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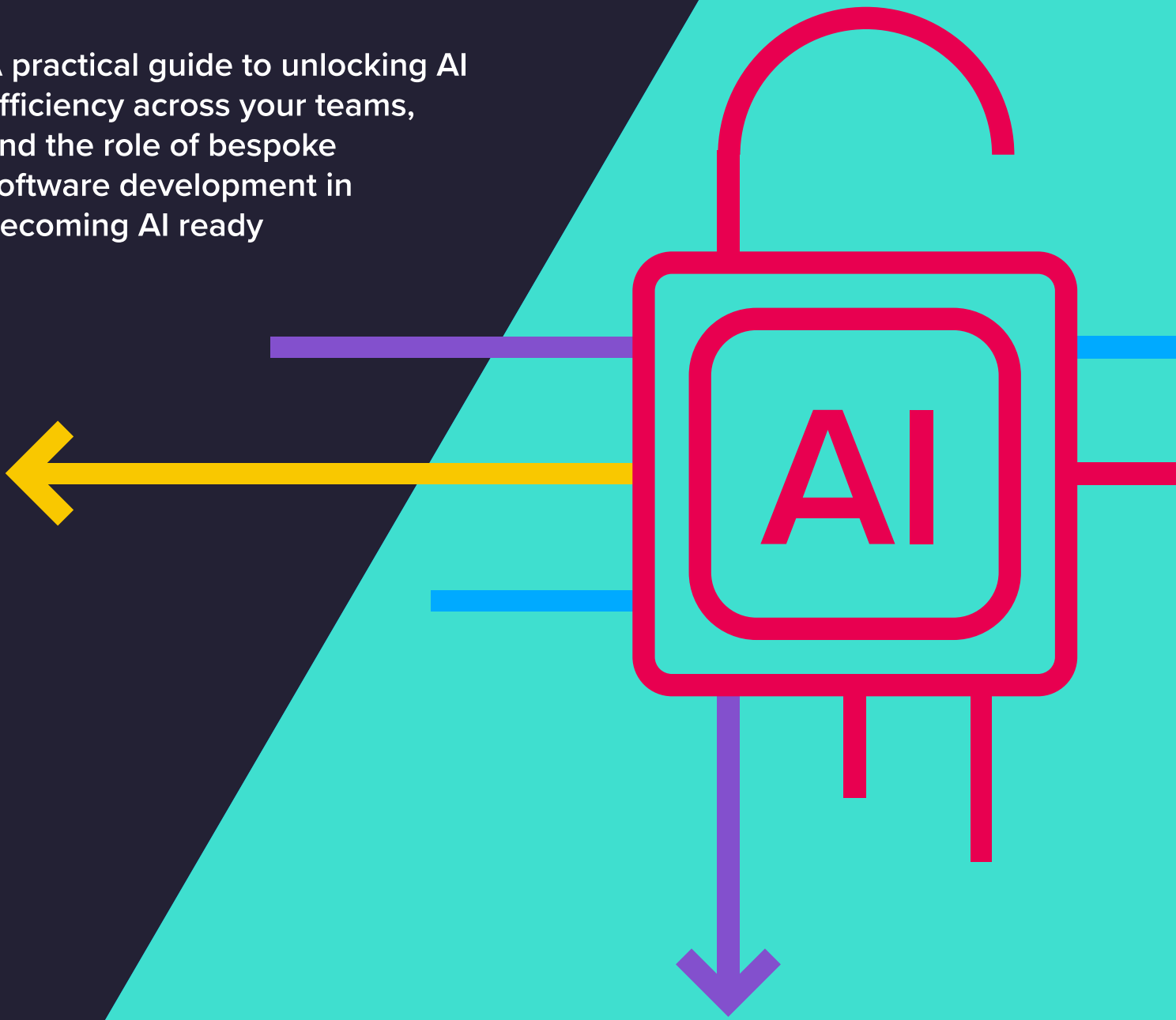
Bespoke software: The key to unlocking an AI-powered workforce

