Web3 & Blockchain:

The foundations of the future economy

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Foreword

The value of Web3 and its underlying cryptography technology has been overlooked in the UK, and we are falling behind. Without strategic intervention building on recent announcements from the Chancellor and impetus from the government in a wider sense, focussed on where the UK can succeed, we will lose out in the race to grow our next-generation economy, while putting us off course with where the world and technological innovation is heading next.

There are core use-cases around web3 which play into the UK's major strengths—fintech, life sciences and creative arts to name a few. But, currently, there is not enough focus on playing into these historic strengths, and finding our 'north star' which can make the UK's economy successful for the next generation. We should be doubling down and making the environment for decentralised actors more welcoming, not pushing them away.

I am proud to have founded and grown a British tech unicorn, but precisely from this vantage, I can say that setting up and scaling here can be very challenging. While Improbable has seen major successes, I would like to be able to say the journey was easier. The regulatory and policy environment for web3 technologies and digital assets (e.g. cryptoassets) in the UK has presented challenges and ambiguities, particularly regarding the establishment of decentralised entities, tax simplification, and previous governments' openness to alternative approaches to these entities.

Against a backdrop of increasing deregulation in the US, which includes a vision being set out there for joint digital assets and artificial intelligence (AI) ambitions, I want to see the UK remain a competitive tech superpower in this race towards our future.

Now is the time that the UK government can build on what has already been set out in financial services and has a real opportunity to lead in order to drive real and felt growth and competitiveness across the sectors in which it leads. Web3 and blockchain have exponential potential application across our economy, and can enhance the benefits of AI by improving data security, enabling transparent and tamper-proof record-keeping, facilitating decentralised decision-making, and supporting more efficient and trustworthy automation processes. If the UK chooses to lean into its strengths as a nimble, regulatory innovator, there is a real chance to be a global leader which brings significant economic growth, not just in the immediate-term, but for the long-term future of the UK.

Herman Narula

Executive summary

While much focus has been given to AI, a key linchpin of the future is establishing a fundamental competitive advantage for the UK in web3 technologies. Any AI strategy must take seriously the associated benefits of web3. There are specific use-cases the UK should be leaning towards in its development of tomorrow's economy and bridging the development and differences of these technologies.

Decentralise AI

The exponential power of AI risks being tied to an overreliance in several lead innovators and providers of the underlying technology. For AI's genuine integration into the economy, AI should be powered and backed by public blockchains, designed to reduce the risk of rent-seeking solutions from big tech providers, and supporting common standards on access to data and AI services.

Tokenisation

Digital assets have evidential promise. However, wider asset tokenisation represents the next chapter of the technology's deployment after crypto, into real-world assets and other aspects of financial services. To maximise this benefit, the UK needs to move beyond initial pilots.

Embrace stablecoins

Stablecoins are already showing their worth in the digital economy. For their onward integration, stablecoins need to be embedded into the UK's regulatory and growth regime more quickly than is currently planned.

This report seeks to answer the questions policymakers and regulators have not yet asked or have only just begun the journey of exploring. It sets out areas in which the UK is already a success story and areas in which it can pivot in an achievable way to unlock growth and make the UK a world leader in technology again.

Overview of Improbable's recommendations

01

Approach blockchain, AI and Web3 holistically

To fully capitalise on AI, the government must more holistically approach the role for AI's underpinning technologies (like Web3). The UK must adopt a more integrated approach that acknowledges interdependencies, embeds blockchain into AI policy, and strengthens cross-sector collaboration. The report sets out what this might mean in practice, including the role for the Regulatory Innovation Office (RIO) and the scope for mirroring international best practice like the US government's combined AI and digital assets leadership role.

02

Address implications in blockchain and Web3's use across the UK economy

Tokens and their underlying blockchain technology should be leveraged to deliver on government priorities, such as financial inclusion, digital literacy, and government efficiency, while addressing head on the real concerns that wider stakeholders have around issues like privacy and sustainability.

