Team Defence Information
AI SWG

29-06-2020

Trusted partner for your **Digital Journey**

Atos

Introductions

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Atos

ARMY DIGITALISATION
PROJECT THEIA
BRIGADIER MIKE DOOLEY CDO

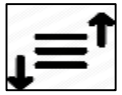
ARMY
BE THE BEST

ECAB ENDORSED - DIGITALISATION

Do things differently to modernise; do different things to transform; think differently

Leadership in Digitisation is a national security priority

- *'The next war will be won in a hyperscale data centre by the side who can train algorithms the fastest' (Director Jt AI Centre, US DoD)*
- *'Algorithm competition will determine war-fighting superiority' (Li Minghai, PLA National Defence University).*



Setting and publicising priorities for digital transformation is essential

- *Our current efforts are disjointed, divergent and duplicative - multiple versions of the truth*
- *'Component-level responses to adversary action are achievable in 45 minutes, and need to be made in 5 minutes to be competitive' (US Futures Command Joint Warfare Assessment)*

We need to start valuing our data

- *85% of the Army's data – **the mineral ore of artificial intelligence** - is controlled by others*
- *We have four separate databases holding organisation and manning data*

The technology is the easy bit

- *'0% chance of realising breakthrough performance through Digital transformation if cultural change is not simultaneously addressed' (BCG 2019)*
- *The synergy of people and data will be the enduring priority*

Delivering transformation

- *Good ideas do not wait for planning rounds*
- *Architectures are key to alignment and the enterprise*
- *Lever and focus to our advantage*

What we are doing has been done by others

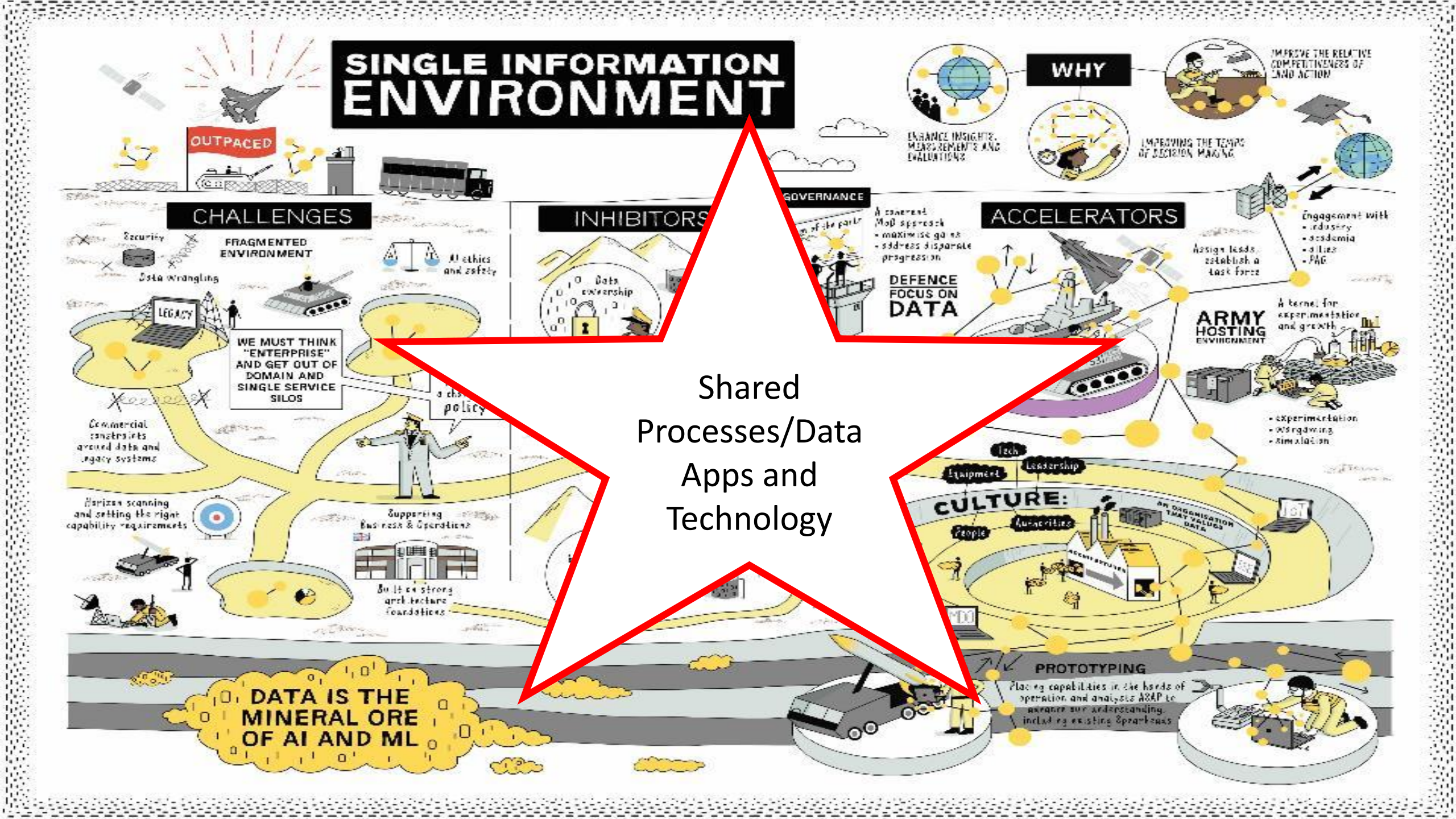
- *Google PageRank 1996; Amazon automated logistics 2012*
- *Maximise coherence with MoD; co-ord and co-op with oTLBs*
- *Build on our good work and initiatives*

