



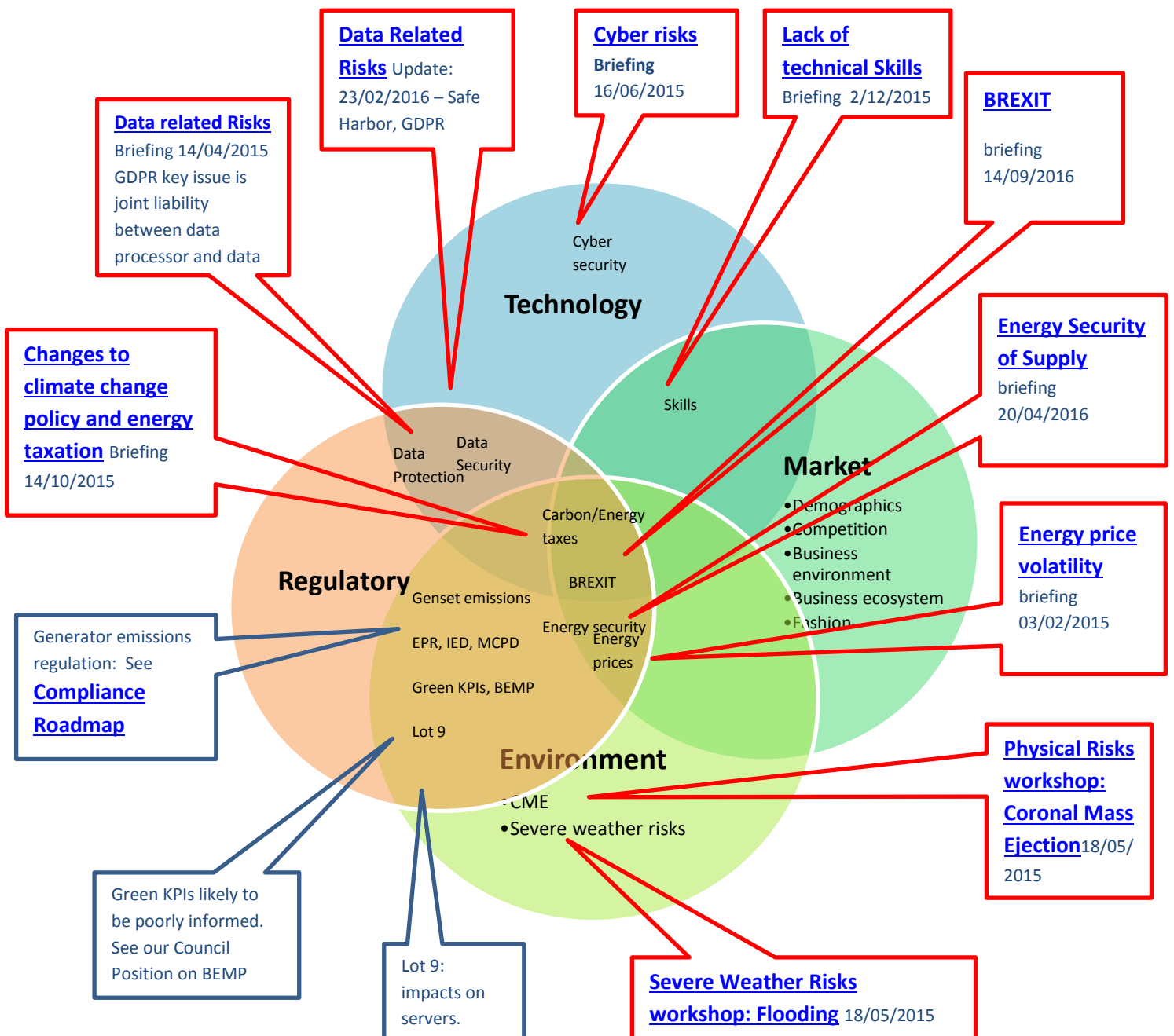
Our RISK RADAR is a series of briefing sessions to alert data centre operators and cloud service providers to emerging business risks. Each session explores a particular area of risk identified by members, with the help of a subject-matter expert or experts. The objective is not to provide legal advice and detailed guidance but to identify things that operators should perhaps be thinking about and signpost them to sources of information. In some cases (for instance, specialist areas relevant only to a small cohort of member) we did not run a risk radar session but instead provided round table workshops or industry briefings. The map below sets out the way we have categorised risk and the sessions held. More detailed descriptions are given in the following pages. The risk radar series was kindly sponsored by Future-Tech.