03

Trial, test and experiment with these technologies

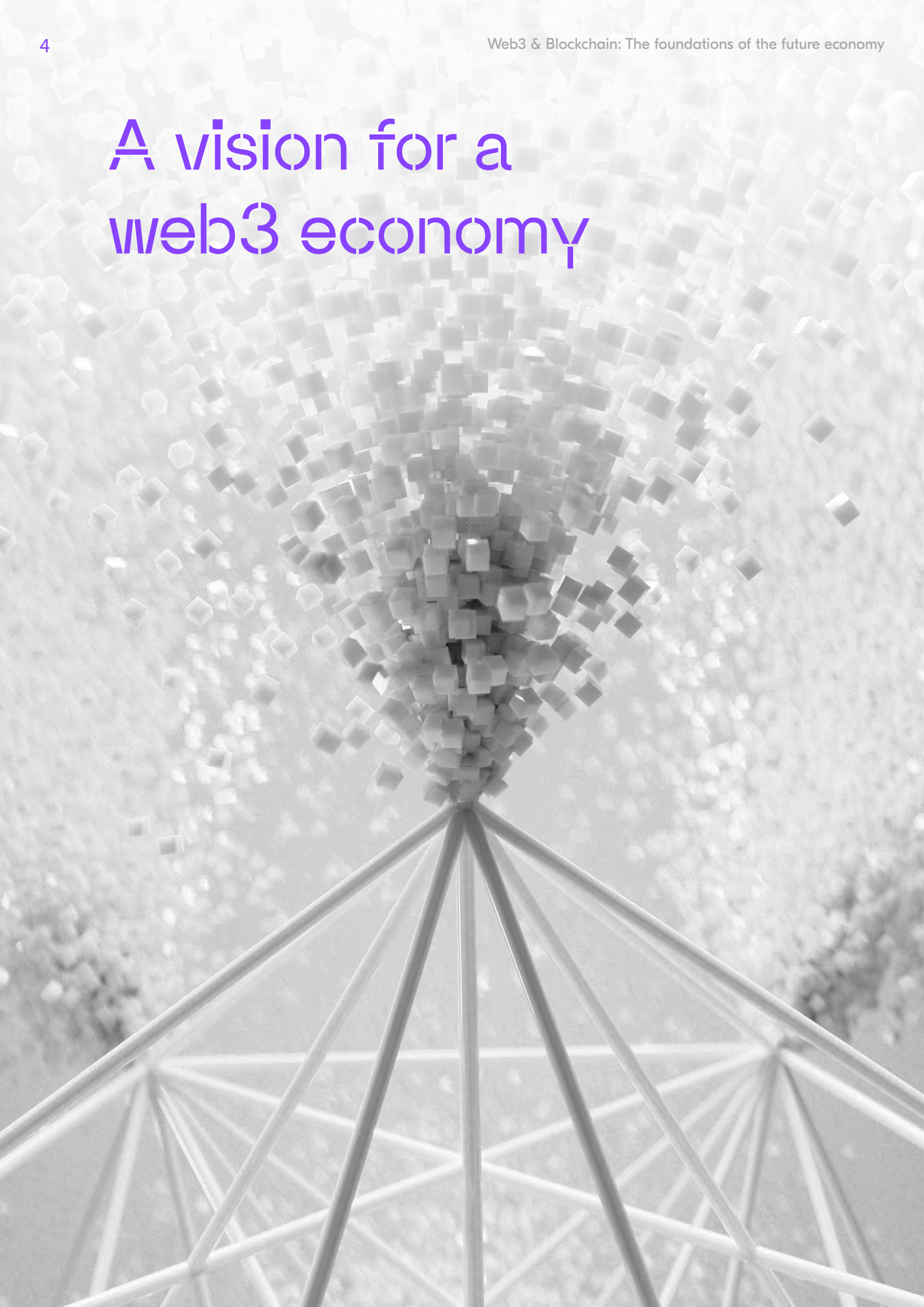
To unlock the full potential of blockchain and Web3 in the UK, policymakers should focus on building trust, leveraging existing regulatory expertise, and fostering innovation through dedicated sandboxes and public-private collaboration.

04

A simplified taxation regime for crypto

The UK should reform its digital assets taxation approach by simplifying rules on capital gains, Decentralised Finance (DeFi), and VAT, with exemptions for crypto-to-crypto trades and clearer guidance on staking, non-fungible tokens (NFTs), and DeFi earnings to boost compliance and innovation. A bespoke tax regime for crypto businesses, aligned with leading jurisdictions like Singapore and Switzerland, would help prevent capital flight and position the UK as a competitive hub for digital assets' innovation.

A vision for a web3 economy



Web3, often referred to as the future of the internet, brings the benefits of blockchain and decentralisation of data to all aspects of the online economy, enabling peer-to-peer interactions without the control of a central authority. It stands to reinvent individuals' relationship and rights over their digital footprint and online access.

Web3 technologies will be, and are already, pivotal in enhancing both public and private sector services by establishing the foundational infrastructure for a thriving AI-driven digital economy.

