Briefing Note: Scottish Supercomputing, Quantum and AI Innovation Strategy

Purpose

This briefing aims to draw attention to the potential value of developing a coordinated Scottish framework that connects supercomputing, quantum technologies and artificial intelligence. It is intended to contribute to discussion on how these domains could be advanced within an integrated national approach and to support awareness of any existing or emerging work in this area. The broader objective is to encourage informed consideration of how such coordination could strengthen Scotland's research, innovation and governance capacity.

Background

The United Kingdom has announced an exascale class national supercomputer to be located in Edinburgh with investment reported up to seven hundred and fifty million pounds. UK policy in adjacent areas includes the National Quantum Strategy with a ten year programme of public funding, and the National Artificial Intelligence Strategy. At the Scottish level there is Scotland's Artificial Intelligence Strategy with work commissioned to refresh it. Scotland's wider policy landscape also includes the National Strategy for Economic Transformation and the Digital Strategy for Scotland. These instruments provide the immediate policy context. Their focus areas sit alongside one another rather than within a single Scottish framework that connects supercomputing, quantum technologies and artificial intelligence. A coordinated approach could help align infrastructure, research, skills and governance so that activity develops in a mutually supportive way. This background motivates interest in whether comparable work is already under consideration and how an integrated approach might add value.

Analytical summary

A coherent Scottish strategy that interconnects supercomputing, quantum technologies and artificial intelligence would set clear national priorities for infrastructure access, research and translation, education and skills, enterprise adoption and ethical governance. It would align activity funded at the United Kingdom level with devolved responsibilities in skills, innovation and public service improvement. It would also support environmental objectives through energy efficient compute planning and reporting. The objective is to convert existing assets and programmes into measurable outcomes for Scotland in research excellence, high value jobs, productivity growth and resilience.

Questions for consideration

I would welcome information on the following points.

- Whether a Scottish framework of this nature already exists or is in development and the anticipated timetable for consultation and publication?
- How Scotland intends to maximise the benefit of the national exascale supercomputer located in Edinburgh for universities, research institutes, businesses and public bodies, including access principles and skills programmes?

- How Scottish policy will align devolved levers with the United Kingdom National Quantum Strategy, the United Kingdom National AI Strategy and the United Kingdom compute roadmap?
- What governance, assurance and reporting arrangements are planned to support transparency, security and responsible and efficient use of advanced compute?

Potential contribution of a Scottish Supercomputing, Quantum and AI Innovation Strategy

Such a strategy could.
- Define access and allocation principles for advanced compute that support research collaboration, enterprise innovation and public sector projects.
- Establish a national skills pathway that connects colleges, universities and industry with high performance computing, quantum and AI capabilities.
- Create targeted programmes for research translation and early deployment in priority sectors such as health, energy, finance and climate.
- Embed ethical, legal and security safeguards and align with net zero objectives through energy monitoring and efficiency targets.
- Set metrics and annual reporting to the Scottish Parliament on usage, impact and value for money.
- Provide a coordination forum for key actors including EPCC, universities, innovation centres, industry partners and public bodies.

I plan to develop recommendations through AIjurium (https://aijurium.com/) and to engage with relevant institutions in Scotland. If related work is already under way I would be grateful for signposting so that any contribution I make is aligned and useful.

References

- Scotland's Artificial Intelligence Strategy. Trustworthy, Ethical and Inclusive. Scottish Government. March 2021.
- Scotland's National Strategy for Economic Transformation. Scottish Government. March 2022.
- A Changing Nation. How Scotland Will Thrive in a Digital World. Scottish Government. March 2021.
- National Quantum Strategy. March 2023.
- National AI Strategy. September 2021.
- UK Compute Roadmap. Department for Science, Innovation and Technology.