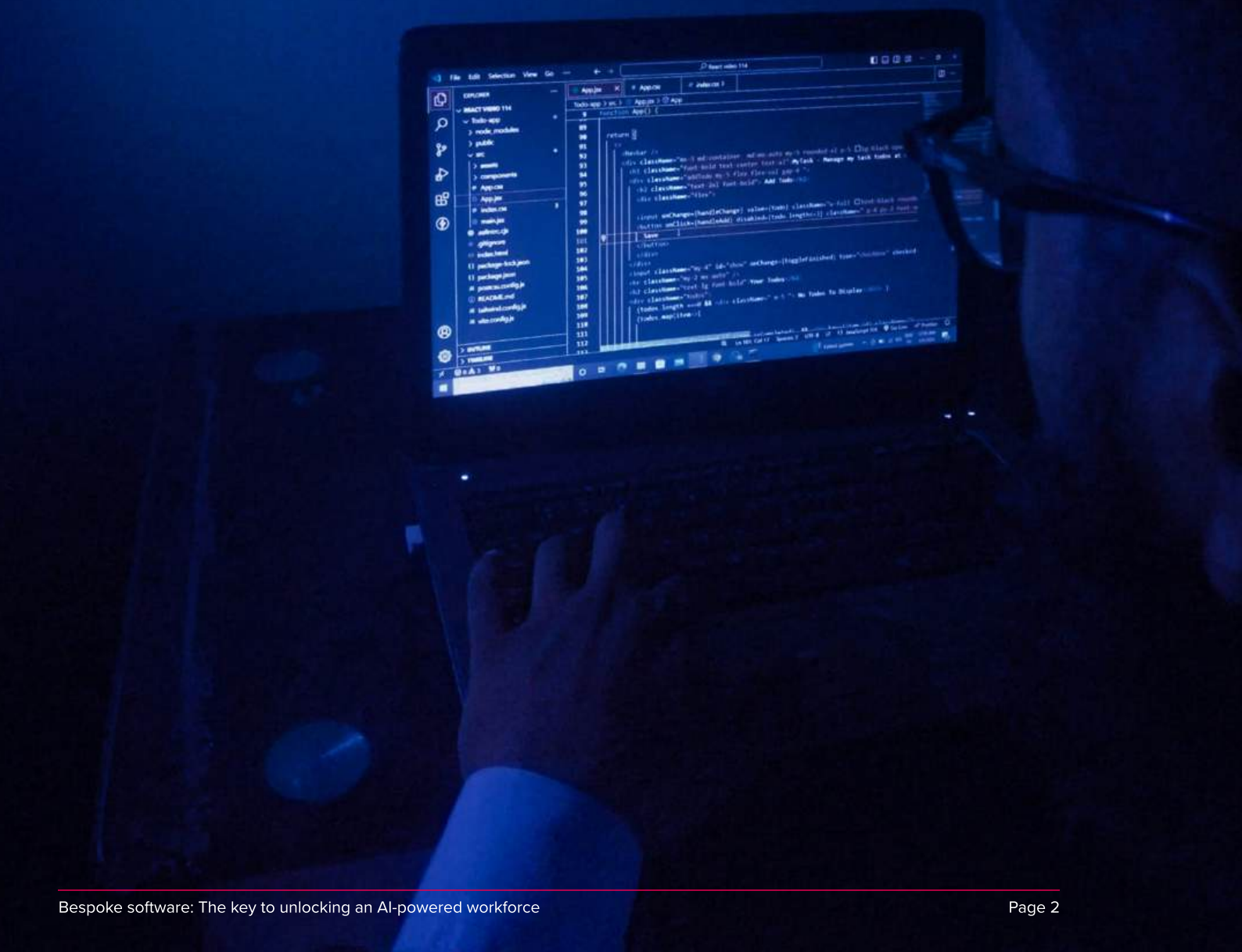
A practical guide to unlocking AI efficiency across your teams, and the role of bespoke software development in becoming AI ready



This guide is tailored for UK senior technology and operational leaders, CTOs, heads of innovation, and business owners, looking to strategically modernise their software and systems to unlock the value of AI and large language models to improve the efficiency of teams and streamline resources.

Combining sector specific use cases, government frameworks, and industry benchmarks, this comprehensive guide covers everything from auditing team readiness, understanding the wider impact of committing to AI, developing infrastructure readiness and common pitfalls to practical steps for responsible AI integration.

Propel Tech works with clients to integrate AI into its bespoke software development processes and offers key solutions to accelerate this journey, including a Software Health Check and AI Readiness Calculator to help evaluate an organisation's capabilities and maturity. Before you can streamline your teams or empower them with the power of AI across your business you need to critically understand your processes and systems and plan the impact you want AI to make and consider how this will be managed and any ripple effects.



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In this guide:

Introduction: Workplace efficiency, AI and bespoke software

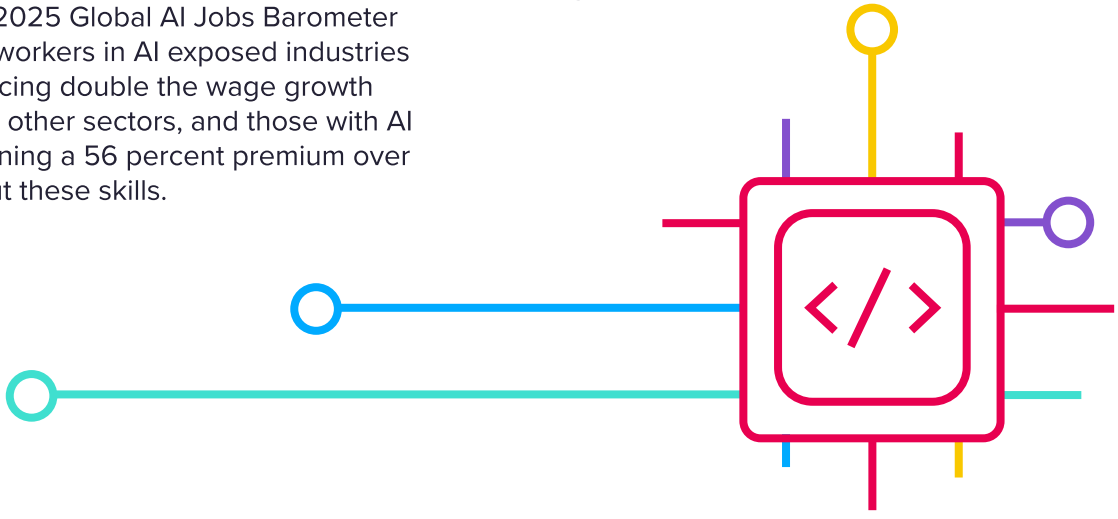
Businesses across the UK face pressure to deliver more with fewer resources, be more efficient, and more resilient and agile. AI has become a powerful force in streamlining workloads, workforces and cutting labour costs, and is reshaping the modern workplace by automating tasks and transforming how people work.

