![WIG logo] The Whitehall & Industry Group — connecting the sectors

The Whitehall & Industry Group's

Technology & Digital Series:

Six months in review

April–September 2020

Technology & Digital Series: Six months in review

An ongoing process of digital transformation is influencing almost every aspect of economic and social life, from how we pay for goods, to how our data is stored and utilised. This transformation has only been expedited with the onset of COVID-19, making dialogue between the sectors more important than ever.

The UK is well placed to leverage existing capacities and build the world's most innovative economy- an ambition set out in the Industrial Strategy. How business, government, academia and the charity sector adapt to make the most of the opportunities and manage the risks posed by emerging and disruptive technologies, is crucial for a prosperous and equitable future.

WIG's Technology and Digital program has supported members from across the sectors to embrace digital transformation and utilise emerging technologies to generate positive economic and societal impacts. The key areas of discussion have been around:

- **Digital Skills and the Future of Work**
- **New and Disruptive Technologies**
- **Ethics, Security, Privacy and Regulation**

The following reports are insights into webinars from WIG's Technology & Digital series that took place in April - September 2020. This document will give you an overview of the content covered, unique polling data from our members, and themes that emerged from questions that were raised throughout the presentations.

Best wishes,
Tom Sapsted

Head of Content & Events

Technology & Digital Series

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'Technology & Digital' Series
What is the National Digital Twin?
8 April, 2020

Expert Insight

We were joined by Miranda Sharp, Director of Innovation at Ordnance Survey to discuss the National Digital Twin (NDT), in the context of her role on the Digital Framework Task Group .
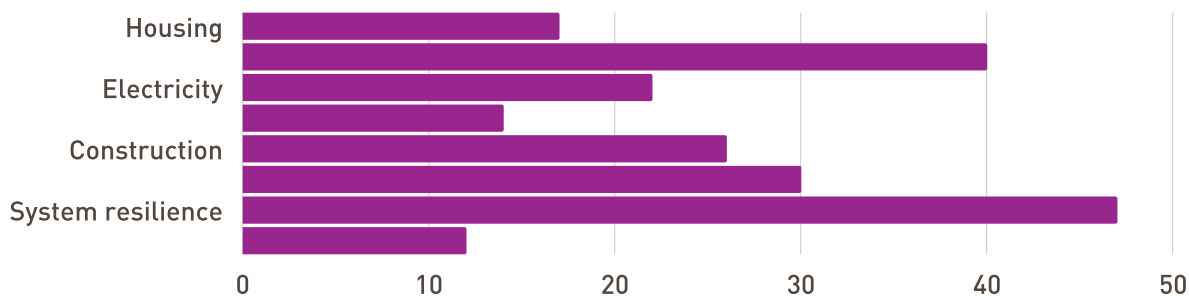
She touched upon points including:

- The NDT as an 'ecosystem' of digital twins, across all sectors and at a national scale, connected to allow secure data sharing.
- Intended to support more effective short & long term decision making in the built environment in the UK;by analysing the information gained by monitoring the physical system to better prepare for future events.
- For example in being able to access digital twins of gas mains, traffic flows and meteorological modelling simultaneously, use of the National Digital Twin system could flag risk areas in flood defences e.g. a weak bridge whose collapse would endanger crucial service delivery.

Cross-sector Opinion

150 WIG members from across the sectors tuned in live, we asked them: how do you feel about the UK's cyber security after this presentation?

Our members' questions

Our members raised some challenging questions the implications and opportunities presented by the national digital twin project , some of the big issues raised included:

- How to effectively tackle data protection and cyber security challenges, and the use of technologies such as blockchain in this space.
- The role of the private sector in driving uptake, and possible need for government leadership.
- The necessity of standards to facilitate collaboration across digital twins.
- The impact of national digital twin project on the development of autonomous vehicles and transport systems.

