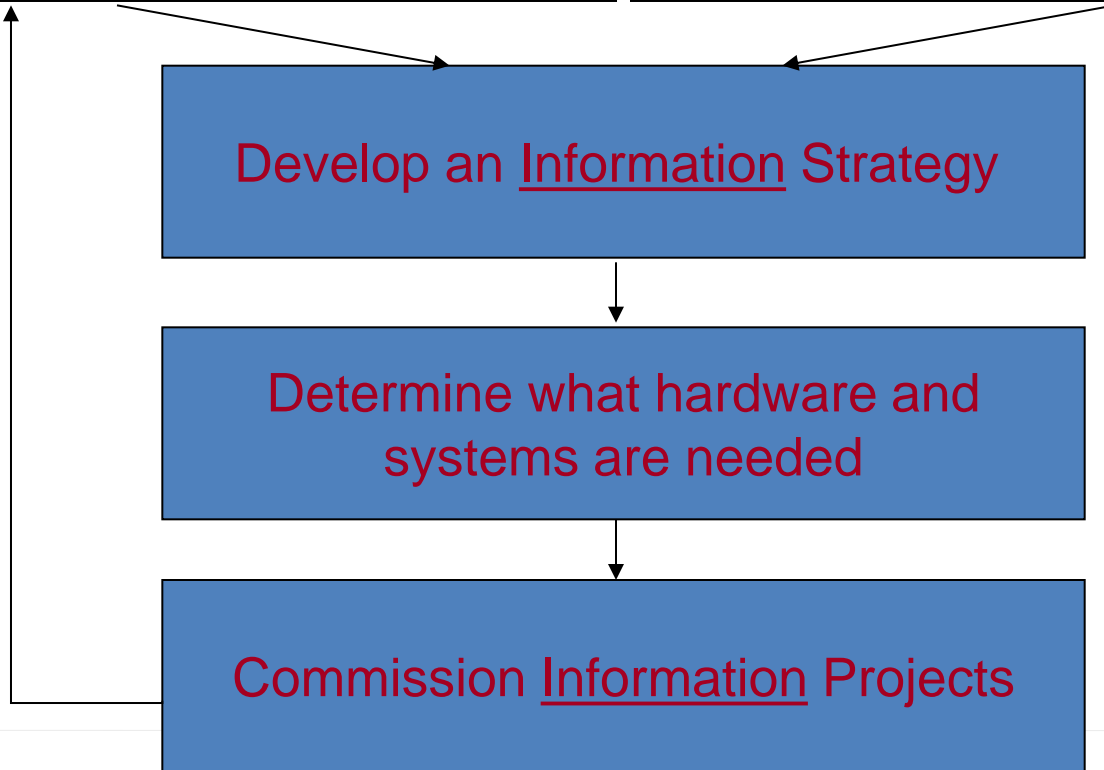
Business Financial Performance

Develop an Information Strategy

Determine what hardware and
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Commission Information Projects

Measure
the
Information
Payback



Information Projects

Understand the information
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Business Effectiveness

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Business Financial Performance

Develop an Information Strategy

Determine what hardware and
systems are needed

Commission Information Projects

Measure
the
Information
Payback

Measure
the
Value
Added

Sales Administration Process:
 Prospecting, Networking
 KAM, Framework Mgt
 Relationship Building

QD06A

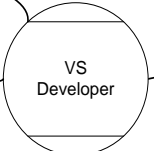
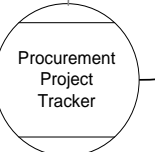
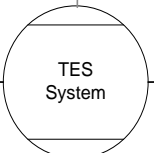
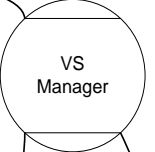
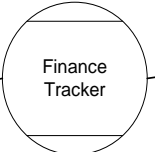
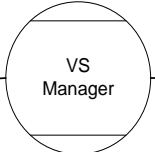
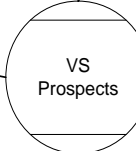
QD07A

