

Welcome to the webinar ‘Does your department or company use the valuable data it collects to plan for future needs and trends?’



Host:

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Presenter:

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Getting more strategic with data

Does your organisation use the valuable data it collects to plan for future needs and trends?

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Overview

- Who am I?
- What is data?
- What can be done with it?
- How do you use data more strategically?
- Questions

About Nick Pope

- Career

- Over 25 years in the IT industry
 - System design & build across a range of industries
 - utilities, retail, finance, insurance, healthcare, government, media, defence, manufacturing
 - Focus on reporting, business intelligence (BI), database design... all centred around data
- Last 10 years
 - Data migration projects
 - healthcare, finance, government

Some types of project...

- Staff planning system data model redesign
 - to handle many offices across many territories and time zones, many currencies, and different work patterns, etc
 - whilst also enabling the ability to report in many ways
- Tactical data warehouse & BI reporting
 - more than 10 systems spread across multiple countries
 - move from limited, late reporting to next day flexible reporting
- Complex data migration projects
 - focus on bespoke system to bespoke system
 - mapping of data items from source to target
 - de-duplication & merge of data (e.g. medical records)
 - data cleansing – working with business to correct and complete data, map historic codes, etc
 - archive non-essential data

What is data?

- Definition

Distinct pieces of information. It can exist stored on paper, in a person's mind, or in electronic memory

This presentation will focus on data stored electronically where it can be easily retrieved, presented and manipulated by computer systems

Data is techy stuff

- In the 1980s, the processing of data was very technical and user interfaces “unfriendly”
 - A couple of decades ago non-technical staff had limited access to the computer systems. Much of the access to the information was via paper reports
 - Introduction of MS Windows 3.1 in 1993 and the growth of the Internet accelerated change
- Today, more user-friendly tools and applications allow non-technical business people to access and manipulate data
 - Data is not techy. The processing of it may be

Poll 1

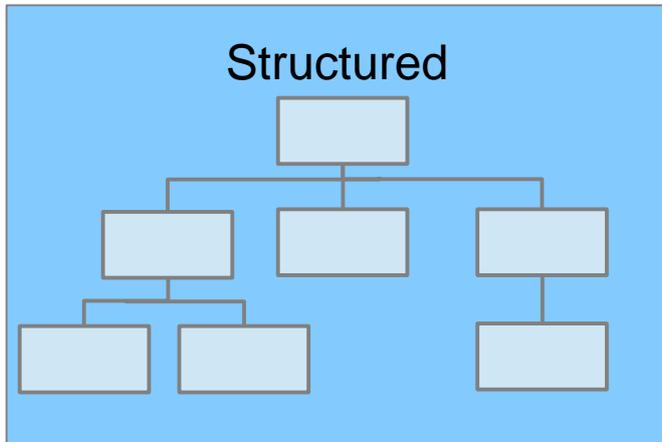
Who owns the data in your organisation?

- a) The Customers
- b) The IT Department
- c) The Organisation

Data Ownership

- The business owns the data
- The IT department provides and manages the platforms, systems and tools to capture, store and process the data
- The business has insights into the business and the customers, and needs to use data more effectively to gain more detailed insight
- Laws and restrictions on the processing and storing of data:
 - Data Protection Act 1998 in the UK

Structured & Unstructured Data



Structured data is organised into

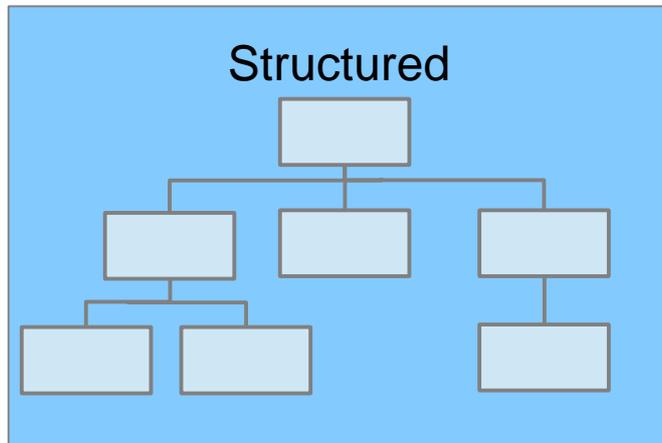
- fields,
- files, and
- a data model

A very formal organisation of data

Traditional structured data is usually stored in a relational database, e.g. Oracle, SQL Server.

