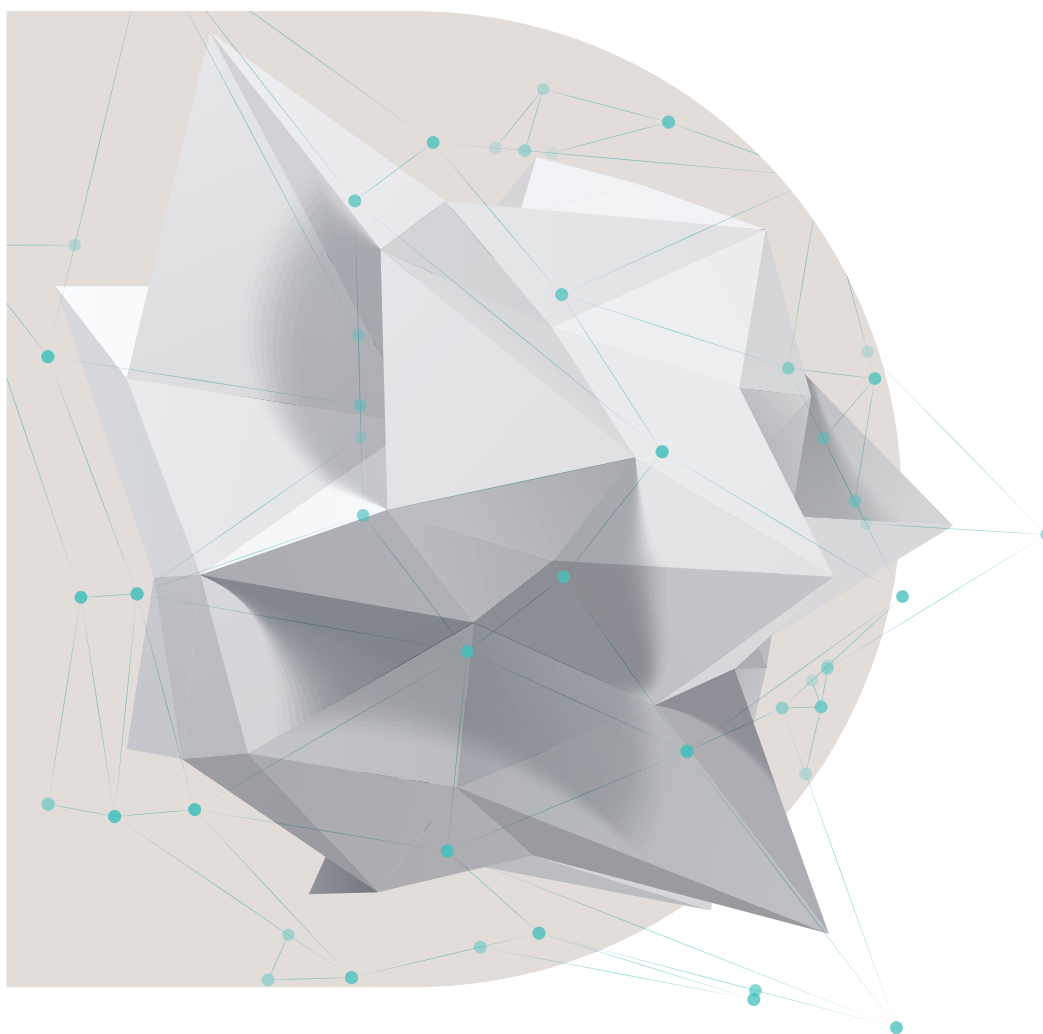


Accelerating Change

How digital technology can help embed business transformations



Digital
Intelligence

BAE SYSTEMS

Many organisations still rely on legacy information and technology systems to provide critical business functions. These systems, though essential for operations, tend to be expensive, difficult to maintain and unfit for today's challenges – which range from displaced and flexible workforces to the changing cyber threat landscape. Both public and private sector departments now face the pressing need to replace these outdated systems before they become insecure and uncompetitive.

This type of change is often expensive, difficult, and risky – requiring considerable investments of time and resource. Whilst updated technology can be the most obvious element of the transformation required, some more fundamental - but often forgotten - requirements are the people and process changes necessary for success in the modern working environment. This means that launching business change activities even before the project begins is critical if organisations want to realise the benefits expected from their transformations. Fortunately, change practitioners can now rely on emerging and established technologies to reduce the time and resources needed to achieve this.

Business change encompasses functions used to prepare for, implement, and then maintain transformation to business operations. This can include delivering the training needed to use replacement technology, or measuring and realising the benefits of technological improvements. It is centred on driving improvements to existing processes and systems, and most importantly, embedding this transformation within the business.

The BAE Systems Digital Intelligence change approach covers four pillars:

- Creating the case for change and understanding the impacts
- Drafting and then delivering the plan
- Testing the maturity
- Embedding the delivered transformation into 'Business as Usual'

Emerging and established technologies can streamline this change approach to reduce both costs and the risk of failure.



Investing in Efficiency: Using Technology to Make Digital Transformation Less Painful

I. Digital twins

Replacing legacy systems typically involves many stages of requirements capture and design. This often requires coordination between teams, re-designs to capture missed requirements, and communication between suppliers – all of which increase the cost of transformation while also making the process frustrating and time-consuming.

BAE Systems Digital Intelligence is using digital twinning to respond to this challenge by turning paper-based designs into digital models, enabling engineers to review specifications and visualise modifications before beginning delivery. Digital simulations can significantly help this process, but digital twins not only replicate the physical system's features and functions; they can also use real-time data to represent the system in the digital world. Both enhance the design process, but the complexity of real-time data inputs means digital twins can become larger in scale and potential uses than simulations.