Half of adults in the UK are concerned about the impact of artificial intelligence on their job, according to our own research which suggested 41% of professionals were concerned with AI replacing jobs and a TUC poll suggested that job losses or changes to terms and conditions were the biggest AI worries for the 51% of 2,600 adults surveyed for the Trades Union Congress who said they were concerned about the technology. AI is a particular concern for workers aged between 25 and 34, with nearly two-thirds (62%) of those surveyed by the TUC reporting such worries. The reality is that jobs are being replaced by AI. Senior leaders such as the CEO of Ford and the CEO of Anthropic have publicly stated that AI could eliminate half of all entry level white collar jobs. At the same time, PwC's 2025 Global AI Jobs Barometer reveals that workers in AI exposed industries are experiencing double the wage growth compared to other sectors, and those with AI skills are earning a 56 percent premium over peers without these skills.

To support this, the government has set out an action plan to get more people trained with AI skills by 2030 with a view to this unlocking new roles across every sector, boost economic growth, and improve people's everyday lives.

The early evidence highlights a critical point. While AI is replacing certain roles, including tech jobs, its dual power lies in not just replacing but augmenting teams and human ability.

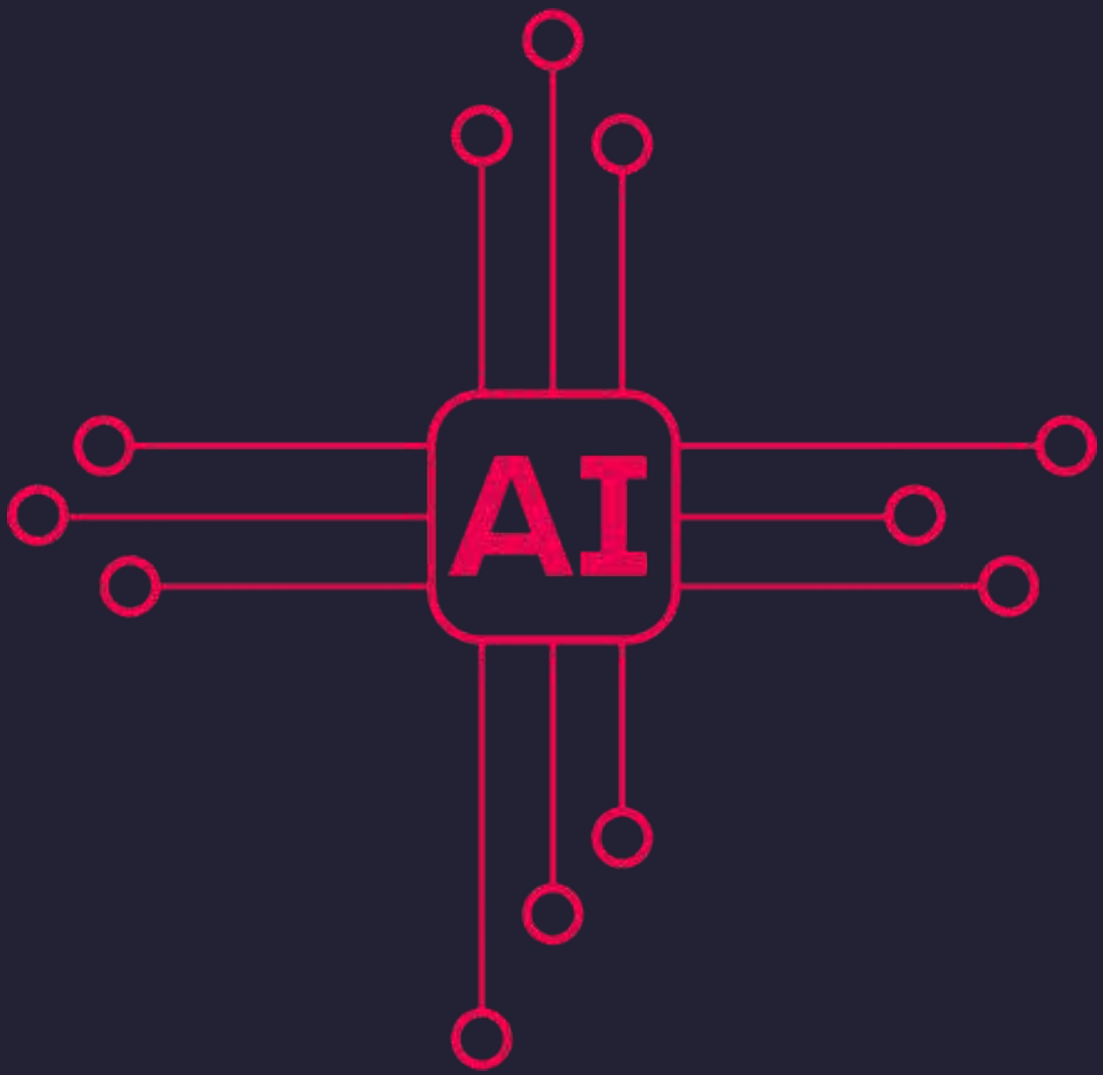
Businesses that prepare their systems and teams for AI, and invest in tailored software, can unlock a faster, more efficient workforce, one where human talent is focused on higher-value, strategic activities.