Data is usually accessed using SQL (Structured Query Language)

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Unstructured data includes

- documents,
- images,
- video,
- audio,
- social media posts,
- websites,
- etc

Unstructured

documents, images, video, audio, social media posts, websites

Document

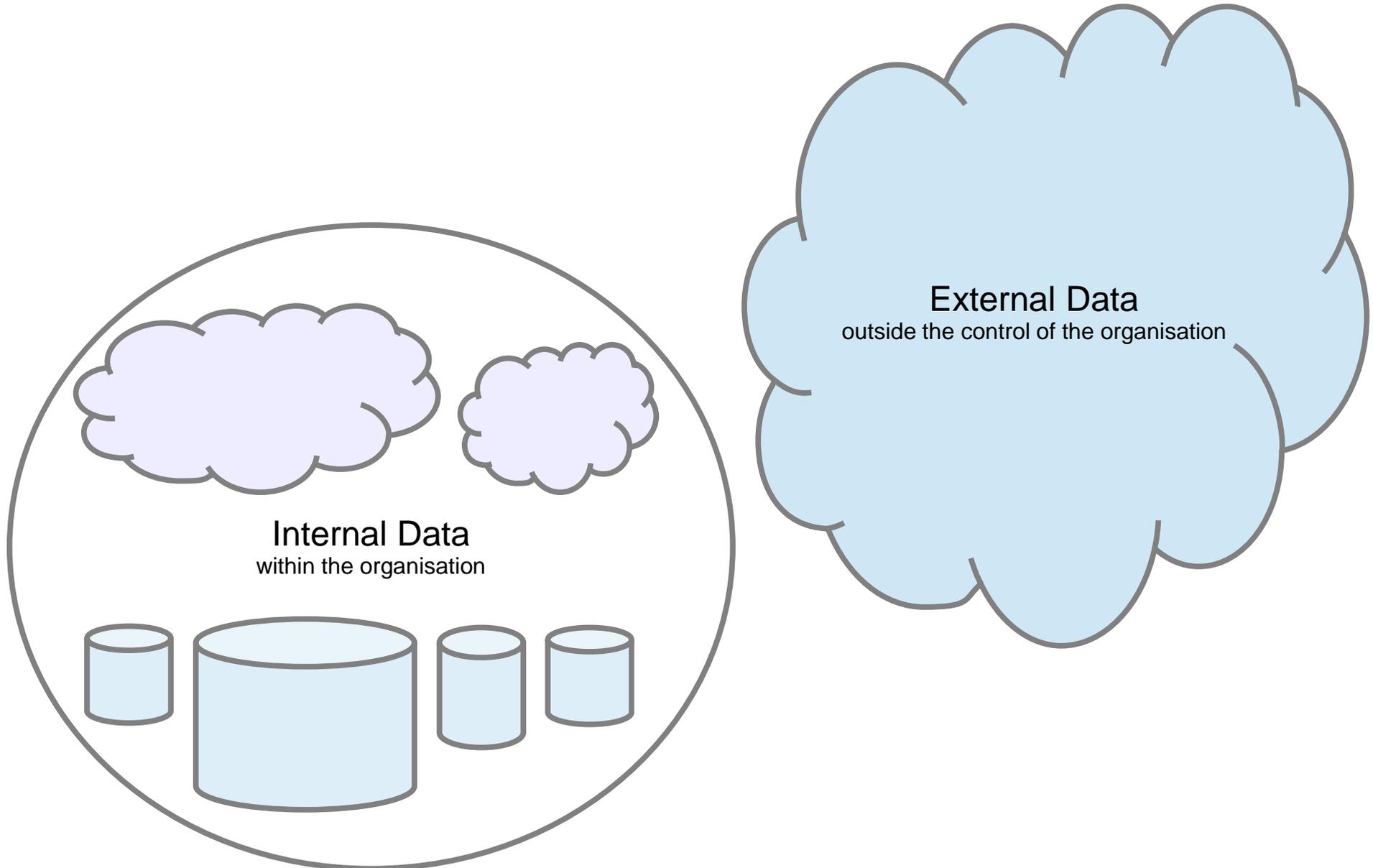
Unstructured data is a generic label for describing data that is not contained in a database or some other type of data structure. Unstructured data can be textual or non-textual. Textual unstructured data is generated in media like email messages, PowerPoint presentations, Word documents, collaboration software and instant messages. Non-textual unstructured data is generated in media like JPEG images, MP3 audio files and Flash video files.

Files contain an internal structure, but this may be very different from file to file.