The various pillars underlying Web3 of decentralisation, blockchain technologies and token-based economics are often inaccurately reduced by the public and policymakers to an assumption that Web3 is just cryptoassets. With blockchain serving as the underlying technology for most crypto-assets, the rising popularity of digital assets like Bitcoin and Ethereum has inevitably led to greater public recognition of these technologies than the infrastructure underlying them. While crypto-assets are clearly an important use case, they do not represent the entirety of the technology's potential, and misunderstanding this risks underestimating the real world potential of the technology.

AI, financial services and web3 all go hand-in-hand. Their convergence is shaping decentralised finance, AI-driven trading, smart contract automation and host of other innovations, with developments within each sector driving future potential within the others. Whilst both look to reshape existing digital ecosystems, AI thrives on centralisation, utilising vast amounts of aggregated data to improve machine learning models. Web3 in contrast champions decentralisation, driving forward user ownership, privacy, and trustless systems through blockchain technology. However, their intersection should be a core priority for the UK government's digital strategy. AI can enhance Web3's efficiency, while Web3 can provide AI with decentralised, permissionless data. The question resides in how overarching standards, governance and structures can help guide these technologies together, centralising intelligence whilst distributing power and control.

With a market value estimated to reach a staggering $1.4 trillion by 2030,[1] the technology's scope extends far beyond just financial services. In fact, the technology offers three key benefits: **interoperability, transparency and future-proofing**, all of which can apply in sectors across the economy. Blockchain and other Web3 technologies have the potential to enable transparent, efficient, and secure operations; enhancing public services like identity management, healthcare, and supply chain oversight. Simultaneously, they drive innovation in private sector services by facilitating decentralised finance, digital asset management, and data-sharing frameworks. Together, these technologies build trust, efficiency, and resilience, positioning the UK as a leader in the global AI and digital economy.

This report sets out what stands to be gained from the use-cases of DLT, and realising the real world potential of Web3. It charts a path to achieving these ambitions with a series of policy recommendations. As these technologies' use-cases expand and their integration into the real economy matures, public sector structures such as regulation, consumer guidance and government strategies can help to ensure that the opportunities of these technologies are guided towards aspects of society where they are most beneficial, be that, for example, enabling greater access and participation in the banking system, or supporting healthcare in helping the most vulnerable.

Priority 1: Embracing stablecoins to transform finance

Stablecoins are important innovations which solve a lot of issues we have seen in traditional financial services. They are solutions in the era of technological innovation which goes beyond purely centralised actors, where risk bubbles emerge and where there is a substantial risk that comes with making payments. Stablecoins are already changing the way people conduct business, store money, and even consider the concept of 'wealth'.

The technology and concepts that underlie them combine the reliability of traditional money (by referencing fiat) with the efficiency that comes with other digital assets. In addressing the issue of volatility, stablecoins are making blockchain-enabled transacting more predictable and trustworthy. In doing so, the stablecoin market has grown significantly over the past few years, and is used in many use cases, from money markets to use as point-of-sale payment instruments. The total market capitalisation of stablecoins is estimated to be ~$200 billion globally.

> "Stablecoins have the clearest use-case potential among cryptoassets in the real-economy."
>
> **- HM Treasury Official**

Stablecoins offer a model that scales efficiently through network effects without being slowed down by traditional banking networks and the limitations of domestic payment infrastructure. They do this by acting as a bridge between international payments needs, domestic banking and payment systems. Ultimately, through stablecoins it is ubiquitous, and can therefore be more cost and settlement efficient, delivering significantly more value to merchants and consumers.

While the UK has now set out how it intends to legislate for stablecoins, it does not move quickly enough. Equally it only considers stablecoins in a financial markets context, asnd while we understand the government will want to see how use cases unfold, there are clear advantages across the economy by recognising stablecoins more widely and enabling their use across the economy.

Currently, almost all stablecoins are pegged to the US dollar, with some pegged to the euro. Barely any (and no successful stablecoins) reference sterling. The UK is missing out on the potential to be a growing globalised financial market of the future. In fact, given London's place in global FX and clearing, this seems like a significant oversight and risk to the City's long-term competitiveness, and one where the government has missed a significant strategic trick that the EU and US are already realising. Whereas other markets like France, Singapore, the UAE and now the US see the political, strategic benefits to actively vie for a share of the future stablecoin ecosystem, the UK is too focussed and stymied by an unnecessarily arduous consultative process.

Stablecoins also offer a strategic opportunity to modernise the UK's financial infrastructure by sharply reducing costs and inefficiencies in payments and settlements. By bypassing traditional intermediaries, they enable near-instant, low-cost transactions—particularly in areas like cross-border trade, remittances, and wholesale finance, where legacy systems remain slow and expensive. With clear regulation and support for sterling-backed issuance, the UK could position itself as a global hub for digital financial services, drastically improving certain businesses' profit margins, in particular for small and medium sized businesses.