WIG members can listen to Miranda's presentation here
To see our full programme of webinars, visit www.wig.co.uk

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'Technology & Digital' Series
Carbon Capture, Utilisation and Storage,
a Cross-Sector Approach
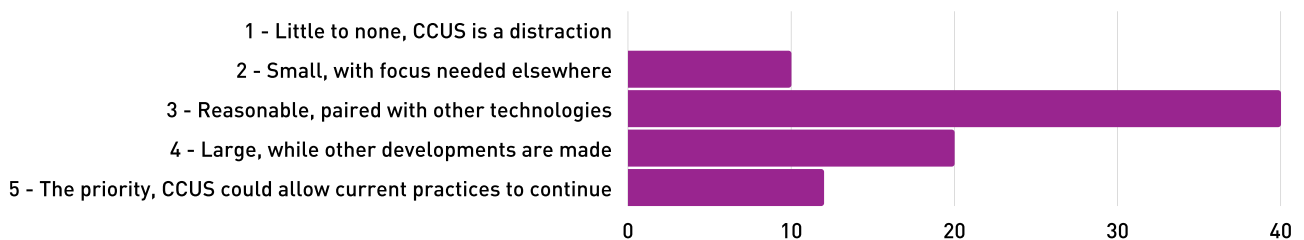**20 May 2020**

Expert Insight

We were joined by Torbjørg Klara Fossum, Low Carbon Solutions Lead, Equinor and Will Lochhead, Deputy Director, Hydrogen and Industry CCUS Business Models and Projects, Department for Business, Energy & Industrial Strategy, to discuss the role of Carbon Capture, Utilisation and Storage (CCUS) in the decarbonisation process. Our speakers touched upon many points including:

- The need for industry and government to utilise existing low/zero-carbon technologies while they continue to innovate. Using the electric 'milk float' as an example, we must think creatively to get the most out of existing infrastructure.
- CCUS is not only central to achieving current net-zero targets, but also has a powerful role in transitioning to a low-carbon economy. On top of its revenue generating potential, CCUS projects could create high-value jobs across the UK and enhance industrial regions and competitiveness.
- With great storage capacity on the Continental Shelf, strong natural gas infrastructure that could be used for Hydrogen, and some of the world's leading research and innovation centres, the UK is well placed to become a world-leader in CCUS capabilities.
- International collaboration is vital to the complex task of accelerating CCUS globally. The successful deployment of CCUS will require trust, openness and transparency between governments and vast collaboration across the sectors.

Cross-Sector Opinion

On a scale of 1 to 5 (5 being considerable, 1 being little to none), how large a role should CCUS play in decarbonisation planning?

Our members' questions

Our members asked some challenging questions. Some of the issues raised included:

- The role that carbon utilisation could play in reducing storage costs and generating revenue from carbon capture
- Ensuring large industries that would benefit from CCUS, but are based away from 'decarbonisation clusters', can participate in the future of green technolgies and CCUS
- Including the public in the deployment of CCUS to create healthy dialogue around the fears of green technology

WIG members can listen to Torbjørg and Will's presentation here
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'Technology & Digital' Series
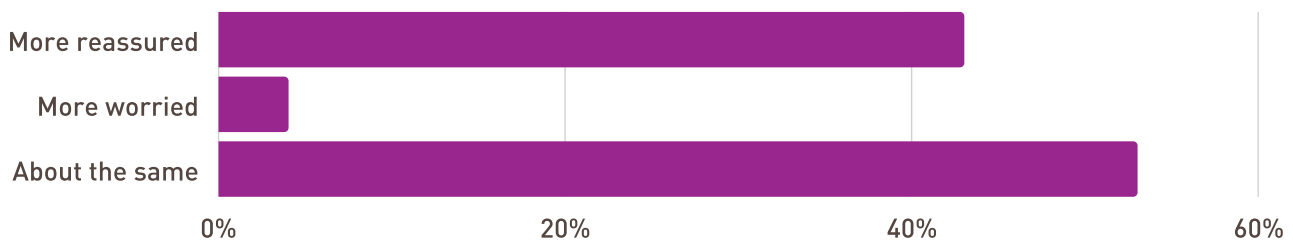The Challenges of Cybersecurity
16 June, 2020