ARMY DIGITALISATION – LINES OF OPERATION

- Predictive maintenance – candidate lead D Sp.
- Machine C2 – candidate lead D Info.
- Global Status Control Tower / Army Readiness – candidate lead COS Fd Army.
- Robotic force multiplier – candidate lead D Cap.
- Bionic HR – candidate lead D Pers.
- APC processes – candidate lead HC.
- Persistent J2 understand – candidate lead D Info.
- Any sensor, Any effector, Any authorised decider – candidate lead D Cap.
- End to end secure logistics – candidate lead D Sp
- Automating the management of Military Transport – candidate lead DLW.

CONSISTENT THEMES FOR APPLICATION OF AI/ML AND AUTOMATION

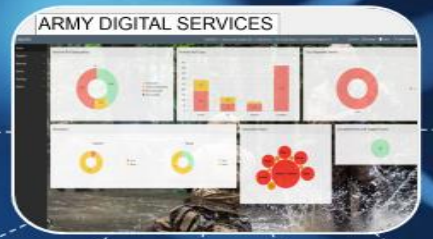
- Pragmatically pursued as a potential solution to requirements
  - Expectation Management – seeing through the hype
  - Design-led, backed up with rigorous supporting S&T progra,
  - Clear requirement setting and management
  - Not treated as an E2E capability
  - Coherent Test and Reference
- Take the burden off the human and place it on the machine
  - Done where feasible and adding tangible benefit
  - Not pursued for its own sake
  - Human in/over the loop at all times
- Three SoS elements (agreed with MOD CSA):
  - ***Data (critical – the 'mineral ore' to everything)***
  - ***Architecture – clearly defined***
  - ***Algorithms – what do we want from it and how is this tested/validated***
- Release criteria – technical, legal and ethical in combination
- Same principle apply to use in the homebase and deployed


SINGLE INFORMATION ENVIRONMENT
WHY
IMPROVE THE RELATIVE COMPETITIVENESS OF C2 AND ACTION
ENHANCE INSIGHTS, MEASUREMENTS AND EVALUATIONS
IMPROVING THE TEMPO OF DECISION MAKING
OUTPACED
CHALLENGES
INHIBITORS
GOVERNANCE
ACCELERATORS
FRAGMENTED ENVIRONMENT
Security
Data wrangling
AI ethics and safety
LEGACY
WE MUST THINK "ENTERPRISE" AND GET OUT OF DOMAIN AND SINGLE SERVICE SILOS
Commercial constraints around data and legacy systems
Horizon scanning and setting the right capability requirements
Supporting Business & Operations
Built on strong architecture foundations
Data ownership
A coherent MoD approach
• maximise gains
• address disparate progression
DEFENCE FOCUS ON DATA
Assign leads, establish a task force
Engagement with
• industry
• academia
• allies
• PAG
ARMY HOSTING ENVIRONMENT
A kernel for experimentation and growth
• experimentation
• wargaming
• simulation
Shared Processes/Data Apps and Technology
Tech
Equipment
Leadership
CULTURE:
People
Narratives
PROTOTYPING
DATA IS THE MINERAL ORE OF AI AND ML

Director information

PROJECT THEIA: THE ARMY'S DIGITAL TRANSFORMATION

ARMY DIGITAL SERVICES



LAND C2 SPEARHEAD

USER-CENTRED

LAND CYBER PROGRAMME

MISSION SYSTEMS INTEGRATION PROJECT

HALO OPERATIONS CENTRE

ARMY DATA ANALYTICS PLATFORM

THEIA

THEIA

Cloud Technology

RPA

Architectures

AI/ML

LE TacCIS

TRANSFORMING BATTLE-WINNING INFORMATION CAPABILITY

INTEROPERABILITY

CONNECTIVITY

EASE OF USE

INTEGRATION

INTERIM BENEFITS

OPTIMAL INFORMATION CAPABILITY

NETWORK AGILITY & RESILIENCE

EFFICIENT MANAGEMENT OF CIS

SITUATIONAL AWARENESS & DECISION MAKING

REDUCED COGNITIVE & PHYSICAL BURDEN

SINGLE INFORMATION ENVIRONMENT

INCREASING SURVIVABILITY

RESILIENCE

END BENEFITS

IMPROVED OPERATIONAL EFFECTIVENESS

EFFICIENT, TIMELY CAPABILITY DELIVERY

ENABLING:

BIG DATA

AI & ML

DRIVING:

INCREASED TEMPO OF OPERATIONS

CROSS DIMENSION MANOEUVRE

EXPLOITATION OF INTELLIGENCE & TECHNOLOGY

INTEGRATED INFORMATION ADVANTAGE

USER CENTRED

LE TacCIS

AGILITY

INNOVATION

TRANSFORMATION

PROTOTYPING

COLLABORATION

VALUE FOR MONEY

OUTPACING THE THREAT

INCREASING EFFECTIVENESS

2020

2030

2040

2050

CAPABILITY DROPS

LE TACCIS - THE FUTURE

AI for PED

SIE – across aligned progs (FBLOS, NSoIT)

UAV ISTAR feed

Airborne Nodes

C2
- Dispersed
- Distributed
- At reach

Service and Security Management

Dynamic Spectrum Management

Super Soldier

Army Platform recapitalisation

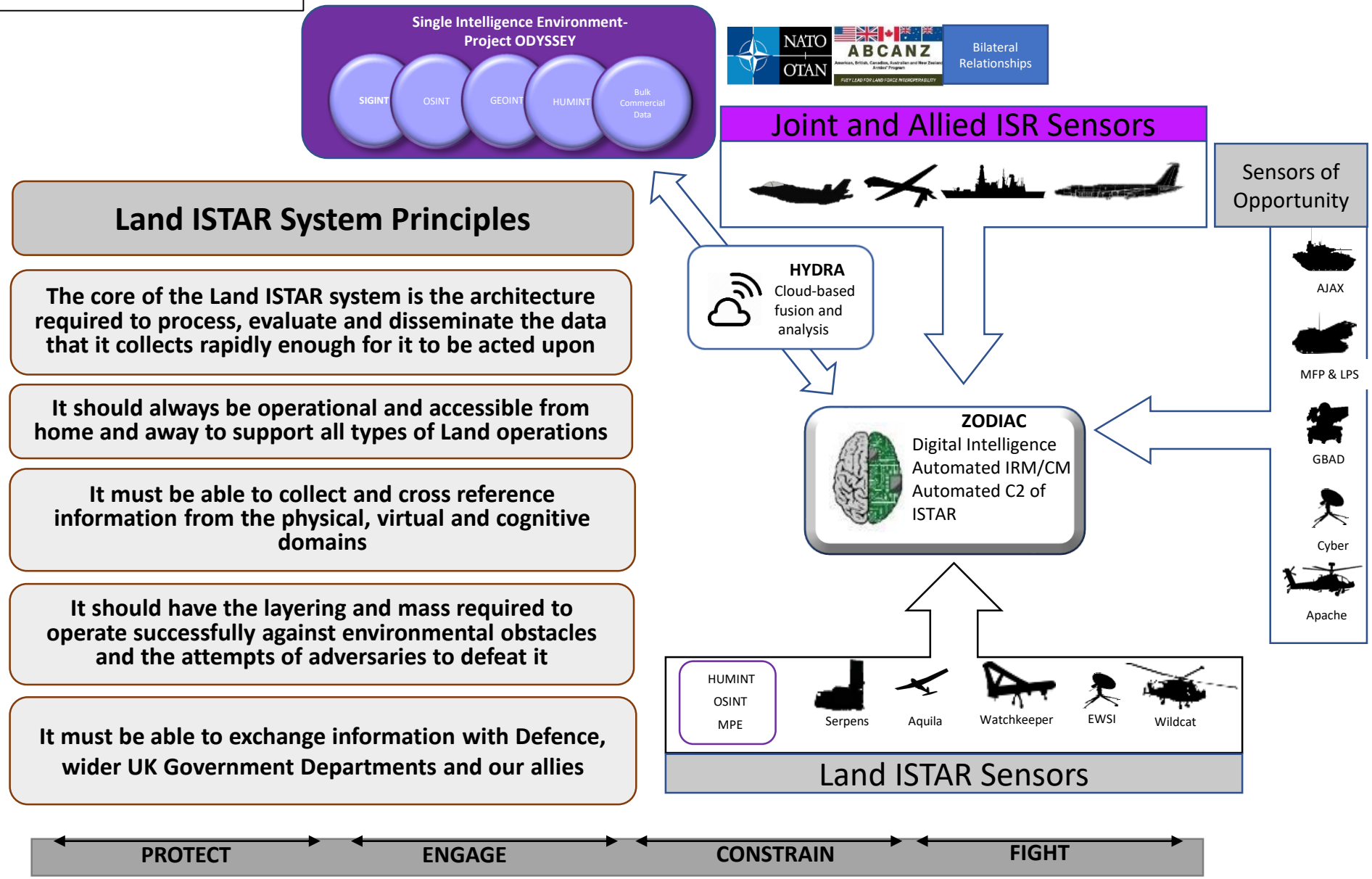
Autonomous Platforms

Future Fires