QD08

QD07B

QD06B

QD05



sales prospects, pipeline projects

Business Planning

Next FY Corporate Objectives

Financial Income and Invoice Data

TES Training Courses / Jobs Opportunities

Course / Job process information

Procurement Projects

Project process information

Project Process information

Project process information

Corporate Projects

Performance Information

Performance Information

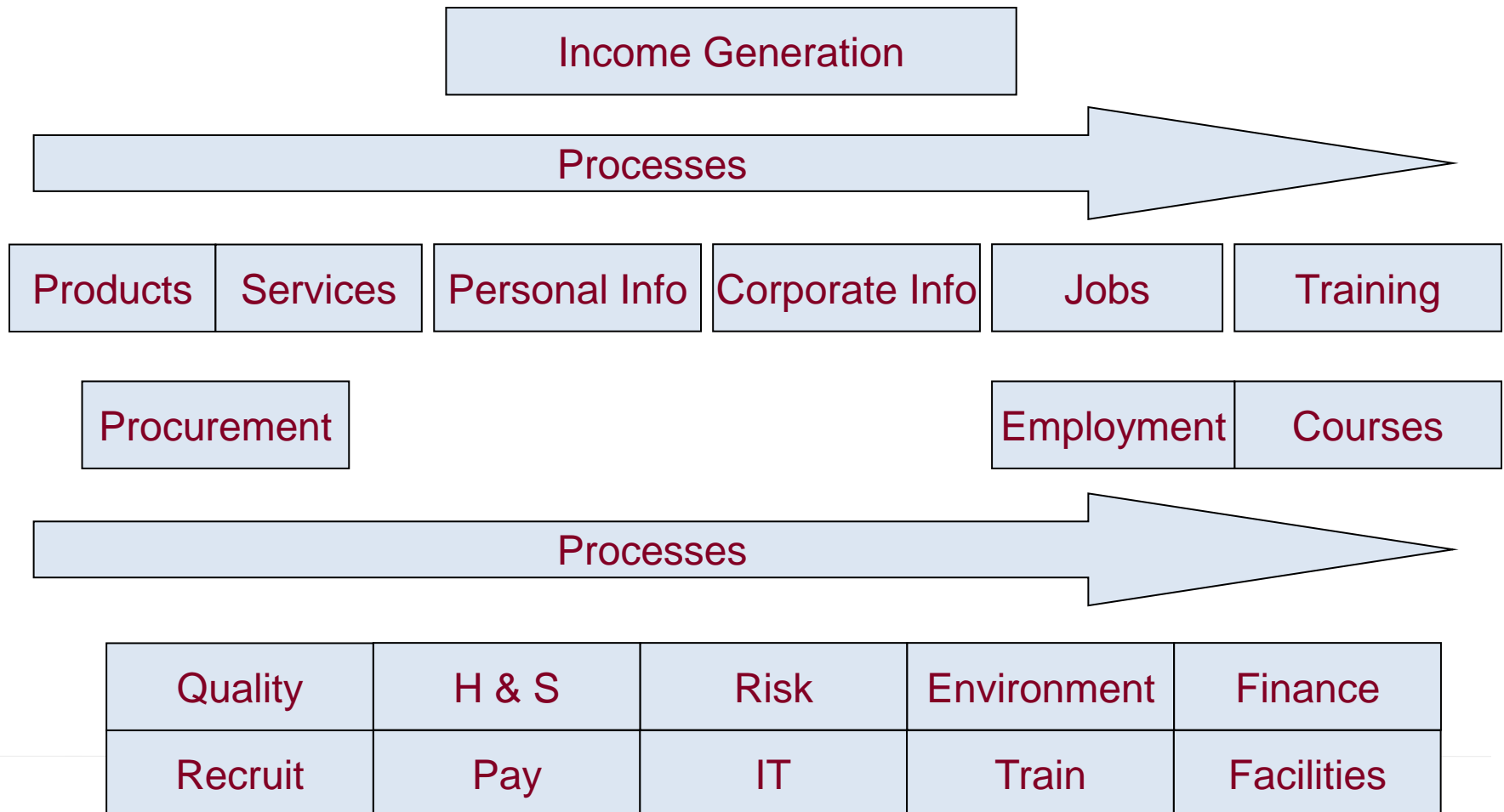
Performance Information

Performance Information

---Manual---

—Automated—

- Information Systems Redesign (Process Management)