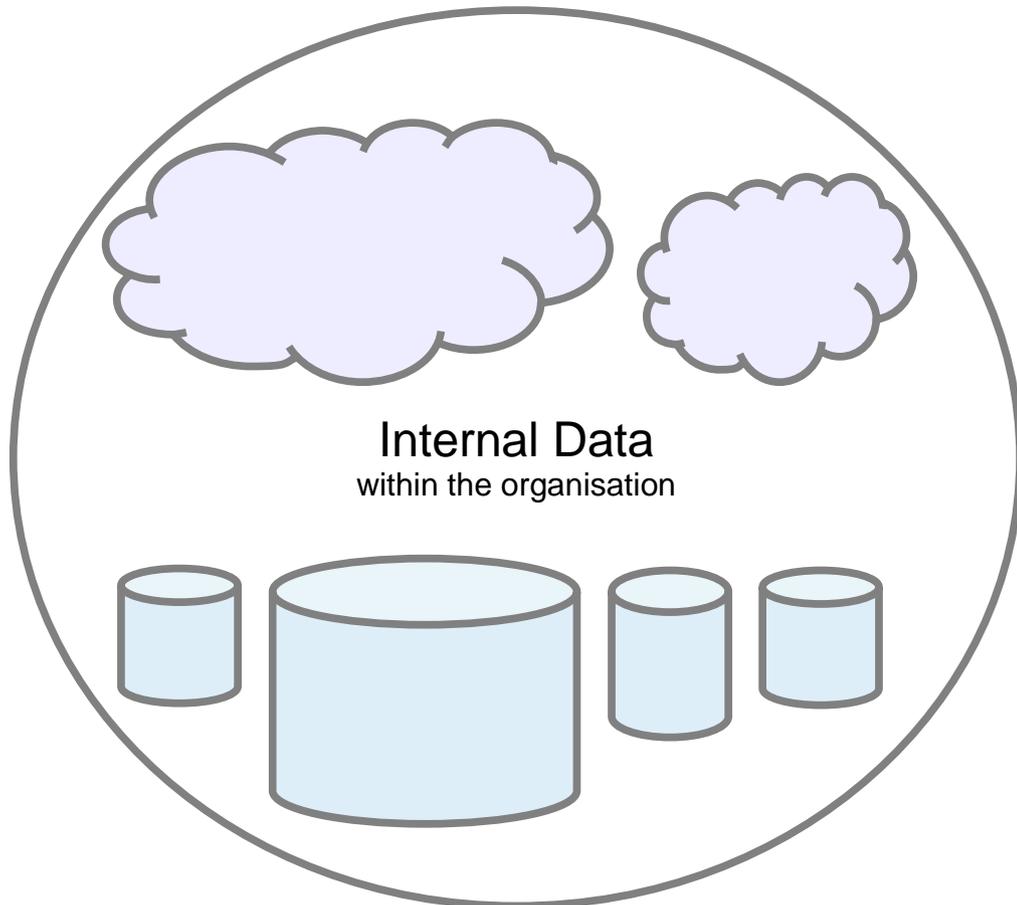
Unstructured data may be tagged to provide some form of structure and organisation.

Software tools are available to analyse unstructured data.