Virtus

LAND ISTAR PROGRAMME

PROGRAMME OVERVIEW



Land ISTAR System Principles

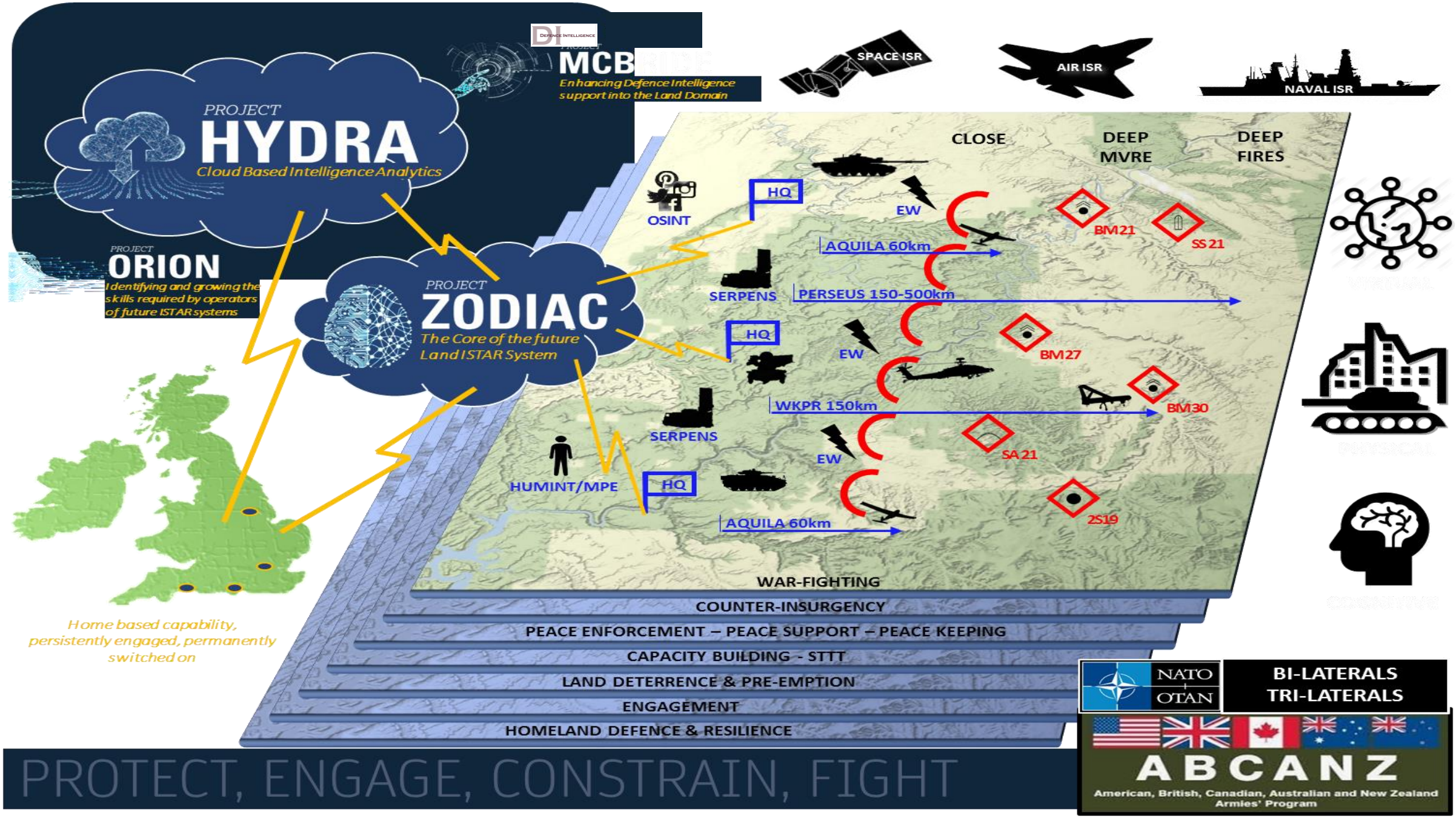
The core of the Land ISTAR system is the architecture required to process, evaluate and disseminate the data that it collects rapidly enough for it to be acted upon

It should always be operational and accessible from home and away to support all types of Land operations

It must be able to collect and cross reference information from the physical, virtual and cognitive domains

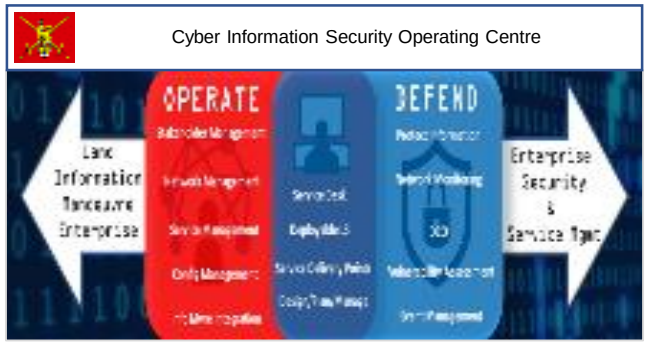
It should have the layering and mass required to operate successfully against environmental obstacles and the attempts of adversaries to defeat it