Expert Insight

We were joined by Ciaran Martin, CEO of the National Cyber Security Centre, to reflect on his time in the role and share insight into the complex challenges that lie ahead. He touched on points including:

- For all private and public sector leaders cyber security is a serious risk, but contrary to sensationalised depictions it is a manageable one, which they need to demystify and understand.
- Nation state attacks may be for a number of different reasons, from classic geopolitics, to stealing secrets, retaliation, and access to funds.
- The internet wasn't designed with security in mind; the online economy is based around exchanging personal data for services, and has design flaws which need to be looked at from a cyber security perspective.
- NCSC recommendations to Cameron government covered: a more hands-on response to incidents and attacks, declassifying necessary information, identifying critical infrastructure most at risk of attack, moving narrative from prevention of all attacks to containment of damage.

Cross-sector Opinion

150 WIG members from across the sectors tuned in live, we asked them: how do you feel about the UK's cyber security after this presentation?

Our members' questions

The attendees raised a number of important questions, covering both the sources of cyber security threats and how to combat them. Some of the issues discussed included:

- Working together to counter the potential safety hazards associated with increased automation across sectors such as transport & manufacturing, that could be vulnerable to cyber attack.
- Whether undertaking a review in the current economically challenging climate might put future investment in the UK's cyber security defences at risk.
- How the NCSC has taken on board lessons learnt from international partners and previous attacks.
- What presents the greatest threat to cyber security in the UK: other countries' governments, individuals, non-state actors, or a lack of organisational awareness and resilience, leading to leaks and breaches?

WIG members can listen to Ciaran's presentation here
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'Technology & Digital' Series
SMART LEEDS - Building a smart city
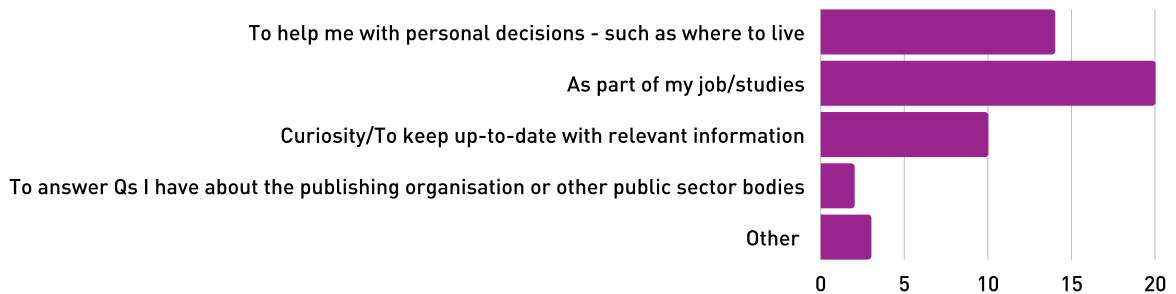**17 June, 2020**

Expert Insight

We were joined by Stephen Blackburn, Data & Innovation Manager, Leeds City Council to share insight into the work being undertaken through the SMART LEEDS programme, as the council strives to make Leeds the best place to live, work and visit. He touched on points including:

- The foundations of the programme, built around open data, digital inclusion, and collaboration.
- The living labs or 'mini smart cities' which have been established to trial initiatives before being deployed at scale.
- The key priority areas for Leeds, including health & wellbeing, housing standards, travel & transport, and climate change.
- The success of some initiatives such as Careview, an app which helps address social isolation, which has now been picked up by other cities across the UK and Europe.

Cross-sector Opinion

Over 70 WIG members from across the sectors tuned in live, we asked them: What would be the main reason you would search for information on a city or national data repository?

To help me with personal decisions - such as where to live	14
As part of my job/studies	20
Curiosity/To keep up-to-date with relevant information	10
To answer Qs I have about the publishing organisation or other public sector bodies	2
Other	3

(x-axis: 0, 5, 10, 15, 20)

Our members' questions

The attendees raised a number of important questions, some of the issues discussed included:

- How the Full Fibre Network is funded and the timescale of funding income and spend.
- Where Leeds City Council has had success in getting the private sector to release data and any tips in how to succeed.
- The extent to which the consideration of cyber security issues is built into the development of smart city projects.
- The most appropriate funding channels for smart concepts/ innovative propositions and whether going forward it will be about making them self-funding.