—Activity Data—

—Process Data—

—Core Data Flows

—Performance Data

—Managerial Data

VS Manager

Performance Outputs:
 Business Performance
 Board
 SMT
 Unit
 Business Streams
 Individual

Business Planning

CRM

Finance

Marketing

Process Performance

Core Data

Finance Tracker (exists)

Core Data & vol, £££, etc

Regulatory Data

Process Level

S1

Exists
CSCS

Exists
EP

Exists
TES

Convert from Excel*
Project Tracker

VS Dev**
Consultancy

VS Dev**
Busimp, R&D,
Corp Serv

VS Prospects
Sales Administration
Process:
 Prospecting, Networking
 KAM, Framework Mgt
 Relationship Building

Rich Data

Rich Data

Rich Data

Rich Data

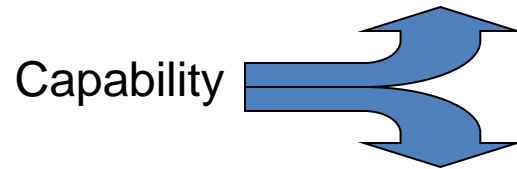


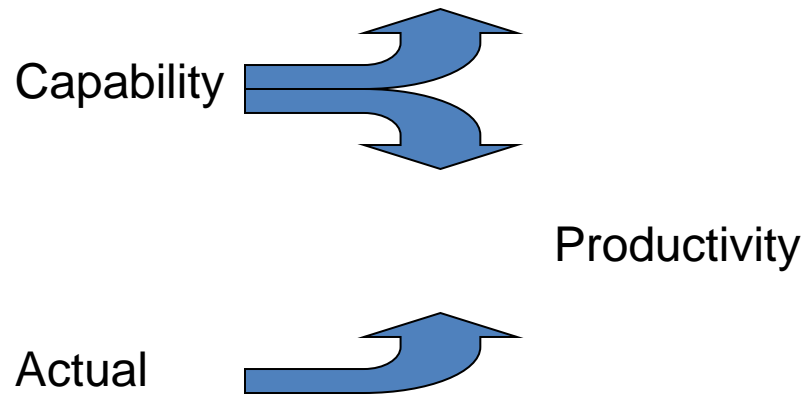
* Use VS Developer