Mapping our Risk Landscape

Key:

-  Risk Radar held – follow link to information:
-  No risk radar briefing but guidance available



How did we categorise the risk landscape?

Risks can be divided two ways:

1. Firstly by demand and supply side
 - **Supply side** issues are relatively consistent between operators and include energy costs, environment, regulation etc.
 - **Demand side** factors vary by business model (colocation, MSP, enterprise DC, etc) with less commonality of relevance. Demand side factors include things like demographic, fashion, technological development and disruptive factors.
2. Secondly by risk type, where we feel they fall into four main categories:
 - **Regulatory:** risks from burdensome, inappropriate or unilateral regulation (that for instance damage competitiveness)
 - **Technological:** developments in technology that change the way we do things and could render current approaches redundant
 - **Environmental:** external impacts from changes in flood risk or weather patterns or other Acts of God
 - **Market Forces:** changes in demand patterns due to changes in demographic, leisure patterns, fashion or customer business processes

We chose the second approach for our map (above). There is obviously a significant overlap between risk areas and this is reflected. The map is not intended to be comprehensive. It just indicates the issues that we have identified and addressed to date.

Risk Radar Briefings: Detailed overview

In total we have run nine Risk Radar Briefings: seven formal sessions and two sets of workshops. These cover the following areas and a summary of content is provided under each. Use the link to access relevant meeting papers and presentations. In addition we have produced guidance on the compliance landscape relating to generator emissions because this is an area where misunderstanding the complex and contradictory legislative requirements can result in reputational risk for businesses.

3rd February 2015: Energy price volatility
14th April 2015: Data related Risks
2nd June 2015: Physical Risks workshop: Flooding and Coronal Mass Ejection
16th June 2015: Cyber risks
14th October 2015: Changes to climate change policy and energy taxation
2nd December 2015: Lack of technical Skills
23rd February 2016: Data Related Risks
20th April 2016: Energy Security of Supply
14th September 2016, BREXIT SWOT for data centres and cloud
Compliance risks: 29th Jan, 7th April, 6th May

3rd February 2015: [Energy price volatility](#)

Content: The growth in consumer demand for data is driving up volumes of network traffic. The expansion of these networks and the necessary supporting infrastructure is putting upward pressure on energy consumption, compounding the well-publicised variations in wholesale energy costs and non-commodity charges. The challenge for data centre managers today is to control the overall cost of energy whilst continuing to increase network capacity and improve systems' reliability. Often energy is deeply ingrained in the operator's business model, heavily influencing the strategy taken.

Speakers: Dylan Crompton, Head of Telecommunications & IT Sectors, British Gas Business

Question & Answer moderated by Gavin McCormick, EnergyQuote

Presentation slides: [here](#)

Associated documents: [Agenda](#), [Meeting notes](#), [Energy Quote 7 year forecast](#)

14th April 2015: [Data related Risks](#)

Content: This session set out the main requirements of the GDPR and explored the implications for data centre operators and cloud services providers. It also looked at the implications of the CJEU's ruling on Safe Harbour for UK and European data centre operators and for the longer term evolution of data centre markets.

GDPR

General Data Protection Regulation New European rules on data protection have just been agreed after four years of wrangling. The changes mark the biggest upheaval in 20 years and have major implications for data centre operators and cloud service providers. The new rules make data controllers and processors jointly liable for any breach of the Regulation which will extend responsibility beyond the companies that collect and use personal data. At the same time the definition of data processor has been broadened. Data driven businesses of all sizes will face more bureaucracy, more legal uncertainty and more risk.

