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Business Intelligence Insights explore a specific topic in depth, provide information, and propose questions on a national, local, stakeholder and organisational level. The reports challenge the reader to ask questions, consider the information presented from a new perspective and consider its impact on their work, and their lives.

The sharing of best practice, knowledge, and intelligence can drive collaborative success. By sharing, we can all be better equipped to adapt to the changing demands of our working environment and to better support our customers. As the Business Intelligence department at Scotland Excel continues to evolve, more resources will be shared with members and stakeholders going forward.

The focus for this insight is ***Artificial Intelligence.*** Please explore the **links** provided to find further information.

Artificial Intelligence

So…What is Artificial Intelligence?

Artificial Intelligence (AI) is the simulation of human intelligence processes by technology and machines. **AI uses machine learning**, a form of computer science that uses data and algorithms to recognise patterns and form decisions. This allows technology to perform tasks that are **usually carried out by people**, such as processing written and spoken language, recognising patterns, making decisions, and learning.

AI has become and is expected to continue to be an integral part of society. In fact, most of us interact with AI at home and at work every day. For example, when asking questions to self-service portals or using smart technology. AI technology has supported considerable steps forward in many fields. For example, it has been proven to **improve the accuracy of health testing, and speed up disease detection and diagnosis.**

The Scottish Government launched **Scotland's Artificial Intelligence Strategy,** and the UK Government launched a **National AI Strategy** in 2022. In the UK, around **15% of businesses** have adopted at least one form of AI technology, and **10%** plan to. In Scotland, **35% of businesses** use or intend to use AI technology to improve productivity and reduce costs.

AI will impact our lives in many ways. Readers are encouraged to question how AI will impact their lives beyond the few issues discussed in this report. In particular, this insight will question…

- How will Artificial Intelligence impact our lives and our work?
- What efficiencies can Artificial Intelligence bring?
- How will Artificial Intelligence impact employment?
- What must we consider if using Artificial Intelligence in public procurement?

How can Artificial Intelligence support public procurement?

The integration of AI in public sector procurement has already brought about significant changes. AI algorithms analyse large volumes of data, enabling organisations to make informed decisions that optimise cost savings and deliver better value for taxpayers. The automation of processes enhances efficiency and enables professionals to prioritise their focus on strategic activities.

AI contributes to increased transparency and fairness in procurement processes. By employing unbiased decision-making mechanisms, AI mitigates the risks of bias, favouritism, and corruption. It objectively evaluates bids, ensures compliance with procurement regulations, and fosters trust in the system. However, challenges such as data privacy and ethics considerations require careful management, alongside the need for skilled AI professionals to drive successful implementation.

As AI technology continues to evolve, its role in procurement processes is likely to expand, enabling smarter and more effective practices in the public sector.

Sound too good to be true? This section was written by an artificial intelligence programme…

What are the risks associated with artificial intelligence?

One risk associated with AI is its use of machine learning. Machine learning can improve accuracy in decision making by detecting patterns that humans may not be able to recognise. However, there are some concerns associated with its use in business.

Although AI can mitigate human bias, technology is programmed with preconceptions built in. These pre-determined models may influence and determine the conclusions it reaches, decisions it makes and advice it gives. For example, research has found that **AI algorithms are inherently racist and sexist.** Further, machine learning does not clearly evidence its decision-making and reasoning processes. These issues could have dangerous consequences in the adoption of AI.

How can we justify decisions if we don't know how conclusions were reached?

To put this in the context of public procurement, consider a hypothetical supplier selection scenario relating to Scotland Excel's **Community Meals** framework:

Supplier 1	Supplier 2
• Average cost £2.96 per meal • Low quality of meal provided • Minimal evidence of community benefits • Minimal evidence of fair work first practices • Incomplete supply chain oversight • 250+ employees • High transport emission, international suppliers	• Average cost £3.48 per meal • High quality of meal provided • Many community benefits • Plenty evidence of fair work first practices • Measures taken against serious organised crime groups within supply chains • SME • Low transport emissions, local suppliers

If a system has been programmed to prioritise price over quality and other factors, Supplier 1 is likely to be awarded the contract regardless of the potential implications for local suppliers and the environment. This example demonstrates the need for human expertise and judgement to find the most appropriate solution. How might this cost bias impact the quality of care being provided on a social care framework? Or the environmental impact of a high value construction project?

Does bias distort decisions made by Artificial Intelligence?

Therefore, human expertise is required to collaborate and work alongside technology. Embedding machine learning into existing processes in the public sector alongside human expertise can streamline processes whilst ensuring transparency and accountability are maintained. Working with technology can support data driven **decision making and opportunity identification, greater resource availability and more efficient processes.** This can be especially effective in processes that are difficult to automate or require expertise such as in negotiation, supplier selection and relationship management.

How will AI impact public sector resources?

