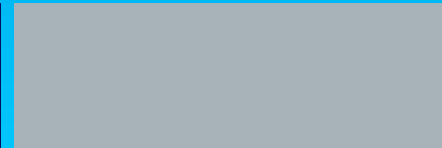
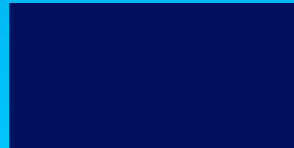


# Transfer of 'Technology' from Defence to Nuclear

Presentation for ciria  
20<sup>th</sup> March 2013

Rob Suttling  
Survivability Practice  
QinetiQ



## Protecting People, Places and Platforms

**QinetiQ**

# Contents

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1. Background to QinetiQ
2. Defence Capability Management
3. Open Architectures
4. Training and Simulation
5. Removing the 'man' from harm
6. Summary and Conclusions
5. Questions

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Protecting People, Places and Platforms



# Integrated Survivability

Don't be .....



## There

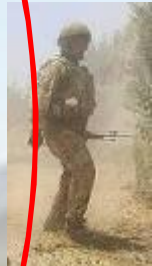


EOD + Robotics

HAZMAT Service

Bridging

## Seen



Camouflage

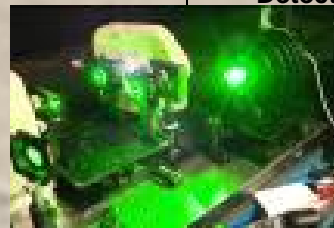
## Acquired



Shot Detection



Laser Warners



Laser sources

## Hit



Target ID



Cueing Systems



Pre-shot Detection



Convoy Protection



OptaSense

## Penetrated



RPG protection



Armour



Non-Lethal Technologies



Force Protection Engineering

## Killed



Emergency Lighting

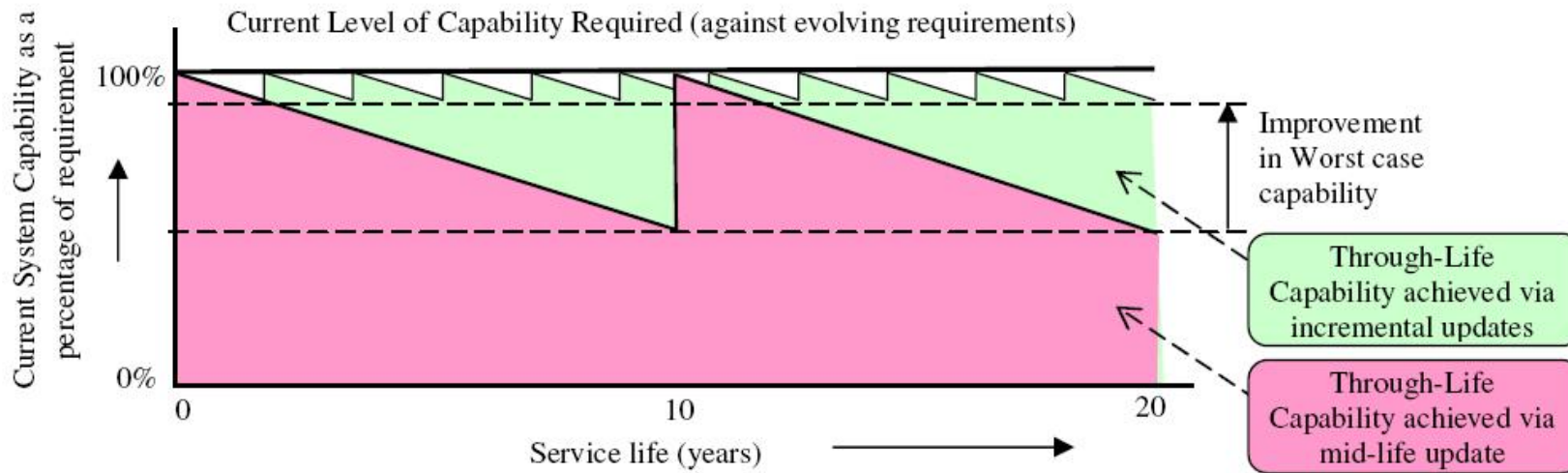


Blast Seats

Open Architectures / Experimentation / Domain Understanding



# Defence Capability Management



The frequency and scope of changes to capability are constrained by the significant costs involved, changes are typically 'parked' until they can be collated into a major upgrade programme.