 ** Use VS Developer

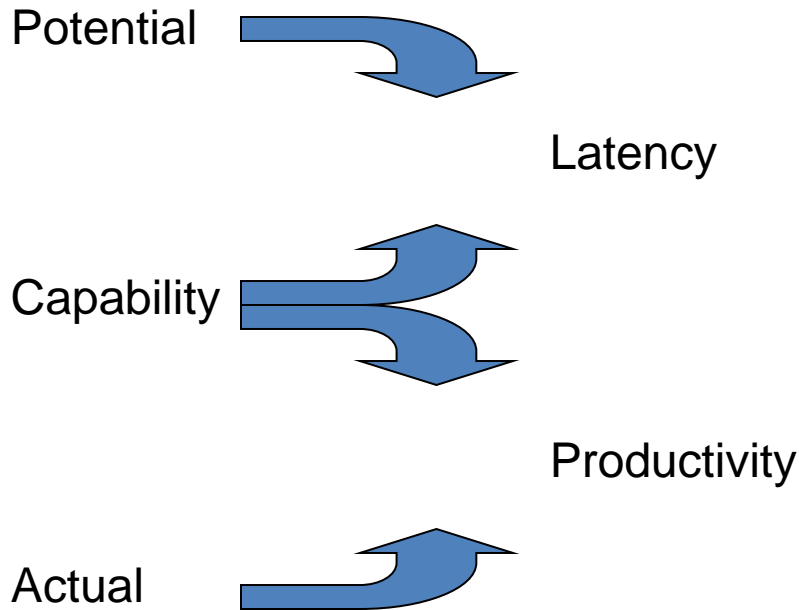
Managing Performance

The Potentiometer

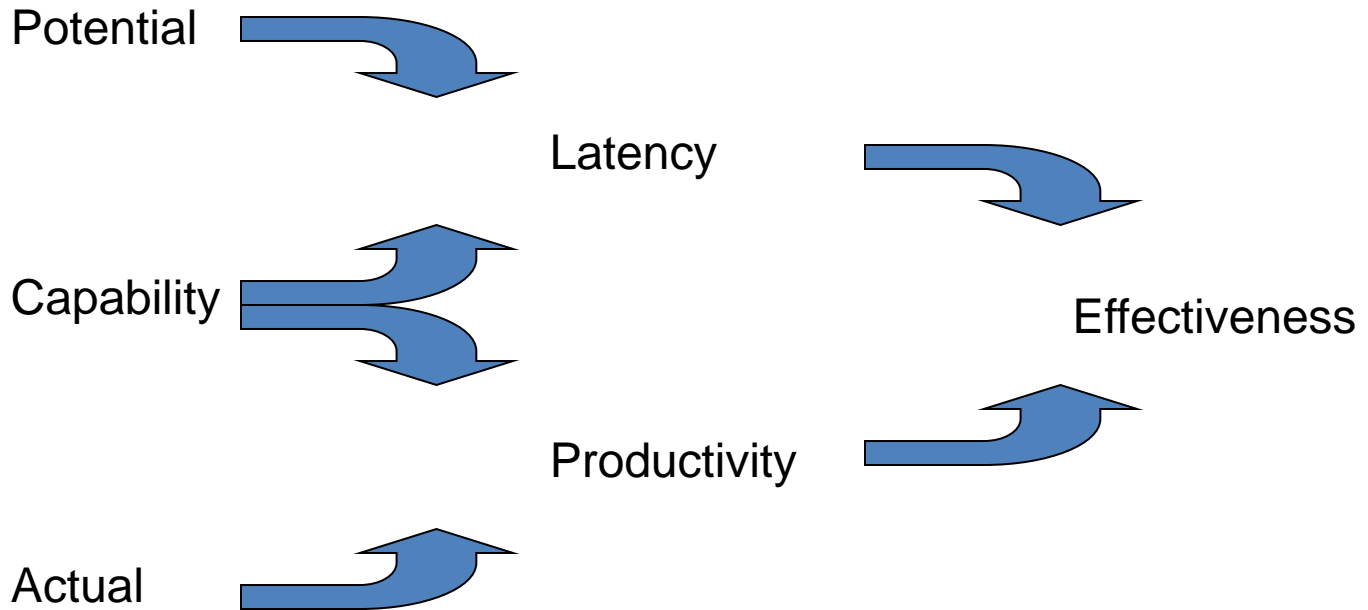
The device for measuring viability



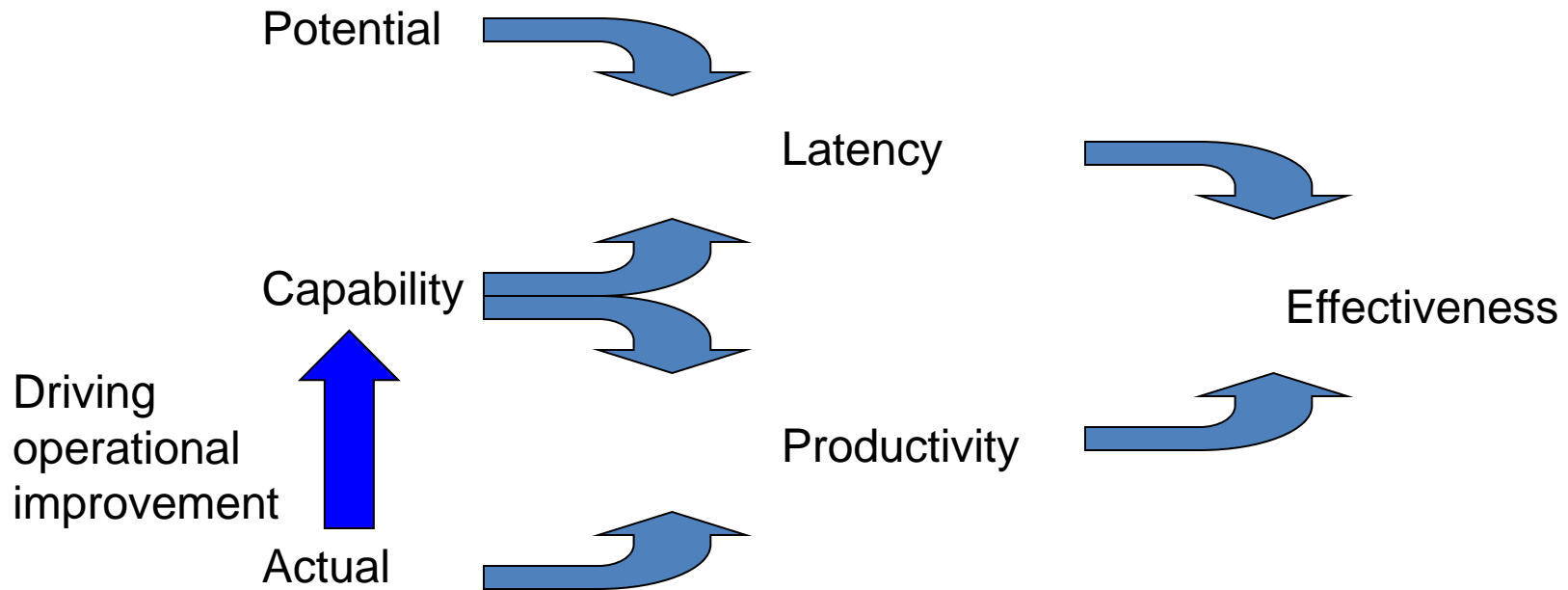