WIG members can listen to Stephen's presentation here
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'Technology & Digital' Series
AI and the future of privacy
15 July, 2020

Expert Insight

We were joined by Ivana Bartoletti, Technical Director - Privacy, Deloitte, to discuss the challenges around privacy and ethics with the rise of AI technology adoption. She touched on points including:

- Asymmetry of power - companies are collecting and processing increasingly more individuals' data.
- Misuse of data - stories of excessive data extraction and accumulation alongside missed opportunities to use data for productivity and for the common good.
- The merging of digital and physical space - smart cities and immersive technologies are blurring the offline/online experience.
- How privacy and ethics intersect.
- Privacy by design in AI - it needs to have purpose, justice and fairness, and human centered values.

Presentation Spotlight

"Many of the projects of AI fail because there is no clarity over the purpose and the value alignment is not there"

"The journey requires you to ask yourself: what am I doing, what is my objective, and not just for the organisation but for everyone, people, employees, and the environment.
How do you achieve justice and fairness, meaning being transparent, privacy minded, while also maintain human centered values enabling transparency, explainability."

Our members' questions

The attendees raised a number of important questions, some of the issues discussed included:

- What levers individuals can pull to invoke the "laws that are there already".
- Whether privacy can be solved by applying federated machine learning methods.
- The difference between transparency and explainability and where some industries may need to shift focus.
- Whether we will see a world where privacy by design is driven by the consumer and not consultancies/law firms.
- The impact of Brexit on data and privacy.
- The role of privacy in responsible AI.

WIG members can listen to Ivana's presentation here
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'Technology & Digital' Series
Digital transformation in the Crown Prosecution Service
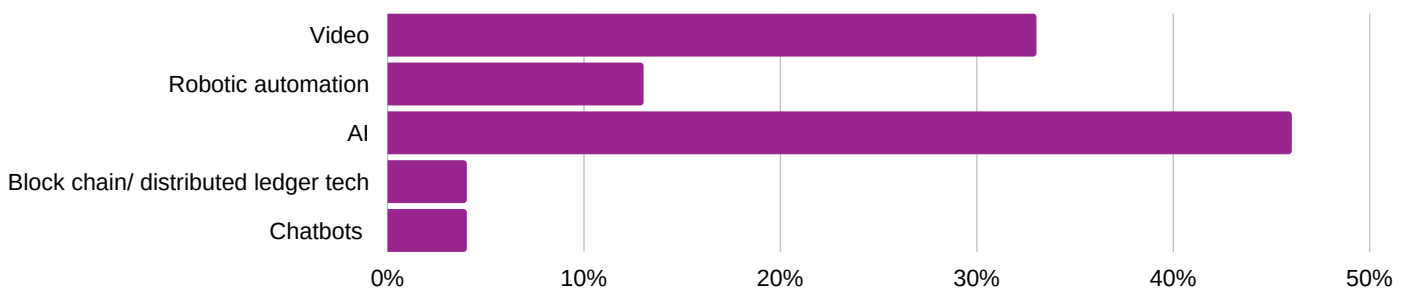**22 July, 2020**

Expert Insight

We were delighted to be joined by Mark Gray, Director of Operations, Digital & Commercial, at CPS for a webinar discussing the organisation's digital transformation. He covered a wide range of topics, with some of the key points including:

- Digital transformation is first and foremost a cultural transformation.
- In 2015 CPS printed over 200 million pages, but is now believed to be the most digitally-advanced prosecution service in the world.
- The increase in data handling has been exponential, in line with the rise in multimedia evidence, largely from mobile phones and social media.
- Having adopted cloud systems, which are scalable and adaptable, the CPS was in a good position to react quickly to new realities of COVID-19, such as increased remote system access.
- 15,000 video court hearings have now been carried out, alongside other rapid tech deployment in response to the pandemic, such as a chatbot to support staff in navigating government guidance.
- CPS is investing in innovation to future-proof the organisation and benefit the wider criminal justice system.
- Initiatives include trials of AI tech for sorting through text, audio and video data and building the 'common platform', a shared digital infrastructure system with Her Majesty's Courts & Tribunal Service.

