

Igniting Innovation

How the UK can lead in emerging tech
regulation

Ben Greenstone, Allan Nixon

ONWARD➤

About Onward

Onward's mission is to develop bold and practical ideas to boost economic opportunity, build national resilience, and strengthen communities across all parts of the United Kingdom.

We are not affiliated to any party but believe in mainstream conservatism. Our vision is to address the needs of the whole country: young and old, urban and rural, for all communities across the UK – particularly places that have too often felt neglected or ignored by Westminster.

We believe in an optimistic conservatism that is truly national – one that recognises the value of markets, supported by a streamlined state that is active not absent. We are unapologetic about standing up to vested interests, putting power closer to people, and supporting the hardworking and aspirational.

Thanks

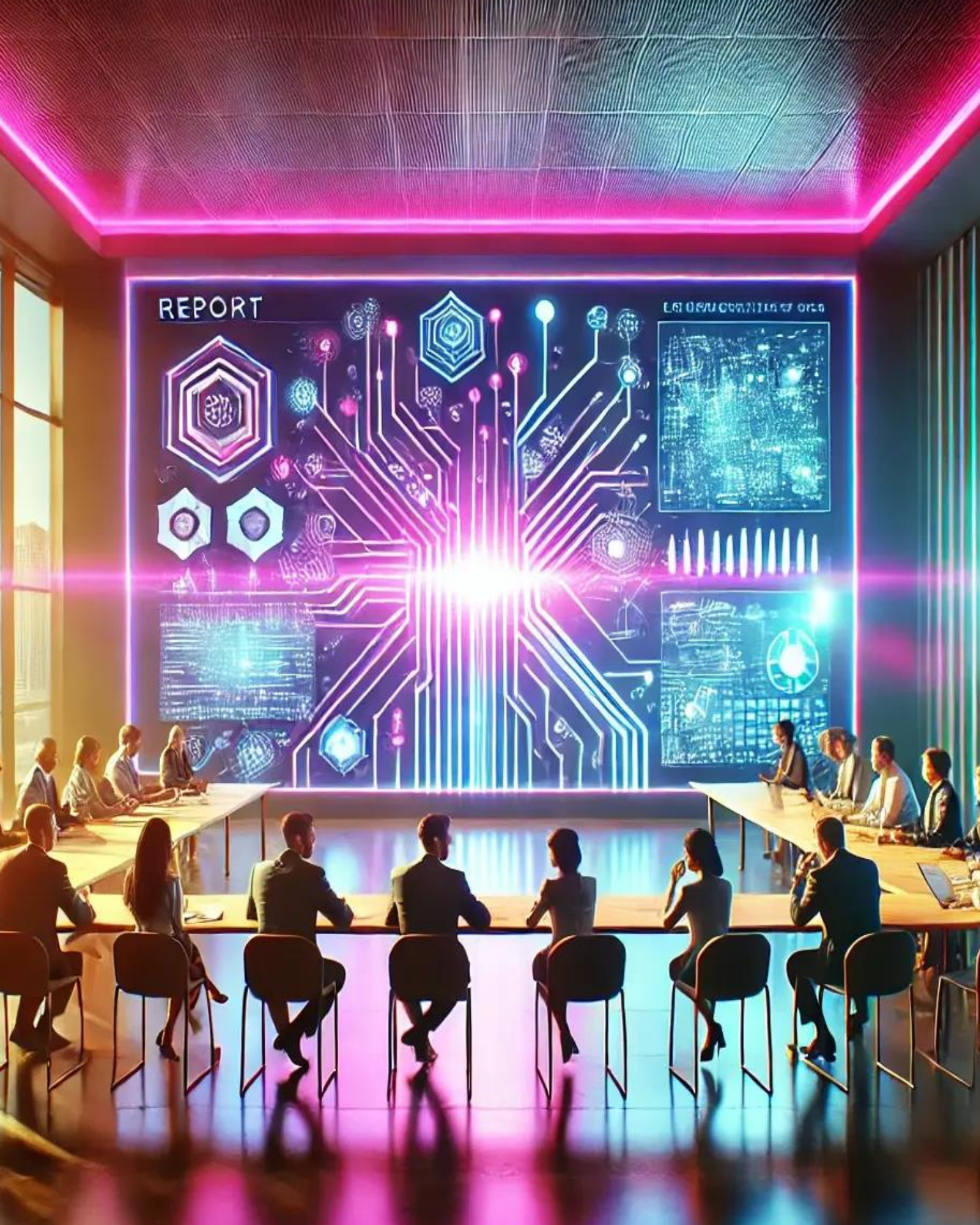
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REPORT

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Executive summary



Britain is failing to use its levers for growth. With stricken public finances, Britain cannot hope to beat intense international competition for the world's top innovators with expensive, gold-plated subsidy packages. A bespoke, more unique approach is needed to entice those in the emerging technology field to choose the UK as their home.

Leading in the regulation of emerging technologies should be a key part of this new approach. With the right balance, regulation can be a powerful driver of innovation and a key means of attracting the world's top science and tech talent. Britain has all the right ingredients to build a regulatory edge: a world-class research base, leading startup and investment ecosystems, regulators envied around the world, and freedoms enabled by its exit from the EU.

But its current regulatory system is falling short in two key ways. First, Britain's regulators should be nimble but they are painfully slow. The FSA is yet to publish guidance on gene-editing, for example, despite legislation being passed over a year ago and has completed just 14% of the approval requests it has received since 2021. The Financial Conduct Authority (FCA) is meeting only two thirds of its targets. Last year, the Medicines and Healthcare products Regulatory Agency (MHRA) assessed a quarter of clinical trial applications in 30 days, against a target of 98%. The Civil Aviation Authority has still not authorised drone flight beyond the visual line of sight of remote pilots. These have been in use in the US and Japan since 2022.

Second, when clarity and a light-touch approach are needed, Britain's regulators too often overreach and overcomplicate paths to growth. Fissures between regulators and ministers in the previous Government abounded, including the Competition and Markets Authority's (CMA) rejection of Microsoft's acquisition of Activision and perceived overstepping of the FCA beyond its remit such as with the creation of the 'consumer duty'.

The landscape for innovators is also rife with complexity and discoordination: satellite maker Space Forge needed to consult 11 different regulators before being able to launch. A startup applying AI to contract review and drafting in financial services would need to engage with at least six regulators, and likely many more.

Regulatory failings are having real-world impact. Instead of attracting the world's top innovators, the UK's failings are pushing its best tech companies to consider relocating. Leading lab-grown meat company Hoxton Farms has hinted it will relocate abroad due to slow regulatory approvals in the UK, stating that they are "very confident" they would secure quick US FDA approval. Revolut, the UK fintech firm, was viewed by the Government as a flight risk, with the Prudential Regulation Authority only granting them a banking licence in July 2024 after three years. Before the passage of the Automated Vehicles Act 2024, Wayve, the developer of systems for autonomous vehicles, mulled moving abroad.

The UK's regulators face two challenges.

Regulators are under-resourced

The regulatory burden is increasing while resources remain broadly flat. Ofcom, already responsible for broadcast, news and telecommunications, is now the UK's online safety regulator which has added at least 100,000 services to its workload. In 2005, the Information Commissioner's Office was responsible for regulating three Acts of Parliament; today it is ten.

Regulators are also struggling for staff and expertise. The FSA's headcount grew by 8% between 2018 and 2021 as it took on the huge growth area of regulating novel foods. The MHRA has recently cut its workforce by around 20%. MSD, the global pharmaceutical company, has described the loss of scientific expertise at the MHRA as being a key reason for the "considerable delays" to the running of clinical trials. A senior data scientist in industry would have to take a 40% pay cut to work at Ofgem.

Regulation often needs to be updated to keep up with innovation, but neither the Government nor regulators are primed for this. Regulators have neither the incentive nor resources to update. The previous government committed to introduce guidance on sunseting regulations in 2021, and in its White Paper in 2024 simply recommitted to publishing guidance.

Regulators are overstretched

Regulators are being asked to make more policy decisions. The new online safety regime requires Ofcom to decide on when and where age verification is required to access online services. The last government passed legislation to allow the CMA to unilaterally mandate changes to the business models of some of the world's most successful companies.

Regulators lack the means to coordinate between themselves. The Digital Regulation Cooperation Forum (DRCF), the body meant to help coordinate the digital regulation efforts of regulators, has a staff of less than 15 people to coordinate regulatory activity in a sector that employs 1.7 million people.

The Government also can't steer regulators. When the Government fundamentally disagrees with a regulatory decision that it considers seriously at odds with its strategy and innovation ambitions, it has no powers to challenge beyond publicly criticising regulators. Governments are also unwilling to try to steer them. It took ten years for the last government to consult on Ofgem's strategic policy statement, and Ofcom was last issued a strategic steer in 2019, before the Online Safety Bill, which transformed its role, was even introduced to Parliament.

To harness regulatory dynamism and build a truly innovation-led economy, the UK needs bold reforms to support regulators to *tool up* (by building capacity) and *focus in* on the activities that matter most.

1. **Tool up.** To deal with the challenge of regulations not keeping pace with the latest technology, **specific regulation of emerging technologies should be enacted with sunset clauses of four years**, forcing lawmakers to consider whether the law is working as intended and whether it remains necessary.

To protect firms inadvertently caught up in regulations, the Government should **commit to two automatic exemptions for new legislation on emerging technologies**: a de minimis exemption based on business size, and a “likelihood of harm” exemption for business-to-business products, in all new regulation specific to emerging technologies.

Minimising the touch-points that innovators have with regulators is also vital. To address this the Government should **launch a ‘Lead Regulator’ pilot, modelled on Denmark’s regulatory ‘One Stop Shop’ to act as a single point of regulatory contact for innovative business.** And the Government should **expand the fast-track approval routes that rely on the recognition of trusted countries’ recognised regulators’ decisions** like the MHRA’s International Recognition Procedure so that emerging technologies which have already been approved by another trusted regulator abroad can apply for automatic approval in the UK within a month unless the relevant regulator actively blocks approval.

2. **Focus in.** To protect innovators from getting caught between regulators and tangled up in various layers of bureaucracy, **the Government should strengthen its plans for establishing a Regulatory Innovation Office (RIO).** It should be put on a statutory footing with a permanent team and be given powers to compel regulators to coordinate on emerging technologies. The RIO should also be a home for cross-government teams and programmes designed to bolster the UK’s regulatory dynamism, such as the Innovator Taskforce proposed in this paper.

