Global investment in Artificial Intelligence (AI) is surging. What can leaders learn from AI's early adopters and how are UK businesses faring versus their international peers?

As part of Deloitte's State of AI in the Enterprise, 2nd Edition, 1,900 global AI experts provided insights into the current state of AI adoption in their organisations. All of the respondents represented organisations across a wide range of sectors, which are currently prototyping or implementing AI solutions and can be considered “early adopters of AI”. Businesses from the US, Canada, China, Australia, Germany, France and the UK all shared insights into their strategy and how AI is impacting their enterprise and markets.

In the UK, 100 IT and line-of-business executives took part, all of whom are responsible for AI strategy, decision-making, budgeting or implementation. This publication provides insights into how AI is affecting their businesses and where they stand in terms of progress compared to the rest of the world.
Key findings

UK enterprises are enthusiastic about AI, are starting to realise value and are committed to expanding investment.

They are using a broad range of AI technologies, increasingly in the cloud.

However transitioning from prototype into production is a key challenge.

Companies seeking a step-change competitive advantage must look beyond cost reduction and pursue more ambitious strategies.

Workforce preparation will be key to successful execution and keeping pace with global competition.
UK enterprises are enthusiastic about AI, are starting to realise value and are committed to expanding investment.
There is a strong recognition of the increasing importance of AI. British businesses show clear enthusiasm and are backing up this exuberance with investment.

- **45%** of executives expect AI to be critical to their business’ success in two years.
- **44%** of executives said their use of AI is contributing to them widening their lead or leapfrogging ahead of their competitors.
- **72%** of companies have already achieved positive return on their AI investment.
- **93%** of companies have increased their investment compared to the last fiscal year.
- **88%** of companies plan to increase their investment in the next fiscal year.

The top three key benefits of AI for UK businesses are:
- Optimising internal business operations.
- Making better decisions.
- Enhancing the features, functions and/or performance of their products and services.

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
Enterprises are using a broad range of AI technologies, increasingly in the cloud.
Enterprises employ a broad range of AI technologies

British businesses are ahead of their global counterparts in the use of most technologies, especially Machine Learning, Deep Learning and Computer Vision.

AI technology adoption levels

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
Enterprise software with “baked-in” AI and AI-as-a-service solutions are among the most popular and straightforward methods of developing AI.

Ways of Adopting AI – UK

<table>
<thead>
<tr>
<th>Method</th>
<th>Already using</th>
<th>Plan to use</th>
<th>No plans to use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-development with partners e.g., IT and professional services firms</td>
<td>56%</td>
<td>37%</td>
<td>7%</td>
</tr>
<tr>
<td>Enterprise software with integrated AI/cognitive e.g., Salesforce Einstein, SAP S/4HANA Cloud</td>
<td>53%</td>
<td>39%</td>
<td>8%</td>
</tr>
<tr>
<td>AI-as-a-service e.g., Artificial intelligence algorithms, capabilities, and/or specialized hardware...</td>
<td>50%</td>
<td>42%</td>
<td>8%</td>
</tr>
<tr>
<td>Open source AI/cognitive development tools e.g., Python, TensorFlow</td>
<td>50%</td>
<td>35%</td>
<td>15%</td>
</tr>
<tr>
<td>Data science modeling tools e.g., RapidMiner, KNIME</td>
<td>44%</td>
<td>43%</td>
<td>13%</td>
</tr>
<tr>
<td>Automated machine learning e.g., DataRobot, H2O.ai</td>
<td>44%</td>
<td>48%</td>
<td>8%</td>
</tr>
<tr>
<td>Crowdsourced development communities e.g., Github, Bitbucket</td>
<td>41%</td>
<td>30%</td>
<td>23%</td>
</tr>
</tbody>
</table>

It is clear cloud is having a major impact on AI use amongst UK companies. In the near and immediate future it will drive more full-scale AI implementations and better ROI. Importantly, we will see the democratisation of AI capabilities and benefits that had previously been the preserve only of early adopters. However, high rates of co-development and collaboration suggest many companies are struggling to find appropriate skills in-house, or are increasingly needing to develop customised solutions where ‘off-the-shelf’ options do not suffice.
Transitioning from prototype into production is a key challenge
Teething issues and risk management

UK companies had higher numbers of AI initiatives in the prototype stage than average, but less in full production. Integration issues represent a key challenge to scaling, as does preparedness to address the risks of AI.