Safe Harbour Agreement

The free flow of data is the foundation of the global digital economy. International data transfers underpin services right across the economy from small farmers receiving tailored weather reports to companies sharing data to protect consumers from cyber-attacks and fraud. It is thought that the majority of global trade in services now depends on access to cross-border data flows. In October 2015 the Court of Justice of the European Union (CJEU) ruled that the EU-US Safe Harbour Agreement, which allowed the free movement of data between the two regions) was invalid due to the inadequate level of protection against surveillance by the public authorities of data transferred to the US. This has huge implications for companies transferring data in and out of the US. An immediate replacement looks increasingly unlikely and this could have long term implications on the evolution of the EU data centre market with potential for the development of Regional Cloud.

Speakers:

Mark Bailey, Partner, Charles Russell Speechlys LLP

Janine Regan, Associate, Charles Russell Speechlys LLP

Presentation slides: [here](#)

Associated documents: [Agenda](#)

2nd June 2015: [Physical Risks workshop: Flooding and Coronal Mass Ejection](#)

Content: This meeting was held for techUK's Data Centres Group in order to inform those within the sector about the potential physical risks which may affect data centres, primarily climate related incidents such as flooding, and the impact of space weather on power supply to data centres. The key points are highlighted briefly, and the full meeting notes are available to download below.

Main risks: Currently, the main physical risks to data centres come from flooding resulting from heavy rainfall, rising sea levels and storms, disruption of infrastructure due to the impacts of space weather, which in turn may affect areas linked to data centres – for instance, power systems.

The most affected area by space weather is power grids, which in turn may affect a whole range of other sectors. Like with military threats, space weather is not insured by insurers.

Flood risk assessment: If you are at risk of flooding you can access EA information to help better prepare yourself or your business. EA also consult on planning development, and the Association of British Insurers use EA information, however, they cannot offer bespoke services to an individual or company.

The EA can state if a property is at risk but can't provide property specific information regarding how a flood may affect one particular building.

Warning services: Main flood risk product the EA offers is a map showing the risk of flooding from rivers and sea. This includes the effect of defences, where known. If a site has set up its own third party flood defences, please make the EA aware of this so they can update their data and include these defences in flood risk maps

It may be worthwhile to reassess your site and its flood risk annually, perhaps coinciding this with annual insurance updates.

EA Climate Ready Support Service – helps organisations and businesses understand impacts of climate change.

In terms of space weather, the National Grid are confident they can mitigate effects to large transformers, however there is uncertainty regarding the effect on small transformers. It is necessary to mitigate increased voltage and current to as many transformers as possible during a space weather event.

Conclusions: Climate change awareness and risk assessment must be embedded into organisational processes and climate risks must be managed through supply chains.

Greater understanding of the science behind space weather more and therefore improve early warning systems for maximum warning time.

Speakers:

- Hayley Bowman, Environment Agency (Flood risk)
- Kay Johnstone, Environment Agency (Climate Ready Programme)
- Dr Markos Trichas, Airbus Defence and Space (CME and space weather)

Presentation slides: [here](#)

Associated documents:

16th June 2015: [Cyber risks](#)

Content: This briefing covered cyber security concerns for data centre and cloud service providers. The content included:

- What is cyber security in the data centre environment?
- Where are the main risks in the data centre environment?
- Which vulnerabilities have been exposed by recent events?
- Who is responsible for cyber security?
- Due diligence, existing standards and insurance

Speakers:

- Mark Bailey, Partner, CharlesRussellSpeechlys
- Simon Smith, QRadar Technical Specialist, IBM
- Steve Southern, Director, Amethyst Risk Management

Presentation slides:

Associated documents: [Agenda](#), [IBM X force reports](#)

15th September 2015: [Changes to climate change policy and energy taxation](#)

