

NEWSLETTER



National Armaments
Director Group



Accelerating Digital Engineering Transformation in Defence

Panel One

Stephen Wilcock set the expectation of the conference by emphasising that it was not intended to showcase achievements, but to bring people together to build alignment, cooperation, and real progress in defence digital transformation. Highlighting the need for a mindset shift, he framed the event as part of a longer collaborative journey focused on action. The agenda, built around eight priority areas, exploring digital engineering, “born-digital” approaches, and operational excellence. Set against the Strategic Defence Review and Defence Industrial Strategy, Stephen stressed the need to adapt at a wartime pace, harness digital technologies, and work collectively across the enterprise to deliver faster and more effective outcomes.



Strategic Context - Mindset required as a joint endeavour

Andriy Kolodyuk shared Ukraine’s lessons from modern warfare, emphasising the need for a mindset shift and rapid innovation. He highlighted how society, startups, engineers, and the military mobilised to develop technologies such as drones, AI, and autonomous systems. Andriy stressed that success depends on strong defence innovation ecosystems, rapid feedback from the battlefield, and deeper UK-Ukraine collaboration to develop and deploy capabilities faster.



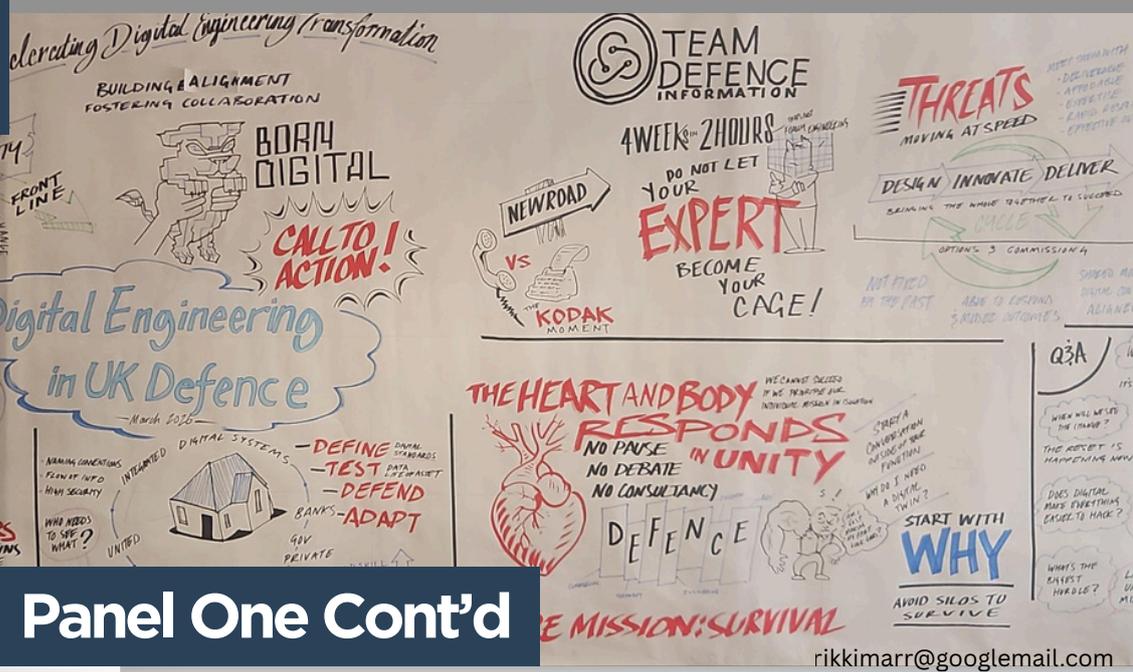
Industry Response to the strategic context

Neil Young highlighted the importance of digital engineering standards and trusted data in improving collaboration across complex defence programmes. He emphasised the need for secure data sharing, open and software-agnostic standards, and a shift from document-based to machine-readable information. Neil also stressed the importance of building trust in digital systems and supporting people through the transition to ensure digital becomes the default way of working

Opening Keynote

In his keynote, **Jim Carter** highlighted the role of digital engineering in transforming how defence and industry collaborate to deliver capability faster and more effectively. He outlined new acquisition pathways, commercial models, and support for SMEs designed to strengthen innovation and partnerships. Emphasising that digital engineering is both a technical and cultural shift, he called for greater alignment across defence and industry to make data-driven, model-based working the standard approach.