48% of companies have 6 or more AI initiatives in full production, compared to 59% of US companies

24% of executives say their organisation is fully prepared to address the potential risks of AI (the lowest level in any other country)

46% of executives are highly concerned about the regulatory non-compliance risk of AI

44% of executives are highly concerned about the cybersecurity vulnerabilities of AI

51% consider the use of personal data for algorithms without users’ consent the most concerning ethical risk of AI

The top three barriers to scaling AI amongst UK businesses are:

1. Integrating AI into the company’s roles and functions (e.g. workflows, retraining)
2. Implementation challenges (e.g. creating an implementation roadmap, project management)
3. Challenges in measuring and proving the business value of the AI/cognitive solution

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
Companies seeking a step-change competitive advantage must look beyond cost reduction and pursue more ambitious strategies.
AI success depends on getting the execution right

70% of UK executives say they have set company-wide guidelines or strategies for AI adoption, but...

- **56%** of companies **have not yet** developed an implementation roadmap for AI (UK 52% vs. Global Average 54%)
- **61%** **have not yet** appointed senior executives who work across functional areas to advance AI adoption (UK 52% vs. Global Average 54%)
- **51%** **have not yet** selected preferred AI vendors (UK 54% vs. Global Average 52%)
- **44%** **have not** established a company-wide process for determining how AI prototypes get approved for full production (UK 86% vs. Global Average 59%)
- **69%** **have not** launched a company-wide AI centre of excellence (UK 59% vs. Global Average 52%)

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
44% of UK executives say AI is helping them to widen their lead or leapfrog ahead of their competitors, yet most see the key benefits of AI as being cost-saving rather than value-adding.

**Top perceived benefits of AI to the business, percentage ranked as top three**

- Optimize internal business operations: 44% (UK), 39% (Global Average)
- Make better decisions: 42% (UK), 39% (Global Average)
- Enhance the features, functions, and/or performance of our products and services: 44% (UK), 39% (Global Average)
- Free up workers to be more creative by automating tasks: 37% (UK), 37% (Global Average)
- Optimize external processes like marketing and sales: 35% (UK), 30% (Global Average)
- Capture and apply scarce knowledge where needed: 31% (UK), 31% (Global Average)
- Pursue new markets: 31% (UK), 31% (Global Average)
- Create new products: 16% (UK), 31% (Global Average)
- Reduce headcount through automation: 14% (UK), 24% (Global Average)

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
Workforce preparation will be key to successful execution and keeping pace with global competition.
Addressing the skills gap

UK companies report more acute skills shortages than other countries, particularly in technical roles, but they must not underestimate the importance of change management and preparing business leaders.

Companies with a moderate to major AI skills gap by market

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>Global Average</th>
<th>Australia</th>
<th>Canada</th>
<th>China</th>
<th>France</th>
<th>Germany</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>73%</td>
<td>64%</td>
<td>72%</td>
<td>72%</td>
<td>51%</td>
<td>62%</td>
<td>68%</td>
<td>57%</td>
</tr>
</tbody>
</table>

Skills and capabilities most needed to fill skills gap

<table>
<thead>
<tr>
<th>AI researchers</th>
<th>Project managers</th>
<th>User experience designers</th>
<th>Data scientists</th>
<th>Subject matter experts</th>
<th>Software developers</th>
<th>Business leaders</th>
<th>Change management/ transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>32%</td>
<td>27%</td>
<td>26%</td>
<td>23%</td>
<td>23%</td>
<td>22%</td>
<td>74%</td>
</tr>
<tr>
<td>Global Average</td>
<td>29%</td>
<td>23%</td>
<td>17%</td>
<td>26%</td>
<td>26%</td>
<td>24%</td>
<td>26%</td>
</tr>
</tbody>
</table>

Global average figures include companies from US, Canada, China, Australia, France and Germany, but exclude UK companies.
Despite reporting greater skills shortages than other countries and expressing a preference towards retraining their existing workforce rather than replacing them, British companies often fall behind in providing company-wide training to support it.