Content: Following the summer budget 2015, the climate change levy (CCL) exemption for "green" power will be withdrawn. There will also be a wider review of the UK carbon tax regime in the autumn. We have also seen a number of other policy changes, both at EU and UK level, some of which may impact the sector. In addition, a report on the effectiveness of the CRC has just been published. The climate change and environment policy landscape is again looking rather volatile and changes look likely to be implemented much more quickly than most observers anticipated. With this in mind, we have arranged a briefing session to bring members up to date with the most recent policy developments on energy and climate change, both at UK and EU level and explore their implications for the sector. Richard Folland of Inline, a recognised policy expert, has kindly agreed to lead the session. This will be followed by a discussion to identify priorities and agree direction of travel in preparation for the consultation later this year.

Speakers:

- Julie Gartside, Director SLR consulting
- Richard Folland, Director, InlinePolicy

Presentation slides: [here](#)

Associated documents:

2nd December 2015: [Lack of technical Skills](#)

Content: We hear frequently that the technology sector is rapidly running out of people with relevant technical skills; that in 20 years 80% of our data centre engineers will be retired and that 80% of the technical data centre jobs that will need to be filled by then do not yet exist. Whilst 80% seems a suspiciously convenient figure to use, it is abundantly clear that there is an acute shortage of technical staff within the industry and that the problem looks likely to get worse rather than better. This session will provide an overview of the current situation, an analysis of how things may play out over the next decade and some thoughts on the implications for operators. We will also look at some of the initiatives undertaken by the industry to tackle this problem, and explore the role of government programmes aimed at increasing the number of appropriately skilled individuals entering the industry and improving the level of technical and other STEM skills available in the market. We also make reference to techUK's big picture skills report: [We're just not doing enough](#) published in July 2015.

Speakers:

- Nicola Hayes, Managing Director, Andrasta Consulting
- Mark Acton, Critical Facilities Director, CBRENorland

Moderated discussion:

- Sue Marotta, HR Director EMEA, Digital Realty
- Peter Hannaford, founder, DataCenterPeople
- Catherine Adam, Director, Chemistry Group

Presentation slides: [here](#)

Associated documents: [Agenda](#)

23rd February 2016: [Data Related Risks](#)

Content: The briefing included:

- Overview of General Data Protection Regulation (GDPR) developments
- Implications for data centre operators and cloud providers
- Current status of Safe Harbor / EU-US Privacy Shield
- Other lurking issues

Speakers:

- Mark Bailey, Partner, Charles Russell Speechlys
- Sue Daley, Head of Programme, Big Data, Cloud and Mobile, techUK
- Shane Murphy, Policy Manager, techUK

Introduction and welcome: Andrew Jay, Executive Director, CBRE

Presentation slides: [here](#)

Associated documents: [Agenda](#), [Short overview of GDPR](#)

20th April 2016: [Energy Security of Supply](#)

Content: In January 2016 the World Energy Council downgraded the UK's energy supply rating from AAA to AAB under its annual "trilemma" index. This index grades countries on their ability to offer secure, affordable and sustainable energy supplies. The UK's power grid is in fact one of the most reliable in the world but observers say that the gap between old generating capacity being retired and new capacity coming online will present some very significant challenges in future.

As a sector that relies heavily on electricity we urgently need to clarify the implications of this announcement, in particular whether it might eventually compromise the ability of data centre operators and other digital service providers to guarantee power supply to their facilities. Our members already report that their customers are asking for greater clarity on power provision in the medium term.

This anxiety has been fuelled by stark predictions from some observers; while we do not anticipate that we will all have to live in caves and eat bugs, we do need to separate the facts from the scaremongering.