Internal & External Data



Internal & External Data

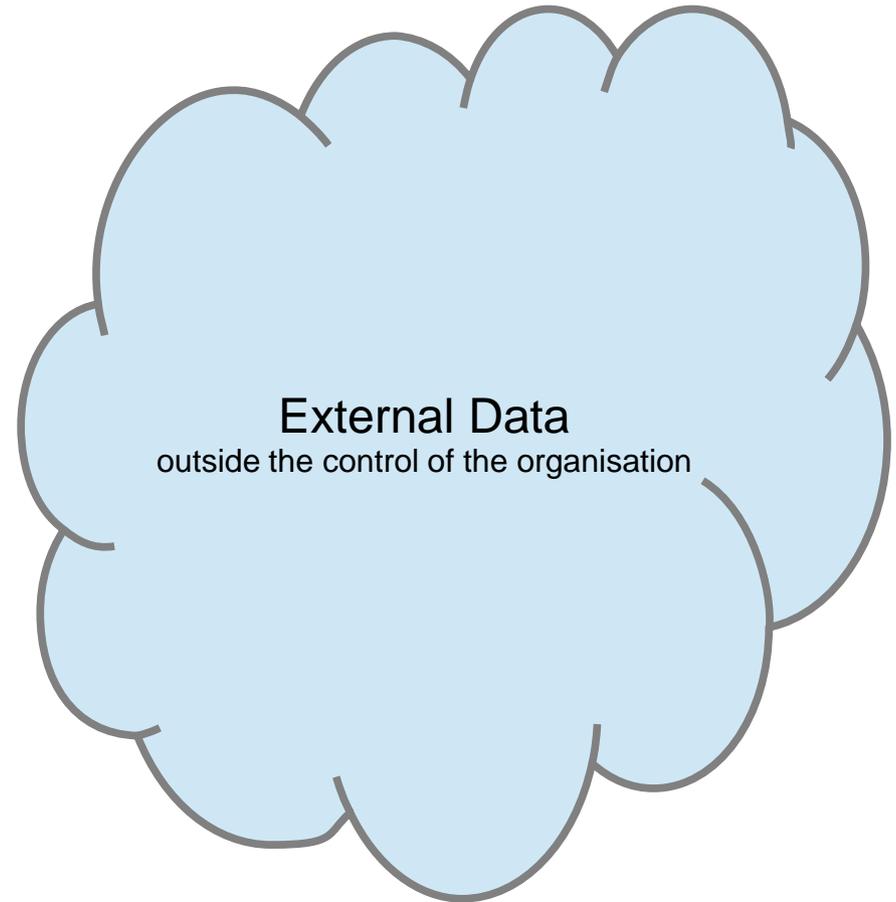


Internal data is under the control of the organisation, or people within the organisation. It may be stored on servers that sit within an office, a data centre or in the cloud.

Internal & External Data

External data is not controlled by the organisation (e.g. external websites, news organisations, information services, social media platforms, etc)

Some may provide information on request (e.g. credit scores, share prices) or insights into customers' views on the products or services produced by your organisation (e.g. social media postings, and online reviews)