Cross-sector Opinion

50+ WIG members from across the sectors joined us live, and we asked them: which 'disruptive' tech do you think will have the biggest impact on the UK criminal justice system over the next 5 years?

Our members' questions

Our members posed a number of interesting questions on both the people and operational sides of digital transformation. Some of the issues raised included:

- Balancing the need to move quickly on digital transformation against both security risks such as hacking, and implementation risks.
- How the CPS is developing AI capability; the benefits of developing capability internally and working with the private sector, and practical approaches to integrating potential AI models into digital systems.
- Measuring the impact of digital transformation.

WIG members can listen to Mark's presentation <ins>here</ins>
To see our full programme of webinars, visit **www.wig.co.uk**

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'Technology & Digital' Series
Tackling the housing crisis through digital technologies and OSM
25 August, 2020

Expert Insight

We were joined by Dr Gemma Burgess, Director, of the Cambridge Centre for Housing and Planning Research at the University of Cambridge to discuss the current housing crisis, Off-Site Manufacturing (OSM) and Building Information Modelling (BIM). She touched upon:
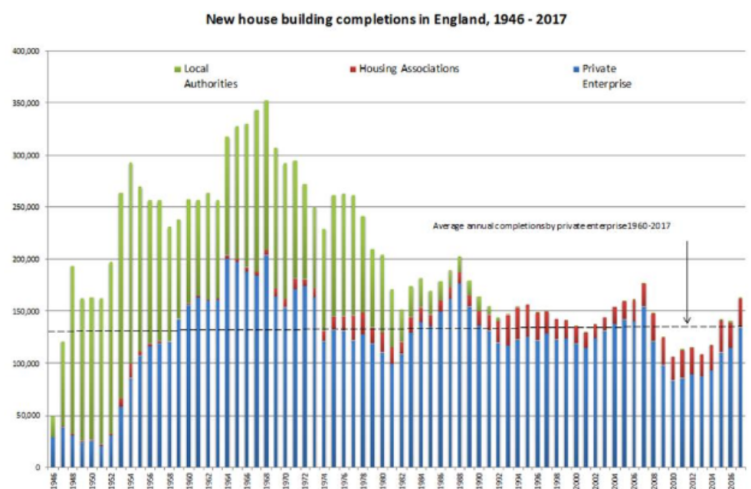
- The Industrial Strategy emphasises the need to move towards house building with more innovative approaches.
- The potential benefits of OSM and BIM is the possibility of building at scale: at a faster rate and at a higher quality, along with cost advantages from economies of scale, improved health and safety, increased sustainability and the potential to increase jobs in regional areas.
- There are constraints however, financial costs in particular. There is a high initial cost of BIM and lenders tend to prefer lower risk "tried and tested" methods. The industry structure along with organisational resistance and public demand also impacts this.
- Increasing awareness of OSM and BIM is needed to boost uptake, along with providing evidence to demonstrate the immediate and long term benefits.

Presentation Spotlight

One third of PRS homes are considered "non-decent".

(DCLG, 2017)

New house building completions in England, 1946 - 2017

Our members' questions

Those who tuned in live had the opportunity to put their questions to Dr Gemma Burgess. Some of the big topics included:

- How can the choice of building materials in OSM make a difference, especially within increased overheating in summer becoming as concerning as keeping warm in winter.
- To what extent can digitalisation enable factories to bring together traditional but modern methods in construction.
- International examples and what we can draw and learn from others.
- How do we collaborate more effectively between industries to work together
- If there is anything that can be done to better accommodate decision makers to take bigger risks going forward.

WIG members can listen to Gemma's presentation here
To see our full programme of webinars, visit www.wig.co.uk