This free session explored:

- The implications of downgrading the UK's energy supply *from AAA to AAB*
- *An overview of the constraints on our generating capacity over the next decade or two*
- *How these constraints are being managed at policy and infrastructure levels*
- *What actions large consumers can take to mitigate the risks*

Speakers:

- Robert Sanford, Energy Security Policy, Department for Energy and Climate Change
- Stuart Donnelly, Energy Sustainability Services, Schneider-Electric

Presentation slides: [here](#)

Associated documents: [Agenda](#), [Meeting notes](#)

14th September 2016, [BREXIT SWOT for data centres and cloud](#)

Context: At a time when the future may be somewhat uncertain, what remains absolutely clear is the fundamental importance of the data centre and cloud computing industry to the UK's future digital development. The next wave of our digital revolution is being powered by the internet of things (IoT), advanced mobile applications, big data analytics and artificial intelligence (AI). But it is data centre and cloud computing technologies that underpins all of these developments by providing the capability to store, process and manage the vast volumes of real-time data being created through digital innovation. The future therefore looks bright for the data centre and cloud markets. But how do we ensure the UK maintains its world leading supply-side expertise and world beating demand-side exploitation of cloud and data centre technologies. What are the key opportunities for market development and what are the potential challenges ahead that need to address to ensure this happens.

This session provided an overview of the health of the UK's cloud and data centre markets including an analysis of the strengths, weaknesses, threats and opportunities for future market development including the possible impact of Brexit. The session outlined the implications for cloud providers and data centre operators of the opportunities and threats of a post Brexit world and the action needed by industry and Government to ensure the UK remains an attractive place for data centre operators and their customers to locate and grow their

businesses and we keep the UK at the forefront of cloud adoption. The input gathered at this session will not only contribute to techUK's Brexit activities but will also be used to develop techUK's Cloud and Data Centre work programmes market development activities in 2017.

Chaired by: Sue Daley, Head of Cloud and Big Data, techUK

Speakers:

- Market Analyst Overview: Where is the market and where are we going? Mitul Patel | Associate Director, CBRE Ltd | Data Centre Solutions
- Data Centre Industry View and SWOT Analysis – Emma Fryer | Associate Director, techUK
- Cloud Provider View and SWOT Analysis – Dave White | Technical Presales Manager, Veritas
- Sam Woodcock | Principal Solutions Architect, Iland (panellist)

[Presentation slides and agenda.](#)

NB: There are no meeting notes from this session but the contents have helped to inform our thought leadership paper "Brexit: Implications for the UK data centre sector"

Compliance Risks: Generator Emissions Regulation Workshops

techUK is currently running a busy programme relating to compliance requirements for emergency standby generators. We are working with the EA to help clarify the landscape for data centre operators. Our work in this area is threefold:

- We resist legislation that is burdensome for members and adds no benefit – so we are working with DECC to improve EU ETS Phase IV.
- Where we cannot change legislation we mitigate the burden by negotiating streamlined compliance processes where possible. We have worked with the EA to simplify the way we account for generator fuel consumption for ETS and CCA, for instance.
- We inform the industry about developments relevant to them.

We held a [workshop on 29th January](#) with the EA to identify a streamlined approach to accounting for generator emissions. This has now been defined.

We held a [workshop with DECC](#) on 7th April to proposed changes to the next phase of EU ETS.

We held a [technical workshop with the EA](#) on 6th May to address the two way disconnect between industry and the regulator regarding emergency standby for data centres. The sector is rapidly coming to terms with the complexity of the regulatory requirements and the Environment Agency is working hard to understand the unique characteristics of the sector and the way we use our generating plant. There is scope to identify approaches that can reduce cost and other burdens for operators.

Associated documents:

- [Compliance Roadmap \(Cones of Pain\)](#)
- [IED IN or OUT \(DRAFT\)](#)
- [EU ETS Briefing notes](#)
- [Council position paper on EU ETS](#)

Available on request:

- Meeting notes from 29th January
- Meeting notes from 7th April
- Guidance note on measuring Generator emissions
- Ready reckoner spreadsheet: accounting for fuel use (DRAFT)

Please contact emma.fryer@techuk.org or lucas.banach@techuk.org

For further information please contact: emma.fryer@techuk.org or Lucas.banach@techuk.org