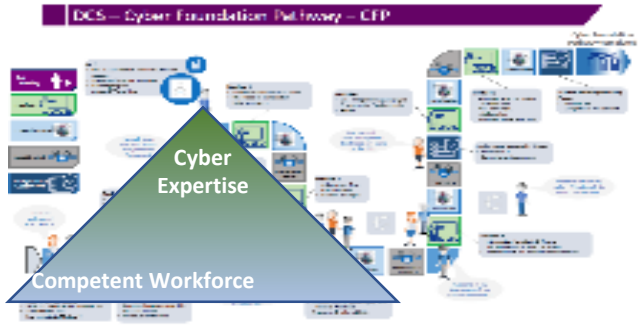
It must be able to exchange information with Defence, wider UK Government Departments and our allies


PROJECT
HYDRA
Cloud Based Intelligence Analytics
MCB
Enhancing Defence Intelligence support into the Land Domain
PROJECT
ORION
Identifying and growing the skills required by operators of future ISTAR systems
PROJECT
ZODIAC
The Core of the future Land ISTAR System
SPACE ISR
AIR ISR
NAVAL ISR
CLOSE
DEEP MVRE
DEEP FIRES
OSINT
HQ
EW
AQUILA 60km
BM21
SS 21
SERPENS
PERSEUS 150-500km
HQ
EW
BM27
WKPR 150km
BM30
SERPENS
SA 21
EW
HUMINT/MPE
HQ
2S19
AQUILA 60km
WAR-FIGHTING
COUNTER-INSURGENCY
PEACE ENFORCEMENT – PEACE SUPPORT – PEACE KEEPING
CAPACITY BUILDING - STTT
LAND DETERRENCE & PRE-EMPTION
ENGAGEMENT
HOMELAND DEFENCE & RESILIENCE
Home based capability, persistently engaged, permanently switched on
NATO OTAN
BI-LATERALS
TRI-LATERALS
ABCANZ
American, British, Canadian, Australian and New Zealand Armies' Program
PROTECT, ENGAGE, CONSTRAIN, FIGHT

