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Managing and exploiting Big Data in the Aviation Sector
Legal Implications and Challenges

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Agenda

- Introduction: The 'Big Data' Phenomenon
- Legal Implications and Challenges:
  - Data 'ownership'
  - Data security
  - Anti-trust concerns
  - Implications for sourcing of technology

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The 'Big Data' Phenomenon

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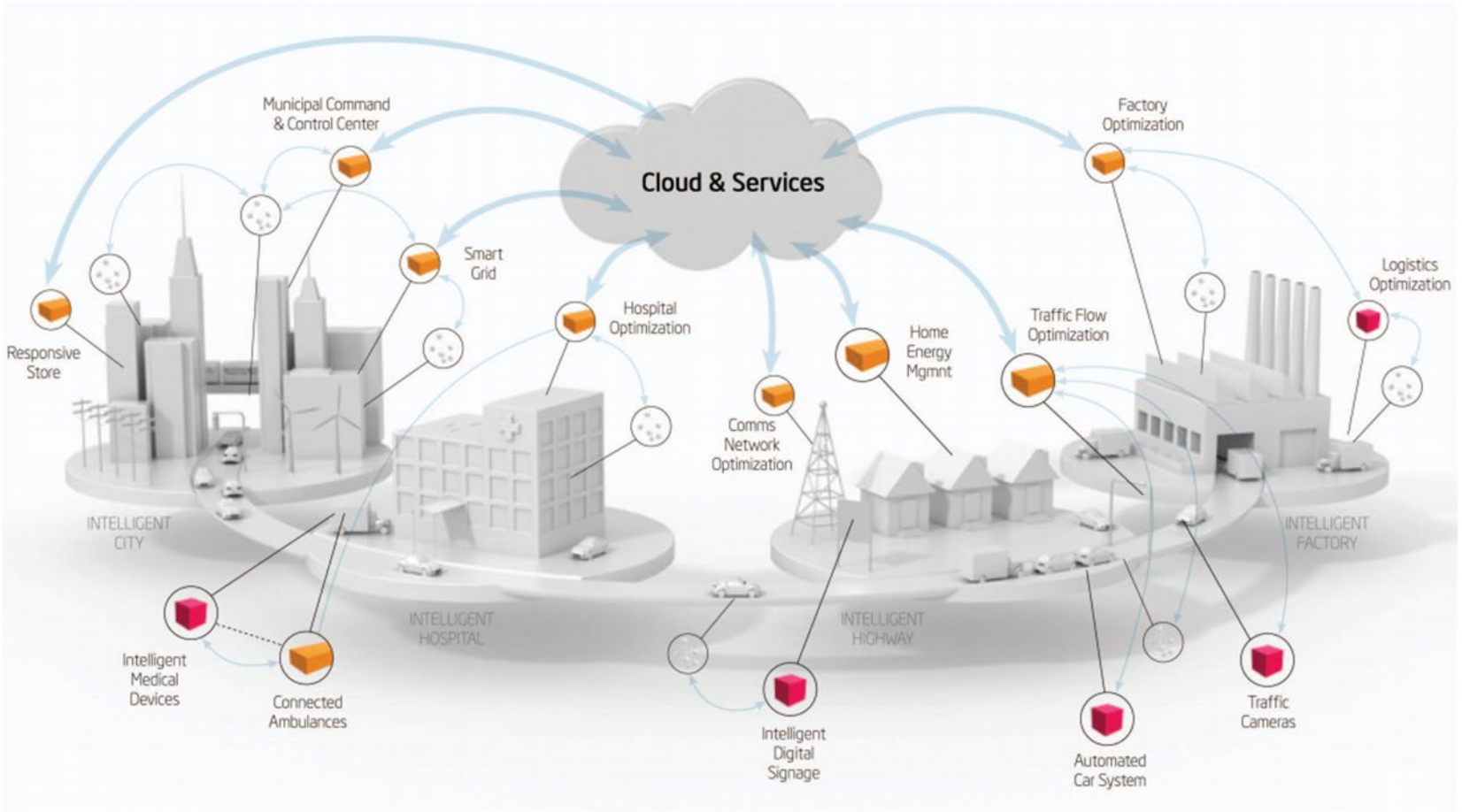
Big data: a definition

"information of extreme size, diversity and complexity" (Gartner)



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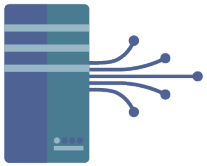
Scale and speed of change: the sheer volume of digital data being created in the modern world is staggering...