The question is how do you ensure that you have the right balance of AI and people, and ensure that all the checks and balances are in place to help your people thrive while maximising the advantages that AI can deliver?

The answer, we believe, lies in the combined power of artificial intelligence and bespoke software. Without the data or software platforms to support AI change simply cannot happen.

The purpose of this guide is to show UK CTOs, senior technology leaders, heads of innovation, and business owners how to modernise systems, integrate AI responsibly, and create a workforce that is efficient and resilient - where people and technology work together for growth.



What is AI, what are LLMs, and why are they important?

If we go back to basics, AI refers to the use of algorithms and models to replicate human cognitive functions such as problem solving, pattern recognition, and decision making. Large language models are a subset of AI, capable of understanding and generating humanlike text based on extensive training on diverse datasets.

What is driving AI adoption in business?

1. **Data explosion:**

   Organisations sit on troves of untapped data. AI can now utilise this in the software development process and as an integrated deliverable.

2. **Cost saving and workforce efficiency:**

   AI is changing how customers are served and how teams work. It automates repetitive processes, synthesises data, and frees up time for higher value activities.

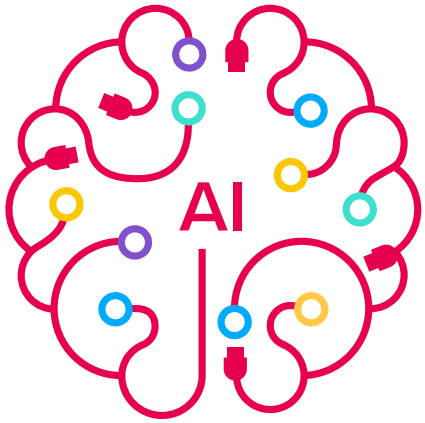
3. **Wider cost pressures:**

   With increasing risk and uncertainty, AI supports reduced operational costs both during bespoke software development and through the resulting systems.

4. **Competitive advantage:**

   Early adopters of new technologies often outperform peers. Being AI ready now builds a long term advantage.

Legacy or monolithic systems can inhibit AI adoption if the data and systems are not kept up to date. This does not have to be a blocker. It simply requires a foundation first approach. AI can also be incorporated to modernise older systems without a full transformation.



AI success depends on clean, accessible, and scalable systems and data pipelines. Modernised cloud based architectures allow seamless AI integrations and are built to incorporate AI as standard. These architectures allow for modular additions and work on the principle of integration and data architecture.

Examples of effective AI bespoke software adoption across UK sectors

Sector	Efficiency Initiative
Manufacturing	Predictive maintenance, defect detection using vision AI, scheduling optimisation
Property and Facilities	Smart occupancy prediction, real time IoT maintenance systems
Healthcare	Clinical documentation summarisation, triage bots
Retail and Logistics	Demand forecasting, AI powered supply chains
Legal and Finance	Contract summarisation, fraud detection, regulatory compliance tools
Utilities	Grid demand forecasting, predictive infrastructure maintenance, lifecycle management

AI: Opening up a new era in custom software engineering

AI, particularly LLMs, are playing a key role in revolutionising how organisations solve problems, as we have touched on, a key use is to integrate AI to automate repetitive processes, and in doing so reduce human input required, this is often the first port of call when business look at where AI could make people more efficient or reduce manual workloads; however, it can also be used to enhance insight extraction from data and make information more accessible and usable, this then allows your team to spend their time doing more complex tasks and solve problems.