Priority 2: Decentralising digital infrastructure and services to democratise access and participation

There is no political risk actively attaching a preference to stablecoins' deployment in the UK, given their underlying stability. As they stand to provide foundational layers of transactability and access to other blockchain technologies, it would be in the UK's interest to actively promote their growth in the UK, seek urgent regulatory clarity, and actively support the development of global firms basing themselves in London, and launched sterling-pegged stablecoins.

Decentralised digital infrastructure offers a resilient, transparent and inclusive foundation for the future of digital services, moving beyond singular platforms and sources for information and services. By expanding control and responsibility among digital providers and moving past a single centralised authority, the next generation of digital services and businesses can reduce the risk of systemic failures, mitigate potential censorship, and offer people greater autonomy over data and digital interactions.

> "The technology can deliver public infrastructure we can actually rely on. It's factually there and written in stone. It's written in blockchain."
>
> **- Industry**

A decentralised AI system, for instance, could be built to enhance transparency and security. By distributing model training, governance, and data storage across multiple digital providers, it would mitigate risks associated with single points of failure or control. Smart contracts could automate governance, reward contributions, and ensure compliance through transparent, immutable ledgers. This approach could enhance trust in AI development and create a system where incentives are more equitably distributed, fostering innovation across multiple sectors. In this system, data, model parameters, and audit trails would be stored on decentralised networks, while heavy computations would be handled off-chain by a network of distributed nodes.

Smart contracts would coordinate activities such as rewarding contributions, managing updates through decentralised governance, and recording every step of the process on an immutable ledger. This design not only ensures transparency and trust in the model's development but also aligns incentives through token-based rewards and automated compliance. It would enhance security, reduce centralisation risks, and a clear audit trail—features that can be applied in various areas like prediction markets, data marketplaces, or autonomous financial systems.

Likewise, decentralised identity systems could allow individuals to own and control their personal data, giving them far greater independence as to how their information is stored, used and shared. Identity solutions can utilise blockchain to verify credentials without requiring third-party intermediaries, reducing fraud and further enhancing privacy. Not only could this foster greater data security, but also enhance trust in how public services utilise people's personal data.

One of the other most immediate benefits to integrating decentralisation into government services is efficiency. With the Department for Science, Innovation and Technology (DSIT) now empowered to act as the digital centre of government, the time seems right to pick up this important work and ensure that the UK does not fall behind international comparators.

> "Provided we address the underlying concerns of privacy, blockchain's efficiency and immutability could provide huge benefits to digitising government services."
>
> **- Former UK government cabinet minister**

Public sector processes are famously complex, discrete and siloed, and although the UK government is striving for better join-up through its 'Plan for Change',[2] it remains difficult for the government to avoid unnecessary duplication and draw from the full potential of its data. The result is a significant cost to the taxpayer: research by London Councils suggests that up to 15% of spending on public services is wasted through duplication and inefficiency. The potential for decentralised digital ledgers like blockchain in enabling cross-departmental working is huge, with fewer errors, the need for record-keeping through third-parties erased, and the risk of duplication mitigated. The German Federal Office for Migration and Refugees uses blockchain-based support system FLORA to support the necessary exchanges between the multiple ministries and authorities across federal, state and local level involved in the asylum procedure, shortening procedures, cutting costs and increasing accuracy.[3] Similarly, the Swedish land registration authority has deployed blockchain solutions to redesign real estate transactions, cutting the property title registration time from four months to just a few days,[4] and with this saved costs of ~€100 million per year.[5]

The UK could help provide blockchain protocols a path to regulatory certainty by adopting a clear, objective framework to evaluate decentralisation. This means establishing rigorous, control-based criteria that a protocol must meet before being treated as decentralised. Where needed, rules should be adapted—or developed—to support and promote decentralised architectures. Doing so will provide clarity, foster innovation, and ensure consumer protection.

Priority 3: Tokenisation as a tool for democratised digital transformation

Tokenisation is reshaping markets by enhancing efficiency, liquidity, and accessibility across a growing number of asset classes. Projections suggest that tokenised assets could be worth between $4 trillion and $5 trillion by 2030[6]. By converting ownership rights into digital tokens, tokenisation allows for fractional ownership, reducing barriers to entry and expanding participation beyond large institutional investors. This democratises access to non-financial assets such as house purchases, but can support broader data-exchange across a wider array of consumer and institutional processes of which liquidity, data-quality and privacy are lacking. This approach is already transforming real estate, fine art, and private equity, making traditionally illiquid assets more accessible. Beyond financial instruments, tokenisation is being explored as a solution to inefficiencies in supply chains, healthcare, and public services by automating transactions and improving data security.

