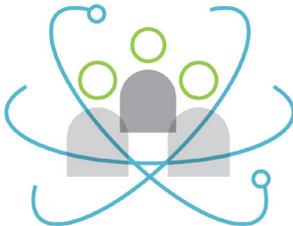# Top Actions to Accelerate IoT Implementation

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Top Actions to Accelerate IoT Implementation

The Internet of Things (IoT) holds the promise of helping us to create a more productive, healthier and sustainable society through greater insight into how we interact and function within our environment.

Over the past few years IoT technology has matured. Battery life, underlying connectivity and processing power have all significantly improved, meaning the technical certainty around IoT is far clearer. Challenges remain, but progress can now be made through evolutionary advances rather than revolutionary leaps, as real-world testing and demonstrations facilitate continuous improvement.

Despite this growing maturity, the UK has not seen the level of adoption that was expected for this point in time. Whilst some of this is due to concerns around security and privacy, there remains a concern that the economic and business case for IoT solutions is still not being made clear enough. The lack of large scale IoT deployments in the UK is partly to blame for this.

Despite increasing maturity, there are low levels of confidence due to limited experience with the technology and procurement processes in a UK specific environment. This is particularly relevant where technology is being purchased by local authorities. Not only are we faced with the fragmented nature of UK local government but differences in municipal structures globally mean it is a challenge to take learning and experience from one place and use it another.

Top Actions to Accelerate IoT Implementation

Renewed action is needed to accelerate the implementation of IoT services and products in the UK. The following actions, spanning Government and industry, could help to spur the UK's IoT market:

1. **Government, in conjunction with industry, should strive to be more active in sponsoring and supporting 'proof of concepts', test beds, and demonstrators and market development activities.**

2. **Government should leverage existing investment in innovative infrastructure, to maximise investment productivity and recognise the synergy benefits of funding that supports broader ecosystem and cross sector benefits.**

3. **Public sector procurement should increasingly adopt challenge-based, outcome-focused approaches to innovative technologies.**

4. **Government, industry and financial markets need to work together to identify measures that will help to attract long-term investment for IoT infrastructure.**

More details on the above, and some additional actions are provided over the next few pages.

Demonstrators & Funding

- **Government, in conjunction with industry, should strive to be more active in sponsoring and supporting 'proof of concepts', test beds, and demonstrators and market development activities.** Emphasising the benefits of digital technology adoption through working with the UK's IoT industry to identify key areas for development. Outside of niche technology trials, these demonstrators should be large in scale, involving multiple sectors, focusing on economic and social outcomes that can be evidenced and are actionable.

- **Government should leverage existing investment in innovative infrastructure** (e.g. fibre, 5G, sensors); stimulating the development of clusters, by encouraging the reuse of infrastructure. To this end, innovation funding should seek to maximise ecosystem benefits by acknowledging opportunities for technology convergence. Furthermore, Government should require Innovate UK and others to report on how their funding has helped build interconnected ecosystems that have added value across multiple sectors and silos.

- **The public sector should be encouraged to think differently when procuring technology. Instead of inviting tenders for a specified solution, public bodies should be encouraged to go to market with an innovation challenge. Allowing multiple solutions to be identified and tested.** SMEs are at the forefront of this innovation. However, techUK has found that procurement processes (64 %) and terms and conditions in contracts (33%) are amongst the top barriers to SME entry.[1] This is particularly applicable for innovative solutions in the health and social care sector where procurement frameworks are resource heavy. Government must continue to work with techUK to tackle unintended barriers that inhibit access.

- **Government, industry and financial markets, need to work together to identify measures that will help to attract long-term investment for IoT infrastructure.** Investment in innovative infrastructure at scale often requires external or corporate financing on a long-term basis. There are significant lessons that can be learned from the rollout of renewable energy, smart metering and telecoms infrastructure. Third-party funders and corporate finance arms want to see certainty of revenue streams. However, when revenue is based on savings, it is usually harder for a funder to get comfortable compared to a structure where there is an obvious revenue flow. An example of this could be charging for a service/use, or a contracted revenue via specific government funding such as a subsidy. There are ways to do this, but third-party funders in particular will need to understand the financial case for an IoT project at scale and how the revenue is protected.

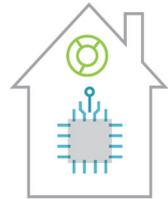1 Procuring for Growth & Innovation, techUK (2016)

Governance & Standards

- **Government interventions should focus on the framework within which the value of IoT is determined, encouraging industry-driven, consensus-based standards.** Government's aim should be to maximise innovation potential by ensuring an interoperable IoT environment that supports devices and applications from different players. The design of interventions should set the context within which government objectives can be realised. Embracing the uncertainty of rapid technological change and evolving cost structures by creating a framework for the private sector to bring new ideas, new technologies and new products to end users.

- **Industry and Government (incl. agencies) should work together to develop IoT security and privacy policies that enable customers to easily understand and trust IoT products and solutions.** This should draw on industry best practice, which among other things would lead to better security and interoperability across IoT technology and software. Government can play an important role in identifying priority risks, and convening industry to identify core principles which technical solutions must deliver upon. We welcome the Government's 'Secure by Default' initiative as an example of this.

- **Government should be mindful of the IoT-specific data challenges.** Attention should be given to addressing challenges not just from a business-to-consumer perspective but also from a business-to-business perspective which has been mostly overlooked so far. It should aim to standardise data governance, data collection and dissemination through mapping emerging best practice recommendations internationally and from bodies, such as British Standards Institution.

Education & Demand Generation

- **As IoT devices become more ubiquitous, keeping people at the centre of device and system design becomes more important.** Industry should engage with users to raise awareness about how to use new devices and services enabled by the IoT effectively and securely. To facilitate demand generation, industry should educate users around the benefits of the IoT, highlighting how technology can empower people and give them greater control over their lifestyles. CityVerve is an example of industry and government working together to do this. Industry needs to demonstrate to consumers the value of services at the point of purchase. This is important for IoT applications within the home where currently only 10% of people 'know a lot' about the connected home and the benefits it can bring.[2]

- **Government should explore how it can deliver better education and information for users on IoT security.** One way this can be achieved is through communicating guidance along the lines of GCHQ's '10 steps to Cyber Security and Cyber Essentials' programme. It's important that consumers understand they can help prevent vulnerabilities by ensuring their devices are updated and patched, helping mitigate risks from the latest threats.

2 State of the Connected Home 2017, techUK (2017)

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950 companies are members of techUK. Collectively they employ more than 700,000 people, about half of all tech sector jobs in the UK.

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