Developing and Sustaining an Enterprise Architecture

..... it's obvious isn't it?

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Why are we here?

- Share ideas?
- Discuss – what works and what doesn't.....
- Benchmark:
  - Resources – what level is effective.... 2,3,4%
  - Tools – one size fits all or a 'golf bag' approach
  - Time to implement
- Benefits
- Seek views on 'really wicked problems'
- Extend professional networks

Aim

- Reflect
  - EA 2009 and journey since then
- Highlight the ‘through life implications’ of taking an EA approach
  - Organisational
  - Technological – tools, etc
  - Cultural
  - Benefits
- What’s in it for you.....
  - Reuse what works and avoid expensive mistakes!

Criticisms Of EA

- **Technology-led**, with standardisation of applications, systems and technologies used as driver for enforced business change;
- **Dogmatic**, in the sense that nominal standardisation at an enterprise level is seen as a more important goal than meeting end users' real requirements;
- **Over-ambitious**, in the sense that few EA strategies seem to be able to stop short of a idealised, perfect scenario;
- **Unverified**, in that no one has properly analysed the achievability or sustainability of the proposed EA;
- **Divorced from the current state**, in the sense that although the current state is usually shown, there is no analysis of how the first steps can be taken from the current to the idealised future state;
- **Futuristic**, in the sense that the EA strategy plans so far in advance that it doesn't sensibly guide the immediate next IT strategy steps;
- **Politicised**, in the sense that things are reduced to sound-bites and perceptions and not judged on hard analysis of benefits and weaknesses.

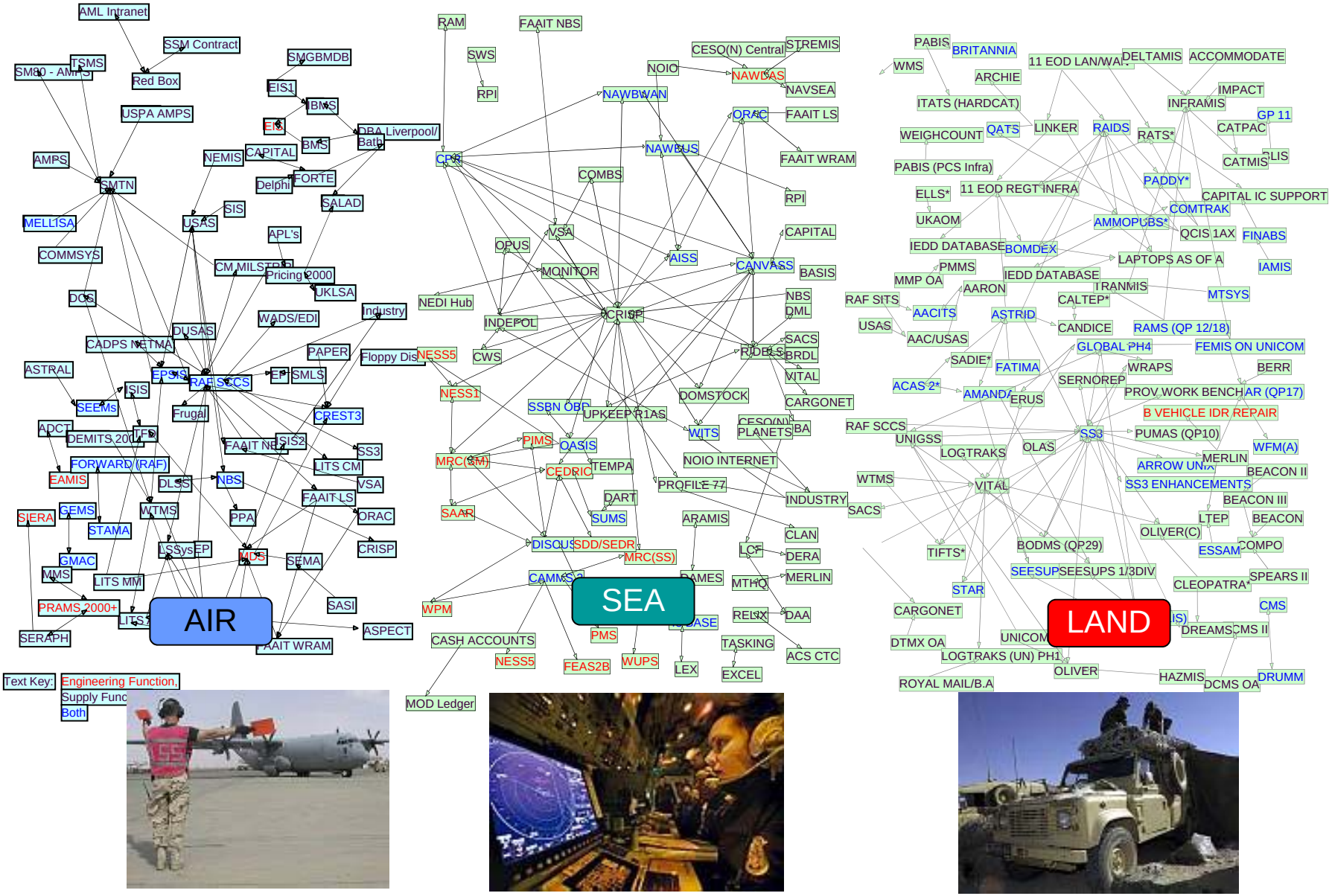
bcs (The Chartered Institute for IT), 2009, Opinion: Enterprise architecture - dogmatic and over-ambitious?