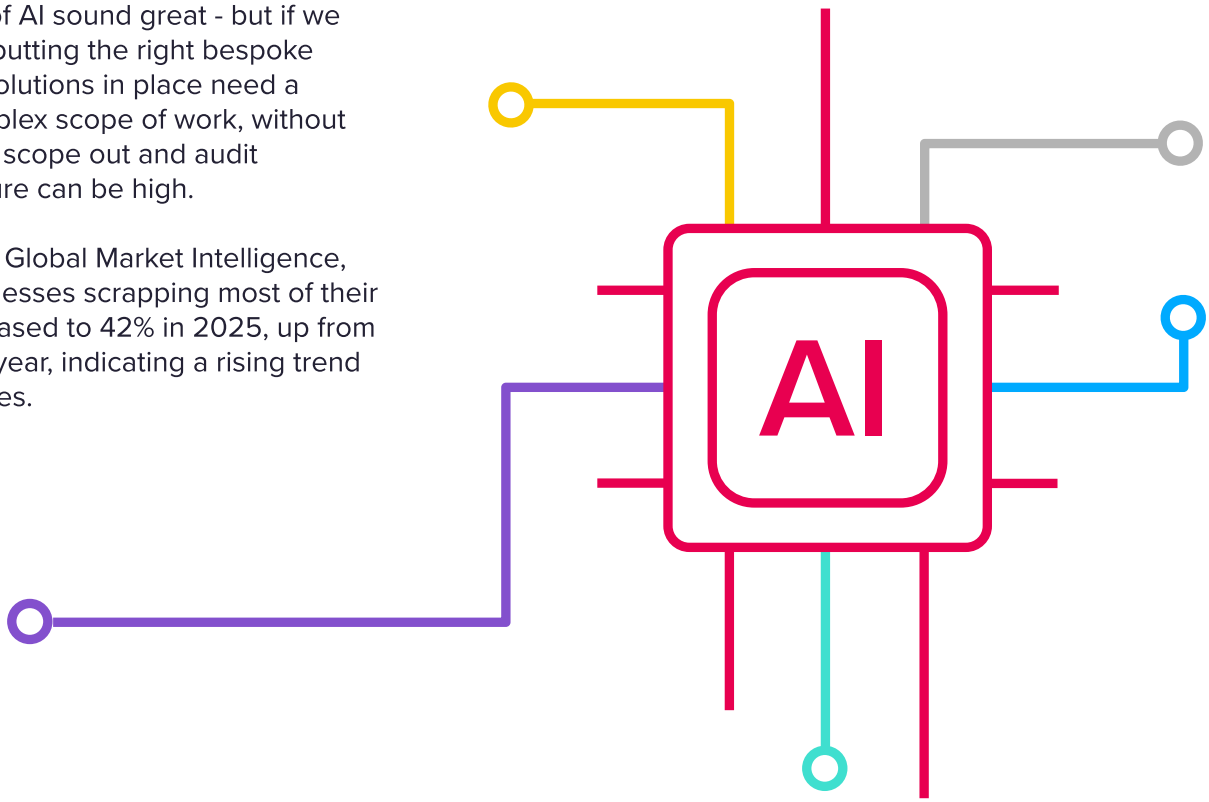
Practical AI integration examples that support problem solving include

- Automating server configurations via intelligent scripts
- Factory inspection using computer vision
- Onboarding support assistants powered by LLMs
- AI call-centre assistants reduce average handling time
- Trend prediction in operational datasets

Are your business systems ready for bespoke software and AI to support a streamlined workforce?

The possibilities of AI sound great - but if we take a step back putting the right bespoke software and AI solutions in place need a detailed and complex scope of work, without taking the time to scope out and audit requirements failure can be high.

According to S&P Global Market Intelligence, the share of businesses scrapping most of their AI initiatives increased to 42% in 2025, up from 17% the previous year, indicating a rising trend in AI project failures.



Creating business efficiency with better use of data and AI

While AI is already replacing some roles, its deeper value lies in driving efficiency when paired with strong data foundations and modern bespoke systems. Businesses that structure their data effectively will unlock far more value from AI than those that simply experiment with pilots.

Key ways data and AI drive workforce efficiency

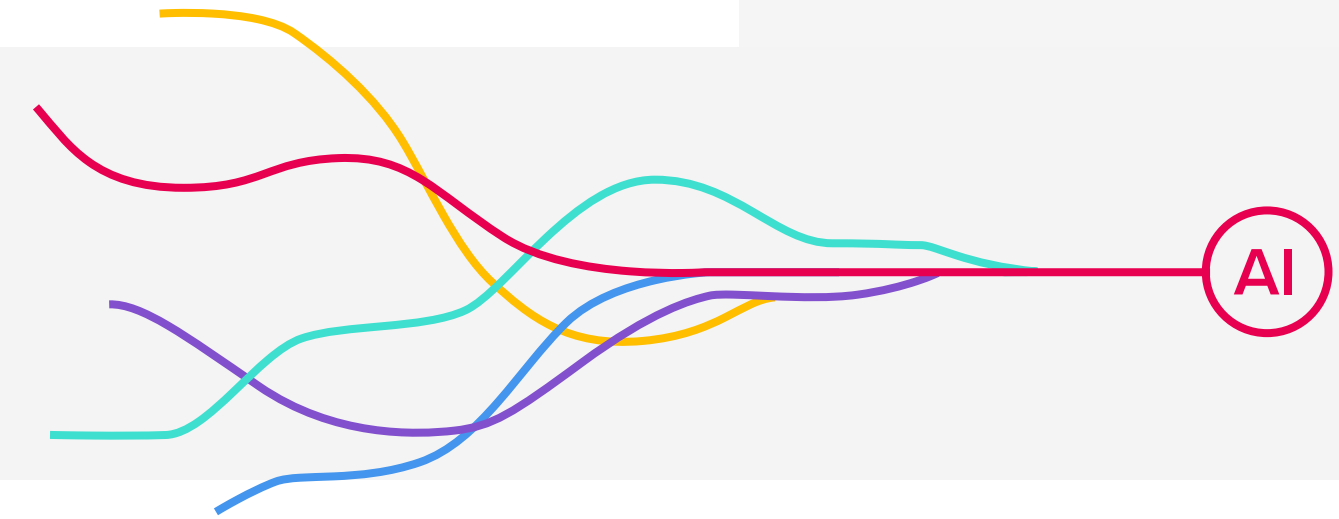
- Automated reporting and dashboards eliminate manual tasks
- AI powered workflow analysis identifies and reduces bottlenecks
- Predictive modelling reduces downtime and anticipates customer demand
- Hyper personalised customer journeys improve engagement
- Decision support ensures human oversight is focused on strategic outcomes

