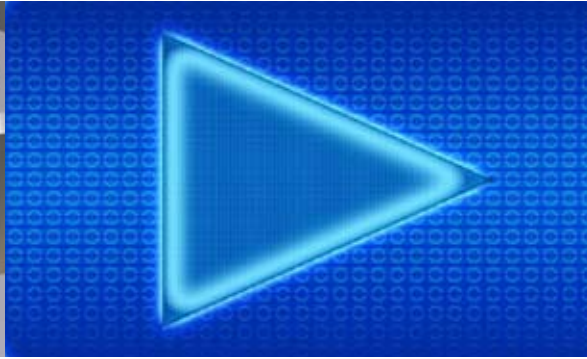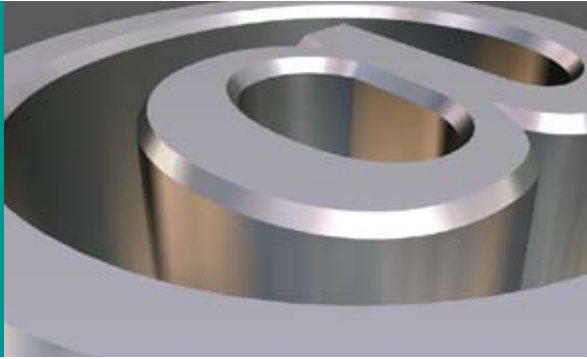# Technology Strategy Board
Driving Innovation

Digital

STRATEGIC UPDATE

OCTOBER 2010

Digital
STRATEGIC UPDATE

Working with business to tackle digital challenges

Digital technologies are now an essential part of how we live and work, and their impact on most economics sectors is profound.

At a national strategic level, we must re-examine how the all-pervasive nature of digital technologies is affecting businesses, not just from a technology perspective but also from non-technological angles such as human experience or the nature of business models. We need to understand the challenges that prevent business opportunities being unlocked and fully exploited, and help businesses to meet them.

The market can solve many of the challenges that the development of digital technologies has prompted, but it can be held back by misaligned incentives, conflicting interests, conservatism amongst incumbents, lack of – or outdated – regulations, lack of standards, incomplete or disjointed value chains and industry fragmentation.

The Technology Strategy Board has identified Digital as a core focus area for future programmes.

Our mission is: to help innovative businesses unlock the economic potential of digital technology, by identifying and addressing systemic challenges and resolving tensions between people, processes and technology.

What is a digital challenge?

For us 'digital' is the complex interaction of people, processes and technology that creates the socio-economic benefits of digital technologies.

We already enjoy many of these benefits, but challenges remain which prevent effective exploitation and the formation of new high growth markets and business models.

Digital challenges are those that, if unresolved, could block a whole market to a new digital product or service. Such challenges may be around monetisation, quality, resilience, trust, interoperability, security or inclusion, as well as other areas.
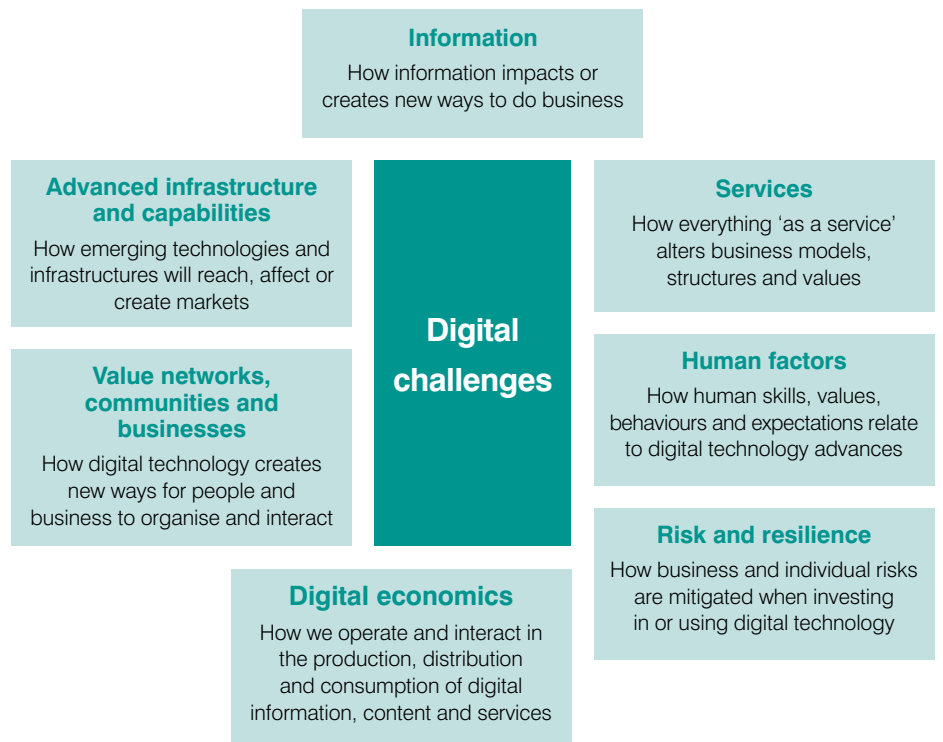
For instance, pervasive sensor networks might be used in the transport sector to address congestion and effective logistics, whereas the health sector could use them

