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Big Data and the Internet of Things

Protecting rights, controlling use and extracting value

"Now we stand facing a new industrial revolution: a digital one. With cloud computing its new engine, big data its new fuel. Transporting the amazing innovations of the internet, and the internet of things. Running on broadband rails: fast, reliable, pervasive."

(Neelie Kroes, European Commissioner for the Digital Agenda, The Data Gold Rush, March 2014)

What is Big Data?

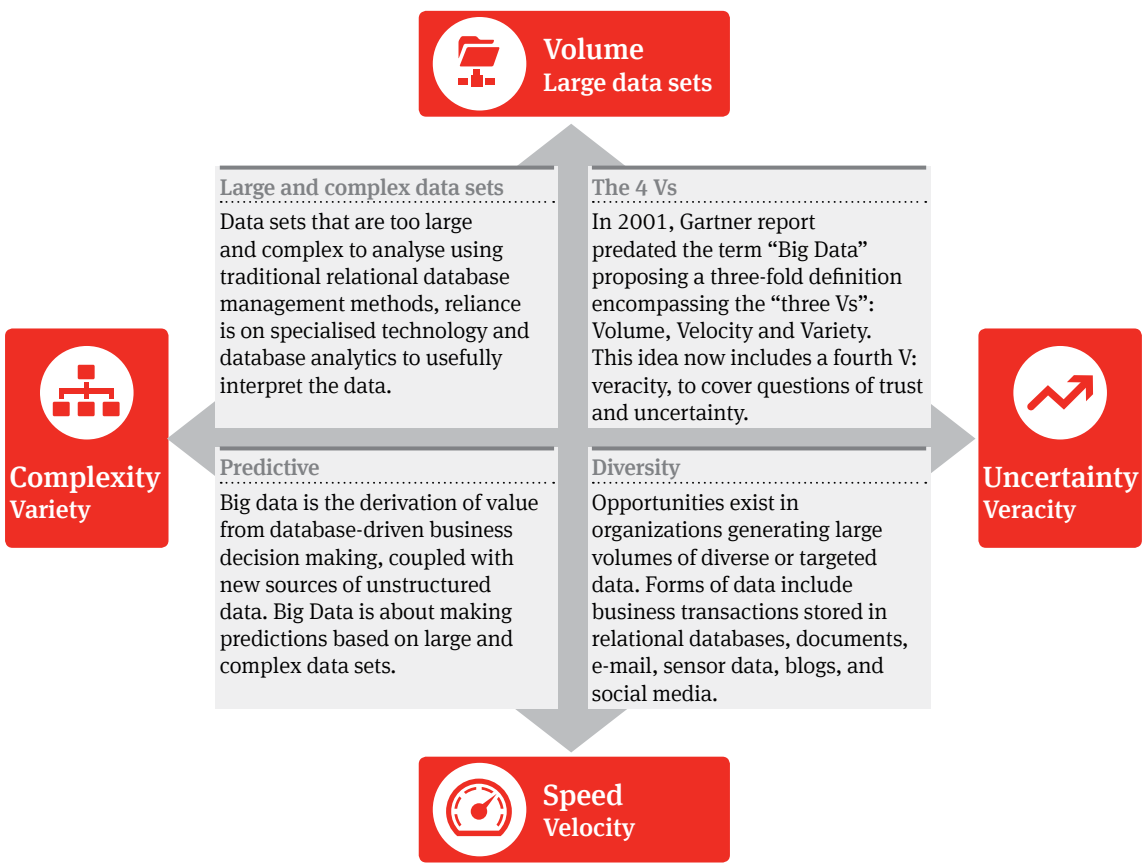
Big Data are 'large, diverse, complex, longitudinal, and/or distributed data sets generated from instruments, sensors, Internet transactions, email, video, click streams, and/or all other digital sources available today and in the future'

(National Scientific Foundation, Core Techniques and Technologies for Advanced Big Data Science and Engineering, Solicitation 12-499)

Big Data data sets are so big that they are beyond the capacity of traditional software tools to capture, manage and process within acceptable timeframes.

Big Data analytics identifies trends and enables predictions to be made based on an analysis of the data.

Sources of Big Data include combining data sets from publicly available sources (open data), privately generated sources (proprietary or licensed data sets) and information generated via the Internet of Things.



What is the internet of things?

The internet of things 'describes the ability of devices to communicate with each other using embedded sensors that are linked through wired and wireless networks.'