- It is estimated we are creating 2.5 quintillion bytes of data every day
- But that pace is accelerating with the growth of the internet of things
- Cisco estimate that 99% of "things" are not yet connected - by 2020 there will be 50 billion connected devices
- 90% of world's data collected in the last two years (IBM)



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Data created every minute during 2017:

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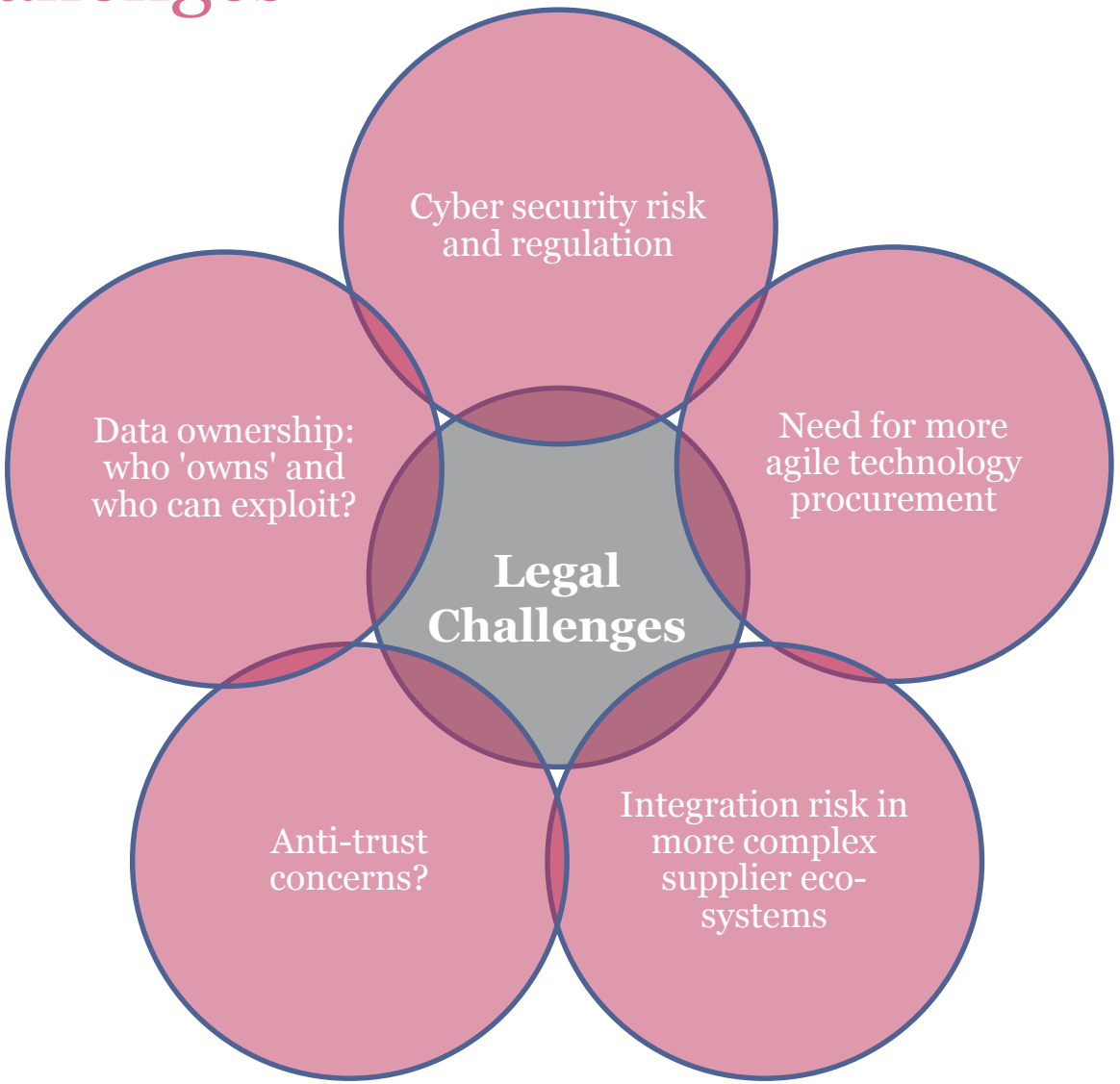
Legal Challenges