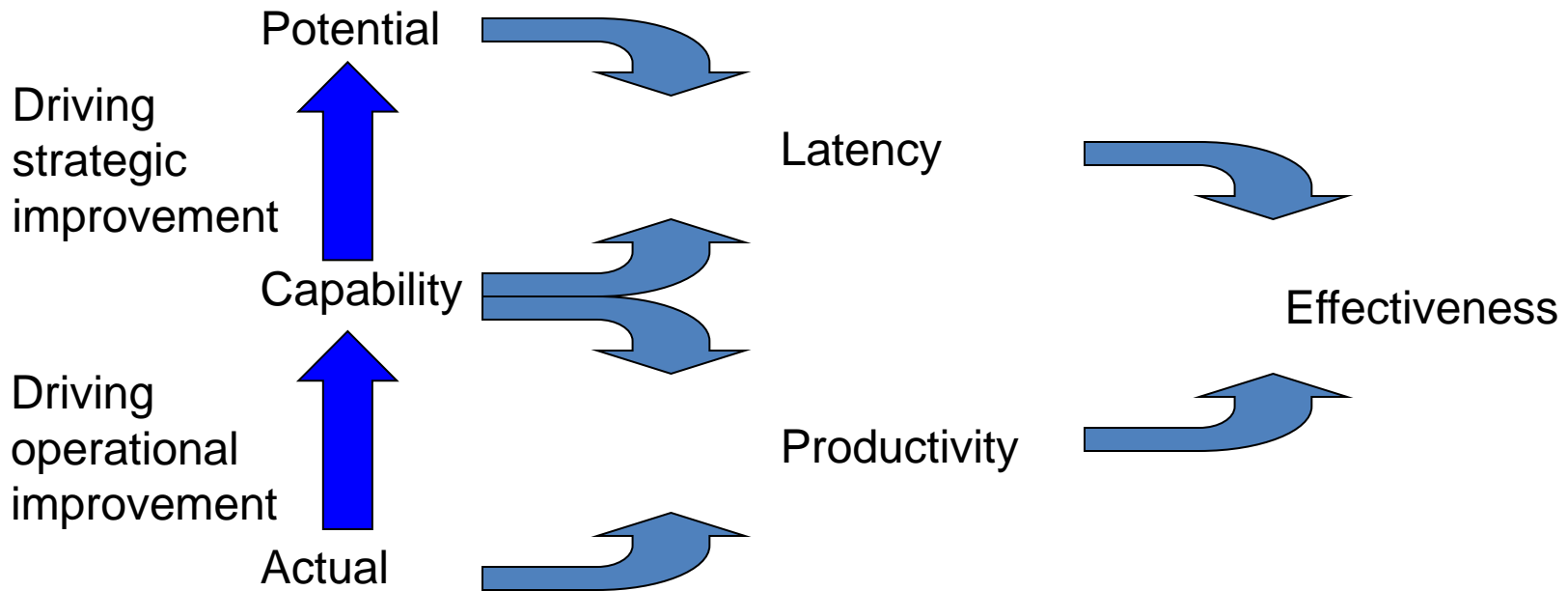
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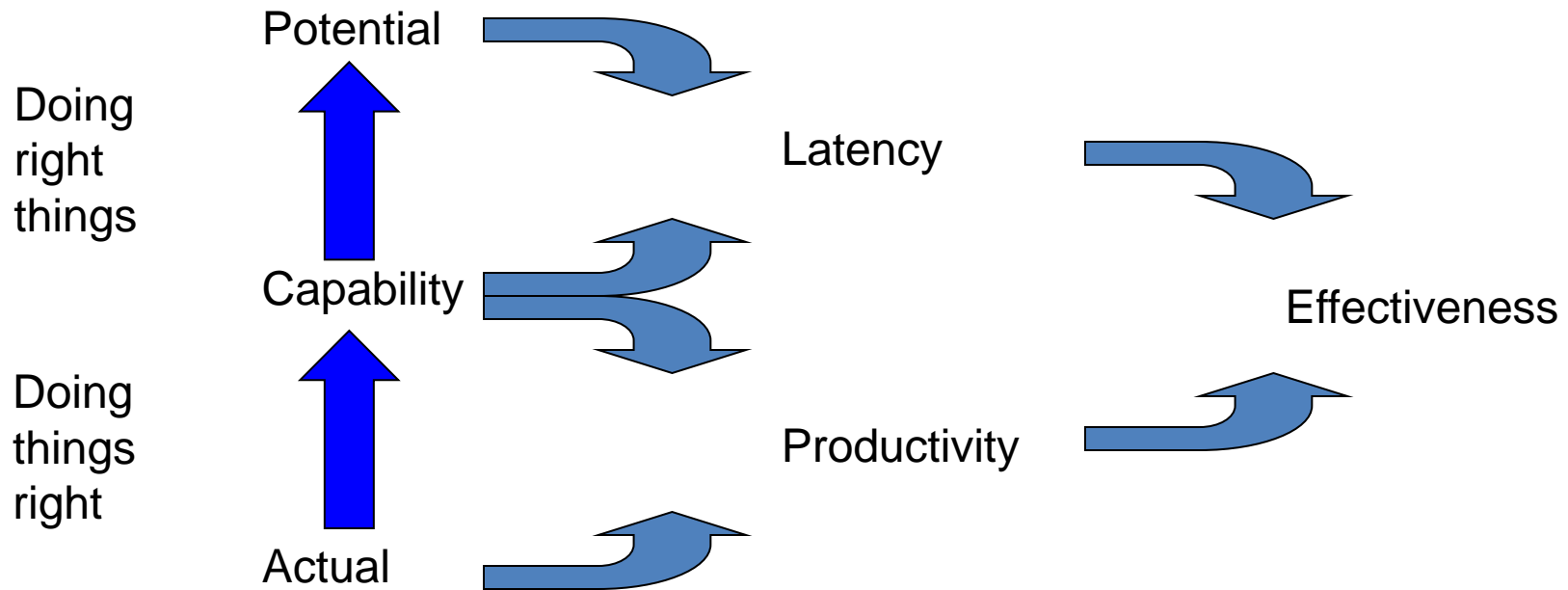
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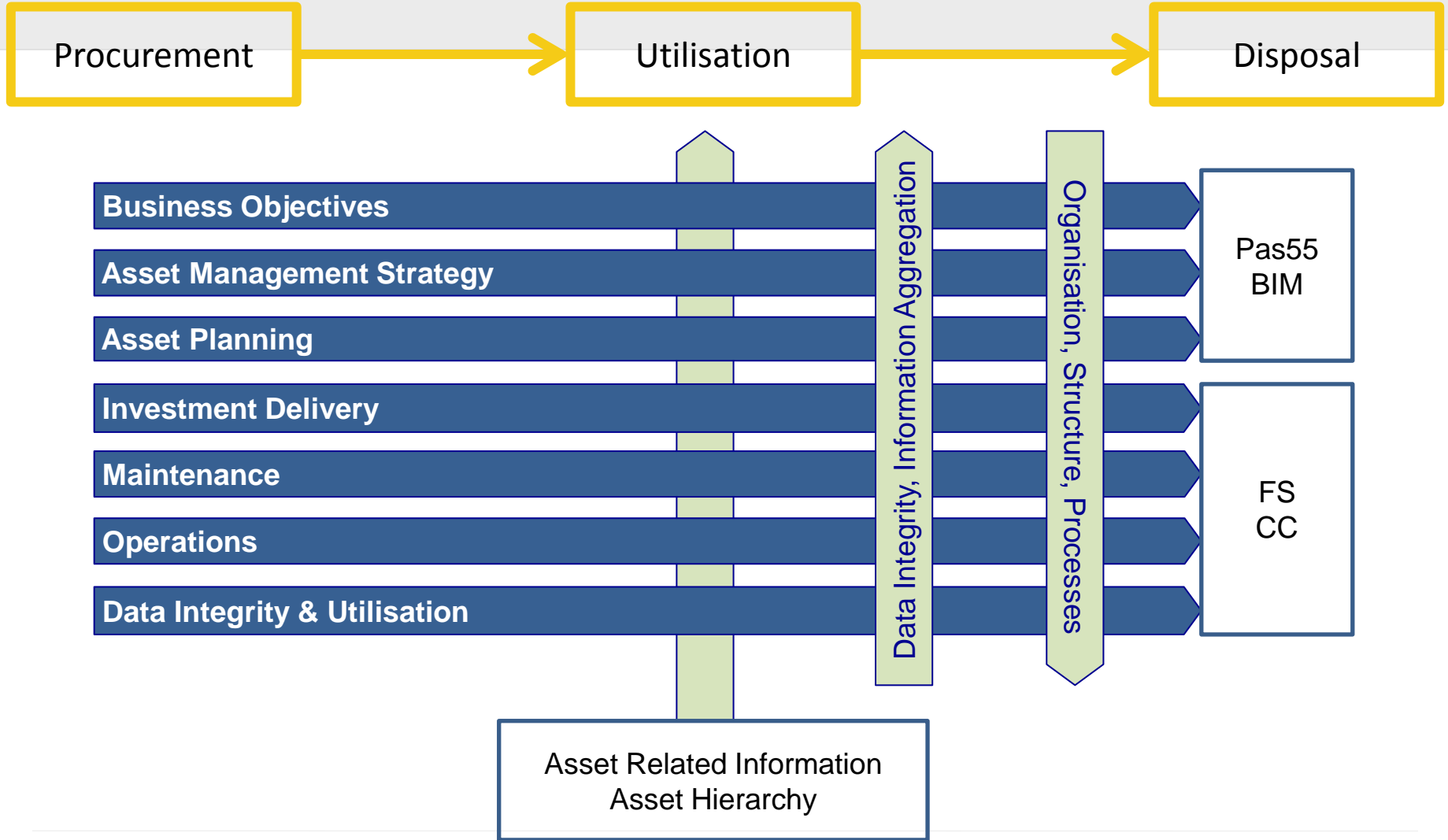
The Infrastructure Challenge