The financial sector stands to benefit significantly from the integration of tokenisation, particularly in clearing,

settlement, and regulatory processes. Financial markets have long been constrained by high operational costs and inefficiencies, with transaction finality often requiring multiple intermediaries and lengthy settlement times. Blockchain technology could reduce annual clearing and settlement costs by ~$20 billion globally.[7] Blockchain-based deployments in cross-border payments alone are expected to lower costs by ~$10 billion by 2030.[8] Regulatory compliance and reporting represent another area where tokenisation offers cost savings. The European Commission projects that DLT will reduce regulatory reporting costs by €4 billion per year.[9] Automated data reconciliation will replace manual oversight, lowering the burden on firms to meet capital adequacy and anti-money laundering requirements.

The benefits of tokenisation extend beyond financial markets into wider economic and social applications. Various governments are already testing blockchain-based public administration processes. For example, the EU is developing blockchain-based public services through its European blockchain services infrastructure (EBSI). One of the main use cases of EBSI is implementing a generic digital identity capability, which allows users to create and control their own identity across borders without relying on centralised authorities.

This acceleration in the adoption of blockchain-based identity solutions is reflected in the projection that the global market for these solutions will surge from $1.3 billion in 2023 to $35.1 billion by 2028.[10]

Tokenisation could also help to deliver on a variety of government missions and goals in terms of driving efficiency, access and trust in how public services are delivered. For example, tokenisation could be utilised to streamline and modernise the UK's currently complex and overburdened welfare systems, by automating benefit disbursement through programmable tokens. These tokens can be restricted for use on specific essentials (e.g., food, housing, healthcare) and issued directly to eligible individuals, reducing inefficiencies, preventing fraud, and ensuring targeted support without reliance on intermediaries. In South Korea for instance, the government announced various initiatives to promote the domestic blockchain industry, such as supporting their central bank in developing a voucher program for use on smartphones, which can be used for welfare, culture, education and other services. Likewise, Singapore's Purpose Bound Money initiative could provide a potential template for how the UK government could collaborate with the industry to explore how tokenisation can be applied across platforms and for use on specific services or necessities.[11]

As financial markets continue to digitise, tokenisation is set to play a key role in expanding investment opportunities and driving innovation across both traditional and alternative asset classes, and it will be important for government to collaborate with industry on aspects of tokenisation's wider deployment that can support ambitions to digitise both sectors of strategic importance to the UK economy, as well as systemic public sector services.[12]

How do we get there?

1. Approach blockchain, AI and Web3 holistically

> "AI's future is intimately tied to that of DLT. Stripping back blockchain to its core functionality–decentralised ledgers–the potential benefits of cross-pollination with AI is exponential. Firms are not seeing these as separate technologies and neither should policymakers."
>
> **- CEO of industry trade body**

AI, blockchain and Web3 technologies have different characteristics that bring unique potential to each, but they are very much interconnected. **If the government wants the UK to realise its full potential, blockchain and Web3 together will be fundamental to this.** For example, AI models rely on huge amounts of data, often gathered without consent, while blockchain allows for users to retain control over their data while securely sharing it with AI applications. Similarly, AI models are often criticised for their opacity, but blockchain's transparent ledger can audit each step of an AI model's development from data inputs to training outcomes. Web3 also creates the possibility of community-driven computational power, with decentralised AI distributing tasks across a network of blockchain nodes, circumventing reliance on centralised entities.

The current policy frameworks that deal with these technologies in siloes fail to understand the interconnectedness of these technologies. Currently there is an over-focus on regulating blockchain and Web3 through financial services regulation. A new regulatory regime will come into force in 2026 with new rules around stablecoins' custody and prudential requirements, for example.[13] This will be led solely by the Financial Conduct Authority (FCA), with oversight from HM Treasury, despite the clear ramifications of this sector for broader digital policy. By contrast, the government's approach to AI and Web3 is very much being led out of DSIT, working in tandem with the Information Commissioner's Office (ICO), Competition and Markets Authority (CMA) and Ofcom. Not only does this mean policy and regulatory expertise is not being shared, but there is a threat of an emerging perception of digital assets and crypto seen as a risky technology to be managed, and AI a promising new avenue to pursue. This fundamentally misunderstands the fact that the two technologies depend on each other.