Since lockdown in March 2020, the local government workforce population in Scotland has grown by around **3.9%, from 253,000 to around 263,000 in March 2023**. However, many organisations are struggling to recruit appropriately skilled and experienced workers with candidate availability in the UK at a **24-year low,** alongside a **low rate of unemployment**.

Despite high levels of employment, there have been significant skills shortages in many sectors since the pandemic. For example, the construction sector plays a key role in the achievement of national and local environmental, social, and economic objectives. However, there is a shortage of resources in housing, infrastructure, and repair and maintenance. It is expected that an additional **19,550 workers** will be required by **2027** in Scotland to achieve government net zero objectives, or **3,910 workers** per year from **2023.**

AI has been implemented to support workers in supply chains around the globe. For example, **FedEx** have deployed AI-powered robotic arms to speed up packaging processes, and improve resource availability. A survey in the United States found that **80%** of supply chain leaders already do, or expect to, use AI and machine learning in supply chain and logistics planning.

Could Artificial Intelligence reduce skills gaps and help us to meet national objectives?

In addition, as explored in the first insight, the population of Scotland is ageing. The workforce of Scotland is expected to reduce by around **5%** over the next **20 years**. This may deepen the employment and skills challenges facing organisations. However, in some areas, such as education and social care, is it appropriate to replace human interaction with technology?

Although AI can provide efficiencies, its costs of use and development must be considered. Without sufficient regulation, allowing AI to carry out work that was formerly carried out by humans may have harmful effects on the economy, the environment and society. For example, there may be a reduction in cost benefits to society such as to tax contribution, pension income or government revenue when work is carried out by machines instead of tax paying people.

The use, development and implementation of AI will impact the environment. The procurement and manufacturing of hardware, storing of data in data centres, and use of technology in the deployment of AI relies on energy intensive processes, and will contribute to carbon emissions. If the public sector seeks to use AI going forward, the environmental, social, and financial costs over the lifecycle of its use must be considered.

Could Artificial Intelligence use worsen environmental, social, and economic challenges?

How can we prepare for the growth of Artificial Intelligence?

Perhaps it is too early to tell just how AI will continue to impact the public sector. What is clear, is that the need for human expertise and skills will remain. Collaboration with technology and continuous monitoring of AI developments is required to make the most of the potential opportunities and to prepare for the challenges presented by AI. It is easy to get excited about unlocking the potential of AI and what it could do, but measures must be taken to best implement it in a controlled manner that supports the public sector workforce.

To prepare for the expansion of AI, questions that procurement professionals should ask include:

- How can the integration of AI technology benefit the public sector?
- How can AI be implemented into procurement processes in a controlled way?
- What procurement processes could be streamlined with the use of AI?
- What risks are attached to the implementation of AI in procurement?
- How will decisions made using AI be justified and evidenced?
- Will the use of AI impact the quality and delivery of services?

Resource Hub

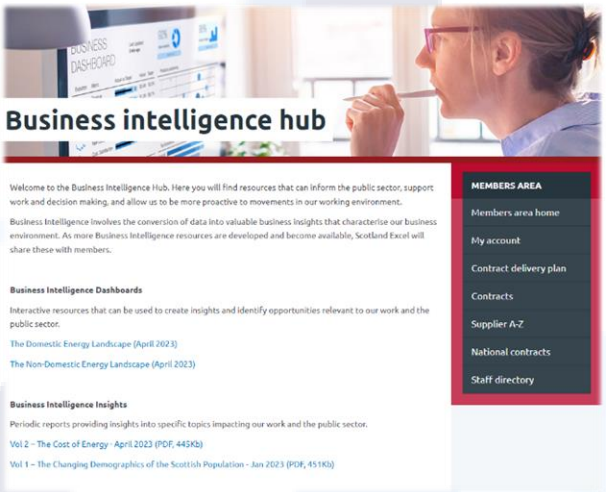
Do you want to find out more about Artificial Intelligence?

- **Artificial Intelligence, Data Science and Machine Learning Biscuit Book**, Defence Science and Technology Laboratory
- **The AI Opportunity in Sourcing and Procurement**, Deloitte
- **Artificial Intelligence in 5 Minutes,** Simplilearn

Member's Area

The Business Intelligence area on the **Members Area** is now active! This area hosts an archive of Business Intelligence Insights reports, Business Intelligence dashboards and will be updated when new resources become available. The Energy in Scottish Dashboards are now available on the Members Area and Scotland Excel staff intranet.

The Supply Chain Intelligence Report area of the Members Area has been updated. This area hosts the most recent, and an archive of previous Supply Chain Intelligence reports that are issued quarterly.



Do you have questions or feedback?

Thank you for your feedback on the previous Insights. Please contact **Hannah.Wood@Scotland-Excel.org.uk** for feedback and questions about Business Intelligence, or for suggestions for Insights topics to explore. In the words of one famous AI character***…I'll be back.***