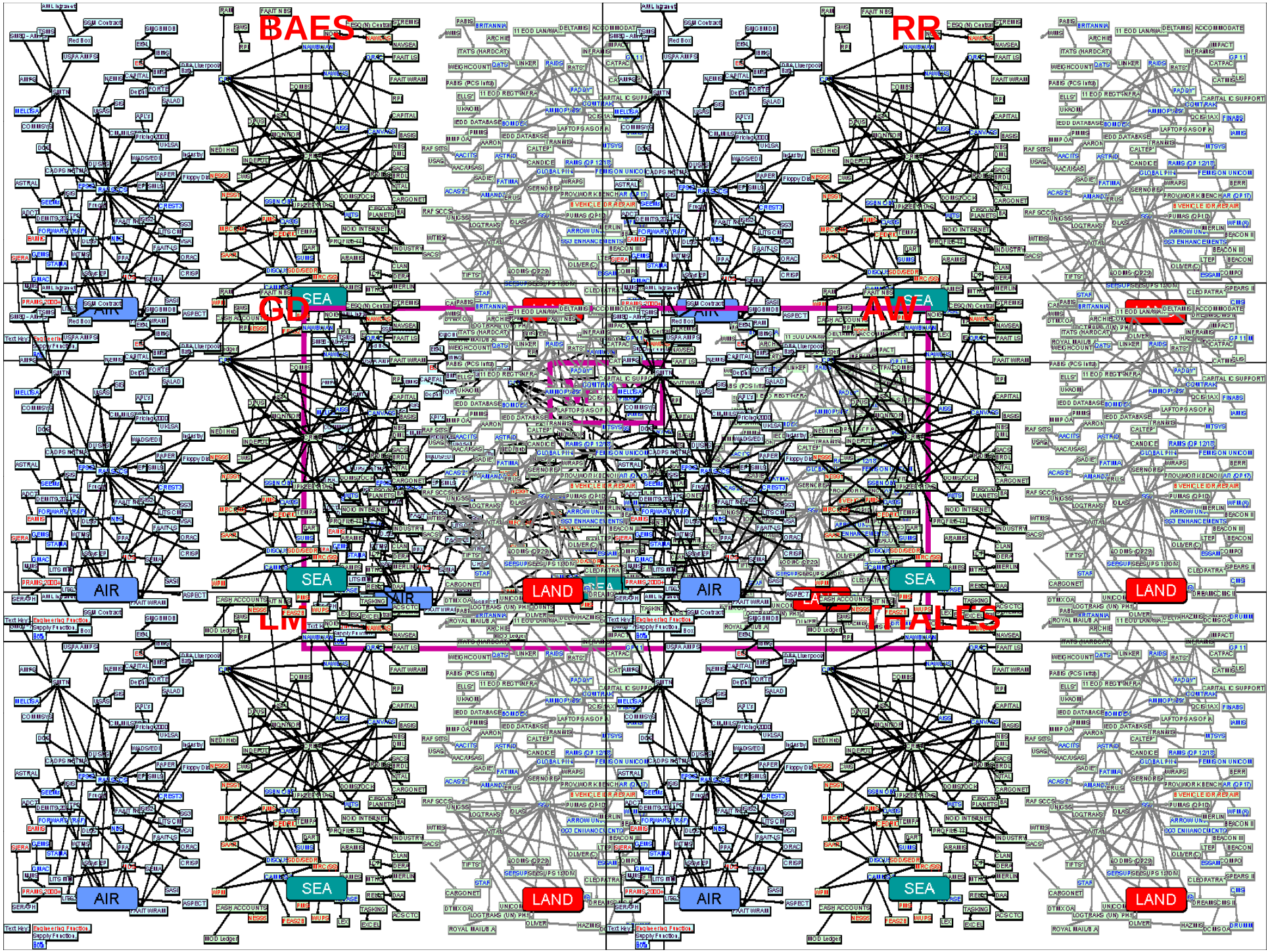
The MOD support chain – scope

Defence Logistic Vision

The Defence Logistic Vision envisages a **highly effective, agile and networked logistic capability** that underpins the operational commander's ability to execute his mission successfully. This capability will be derived from **joint, integrated and interoperable support** concepts, which have been tested and developed to provide the military comander with confidence in his ability **to deliver effect at the desired tempo.** Success will be built on adaptable systems and force elements combined with **standardised logistic processes and procedures.**

Rationalisation of tri Service processes ..... my ‘wicked problem’




BAES
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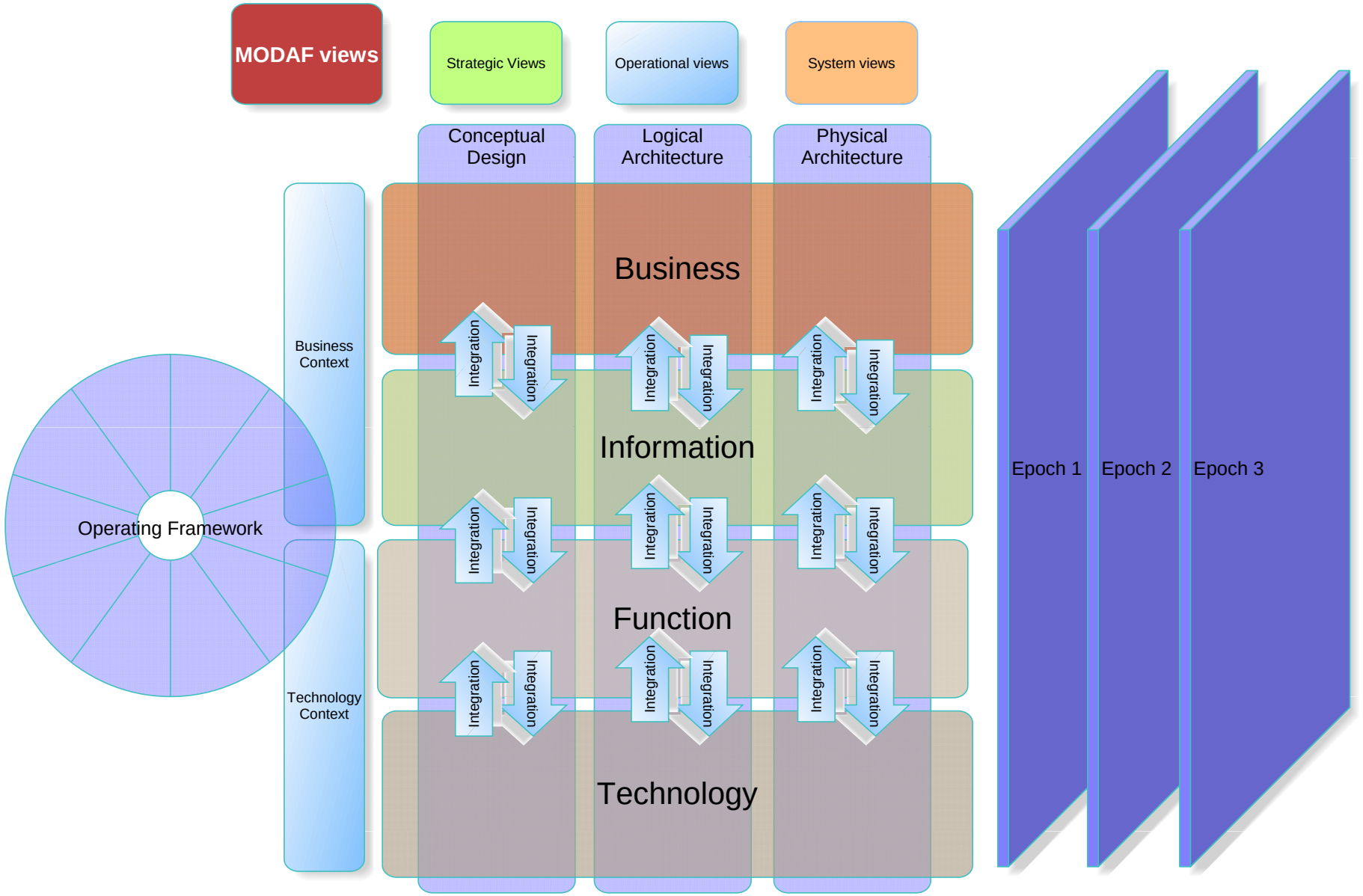
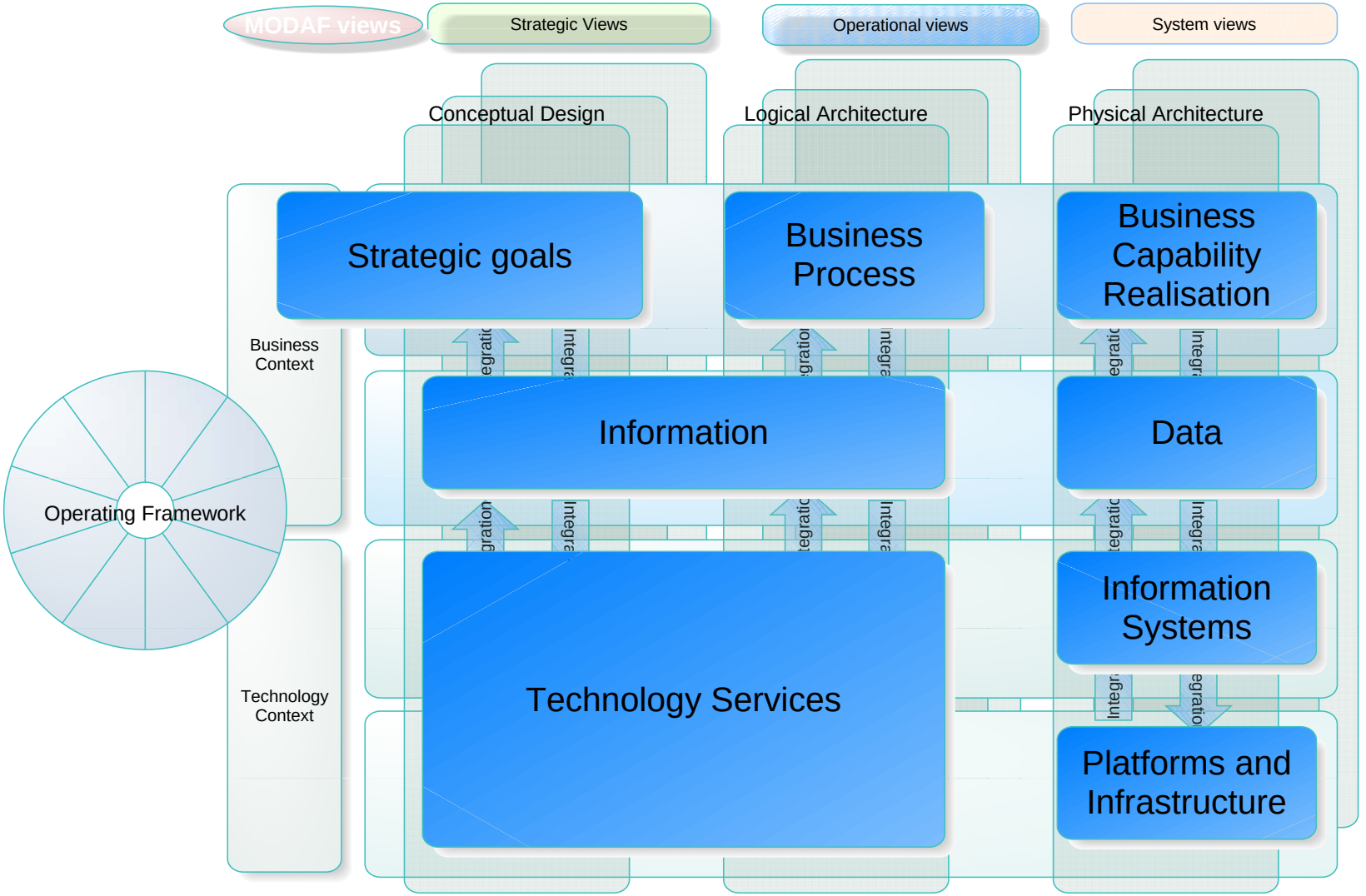