There are exceptions to this trend, which are promising, but they are currently few and far between. For example, the recent AI Opportunities Action Plan[14] made brief mention of establishing a new AI sector champion for the financial services sector to work with industry and government, but it is not yet clear what exactly this will entail. More broadly, the commitments to developing infrastructure, skills and use cases for AI are welcomed, but given the importance of blockchain to AI development (as outlined above), the omission entirely of related supporting technologies seems like an oversight.

Similarly, the Property (Digital Assets etc.) Bill[15] that is currently in parliament looks at the issue of property rights in Web3 in a broader sense than we have seen previously, but this is yet to become law.

With the current political emphasis rightly on delivering an AI economy, policymakers should ensure that blockchain and Web3 are baked into decisionmaking cohesively. For example, the decision by the US government to combine AI and digital assets into a White House czar is to be applauded. The UK already has existing frameworks for collaboration across sector areas and regulators, including the Digital Regulation Cooperation Forum (DRCF). Thus, these just need to be deployed effectively to ensure maximum regulatory efficiency that delivers the intended outcomes. The new government's RIO is another opportunity; although the RIO has committed to an initial focus on engineering biology, space, healthcare AI and autonomous technology, Web3 is a clear example of a sector that would benefit from this sort of cross-sector and cross-regulator support.

2. Address implications in blockchain and Web3's use across the UK economy

The use of blockchain-enabled tokens should be seen as a mechanism for equity and participation for citizens and businesses. Blockchain technology can be leveraged to resolve many of this government's priorities for unlocking access to financial services, initiatives to drive digital inclusion and literacy, streamline access to government services and improve the speed and pace at which business is conducted. To achieve this, the government, regulators and wider public sector should work alongside businesses, to better understand how and where these technologies can be used, and what industry-led initiatives could be supported to deliver this.

As blockchain and AI share many of the same economic, ethical and practical questions and implications in their deployment, now is the time to drive a cohesive strategy across government and business on shared objectives irrespective of the use-case in question. If Web3 is to be rolled out more widely, these questions will need to be considered in wider contexts. This includes Web3 and AI's effects towards energy use, questions regarding privacy, data-sharing and accountability, and decentralisation's effects on risk and volatility. Both the innovators of these technologies and policymakers have successfully begun to address risks of these technologies' deployment, but there is clearly more to be done in order to secure the confidence of the public, private sector and regulators.

Cyber resilience

Digital assets can be a substantive enhancement to issues of cyber resilience: many of the issues we see relate to human involvement and governance. In an increasing world of fraud, cyber threats and hostile online actors, there has never been as great a need for secure, reliable channels for conducting secure data and financial exchanges. Recent high profile cyber-security attacks however have raised questions about the security of crypto exchanges and other uses of blockchain technology, however this issue relates more to human elements and a case of social engineering rather than any direct breach of the exchange, or its underlying technology.

As has long been the case for the financial services industry, human error and social engineering remains one of the key vulnerabilities for the sector, as was the case for Bybit. Whilst this case has understandably and importantly raised questions surrounding the governance and immutability of blockchain, this and other similar cases have not revealed inherent vulnerabilities in the technology. Instead, they have further demonstrated the case for this technology to be better understood, overseen and nurtured by evolving existing regulatory systems, to ensure higher standards of governance and standards surrounding human oversight and operational security.

Environmental effects and scalability

On energy use, earlier mainstream forms of blockchain technology, perhaps most famously Bitcoin, utilise a proof-of-work consensus mechanism to validate data that is shared across its decentralised network. Mining, to say providing the capacity to add blocks of data to a blockchain and to validate transactions between users, is extremely energy intensive, thanks to the significant computational power required. As such, as DLT assets like Bitcoin have grown, their energy use has in-tandem. **This has created a scalability and environmental cap on the growth of blockchains that utilise proof-of-work mechanisms**, which is unsustainable to supporting their wider utilisation.

The most effective mitigant to this has come from within the sector itself, through proof-of-stake mechanisms. Other networks like Ethereum validate transactions and create blocks based on how much of the blockchain each participant (miner) holds. This approach has proven to be both faster and exponentially more energy efficient and scalable.

Risks to privacy

While blockchain is praised for transparency, the permanence of this data raises privacy concerns, especially in cases where sensitive data might be exposed. Compliance with existing laws like GDPR have thus far proven challenging, because blockchain data is immutable and often distributed across jurisdictions. **Blockchain's global and decentralised nature complicates enforcement of laws and resolution of security and privacy disputes.**[16] Further, while more efficient, proof-of-stake mechanisms establish a higher likelihood that a single group may control and authenticate the entire network, if it owns more than 50% of the network's computational power. Achieving consensus on governance and supervision across a decentralised network can thus be slow and contentious, especially in the case of forks or governance disputes.

