



## About Us

Founded in 2015, Hadean are an award-winning metaverse startup that's powering the military simulation ecosystem in defence, providing the infrastructure and computational power required to realise the full potential of multidomain training for the end-user.

## The Hadean Platform

Hadean's distributed computing platform provides the foundations of a central single synthetic environment (SSE), multi-layered hub technology for defence customers and industry system integrators (SIs). It breaks existing boundaries of performance at scale, enabling customers to deliver the next generation of complex, realistic, high fidelity and multi-layered, multi-disciplinary SSE simulations for wargaming, collective training, situational awareness scenarios, analytics and decision support modelling.

*"Our work with Hadean provides the scalability to replicate extensive environments and populations to gain actionable insights on challenges from climate change to health and safety, with the objective of accelerating the development and effortless adoption of world-changing innovations."*

**Joe Armstrong,**  
VP Synthetic Environments and  
Innovative Technologies, CAE

# The Military Metaverse Platform For Defence

The emergence of new threats and the shifting national security landscape, along with rising costs and shrinking budgets, are stretching modern Armed Forces thin, calling for leaders in defence to address issues globally with limited resources.

Sustaining a global force under these circumstances is a major challenge but novel technologies rooted in gaming and enabled by cloud-native solutions are being mustered to cover the gap and overhaul how serving personnel learn, train and operate in today's battlespace.

## Key Challenges

A number of technical barriers are currently preventing modern Armed Forces from achieving seamless collective training and accurate and efficient real-time decision support and situational awareness:

- Current communication architectures are not designed for large entity count simulations, making scaling problematic.
- Simulators have different capacities to render and consume data and there is no central synchronisation function, making it possible for simulators to get out of sync.
- There is also no common arbitration for events that happen in a simulation which means that questions like "who shot first" are left out on the clients and if they are out of sync they have a different perception of the world.
- There is a lack of common data sets and agreement on visualisation which means clients show their perception of the world differently.
- Interoperability standards are dependent on proprietary data models or infrastructure. While multiple protocols are available in the market they are not supported by all the simulators and even when they are there are inconsistencies in their usage.

## How does it work?

Hadean moves simulations to a cloud-native platform which allows point to point networking, reducing network overhead so clients only receive the data they need to receive. This form of interest management monitors areas of interest for a user or AI agent and sends them details necessary to their mission without having to consider everything else that's going on. The platform also allows novel and legacy simulators to "talk to each other" and integrate through dynamic data remapping which enables data formats between systems to change on the fly. Running on both Azure and AWS as active passive clusters, the platform is also underpinned by core property libraries that deliver an interface for developers looking to rapidly build out complex, high-performance applications across a distributed cloud and edge network.

*"Hadean has successfully proven the feasibility of the Collective Training Transformation Programme's Platform Approach to collective training. This approach will support the British Army's Strategic Objective to modernise and transform Collective Training, by providing the ability to represent the complexity of the contemporary operating environment."*

Brigadier John Wakelin,  
CTTP Programme Director,  
British Army

## Benefits of the Hadean way

- Transform the performance, reliability and scalability of training and simulation applications
- Run more complex and realistic simulations without compromising on fidelity or complexity.
- Reduce latency and allow multiple actors to engage with the simulation in real time.
- Achieve multi-domain integration through secure interoperability between simulations and training systems.
- Mitigate the risk of desync or network connectivity issues.

## Achieving Integrated Forces

Bringing together different branches, units, and capabilities of a military organisation to work cohesively as a unified force involves coordination, synchronisation, and harmonisation of various elements within the military to enhance operational effectiveness and efficiency. The Hadean Platform allows simulations and decision support tools to iterate into a cloud-first architecture without complicated reengineering, combining capabilities to help drive performance improvements and increase the overall force readiness. With resources dynamically allocated there is unrestricted accessibility for concurrent users to join and operate in the synthetic environment at a scale that accurately reflects the complexity of real-life scenarios. The centralised platform approach also enables low-latency data aggregation in real time, ensuring persistent high performance across multiple, repeatable simulations running at the same time.

## The Hadean Defence Ecosystem

### SIs & Primes

CAE

BAE SYSTEMS

THALES  
Building a future we can all trust

CERVUS

PLEXSYS

### Government



Ministry  
of Defence



### Technology Partners

Microsoft

Bohemia  
Interactive  
SIMULATIONS



CUBIC

PITCH

ROWDEN