

## Written evidence submitted by Dr Danny Steed (TFP0012)

### Introduction:

The Henry Jackson Society's Centre on Cyber Security & Online Threats is a bold, policy-focused, international research centre, which seeks to provide imaginative policy options that safeguard a free and open cyberspace, and help challenge online threats to liberal Western democracies. Dr Danny Steed is a Research Fellow in Cyber Security and Intelligence.

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*What technologies are shifting power? What is the FCDO's understanding of new technologies and their effect on the UK's influence?*

The place of technology at the heart of the UK's conception of power has been emerging for several years, but was made much more explicit in the nation's recent *Integrated Review*,<sup>1</sup> with a vision for a far more technology-centric approach to national security, defence, and foreign policy. Within this, a point of demarcation is needed for the UK to properly assess and continue assessing the shifting sands that technology presents to power. This demarcation point is to recognise how emergent technologies are shifting the construction of power itself, versus how the application of particular emergent technologies will impact the practice of influence in regular diplomacy.

Understanding and accurately mapping according to such a delineation is essential for the FCDO, lest it risk being swept away by technophilia and excitement over the mere promise of technologies, rather than taking a strategic perspective on how to absorb desired technologies into UK diplomacy. In a vision where science and technology are seen 'as a metric of power'<sup>2</sup> the ability to recognise where to invest in the development of facilitating technologies and to apply specific technologies will be vital not only in how the UK constructs its power, but how it applies it in the pursuit of its interests.

### Technologies changing the construction of power

Given the space constrictions on the Committee's submission, there is one technology family that this author has chosen to focus on for its transformative impact on power: Artificial Intelligence (AI).

AI has long been the arena of speculation, promise, hyperbole, science fiction and more. Among Parliamentary deliberations it has already received devoted attention from a Select Committee in 2017 'to consider the economic, ethical and social implications of advances in

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<sup>1</sup> HMG, *Global Britain in a competitive age: The Integrated review of Security, Defence, Development and Foreign Policy* (March 2021). Ch. 1.1. Available at: <https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy-:-text=The%20Integrated%20Review%20is%20a,national%20security%20and%20international%20policy.&text=The%20document%2C%20which%20is%20the,a%20vision%20for%20Global%20Britain>.

<sup>2</sup> *Ibid*, p. 30.

artificial intelligence.’<sup>3</sup> Like many other technology groups, the applications and promises of the technology are so vast they require narrowing down; in this submission two areas of the AI technology family will be considered. First is the use of AI through Generative Adversarial Networks (GANs), and secondly Data Analytics using AI technologies.

GANs are the process of pitting two neural networks against each other. ‘They feed a cycle of being able to train AI systems into making more effective predictions and outputs.’<sup>4</sup> While such a general principle can be put to potentially countless applications for the benefit of society, there is one in particular that can greatly undermine the construction of UK power, deep fakes.

GANs are key in the production of deep fake content, following a simple process where the ‘first network, known as the “generator,” produces a sample output (such as an image)...which is then evaluated by the “discriminator,” which provides critical feedback about the generator’s success in replicating the characteristics of the underlying data.’<sup>5</sup> Effectively, we are talking about the use of AI routinely in the development of deep fakes, the refinement of which increasingly challenges the ability of technology and humans alike to distinguish the real from the fabricated.

One can point to many instances of deep fakes, but to illustrate a prescient example of note to the Committee this author submits the example of Channel 4’s Alternative Christmas Message in 2020,<sup>6</sup> which broadcast a deep faked version of Queen Elizabeth II performing a dance routine. While it was this faked dance that generated attention, the message carried a real warning in its script about the veracity of content that people rely on, to highlight the role and precision of deep fake technology in undermining truth.

The importance this submission argues for regarding GANs and the production of deep fakes lies in the proliferation of a technology family so widely that automated systems can routinely churn out content that is fake. Automated deep fakes at a scale that can make a mockery of the term “industrial” will only add to an era of post-truth, where objective reality and fact is constantly subject to challenge.