MODAF views
Strategic Views
Operational views
System views
Conceptual Design
Logical Architecture
Physical Architecture
Business
Information
Function
Technology
Business Context
Technology Context
Operating Framework
Integration
Epoch 1
Epoch 2
Epoch 3

Logs NEC Architecture conceptual



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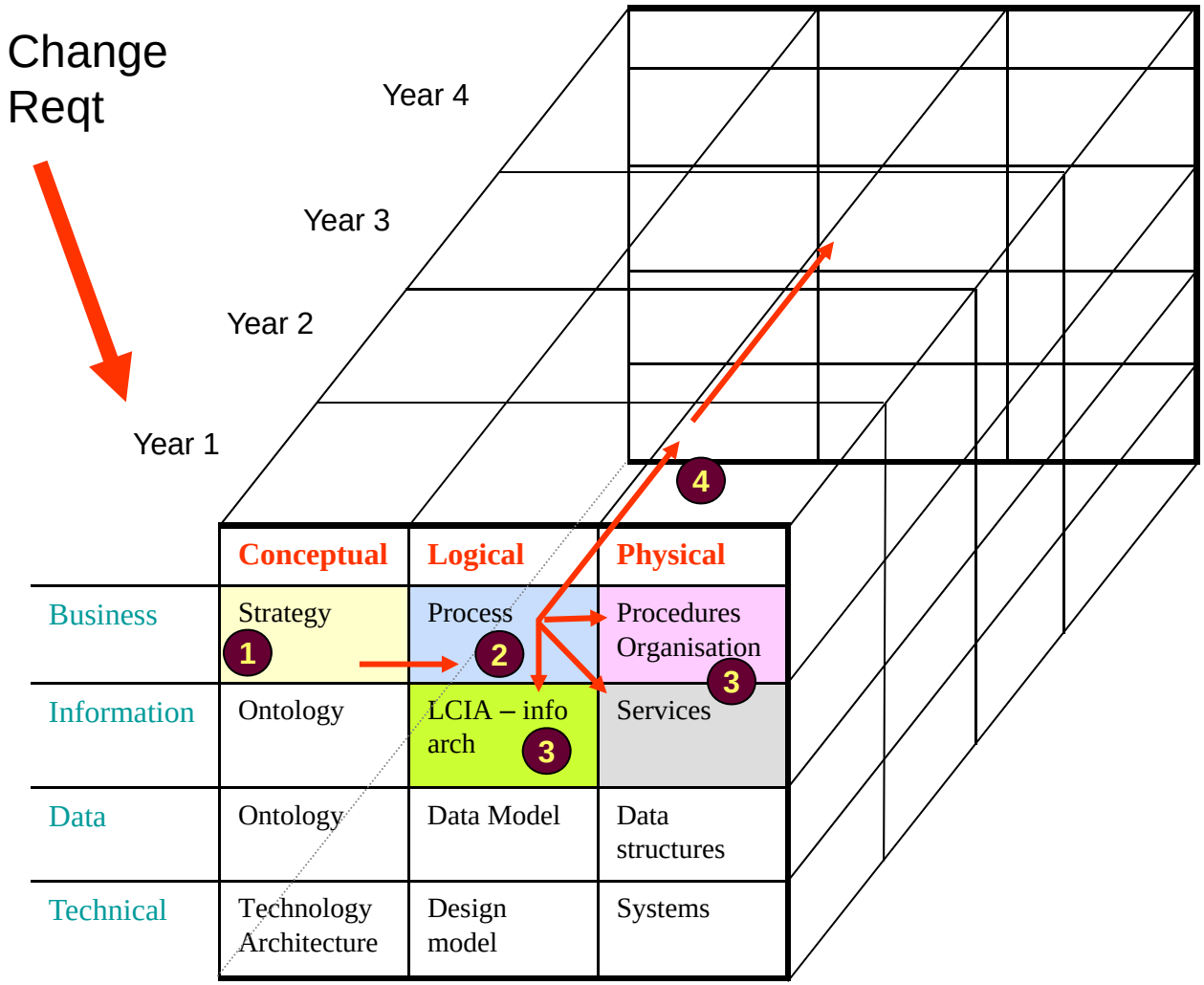

Change Reqt
Year 4
Year 3
Year 2
Year 1
Conceptual
Logical
Physical
Business
Strategy
Process
Procedures Organisation
Information
Ontology
LCIA – info arch
Services
Data
Ontology
Data Model
Data structures
Technical
Technology Architecture
Design model
Systems
1
2
3
3
4

Joint Business & Tech Architecture

Request for process change RFC

Business Process Improvement

Endorsed as consistent with JLEA

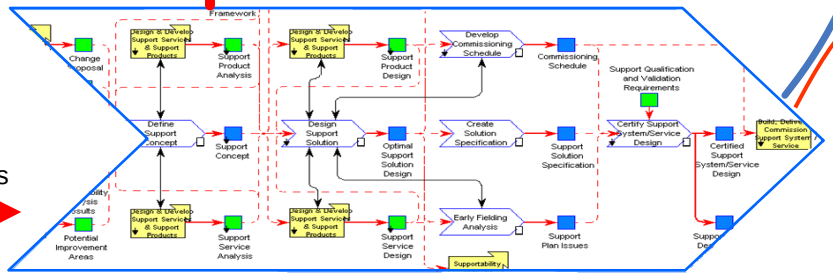
Which is part of Jt Log Ent Arch

Update policy (JSP 886) and trg

Business Capability Manager

Owns the business processes codified in the application
Understands the information managed by the application, the information flows to other related applications
Has log SMEs who understand & manage data
Has log expert users of the application(s)

BCM Owns



Business Capability Manager Consignment Tracking prioritises RFCs with FLCs & key stakeholders