(Executive Office of the President, The White House, Big Data: Seizing Opportunities, Preserving Values, May 2014)

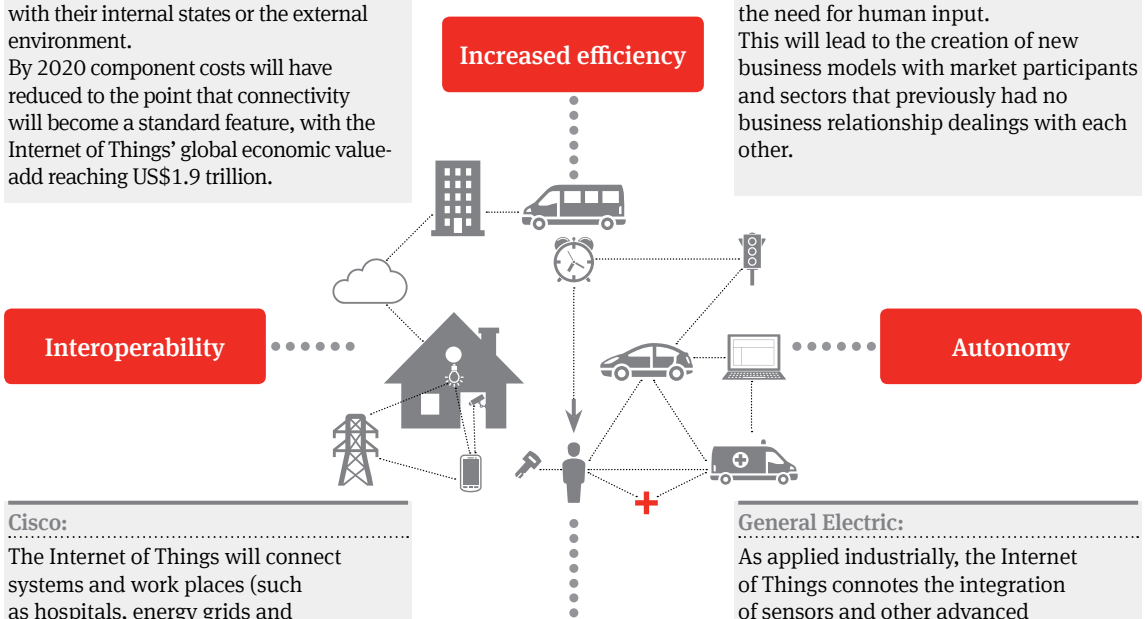
Such devices use the internet to transmit, compile and analyse data and include those with execution capabilities (for example, locks controlled over the internet) and (increasingly) ambient intelligence and autonomous control.

Gartner:

The network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment.
By 2020 component costs will have reduced to the point that connectivity will become a standard feature, with the Internet of Things' global economic value-add reaching US$1.9 trillion.

Bosch:

By 2015 there will be over 6 billion devices and systems capable of communicating with one another without the need for human input.
This will lead to the creation of new business models with market participants and sectors that previously had no business relationship dealings with each other.



Cisco:

The Internet of Things will connect systems and work places (such as hospitals, energy grids and manufacturing floors) to the Internet. This connectivity will allow objects to be controlled remotely from anywhere with more data, gathered from more places, enabling more ways of increasing efficiency and improving safety and security.

General Electric:

As applied industrially, the Internet of Things connotes the integration of sensors and other advanced instrumentation in an array of machines, from the simple to the highly complex. This will allow the collection and analysis of an enormous amount of data with the potential to improve machine performance and drive efficiencies.

Legal drivers

The legal and contractual environment within which Big Data analytics and the Internet of Things are developing will assist in promoting uptake.

Most regulators are taking a pragmatic view, generally preferring outcome-focussed regulation to an overly rules-based approach in an attempt to balance risk against the commercial imperatives of both national economies and businesses.

Increasingly facilitative legislative and contractual environment for Big Data and the Internet of Things

- Presumption in favour of outcome-focussed regulation rather than prescriptive prohibitions on data sharing (for example, increasing regulatory focus on privacy by design/default)
- Obama Administration's promotion of a Consumer Privacy Bill of Rights and a Blueprint for Consumer Privacy
- Development of technical and interoperability standards
- Existing contractual norms relating to data and security readily adaptable to contracting for Big Data and the Internet of Things
- Market acceptance of standard licensing model for open data (available for use/reuse/redistribution)
- Emergence of presumption of availability of public sector information (for example, Freedom of information legislation and EU Directive on the Re-use of Public Sector Information)
- Data portability under antitrust laws or pursuant to sector-specific consumer protection measures (for example, US Mydata and UK Midata initiatives)
- Legislative and state encouragement of commercial activity based on the digital economy (for example, the European Commission's Digital Agenda for Europe)

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