The risks carried through such technology lies not in the scientific or technological construct of power in the UK, but in the power to undermine accepted truth. If the UK finds itself subject to a technological torrent of deep fakes that undermines state policy, or even successfully infiltrates government discussions with genuine actors, the ability of the nation to operate on the basis of accepted facts will be severely and routinely compromised. For the UK to be a position where reality is challenged by unchecked GANs constantly spouting

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<sup>3</sup> [House of Lords - AI in the UK: ready, willing and able? - Artificial Intelligence Committee \(parliament.uk\)](#)

<sup>4</sup> Gupta, A. (2018) The Evolution of Fraud: Ethical Implications in the Age of Large-Scale Data Breaches and Widespread Artificial Intelligence Solutions, ITU Journal: ICT Discoveries, Vol. 1 (1) p. 104. Available at: <https://www.itu.int/pub/S-JOURNAL-ICTF.VOL1-2018-1>

<sup>5</sup> Koenig, A (2019) Symposium on Non-State Actors and New Technologies in Atrocity Prevention -“Half the Truth is Often a Great Lie”: Deep Fakes, Open Source Information, and International Criminal Law, AJIL Unbound, Vol. 113. pp 252. Available at: [https://www.cambridge.org/core/services/aop-cambridge-core/content/view/FB05229E78A65BEE8D7126766DA8F2D4/S2398772319000473a.pdf/half\\_the\\_truth\\_is\\_ofen\\_a\\_great\\_lie\\_deep\\_fakes\\_open\\_source\\_information\\_and\\_international\\_criminal\\_law.pdf](https://www.cambridge.org/core/services/aop-cambridge-core/content/view/FB05229E78A65BEE8D7126766DA8F2D4/S2398772319000473a.pdf/half_the_truth_is_ofen_a_great_lie_deep_fakes_open_source_information_and_international_criminal_law.pdf)

<sup>6</sup> Channel 4, Alternative Christmas Message 2020. Available at: <https://www.channel4.com/programmes/alternative-christmas-message>

material that undermines our politicians, department messaging, even our media broadcasters could ultimately undermine trust in public institutions and fracture social cohesion.

While GANs present an adversarial element and challenge to the UK construction of power, advanced Data Analytics utilising AI technologies present an opportunity for UK power. Much like its counterparts in the national security and defence worlds, those charged with the UK's diplomacy face delivering global objectives with less human resource and a greater reliance on technology. Similar to the *Defence in a Competitive Age* paper's concept of the Digital Backbone – defined as 'digital infrastructure optimised for information exploitation and enabling multi-domain integration'<sup>7</sup> - the FCDO will need to leverage the right formula of technologies to develop its ability to wield influence globally and modernise diplomacy to utilise emergent technologies.

A clear opportunity to do this is utilising Data Analytics through the very same GAN approach that can also produce deep fakes. Leveraging the use of AI to process data at scale and speeds that human agency cannot match will help the FCDO to augment UK power by reducing the human burden and automating data analysis. This will free up diplomatic staff to focus on the core task that will always remain central in diplomacy, relationship management. Also, regardless of how the technology is best absorbed into FCDO practice, its use will be necessary simply to keep up with the vast volume of data sets that typifies the modern world. NATO has recognised the importance of utilising Big Data sets through the application of such analytics,<sup>8</sup> the FCDO will need to as well.

To be clear, this is not to argue for any reduction in roles such as country or subject specialists, but instead to augment their efforts by enabling them to harness technologies that can allow existing resource to produce more data informed product. Exactly how Data Analytics through AI can be used will necessitate quite a project on the part of the FCDO, with institutional introspection required to answer exactly what type of operating model the FCDO wishes to use in the years to come. Only once the FCDO is confident in the answers will be able to work with industry partners to source and apply the best technologies.

Any approach that begins with speculative purchases of such technology instead of aligning technology to strategic intent will be putting the cart before the horse. Data Analytics combined with AI can greatly enhance UK power and help the nation achieve better levels of situational awareness and gain decision making advantages diplomatically, but there must be a rigorous process against which the FCDO interrogates exactly *how* it wishes to use technology. A situation where technology drags UK diplomacy will put the FCDO in a reactionary position for years to come.

### **Technologies impacting influence**

The AI technology family above is tabled to address the question of which technologies are shifting power itself, and while there are many other possibilities to consider, the above represents a tangible challenge and opportunity affecting the construction of power for the UK to consider. In addition, however, consideration must be given to emergent technologies

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<sup>7</sup> HMG, *Defence in a Competitive Age* (March 2021) p. 44. Available at:

<https://www.gov.uk/government/publications/defence-in-a-competitive-age>

<sup>8</sup> NATO Science & Technology Organization (2020) *Science & Technology Trends 2020-2040: Exploring the S&T Edge*, Brussels: NATO Science & Technology Organization. Pp. 13-14.

that can be expected to impact the routine practice of exercising diplomatic influence worldwide. Three are offered: blockchain; broadcasting technologies; and surveillance technologies.