If costs could be reduced, more frequent, smaller changes could be deployed, more closely 'tracking' the peak operational capability.

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# Defence Capability Management - Traditional v Open

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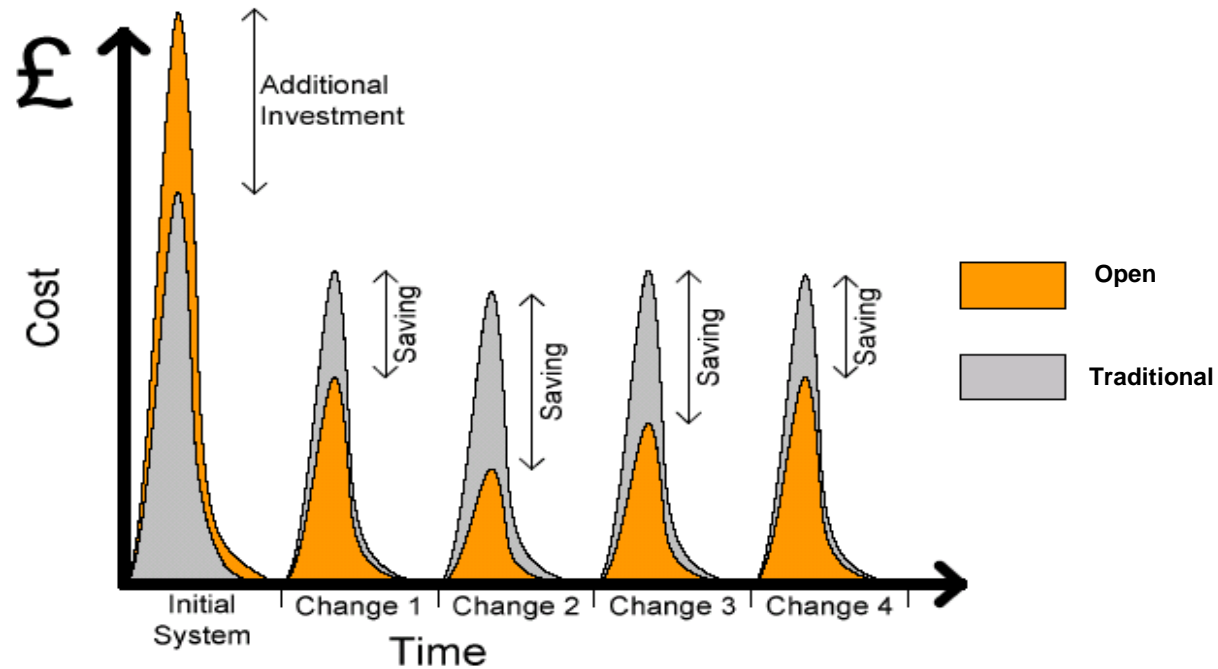
- Bespoke solutions with proprietary interfaces looked into OEM  **Open Architecture**
- Industry unable to invest as solutions one-off  **Access to COTS**
- Safety Case re-written  **Modular Safety Case**
- Security Accreditation re-written  **Multiple levels of security on same network**
- Support Solution re-written  **Modular Dependability Case**

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# Open Architectures - Return on Investment