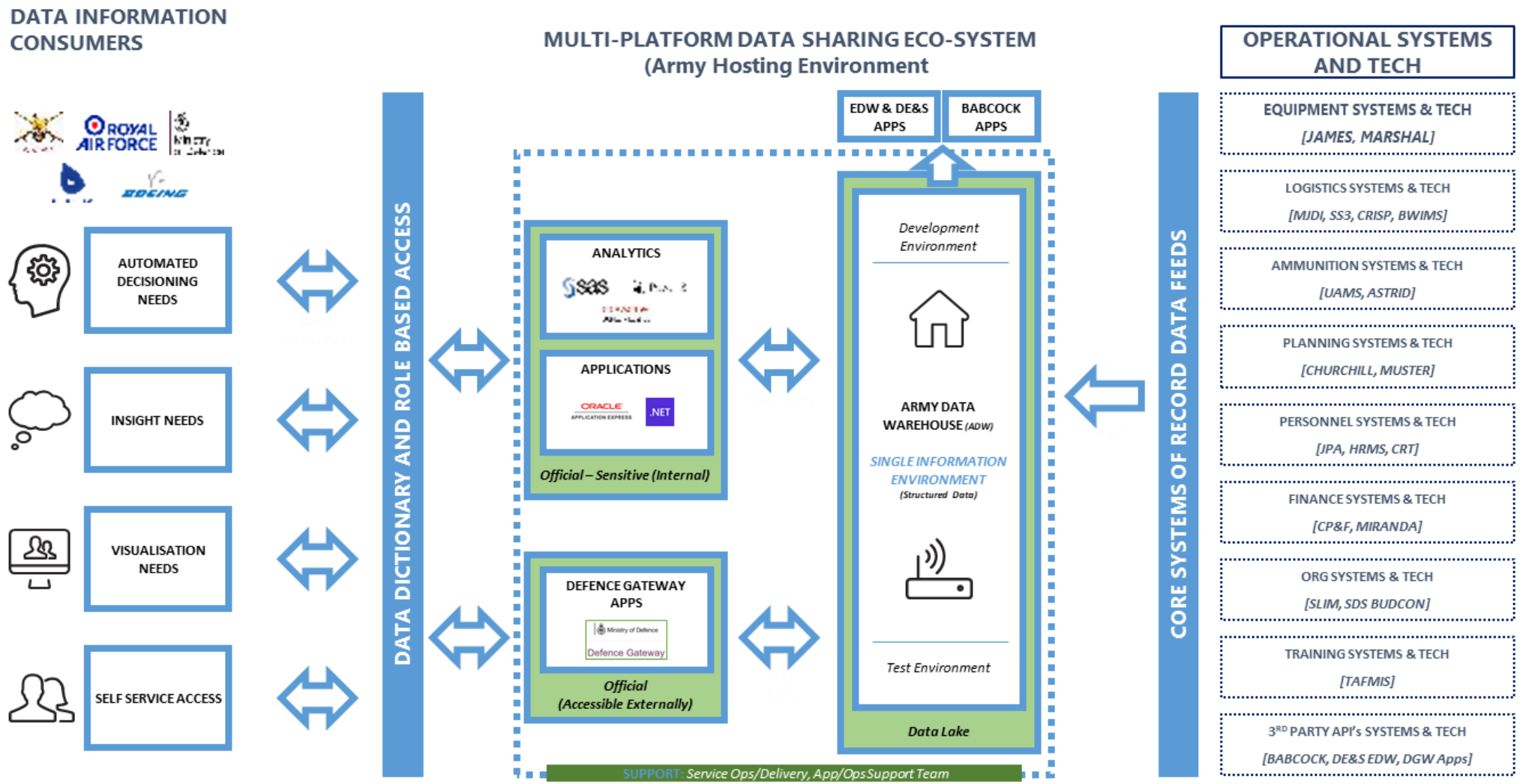
DIRECTOR INFORMATION

LAND CYBER PROGRAMME



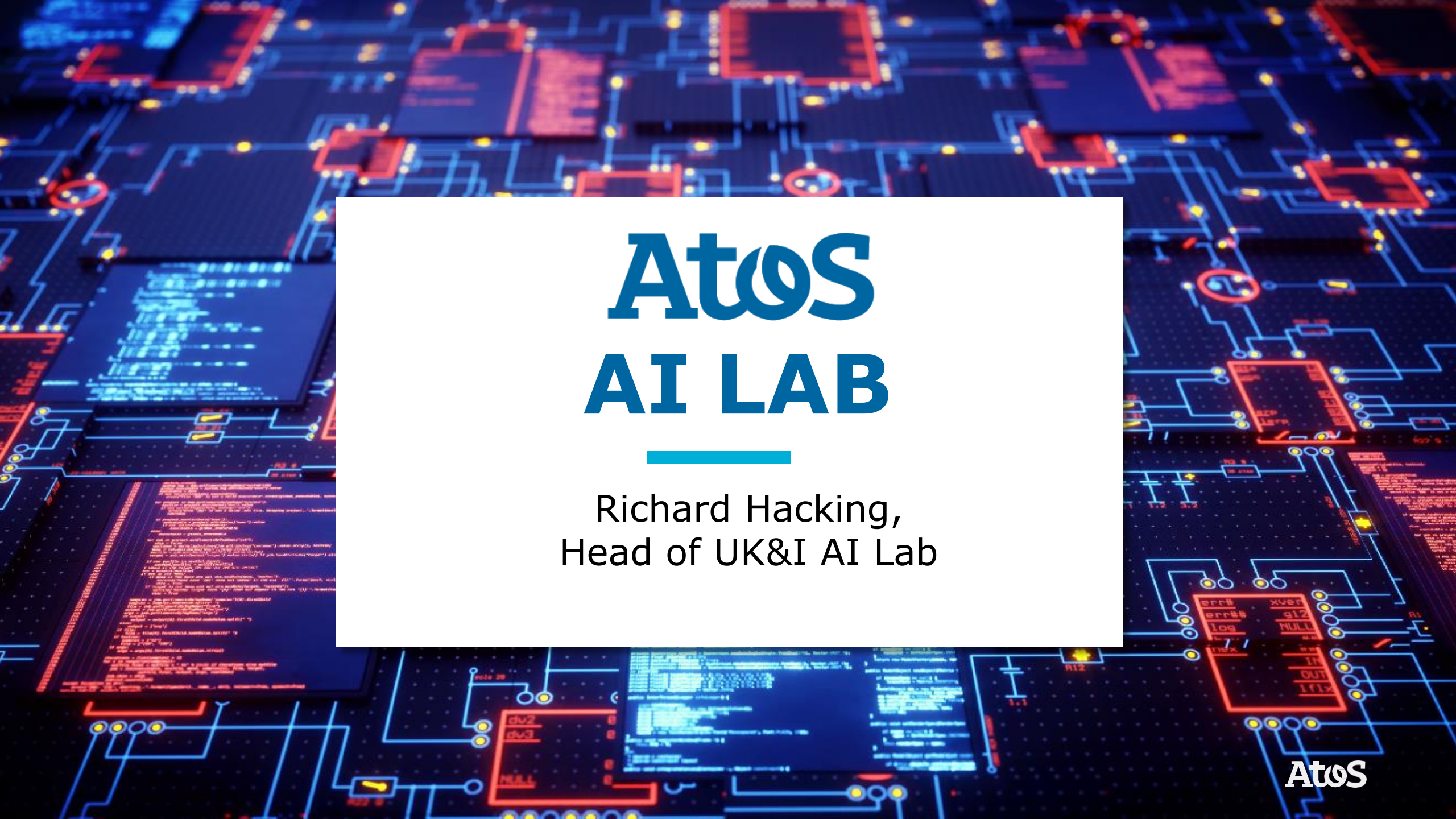


ALL OF THIS MUST BE UNDERPINNED BY QUALITY DATA



The Army Data Landscape

API: Application Programming Interface
EDW: Enterprise Data Warehouse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AI LAB
Richard Hacking,
Head of UK&I AI Lab
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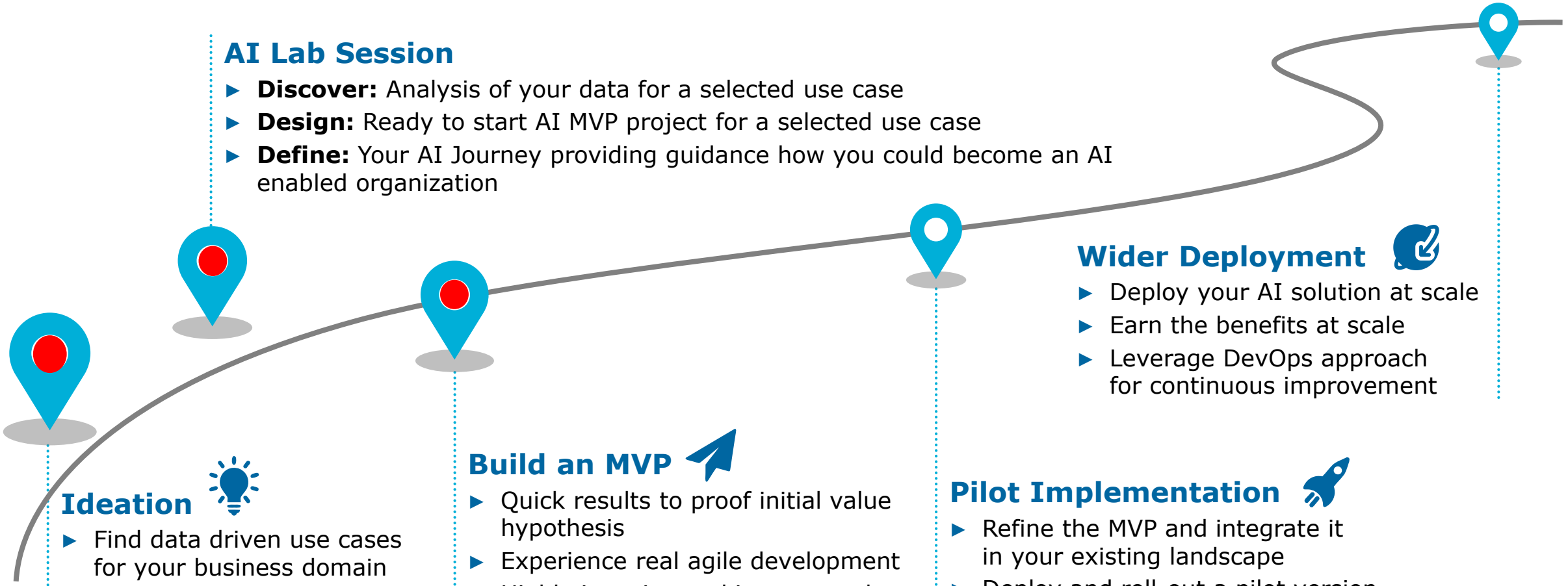
What does the AI Lab offer for our customers?

Atos will guide you all along your AI journey!



AI Lab Session

- **Discover:** Analysis of your data for a selected use case
- **Design:** Ready to start AI MVP project for a selected use case
- **Define:** Your AI Journey providing guidance how you could become an AI enabled organization

Ideation

- Find data driven use cases for your business domain
- Evaluate potential of identified AI use cases

Build an MVP

- Quick results to proof initial value hypothesis
- Experience real agile development
- Highly iterative and incremental development approach

Pilot Implementation

- Refine the MVP and integrate it in your existing landscape
- Deploy and roll-out a pilot version
- Leverage hybrid cloud approaches

Wider Deployment

- Deploy your AI solution at scale
- Earn the benefits at scale
- Leverage DevOps approach for continuous improvement

Implemented use cases

- Service optmisation
- Predictive maintenance
- Decision Support
- Sentiment Analysis
- Quality Assurance
- Scheduling optimisation
- Route Planning
- Risk modelling

Case Studies

Predictive Maintenance
What did we deliver?

- 91% prediction of ride failures using advanced analytics on ride sensor data
- Ability to accurately predict ride failure **2-7 days** before occurring
- Ability to conduct **relevant** maintenance during scheduled ride down time
- Data suggested **hourly** predictions could improve active ride failure
- Improve management of attraction queue if failure imminent

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What is the goal?