Rather than waiting on new regulation however, promoting industry-led initiatives could accelerate the development of blockchain and Web3 standards that address risks to privacy and control. Voluntary frameworks and best practices—such as encouraging the decentralisation of mining structures and broadening network participation—could help mitigate risks around user safety and transparency without stifling innovation. By supporting industry efforts to embed decentralisation and openness into blockchain infrastructure, policymakers can foster a more resilient and inclusive ecosystem, ensuring distributed ledger technology (DLT) becomes both mainstream and widely accessible, while maintaining flexibility for future innovation.

Models of data verification for both users but also the likes of authorities mitigating against security risks or illicit activity have also yet to be further developed beyond proof-of-concept. How users' privacy may be protected while their rights to their blocks of a chain can be verified remains unclear. However, it is possible that cryptographic methods of confidentiality may maintain transparency where required, while only revealing necessary aspects of specific transactions or users' information to bolster users' access. This could significantly improve blockchain-hosted data that requires access by law enforcement or authorities. Across the chain, the blockchains lack governance systems that can mandate and maintain transparent and equitable decision-making.

Taxation - simplification and openness

The UK's approach to digital assets taxation needs reform to balance compliance with innovation. Currently, complex rules on capital gains, DeFi, and VAT create uncertainty, discouraging both retail investors and institutional adoption. A more simplified tax framework using measures like exemptions, especially in crypto-to-crypto trades from capital gains tax until they are more permanently converted to fiat, would reduce administrative burdens while maintaining HMRC's oversight. Clearer guidance on staking, NFTs, and DeFi earnings would enhance compliance, reducing unintended tax evasion. This should also allow for decentralised entities to register in the UK.

Additionally, a bespoke tax regime for crypto businesses could encourage UK-based innovation while ensuring fair taxation. Aligning international tax treatment with leading jurisdictions like Singapore or Switzerland would prevent capital flight and establish the UK as a competitive jurisdiction. Ultimately, the UK should integrate digital assets into financial services taxation rather than treating it as an isolated asset class to foster compliance, simplicity and encourage businesses to invest.

3. Trial, test and experiment with these technologies

Perhaps the most fundamental aspect of blockchain technology's development and utilisation are legitimate concerns around trust. Firstly, blockchains can be difficult to understand, creating barriers for widespread adoption. Blockchains today lack standardisation, allowing for a fragmented market that is ambiguous and unnavigable by the average consumer. Though regulation—for all the reasons above—can help the sector coalesce toward common standards, practices and norms, ethical questions regarding how consumer access blockchains and how networks are accountable, due to the very nature of blockchain technology, requires a cohesive strategy from public authorities. Web3's growth in the UK would benefit from guidelines for ethical blockchain development and use, regulator-sanctioned trials and pilots that increase familiarity with the technology and its benefits would significantly help.

"Web3 has gotten lost in the hype. Leaders of this technology's growth must connect its potential to practical use-cases that can transform existing processes and solve inefficiencies in the real economy."

- Fintech influencer

To determine their real-world impact requires a public and private partnership that brings together developers and innovators, experts and academics, policymakers, regulators and consumers to rationalise practical solutions to these aspects of blockchain's further development. New actors such as the AI Safety Institute clearly have a role to play in the interconnection between AI with other related technologies like DLT and Web3, but so too do existing regulators like the ICO. In particular, financial services regulators like the FCA and the Bank of England have developed early exposure and experience towards aspects of supervising blockchain-enabled platforms like those facilitating digital assets, and this should be leveraged while they retain institutional memory.

There is long standing precedent for using sandboxes and pilots to foster the necessary trust and regulatory compliance for new technologies to be a success. The likes of the financial services Digital Securities Sandbox can provide much-needed space for blockchains to innovate by removing prohibitions to enable the safe and scalable trialing of new use-cases within regulatory perimeters, but new similar innovation spaces may be required. In particular, a DLT or AI Healthtech Sandbox would be well-placed to support the government's ambitions to enable digitisation of the health service. Any government strategy to focus resources should include within these clear roles and responsibilities for regulators that may one day supervise Web3 and DLT in other sectors, beyond just financial services.

"We're seeing an issue with pilots not taking off and it leading to participants becoming a bit disillusioned. Part of the problem here is because they're proprietary systems; we need open source and interoperable technology that everyone can take forwards."