to support elderly patients in their homes. Similar installations linked to electricity meters could enable people to monitor and reduce their energy consumption.

The required technologies are already available – so what is holding us back from exploiting these business opportunities? Often, these areas are complex and other factors need to be addressed before the technology can be exploited. This is what we call a digital challenge.

Tackling this challenge might involve, for example: reducing the uncertainty around standards or service interfaces; aggregating demand and supply and avoiding fragmented investment in local, bespoke solutions; or grappling with the issues of data security. These solutions can then be transferred across both industry and sector boundaries.

Digital challenges: Perspectives

Information
How information impacts or creates new ways to do business

Advanced infrastructure and capabilities
How emerging technologies and infrastructures will reach, affect or create markets

Value networks, communities and businesses
How digital technology creates new ways for people and business to organise and interact

Digital challenges

Services
How everything 'as a service' alters business models, structures and values

Human factors
How human skills, values, behaviours and expectations relate to digital technology advances

Risk and resilience
How business and individual risks are mitigated when investing in or using digital technology

Digital economics
How we operate and interact in the production, distribution and consumption of digital information, content and services

Our approach

Our approach builds on our 2009 *Strategy for Digital Britain* and the activities of the Network Security Innovation Platform, and has evolved to a broader remit.

As a guide, our approach will always be challenge-led. We will:

- pro-actively work with industry sectors, users, businesses, researchers and other partners, plus the public sector, to identify the systemic digital challenges and the barriers and actions that need to be taken to unlock these challenges

- focus on systemic challenges that, if solved, would deliver significant benefit for UK business.

We have already identified some digital challenges, such as 'Who to trust', 'Cost-effective infrastructure deployment' and 'Monetising digital content', and we have started to address them in our ongoing programmes.

When we are examining a digital challenge we will look at the problem from each of the following seven different perspectives:

- Advanced infrastructure and capabilities: how emerging technologies and infrastructures will reach, affect or create markets

- Information: how information has an impact on, or creates new ways to do, business

- Services: how to create value by amalgamating capabilities into customer-facing services

- Human factors: how people's skills, values, behaviours and expectations come into play in introducing advances in digital technology into the market

- Risk and resilience: how risks to business and individuals are mitigated when investing in or using digital technologies

- Digital economics: how value is created and distributed

- Value networks, communities and businesses: how digital technology creates new ways for people and businesses to organise and interact

What have we done so far?

Our remit has evolved since *Our Strategy for Digital Britain* was published [June 2009] but is based on the same principle of looking at broad systemic digital challenges. Since then, we have engaged business in a number of initiatives:

Collaboration across digital industries

Feasibility studies

In September 2009 we launched a competition for three-month feasibility studies to stimulate the innovative potential of small and micro companies in the key areas of *Our Strategy for Digital Britain*. This activity received substantial interest with nearly 600 proposals resulting in the funding of 84 projects.

Collaboration nation

We held a Collaboration nation event in March 2010 where all the funded feasibility project companies presented their projects to each other, industry players and potential investors. This gave many small companies the opportunity to network with businesses across industries and provided them with the chance to meet future collaborators. (See our directory of the funded projects at www.innovateuk.org under Publications, and short presentation videos at digitalbritain.innovateuk.org/live.aspx).

Collaborative R&D and trials

In June 2010 we launched the first round of the £18m competition 'Collaboration across digital industries' (see case study, left). In this competition we offered two types of project funding to conduct


Case study:
Collaboration across digital industries

Digital businesses, and the creative industries in particular, face unprecedented challenges due to a dramatic reshaping of business models and value chains in the internet era. Incentives to businesses to create content, invest in network infrastructure, or provide better services to users are undermined by the imbalances in the distribution of value. *Our Strategy for Digital Britain* centred on the digital challenge of helping 'all participants in the digital ecosystem benefit fairly from the creation, distribution and consumption of digital content'.

