



Transformative Technology

Six Pillars of a Better Future

Britain has historically been a leading scientific and technological force. We decoded DNA, discovered graphene and have set nuclear-fusion records. Scientists such as Peter Higgs, Richard Henderson and Greg Winter have recently won Nobel Prizes, while companies such as Graphcore, Oxford Nanopore Technologies and Exscientia show our entrepreneurial zeal. Yet faced with the increasing pace of technological change, we are at risk of stagnating. It is time we reimaged the role of the state to harness tech-enabled progress, reignited the pioneering spirit central to our culture and revved up the industries that will power the future – life sciences and biotech, clean technology and artificial intelligence.

Innovate or Stagnate

Technological progress is redefining geopolitics. China is now a superpower, India is rising and nations such as Singapore, Israel, South Korea and Estonia have become more innovative than the countries that dominated the 20th century. Without concerted efforts, Britain risks falling behind and failing to deliver the capabilities and jobs needed to stimulate the next era of growth.

To compete and thrive, government must rethink its role – embracing, fostering and adopting scientific and technological innovation to transform the UK into a land of widespread opportunity. We call this new vision for how government operates in the technological era “the Network State”.

A New Vision for Tech-Enabled Progress

The Network State is agile, experimenting with new forms of decision-making and delivery for more responsive, rapid and risk-tolerant policy. It balances the need for centralisation and decentralisation, for private and public innovation. And it is founded on a digital stack of connected public services, alongside a strategy to collect, curate and create the data that will drive innovation in AI and the physical world.

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At its core, the Network State is one that works for its citizens, helps grow and coordinate a far more dynamic and competitive economy, and develops and deploys world-leading innovations to bring about widespread prosperity. To achieve this vision, a new set of principles must guide government’s approach to innovation: pushing new frontiers; building platforms; and continually investing in the internet-era infrastructure on which the modern economy is built, including 5G, a national research cloud and a digital pound.

The plan should seek to:

Support high-reward research and development: We cannot compete with the scale of R&D in countries like China and the United States, so we need to advance focused, high-risk, high-reward research that builds on our history of frontier-technology ideation. This requires targeted funding programmes: devolving central innovation funds; scaling up low-red-tape “fast grants”; and building new institutions such as focused research organisations and a UK version of California’s Arc Institute, which supports ambitious, long-term biomedical research.

Create a conducive commercial environment: We should also be relentless in trying to turn these ideas into practice, ensuring knowledge translates into commercial enterprise. Recent measures by the government to enable more pension-fund investment in startups are welcome, but British tech needs more thorough reform. This should include incentivising private-sector risk through both upside and downside protections; creating long-term, politically insulated funding mechanisms, such as ten-year rolling R&D budgets; and a modern, precision tax and regulation system that works with companies to develop innovations without undue burdens. To encourage more startups and boost the attractiveness of listing in the UK, industrial policy should maximise the use of tools such as dual-class shares, while working with universities to increase more spinouts from their scientific expertise.

Embrace artificial intelligence: The UK must be a leading home for AI, building on the success of The Alan Turing Institute and companies such as DeepMind. Our focus should be on becoming the best place for AI talent to flourish, building skills in schools, investing in apprenticeships and encouraging world-class researchers to study and work in the UK. We must also invest in large-scale computing power and, rather than focusing simply on data for transparency, we need to treat data as a competitive asset and build high-value public data sets, such as the UK Biobank, which researchers and companies can tap into. This can help spur the next wave of innovation, creating jobs and industry, while also pioneering research that will improve health, agriculture, clean energy and more.

Become a “testbed nation”: We must focus on widespread adoption, supporting the uptake of emerging UK innovations through demand-side programmes and government and NHS procurement. The UK should become a testbed nation, helping communities across the UK take up innovations and targeting smart-procurement pilots across government departments.

Pioneer the next wave of digital government: There should be a strong move at the political-leadership level towards pioneering the next wave of digital government, to transform both citizen-facing services and the back-office functions the state relies on. The government must look beyond the efficiency gained by bolting on technology to existing services and think instead about how services can be transformed altogether.

Britain must create the ecosystems for innovations that can dramatically improve people’s lives, not least in cleantech and health.

Make technology a required competence throughout government: Just as Whitehall has to develop more specialisms in project management, economics and statistical analysis, it must ensure that understanding technology is a fundamental component of the expected skills mix. The days of generalist officials who shy away from “technical” discussions – almost as a point of pride – need to end.

To thrive in the 21st century, Britain must create the ecosystems for innovations that can dramatically improve people’s lives, not least in cleantech and health. If we reshape our state as a leading force in science and technology, we can stimulate a new era of growth and progress.

Further Reading

[The Way of the Future: Supercharging UK Science and Innovation](#)

[Reconfiguring the State for the Internet Era](#)

[Progress Substack](#)