Accelerating Digital Engineering Transformation in Defence

Panel One Cont'd

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Don't Forget Why: The Dangers of Relying on Silos in a Storm

Eleanor Perry used the human body as an analogy to emphasise the importance of integration and collaboration across defence. She warned that when teams operate in silos and prioritise local success over the wider mission, resources are wasted and effectiveness suffers. Eleanor encouraged individuals to focus on the bigger picture, strengthen cross-team connections, and ensure digital initiatives support the overall resilience and purpose of the defence system.



The Revolution will not be Road Mapped

Ben Bayross highlighted how emerging technologies such as AI can dramatically accelerate engineering processes. Using a practical example, he demonstrated how AI tools rapidly generated insights and use cases, saving weeks of engineering time. Ben warned against rigid definitions of digital engineering that limit innovation, urging organisations to remain open to new approaches and embrace simple, transformative tools that can significantly improve speed and efficiency.

How Options & Commissioning will support effectiveness, pace and agility in acquisition

RAdm Phil Game outlined the role of Options and Commissioning in delivering faster, better-informed defence decisions. He emphasised the importance of clearly defining problems, evaluating viable options, and selecting solutions that balance cost, risk, and time. RAdm Game stressed that digital tools and shared data can accelerate this process, enabling earlier modelling, stronger collaboration across defence and industry, and procurement that can operate at a wartime pace.



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Panel 1 Winner

Andriy Kolodyuk – Ukrainian Venture Capital and Private Equity Association (UVCA)



Panel Two - Born Digital

Embedding Digital from Day One


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Future Navy Hybrid Modelling

Mark Langmead explained how synthetic environments support development of a future hybrid navy, combining crewed and uncrewed systems to achieve warfighting readiness by 2029.

Modelling, simulation and wargaming enable cheaper design, faster iteration, realistic training, reduced strain on physical assets, and integration across domains. These tools allow testing of tactics, threats and interoperability with allies, shifting digital capabilities into frontline importance for smarter, safer, and more agile force development overall effectiveness.

Mission Engineering 101 - the power of consistently modelling military context

Dom Leeds explored how mission engineering can transform defence capability development by viewing missions as integrated systems. He highlighted challenges engineers face with fragmented information and limited capacity for critical thinking. AI agents are presented as digital co-workers that accelerate modelling, decision-making, and documentation. This enables faster, more coherent capability development, improves data consistency across defence, and empowers engineers to focus on higher-value thinking, enhancing overall mission effectiveness and delivery.



Behind the Buzzwords - What AI can do for MBSE

Ben Stuart-Richards examined using artificial intelligence to enhance model-based systems engineering across the system lifecycle. He highlighted failures of traditional modelling due to poor scalability, skills shortages, and reliance on specialists. AI is shown to convert legacy data into usable models quickly and accurately, improving speed and return on investment. By lowering barriers to use, AI enables wider adoption, supports sustainable modelling practices, and makes digital engineering more practical, resilient, and effective.



Digital By Default - An apprentice's perspective on being "born digital"

Elliot Tomkins shared his "born digital" perspective, shaped by growing up alongside modern technology. He outlined three principles: learning through experimentation, thinking in models, and prioritising data over static documentation. These instincts shaped how he approached digital engineering and simulation. He emphasised combining fresh digital thinking with experience, advocating shared experimentation and collaboration to build faster, smarter, and more effective teams in an increasingly digital defence environment.



Born Digital at Depth: Assuring an extra Large Autonomous Underwater Vehicle

In conversation with **Ethan Spall**, **Kevin King** described developing an extra-large autonomous underwater vehicle using model-based systems engineering and AI-supported tools. Facing tight timelines and no initial customer requirements, he explained how the team built a demonstrator by integrating design, requirements, and safety assurance within a single model. This enabled faster development and reduced reliance on documentation, while emphasising scalability, model reuse, experimentation, and adapting to future autonomous capabilities.