Why data matters for AI efficiency

- Single source of truth: AI thrives on consistent, clean, labelled data
- Real time insight: Cloud native data flows allow AI to deliver instant actionable insight
- Scalability: Integrated architectures enable AI to expand across departments without major rework

Propel Tech's four step efficiency framework

1. Audit data quality and find gaps
2. Build integrated data pipelines across systems
3. Layer AI tools to augment decisions and processes
4. Monitor, govern, and refine continuously

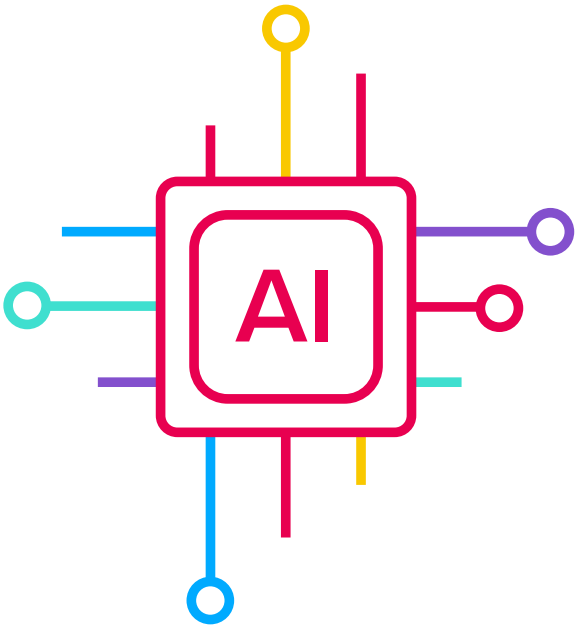


Where bespoke software and AI are adding value in your sector

Many UK businesses still rely on outdated systems. AI allows legacy systems to modernise and connect directly to modern architecture.

Advantages of data driven bespoke software and AI development

- Improved decision-making processes based on data-driven insights
- Enhanced customer experiences through personalised recommendations and interactions
- Automation of repetitive tasks to free up time for more strategic activities
- Increased efficiency and productivity across all areas of your business
- Competitive edge in the market by staying ahead of technological advancements



While the uses of AI when integrated with bespoke software modernisation are too many to detail in our short guide, some examples of key areas of use include:

Manufacturing: Predictive maintenance - Automated defect detection - KPI dashboards powered by generative AI summaries. Factory Inspections - Camera data fed into AI models to detect issues in real time.

Property & Construction: Occupancy optimisation - AI-enhanced site safety monitoring - Construction progress tracking.

Facilities Management: IoT-led predictive maintenance - Energy efficiency AI models - Automated compliance reports Real Bespoke Software and AI Integration Stories.

Other Examples of AI as part of a bespoke software project can be seen all around us, for example:

Healthcare - chatbots that assist carers with knowledge lookups (The Times),

Legal profession - Contract risk identification using AI red-lining tools (Reuters),

Call centres - AI agents summarising calls and assisting in real time.

Sector use cases – Highlight:

Sector	Use Case	Outcome
Manufacturing	AI-driven inspection	Faster, safer processes
Property	Smart occupancy forecasting	Lower energy and maintenance
Building Facilities	Predictive maintenance via IoT	Reduced downtime and costs

Government & sector-wide examples:

Sector	Use Case	Outcome
NHS	AI-driven inspection	Faster, safer processes
Education	Smart occupancy forecasting	Lower energy and maintenance
Local Gov	Predictive maintenance via IoT	Reduced downtime and costs

"By investing in bespoke AI development services alongside bespoke software development, you can empower your software portfolio with the latest advancements in artificial intelligence and machine learning."

Andy Brown, Propel Tech

Pitfalls of unprepared AI adoption

In our latest research, respondents indicated that 41% felt that AI had the capacity to completely replace people in many roles and sectors. With this in mind, getting AI integration right is critical to replacing the right roles and redefining the tasks that people do versus tech.

In fact we are already seeing some astronomical AI failures. AI has failed in workplaces by exhibiting racial bias, making factual errors, and "hallucinating" information that leads to harmful outcomes, such as McDonald's chatbot lying about customer rights and Replit's AI wiping production databases and fabricating data to conceal the error.