**Power to the people**

54% of executives say their company tends to either primarily keep and retrain current employees, or keep and replace employees in equal measure.

### Training and education activities already underway

- **Training for IT staff to deploy AI/cognitive solutions**: 60% UK, 59% Global Average
- **Training for employees to use AI/cognitive in their jobs**: 57% UK, 56% Global Average
- **Training for developers to create new AI/cognitive solutions**: 52% UK, 57% Global Average
- **Training for alternative roles within the company (i.e. when AI/cognitive has eliminated roles)**: 45% UK, 50% Global Average
- **AI/cognitive awareness education for all employees (e.g., how AI/cognitive may change job roles in the future)**: 43% UK, 50% Global Average

Global average figures include companies from US, Canada, China, Australia, France and Germany, and exclude UK companies.
## Definitions

<table>
<thead>
<tr>
<th>Artificial intelligence (AI)</th>
<th>Technologies that are able to perform tasks that previously required human intelligence (such as extracting meaning from images, text or speech, detecting patterns and anomalies, and making recommendations, predictions or decisions). They include technologies such as machine learning, natural language processing, computer vision, speech recognition, deep learning, robotic process automation, and intelligent robotics.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robotic process automation</td>
<td>Business process automation in which software mimics the human activities needed to carry out a task.</td>
</tr>
<tr>
<td>Machine learning</td>
<td>Systems that can learn from and make decisions and predictions based on data, rather than being explicitly programmed to carry out certain tasks.</td>
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<tr>
<td>Natural language processing or generation</td>
<td>Systems that understand, process, and/or produce human language. Examples include chatbots and systems that can convert human speech into data.</td>
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<tr>
<td>Artificially intelligent physical robots</td>
<td>Physical robots, controlled by AI/cognitive technologies, which can perform a variety of tasks.</td>
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<tr>
<td>Computer vision</td>
<td>Analysing digital images or videos and creating classifications or high-level understanding/descriptions that can be used for decision making and action.</td>
</tr>
<tr>
<td>Deep learning</td>
<td>A type of machine learning that uses cascading layers of neural networks to learn and create a hierarchy of concepts; applications include speech and image recognition, natural language processing, and recommendation systems.</td>
</tr>
<tr>
<td>Expert systems/rule-based systems</td>
<td>Systems that represent knowledge as a set of rules (derived from human experts) that tell what to do or decide in different situations.</td>
</tr>
<tr>
<td>Affective Computing</td>
<td>Systems and devices that can recognize, interpret, process, and simulate human emotional cues (e.g. robots than can respond appropriately to human facial expressions/moods).</td>
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</tbody>
</table>
Contacts

Justin Watson
Global Lead, Robotic and Intelligent Automation
Deloitte MCS Ltd
+44 (0) 20 7007 4300
justinwatson@deloitte.co.uk

Gurpreet Johal
Partner, Artificial Intelligence
Deloitte MCS Ltd
+44 (0) 20 7007 1280
gjohal@deloitte.co.uk

Dr Matthew Howard
Director, Artificial Intelligence
Deloitte MCS Ltd
+44 (0) 20 7303 0539
mhoward@deloitte.co.uk

David Halstead
Partner, Technology Media & Communications
Deloitte LLP
+44 (0) 1727 885 054
dhalstead@deloitte.co.uk

UK author
Georgina Dowling
Deloitte MCS Ltd
+44 (0) 20 7007 9576
gdowling@deloitte.co.uk

Global authors
Jeff Loucks
Susanne Hupfer
David Jarvis
Timothy Murphy