Engineers can forecast the system lifecycle from product testing, to real-world operation, to retirement. This not only reduces time and resources, but also means the impact and feasibility of the change – which may be needed mid-delivery – are better understood.¹

Case study: Laying the foundation for a civil UK agency

As part of the Cyber Futures service for a government-owned company, we led the development of a series of guidance documents on digital twins – covering areas such as market analysis, business and system architecture, and cyber threats. The goal of the guidance was to provide the company with a checklist of considerations to help it specify, enable, design, establish, operate, maintain, enhance and decommission a Digital Twin.

For example, when analysing the business and system architecture, we identified 40 different technologies and data sets that would form part of a digital twin solution. These included systems related to autonomous controls, communications such as GNSS and RFID, and data capture through the likes of environmental, traffic and asset sensors. Similarly, our threat and vulnerability assessment identified 107 potential threats that were split into seven key themes. By outlining the program controls required to counter these threats, we have provided a foundational platform for the company to build upon as it continues on its digital twin journey.



¹ <https://www.baesystems.com/en-uk/feature/digital-twin-testing-real-world-performance-in-the-digital-world>

2. Augmented and Virtual Reality

Changes to existing business processes, either forced by the technical constraints of the replacement system or because of the opportunity they present for efficiency improvements, must be supported by effective training solutions.

Digital Adoption Platforms (DAP) and Virtual and Augmented Reality (VR/AR) can provide life-like training solutions often with real-time insights to improve usability, explain complex engineering, facilitate product design, and display new equipment. DAPs overlay new software with in-programme training or instruction to improve usage and engagement, whilst VR includes facial and eye tracking capabilities so the user can interact with digital environments in real time.

BAE Systems Digital Intelligence is also combining VR technology with machine learning to create single synthetic environments, which simulate battlefields for military training.² This solution can provide experience on new platforms without the constraints of real-world training.

3. Chatbots

Delaying change management until just before launch will make it difficult to embed and maintain the desired transformation, as the relevant activities to prepare people for the change have not been put in place in time. Consistent and early engagement with impacted workforces is important but costs time and resource, especially in larger organisations.

If the change is coming quickly, chatbots equipped with natural language processing and machine-learning capabilities can be rapidly stood up to respond to questions, provide reassurance and, once the new system is up and running, troubleshoot issues early on to maintain confidence in the transformation programme.

This capability not only lightens the load on change managers, but can also provide on-demand information to employees wherever and whenever. From small businesses to large organisations with teams based in multiple regions and time zones, the self-service nature of chatbots helps workforces embrace and acclimatise to transformations throughout the process.

² <https://www.baesystems.com/en/feature/project-odyssey>



Tried and Tested: Improving Change Management with Existing Digital Services

Digital twinning, VR technology and machine-learning driven chatbots can be costly investments that may be out of reach for some organisations. However, the rapid expansion of digital services during and since the coronavirus crisis means existing change management methodologies can be enhanced with other digital capabilities that require minimal financial and time investment.

Digital transformation tends to no longer follow linear delivery styles, but instead apply iterative, incremental methodologies. After all, true transformation is an ongoing process and requirements can quickly shift. This means consistent and frequent communication is even more important to promote the programme vision and expected benefits across the business. Using videoconferencing tools, virtual whiteboards, collaboration platforms and instant messaging services is standard practice for most organisations, even those with more restrictive security practices.

Change practitioners should supplement traditional forms of stakeholder engagement like workshops and interviews with these often commercial or open-source services to maximise the effectiveness of their change management and engage with the entire workforce. Collaboration platforms, for example, can provide rapid access to surveying tools that supplement or even supersede traditional research exercises like interviewing and observation exercises – allowing for a more immediate gauge of stakeholder and workforce opinions.

Many open source and commercial services continue to offer effective tools to monitor real-time data, and these established visualisation tools let even the most technology illiterate draw insights from real world data. Change practitioners can use these services to monitor the effectiveness of new solutions and, when combined with instant communication or collaboration services, both measure and communicate the benefits of digital transformation in real time to customers, communities and investors.

“By combining digital services with traditional change processes, change practitioners **can measure and communicate** the benefits and dispel the myths of replacing legacy technology.”

Enhancing Change Management to Deliver Digital Advantage

We know that driving impactful change across any organisation isn't easy. That's why the benefit of technology for business change is so significant. It can range from major investments in digital twinning to streamline and improve requirements management, to using open source and commercial services to enhance communication plans and customer personas.

Change practitioners can use many well-established digital services to improve how they facilitate transformation in both incremental and linear delivery. By combining digital services with traditional change processes, change practitioners can measure and communicate the benefits and dispel the myths of replacing legacy technology. This will help drive employee buy-in, while ensuring that any digital transformation has a positive impact on the organisation.

However, the core concepts of stakeholder engagement are still the same regardless of the size of organisation or the technology being used to support change. Whether your organisation is using videoconferencing or virtual reality, it is difficult to drive or even instigate change without securing buy-in from sponsors and the wider group of stakeholders. You must be able to bring the right people with you on the journey. The foundations of creating the case for change, understanding the impacts, testing the maturity, and embedding the transformation still apply regardless of whether your team will be managing resistance using digital twins or creating training toolkits using collaborative platforms.

Existing technologies of course provide impetus and inspiration, facilitating transformation projects in the modern environments that we work in. But without a strong theoretical change management foundation, their full potential will never be realised.

We are Digital Intelligence

BAE Systems Digital Intelligence is home to 4,800 digital, cyber and intelligence experts. We work collaboratively across 16 countries to collect, connect and understand complex data, so that governments, nation states, armed forces and commercial businesses can unlock digital advantage in the most demanding environments. Launched in 2022, Digital Intelligence is part of BAE Systems, and has a rich heritage in helping to defend nations and businesses around the world from advanced threats.

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