BAE SYSTEMS
Developing Coalition Interoperability
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Today’s Objectives

• Introduce the problem context and interdependencies.

• Discuss BAE SYSTEMS’ Position

• Review example of enabling technologies and Operational analysis.

• Expand on Multi National Experiment 3

Focusing on Coalition Combat Effectiveness and Capability
Today’s Discussion Context

NATO CNAD R&T priorities:
- Common Operating Picture
- Joint Expeditionary Warfare
- Network Centric RSTA Time Critical Targeting
  - Knowledge, Maneuver & Precision Engagement
  - Continuous Pressure
- Interoperable Tactical Communications
- Interfaces Between NATO and National Intelligence Systems
  - Integrated Agency Actions
- Aerospace Ground Surveillance
  - Situation Knowledge Based Operations
- Infantry Personal Protection & Network Centric Battle Dress
- Interoperable Joint Combat Identification System
Today’s Discussion Context

Joint Expeditionary Warfare:
- Rapid Global Mobility
- Interoperability
- Shared Battlespace Awareness

Self-Synchronized & Integrated Military Forces:
- Air & Space Superiority
- Network Centric Operations
- Open Systems Architectures

Knowledge, Maneuver & Precision Engagement:
- Precision Engagement
- Information Superiority

Continuous Pressure:
- Agile Combat Support
- Time Sensitive Targeting
- Dynamic Engagement Control

- Integrated Agency Actions
- Situation Knowledge Based Operations
- Primarily Non-Linear
External Drivers

- Fiscal Pressure
- Multinational Co-operation
- Manpower Challenges
- Political & Social Responsibility
Delivering Transformation

- Deliver Platforms
- Support Current Operations
- Develop Transformational Technologies & Capabilities
- Understand Customer Operational Concepts & Strategic Objectives

Begin to deliver Transformation

Examples such as:
- AJCN
- JTRS

Examples such as:
- NITEWorks
- Network Sensing
BAE SYSTEMS plc
A Platform Prime and Partner

90,000 Employees
£46B Order Book
£12.6B Annual Sales
£980m PBIT
£860m Net Debt

World Leading Platform Integration & Customer Support

Air

Missiles

Land

Sea
Compass Call System
- Prime contractor for prime mission equipment

Low Cost Precision Weapons
- 100% direct hit operational testing by US Army

Enterprise-wide Intelligence System

Link 16
- More than 1,000 systems delivered to US forces and 8 NATO nations

BAE Systems supported all the Flex Targeting (dynamic retasking) during OIF conducted through digital data links
Delivering Transformation

Deliver Platforms

Support Current Operations

LEGACY

Develop Transformational Technologies & Capabilities

Developmental

Understand Customer Operational Concepts & Strategic Objectives

Begin to deliver Transformation

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Examples such as
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AJCN Overview

AJCN is a JTRS Compliant Programmable RF System that Simultaneously Supports Multiple Missions (Communications, SIGINT, EW and IO).

Key AJCN Features:
• Multi-Mission Support
• Scaleable Architecture (Platform Independent)
• SW Reprogrammable
• Open System Design

Approved for Public Release, Distribution Unlimited
BAE SYSTEMS plc
Mike Turner
CEO

- 90,000 Employees
- £12.6B Annual Sales

BAE SYSTEMS North America
Mark Ronald
CEO

- 26,000 employees
- $5.1B annual sales
- Top 10 DoD Supplier

Special Security Agreement
AJCN is a Network Centric Warfare Enabler

AJCN is a Critical Element for Network Centric Warfare, including the Airborne COMMS Node for MMP, FCS, WIN-T, and potentially for MC2C, BAMS, & MMA
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Network Integration Test and Experimentation Works

A MoD/Industry partnership providing an experimental environment which allows our customer community to assess the benefits of NEC and the options for its effective and timely delivery

- 10 partner companies and 33 associates
- MoD directed and industry managed
- ‘Solution Concept Teams’ responding to customer questions
- An integrated MoD/Industry environment
Modus Operandi

- Verified capability options in response to customer-initiated questions
  - experimental resources (human, technical, analytical)
  - contextual information (battlespace & business understanding)
- Iterative Problem/Question response cycle
- Report key decision-points to the Customer
  - Low riger visualisation and experimentation
  - cases for detailed experimentation (where merited) are developed

Focus on modification of current procedures with existing assets to enhance NEC vision
Example of Current Themes

- Multi National Experiment 3
  - coalition synthetic experimentation aimed at improving UK/US/NATO interoperability
- Kill Chain Development (KCD)
- Indirect Fires Integration (IFI)
- Command and Battlespace Management (land)
- ISTAR (Collection and Exploitation Coordination)
- Others include; Land Tactical Picture 2005, Under Water Autonomous Vehicles, Combat ID
Multi National Experiment 3

- Assessed and developed an operational level EBP concept
  - current Afghanistan scenario
  - examined the process, organisation and technology required to support EBP

- Six Multi Interoperability Council nations
  - Australia, Canada, France, Germany, UK & US plus NATO
  - ran from 2-20 February 2004.
  - UK participation was led by D CBM/J6
Effects Based Planning is the core concept under consideration in this theme

• **Coalition Objectives**
  - processes to support coalition EBP
  - organisations to support coalition EBP
  - technology requirements to support coalition EBP

• **UK Objectives**
  - Influence development of international EBP process
  - Assist in the management of EBP to UK military doctrine
  - 21 UK experimental questions
MNE3 Method

- Quasi-Experiment
- Afghanistan Vignette
- Global Coalition Federated Battle Lab (CFBL) Network
MNE3 Outcome

- Good learning opportunity and environment to exchange ideas
- Differences between US and coalition partners’ experimentation approach
- EBP offers potential for improved coalition and UK military operations.
  - analysis suggests, if poorly implemented it will detract from current operations planning capabilities.
Conclusions

• Many factors driving transformation.
  – US will steer coalition transformation
• Nation’s need to be independent presents a challenge
• NITEworks – True solutions to the customer
  – addressing complex, multi stakeholder environments that drive a NEC
• UK needs to address national NEC as a priority to solving coalition interoperability.
Questions
Combat ID

• One Corollary of MNE3

Platforms as Nodes
- E-2C Hawkeye
- AWACS
- F-18 Hornet
- LCS
- JSF

Command & Control

Combat Identification

Target Identification

Battle Space Awareness

Less Tangibles

Integrating Systems
- FORCENet
- LandWarNet
- ConstellationNet
- FCS
- WIN-T, GiG

Doctrine & Process

Training

Human Factors - Stress

Workload

Fatigue

• Integrating Systems

• One Corollary of MNE3