FLIS Commercial Framework

MOD Monitor & Manage DP Performance Mgt incl spt from CSA

FLIS Delivery Partner - Boeing

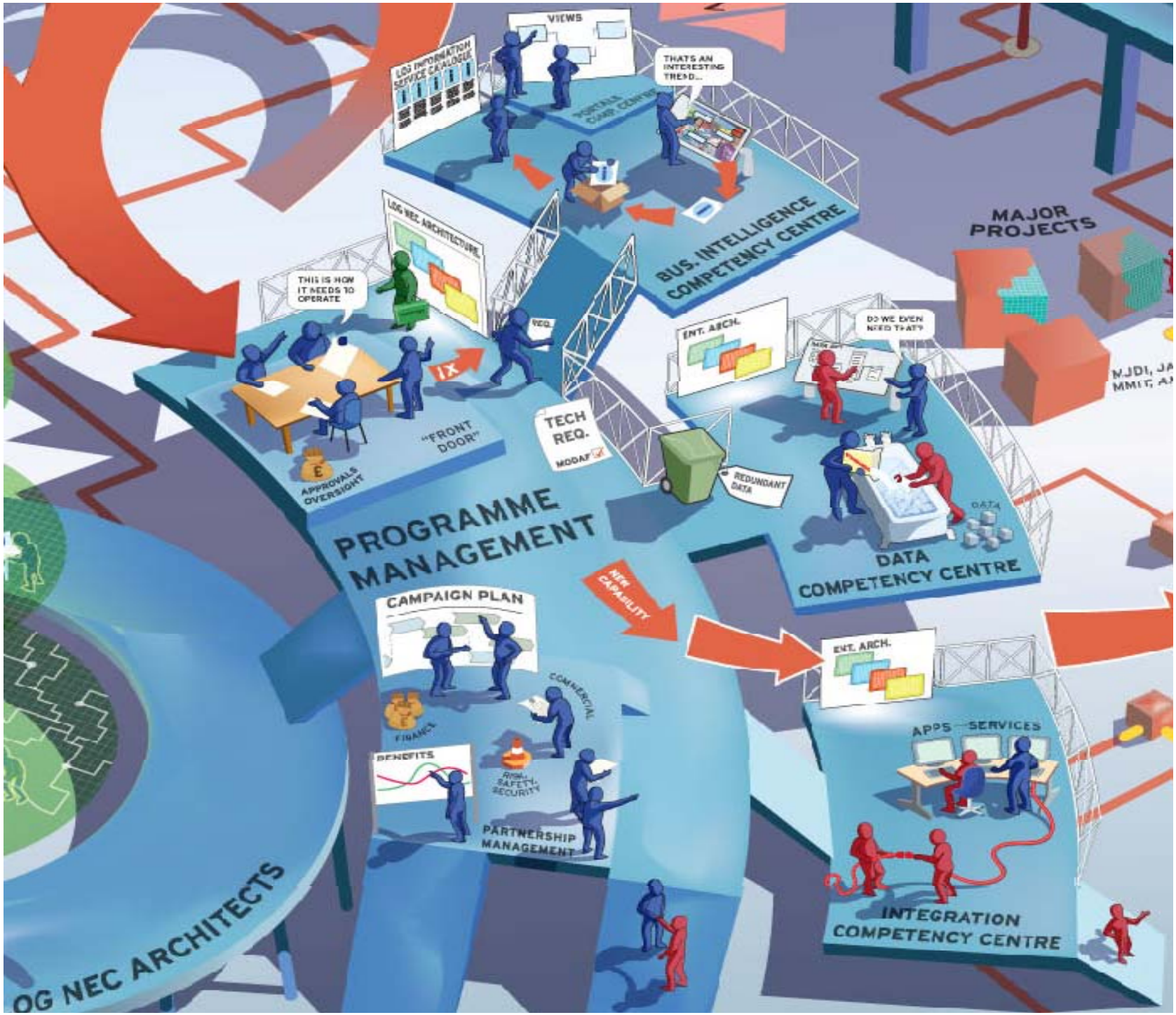
Sustain and deliver incremental improvements