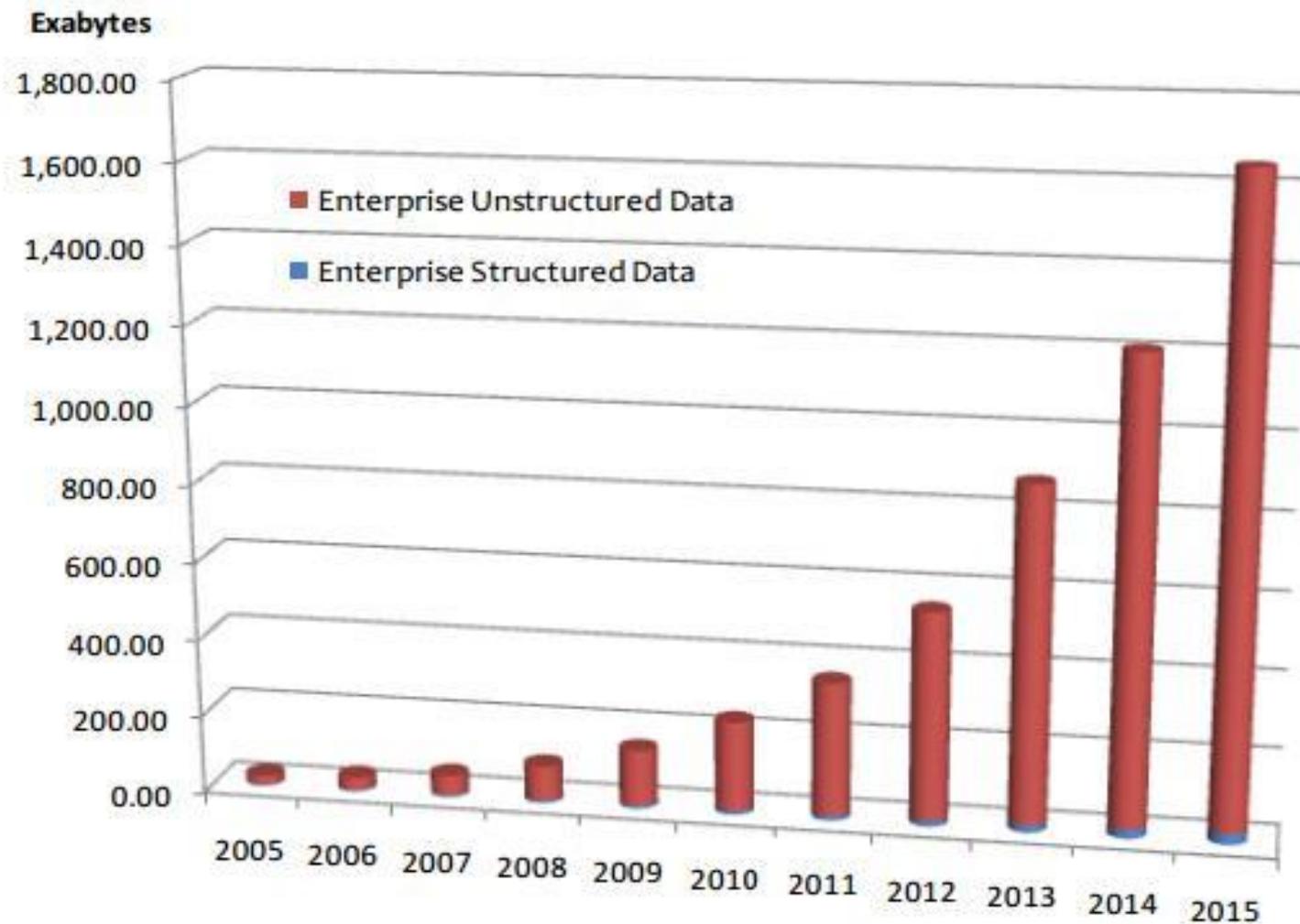
Poll 2

How fast do you think the world's enterprise data is growing?

- a) doubling every 6 years
- b) doubling every 4 years
- c) doubling every 2 years
- d) doubling every year

Growth in Data

The world's information is doubling every two years. Well over 95% of data is unstructured and this proportion is increasing.



Source: <http://www.datasciencecentral.com/profiles/blogs/structured-vs-unstructured-data-the-rise-of-data-anarchy>

Big Data

- Big Data – a broad term for large data sets that are a challenge to manipulate, manage and process using traditional data processing applications
- The volume of data has been increasing and becoming more challenging to process over a number of years. Increases in computer processing power are not keeping up with the increase in data volumes

We will not be focusing on Big Data today

What data do we collect & store?

- Reference data – static data (very rarely changes)
 - e.g. currencies, countries, staff grades, departments
- Customer data – slow moving data
 - e.g. name and contact details
- Transactional data – data that changes every day
 - e.g. payments, orders, delivery status, insurance claims, communications

How do we use data?

- Operational

- such as handling a sale to a customer, and current tasks (workflow management)

- Management

- aggregated reports and exception reports measuring performance at a department, region or other level at regular intervals. e.g. monthly sales performance and highlighting exceptions

- Strategic

- usually looking at aggregated data at a high level over a longer period of time, perhaps drilling down to understand detail in specific areas.

Is your data correct?

- Reports on data are only as good as the quality of the data put into the system.
- Problems with data:
 - Age
 - it may become inaccurate over time, e.g. customers move home, a product or service is no longer offered
 - Duplication
 - customers may have more than one account or entry on your system, this can occur due to poor data management, system restrictions, data spread across multiple systems (different products, company mergers, etc)
 - Accuracy
 - data was poorly captured to start with – incomplete, inaccurate – some companies still re-key data from system to system

Cost of incorrect & poor data

- Wasted money
 - returned mail due to customer moving, or details being incorrect or incomplete
- Duplicated tasks
 - customers contacted multiple times due to multiple accounts
- Lost customers
 - incorrect or poor data can prevent customers passing credit or other checks due to incorrect or inaccurate details
- Fines & investigations
 - due to inaccurate reporting to investors and the market due to poorly maintained data
 - this can be very costly for an organisation

Return to the earlier question...

Who owns the data in your organisation?

- a) The Customers
- b) The IT Department
- c) The Organisation

The organisation and the departments that use the data to undertake business own the data. It is their responsibility to manage and maintain data quality. The IT department may provide technical help.

Data will never be perfect, but it needs to be maintained if it is to be used to service customers and make business decisions.

Data in an organisation

An organisation has many types of data:

- Product information
- Customer information
- Sales information – transactions
- Communications – e-mails, telephone calls, etc
- Marketing documents
- Technical documents about products
- Website
- Video user guides
- HR records
- Finance records
- ...and more...

Poll 3

How effectively can you use the data your organisation has for making decisions?

- a) We **struggle to get reports** out of our systems, only technical people can extract reports of any use
- b) We have some **basic reports** that have limited use to aid with business decision making
- c) We have some **fairly flexible reporting tools** which provide useful information for decision making
- d) We have some **very powerful reporting tools** that give a good insight into the business providing all that is required to make strategic decisions
- e) We have very powerful tools that perform **predictive analytics** and give us a competitive edge