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Data 'Ownership'

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Who owns the data?

"Our data", "my data", "your data", "their data"?

- As a matter of English law, information or data is not treated as a form of property that can be 'owned'. Unlike a physical object, it can be copied – and thereby shared with someone else and retained by you at the same time.

- Many of the traditional legal ways of protecting information do not fit well with modern digital data (much of which is unstructured)

- This is creating real world issues and (some argue) inhibiting the growth of digital economy

"No, it's MY data!"

NB a separate regime applies to 'personal data'

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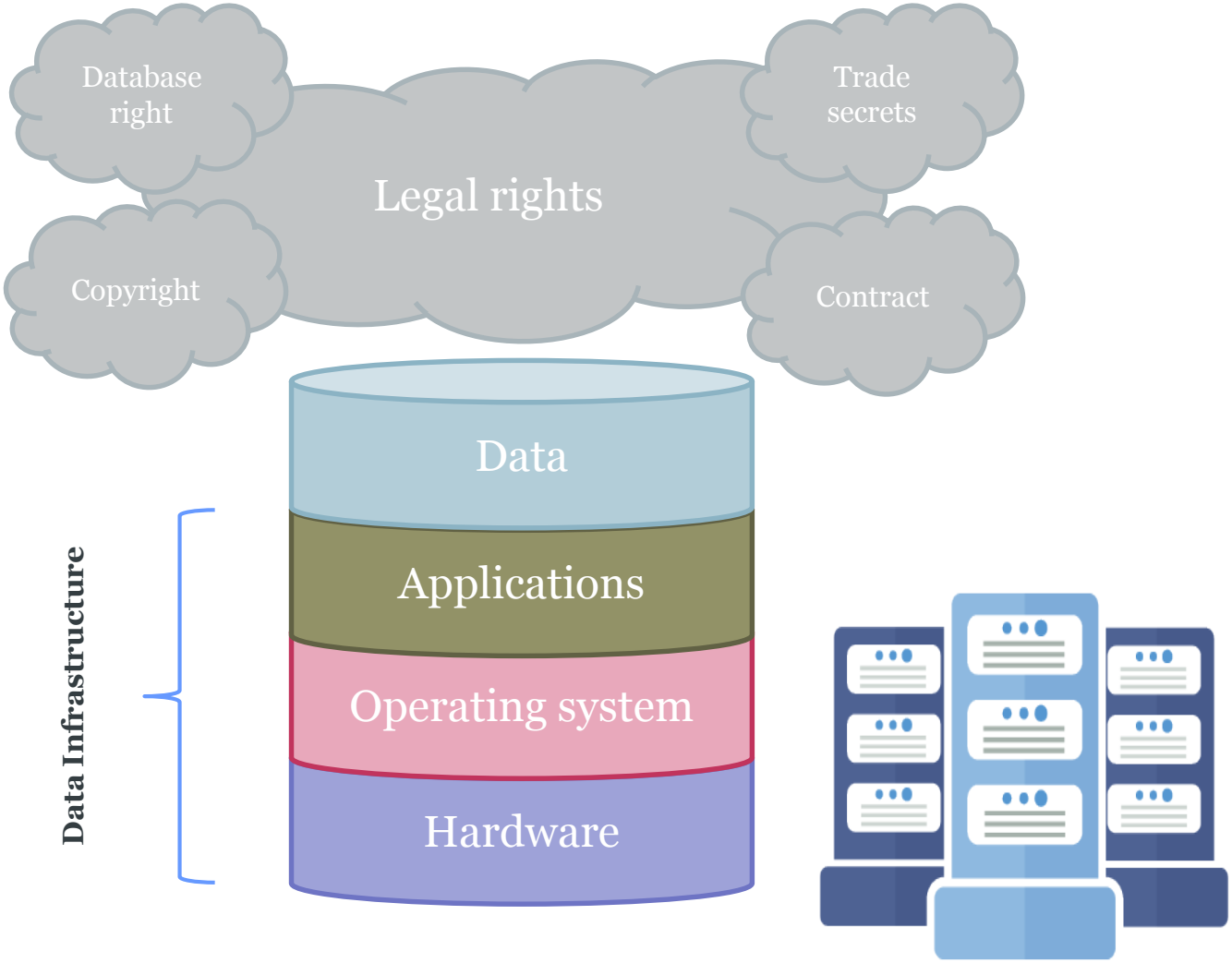
Physical, Digital and Legal elements