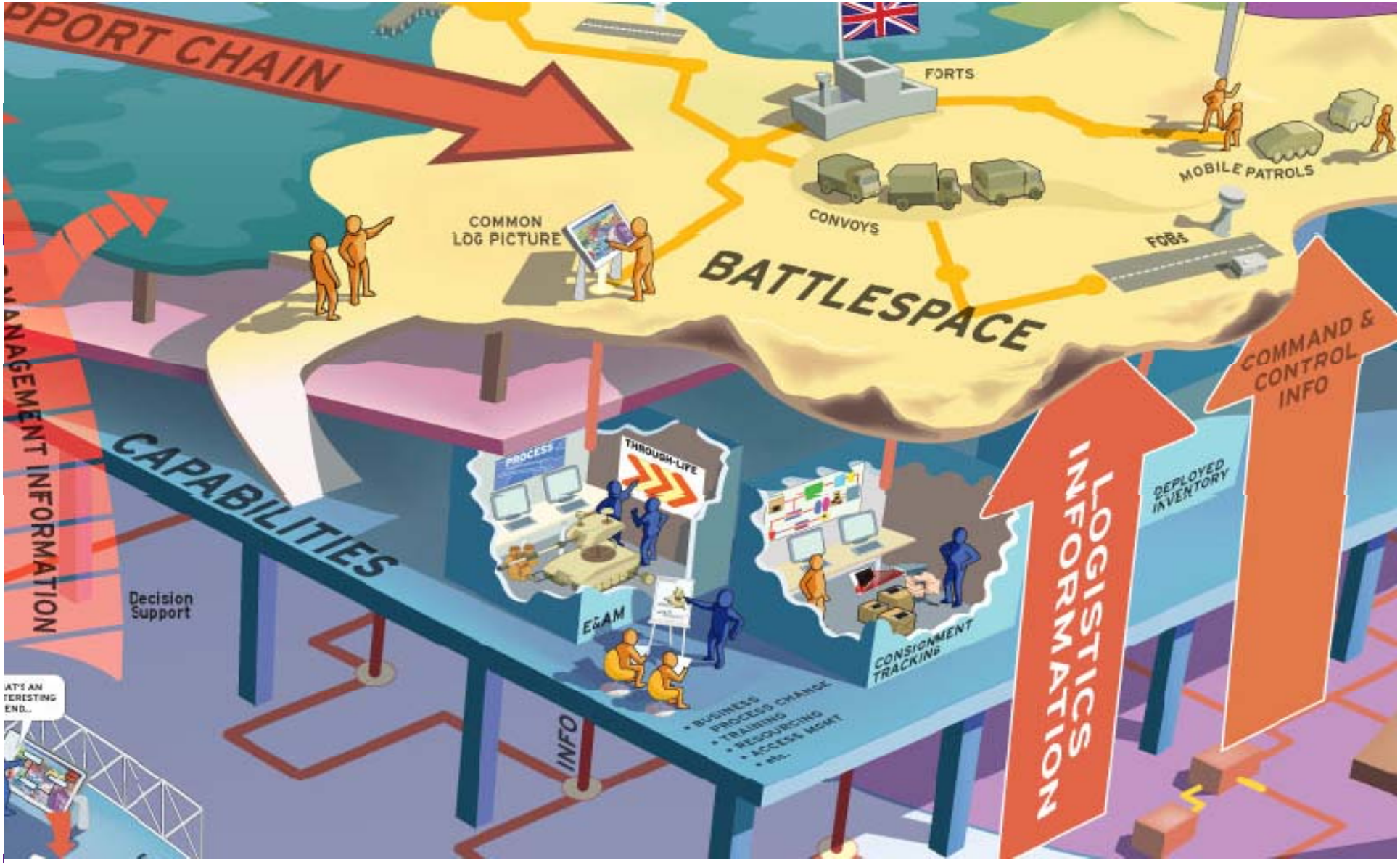

THE LOGISTICS NEC PROGRAMME
DELIVERING
FUTURE LOGISTIC INFORMATION SERVICES (FLIS)
CONTRACTOR LOGISTICS SUPPORT
FACTORY
DEPOTS
INDUSTRY
P.HQ
AIRBASES
APOE
SPOE
REPAIR FACILITIES
BARRACKS
PURPLE GATE
FLCs
BASE
LOGISTICS OPERATIONS CENTRE
JOINT SUPPORT CHAIN
COUPLING BRIDGE
ALLIES
JAVs
FORTS
MOBILE PATROL
CONVOYS
SUCCESSFUL OPERATIONS
COMMON LOG PICTURE
BATTLESPACE
TPTS/ CLUSTERS
CADMID
LOGISTICS MANAGEMENT INFORMATION
CAPABILITIES
Decision Support
DEFENCE POLICY & STRATEGY
JOINT SUPPORT CHAIN
GATEWAYS: COMMON STANDARDS
OAGIS
PLCS
BUSINESS PROCESS
INFORMATION
APP/SERVICE
INFORMATION SERVICE
TECHNICAL
LOG NEC ARCHITECTURE
LOG NEC ARCHITECTS
INFORMATION ARCHITECTURE
BUS. INTELLIGENCE COMPETENCY CENTRE
MAJOR PROJECTS
MDN, JAMES MMIT, AMO etc.
Requirements met quickly, accurately, on budget, to meet operational tempo
PROGRAMME MANAGEMENT
CAMPAIGN PLAN
BENEFITS
PARTNERSHIP MANAGEMENT
DATA COMPETENCY CENTRE
INTEGRATION COMPETENCY CENTRE
SERVICES
LEGACY APPS
FLIS DELIVERY PARTNER
DATA WAREHOUSE
NETWORK SERVICES
GLOBAL OPS SECURITY CONTROL CENTRE
INFRASTRUCTURE, ARCHITECTURE AND STANDARDS
DG ISS
DEFENCE NETWORK, INFRASTRUCTURE & CORE APPLICATION SERVICES
LOGISTICS INFORMATION
COMMAND & CONTROL INFO
INTELLIGENCE INFO
PERSONNEL INFO
OTHER GOVT. DEPARTMENTS
OTHER IS PROVIDERS
HR
FINANCE
REST OF MOD


BUSINESS PROCESS LAYER
INFORMATION LAYER
APP/SERVICE LAYER
TECHNICAL LAYER
BUSINESS PROCESS
INFORMATION
APP/SERVICE
TECHNICAL
SERVICE
INFORMATION SERVICE
THIS IS HOW IT NEEDS TO OPERATE
APPROVALS OVERSIGHT
LOG NEC ARCHITECTURE
ENT. ARCH.
LOG NEC ARCHITECTS

Organisation

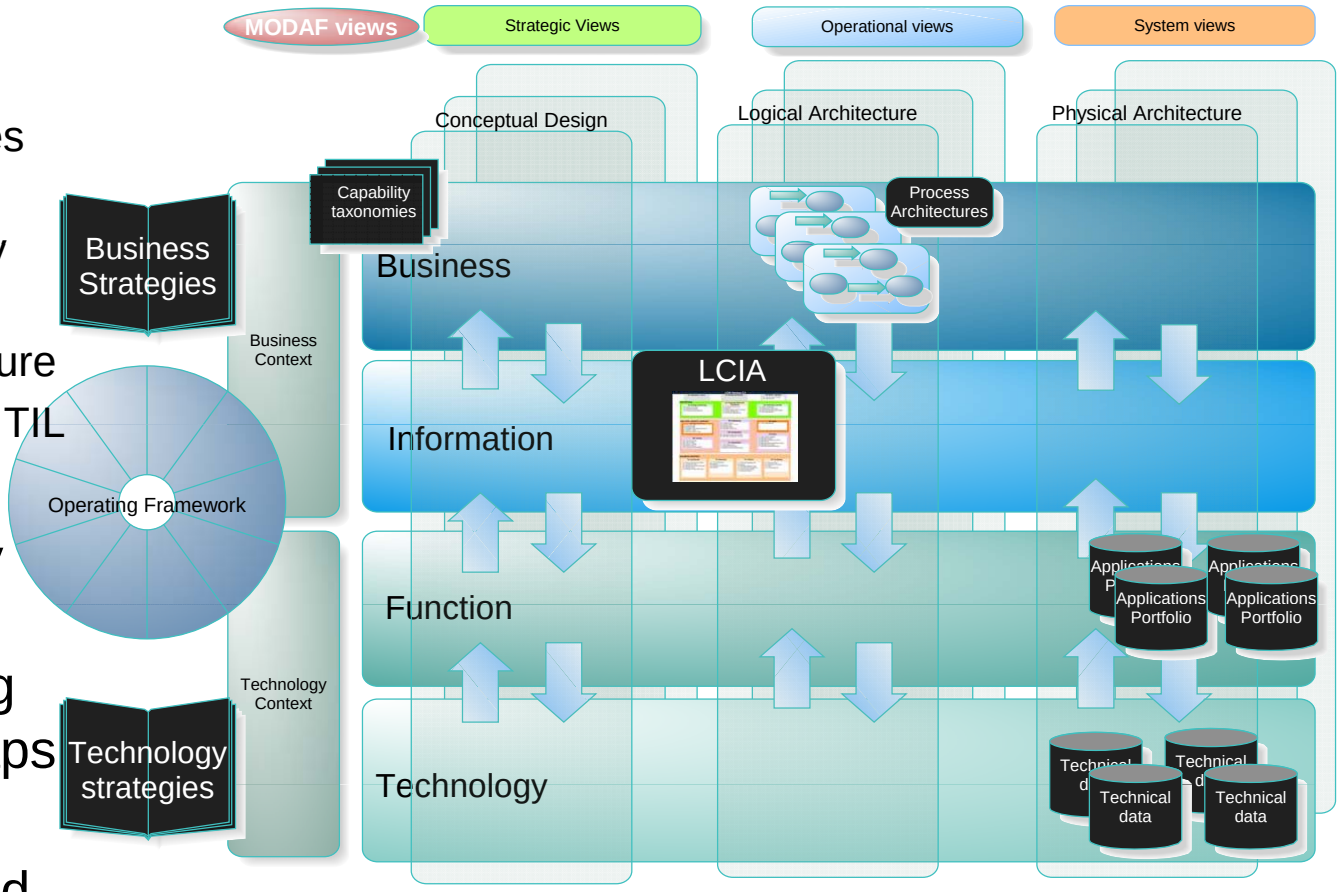
- Gartner metric - 2% to 4% (FTEs) of the head count
- Six major factors influence these percentages:
  - The scope of the EA effort - does it include business and information architecture?
  - The focus of the EA effort - does it focus on defining a future state, or is it focused on documenting the current state and setting standards?
  - The roles and responsibilities of EA.
  - The budget allocated for EA efforts as a strategic planning discipline.
  - Integration with other enterprise planning efforts, such as business strategies or program and portfolio management.


VIEWS
LOG INFORMATION SERVICE CATALOGUE
THAT'S AN INTERESTING TREND...
BUS. INTELLIGENCE COMPETENCY CENTRE
MAJOR PROJECTS
LOG NEC ARCHITECTURE
THIS IS HOW IT NEEDS TO OPERATE
REQ.
"FRONT DOOR"
APPROVALS OVERSIGHT
TECH REQ.
MODAF
ENT. ARCH.
DO WE EVEN NEED THAT?
REDUNDANT DATA
DATA
DATA COMPETENCY CENTRE
PROGRAMME MANAGEMENT
CAMPAIGN PLAN
NEW CAPABILITY
COMMERCIAL
FINANCE
BENEFITS
RISK, SAFETY, SECURITY
PARTNERSHIP MANAGEMENT
ENT. ARCH.
APPS SERVICES
INTEGRATION COMPETENCY CENTRE
OG NEC ARCHITECTS


PPORT CHAIN
FORTS
MOBILE PATROLS
CONVOYS
FOBs
COMMON LOG PICTURE
BATTLESPACE
COMMAND & CONTROL INFO
MANAGEMENT INFORMATION
CAPABILITIES
PROCESS
THROUGH-LIFE
DEPLOYED INVENTORY
LOGISTICS INFORMATION
Decision Support
E&AM
CONSIGNMENT TRACKING
INFO
• BUSINESS PROCESS CHANGE
• TRAINING
• RESOURCING
• ACCESS MGMT
• etc..