The Messy Middle of Digital Transformation

Amber Gilbert reflected on her digital transformation journey across military, enterprise, and industry roles. She emphasised that true transformation was driven by process improvement, not just tools. She described the "messy middle" as iterative, requiring empathy, user feedback, and accessible tools. Success depended on ease of use, scalability, and aligning with operational needs. Her key message was to start with real pain points, deliver simple solutions, and scale effectively across connected systems.



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Panel 2 Winner

Elliot Tomkins - UK Ministry of Defence



Panel Three - Operational Excellence

Through-Life Digital Continuity



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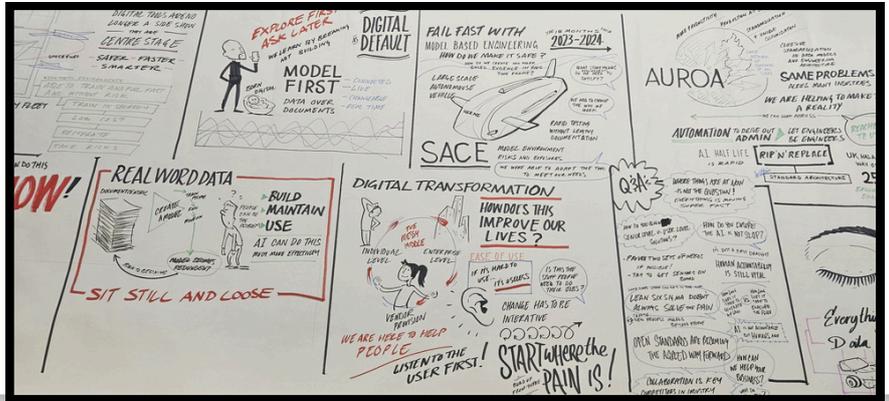
Delivering the Aurora Partnership's Operational Excellence & Digital Transformation

Mark Lavis-Jones and Graham Curtis discussed Aurora's role as a defence engineering partnership delivering large-scale, high-impact projects across the MOD. Mark explained how Aurora combined deep engineering expertise with a broad SME network to drive outcomes and innovation. He emphasised the need for standardised digital architectures, interoperability, and collaboration across industry and government. Both highlighted the importance of connecting engineers, scientists, and operators to enable faster, more effective defence capability development.



Shifting Up the Mindset: How F1 can help change how we Procure Defence

Seb Sheppard explained how an F1 mindset could transform engineering by prioritising speed, feedback, and continuous improvement. He underscored rapid iteration, data-driven decisions, and focusing on outcomes over paperwork. Seb highlighted the importance of trust, psychological safety, and teamwork to enable innovation and learning from failure. He stressed leadership's role in removing barriers, empowering individuals, and driving marginal gains to deliver faster, more effective results to the front line.



Focus on the Value: Everything Else is Just Noise

Olivia Flaws highlighted the critical role of communication in enabling effective digital transformation. Using a simple scenario, she showed how small communication gaps could create major inefficiencies despite correct processes. Drawing on her experience in a post-pandemic, digital-first environment, Olivia argued that human connection underpins successful transformation. She advocated for clearer, more proactive communication, shared intent, and transparency, encouraging small behavioural changes to strengthen collaboration and improve overall outcomes across defence.



UK Digital Twin Centre - A national asset for security and prosperity

Rob McGeachy and Steven Wood discussed the Digital Twin Centre as a response to increasing complexity and change in defence. Rob explained how it enabled collaborative development of digital twins through shared components, data, and federated systems. Steven highlighted the importance of ecosystem partnerships, supply chain integration, and accessible tools. Together, they emphasised interoperability, standardisation, and collective participation, encouraging organisations to engage with the centre to accelerate innovation and deliver more connected, effective capabilities.