Too often firms are discouraged from investing due to Government rhetoric and intent not aligning with regulatory action. The Government should have such a power which it can only deploy in extreme circumstances. **It should legislate to create a ‘call-in’ mechanism to allow the Government to assess, and possibly amend or overrule a specific regulatory decision** if a specific decision would cause social, economic or other harm to the UK. Managed well, this power would give business an ability to ensure that democratically elected politicians stick to their word and can execute their wishes.

The UK has the potential to set itself apart from the rest of the pack in the development and deployment of emerging technologies through agile, pro-innovation regulation. Achieving this would make the UK richer, more innovative, more productive, and could benefit the British public enormously over the long-term. The Government must seize this opportunity.

Table of recommendations

Problem		Solution	
Tool up			
1.	Regulations often become outdated as technology evolves.	1.	Regulation of emerging technologies should come with four year sunset clauses.
2.	Broad regulations unnecessarily burden small businesses and low-risk B2B products.	2.	The Government should create a de minimis exemption based on business size, and a “likelihood of harm” exemption for business-to-business products, in new regulation specific to emerging technologies.
3.	Innovators face complex, multi-regulator engagement.	3.	The Government should launch a “Lead Regulator” pilot to streamline innovator touch points with regulators, including creating a single point of contact for innovative businesses.
4.	Slow approval processes hinder international deployment of innovations.	4.	Expand the fast-track approval routes that rely on the recognition of trusted countries’ recognised regulators’ decisions.
5.	Regulators often struggle to have the specialist and technical expertise.	5.	The Government should create a central “Innovator Taskforce” that can be deployed to regulators to support on specific, time-limited issues.
6.	Regulators lack specialist knowledge and skills.	6.	The Government should create a “Regulatory Innovator Tour of Duty Programme” to second innovators from industry to regulators, and regulators to innovators, building capacity and knowledge on both sides.

Focus in

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|--|---|
| 7. Lack of coordination among regulators hampers innovation. | 7. The Government should establish the RIO as a statutory body with powers to compel regulators to cooperate on emerging technologies. |
| 8. Government lacks the ability to intervene in critical regulatory decisions. | 8. Create a 'call-in' power to allow the Government to direct regulators on individual decisions, and create a simple route for individual regulators to refer innovation blockers for political decisions. |
| 9. Regulators often lack clear, consistent guidance from the Government. | 9. The Government should standardise how strategic steers are issued and should be renewed at least every two years. |
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Failing to lead at the leading edge



Why build an edge in regulation?

To leverage science, technology and innovation for economic growth and security, the UK must lead in the deployment of emerging technologies. Leading means research and inventions developed domestically are translated into tangible economic benefit rather than others abroad reaping the rewards.

But the UK is underperforming. While the UK's R&D expenditure makes up around 5% of the world's R&D resources,¹ its share of global value-added output from R&D-intensive industries has decreased to 2.6%.²

Leading means attracting innovators from abroad, looking to develop, scale and sell their innovations. Foreign born innovators are key to domestic dynamism. Despite making up only 14% of the UK population, almost 40% of the UK's fastest growing startups have at least one foreign born founder.³ Foreign talent accounts for a quarter of the total US patent market value.⁴ And immigrants in America make up only 14% of the population, yet are estimated to account for 36% of total innovation in the US.⁵ Britain's archaic and poorly-managed visa channels, however, are deterring thousands of innovators.⁶

Leading in the deployment of new technologies is also vital for driving productivity. Those faster at adopting digital technologies tend to be more productive (see Figure 1).⁷ The adoption of AI will be vital, with generative AI set to be one of the most important drivers of firm productivity in the years ahead.⁸ Overall, economies able to adopt new technologies faster have historically been stronger – delays in adoption of new technologies are estimated to account for at least 25% of per capita income differences across countries (see Figure 2).⁹

Regulation is key to leading in the deployment of emerging technologies. Permissive, pro-innovation regulation can support the translation of R&D into new products and services, attract innovators from abroad, and make it easier for businesses to adopt new technologies.

Figure 1: The productivity gap between leading and laggard firms is growing

Source: OECD¹⁰

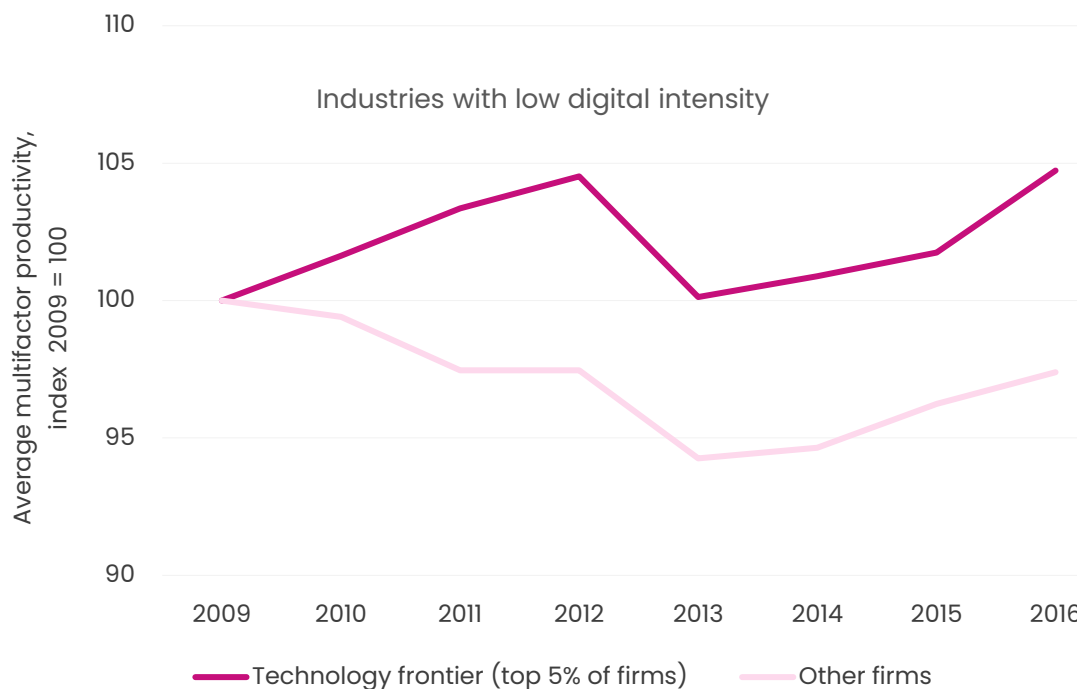
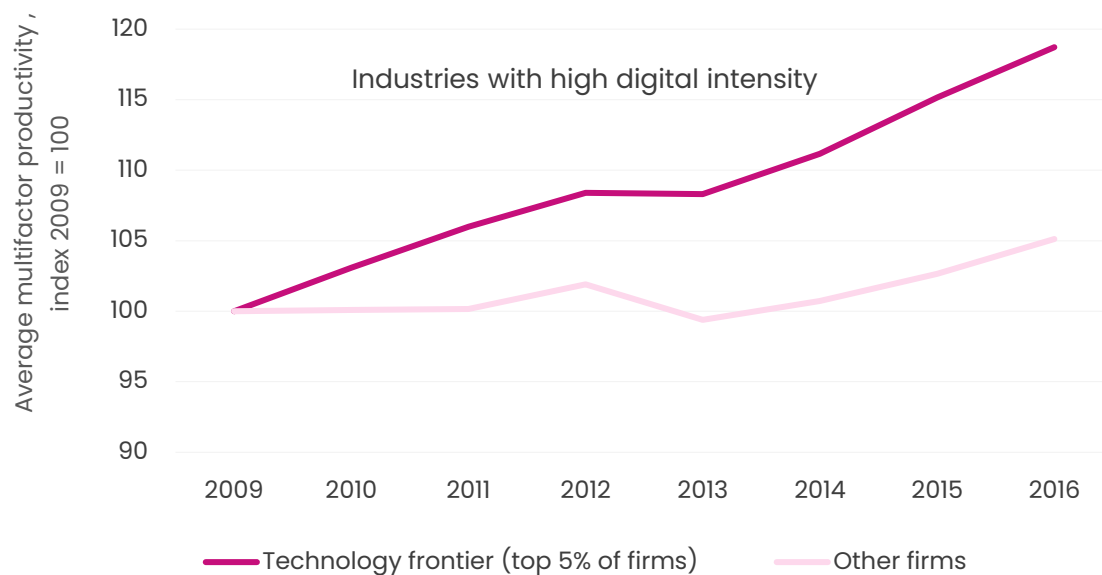
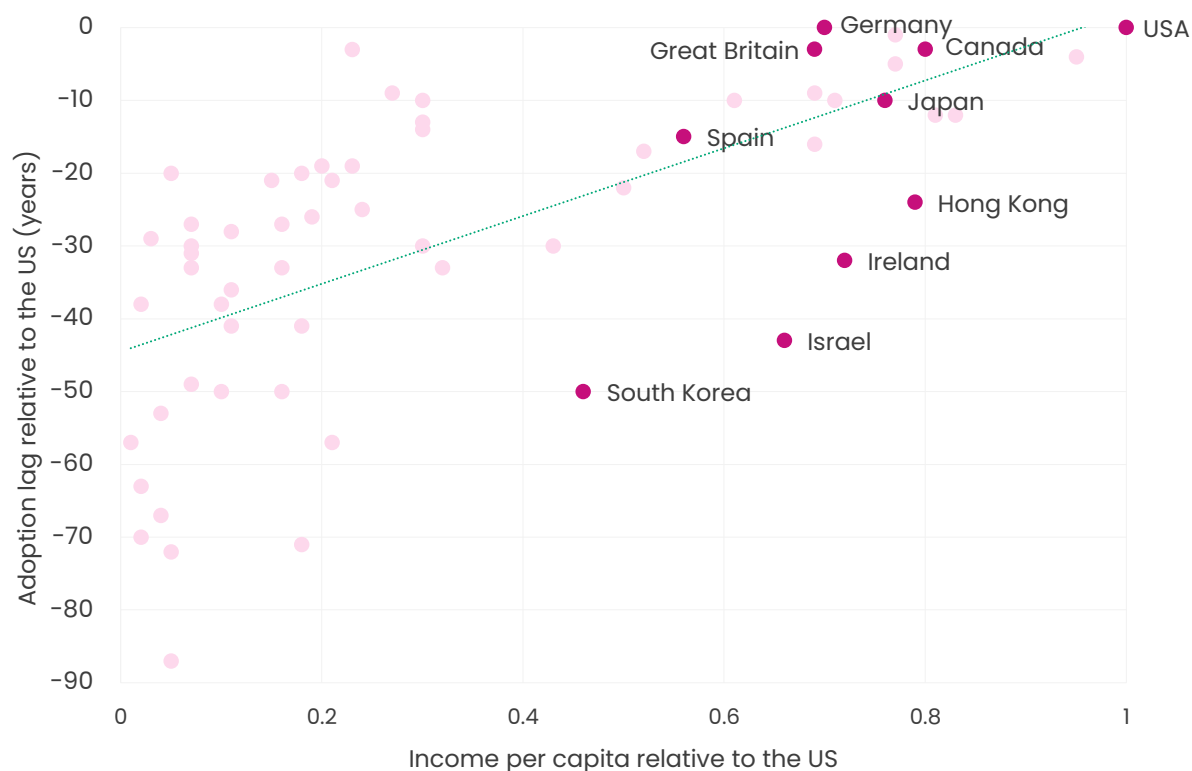