- Industry

Key recommendations

01

Approach blockchain, AI and Web3 holistically

To fully capitalise on AI, blockchain, and Web3, the government must more holistically approach the role for AI's underpinning technologies (like Web3). The UK must adopt a more integrated regulatory approach that acknowledges their interdependencies, embeds blockchain into AI policy, and strengthens cross-sector collaboration:

Approach these technologies holistically. The UK's approach to AI, blockchain, and Web3 must reflect their interconnected nature, rather than treating them in silos. Current regulatory frameworks overly focus on blockchain and Web3 as financial services issues, while AI is viewed as a broader digital opportunity, missing their mutual dependencies.

Integrate Blockchain and Web3 into existing AI initiatives. The report sets out what this might mean in practice, including the role for the Regulatory Innovation Office (RIO) and the scope for mirroring international best practice like the US government's combined AI and digital assets leadership role.

Policymakers should integrate blockchain and Web3 into AI policy to ensure the UK maximizes its technological potential. Existing initiatives, such as the AI Opportunities Action Plan and the Property (Digital Assets etc.) Bill, show promise but lack a clear strategy for incorporating blockchain's role in AI development

Utilise existing cross-sector regulatory collaboration. The UK should leverage existing cross-sector collaboration mechanisms, such as the Digital Regulation Cooperation Forum (DRCF) and the new RIO, to develop a more coherent and efficient regulatory approach—mirroring international best practices, like the US government's combined AI and digital assets leadership role.

02

Address implications in blockchain and Web3's use across the UK economy

Tokens and blockchain should be leveraged to deliver on government priorities, such as financial inclusion, digital literacy, and government service efficiency - while addressing head on the real concerns that wider stakeholders have around issues like privacy and sustainability:

Integrate tokens and blockchain into policy goals. Cohesive strategy that aligns AI, Web3, and blockchain regulation, considering privacy, energy use, and decentralization. The government also needs to pay heed to the tangible obstacles obstructing growth, e.g. in tax.

Enhance cyber resilience and regulatory understanding. Regulatory frameworks to focus on improving operational security, ensuring best practices in governance, and fostering innovation in secure blockchain applications.

Address scalability, privacy, and taxation issues. Encouraging energy-efficient blockchain mechanisms, such as proof-of-stake, alongside privacy-preserving technologies will support responsible growth. Tax reforms to simplify compliance and incentivize innovation, aligning the UK with competitive global jurisdictions to attract digital assets and Web3 businesses.

03

Trial, test and experiment with these technologies

To unlock the full potential of blockchain and Web3 in the UK, policymakers should focus on building trust, leveraging existing regulatory expertise, and fostering innovation through dedicated sandboxes and public-private collaboration:

Build trust through standardisation and public engagement. Blockchain adoption is hindered by complexity and a lack of standardisation, making it difficult for consumers and businesses to navigate. A cohesive strategy should include ethical guidelines, regulator-sanctioned pilots, and public-private partnerships to establish best practices and foster trust in Web3 technologies.

Leverage existing regulatory expertise for blockchain oversight. Regulators such as the FCA, Bank of England, and ICO already have experience in overseeing aspects of blockchain and cryptoassets. Their institutional knowledge should be leveraged to shape regulatory frameworks that address transparency, accountability, and ethical considerations beyond financial services.

Expand regulatory sandboxes to support blockchain and AI innovation. The Digital Securities Sandbox provides a model for fostering responsible blockchain development. Expanding such initiatives—such as a dedicated DLT or AI Healthtech Sandbox—would enable safe experimentation while aligning Web3 regulation with broader government priorities like digital health and public sector innovation.

04

A simplified taxation regime for crypto

The UK should reform its crypto taxation approach by simplifying rules on capital gains, DeFi, and VAT, with exemptions for crypto-to-crypto trades and clearer guidance on staking, NFTs, and DeFi earnings to boost compliance and innovation.

A bespoke tax regime for crypto businesses particularly those that are decentralised entities brings further investment and means these entities can use the UK as a home ‘base’ in which to do business. This has beneficial effects for investment and longer term taxation for the UK, in the long term bringing additional revenue. It also aligns with leading jurisdictions like Singapore, the UAE and Switzerland, and would help prevent capital flight and position the UK as a competitive hub for crypto innovation.

Endnotes

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About Improbable

Improbable is a Venture Builder: we initiate and develop new businesses in frontier ecosystems like AI, web3, and the metaverse. Drawing on over a decade of experience in distributed systems, building metaverse infrastructure and virtual worlds for major brands, we help founders and entrepreneurs turn their ideas into a useful reality through entertainment, social experiences or enterprise applications.