Panel Three Cont'd- Operational Excellence

Through-Life Digital Continuity



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Empowering the Digital Carpenter

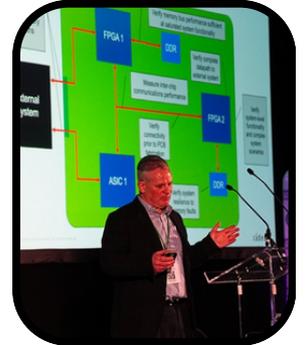
Fergus Hawkins reflected on the early stages of a major digital transformation driven by expanding power, processing, connectivity, and data. He highlighted an imbalance between tactical data use and strategic planning in defence,



stressing the need for better long-term modelling and decision-making. Fergus emphasised developing “digital carpenters” with the right skills, tools, and training, advocating greater focus on strategic data management to improve outcomes, resilience, and future capability across defence.

It's not about the Digital Twin - It's about the digital DNA

Michael O'Sullivan shared insights from his experience in semiconductor design, highlighting the growing impact of AI and digital twins. He observed that successful organisations were those embracing these technologies to accelerate development and reduce risk. Michael stressed the importance of high-quality data as the foundation for digital twins and advocated early testing and emulation to improve outcomes, encouraging wider adoption of emerging tools to stay competitive and effective.



The US Navy Digital Twin for Data Driven Decision Making

Aaron Johns shared his experience modernising US Navy shipyards through large-scale simulation and data-driven approaches. He described building detailed models of operations to improve efficiency, identify constraints, and support better decision-making. Aaron explained the challenges of poor data quality and how collaboration helped create accurate datasets. He emphasised that successful digital twins depended on reliable data, enabling predictive insights, improved planning, and long-term transformation of maintenance and operational capability.



DAY 1 WRAP UP



Nigel Shaw concluded day one by reflecting on the strong alignment across speakers around digital transformation in defence. He reinforced key themes including the importance of data, collaboration, and adopting digital tools at pace. He highlighted the need to break down silos, embrace experimentation, and focus on delivering real operational value. Nigel emphasised that success would depend on people, culture, and leadership driving change alongside technology.



Special Thanks to our Panel Chairs



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Panel 3 Winner

Olivia Flaws - UK Ministry of Defence



Stephen Wilcock - UK Ministry of Defence



Craig Vint - tlmNexus



Mike Sewart - Thales UK



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Panel Four - Contractual Enablement



Welcome to Day 2

Nigel Shaw opened day 2 by reflecting on a world where the rules-based order was breaking down, stressing that the UK and Europe needed to step up on defence while avoiding wasteful conventional approaches. He highlighted rapidly evolving warfare, the importance of systems thinking, deeper collaboration across teams and industry, real progress already underway, and the vital role of culture, skills, leadership, and data in shaping future success.



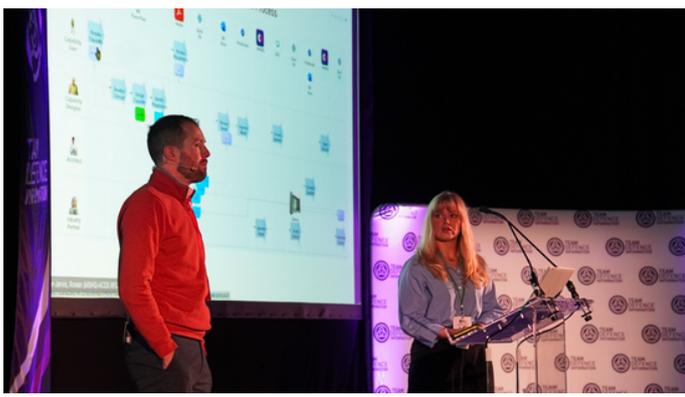
The New Era of Acquisition

Christian Ryan argued that defence should move beyond chasing individual breakthroughs and instead leverage already-competed commercial technologies across allies. He highlighted how this approach enabled a distributed, resilient industrial network supporting operations globally. He recommended practical steps, including checking for existing solutions, forming integrated teams, and running rapid pilots. He concluded that faster, trust-based acquisition across alliances could transform procurement and strengthen NATO's collective industrial and operational capability.