Constructing the Logs NEC Architecture

- Anchored by core standards:
  - Capability taxonomies
  - Business process architecture from key business areas
  - Information architecture
  - Technical portfolio - ITIL
- Connectivity of core material matched by parallel activity for gathering / validating material to fill the gaps
- Policy, process and procedures accessed through architecture = wide stakeholder use



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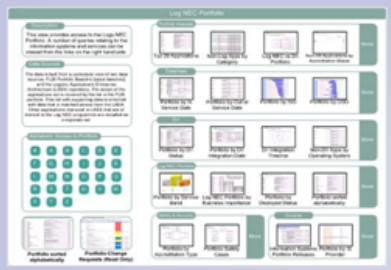
Log NEC Main Menu

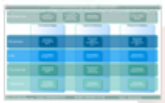
Log NEC Architecture



Log NEC Portfolio

Log NEC Programme Control

Business Capability Managers



Log NEC Architecture Quick Navigation '12 Box Model'

FLIS IS Change and Information Systems Portfolio

Architecture Service Delivery Processes (ITIL)

Overview Model Index

Portfolio Change Requests (Read Only)

Contact Details and Overview

Joint Logistic Enterprise Architecture (JLEA)

Due to DII security, we are unable to link directly to the Joint Logistic Enterprise Architecture (JLEA). Please copy and paste the link into a

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Business Capability Managers

Description

The Business Capability Manager links below take the user to views targeted towards the Systems, Capabilities, Technologies and Users relevant to each Business Capability Manager area. The post names link to the key points of contact on dDirectory.

Unassigned Applications

PAB RFC Process

How to use the Architecture for BCMs

Log NEC Architecture

Log NEC Portfolio

Modelling in the Architecture

Materiel Flow

- Deployed Systems — DES LogNECProg-PMG Dep Sys Mgr
- Base Inventory Air — DES SM ASP3
- Base Inventory Land — DES ISS LAIPT-FDBSFIS1E; DES SCS-Progs E&AM1
- Base Inventory Maritime — DES SCS-BASE Systems2
- Munitions — DES SCS-Progs Mun Sys TL
- Procurement / Accounting — DES SCS-Progs PM LI
- Purchasing — DES DePS-CARM5
- Warehousing (Non-Explosive) — DES LogNECProg-PMG-Base Sys Mgr

View Materiel Flow BCMs by Capability Taxonomy

Engineering and Asset Management

- E&AM Air (FW) — DES LogNECProg-Air(FW) BCM
- E&AM Air (RW) — DES SCS EAMTL
- E&AM Future — E&AM Future
- E&AM Land — DES SCS-Progs E&AM1
- E&AM Maritime — E&AM Maritime
- Technical Information Services — DES SCS-Progs-DR BSM

View E&AM BCMs by Capability Taxonomy

Portfolio Change Request Lifecycle

Logistics Decision Support

- Logisitics Decision Support — DES SO1 Logistics
- Information eXploitation (IX) — DES SCS Progs-

Centralised Services

- Centralised Services — Centralised

Middleware Solutions

- CSS - IBM Websphere — DES FLIS Del 2a1
- SC EAI - Oracle Fusion — DES FLIS Del 2a1

Portfolio Change

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E&AM Air (FW)

BCM Index | Home | Business | Technology | Users | PC

Purpose

This view provides access to information supporting the management of the in-service Support Chain Information Systems (IS) relating to E&AM Air (FW). The Business Capability Manager is responsible for the change process to the in-service E&AM Air (FW) IS.

Description

The provision of a service to which delivers and develops current E&AM Air (FW) systems skills and processes. Support of the development and implementation of the DE&S Business Change Programme for E&AM Air (FW), including the transition from current systems where appropriate. The provision of E&AM Air (FW) advice to IPTs and other stakeholders on CLS and other innovative support solutions
The maintenance of E&AM Air (FW)

Key POC

DES LogNECProg-Air(FW) BCM dD

External Links

Select a System from the dropdown list to see the Functional Services, User Department, Hardware and Software for the System

Systems

Total Number of Systems = 8

ADCT	Aircraft Data Configuration Tool
AWIS	Airworthiness Information System
LITS (AM/CM/MM/OM)	Logistic Information Technology ...
MDS	Maintenance Data System
NDT DB	Non-Destructive Testing Database
NEMDB	Nimrod Engineering Manageme...
NIMROD FUSELIST	Nimrod Aircraft Fuselist Database
NIMROD QUALITY DB	Nimrod Quality Data Base

Reference Models

System

ADCT

Functional Services — ADCT

User Departments — ADCT

- Abbeywood
- Boscombe Down
- RAF Linton-on-Ouse
- RAF Wyton
- RNAS Yeovilton

Hardware — ADCT

- Workstations (ADCT - Abbeywood)
- Workstations (ADCT - RAF Boscombe Down)
- Workstations (ADCT - RAF Linton-On-Ouse)
- Workstations (ADCT - RAF Wyton)
- Workstations (ADCT - RNAS Yeovilton)

Software — ADCT

- Assyst on Amos Mainframe
- MS Access 97 on (UNDEFINED 3)