Figure 2: Technology adoption lag and income per capita

Source: Harvard Business School¹¹



For technologies developed abroad, regulation can allow a country to keep pace despite others developing the technology earlier. The BioNtech/Pfizer vaccine was developed in Germany, but approved and deployed in the UK first.¹² Despite America having some of the most advanced pharmaceutical companies in the world, the sunscreen formulas on offer in US stores are decades behind other countries as the FDA has not approved a new UV-blocking filter since 1996.¹³

Emerging technologies, however, are difficult to regulate, as both the potential harm and the upsides may be unclear. Managing this requires the Government and regulators to consider three key factors which should guide the UK's approach to regulating emerging technologies.

1. **‘Born free’ vs ‘born captive’ technologies.** New technologies are either ‘born free’ into spaces where no rules as yet exist, or ‘born captive’ – into already regulated markets where existing rules may inhibit or permit innovation.¹⁴ If a new technology is ‘born free’ then regulators may feel impelled to erect guardrails to deal with the threat of a new technology’s potential to cause harm, which could stifle innovation. If ‘born captive’, regulators may feel impelled to update the rules to manage the new challenge.
2. **Development vs deployment.** Regulating a new technology’s development may be necessary to protect the public where even the creation itself poses risks (such as bioengineering pathogens), but overregulation could stifle vital research such as to prevent disease. Regulating the deployment of technologies (such as autonomous vehicles), however, can allow them to be developed freely but their introduction to society or the economy is governed by rules. Regulating the deployment of new technologies rather than their development as far as possible is often the most innovation-friendly.
3. **The type of harm.** With new technologies there tends to be a bias towards regulating based on the perceived potential harm in years to come, rather than on current and near-future likely capabilities. A distinction between consumer harm and commercial harm is also key: the individual or societal harm a technology has is very different from economic harm towards business, generally with a higher tolerance threshold for economic harm being more appropriate.

Pro-innovation regulation is an area where the UK can build an edge. In an era of heightened competition to attract top science and tech talent, competing with the US, China or the EU bloc on large fiscal incentives is not a viable strategy.

The UK has shown that it can gain a competitive edge. In 2023 it became the first country to approve a therapy created with CRISPR gene editing technology.¹⁵ The launch of the FCA’s sandbox in 2016 was considered world-leading and was imitated by regulators around the world (see Box 1). The founders of open banking company TrueLayer have stated that they moved to the UK because it was also one of the earliest adopters of open banking.¹⁶ The FCA’s pro-competition mandate and actions in this period, such as the creation

of the regulatory sandbox, helped businesses such as Monzo, Starling Bank, Tide and Revolut start, scale and become dominant actors in European fintech¹⁷ (this has fallen short in several instances since).¹⁸

Box 1: The FCA's regulatory sandbox¹⁹

The FCA was established in 2013 after the 2008 financial crisis. In 2014, the FCA started Project Innovate, which proposed to help new innovative firms to become licensed, to provide support, and to engage with the industry on innovative ideas. The agency's willingness to advise and support unregulated firms exposed it to risk, but the public response to the proposal was overwhelmingly positive.

The initiative was first led by a small team. It nominated "innovate champions" in various parts of the agency who took the innovation hub's learnings back to their own divisions. This resulted in a "hub and spoke" model that maximised the impact of innovation across the organisation.²⁰

During the early days of the project, the FCA heard from new firms entering the market that they wanted a place to experiment without the expense of going into an uncertain market. Chancellor George Osborne in 2015 reinforced this, directing the FCA to assess the feasibility of developing a regulatory "sandbox" for innovators.²¹

Launched in June 2016, it offered a "safe space" for businesses to test innovative products, services, business models and delivery mechanisms without immediately incurring the normal regulatory consequences associated with the activity, but with appropriate safeguards to protect consumers and the financial system."²²

By 2020, 140 firms had passed through the scheme. Firms were able to test their technologies and business models, and the FCA established bespoke safeguards for each case. The FCA's approach has been emulated globally, with more than 30 regulatory sandboxes now operating on the FCA model.²³

The UK has the opportunity to set itself apart from the EU – in some ways it already has. The differentiated vaccine procurement allowed it to secure supply of and deploy a Covid vaccine much faster.²⁴ Post-Brexit, the UK is able to move more agilely than its EU counterparts – the UK has allowed gene editing (prevented by EU law) to help produce “more resilient and productive crops and livestock.”²⁵

The challenges

The last Conservative government made progress towards a pro-innovation regulatory system. In 2022 it commissioned Lord Patrick Vallance, the then-Government Chief Scientific Adviser (now a Minister in the Department for Science, Innovation and Technology), to conduct a series of ‘Pro-innovation Regulation of Technologies Reviews’.²⁶ It committed £10 million to the MHRA to speed up regulatory approvals.²⁷

It introduced the new International Recognition Procedure in January to speed up approvals of medicines by relying on foreign regulators’ assessments.²⁸ It published a White Paper on AI regulation and a follow-up response in early 2024.²⁹ And in its science strategy document published in 2023, the Science and Technology Framework, it underlined the importance of the UK maintaining its position “at the frontier of setting technical standards and shaping international regulations.”³⁰

The last government also showed willingness to reduce business regulation more broadly. It announced 23 reforms, including a commitment to create a register of regulators to create a ‘one stop shop’ of regulatory information, and a Growth Duty Performance Framework, aimed at “encourag[ing] regulators to be transparent about how they are encouraging innovation.”

Yet many of these reforms were meek. While Ofcom, Ofgem and Ofwat were to be brought in scope of the Growth Duty via these reforms, these would do little to address the structural or capacity issues, instead simply requiring regulators to show that they have “regard to the desirability of promoting economic growth.”³¹ And many of the other 23 reforms proposed in the White Paper were vague and devoid of action, including:

- The UK Regulators Network (UKRN) has “agreed to take on board the feedback” from a consultation
- The Government “will work with regulators to fully understand” issues regulators face
- The Government will “take forward a holistic assessment of infrastructure investment need”
- The Government will “actively monitor the effectiveness of existing policy”

Other initiatives from the last government also lacked ambition:

- The £10 million package the last government committed to regulators to “prepare and upskill” for AI,³² will be split across at least thirteen regulators,³³ meaning likely less than £1 million per regulator. For the CMA this is less than 1% of its annual budget.
- As the FSA delays setting out its approach to regulating gene-editing, its budgets have been frozen.^{34 35}
- The last government had been funding a total of 24 regulator projects to “create a UK business environment that encourages business innovation” with £12 million, meaning an average of £500,000 each at most.³⁶

Reforms at the margins like these are not enough. Whole industries are being transformed by emerging technologies, such as the rapid development of mRNA vaccines creating new possibilities in drug discovery.³⁷ Quantum sensing is revolutionising the detection of diseases, environmental monitoring, and navigation capabilities.³⁸

And the UK’s regulatory failings are already having real world impacts:

- Leading lab-grown meat company Hoxton Farms has openly contemplated relocating abroad due to slow regulatory approvals in the UK, stating that they are “very confident” they would secure quick US FDA approval.³⁹
- Another UK lab-grown meat company Ivy Farms has been contemplating shunning the UK market and seeking approval elsewhere first, due to regulatory slowness.⁴⁰

- Revolut, the UK-headquartered fintech valued at over \$25 billion, was seen by the UK Government as at risk of leaving the UK⁴¹ – regulators took more than three years to grant them a banking licence,⁴² despite having been approved in the EU (via Lithuania) in 2021.⁴³
- Wayve, the developer of systems for autonomous vehicles, has reportedly mulled moving abroad to allow it to perform advanced tests of its technology as the UK delayed bringing forward legislation that would let it perform these tests on UK roads.⁴⁴
- Legislation that does this (the Automated Vehicles Act 2024) has since received Royal Assent,⁴⁵ and Wayve have announced a \$1 billion Series C fundraising.⁴⁶

Regulatory stasis is impacting UK startups' survivability. Venture capitalist Andrew Bennett claims that startups' inability to trust that regulators will stick to their target timelines is having a material impact on the amount of funding they need to raise, with numerous unintended consequences, including potentially precluding the startup's ability to raise future funds.⁴⁷

Regulators are too slow

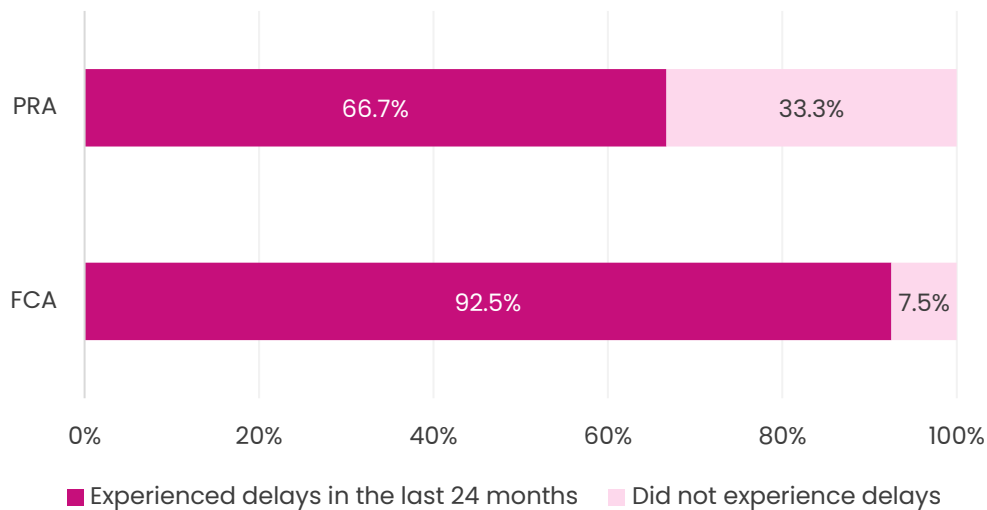
To tackle the UK's regulatory issues, two challenges must be addressed. First, when action is needed, the UK's regulators are too slow, suffering from the 'pacing problem' – when innovation outpaces the ability of laws and regulations to keep up.⁴⁸