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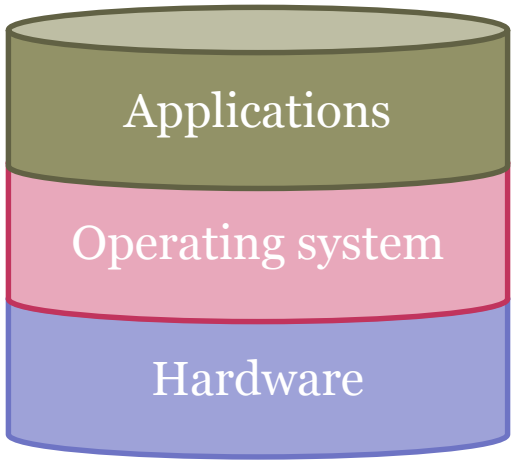
Data Infrastructure

English Law

- **Data storage and processing hardware**: tangible personal property, can be owned and is subject to civil and criminal law protection:
  - Torts (Interference with Goods) Act 1977;
  - Theft Act 1968, Criminal Damage Act 1971;
- **Operating systems and application software**:
  - Software is an intangible asset; not currently considered "goods" (*Computer Associates v Software Incubator*, EWCA, 2018).
  - But software programs are 'literary works' protected by copyright;
  - Copyright in software can be owned and licensed



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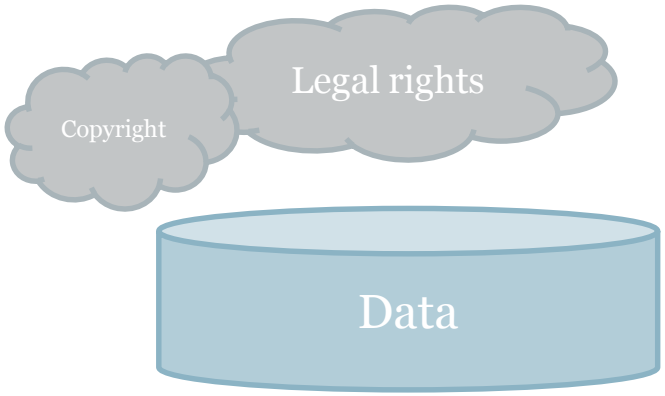
Data itself - legal rights?

Copyright



Applies to:

- Original literary, dramatic, musical or artistic works (including computer programs).
- Original selections or arrangements of the contents of a database.

Confers:

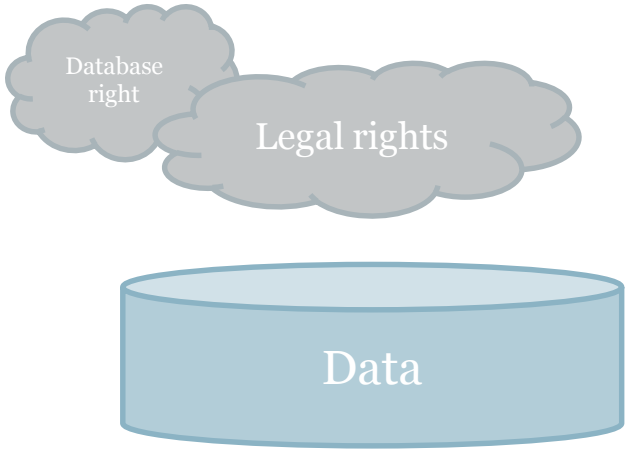
- Primary protection against copying, issuing copies to the public, communicating the work to the public, creating an adaptation of the work.
- Secondary protection against dealing with infringing copies.