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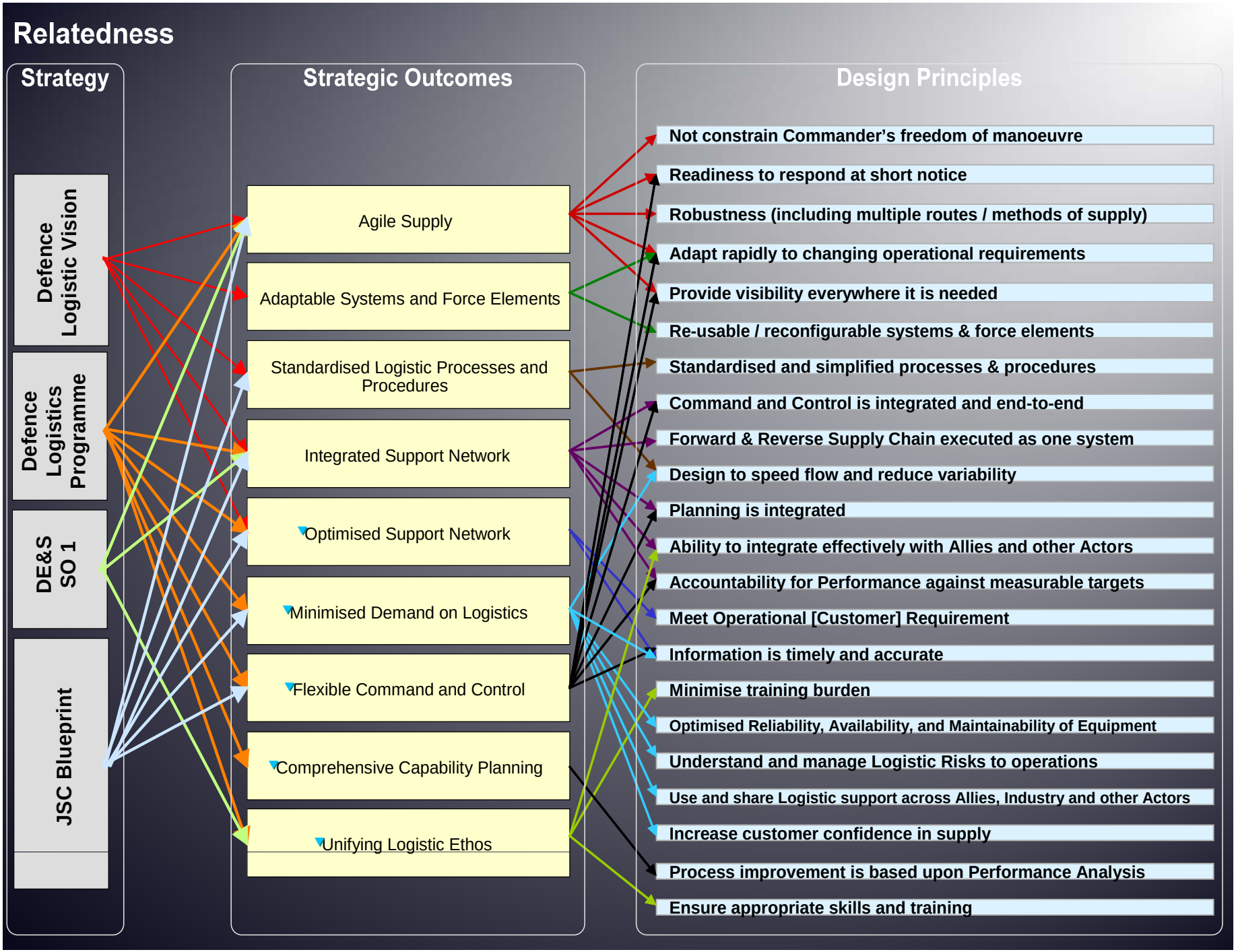
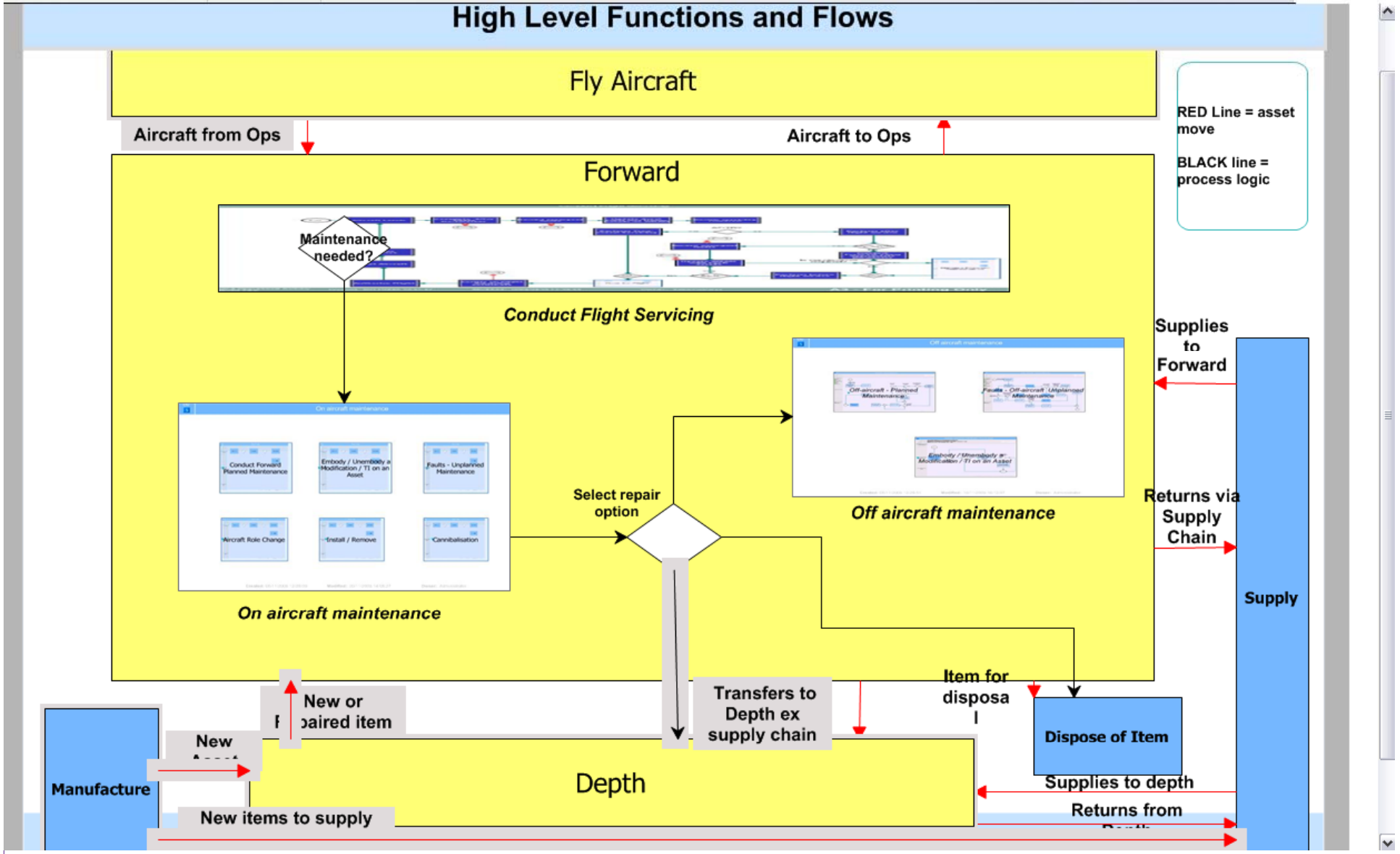

Relatedness
Strategy
Defence Logistic Vision
Defence Logistics Programme
DE&S SO 1
JSC Blueprint
Strategic Outcomes
Agile Supply
Adaptable Systems and Force Elements
Standardised Logistic Processes and Procedures
Integrated Support Network
Optimised Support Network
Minimised Demand on Logistics
Flexible Command and Control
Comprehensive Capability Planning
Unifying Logistic Ethos
Design Principles
Not constrain Commander's freedom of manoeuvre
Readiness to respond at short notice
Robustness (including multiple routes / methods of supply)
Adapt rapidly to changing operational requirements
Provide visibility everywhere it is needed
Re-usable / reconfigurable systems & force elements
Standardised and simplified processes & procedures
Command and Control is integrated and end-to-end
Forward & Reverse Supply Chain executed as one system
Design to speed flow and reduce variability
Planning is integrated
Ability to integrate effectively with Allies and other Actors
Accountability for Performance against measurable targets
Meet Operational [Customer] Requirement
Information is timely and accurate
Minimise training burden
Optimised Reliability, Availability, and Maintainability of Equipment
Understand and manage Logistic Risks to operations
Use and share Logistic support across Allies, Industry and other Actors
Increase customer confidence in supply
Process improvement is based upon Performance Analysis
Ensure appropriate skills and training

High Level Functions and Flows



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LITS Business Processes

LITS Reference Model

The OV-5 Operational Activity Model describes the processes that are normally conducted in the course of achieving a mission or a business goal by a Node. It describes operational activities (or tasks), Input/Output flows between activities and to/from activities that are outside the scope of the Architecture.

LITS Asset Management Business Processes

- ALM Take Ownership
- ALM_Create workorder
- ALM_Dispatch aircraft
- ALM_EI data amendment
- ALM_Feedback & co-ordinate workorder
- ALM_Feedback sortie
- ALM_Other data amendment
- ALM_Produce record
- ALM_Receive aircraft
- ALM_Review asset record
- ALM_Roll up remaining life
- ALM_Update status
- BPS 181: Fatigue Data Accounting
- BPS112: Correct Historic Asset Data
- BPS144: Transfer an Aircraft
- BPS149: Control Data Access Incidents / Accidents
- BPS151: Dispatch Asset
- BPS168: Monitor Assets
- BPS177: Conditioning and Labellling
- BPS211: Update Asset Record Data
- BPS212: Plan / Control Maintenance
- BPS213: Maintain Asset Engineering Audits
- BPS241: Engine / Major Assembly Trial Build
- BPS252: Update Asset at Gateway
- BPS262: Maintain / Recalculate Factored Lifing
- BPSG12: Manage Asset Allocation and Distribution
- BPSG14: Maintain Asset Engineering Record

LITS Maintenance Management Business Processes

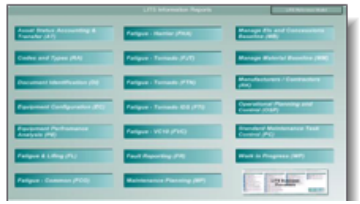
- MM: Assess Aircraft, Documentation and Work Package on Arrival
- MM: Assess Impact of Tasking Changes during Planning
- MM: Assess Task Change Impact on Work Package in Planning
- MM: Carry Out Work
- MM: Coordinate Completed Work Orders
- MM: Create a Rectification Work Order and Demand Materials
- MM: Create and Structure Work Package
- MM: Create Work Package Content
- MM: Identify and Resolve Manning Problems
- MM: Identify Work Orders to be Secured After an Incident
- MM: Incorporate Additional Tasks
- MM: Incorporate Rectification
- MM: Initiate Work Package/Open Aircraft Folder
- MM: Maintain Personnel Data
- MM: Maintain Resource Time and Attendance
- MM: Maintain USAS Demands
- MM: Manage Delayed Work Orders
- MM: Manage Local Static Data
- MM: Manage Material Requirements
- MM: Manage Phase or Work Package Progress
- MM: Manage Resource Requirements
- MM: Monitor and Update Personnel Data
- MM: Monitor Material Demand Progress