- The FSA is yet to publish its approach to gene-editing following the Genetic Technology (Precision Breeding) Act despite being passed in March 2023, and has completed just 14% of the approvals requests it has received since 2021.⁴⁹
- The FCA takes an average of 59 months to complete a criminal investigation, a number that nearly doubled in a single year, and it meets only two thirds of the standards it measures as part of its annual performance review.⁵⁰ One study found that over 90% of industry respondents had experienced delays in processing authorisations within the past two years.⁵¹
- The same study found that two-thirds had experienced similar delays with the Prudential Regulation Authority.⁵²

- Last year the MHRA assessed just 26% of clinical trial applications in 30 days in 2022-23, against a target of 98%.⁵³ A combination of triaging, staff reallocation, hiring of contractors and £10 million of government funding has since improved performance and cleared the backlog.^{54 55}
- The Civil Aviation Authority (CAA) has still not authorised drone flight beyond the visual line of sight of remote pilots, apart from in trial cases, despite the Regulatory Horizons Council describing it as an opportunity for the UK in 2021.⁵⁶ Meanwhile drones have been in use commercially in the US and Japan since 2022.⁵⁷

Figure 3: Authorisation application processing delays in last 24 months

Source: The City UK⁵⁸



Regulators overreach and overcomplicate the landscape

Second, when restraint or careful coordination is needed, regulators get in the way. Repeated friction between ministers and regulators suggest some have not been aligned with the previous government's pro-innovation and pro-growth ambitions. The Growth Duty extended this year to additional regulators underlines the level of frustration that regulators have not been sufficiently mindful of their pro-growth responsibilities to the point where ministers in the last government introduced a White Paper to further codify it.

And there have been numerous incidents of regulators ostensibly being at stark odds with the last government. Ministers clearly disagreed when the CMA blocked Microsoft's acquisition of Activision.⁵⁹ They chastised the FCA for its planned reforms to create a "consumer duty" out of concerns that it could impose significant new regulatory burdens on the sector, with a strong focus on "harm reduction" rather than "benefit maximisation".⁶⁰ And then-City Minister Bim Afolami reprimanded the Payment Systems Regulator's proposed plan to force banks and payment companies to reimburse fraud victims.⁶¹

Emerging technologies often do not neatly fit into the complex regulatory structures and boundaries that currently exist. AI, for example, is thought to be directly affecting the work of at least 13 regulators, leading the previous government to write to each asking them to set out their approach.⁶² Many more will be affected in future too.

Generative AI specifically is being considered by the Information Commissioner's Office in the context of data protection,⁶³ Ofcom in the context of content regulation,⁶⁴ and the CMA in the context of competition concerns.⁶⁵ And the risk of future discord on AI is high – as part of the last government's stated approach to AI regulation, separate sectoral regulators will each create rules for the technology's application in their part of the economy. This may create overlap, friction and in some cases direct contradiction.

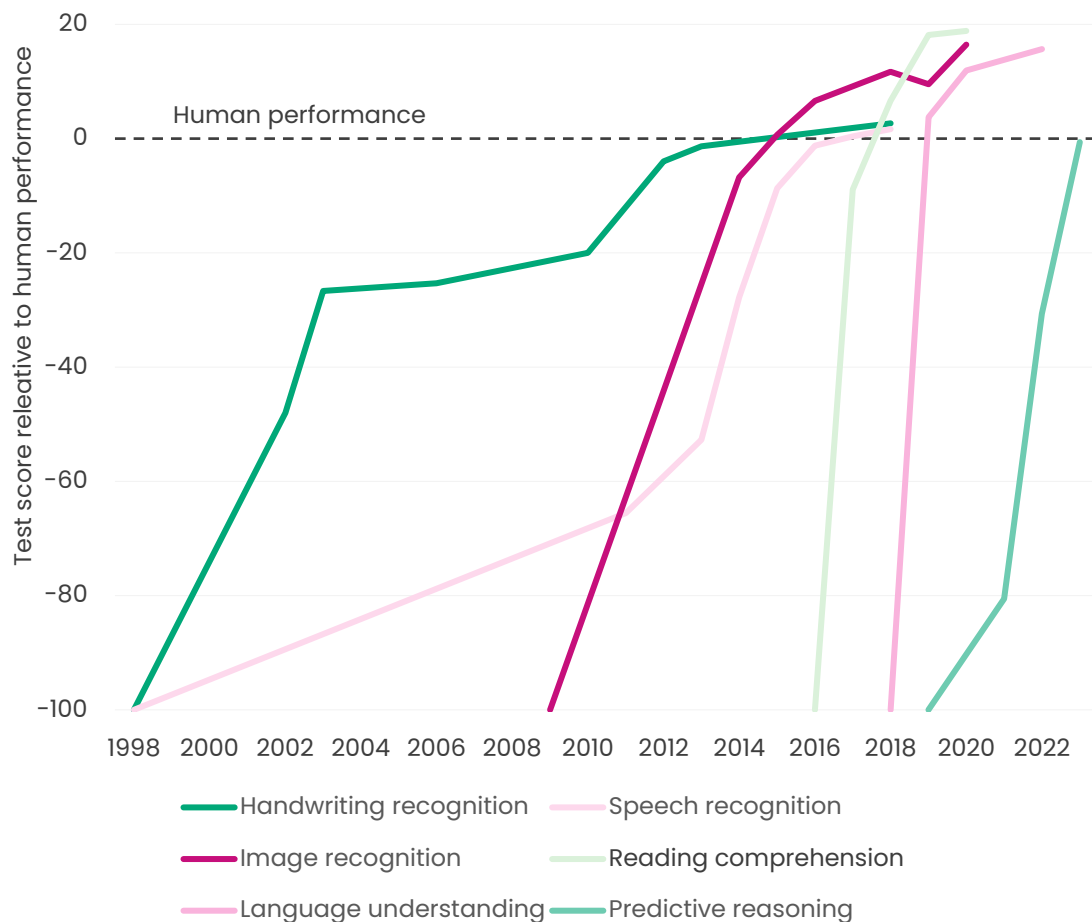
Regulating emerging technologies is getting harder

Many emerging technologies are becoming increasingly intertwined, making it harder for regulators to coordinate their activities effectively. Quantum and AI, for instance, are likely to be strong reinforcers of one another, for instance with quantum computers having the "potential to significantly boost AI's processing power."⁶⁶ The two technologies will be regulated independently, together, and in different future combinations with other emerging technologies, such as engineering biology. The Regulatory Horizons Council, in recommending a regulatory approach for quantum technologies, has said that these "hybrids will require smart decisions on which regulatory precedent(s) to follow."⁶⁷

The pace of innovation for many technologies is quickening, creating challenges too. In AI language recognition, progress that once took decades is now happening within a few months (see Figure 4). Many are increasingly interconnected, making applying single frameworks challenging.⁶⁸ And some are reaching a level of sophistication that is making it harder for non-specialists to understand.⁶⁹

Figure 4: Speed of AI systems to human performance at specific tasks (human performance = 0)

Source: Our World in Data, Kiela et al. 2023⁷⁰



International competition is also rife. Countries are going to significant efforts to entice innovative companies and talent through regulation:

- Estonia launched a sandbox for UK startups who are being hamstrung by UK regulation.⁷¹
- Italy introduced a “right to innovate” in 2020, which “enables derogations from regulations that inhibit new ideas, products or business models, in order to foster the development, dissemination and use of emerging technologies and high-tech initiatives.”⁷²
- Germany has taken a similar approach with what it calls “experimentation clauses”.⁷³

Britain's regulators

Under-resourced and overstretched



Regulators are under-resourced

The regulatory burden is big and getting bigger

The responsibilities of the UK's regulators are broad and getting broader. Ofcom, already responsible for broadcast, news and telecommunications, is now the UK's online safety regulator. Its own assessment is that the Act will require them to regulate at least 100,000 services, up from the Government's initial estimate of 25,000 services in the Bill's Impact Assessment.⁷⁴ The Information Commissioner's Office (ICO), responsible for the enforcement of the UK GDPR, is overseeing any business which processes personal data⁷⁵ – which today is essentially every business. In 2005, the ICO was responsible for regulating three separate Acts of Parliament; today it is ten.⁷⁶

The regulatory burden on business is growing too. It is estimated that “red-tape” costs could be as high as £70 billion per year.⁷⁷ Previous governments made repeated unsuccessful commitments to cut it further. From 2017 to 2019 the Government sought to reduce regulatory costs to businesses by £9 billion. Instead, costs rose by £7.8 billion.⁷⁸ The Centre for Policy Studies estimate that from 2010 to 2019 the net regulatory burden on businesses rose by an average of £6 billion a year.⁷⁹ Between 2019 and 2024, against a government target of no increase in regulatory cost for business in the Parliament, it rose by £14.3 billion.⁸⁰

Regulators lack sufficient staff

Despite the growing burdens, resources for regulators have not kept pace. Many regulators have taken on more duties recently, but their headcounts and budgets have grown only modestly. The FSA headcount grew by 8% between 2018 and 2021 as it took on expanded responsibility for novel foods and was considered a “post-Brexit opportunity”. The MHRA confirmed in late 2021 that it was cutting its workforce by around 20%.⁸¹ The FCA's budget increased by just 1% between 2018 and 2021.