BUT…

- Most operational data will not be sufficiently original to qualify for copyright protection.
- Additional problems in identifying an author – e.g. machine generated data and AI

Data itself - legal rights?

Database right



Applies to:

- Databases which have been subject to substantial investment in obtaining, verifying or presenting their contents.

Confers:

- Protection against extraction or re-utilisation of all or a **substantial part** of the contents of the database.
- Protection against repeated and systematic extraction and/or re-utilization of **insubstantial parts** of the database.

BUT...

- Quite a high bar.
- Protects way in which data is assembled not original creation of data.
- Is person creating database necessarily the 'owner' of the data?

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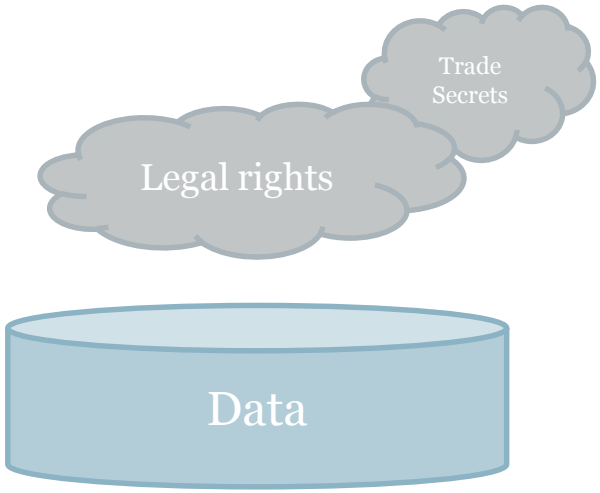
Data itself - legal rights?

Trade Secrets



Applies to:

- Information which:
  a) is secret (it is not, as a body or in the precise configuration and assembly of its components, generally known or readily accessible);
  b) has commercial value because it is secret; and
  c) has been subject to reasonable steps to keep it secret.

Confers:

- Protection against the unlawful acquisition, use or disclosure of the trade secret.

BUT...

- How often will operational data have this level of sensitivity, particularly in its unstructured format?

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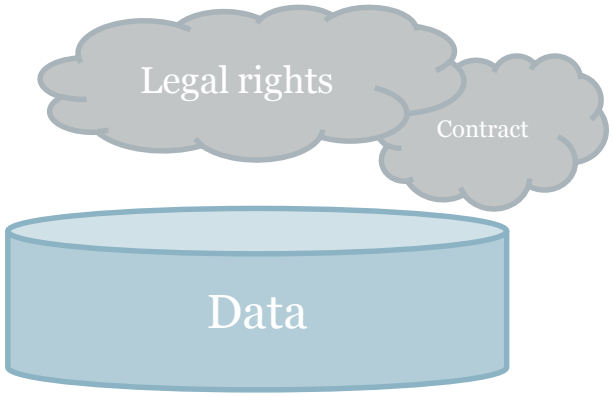
Data itself - legal rights?

Contract (English law)



- Contract can restrict the use and dissemination of data.
  - Even where no IPR in the data (*Attheraces Ltd v British Horse Racing Board (2005)*)
- Possible legal forms: (i) IPR licence; (ii) NDA; (iii) "data licence".

BUT...

- Enforceable only against the counterparty(s) to the contract
- How often do aviation industry contracts (e.g. OEM hourly usage agreements or MRO general terms) deal clearly with management, control and rights to exploit data generated by a modern aircraft?

