PUBLIC INNOVATION

Where emerging tech meets government: blockchain and AI (WG 1.1)

INTRODUCTION: OUR CHALLENGE

When it comes to emerging technologies like blockchain and artificial intelligence, governments face major challenges in separating hype from reality and making sense of competing narratives around each technology and its impact. Caught between the hype drummed up by advocates and the suspicion raised by critics, policymakers must continuously grapple with the double bind of **simultaneously using and regulating blockchain and AI.**

One one hand policymakers must become savvier about emerging technologies in order to leverage the many opportunities each offers to improve public services. On the other, they must also know enough to **regulate emerging tech effectively** and sufficiently understand the implications of each in order to **educate citizens** about potential impacts.

As experts working at the nexus of technology and society, the role of this working group is to help policymakers, governments, and public officials deal with the challenges and leverage the opportunities offered by blockchain and AI.

The speed at which emerging technologies change society, and the dynamism of the markets they fuel, mean that neither the academic research communities, nor the policymakers or developers have the time or space clearly to **articulate the conditions for a successful tech-driven society.** It is easy to look back at the past decade and say how governments could or should have intervened sooner to regulate the volatility of cryptocurrency markets, for example. The fact that tech moves much faster than government ever can or will **is a reality/constraint we must accept in our quest for positive change.**

ABOUT THIS DOCUMENT

The purpose of this document is two-fold: to provide sufficient context to clearly situate the working group in the **discourse** of emerging tech from the perspective of policy makers, and provide a **framework for collaboration** that ensures that the working group will add valuable new knowledge to the current state of the art.

A PRACTICAL APPROACH

These are major challenges that no one organisation or approach can solve alone. For this reason, we must be realistic about expectations, scope and outcomes. **The aim of this working group is not to produce primary academic research -** obviously an impossible task given the time constraints, nor is it the aim of the Digital Future Society programme to run an academic think tank.

This working group has been established to advance the conversation, to convene, and to collaborate on solutions that benefit our primary audience: policymakers across the world that are dealing with the challenges of emerging tech.

Our approach will be to transform your insights, expertise and experiences, or even previous work relevant to this subtheme into actionable tools and solutions.

In terms of a practical steps, as a working group we will:

- Combine the perspectives of industry, academia, government and civil society to understand the complex systems underlying blockchain and AI and **identify challenges and opportunities** for their applications in the public sector

- Work **across disciplines**, and contribute expertise in relevant methods and domains, to build a shared and accessible[1] vocabulary of issues and best practices

- Work towards the articulation of **potential prototypes, pilots, or toolkits** supported by research and analysis of a variety of **use cases** from around the world

- Collectively produce a **key findings report** that will serve as the basis for further content creation, including a reservoir of ideas that can be prototyped by the DFS Civic Lab and contribute to the wider media debate around this theme

- **Communicate** our findings through content **beyond a report** to bridge the gap between academic and technical expertise, public innovation and practical action

- Provide further **synthesis**, **analysis** and **communications** to inform and engage in public debate on use of emerging tech and its impacts, and to make the uses of AI, blockchain and their impacts more visible

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[1] Even though our primary audience is policy makers and public administrations, our work should be accessible and of value to the wider public interested in these issues.

KEY RESEARCH QUESTIONS

In order to meet the objectives outlined above, the following questions will serve as points of departure to guide our inquiry:

- **How do governments currently use blockchain and AI to improve public services?**
    - What **opportunities** are they missing and why?
    - How can governments equitably distribute the **benefits** of blockchain and AI while mitigating harm?

- **What are the main challenges facing governments who seek to make emerging tech a reality in public administration while regulating them effectively?**
    - Is it funding? Infrastructure? Technical know-how?

- **What are the impacts of emerging tech on vulnerable, marginalised and disadvantaged groups?**
    - What measures can governments take to protect them?

How do governments currently use blockchain and AI to improve public services?