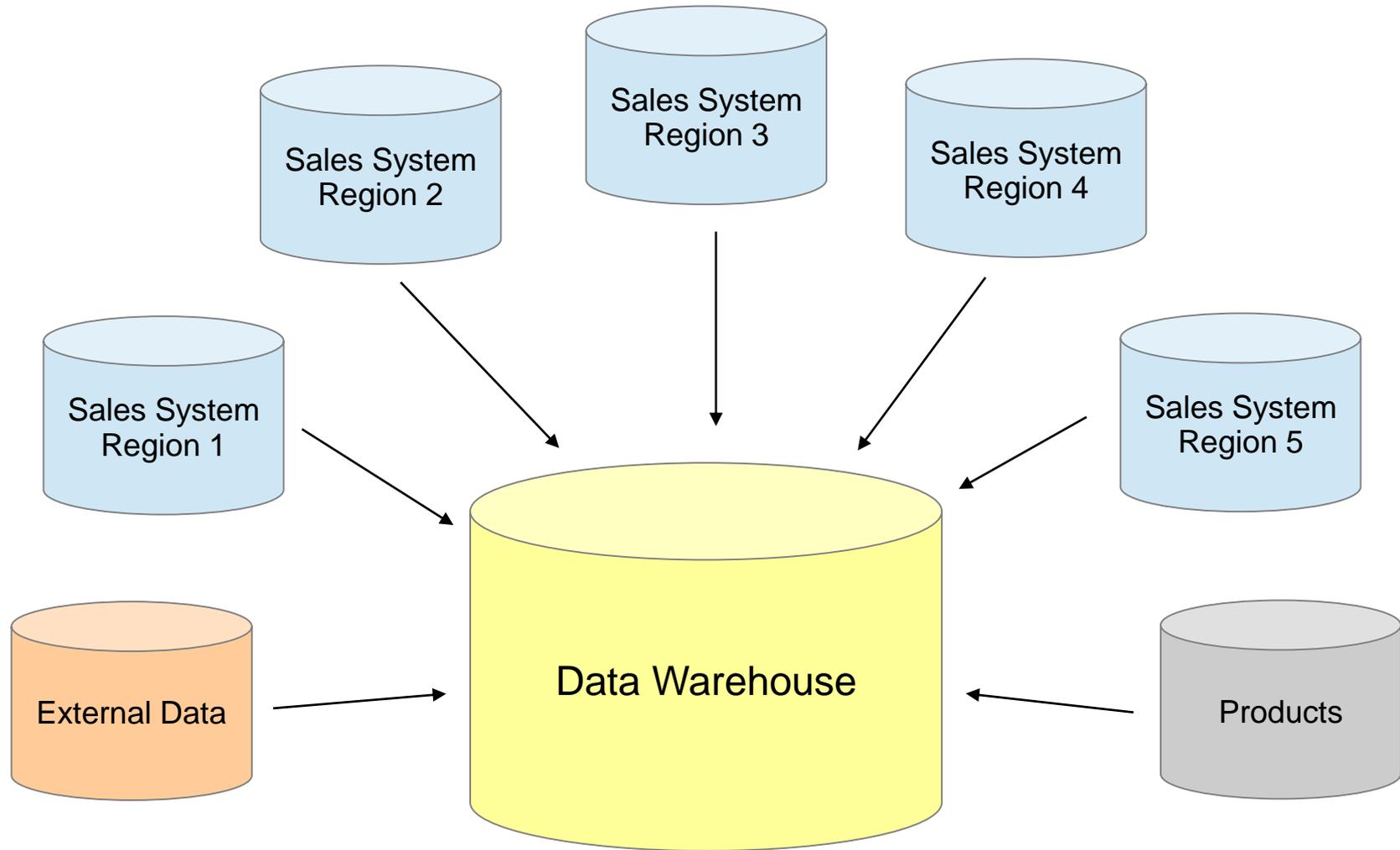
The power of data

- Collect data at individual customer level
- Ability to aggregate by any attribute and identify trends
 - attributes: country, city, age, socio-economic group, gender, or any other attribute that the organisation captures
- Ability to personalise and tailor marketing
 - Dunn Humby / Tesco Clubcard (launched 1994)
 - Tesco's then-Chairman Lord MacLaurin said “What scares me about this is that you know more about my customers after three months than I know after 30 years.”
 - Amazon
 - personalised offers

Extracting the power

- Data warehouse
 - Business Intelligence (BI) tools
 - Data visualisation tools
 - Predictive analytics
-
- The key is making it easy for the managers and senior managers to slice and dice the data
 - Tactical technical projects to get data to managers in appropriate formats can have a massive impact