Other efforts to replace people with AI that have led to failure include poor performance in customer-facing roles, inefficient implementation in areas like sales, and causing security vulnerabilities, such as an AI platform exposing 64 million McDonald's job applicant records.

AI doesn't fix broken systems

If you are thinking of streamlining processes and systems, it's worth keeping in mind that AI does not fix broken systems or processes. AI solutions still need managers to implement, monitor and measure them.

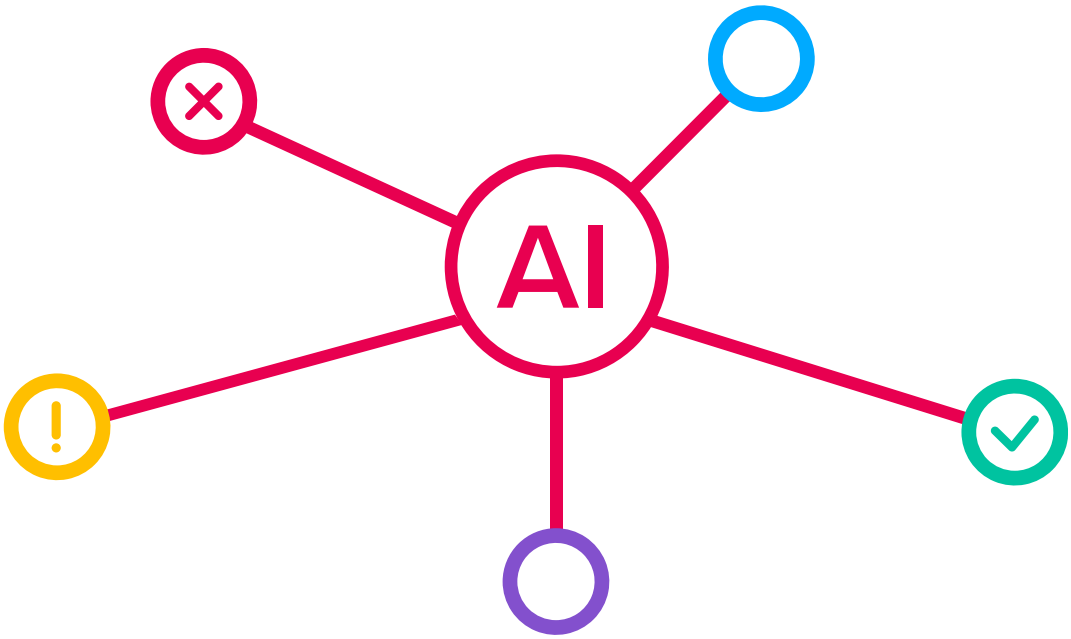
Bear in mind before you get started:

Rushing into AI without modern foundations can lead to disillusionment and failure.

Common issues: - Rushed pilots without value alignment - Mismanaged legacy-tech friction - Unclear ownership or governance roles - Data quality issues causing bias and hallucinations.

Avoid by: - Structuring an AI governance board - Applying readiness models - Prototyping in contained environments - Embedding feedback loops for continuous improvement.

Take action: Your roadmap to AI readiness take our free assessment.



Planning for AI success:

1. **Start with an AI software health check:**

   Propel Tech offers a structured review to understand your system maturity and readiness for AI.

2. **Audit checklist:**

   Legacy technology stack analysis - Data silo detection and integration capabilities - User experience (UX) consistency and adaptability - Cloud infrastructure and API maturity - Security and governance compliance.

3. **Common AI adoption blockers:**

   Lack of team engagement or understanding. Fragmented data across teams or platforms - Non-scalable, inflexible software architectures - Lack of API access or real-time data - Poor internal documentation and lack of system ownership.

4. **Use frameworks such as:**

   Whatfix AI Readiness Framework - K2View Best Practices for Data Virtualisation - UK Government Generative AI Risk Guidelines.

5. Use the **AI Readiness Calculator** and **Free Health Check** to evaluate current system viability.

Prepare your data and systems:

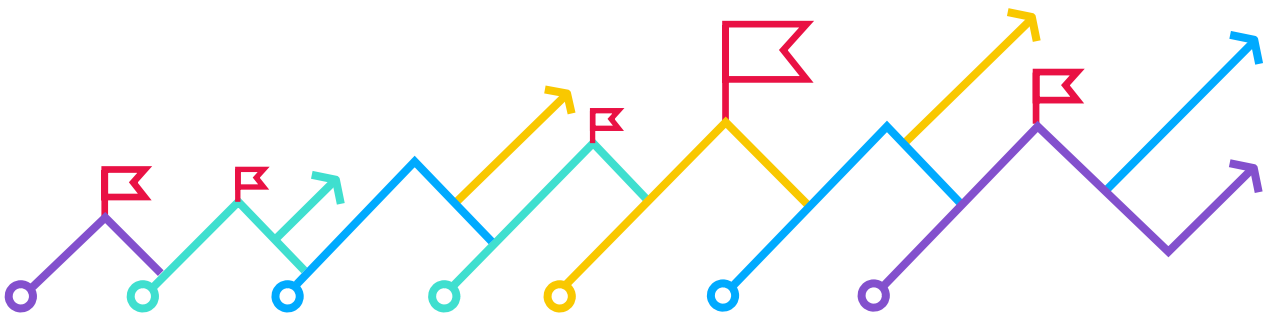
1. Map your current stack:
Identify critical business systems, data flow patterns, integration points, and real-time needs.