While blockchain enthusiasts have long trumpeted the potential of this technology to disrupt government, traditional institutions such as the IMF and a handful of central banks have only just begun to give it serious consideration.[2]

This is because **blockchain technology has yet to reach full maturity**. Challenges related to scalability, privacy, data security and governance must be overcome for it to realise its full potential. Still, a number of administrations are already trialling the use of blockchains across a range of public services, at varying speeds and levels of government. Countries leading the way are **Canada**, **Estonia**, **United Arab Emirates**, **Russia**, **Switzerland**, the **UK** and the **US** although initiatives are taking place or scheduled in all continents:

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[2] Rob Hitchens, [Is it too late to get into blockchain?](#)

Now: 202 Blockchain Initiatives in 45 Countries

Image source: Deloitte Center for Government Insights, <u>Will blockchain transform the public sector?</u>[3]

Some examples of blockchain applications in the public sector are as follows:

- **Estonia**, named the most advanced digital society in the world[4], has been using blockchains since 2008 and claims that its national health, judicial, legislative and security registries have been running on the technology since 2012.[5] It is currently piloting blockchain use in voting, identity management and healthcare.[6]

- In the United Arab Emirates, **Dubai** aims to be "the first blockchain-powered government by 2020", using the technology to power all visa applications, bill payments and license renewals[7]

- In the **United States**, government agencies are deploying blockchains in areas such as supply chain, identity management and healthcare records.[8]

- Following its belief that "the best way to develop a technology is to use it in practice,"[9] the **UK government** is developing a number of blockchain pilots.[10] For instance, the Food Standard Agency is currently piloting blockchain technology in a

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[3] Deloitte Center for Government Insights, <u>Will blockchain transform the public sector?</u>
[4] Ben Hammersley, <u>Concerned about Brexit? Why not become an e-resident of Estonia?</u>
[5] <u>Estonian Blockchain Technology</u>
[6] Deloitte Center for Government Insights, <u>Will blockchain transform the public sector?</u>
[7] Suparna Dutt D'Cunha, <u>Dubai sets its sights on becoming the world's first blockchain-powered government</u>
[8] 2018 Public-Private Analytic Exchange Program, US State Department, <u>Blockchain suitability for government applications</u>
[9] UK Government Science Adviser, <u>Distributed Ledger Technology: Beyond Blockchain</u>
[10] Idem

cattle slaughterhouse as a **regulatory tool** to ensure food sector compliance.[11]
Another example is the UK research and development pilot project Digital Street[12].

Though research and use of **artificial intelligence** technology predates that of blockchains, it is safe to say the technology is still in its infancy. Proponents claim that AI should prove a very effective tool in addressing complex public sector challenges, and improving efficiency in mainstream public services.[13]

In the UK, public sector organisations such as HMRC, are exploring the use of AI to optimise services.[14] Other notable examples of countries using AI in the public sector include chatbots in Singapore and Australia; back office services in Finland and Japan; pattern detection in local law enforcement in the United States[15]; and the processing of grant applications in Denmark.[16]

What are the main challenges facing governments who seek to make emerging tech a reality in public administration while regulating them effectively?

In this working group it will be especially important to distinguish between **governance** (rule-making by the owners or participants of a system with the purpose of safeguarding their private interests) and **regulation** (rule-making by an outside authority tasked with representing the interests of the public) of emerging technologies.[17]

Though some governments are already experimenting with using blockchains for everything from land registries to healthcare and even elections[18], the **ethical challenges** of such applications are rarely discussed. Take cryptocurrency for example: governments argue that a transition from cash to digital currency is useful the fight against tax evasion and money laundering. Yet once government-issued currency becomes digital only, the game changes for anyone wishing to transact anonymously - arguably a foundational freedom in advanced democracies.

The immutable nature of blockchain technology raises further ethical questions when it comes to public sector applications. In 2016, a UK government blockchain pilot intended to track welfare fund distribution faced considerable backlash from privacy activists since the spending details of beneficiaries would be recorded permanently.[19]

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[11] Food Standards Agency, FSA trials first use of blockchain
[12] HM Land Registry to explore the benefits of blockchain
[13] Growing the Artificial Intelligence Industry in the UK
[14] Idem
[15] US courtrooms use AI to predict the risk of re-offending. The algorithm's bias against people of colour has been documented by Julia Angwin and Jeff Larson in their ProPublica report, Machine Bias
[16] Growing the Artificial Intelligence Industry in the UK
[17] UK Government Science Adviser, Distributed Ledger Technology: Beyond Blockchain
[18] The Economist, Governments may be big backers of the blockchain
[19] Jordan Pearson, The UK wants to police welfare recipients' spending with the blockchain