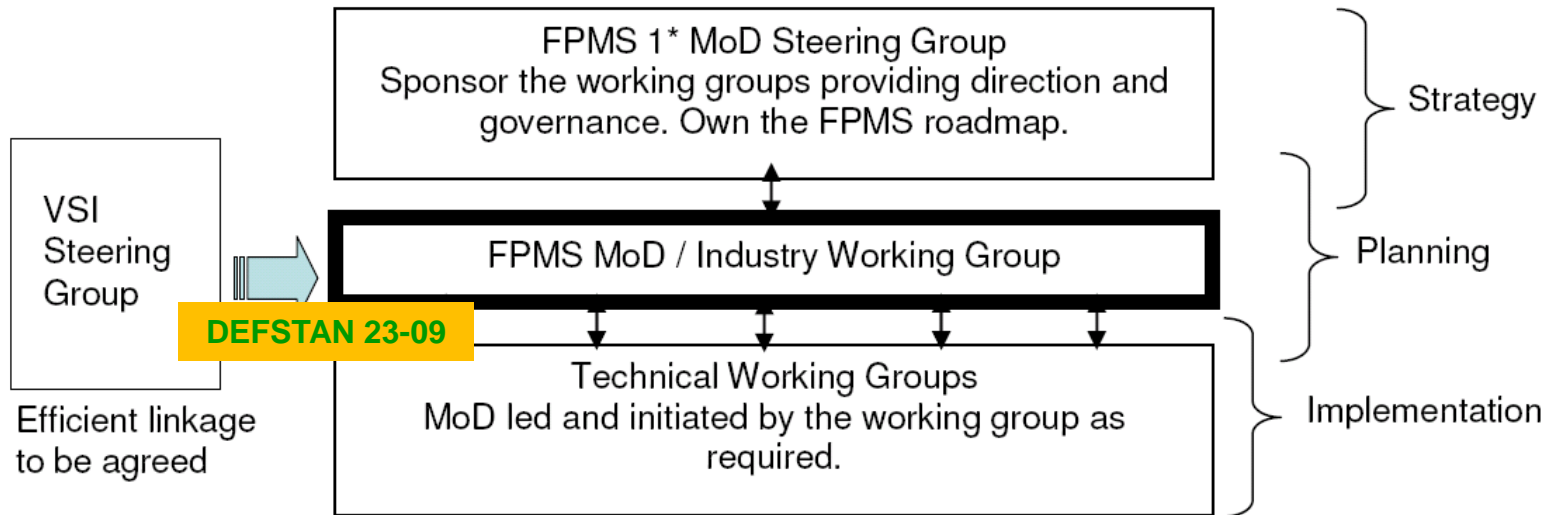
Cost of change no longer linked to complexity of system, but complexity of change  
i.e. REDUCED COST OF OWNERSHIP

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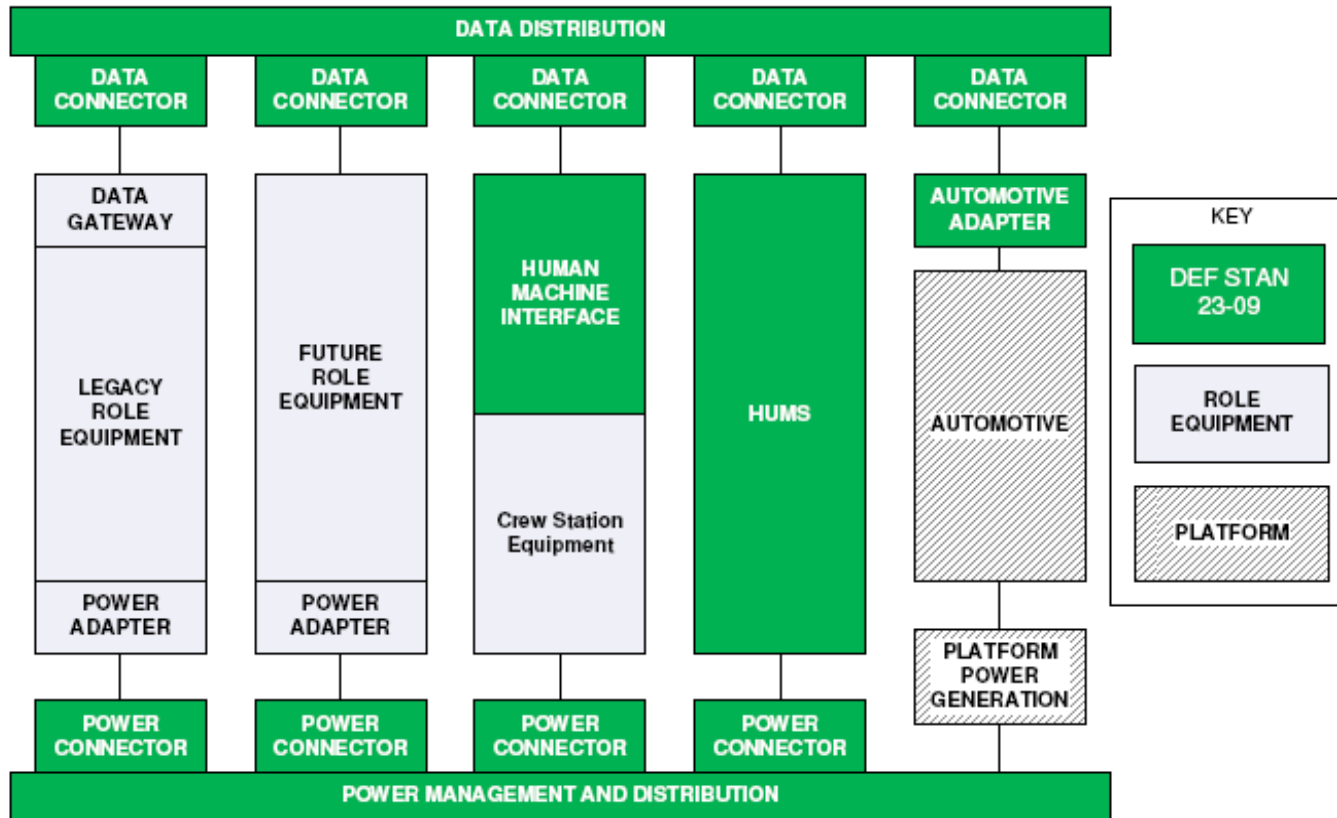
# Open Architectures - MoD Approach to GVA