How do we accelerate our efforts to harness AI

Simon Masley kicked off the podcast by highlighting the need for pace, openness, modularity, and continuous innovation in defence. In discussion with **Bella Goldstein** and **Graham Booth**, they emphasised supporting SMEs from prototype to production, avoiding over-engineering by focusing on what was "good enough," and improving collaboration. They advised SMEs to prepare for a challenging market, strengthen their positioning, and engage closely with end users, while also promoting development and learning opportunities within commercial roles.



Model-Based Acquisition of Technology

Rowan Parker-Jervis and **Remy Mulford** presented their experience delivering a major defence programme using model-based acquisition. They demonstrated how digital engineering tools replaced traditional methods, enabling full traceability from user needs to final solutions. They explained how proposals were evaluated through models and data, supporting confident decision-making. Their presentation concluded that model-based acquisition had been successfully proven and should be repeated to drive more effective, transparent, and user-focused defence programmes.



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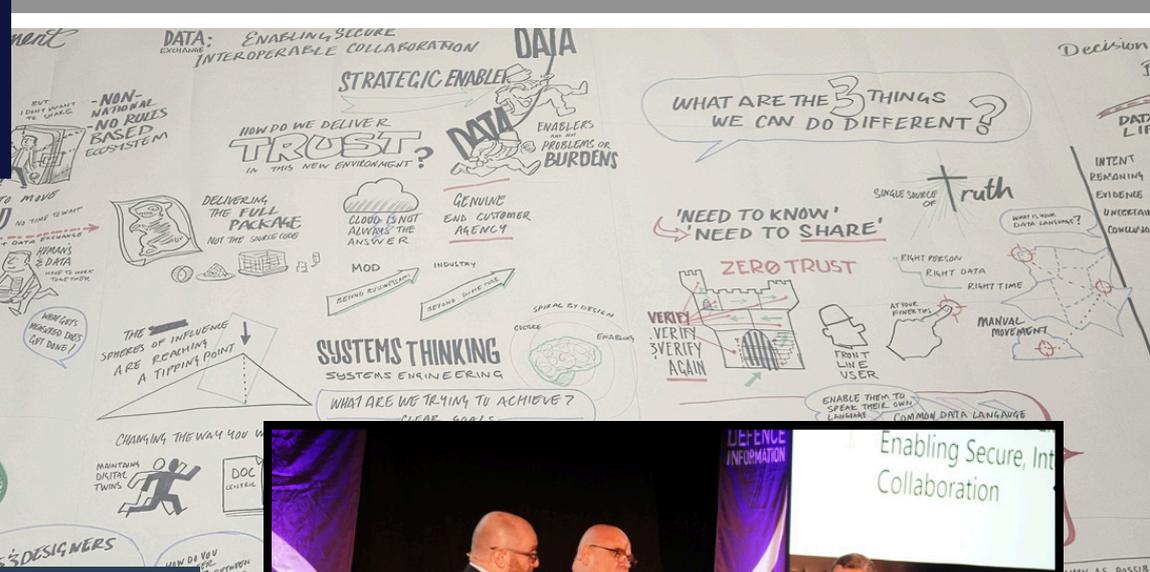
Panel 4 Winner

Christian Ryan - United States Air Force



Panel Five - Data Exchange
Enabling Secure, Interoperable Collaboration

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The Reanimation Problem: What Pet Shops Can Teach Us About Software Procurement

Rob Noble used a vivid analogy to critique traditional defence software procurement, arguing it often delivered incomplete, unusable outcomes. He highlighted the need to treat software as a full ecosystem, not just source code, and to decouple it from hardware.



He emphasised faster adoption of collaborative, shared “digital factory” environments, enabling continuous development, testing, and reuse, and urged both MOD and industry to shift mindset, accelerate progress, and improve practical implementation.