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Alternative approaches: 'Open Data' and Collaborative Models

- **Open / non-proprietary data**
  - *Data anyone can access, use or share…*
  - EU Public Sector Information Directive 2013: encourages EU states to make as much public sector information available for re-use as possible
- **Open data in the airline industry…**
  - Weather information: NextGen Weather (US)
  - Air Traffic Control: US Next Generation Air Transportation System and Single European Sky ATM research (SESAR)
- **Data pooling models**
  - More collaborative commercial models beginning to be considered where different parties pool their data in common formats on common platforms
  - Allows better analytics for common benefit.

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Aviation industry data analytics platforms

- Aircraft and engine OEMs collecting and pooling data on platforms and in common formats to enable better and more sophisticated analytics to be run on that data
  - Airbus/Palantir: Skywise
  - Boeing: Analytx
  - Lufthansa Technik (LHT): Aviator
  - Rolls Royce: R2 Data Labs
- How open are these platforms? Tensions between MROs, airlines and OEMs
  - for the benefit of industry as a whole or a bid to dominate after market?
  - who 'owns' the data, who has right to exploit?
  - confidentiality issues

Data Security

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Data Security

- Growth of IOT and increasing interconnectedness of things inevitably heightens cyber security risk
- Data (both operational and passenger-related) is increasingly a core asset for aviation industry players
- Loss of data has both a reputational and a financial impact
- Legal risk:
  - Apportioning liability for data loss
  - Regulatory compliance

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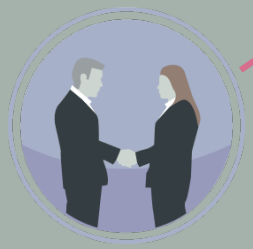
Apportioning liability for data loss

- Who is responsible for data loss / inaccuracy?
- Root cause analysis becomes more complex: is problem caused by the hardware / asset, environmental conditions, embedded software or sensor defect, communications network, database hosting environment on the ground, analytics tools?
- Supply chain contracts need to cater for data loss / inaccuracy:
  - who is liable and for what kinds of loss?
  - separate caps on liability for data-related issues?
- Principles and practices from technology contracting becoming increasingly relevant in manufacturing, MRO and other aviation industry contexts.

Regulation: the NIS Directive

- In effect from May 2018 and applies to airlines and airports as operators of 'essential services'
- Will be unaffected by Brexit
- Obligation to take appropriate technical and organisational measures to protect against cyber risk
- Incident reporting obligations:
  - To industry 'competent authority' (Dept of Transport and CAA)
  - Within 72 hours of incident
- Responsibility to ensure supply chain has appropriate measures in place (through, for e.g. requirements to comply with mandated security requirements, KPIs, audit rights etc.). Guidance encourages a proportionate approach to be taken.
- Fines for breach: up to £17 million



Anti-trust concerns

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Anti-trust concerns

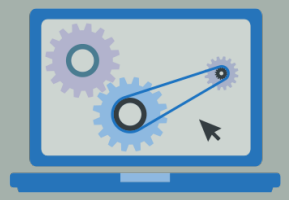
- Growing recognition of importance and competitive advantage that collection and accumulation of data can bring is putting data issues onto radar of competition authorities.

- At this stage no case law, but:
  - EU Commission has looked at data issues in context of merger control
  - German competition authorities have looked at whether GDPR breach by Facebook is also an abuse of a dominant position

- Where big data sets important to other players in industry, decision not to licence data may raise competition issues. Obligations to licence?

- Exclusive licences or territorial limitations?

Implications for the sourcing of technology



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Sourcing and implementation of Technology

- Significant shift away from traditional single-source, large scale outsourcing deals to more disaggregated supply chains:
  - in 2008 42% of largest global businesses outsourced their IT to a single provider, by 2018 this had dropped to 15% (ISG Group)

- Huge growth in cloud computing (both infrastructure and software as a service) has been a key factor.

- To access innovative digital technologies requires:
  - more agile, faster contracting cycles
  - greater engagement with SMEs and start-ups than has traditionally been the case

- Bigger industry players beginning to take more active role in incubating and/or accelerating start-ups (e.g. IAG, Qantas, JetBlue Technology Ventures)

- Managing integration risk and developing an 'intelligent customer' function become key challenges in this environment

Thank you & Bird & Bird

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