- Critique:
 - Multiple systems (57 in one case)
 - Inadequate Telemetry (esp on Waste Water Systems)
 - Duplication (and more) of data, Hard to store, hard to use
 - Questionable accuracy
 - Inappropriate hierarchy
 - Not optimised to support the business
- Lots of demand for ‘better information’ :
 - Does not support ISO55000
 - Not aligned to Business Processes
 - Not helpful to maintenance and operational management
 - Inadequate for capital planning and investment delivery
 - Increases workload for data users
 - Not supportive of BIM

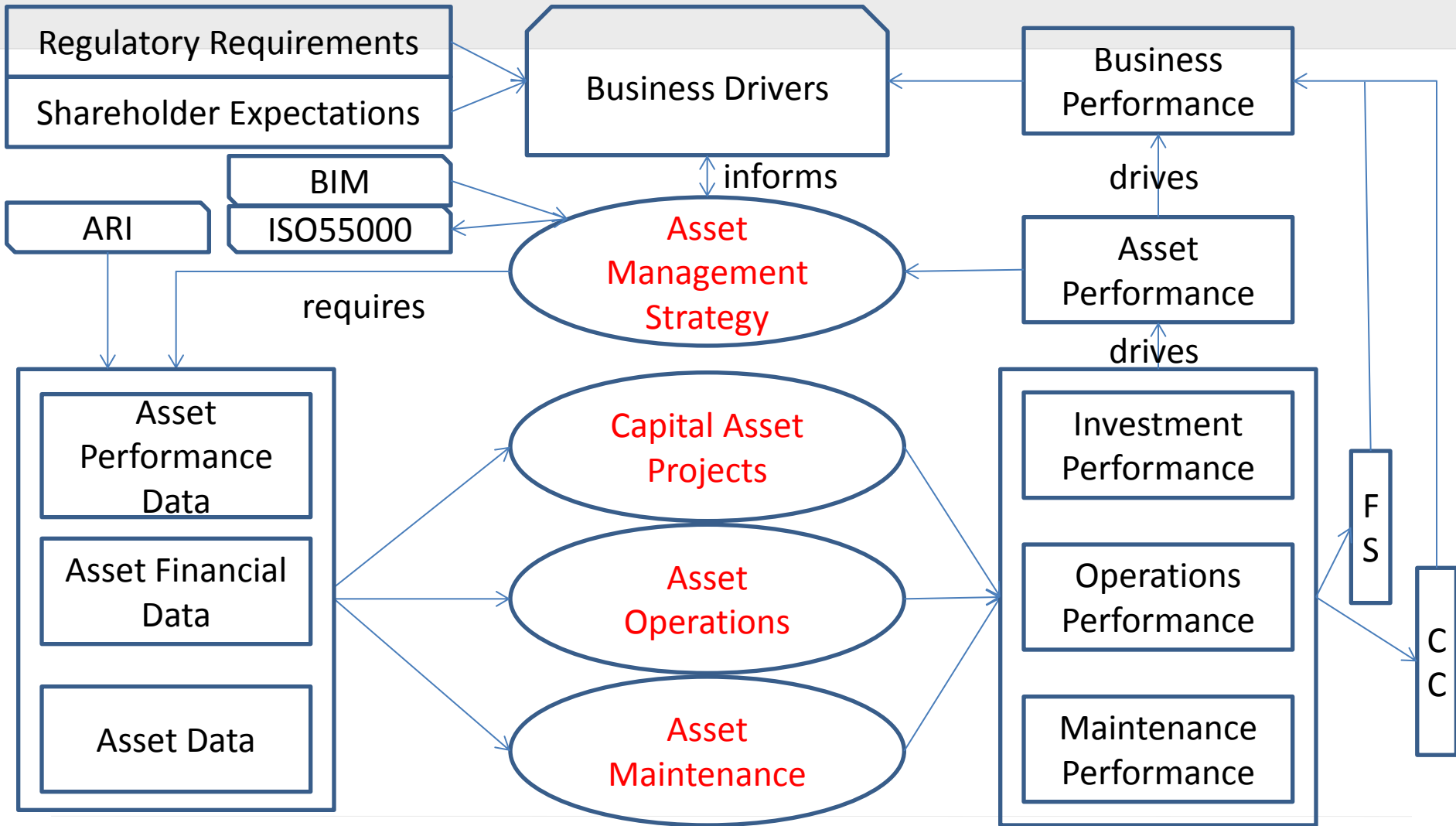
Asset Management Strategy

- Whole Life Asset Value Management
 - supports ISO55000, BIM
 - Reduce totex over time
- Reliability Centred, Adaptive
 - Driving Up Overall Performance, Driving Down Overall Cost
 - Manage the whole as a network NOT as a set of independent parts
 - Build, Maintain and Operate all assets in a manner which meets the business objectives
 - Generate appropriate information to drive fact-based decisions at all levels
 - Eliminate Rework, Minimise Unplanned Work, Maximise ‘first time fix’
 - Multiple approaches, appropriately informed
 - Reliability Centred
 - Blending Break fix, Condition based, Time based

Scope



Enterprisewide Asset Management



- Optimised Performance for Customers
- Optimised Management of the Network
- Optimised across:
 - Capital
 - Maintenance
 - Operations
- Target Benefits:
 - Lower Capital Investment – same outcome
 - Reduce operating costs

The Information Organisation

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