Conjunction of the spheres: Why now the time is (finally) right for MOD to fully transition to MBSE as business as usual

Bill Mitchelmore, Matt Summers, and Ross Mansfield discussed the growing importance of integrating systems engineering, digital engineering, and data collaboration across defence. They highlighted the value of modelling environments to understand capabilities, manage risk, and ensure assurance, particularly when integrating commercial solutions. They underlined that shared data models and repositories enabled a single source of truth, improving collaboration between MOD and industry, while also noting the need for supporting infrastructure and cultural change to make this approach effective.

Discussion about Data Quality and Interoperability

Professor John Erkoyuncu, Andy Box, and Yvonne Griffiths discussed data quality and interoperability across defence contexts, from platforms to international collaboration. They highlighted the importance of shared, reliable data as a foundation for integration, decision-making, and resilience. They explored challenges in valuing data and understanding the cost of failure, stressing the need for better investment decisions. They concluded that stronger collaboration, cultural change, and forward-thinking approaches were essential to fully exploit existing technologies and improve outcomes.



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Panel 5 Winner

Robert Noble, Roke

Panel Six - Decision Making Transparency

Building Trust Through Data



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Our GCAP Demonstrator Journey...So Far

Alan Walker and **Chris Hinds** discussed the challenges of delivering complex,

multinational defence programmes within diverse supply chains. They highlighted the need to move away from traditional approaches by improving data integration, traceability, and collaboration. They explained how sharing the right data, rather than all data, enabled secure and effective decision-making. They emphasised identity-based access, flexibility across systems, and maintaining clarity over complexity, concluding that smarter collaboration models were key to achieving faster, more efficient programme delivery.



Building Trust Through Data: The making of a collaborative Digital Program

Steve Mills shared real-world experiences delivering secure collaboration services in defence, highlighting a shift from “need to know” to “need to share.” He described challenges with manual processes and fragmented data, and how secure digital environments enabled continuous, high-tempo collaboration. He emphasised the importance of integrating people, process, and technology to support distributed teams, improve decision-making, and accelerate outcomes, ultimately enhancing productivity and delivering more effective results for frontline users.



The Complexity Trap - Why Complicated

Harriett Hewitt explained that increasing complexity in models and digital twins did not always lead to better outcomes. She highlighted that overly complex systems could be harder to validate, maintain, and trust, especially if based on incorrect assumptions. She emphasised the

importance of simplicity, clarity, and fitness for purpose, stating that models should support decision-making rather than impress, and that choosing the right level of complexity was key to delivering useful insights.



Day 2 Wrap Up

Stephen Wilcock closed day two by reflecting on key themes from the conference, including the importance of pace, collaboration, and digital transformation across defence. He reinforced the need for systems thinking better use of data, and stronger integration

between industry and MOD. He highlighted cultural change, skills development, and practical implementation as critical enablers, concluding that while progress was evident, continued momentum and collective effort were essential to fully realise the benefits discussed.



Mind the Trust Gap: Transparency in Autonomous Decision Making

Rhodri Andrews argued that the future of autonomous systems depended on transparency to maintain human trust and control. He highlighted the growing gap between fast machine decisions and slower human understanding, using past failures to illustrate risks. He proposed making intent, reasoning, evidence, uncertainty, and intervention points visible to operators. He concluded that embedding transparency and traceability into autonomy would ensure safety, keep humans effectively in the loop, and build confidence in decision-making.



Day Two Summary

Day two focused on accelerating defence transformation through digital engineering, collaboration, and smarter acquisition. Speakers highlighted the need for pace, interoperability, and better use of data, alongside cultural and skills development. There was strong emphasis on model-based approaches, secure collaboration, and simplifying complexity to improve decision-making. Discussions reinforced the importance of industry-MOD partnership, transparency, and trust, concluding that while progress had been made, sustained effort was needed to deliver real impact.

Special Thanks to our Panel Chairs



Divya Gupta
IBM



James Mansfield
Sopra Steria



Maj Gen (Ret'd) Rob Anderton Brown
Allium Associates

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Panel 6 Winner

[Rhodri Andrew, AtkinsRéalis](#)



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