To predict when the ride will fail or needs maintenance

Previous Process

Mon Motor on ride is weakened but no one is aware

Tue Motor starts to fail, but not enough to trigger a ride stop

Thu
- Ride is Stopped due to fault
- Ride evacuated
- Team repairs motor
- Ride restarted

Sensor Logging Database

Develop Predictive Model

Current Process

Mon Motor on ride is weakened but no one is aware

Tue
- Data from previous day suggests motor problem and triggers alarm
- **After park closes Team investigates**
- Finds and repairs weakened motor

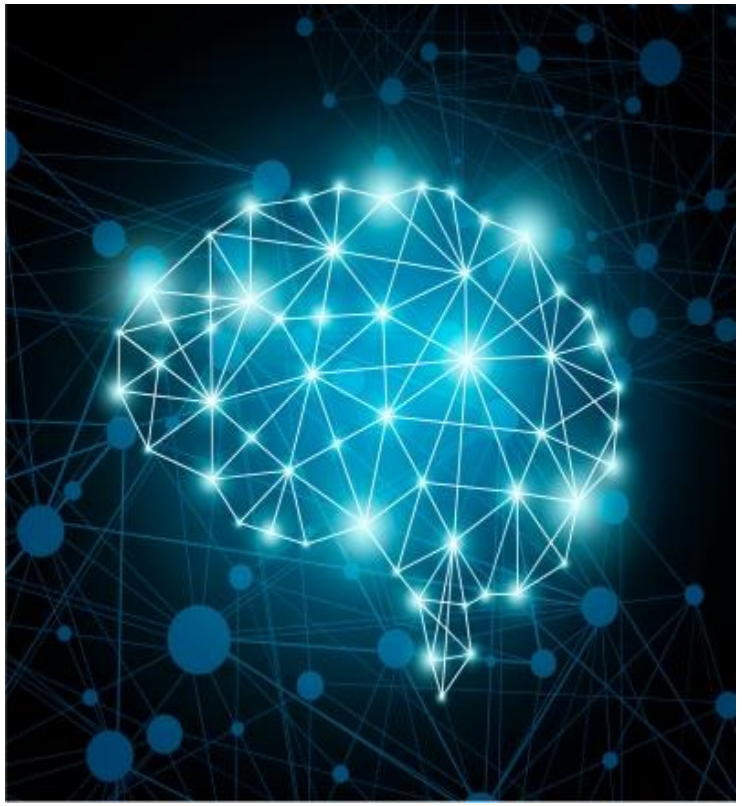
Thu **Guests enjoy ride all day!**

91% prediction rate on failure **2-7 days** before occurring

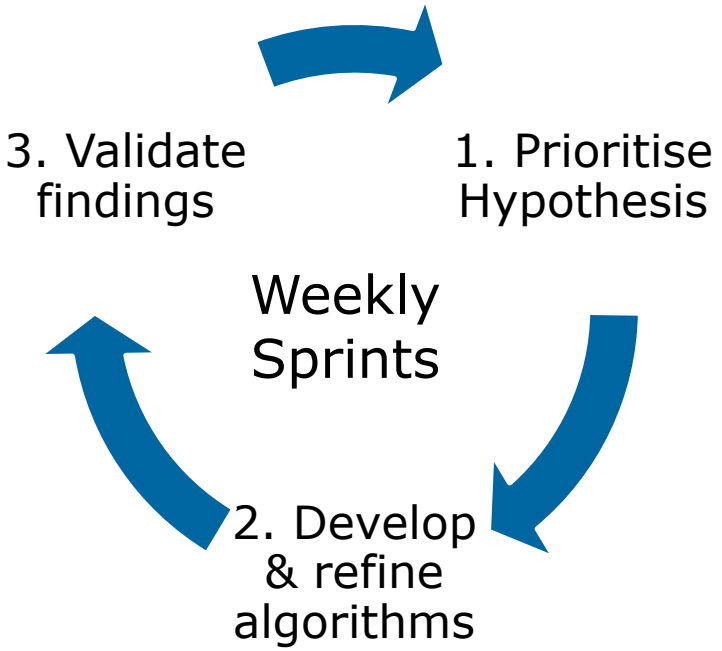
AI Supported Decision Making

How can AI support policing?

- Data Insight
- Efficiency Gains
- User Adoption



AI Supported Decision Making
Crime Pattern Analysis



- Automate data insight processes **from hours to seconds**
- Identify **patterns in unstructured data** to drive insight
- Identify **new links** for crime
- Open **new lines** of investigation
- Highlight most important data to capture

Lessons Learnt from applying AI into BAU

- POCs vs AI at scale – critical to exploitation
- Common platform to deliver – maximise existing investment / coherent roadmap
- Focus on end user & adoption
- Implement at pace and with purpose (Agile) (UOR / UCR)
- End to End alignment with accreditors/commercials

Any Questions?

Thank you

For more information please contact:

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