We looked at the three challenge areas of networks, content and services, and user enablement from all seven perspectives, and found 26 'tensions' working between and across them. These tensions included:

- satisfying demand vs the cost of building a network
- net neutrality vs control
- free content vs protecting rights
- availability and usability vs security
- privacy vs targeted advertising.

People / Content and Services / Networks

In consultation with industry, we broke down the challenge to design specific initiatives, including a £2m investment in network services demonstrators and the £18m 'Collaboration across digital industries' competition, which aim to get the different parts of the industry talking to each other and working together on the tensions at the intersection of the challenge areas.
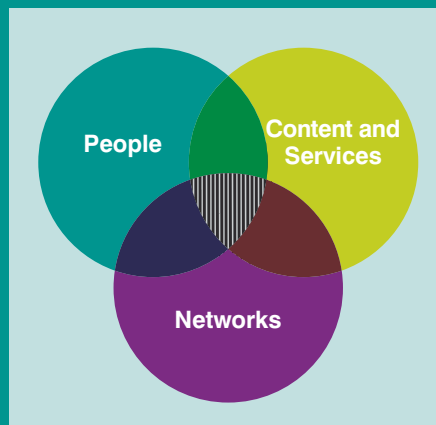
collaborative R&D and trial new developments: fast-track and longer term projects. We also aimed to attract collaborative projects that participated in the feasibility studies and found partners through the Collaboration nation event.

Network services demonstrators

There are barriers between the network and content/applications business communities that may prevent new business models and revenue streams from forming. In May 2010 we launched a £2m competition for projects to establish a small number of network services demonstrators. These will aim to become national hotspots for trials and innovation in business models and to develop applications and services for the internet, centred on advanced network capabilities and services.

Smart meters

In May 2010 we launched a £4.5m competition for R&D and demonstrator projects – 'Integrating smart meters into systems for smart homes'. Projects will develop and trial new business propositions to address the digital challenge of integrating smart meters with communications within the home in a way which will have an impact on the demand for and use of energy.

Trusted services

In May 2010 we launched an £8m 'Trusted services' competition to increase understanding and subsequently improve management of trusted and trustworthy digital systems, and to support the formation or expansion of existing identity business services and the acceleration of their deployment to market. This should stimulate the development of trustworthy tools, technologies and methodologies in both the public and private sector markets for use within the digital economy.

Digital testbed

To meet the challenge of testing digital ideas in a timely, realistic and cost-effective way, we have set up IC tomorrow, a testbed environment open to all businesses free-of-charge and with a growing community of test users at www.ictomorrow.co.uk (see case study, right).

Case study: IC tomorrow

Trialling digital propositions in a timely, realistic and cost effective situation is a known persistent challenge, particularly for SMEs. In June 2009 we announced that we would set up a testbed where the digital business community could build confidence in customer reaction to their new products, services and business models. Subsequently we consulted with industry to understand common requirements and whether and how these could be provided. There was strong evidence of a common need for simpler content licensing, connecting the digital value chain, trial management, a shared population of test users, and the ability to interact more openly and flexibly with networks. In response, we defined and commissioned the development of a free-to-use, shared test environment, called IC tomorrow.

Find out more about how your business can benefit from using the digital testbed at www.ictomorrow.co.uk.

Registration site – homepage

Other ways we can tackle the challenges

As previously mentioned, we have already set up several initiatives to address systemic digital challenges, including competitions for different types of R&D funding, networking events and setting up the digital testbed IC tomorrow.

We have other ways to support businesses in the digital arena, which we will call on as and when the specific digital challenge requires them. These can be used to help innovative companies, large and small, working from early stage ideas all the way to the demonstration of prototypes:

Knowledge Transfer Networks

These networks allow industry to gather and share knowledge and best practice around important challenges. They also broker collaboration between companies and/or academics both within the digital sector and increasingly – and more importantly – in the application areas of digital technologies. Our web-based platform for the networks **_connect** allows businesses to innovate openly, collaborate confidentially, find potential partners and blog, publish and discuss the important challenges. **ktn.innovateuk.org**

Knowledge Transfer Partnerships

These are a tried and tested method of enabling companies to obtain knowledge, technology or skills which they consider to be of strategic competitive importance, see **www.ktponline.org.uk** for more information.