IBM defines blockchain technology as ‘a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a business network.’<sup>9</sup> Although most associated with the various forms of cryptocurrency, cryptocurrency in itself is not the underlying technology at play. The technology that all cryptocurrencies rely on is blockchain, and its application is by no means limited only to the finance sector.

In a master’s level dissertation, Prus explored the possible applications of blockchain technology in diplomacy, some of the findings of which are insightful for consideration by the FCDO. Paramount in its advantages is data security through the immutability of shared ledgers, that protects the network from corruption. Possible applications for the FCDO include more secure data transfer with partners (this could be host nations, NGOs, universities and more); blockchain to help election monitoring practices (particularly for overseas voters); and tackling anti-corruption by enhancing transparency (this could be in the use of diplomatic funds, verifying sensitive information, or even identity verification).<sup>10</sup>

For an FCDO increasingly reliant on its own digital backbone, securing its globally deployed workforce through varying uses of blockchain technologies holds great potential. From securing digital signage on information exchanges at speed, to tackling corruption in developing nations and assisting in election monitoring, blockchain technology has much to offer UK influence operations abroad. Being able to utilise blockchain not only in securing its own data sets and practices, but also proactively in supporting developing nations to become more democratic and take on corruption, blockchain is a multi-use technology that should be aggressively explored to enhance UK influence.

Regarding broadcasting technologies, the continued development of these will continue to remain at the centre of the UK’s position as a ‘soft power superpower.’<sup>11</sup> With the *Integrated Review* highlighting that the BBC reaches 468 million people per week across 42 languages, and that the British Council continues to operate in over 100 countries, it is clear that the UK’s ability to disseminate information is already in a strong position. The development of broadcasting technologies offers avenues for enhancing this position for UK diplomacy.

The BBC’s own research and development highlights the role of “object based media” over traditional forms of media, which allows for ‘the content of programmes to change according to the requirements and circumstances of each individual audience member.’<sup>12</sup> While broadcasting overseas is not in itself diplomacy, the projection of British values through its broadcasting has long been accepted as a central element of our soft power. The ability to enhance our broadcasting to the needs of audiences worldwide provides space for far more dynamic and adaptive messaging to audiences worldwide, helping underpin UK messaging

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<sup>9</sup> [What is Blockchain Technology? - IBM Blockchain - United Kingdom | IBM](#)

<sup>10</sup> Prus, Y. (2020) *Transformations of Digital Diplomacy: The Case of Blockchain Adoption* (Kaunas: Vytautas Magnus University). MA Dissertation, pp. 47-48.

<sup>11</sup> *The Integrated Review* (2021), p. 9.

<sup>12</sup> Ofcom (2021) *Technology Futures: Spotlight on the technologies shaping communications for the future*, Ofcom, p. 53. Available at: [https://www.ofcom.org.uk/data/assets/pdf\\_file/0011/211115/report-emerging-technologies.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0011/211115/report-emerging-technologies.pdf)

and values. Much like how retailers online already curate and tailor ads according to user behaviour, so too is broadcast technology progressing to the point of tailoring content and access to content in ways that are increasingly responsive to user behaviour.

Furthermore, the incorporation of technology such as Augmented Reality (AR) provides additional opportunities, and not simply through traditional broadcasting. For programmes run by bodies such as the British Council, the use of tools such as AR can enhance education efforts under the development agenda, helping to distribute verifiable information and combat mis- or disinformation practices worldwide. The distribution of tailored information in support of development projects, especially education overseas, can leverage technologies like AR to provide more opportunities to engage with reputable educational content.

As hybrid platforms<sup>13</sup> proliferate, enabling ‘consistent user interfaces of all types (TV receivers, mobile devices, computers etc)’<sup>14</sup> the opportunities for the UK to project itself increase. Having the capability through bodies such as the BBC and British Council to disseminate information and continue developing these technologies will be an important of UK influence moving ahead. Few nations have matured bodies in such a commanding position as these to respond to and utilise the emergent technologies in broadcast and information dissemination. Efforts to maintain that edge should be at the forefront of institutional investment in order to maintain the UK’s position as the world’s third most powerful soft power actor.