Figure 5: UK regulator headcount, 2018–2021

Source: NAO, Onward analysis

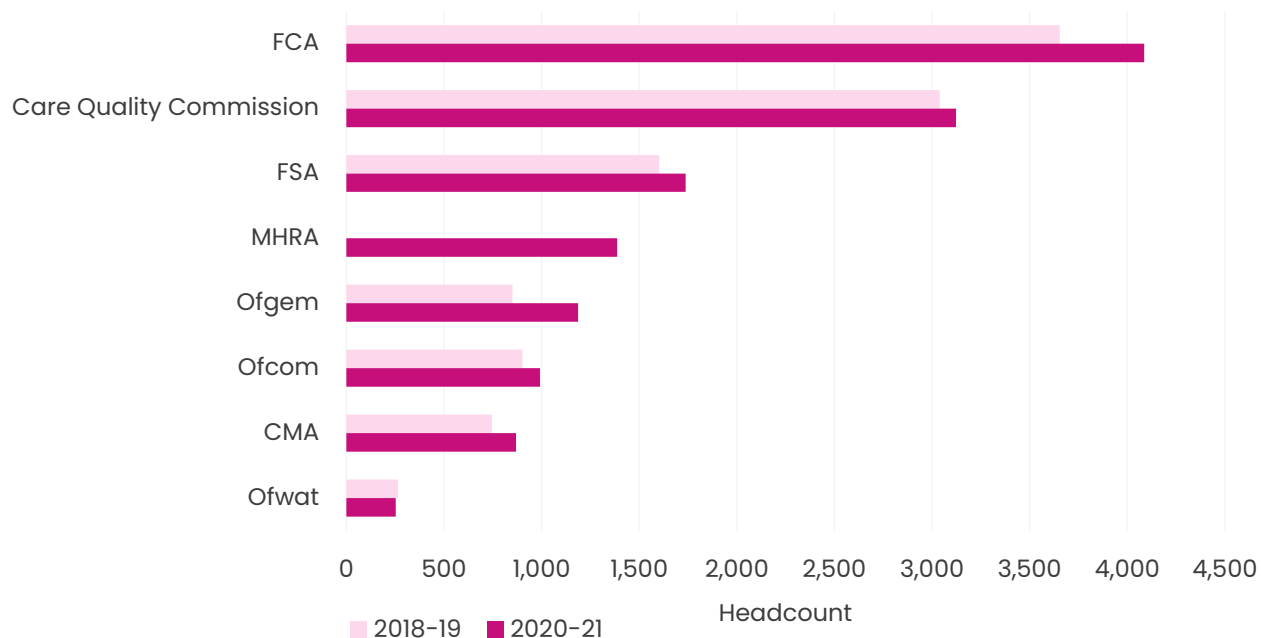
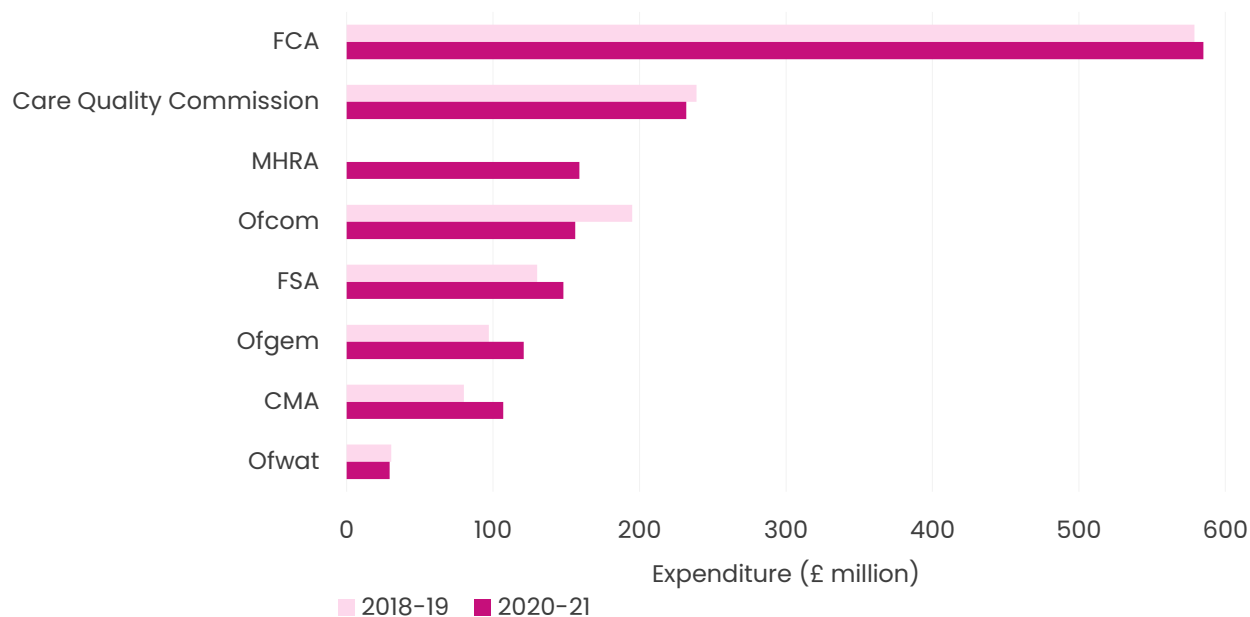


Figure 6: UK regulator funding, 2018–2021

Source: NAO, Onward analysis



Having the necessary expertise is also critical. Marcus Bokkerink, chair of the CMA, described the recruitment and retention of the specialist skills as his “one biggest worry”.⁸² When examining regulation after Brexit, the National Audit Office also found that hiring specialists was a challenge for regulators. At some grades the CMA had as many as 25% of posts unfilled.⁸³ MSD, the global pharmaceutical company, has described a loss of scientific expertise at the MHRA as being a key reason for the “considerable delays” to the running of clinical trials.⁸⁴

Secondments can help to plug this gap to some degree. The CMA has described these as an “important means of sharing and improving skills, expertise and capabilities in regulators.”⁸⁵ In May the previous government committed to fund the UK Regulators Network to develop a “cross-sector secondment programme.”⁸⁶

A senior data scientist who could command the top end of the salary for their experience would take a 40% pay cut to work at the regulator. This challenge is caused mostly by the inability of regulators to pay specialist talent competitively. Bokkerink has described the pay gap with the private sector, for specialist skills in particular, as “pronounced in a way that it is almost impossible for these talented people to ignore.”⁸⁷ A senior data scientist at Ofgem can expect to be paid a top-end annual salary of £62,669 (inclusive of the London weighting).⁸⁸ Glassdoor, the job and salary comparison website, estimates that a top-end annual salary, inclusive of a bonus, would be in excess of £100,000.⁸⁹

The public sector pay principles are referenced by a number of regulators, including the ICO, the Civil Aviation Authority and the FSA as causes of skills shortages in new and emerging technologies.⁹⁰ As well as competing for talent in the open market, the UK’s regulators are therefore competing with one another for specialist and technical skills.

Figure 7: Pay ranges at Grade 7 (middle manager) or equivalent level at UK regulators

Source: Regulator annual reports, Written Parliamentary Questions, Onward analysis⁹¹

Regulator	Grade 7 maximum (inside London) (or equivalent)
Medicines and Healthcare products Regulatory Agency	£63,403
Food Standards Agency	£69,097
Information Commissioner's Office	£67,530
Ofcom	£64,890
Civil Aviation Authority	£84,946
Competition and Markets Authority	£72,200
Financial Conduct Authority / Payment Systems Regulator	£80,500

This lack of uniformity in pay between the UK's regulators is caused, in part, by the lack of uniformity in their funding and their governance models. Some have funding settlements from the Treasury, some from fees, and some are a combination. The Government cannot impose any cross-regulator rules, because of the range of governance structures in place: some regulators are non-ministerial departments, some are statutory corporations, some are non-departmental public bodies, and some are others besides.

Figure 8: Source of UK regulator funding and governance structure

Source: National Audit Office Departmental Overview⁹²

Regulator	Core funding from industry	Core funding from government	Governance
Ofwat	>99%	<1%	Non-ministerial department
Ofgem	100%	0%	Non-ministerial department
Ofcom	100%	0%	Statutory corporation
Food Standards Agency	22%	78%	Non-ministerial department
Financial Conduct Authority	100%	0%	Company limited by guarantee
Competition and Markets Authority	0%	100%	Non-ministerial department
Medicines and Healthcare products Regulatory Agency	70%	30%	Executive agency
Care Quality Commission	89%	11%	Non-departmental public body

Regulators have neither incentive nor resources to update

To keep pace with innovation, the UK's regulatory system needs to be agile and be able to iterate. Yet institutions are not up to it. UK legislators do not routinely review and update regulations. They use sunset or review clauses – the automatic repealing or review of legislation after a set period of time – sparingly. This was acknowledged in 2021 when ministers committed to publishing guidance for departments on how they can use sunset clauses more in order to “help keep effective regulation up to date, and support improvements where necessary.”⁹³

Yet no such guidance was produced. This can be especially problematic for emerging technologies, where rules and regimes that might be created in the early stages of deployment may then remain unchanged long after they are useful.

The Retained EU Law Act 2023 will make it easier to repeal EU laws and regulations.⁹⁴ But it remains to be seen how extensively this will be used, and regardless, the bulk of the UK's regulatory burden comes from domestic regulation rather than from the EU.⁹⁵

Others update their regulations more frequently. The Italian Government's “Right to Innovate” temporarily disapplies certain regulations to encourage innovation. If such a derogation works, the Government looks to make the change permanent or to extend it. If it does not work, then the derogation simply ends.⁹⁶

Regulators are overstretched

Regulators are being asked to make more policy decisions

Successive governments have outsourced policy development and decisions to regulators. The new online safety regime requires regulated services to make assessments regarding the number of child users they have on a service.⁹⁷ The UK GDPR places strict limits on the ways in which personal data relating to a child may be gathered and processed, making a comprehensive assessment of a service's child users difficult. Ofcom and the ICO, through the Digital Regulation Cooperation Forum (DCRF), are working through this issue and intend to offer guidance.

Ministers faced criticism for introducing legislation that allows the CMA via a new Digital Markets Unit to unilaterally mandate changes to the business models of some of the world's most successful companies.⁹⁸ This is better than failing to cooperate, but these are policy decisions that should be made by the Government and Parliament rather than regulators.

Regulators lack the means to coordinate between themselves

The UK has no meaningful domestic regulatory coordination. Four regulators involved in digital technologies – the CMA, the FCA, the ICO and Ofcom – voluntarily established the DCRF in 2020.⁹⁹ Its stated aim is to “support regulatory coordination in digital markets”. The Forum has no statutory authority and no power to compel other regulators to cooperate. It has a staff of less than 15 people to coordinate regulatory activity in a sector that employs 1.7 million people and contributes £150 billion to the UK economy annually.¹⁰⁰

The lack of domestic coordination and regular political direction-setting creates regulatory uncertainty, and impedes innovators. Satellite maker Space Forge needed to consult 11 different regulators before being able to launch.¹⁰¹ There is a clear acknowledgment that this lack of coordination should be fixed. The House of Lords Communications and Digital Committee has recommended a ‘Digital Authority’.¹⁰² Innovators have no body to which they can appeal for clarity: they must either wait for legislators to clarify positions or hope regulators are pragmatic.