Joint initiatives

We will also work closely with the research councils and local government, as well as various departments of government and organisations which have an interest and influence on the digital agenda.

SBRI

We may use government-driven research contracts under the SBRI scheme.

European programmes

We will actively seek out opportunities for UK businesses to take advantage of European programmes.

How digital challenges relate to other activities at the Technology Strategy Board

The Technology Strategy Board invests in digital innovation downstream via sector-specific challenges, and upstream in a technology inspired way, to maximise relevance and impact.

Downstream, we will engage with our creative industries, transport, energy, high value services, assisted living programmes and others where relevant, to help us understand their sector challenges and to help them address these challenges with innovative digital technology solutions.

Upstream we will work closely with our ICT, electronics, photonics and electrical systems, high value manufacturing programmes and others, to share technology-specific challenges and identify gaps that may emerge when we examine systemic digital challenges from our seven perspectives, while at the same time working to understand which emerging digital technologies have the potential to systemically affect businesses.
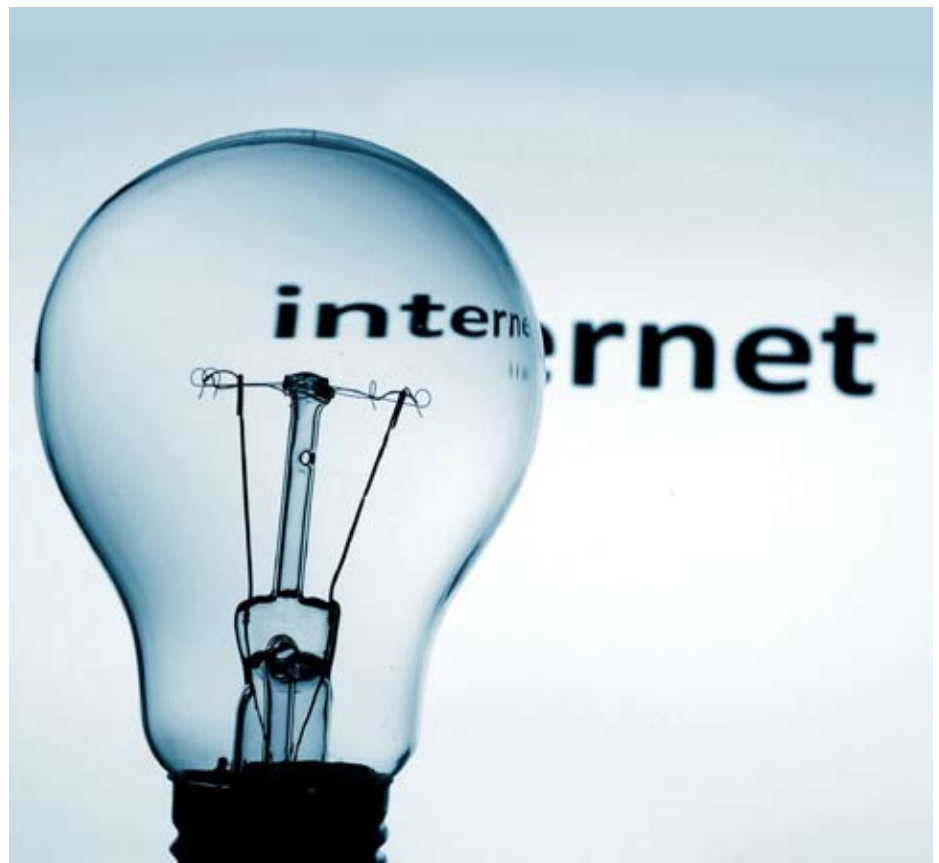
How to get involved

To get involved in our Digital activities, you should first join our knowledge transfer networks – see **ktn.innovateuk.org** for more information.

Over the coming months, with the support of the knowledge transfer networks and partner organisations, we will be running consultations and workshops with industry, academia and public sector stakeholders to debate and articulate the most relevant innovation challenges for Digital.

Find out more about IC tomorrow at www.ictomorrow.co.uk

You can also sign up for alerts on Technology Strategy Board initiatives and upcoming competitions for funding at **www.innovateuk.org**.

Background information

Our Strategy for Digital Britain is available at **www.innovateuk.org** under Publications.

enquiries@tsb.gov.uk

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

The Technology Strategy Board
North Star House
North Star Avenue
Swindon
SN2 1UE

Telephone: 01793 442700

www.innovateuk.org