Finally, surveillance technologies present a challenge to UK diplomacy, particularly to UK diplomatic missions and British nationals overseas. In nations considered a higher risk for operating within or subject to “digital authoritarianism”, the widespread use of surveillance technologies will pose an increasingly contested environment in which to operate. The combination of widespread CCTV, enhanced with ever-more high definition optics, networked to machine learning, with the possible application of mobile telephone coverage monitoring would make operating in some diplomatic missions difficult. Particularly in situations where delicate relationships need to be nurtured and influence sought, the ability of diplomatic missions to operate with confidentiality will be increasingly challenged through such surveillance capabilities in nations that lack the ethical qualms of democratic nations in applying them.

In short, nations that adhere to digital authoritarian practices will innovate as well, in ways that can impact the practice of UK diplomacy abroad and contest it. Even just a cursory combination of some of these emerging technologies – best exemplified by China’s Social Credit System<sup>15</sup> – can result in diplomatic missions being increasingly monitored, subject to surveillance, and restricted in its ability to ensure confidentiality in its daily practice.

In a related vein, the risks to British national overseas will add strain to the responsibility of diplomatic missions. For British nationals in areas with different and more stringent data regulations, subject to intrusive practices of surveillance and monitoring, it will be an increased challenge for FCDO missions to champion the rights of British nationals overseas. As surveillance technologies not only mature, but proliferate and become more economically accessible, and became subsumed under stringent legislative parameters, the digital rights of

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<sup>13</sup> Those that ‘bring together conventional broadcast and IP services...’ Ibid, p. 56.

<sup>14</sup> Ibid, p. 57.

<sup>15</sup> [What is China’s social credit system and why is it controversial? | South China Morning Post \(scmp.com\)](https://www.scmp.com/news/china/article/2017/07/20/what-is-china-social-credit-system-and-why-is-it-controversial)

Britons abroad will vary widely. The FCDO will also need to adapt its support mechanisms to help British nationals and businesses navigate these challenges, as one size will not fit all in digital rights worldwide. This is an increasingly contested concept that will be exacerbated by the development of surveillance technologies that make the temptation and capabilities of digital authoritarianism all the more real.

## Conclusion

To conclude, this brief submission intends by no means to exhaustively or exclusively highlight the biggest technology impacts facing UK diplomacy moving ahead. Instead, the aim has been to table some possible avenues of further investigation, specifically by highlighting the place of the AI technology family in changing the construct of power as the UK understands it, as well as identifying three technology families that can be expected to impact the routine practice of FCDO operations moving ahead.

The biggest point that can be made is that these multiple technology families operate on a non-linear basis, through complex webs of development, maturity, price, and use by various actors. Many technologies are unproven concepts; for the FCDO to build its own digital backbone concept will require constant re-evaluation not only of the technologies themselves, but the needs of UK diplomacy to ensure technological adoption meets mission requirements. The Committee would be well-advised to routinely examine technology utilisation in diplomacy to develop a matured practice of evaluating technology programmes and their enhancement of UK influence.

For the technology families specifically mentioned, this submission will close with some tangible recommendations.

1. **Investigate measures to counter deep fake technology.** Online harms are an arena of huge policy interest, with deep fakes one avenue of concern. Given the speed of advancement, measures to enact a “Hippocratic Oath” for AI development,<sup>16</sup> or even measures to legally restrict deep fakes to certain applications should be explored.
2. **Research applications of Advanced Data Analytics with AI for FCDO use.** For the FCDO to keep up with the development of technology, it must utilise big data analytics with emergent AI. A working group or research project should be considered to identify the best uses for such advanced analytics to help identify and develop suitable technology acquisitions.
3. **Research applications of blockchain technology to FCDO missions.** The potential of blockchain is wide and varied, with numerous avenues open to supporting and enhancing UK influence. Research into how blockchain can enhance UK influence should be carried out with a view of embedding blockchain technologies swiftly.
4. **Leverage advances in broadcast technologies.** The enhancement of broadcast technologies presents opportunities for UK influence to build on its soft power platform through bodies such as the BBC and British Council. Leveraging these new technologies will present additional ways to achieve British influence objectives worldwide.
5. **FCDO missions to prepare against digital surveillance.** The FCDO should expect and prepare to operate – in some cases – in environments more contested with digital

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<sup>16</sup> As suggested by Gupta (2018), p. 105.

surveillance practices. Not only will this impact how the FCDO may need to operate, it will also provide a challenge to FCDO missions supporting the rights of British nationals abroad. Preparations should be made to not only operate in such environments, but also what advice and support can be given to British nationals in such nations too.

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