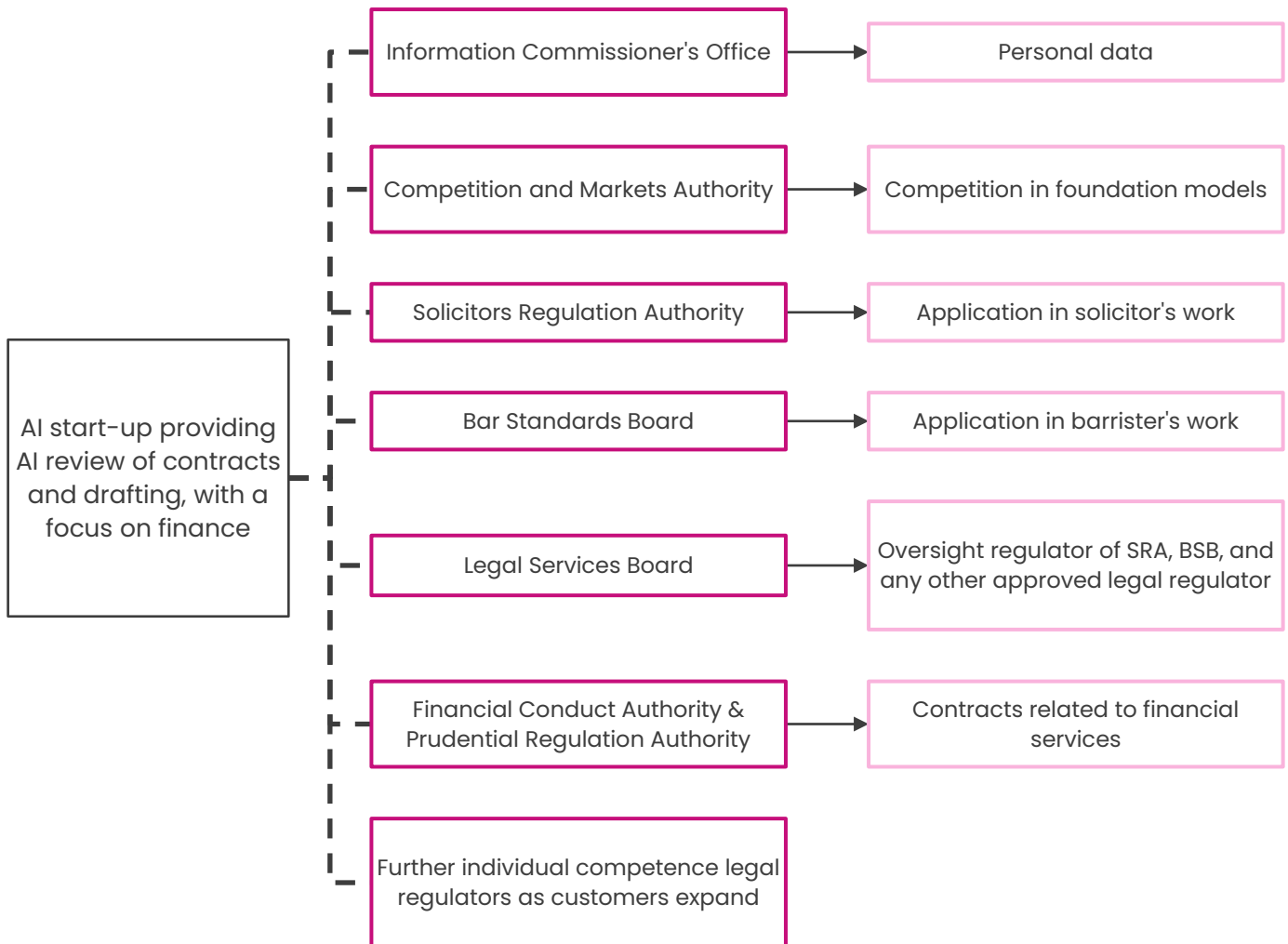
The last government's approach to AI regulation is a useful test case. For innovators building applications with AI, there is currently no clear route to identifying the applicable sectoral regulator. In some cases there are multiple sectoral regulators that may be relevant, and there is no clarity on which regulator a business ought to engage with. In some cases there is no clearly relevant sectoral regulator, and again, there is no clarity on which regulator a business should engage.

In its response to the AI white paper consultation, ministers offered no solution to this.¹⁰³ The DRCF has launched the AI and Digital Hub, which allows innovators to “obtain answers to complex queries which span the regulatory remits of DRCF member regulators.”¹⁰⁴ But this covers only four regulators, and the Hub is little more than a web page with a Microsoft form for firms to fill out complaints. Reports in August 2024 claimed that the Hub had advised just six organisations in its opening four months in operation.¹⁰⁵

Figure 9 shows the lack of coordination in practice. A hypothetical startup applying AI to contract review and drafting in financial services would need to engage with at least six, and almost certainly more, regulators. This would expand as the business offered services in different markets (for instance, offering support in telecoms would see Ofcom involved). These regulators may take different, possibly conflicting views. This startup would have no way of knowing which regulator it ought to engage, in which order, and which regulator's view it ought to prioritise if they conflicted.

Figure 9: Illustration of possible regulatory interactions for an AI startup providing legal contract review

Source: Onward analysis



Others do it better. The Danish Government, via their Business Authority, has created a “One Stop Shop” that allows businesses with novel technologies and business models to seek clarification from a number of regulators via a single source as to what rules they ought to comply with.¹⁰⁶ It also allows businesses to identify and flag rules as “unnecessary barriers”, which the Danish Business Authority will then explore changing.

The Government can't steer regulators

Regulator independence is an important part of Britain's political system, but viewing this dogmatically can create warped outcomes. Across each of the instances referenced in Chapter 1 where the last government patently disagreed with the regulators, all ministers could do was lament the decision, in public or in private, which was subsequently reported in the media.

In May, the previous government extended the 'Growth Duty' to Ofcom, Ofgem and Ofwat, requiring regulators to "give appropriate consideration to the potential impact of their activities and their decisions on economic growth" alongside their other responsibilities.¹⁰⁷ But this does not give the Government power to challenge or steer a decision that it considers in contravention of this duty. As a report by Form Ventures has argued, this may result in little more than increased administrative burdens for regulators.¹⁰⁸

The Government therefore remains powerless when it fundamentally disagrees with a regulatory decision. The last government had considered including an 'intervention power' with regard to financial services regulators in the Financial Services and Markets Act (2023), but backed down after criticism from the Bank of England, the FCA, the Prudential Regulation Authority (PRA) and the Treasury Committee.¹⁰⁹ The power would have allowed the Government to instruct the PRA and the FCA to revoke, amend or make rules if doing so was in the public interest.

The Government won't steer regulators

While responsibilities increase, it is not clear where regulators should focus their efforts. Regulators are told to be proportionate,¹¹⁰ but are not given frameworks from the Government and Parliament that allow for it. Even if the ICO chose only to enforce against the largest businesses and most serious offenders, businesses are not excluded from the scope of regulation on any *de minimis* or other basis. They must either comply or risk enforcement from a less reasonable and proportionate future commissioner.

The Government is able to issue direction to regulators through remit letters, strategic steers, and strategic policy statements. Yet these have been rarely used. The last government had the power to issue Ofgem with a strategic policy statement since 2013, but took ten years to finish consulting on that statement.¹¹¹

Strategic steers have tended to only be given by the Government to regulators once a parliament¹¹² – the CMA had a four year gap between strategic steers in 2019 and in 2023. But Ofcom’s last strategic steer came in 2019, before the Online Safety Bill, which has transformed Ofcom’s role, was even introduced to Parliament. The FCA is a notable exception, having received three remit letters in the last five years.¹¹³

Recommendations

Tool up and focus in



To address the challenges caused by regulators being under-resourced and overstretched, they need to do two things: ‘tool up’ by building capacity and ‘focus in’ on the activities that matter most.

Tool up

Recommendation 1: New, specific regulation of emerging technologies should come with a sunset clause of four years

The regulation of emerging technologies is made particularly difficult by the pacing problem: the technology is developed and deployed faster than law can be developed and implemented. The risk here is two fold: that regulation is introduced too early in a technology’s development or deployment, limiting its potential; and that regulation that is now out of date is not repealed or updated fast enough, creating a future bottleneck.

Sunset clauses can provide a solution to this challenge. By building in an expiry date to new legislation, legislators force a future consideration of whether the law is working as intended, what unintended negative consequences it might be having, and whether it remains necessary.

Previous governments have not generally made enough use of sunset clauses in new regulation. Twice in the past three years the Government committed to bringing forward guidance to departments on the use of sunset regulations. It should do this without delay.

Alongside this guidance, the Government should commit to ensuring that new legislation focussed explicitly on the development and deployment of emerging technologies will contain a four-year sunset clause. This will ensure that out of date or ineffective regulation is not kept on the statute books once its utility is exhausted, that innovators are not unnecessarily held back, and that regulators can refocus resources where they will be most valuable. For those where the Government views that such a move is ill-advised, it should renew the relevant regulations.

A blanket approach of sunseting all regulations relating to emerging technologies could cause perverse outcomes and may deter business investment due to the uncertainty. To help the Government navigate the

regulation of emerging technologies, the Government should build a capability within the Regulatory Innovation Office to sit jointly with the Government Office for Science to ensure relevant technical expertise. It would continuously assess the UK's statutory and regulatory landscape in relation to emerging technologies.

It should operate on a standardised basis, providing predictability to the Government, business and other stakeholders, while also not allowing the UK's statute book to act as an unnecessary blocker to progress, innovation and growth.

While the team's role would be to recommend change to enable emerging technologies, it is crucial that this does not undermine the stability and certainty that underpins so much business investment. The committee should operate on a standardised timeline to allow for outside input via consultation, consideration of recommendations, and action. This would allow businesses and other stakeholders clear windows to input into the committee's work and allow the Government to plan parliamentary time and official capacity to respond to and action recommendations.

Recommendation 2: The Government should commit to two automatic exemptions, a *de minimis* exemption based on business size, and a "likelihood of harm" exemption for all business-to-business products, in all new regulation specific to emerging technologies

The UK needs to make sure that regulators are focussed on what matters – protecting against harms, fostering competition and growing the economy. That is not currently the case. Our regulators are given broad and expanding regimes to enforce, and the government has not, with any regularity, been reviewing whether regulators should stop doing anything.