Data Warehouse



Data warehouse bringing data together from many systems

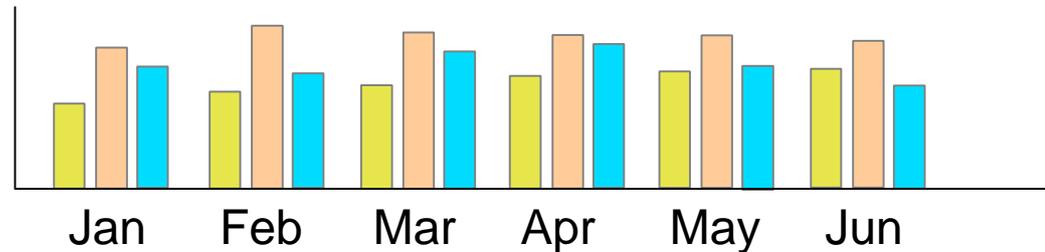
Data Warehouse

- A data store designed for reporting and analysing data
- Brings data from many systems together to enable powerful reporting across a whole area of the business (or whole business)
- A tactical data warehouse to test a concept can be achieved relatively quickly with the right people
 - e.g. built a data warehouse for a media company taking feeds from 10 systems. Originally, company struggled to get sales reports within a reasonable time period, and then they were difficult to use. Data warehouse with BI tools allowed next day group wide reporting.

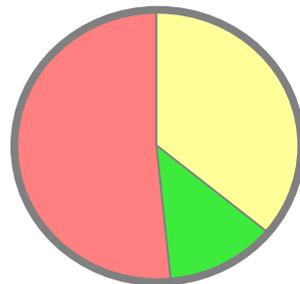
Business Intelligence Tools

- Predefined reports designed to meet standard user requirements
- Ability for users to create their own reports
- Ability to present reports graphically

- Time series reports, e.g. sales over a number of months



- Pie charts



- etc

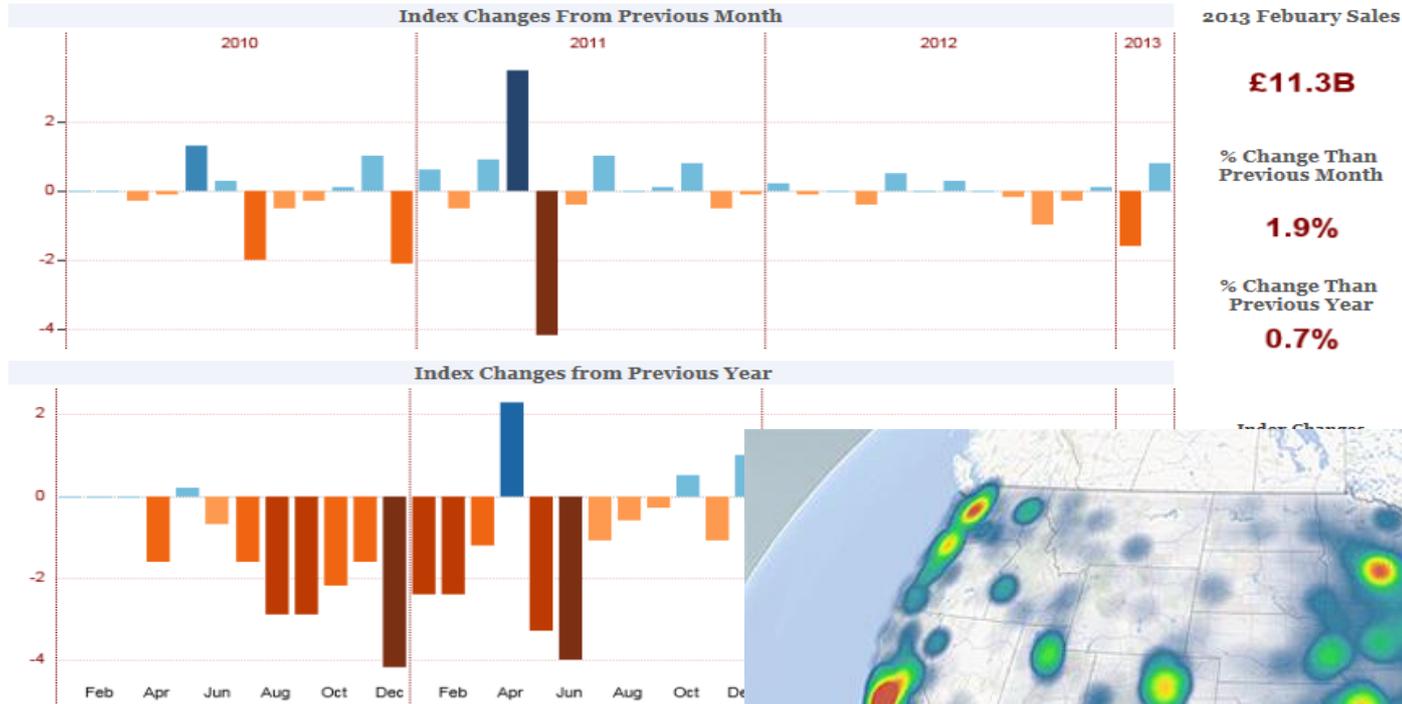
Data Visualisation Tools

UK Retail Seasonally Adjusted

Index is based on 2009

Choose Category:

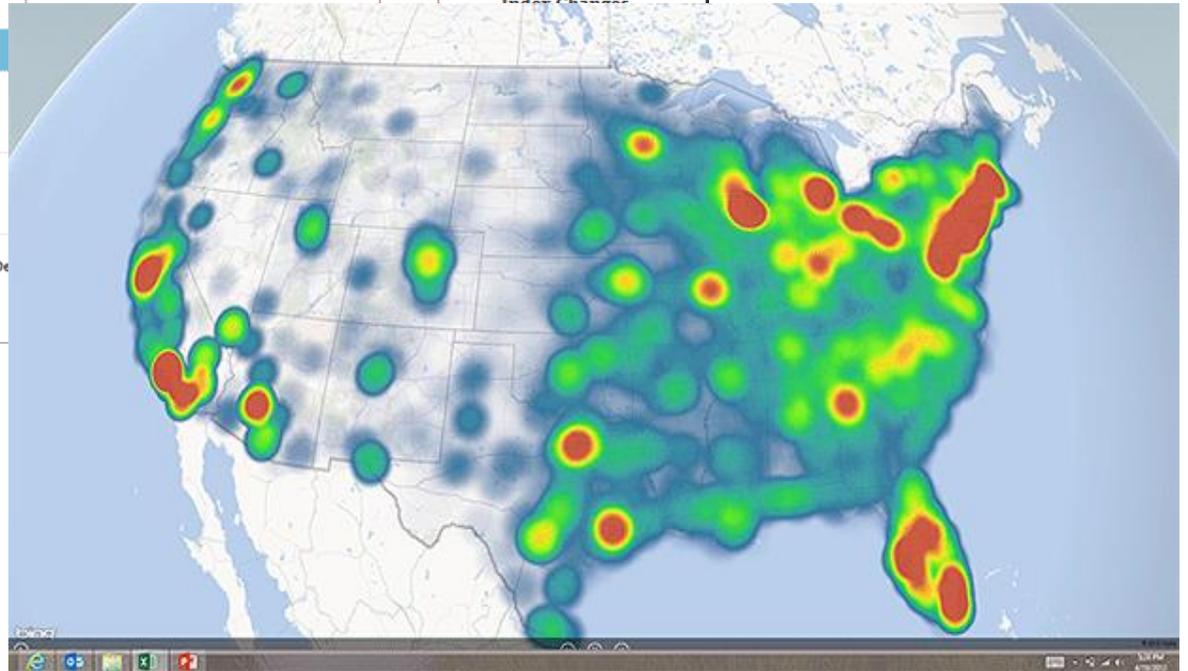
Predominantly food stores



Source from Office of National Statistics
(Click to open)

www.tableau.com

www.gcn.com visualisation using Bing maps
and GeoFlow



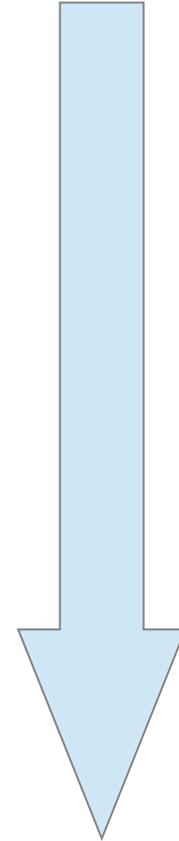
Predicting the future

- Big retail companies have been predicting sales based on seasons, sporting events, holidays, weather reports, etc for years
- Loyalty cards have allowed tailoring promotions to individuals, e.g. retailers identify life events that are likely to change your spending habits
- Predictive analytics encompasses a variety of statistical techniques from predictive modeling, machine learning and data mining that analyse current and historical facts to make predictions about the future, or otherwise unknown, events
- Use of predictive analytics in the online world – to identify events or prospective customers

Predictive analytics can give a company a competitive edge

Getting more strategic

- Get to know your data better
- Fix data problems and fill data gaps
- Improve the tools to investigate and analyse your data
- Identify patterns in your data
- Test hypotheses
- Draw on other data
 - website visitors, social media
- Join up your data into one picture
 - remove data islands (email systems), link systems
- Build predictive analytics



Data can reveal a lot when you study it and understand it

Questions

Thank you

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