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# Open Architectures - GVA Platform Architecture and Boundaries



**Data-Centric Publish-Subscribe (DCPS)** model, This model builds on the concept of a “global data space” that is accessible to all interested applications.

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# Training and Simulation Solutions

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The Commercial Off The Shelf Evaluation and Exploitation (COTSEE) programme provides advises on how the considerable investment in games and entertainment related technologies can be exploited in defence. QinetiQ primes this multi-Industry activity on behalf of the UK MOD, acting as liaison with the developer community and delivering numerous targeted capability demonstrators.

Examples include:

- Gunnery trainers
- Health & Safety awareness applications,
- UAV emulations
- Aviation tactical training demonstrator for Joint Helicopter Command.

TIGR SAT - Rather than practising tactical and strategic activity based on imaginary incidents in unrealistic surroundings, QinetiQ's new Situational Awareness Tool (SAT) combines *theatre-specific incident data* with geo-specific terrains in a virtual environment, enabling our troops to experience and learn from an ever expanding database of incidents already experienced by members of the UK armed forces



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# Training and Simulation Solutions – DR20 Simulator

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## Feature description:

- Simulated operational environment (VBS2) appears on DR Hand Controller
- Control movement of simulated DR via Hand Controller
- Explore the simulated environment from different camera viewpoints
- Network for collective/joint training
- Create general and mission-specific training scenarios

## Benefits:

- Augmenting resource-limited 'live' training
- Games technology is interchangeable – future proofing
- Cost-effectiveness (eg reduce demand for spares)
- Train in synthetic environments, optimise in 'live'



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# Removing the 'man' from harm - Project GHOST



**G**as cylinders &:-

To render safe overheated Acetylene Cylinders.

**H**az **O**ps:-

Hazardous Operations using Robotic Equipment

**S**cientific:-

Blast management and containment

**T**eam

GHOST is QinetiQ's 24-7 Blue light response SERVICE on call across the UK via London Fire Brigade to support UK Emergency Services

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# Incident Report (Fire in ISO Container, 2011)

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GHOST Team on site within 3 hrs of call

600m cordon in place – local residents evacuated, roads closed, airport disrupted

Services provided:

- Local situational awareness to Incident Commander
- Gained safe access to container contents
- Infrared imaging to provide understanding of hot-spots
- Extended remote fire fighting/cooling

Situation contained and cordon reduced 6 hrs after arrival allowing people to return to homes and businesses to operate

GHOST benefits

- Reduced risk to fire-fighters who were able to withdraw to safe distance without losing situational awareness
- Reduced risk to local infrastructure through faster containment of the threat
- Reduced disruption by shortening the time for the cordon, evacuation and road/airport closure


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## Removing the man from harm – ‘RCV Medley’

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Trials at  
Moreton-in-the-Marsh

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# Summary

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1. The Nuclear Sector can benefit from the significant on-going investment from UK MoD and Defence Contractors in:

- Open Architectures

- Modular Safety Cases

- Multi-level security solutions

- Training and Simulation

- Robotics

2. Consideration of a Generic Site Architecture to deliver:

- Win:Win with Industry through the adoption of appropriate open standards

- Improved Strategic Planning and Capability Management

- Improved Stakeholder Engagement and Communication

- Reduced cost of ownership and increased 'RoI'

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# QUESTIONS?

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