Reference Data Maintenance

- Assess New Reference Data to Support Engineering Instructions
- Author Reference Data Changes
- Create a Local SMT
- Create Local Standard Maintenance Tasks
- Manage Common RAF Reference Data
- Manage Equipment Type Baseline Reference Data
- Manage Item Backbone Reference Data
- Manage LITS Records for Personnel on Arrival - RDMDB
- Manage Local Reference Data
- Manage Proposed Changes to Reference Data
- Manage Reference Data to Support Engineering Instructions
- Manage Requests to Restore the Reference Data Maintenance Database
- Manage Standard Maintenance Task Reference Data
- Resolve Reference Data Query
- Review Reference Data Changes prior to Promotion

Manage Fatigue & Lifing

- BPS231: Manage Fatigue Recalculation
- BPS232: Maintain Fatigue Specific Reference Data
- BPS233: Create/Maintain Fatigue Algorithms
- BPS236: Review and Report Lifing
- BPS237: Manage Data for FTB Scenario Testing
- BPS262: Manage Factored Lifing
- BPSG16: Manage Fatigue & Lifing



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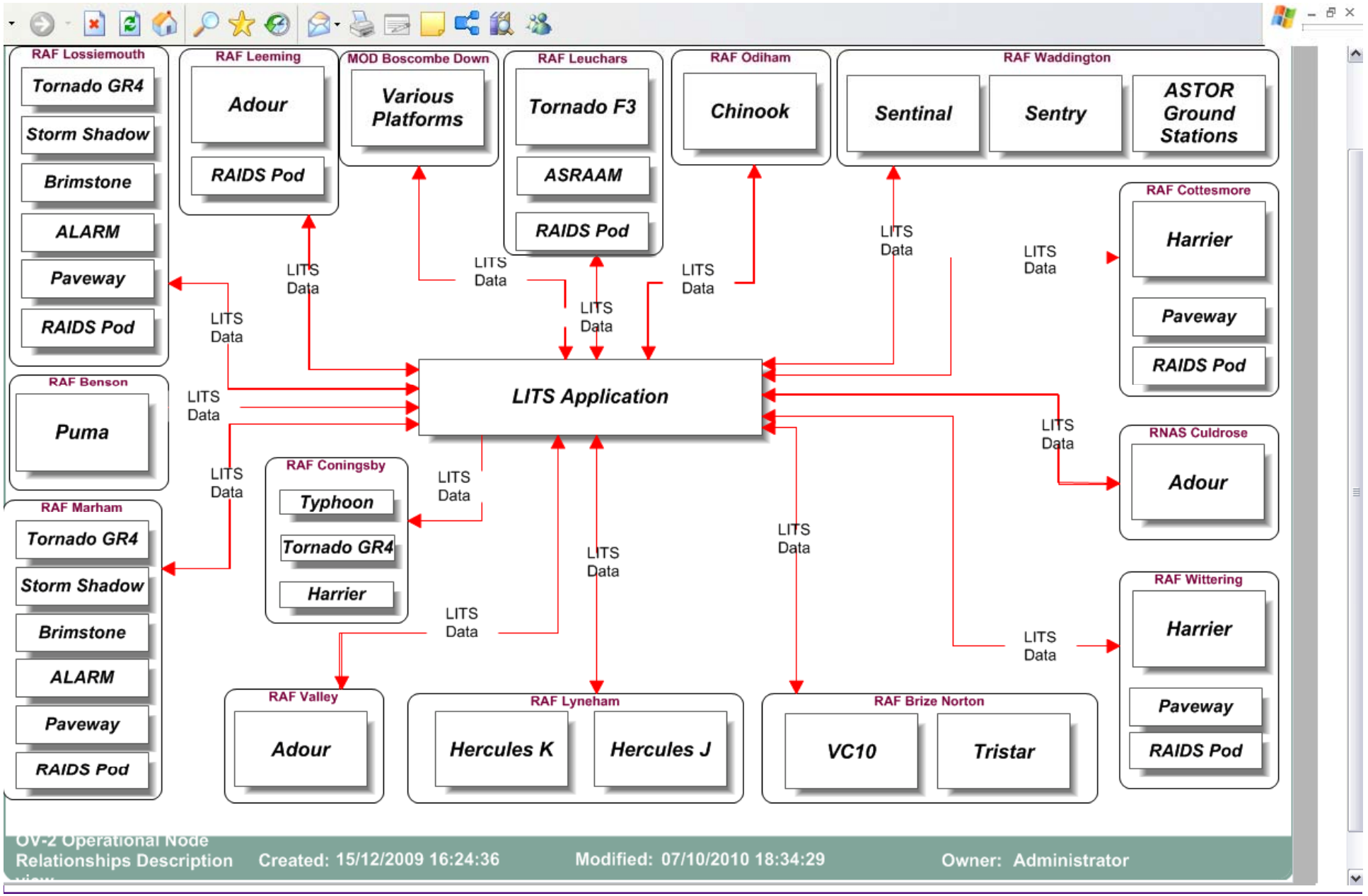

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Benefits delivered

- **Reuse** of supply and engineering support information services developed for one platform has reduced the cost and time for each subsequent platform by a factor of 10
  - Cost - direct development cost savings of £48m and enabled indirect savings (manpower etc) of £40m
  - Time - delivery of the required information service in 3-4 months not 2 years
- **Cost avoidance** – £40m saved through preventing the procurement of a new engineering application for a new platform coming into service – existing MOD application met 90% of requirement
- **Reduce time & cost at analysis stage** - business and information architecture – estimated minimum saving of £100-200k per initiative/project – currently working on 130 projects
- **Assurance** that projects will deliver more robust, integrated and interoperable solutions – **GET IT RIGHT AT DESIGN STAGE**
- Underpins **through life management approach** to logistics support
  - Allows the proactive management of complex inter and intra organisational interfaces

Lessons Identified and Learnt – EA 2009 +

- A strong, well resourced Programme team, with the appropriate tools and experience is essential
- Invest in the highest quality people at the outset of the Programme
- Expectation management
  - this is a long term initiative
  - quick wins are achievable
  - big wins come when the Programme processes are well bedded in, the population of the architecture repository is both broad and deep, and the use of the architecture (and associated tools) is a normal feature of day to day work
- Don't aim to support enterprise architects:
  - Focus on developing a decision support system for business stakeholders to use themselves
- It's not about frameworks or building models:
  - Treat architecture as an exercise in business integration, covering a diverse and connected range of artefacts, plus corporate information
- The only criterion for success is delivered business outcome

Criticisms.....

Criticisms	Log NEC Approach
Technology-led	Business-led
Dogmatic	Pragmatic and benefits driven
Over-ambitious	Incremental and iterative
Unverified	Designed to dire
Divorced from the current state	Directly supports day to day processes and project implementation
Futuristic	Directly supports in-year plans but defines future state
Politicised	Based on hard benefits that have been delivered

Key points..... Issues for discussion?

- The use of an ‘enterprise architecture’ approach has been critical in allowing us to ‘chart a course through complexity’
- But the real value has come through treating component parts of the architecture – business processes, organisational structures, locations, information flows, data architecture – as configurable items, that can be stored, reused, amended, published.
- Tools now at a level of maturity to allow users to directly exploit the various component of the architecture – integrated tool set
- Buy-in at **all** levels critical
  - Must be able to demonstrate benefit to users at the operational level
  - You need both ‘carrot and the stick’
- Governance is key but the design must support agility, responsiveness, federation and an incremental development approach at both the business and technical level

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..... it's obvious isn't it?

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