The UK's regulators are too often required to regulate a very large number of businesses and practices as part of broadly drafted legislation. Not only has the Online Safety Act brought in 100,000 services, four times more than the 25,000 the last government estimated.¹¹⁴ Of those 25,000 services, the last government estimated that 17,500 would be micro organisations (firms with fewer than ten employees). The revised estimates imply that perhaps as much as 75,000 micro organisations will be caught by the Online Safety Act.

New regulations capturing such a broad cross-section of firms that likely will have no relevance to online safety concerns creates two key challenges. First, it creates serious costs for businesses that are not really the target of the regulation and will likely never be enforced against. Second, it requires regulators to spend their resource in places that are likely to have less of an impact (e.g. on micro organisations compliance with the Online Safety Act) rather than focussing limited resources on the highest impact areas (e.g. on the largest services compliance with the Online Safety Act). Even if regulators are both reasonable and proportionate, they are bound to enforce the legislation that Parliament gives them.

The Government should, for new legislation that targets or particularly impacts the development or deployment of emerging technologies (using the same definition as per recommendation one, the UK's Science and Technology Framework), commit to two standard carve outs:

1. **A *de minimis* exemption.** The Better Regulation Framework guidance requires that departments consider as part of the options assessment the impact of options on small and micro businesses. It provides that the “starting point for consideration should be exempting small and micro-businesses”.¹¹⁵ Clearly, this guidance is not working. The Government should invert the requirement: small and micro-businesses should be automatically exempted unless a department explicitly decides following an options assessment to bring them into scope. This will both free up early stage businesses from compliance with unnecessary regulation, and will also free up regulatory resources to focus where they can be most useful. The Government would retain the right to remove this exemption in appropriate circumstances. For instance, it would not be reasonable to expect that a piece of future legislation regulating the insertion of computer chips in human's brains would not apply to businesses below a certain size.
2. **Business-to-business products exemption.** The Government and regulators should focus on where harm is most likely to occur. This will overwhelmingly be the moment at which there is a crossover from the enterprise to the individual. Enterprises are better at apportioning liability and risk (usually in contract), more able to defend themselves in breach of any contract, and more likely to be expert in the use of an emerging technology.

Recommendation 3: The Government should launch a ‘Lead Regulator’ pilot to streamline innovator touch points with regulators, including creating a single point of contact for innovative businesses

The nature of businesses building emerging technologies is that they touch a number of different regulators, as illustrated in Figure 7. Companies must engage with a number of regulators that can act as a major brake on innovation. Space Forge, a Welsh satellite company, was required to engage with 11 regulators before they secured clearance to launch. This regulatory engagement should be streamlined for innovators.

The Government should launch a pilot ‘Lead Regulator’ programme, operating initially out of the Cabinet Office and moving to the Regulatory Innovation Office once established. This programme would give innovative businesses building with emerging technologies a single point of main regulatory contact via an account manager.

The account manager would be the first port of call for all regulatory issues for the business. They would work with colleagues from specific, relevant regulators, bringing these colleagues in as appropriate to gather information, and acting as a coordinator to avoid divergent regulatory approaches.

This pilot would initially be funded with £5 million for two years to cover its costs. Innovative businesses would be required to apply to the Cabinet Office, and later the Regulatory Innovation Office to be a part of the programme. Priority should be given to businesses that will be required to meaningfully engage with five or more regulators in order to operate.

This would look not dissimilar to the Danish Government “One Stop Shop”, delivered via their national Business Authority. The “One Stop Shop” provides a route for businesses with novel technologies and business models to request clarification from a number of regulators via a single source as to what rules they ought to comply with.¹¹⁶

Recommendation 4: Expand the fast-track approval routes that rely on the recognition of trusted countries' recognised regulators' decisions

Emerging, innovative technologies often operate cross-border and international, but regulatory approvals tend not to be. Innovators looking to bring their products to market are required to seek approval country by country, often when those countries are trusted by one another. This slows down deployment and disincentivises development.

The UK has begun to explore the use of international recognition to speed up the approval process for innovative products. The Government should expand its trusted reciprocal approval regime so as to piggyback on approvals from trusted countries in specific sectors to ensure that, where the UK is not first to approve emerging technologies, it is never far behind.

To do this, the Government should maintain a list of trusted regulators in trusted countries. These trusted countries might in the first instance be those from the MHRA's International Recognition Procedure: Australia, Canada, the European Union, Japan, Switzerland, Singapore and the United States. It should then be possible, where trusted regulators in at least two trusted countries have approved a technology or application, for a business to apply for approval through this route.

The regulator would then be given 30 days to raise any concerns with approval, otherwise approval will happen automatically after the month is up. In order to maximise the relevance of the trusted countries, the route should only be available where the cumulative population of the two or more trusted countries exceeds the UK's population.

Recommendation 5: The Government should create a central 'Innovator Taskforce' that can be deployed to regulators to support on specific, time-limited issues

There will be moments when regulators need to rely on additional specialist and technical expertise. These might be to do with a particularly complex licence approval, the development of novel guidance, or an enforcement action in a breach. Regulators are currently stuck without the expertise they need, which can lead to delayed or erroneous decisions.

To address this, the Government should create an ‘Innovator Taskforce’ that can step in to provide key capacity to individual regulators, especially on skills (such as technical skills) that are harder to hire for and less common in regulators. The taskforce would be modelled on the “Super Planners”, based in the Department for Levelling Up, Housing and Communities – a team of planning specialists set up to work on the most complex planning cases with local authorities.¹¹⁷

This Taskforce should sit in the Regulatory Innovation Office (RIO). It should be staffed with technical expertise in key technologies, particularly artificial intelligence, engineering biology, and quantum technologies. Individual regulators would apply to the RIO for a posting of an expert (or experts) to solve a particular problem. A posting should not last longer than three months, except in extraordinary circumstances, to ensure that postings do not become business as usual by stealth.

This Taskforce will develop particular expertise at the regulator-innovator crossover. The Taskforce ought to be allowed to offer services to industry to subsidise its cost as the Taskforce’s employees will not be kept at 100% utilisation by regulatory requests for posting. As Form Ventures have argued, with regard to revenue raising in general, it is essential that any revenue raising activity is separated absolutely from core authorisation and enforcement work.¹¹⁸

Recommendation 6: The Government should create a ‘Regulatory Innovator Tour of Duty Programme’ to second innovators from industry to regulators, and regulators to innovators, building capacity and knowledge on both sides

As well as hiring the right permanent talent and skills into regulators, both industry and regulators benefit from secondments. They provide a number of benefits, including knowledge exchange between industry and regulators. Regulators acknowledge that secondments play an important role in plugging skills gaps. The CMA have described secondments as “an important means of sharing and improving skills, expertise and capabilities”.¹¹⁹

The UK's regulators make active use of secondments. The CMA, for example, runs secondment programmes for competition economists¹²⁰ and lawyers.¹²¹ The ICO runs a rolling secondment programme, in teams ranging from legal to cyber response.¹²² These are run individually by regulators and centre principally on legal and economics teams.

The Government should establish a 'Regulatory Innovator Tour of Duty' scheme to coordinate and facilitate secondments between regulators and industry. The scheme should focus on bringing technical skills and expertise into regulators, and on bringing regulatory know-how into innovative businesses. This should be seeded with £10 million for an initial two-year pilot, with the Government covering 50% of the salary of employees seconded from industry, up to a maximum of £75,000 per seconded employee per year.

To do this, the Government should:

1. Create a central repository of existing secondment opportunities with UK regulators;
2. Work directly with regulators to identify skills and expertise gaps that could be supplemented by secondments;
3. Work with trade bodies such as techUK, Startup Coalition, Innovate Finance, and the Association of British HealthTech Industries to identify innovative businesses with talent to second; and
4. Work with these identified businesses to identify opportunities for regulator secondments to industry.

As well as providing regulators with hard-to-fill skills and expertise, and providing industry with regulatory knowledge, the pilot would also provide data on the most in-demand skills in regulators and detail on the compensation gap.

Focus In

Recommendation 7: The Government should establish the RIO as a statutory body with powers to compel regulators to cooperate on emerging technologies

Even with regulators focussed on the largest and highest risk cases in their remits, and with the smallest businesses in the economy carved out from scope, it will still be the case that novel technologies will cross regulatory boundaries. The Government cannot allow innovators to get trapped between regulators and held back unnecessarily – it must ensure that regulators collaborate and cooperate when it comes to emerging technologies.

Coordination for the regulation of emerging technologies is essential. The creation of the DRCF in 2019 by the ICO, Ofcom and CMA (with the FCA joining later) was a genuine innovation that is routinely praised by industry. But the body is non-statutory and has no authority to actually coordinate regulatory activity or to meaningfully surface regulatory conflicts. The DRCF relies entirely on the ongoing willingness of four regulators for funding and staff secondments.

The Government has proposed a Regulatory Innovation Office (RIO) that will help to coordinate and steer regulatory activity. The Government should raise its ambitions for the RIO by placing it on a statutory footing with additional powers that would help to boost the quality of the UK's regulatory system for emerging technologies, helping to unlock growth and drive productivity. Beyond those powers already set out by the Government, the RIO should fulfil six key roles:

1. **Drive coordination between regulators:** The RIO should encourage and, when required, force collaboration between regulators working on overlapping issues. The RIO should be empowered through legislation to require regulators to cooperate with one another.
2. **Surface and assess regulatory and legislative conflicts:** The RIO should be empowered to surface areas of regulatory overlap and conflict that are holding back innovation through its work on coordination and cooperation, and by acting as a referrer. The RIO will be able to assess the overlap and the impact it is having.

