

VTID and FPV-CV

Embracing and Extending VSI



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Presentation Overview

- **Exploitation of VSI research into GVA**
 - VTID
 - **Vehicle Technology Integration Demonstrator**
 - Including video clip of trials and vehicle reconfiguration
 - FPV-CV
 - **Future Protected Vehicle – Capability Vision**
 - OPICCOD
 - » **On-Platform Information-Centric Control of Data**



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Stand Composition

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- **VTID Demonstrator Vehicle**
 - Commander's Crewstation, Safety Panel, labelled VTID features
 - Digital video feed from Remote Weapon Station to other stands
 - Industry cooperation and interoperability enabled by VSI
- **FPV-CV displays**
 - Banner and architecture poster
- **VTID displays**
 - Architecture, HMI (Human Machine Interface), Reconfiguration
 - Video showing Operational Analysis (OA), HMI AFV simulator (used for SME assessments) and VTID trials and reconfiguration



VTID

Vehicle Technology Integration Demonstrator

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VTID Overview

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- A mission-modular Integrated Survivability (IS) System enabled by an open VSI-compliant architecture, effective against a spectrum of threats in a broad range of scenarios
 - Integration of a wide range of protection technologies as IS 'fits'
 - Sensors
 - Counter-measures/effectors
 - Signature management
 - Enablers
 - Enables future technology insertion
 - Platform agnostic (light to heavy, current to future)
- Significant User input to develop a useable (HMI) solution

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VTID HMI

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- VTID Crewstations
 - HMI developed with SME assessments
 - Slew & NLW (non-lethal weapon) controls added
 - Enhanced GPI (Gun Position Indicator)
 - Touchscreen displays
- Reconfigurable Safety Panel
- Influenced
GVA Def Stan 23-09



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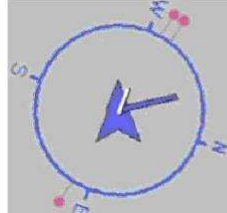
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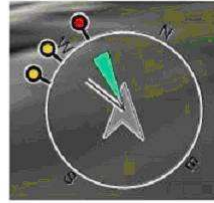


VTID HMI – GPI (Gun Position Indicator) **THALES**

Prototype



Concept



- GPI displays vehicle heading (compass) and sights
- GPI shows threat bearings for all active threats
- Additional information can be called up as a table or larger radar-style GPI with range indication
- Threat bearing/position also displayed on map view
- Weapon/sight can be SLEWed onto a threat



VTID Safety Architecture

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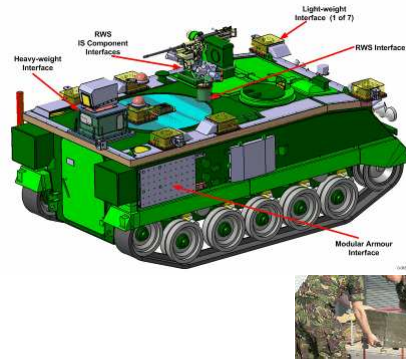
- Time Triggered Protocol (TTP)
 - Serial databus for deterministic transfer of real-time, safety critical data
 - Implemented and operated robustly for VTID trials
 - TTE (Time Triggered Ethernet) recommended, once mature
- Universal Gateway Unit (UGU)
 - Interfaces OEM equipment to VSI architecture
 - Bus, serial and discrete connections to OEM kit
 - Common VSI power and data buses
 - Safety critical software encapsulated could handle discrete signals transferred to TTP or TTE once certified



VTID Reconfiguration

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- Short video clip showing VTID trials and REME reconfiguration during a lunchtime intermission



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VTID Findings

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- Optimised platform protection requires modular IS
- Reconfigurable, VSI compliant, modular IS is feasible
 - Open standards and Interfaces in a GVA
 - Robust, safety critical architecture
- VTID matured VSI Research to raise TRLs
- Modular IS system can be transparent to Users
- Modular IS can be cost effective across DLoDs
- Modular IS is scalable to all platforms

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FPV - CV

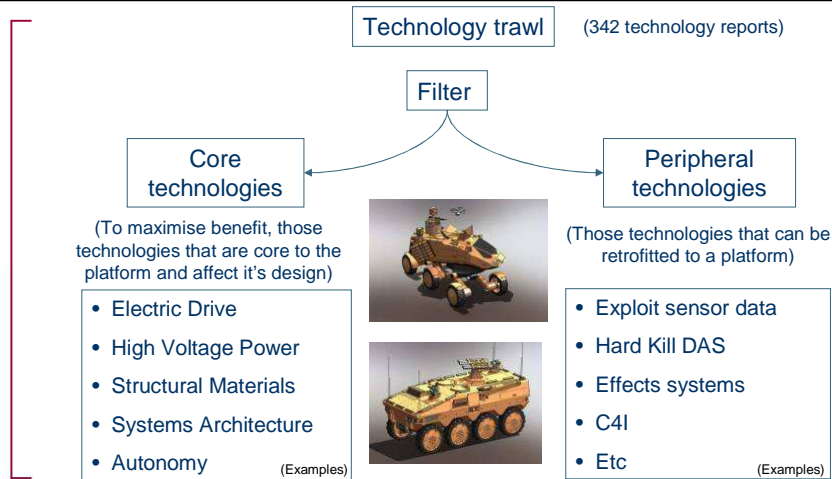
Future Protected Vehicle – Capability Vision

FPV Overview

- An Electric 30 tonne Armoured Fighting Vehicle with the effectiveness and survivability of a current Main Battle Tank
 - High tactical mobility
 - Reduced logistic footprint
 - Strategic mobility of a rapidly deployable, air portable system
 - It will employ a modular, open VSI architecture
 - Underpins a future generation of mission configurable platforms
- Innovative technologies, progressively developed, could enhance current platforms
 - VSI enables technology insertion
- Task 1 (System Studies) completed July 2010 by 2 teams:
 - Team Innov8 primed by Thales and BAE Systems team

FPV - Continuing VSI Research

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FPV - VSI and System Architecture

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- Key enabler for through life technology insertion and capability management
 - VSI enables capability growth
 - Builds upon VTID, Alexin and GVA activities
- Must encompass physical, power, data, utilities, software, security and safety critical aspects
- Needs to form a core element of the overall vision for the overall land equipment structure
- Technology roadmaps developed for core technologies
- Fundamental to agile response to evolving threats and scenarios

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FPV-CV – OPICCOD - Overview

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- Project funded by Centre for Defence Enterprise (CDE) under FPV-CV
- Project Delivered by Thales Research and Technology and Ultra Electronics
- Demonstrated an innovative information centric approach to the distribution of classified data alongside unclassified data on a common data highway
- Proposed a roadmap to achieve accreditation
- Layered architecture
 - Security, Middleware, Timing Protocol, Carrier (Ethernet)

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Benefit of OPICCOD

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- Totally Scalable
 - Enables Video and Deterministic data on single physical layer
 - Can be split at “switch” as bandwidth grows
- Fully Integrates Platform Mission System
 - Data sharing
 - Data fusion
 - Increase Situation Awareness
 - Increased Survivability
 - Simpler command and control
 - Easier integration
- Fewer Wiring Harnesses
 - Increased reliability
 - Reduced cost

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Questions?

