Soldier as a Sensor – putting the user at the core

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Abstract

The concept of "Soldier as a Sensor" has been discussed in defence circles for decades. However, the reality is that **most soldiers are currently not even digitally connected**, much less functioning as sensors. In 2024 most soldiers arrive at work with a smartphone and then deploy with the equivalent of an analogue telephone.

Defence is still hardware constrained, like the tech sector was 30 years ago. Unlike other sectors defence is yet to make the change and become software-enabled. Further, defence must learn from the commercial sector and **accept "mixed-fleets" of hardware and software** and stop chasing the fantasy that "one-size fits all" such as all soldiers having the same radio, all drones needing to support a single common interface or that a single battle management application works from fire team to Corps level.

In many sectors **software is the competitive advantage**, yet defence has largely been unable to benefit. Instead of the outdated approach of setting up-front requirements, defence needs to focus on **iteratively putting working software in the hands of users**. Taking a user-centric approach that puts the soldier at the core is crucial to ensure that technological advancements enable battle winning capability without increasing risk of failure by adding to the soldiers' burden or adding complexity for complexity's sake.

In our daily lives, we use smartphones and a vast array of apps (software) for technically complex tasks. In contrast, defence uses exquisite equipment, needing extensive training to get basic outcomes. The need for the change could not be more obvious. **Defence needs to be data driven, user centric and digitally enabled.**

This paper:

- Explores the imperative for change within defence, identifying specific needs and proposing solutions.
- Offers a rapid route towards a connected and efficient software-enabled defence infrastructure.
- Illuminates the path through global case studies and comparisons with non-defence sectors.

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About the Author

Graham Booth is the CEO of 2iC Ltd, a UK-based SME specialising in digital interoperability within the battlespace. With a degree in Mathematics, his career began as a software developer and he has worked across the software development industry for 30 years. His experience spans system design and architecture, project and delivery management, and commercial and general management.

Since founding 2iC, Graham has actively contributed to the UK LOSA Data (COIL) Technical Working Group and the UK Generic Soldier Architecture (GSA) Technical Working Group, including its Middleware subgroup. He has worked with both the Australian and New Zealand Defence Forces on GSA.

Graham led 2iC's work on US SOCOM's Hyper Enabled Assault Kit (HEAK) project, enhancing operator situational awareness through the technical delivery of tactical data to a Bluetooth smartwatch. Currently, Graham is 2iC's Program Director for Project QUICKSILVER, where 2iC are delivering the C5ISR Solution Architecture for the British Army Land Special Operations Forces.

Additionally, Graham is on the MoD's Defence Suppliers Forum (DSF) SME Working Group and chaired the SME Metrics and Transparency workstream. Graham is serving his 4th term as the elected chair of the TechUK ICT Trade body Defence and Security SME Forum, representing the SME tech industry to MOD and Government ministers.

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About 2iC Limited

2iC are global leaders in digital interoperability in the battlespace. 2iC's proven off the shelf software connects and controls systems and devices not originally designed to work together.

2iC was the original inventor of the Lean Services Architecture (LSA) and worked with the UK Ministry of Defence to thoroughly test and then published the Lean Services Architecture as an open standard. 2iC's software products all utilise the Lean Services Architecture to allow open digital interoperability.

Using open standards, 2iC software enables the rapid digital integration and coordination of diverse systems and devices which are typically unattended, uncrewed, wearable, or vehicle borne. 2iC software uses whatever communication bearers are available and is designed for use in the most digitally challenging environment, the modern battlespace. 2iC software improves operational effectiveness and directly addresses the core issues faced by defence organisations and their suppliers.

2iC are a sovereign UK Small Business (SME) with customers that include the UK Ministry of Defence, the United States Department of Defense, the Australian Department of Defence and the New Zealand Defence Force along with globally recognised Systems Integrators and Equipment Manufacturers. 2iC has significantly contributed to the development of digital interoperability standards in Defence and Healthcare.

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