In the US, **the blockchain ecosystem remains essentially unregulated** and operates largely without oversight, consumer protections or comprehensive guidance. According to a US State Department report, "(...) some countries have purposefully implemented lax blockchain laws and have aggressively lobbied to draw companies and operations inside their borders to create tech jobs and start a blockchain-based economic surge."[20]

When it comes to AI the conversation seems slightly more advanced in terms of both **governance** and **regulation**. The European Commission has appointed 52 experts to a new High-Level Expert Group on Artificial Intelligence, comprising representatives from academia, civil society, and industry. AI HLEG has already released a first draft of its Ethics Guidelines for the development and use of "trustworthy AI" that respects fundamental rights, and ethical values while demonstrating technical robustness and reliability. Policy and Investment Recommendations are due in May 2019.

In terms of existing policy tools and solutions, the US-based AI Now Institute recently published the Algorithmic Impact Assessment framework to help public officials decide if an algorithmic system is appropriate, and to give citizens additional input and oversight.

At the supranational level, a number of initiatives and centres are studying the impact of AI on society. For instance, the UN-led AI for Good Global Summits brings together government officials, UN agencies, NGO's, industry leaders, and AI experts to discuss the ethical, technical, societal and policy issues related to AI.[21]

Meanwhile, the industry itself is proposing its own new rules, norms and structures that determine how blockchains and AI can and should be used. For example, the Partnership on AI to Benefit People and Society has been formed to promote best practices on AI technologies, advance public understanding of AI, and to serve as an open platform for discussion and engagement about AI and its influences on society.[22] Originally set up by Apple, Amazon, Google, Facebook, IBM, and Microsoft, the initiative has evolved into an international, multi-stakeholder organisation.

What is the impact of emerging tech on vulnerable groups? What can governments do to anticipate and mitigate negative impacts?

An essential outcome of this working group will be the articulation of the distributive consequences (i.e. the costs and benefits) of emerging technology for different groups, particularly in terms of gender, diversity, socioeconomic status and geography.

Individual benefits of blockchain and AI tend to go hand in hand with social consequences, especially on vulnerable, marginalised or disadvantaged groups in society. The impact of digital reforms in the justice system, for example, raises concerns about the rights of the

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[20] 2018 Public-Private Analytic Exchange Program, US State Department, Blockchain suitability for government applications
[21] AI for Good Global Summit 2017, ITU
[22] Partnership on AI

individual in relation to the state. Similarly, putting social benefits on a blockchain as in the UK pilot simultaneously enhances and challenges individual autonomy.

Whose values are being prioritised? Can we set rules through establishing certain norms and principles, or are we forced into thinking through trade-offs in formulating best practice? These are the framing questions that will inform the research and debate of this working group.

CONCLUSION

The challenge of this working group will be to help governments separate the signal from the noise when it comes to emerging technologies. Understanding and contributing to the effective use of emerging tech in government involves unpacking these issues and presenting them in practical and useful terms.

As these questions show, our agenda in this working group is not only substantial but also urgent. The issues raised on emerging tech's impact, ethics and best practices in the public sector are playing out now, not in some distant future. For this reason, building new communities and modes of inquiry and connecting them to the public interest is our top priority in shaping a better digital future society.

ANNEX I - ADDITIONAL RESEARCH QUESTIONS

- While blockchains do hold the promise of a trusted, transparent and auditable system that can change how governments serve their citizens, what are the risks and ethical challenges?
  - What specific kinds of safeguards should be built into regulatory standards?
- How can we ensure policymakers understand emerging tech well enough to act ethically and in the public interest? What can citizens do to protect themselves?
  - In other words: how can citizens ensure those who have power to shape society through emerging tech act with public legitimacy?
- How might we redesign regulatory frameworks and public institutions to make them fit to regulate emerging tech while preserving the values and achievements of past generations?

ANNEX II - FURTHER READING

AI Sector Deal - UK Government

How governments around the world are using blockchain - Computerworld

Guide to blockchain technology and its use in the public sector, OECD

Primer on blockchain - how to assess for use in international development - USAID

Emerging Citizen Technology - Blockchain Programs - US Government

Estonia, The Digital Republic - The New Yorker

Public attitudes towards use of algorithmic decision making and AI - The Pew Center