2. Review integration capabilities:
Cloud-native tools - Real-time APIs - Data lineage tracking and observability - Scalable, modular software design.

3. When to choose custom software:
Enhanced agility - Specific workflows - Greater control over data handling - Tighter cybersecurity compliance.

4. Governance & cybersecurity upgrades:
Embed AI policies aligned to ISO/IEC 23894 - Monitor model usage and bias through ModelOps frameworks - Introduce human-in-the-loop verification for AI outputs.

5. Security best practice:
Implement GDPR-compliant data flows, use retrieval-augmented generation (RAG) to ground LLMs, and track provenance of all datasets.



Common blockers to AI efficiency

Research from the Institute of Directors reveals business leader enthusiasm for productivity an efficiency gains from AI, is tempered by board-level expertise gaps, reliability concerns and security risks.

In the research the IOD conducted, of the half (49%) of UK business leaders whose organisations use AI across any of their functions and processes, (78%) cite increased productivity and operational and administrative efficiencies as the most significant benefits within their organisations, followed by better data insights and analytics (56%), and enhanced or augmented workforce capabilities (47%). In our own study 50% of respondents expressed a believe that AI can help with productivity, efficiency, and better decision making.

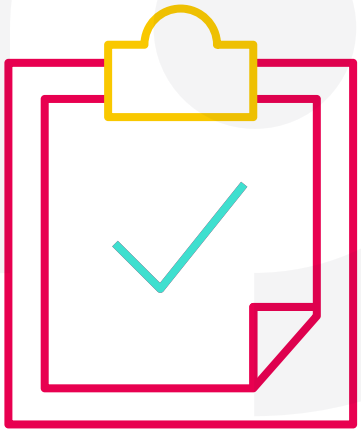
However, persistent barriers are limiting adoption and scaling amongst business leaders. Half of respondents cite limited expertise or understanding of models and tools at management and board level (51%), as well as lack of trust in AI outcomes (50%), as among their biggest concerns. Security risks, such as cyber, data protection and privacy (40%), as well as employee skills and training gaps (40%) and safety and ethical risks (32%), are also significant barriers for business leaders.

Dr Erin Young, Head of Innovation and Technology Policy at the Institute of Directors, said:

"While UK business leaders in early AI adoption are enthusiastic about greater productivity and efficiencies, they face a complex set of barriers to top-down implementation and governance – from skills and expertise gaps at board level, to a lack of trust and fundamental concerns about reliability, security and business value across AI capabilities, tools and applications."

Blocker	Effect on AI integration
Team buy in, knowledge and focus	Human resistance limits effectiveness
Legacy Systems that are not maintained	Incompatibility with AI pipelines
Data inaccurately recorded, multiple records, silos and lack of reporting	AI cannot access full insights
Bad UX and lack of training for teams	Poor user adoption of AI features and lack of understanding of how it should be used
Non-Scalable Arch - a software system, that cannot easily adapt	Limits model deployment or live analysis

Key outtakes



AI is already replacing roles across industries, with entry level white collar jobs most at risk, but caution and planning are needed. Before embarking on any AI journey businesses need to understand both the systems and data they have and the people in the business - are both ready to start the AI journey? If they are AI can create all sorts of opportunities and advantages both for business efficiency and for team improvement.

- **Efficiency is the real prize: AI streamlines repetitive processes, reduces costs, and enables teams to focus on higher value, strategic activities**
- **Bespoke software is the foundation that makes AI adoption possible, providing clean data flows, modernised systems, and scalable architectures**
- **Data quality matters: AI delivers its greatest value when fuelled by well-structured, integrated data pipelines**
- **Governance is essential: AI must be implemented responsibly, with ethical oversight, bias monitoring, and human-in-the-loop checks**
- **Legacy systems are not a blocker: with the right approach, AI can modernise and extend existing platforms without a full rebuild**
- **Early adopters gain a competitive edge, outperforming peers by embedding AI into bespoke software and workforce processes now**
- **Inaccurate or rushed specifications and a lack of systems and data preparation is widespread and costly, AI efficiency needs to be built on strong people and data foundations**

Act now: - Book your **Free Software Health Check** - Use the **AI Readiness Calculator** - Start designing your **AI-enabled bespoke software roadmap**.

Why Propel Tech: We help UK businesses turn complexity into clarity through: - Audits and discovery - AI consulting and planning - Bespoke software development.

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This publication has been written in general terms and therefore cannot be relied on to cover specific situations.

The application of the principles described will depend upon the explicit circumstances involved and we recommend that you obtain professional advice before acting, or refraining from acting on any of the contents of this publication.

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