

The Rt Hon Jeremy Hunt MP  
Chancellor of the Exchequer  
By email only

17 February 2023

Dear Chancellor,

### **Pro-Innovation Regulation of Technologies Review**

You asked me to identify opportunities and enablers for pro-innovation regulation of science and technology sectors with high potential to attract investment and enable growth of UK-based businesses and the economy.

I will write to you over the next two months with specific actions for regulatory reform to unlock innovation in digital technologies, life sciences, and green industries, as well as opportunities to optimise our forward-looking approach to horizon scanning for emerging technologies, ensuring the UK is at the forefront of technological innovation. In this letter I set out the emerging challenges and opportunities for change informed by our industry champions conveying views from across their sectors and engagement with regulators.

Our regulatory system is currently recognised as world-leading by the OECD<sup>1</sup>. The UK has often led the way in developing regulation and standards that have benefitted the public and made us a preferred place for invention and innovation. For example, the Financial Conduct Authority's regulatory sandbox has allowed many financial services SMEs to test innovative products, services and business models with consumers, thus helping the UK emerge as a leader in fintech. Our forward-looking regulatory framework for fusion developed by the UK Atomic Energy Authority has attracted investment and encouraged companies to base their operations here. Since then, our regulatory approach has been widely emulated by other global markets, including Finland, Germany and New Zealand.

However, in an era defined by extraordinary technological change it is vital that our regulatory system keeps pace. Pro-innovation regulation focuses on ensuring that we can safely accelerate the development, testing, route to market and uptake of new technology products and services, within a sound ethical framework. It should give confidence to innovators, provide certainty to reduce investment risk, and create public confidence. This is key to making the UK an attractive destination for business innovation and investment, and ensuring we can realise the economic and social benefits of new technologies as quickly as possible.

Our ambition should be to improve the way we regulate to unleash technological innovation and growth, reach our net zero targets, and make the UK the leader in shaping global S&T regulations and standards in NSTC priority areas. We should be bold in our approach by allowing:

- regulatory flexibility and divergence at an early stage for emerging technologies, thereby defining regulations and standards in the global markets we want to lead;

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<sup>1</sup> OECD Indicators of Regulatory Policy and Governance (iREG) scores (2022)

- promoting and learning from experimentation to support the scaling of key emerging technologies e.g., through regulatory sandboxes and testbeds; and
- seeking international regulatory harmonisation once technologies are becoming established, ensuring market access for our most innovative companies.

This three-stage approach should underpin our regulatory approach for innovation.

## The challenges

Regulator behaviour and culture is a major determinant of whether innovators can work effectively within a regulatory framework. Our modern regulatory state has been created in response to specific needs at different moments in history, and significant differences are apparent in terms of resources, mandates and funding arrangements among UK regulators. The range of statutory objectives and duties that bind our regulators is wide-ranging and can lead to tensions and trade-offs. This ultimately influences regulator behaviour, culture, and decision-making.

Through our engagement with industry and regulators we have identified the following regulatory challenges, some more significant in particular sectors:

- **Fragmentation** – technological innovation and its manyfold applications do not align neatly with existing regulatory remits and hence require coordination between multiple regulators to articulate a consistent regulatory response. We note a lack of coordination between regulators, particularly in the digital sector, leading to overlaps, duplication, and inconsistency in responses, making it challenging for SMEs to navigate the regulatory landscape. This hinders innovative companies from investing in the UK and bringing new products and services to the market.
- **Pacing** – technological developments often outpace the speed at which established regulatory systems can respond. This means that regulators can be caught ‘on the backfoot’, slowing the introduction of innovative products and services, and undermining trust in novel approaches. However, introducing restrictive regulations too early can hinder the development and deployment of emerging technologies.
- **Skills** – regulators report challenges in attracting relevant skills and talent (e.g., data scientists and AI experts) in a competitive environment with the private sector. This can undermine their ability to engage credibly with innovators and create a risk of regulating ‘in the dark’. Civil Service pay scales and processes have been cited as an issue for specific regulators.
- **Incentives** – regulators are subject to a complex set of incentives, in particular statutory objectives and duties. The rewards for regulators to take risks and authorise new and innovative products are not clear-cut, and regulators report that they can struggle to trade-off the variety of duties and objectives they are subject to (e.g., safety, competition, consumer and environmental protection). This can lead to regulator behaviour and decisions that prioritise further minimising risk over supporting innovation and investment.
- **Capacity** – pro-innovation programmes (e.g., sandboxes, innovation hubs, setting regulatory challenges etc.) are resource-intensive and regulators report challenges in sustaining these ‘upstream’ activities from existing funding and staff resource. For example, part of the MHRA’s responsiveness to the pandemic came at the cost of mobilising staff from other business as usual operations, creating significant backlog challenges. Regulators raising revenue through industry levies also face limits to cross-subsidise innovation-focused activities.

## The way ahead

There is no shortage of principles on how regulation should be designed and implemented, domestically and internationally. Through our discussions with innovators and regulators, and following a review of principles published by numerous bodies, we have identified the following key themes to guide those involved in regulatory design and implementation:

- a. Regulators should be supported to take a proportionate and adaptable approach to risks and benefits, and explicitly consider the impact of their interventions on innovation;
- b. Where applicable, it will be important to focus on regulating the application of a technology rather than the technology itself;
- c. Introducing regulation too early can be harmful to nascent technologies; focussing regulation on applications which are close to being commercialised can help to create a market framework for safe deployment;
- d. Using experimental approaches (e.g. through sandboxing) can be beneficial to position the UK as a 'first mover' in shaping the evolution of regulation for early-stage technologies, while seeking harmonisation for well-established technologies;
- e. There are major benefits from regulators engaging early on ('upstream') with innovators to understand the enablers of commercial success and inform the design and implementation of regulation;
- f. Regulators should prioritise principles-based and outcomes-based regulation to remain agile and flexible, including consideration of non-legislative measures to provide clarity through standards, guidance and best practice;
- g. Regulatory design and decision-making should integrate ethical considerations and build public confidence in innovation. Transparency is important.

I will write to provide further advice on approaches to the successful implementation of these principles and actions to address the cultural, behavioural, and structural changes needed within our regulatory system and the ministerial, civil service and parliamentary processes that can influence regulator behaviour.

The scale of change will require political leadership, clear steers from government on priority technologies, and regulators being held to account by government and parliament for driving innovation and ensuring safety. Some of these outcomes will undoubtedly be challenging to implement, and will lead to this Government having to make difficult choices in the future taking into account both existing and future resources in HMG. I welcome the creation of the new Department for Science, Innovation and Technology which will be critical in achieving this, along with the Department for Business and Trade. By taking forward the recommendations, with commitment for the long-term backed by the necessary resources, the government can make the UK an even more attractive and welcoming place for technological innovation.

I thank our industry champions for their ongoing engagement and support, as well as advice from across industry, regulators, investors, civil society, academia and beyond.

Yours sincerely,



**Sir Patrick Vallance**  
**Government Chief Scientific Adviser**