3. **Act as a point of referral for industry where lack of clarity and coordination exist:** As well as surfacing conflicts through its own work, the RIO should act as a point of referral for industry to raise areas where a lack of regulatory coherence is holding back commercial activity (for instance, the imagined startup in figure 7).
4. **Proactively seek direct steers and legislative change from the Government:** In addition to providing strategic steers on areas of focus, the RIO should act as a direct referrer to the Government on areas of regulatory overlap and conflict, and should be able to proactively seek steers and legislative change from the Government to resolve overlap and conflict. These requests should be public and should be made directly to the relevant Cabinet Committee.
5. **Act as a “regulator of last resort” while a steer is delivered:** Where the Office has requested a steer on an overlap or conflict, the appropriate steer or legislative change may take significant time to deliver, and may hold back an innovator or application of technology that will be to the public’s benefit. The RIO should be empowered to take an interim decision on which of two conflicting regimes a business ought to comply with. It should act as a “regulator of last resort” and essentially insure businesses against enforcement action until the Government makes an explicit policy decision.
6. **Deliver multi-regulator sandboxes:** The regulatory sandbox approach pioneered by the FCA had early success. The challenge of emerging technologies is that they cross regulatory boundaries. The RIO should run multi-regulator sandboxes targeted at specific applications of emerging technologies. For example, an FCA-ICO sandbox focused on the use of personal data, financial data and AI to provide automated financial advice or guidance to customers.

The proposed RIO would be a welcome step towards addressing these issues: monitoring and holding to account on performance and providing strategic steers. The RIO should be put on a statutory footing and its proposed remit expanded to include the delivery of capacity programmes (such as those recommended in this paper) and to drive greater cooperation across a number of regulators, not just those that participate in the DRCF.

Recommendation 8: Create a 'call-in' power to allow the Government to direct regulators on individual decisions

Too often firms are discouraged from investing due to government rhetoric and intent not aligning with regulatory action. It should be possible for ministers to ensure that a regulator, or a single regulatory decision, does not run significantly counter to the Government's strategic policy ambition.

The Government should therefore legislate to create a 'call-in' mechanism to allow the Government to assess, and possibly amend or overrule a specific regulatory decision if a specific decision would cause social, economic or other harm to the UK. Managed well, this power would give business an ability to ensure that politicians stick to their word. If done poorly, it creates an environment where every single decision is called in. The barrier to intervention therefore must be very high, so that such a power can only deploy in extreme circumstances.

As part of improving the coordination between regulators and government, regulators should also be able to directly raise concerns with the Government. They may identify issues that sit entirely within their remit, but which may impede innovation, go against government policy intent, cause distributional issues or are otherwise problematic.

In these instances, they may ask the Government to issue a strategic steer or, where necessary, to change the law, as the Human Fertilisation and Embryology Authority has called for with regard to fertility law.¹²³ There is no clear way, unless a regulator takes the initiative to publish its views, to know what steers regulators request from their sponsoring ministers.

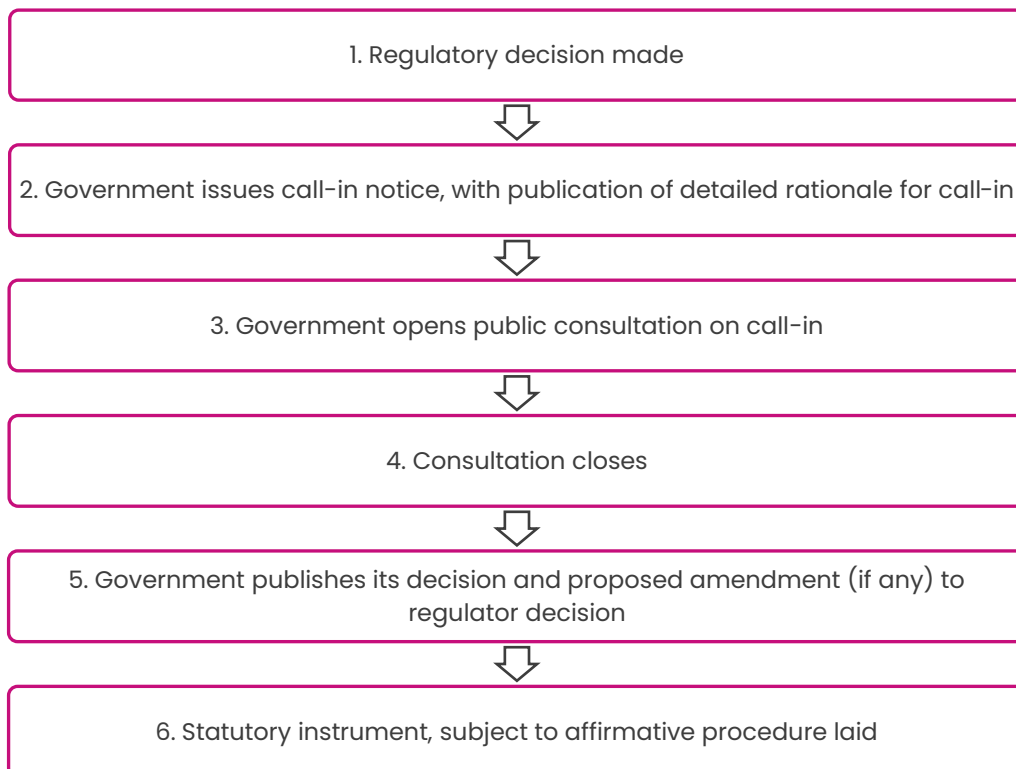
If strategic steers are issued frequently enough, they should in most instances sufficiently guide regulators towards making decisions that align appropriately with the Government's policy ambitions. There may, however, be occasions where despite steers the Government is seriously concerned about an individual decision or approach a regulator has made, and the impact it will have on the UK.

Good, innovator-friendly regulation can be a competitive advantage. Bad, innovator-unfriendly regulation can similarly be a competitive disadvantage. The UK should not find itself at a disadvantage because of a dogmatic belief in

absolute regulatory independence – as important as regulatory independence, on the whole, is. While such a bar must be high, it should be possible for Ministers, particularly the Prime Minister, to ensure that a regulator, or a single regulatory decision, does not run significantly counter to the Government’s strategic policy ambition.

The Government should have such a power which it can only deploy in extreme circumstances, and it should extend beyond financial regulators. The Government should legislate to create a ‘call-in’ mechanism to allow the Government to call-in, assess, and possibly amend or overrule a specific regulatory decision if a specific decision would cause social, economic or other harm to the UK. Such a power will be controversial, and would require significant transparency and meaningful checks and balances in order to avoid abuse or overuse. The power would require primary legislation, and would operate as shown in Figure 10.

Figure 10: ‘Call-in’ mechanism



It would be possible to extend this power further to allow the Government to call in broader regulatory positions or decisions, for instance requiring the regulator to look (again) at markets that concern the Government. However, this risks pernicious erosion of day-to-day regulatory independence. Limiting the power to specific regulatory decisions strikes the appropriate balance.

Recommendation 9: The Government should standardise how strategic steers are issued and should be renewed at least every two years.

Regulators exist to enforce the rules and regimes created through legislation brought in by elected officials. But our regulators are often thought of as a branch of government in their own right, rather than an extension of it. As a result, the UK's regulators often act as policymakers, rather than as enforcers. The Government should provide more regular, and more full, political direction to regulators – setting clear missions, such as facilitating the deployment of emerging technology, and intervening when regulators seriously deviate from them.

Sir John Armitt CBE, the Chair of the National Infrastructure Commission, has argued that the Government ought to give regulators “very clear direction on what is strategically important” to avoid regulators making decisions on “fundamental strategic policy decisions”, which “cannot be right.”¹²⁴

The Government has periodically been giving strategic guidance to regulators, but the form and frequency can vary meaningfully. The Institute for Government has highlighted the difference in what regulators receive from Government, ranging from “broad policy priorities” and “multiple, specific letters”.¹²⁵

The Government should standardise the way in which it steers regulators by setting out a template strategic steer that will be used as the basis of future strategic steers. This should be as simple as explaining what the Government wishes to achieve through the regulator, how the Government believes this can be achieved, and what the Government does not wish to happen.

The Government should then also commit to provide strategic steers to regulators no less frequently than once every two years. Steers may well not change in this period, in which case the steer would be a simple one: “keep

going”. But by requiring the Government to engage in the process of issuing a steer at least once every two years, the Government will avoid a situation where a regulator is on the wrong track to policy ambition for a prolonged period.

Conclusion



The UK can be a leader in the development and deployment of emerging technologies. Achieving this would make the UK richer and would benefit citizens – emerging technologies can save and improve lives, unlock productivity gains and more beyond.

The UK has exceptional universities, attracting amazing talent, with a strong investment ecosystem. The commitment to becoming a science and tech superpower by 2030 is vital. But to achieve this, the UK must ensure that it has a conducive regulatory environment.

As this paper has argued, the UK falls short. Our regulators do not have the necessary capacity, are not sufficiently coordinated, do not benefit from proper political direction and do not take advantage of the opportunities of greater international coordination. All of this holds back innovators in the UK, and makes the UK less attractive for innovators that are not currently in the UK.

Endnotes



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- ¹ Global R&D has reached nearly \$1.7 trillion according to [UNESCO](#). UK R&D expenditure in 2021 (the most recent year for which there are [ONS figures](#)), was £66.2 billion, in USD: \$83.6 billion = 4.9%
- ² National Science Foundation, 'U.S. and Global Science and Technology Capabilities', 2022 ([link](#)); taken from data table SKTI-5 in National Science Foundation, 'Production and Trade of Knowledge- and Technology-Intensive Industries: Data', 2022 ([link](#))
- UK 2019 output as a percentage of global total: 240,755 / 9,220,040
- See also; National Science Foundation, 'Global Trade in Knowledge- and Technology-Intensive Output', 2022 ([link](#))
- ³ Ten, 'Job Creators 2024: The foreign-born founders building our fastest-growing businesses', 2024 ([link](#))
- ⁴ NBER, 'The Outsize Role of Immigrants in US Innovation', 2024 ([link](#))
- ⁵ Shai Bernstein et al, 'Life After Death: A Field Experiment with Small Businesses on Information Frictions, Stigma, and Bankruptcy', 2023 ([link](#)) (taken originally from The Economist: Talent is scarce. Yet many countries spurn it, 2024 ([link](#)))
- ⁶ Allan Nixon and Anastasia Bektimirova, 'Three fixes to make the Global Talent Visa work', 2024 ([link](#))
- ⁷ OECD, 'Industry, business and entrepreneurship' ([link](#))
- ⁸ Dirk Czarnitzki, Gastón P. Fernández and Christian Rammer, 'Artificial Intelligence and Firm-Level Productivity', 2022 ([link](#))
- ⁹ Diego A. Cobin and Bart Hobijn, 'An Exploration of Technology Diffusion', 2008 ([link](#))
- ¹⁰ OECD, Economic Outlook: Digitalisation and productivity: A story of complementarities, 2019 ([link](#)). The Y axis measures productivity by comparing the output per worker across different types of businesses, reflecting their varying levels of efficiency.
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