Everything happens somewhere: improving business performance with location intelligence

Mark Stileman
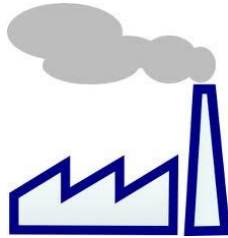
Senior Product Manager, Ordnance Survey

Organisations are increasingly aware of the significance of location
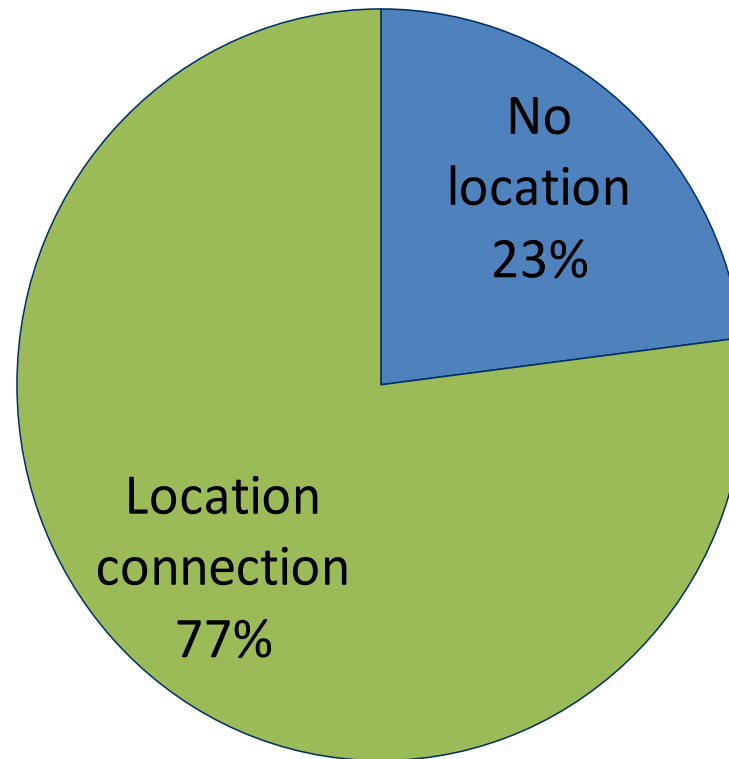
Customers

Assets

Suppliers

Transactions

Events

How prevalent is location in business information?

IDC research commissioned by Ordnance Survey in 2012 showed that **77%** of BI records have a location element, such as an address, a place name or a postcode.
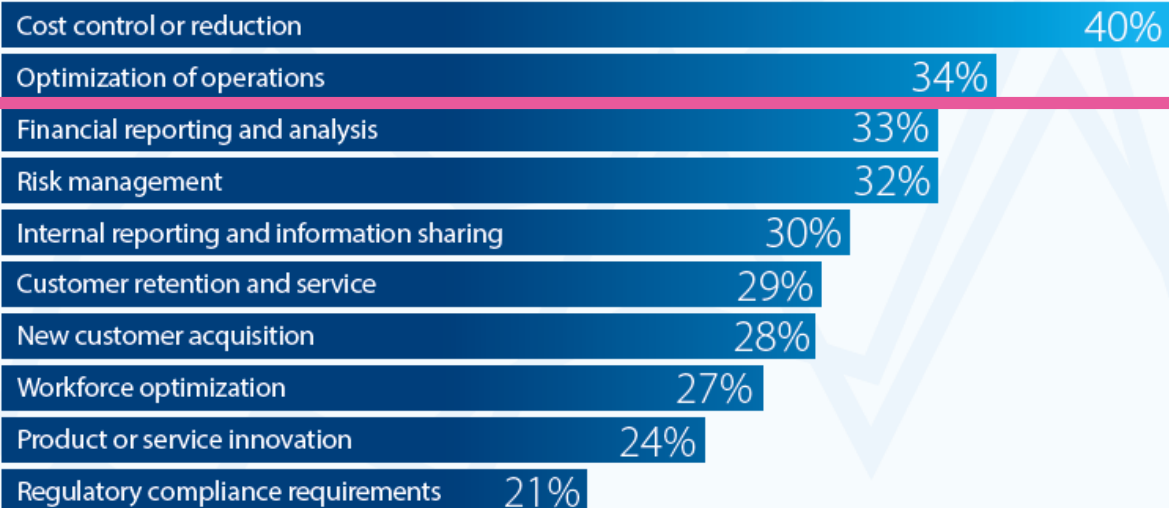

No location 23%

Location connection 77%

90% Conf. Int. +/- 5%

Improving business performance is a key driver

IBM

Top Drivers of Business Analytics Solutions

Driver Rating

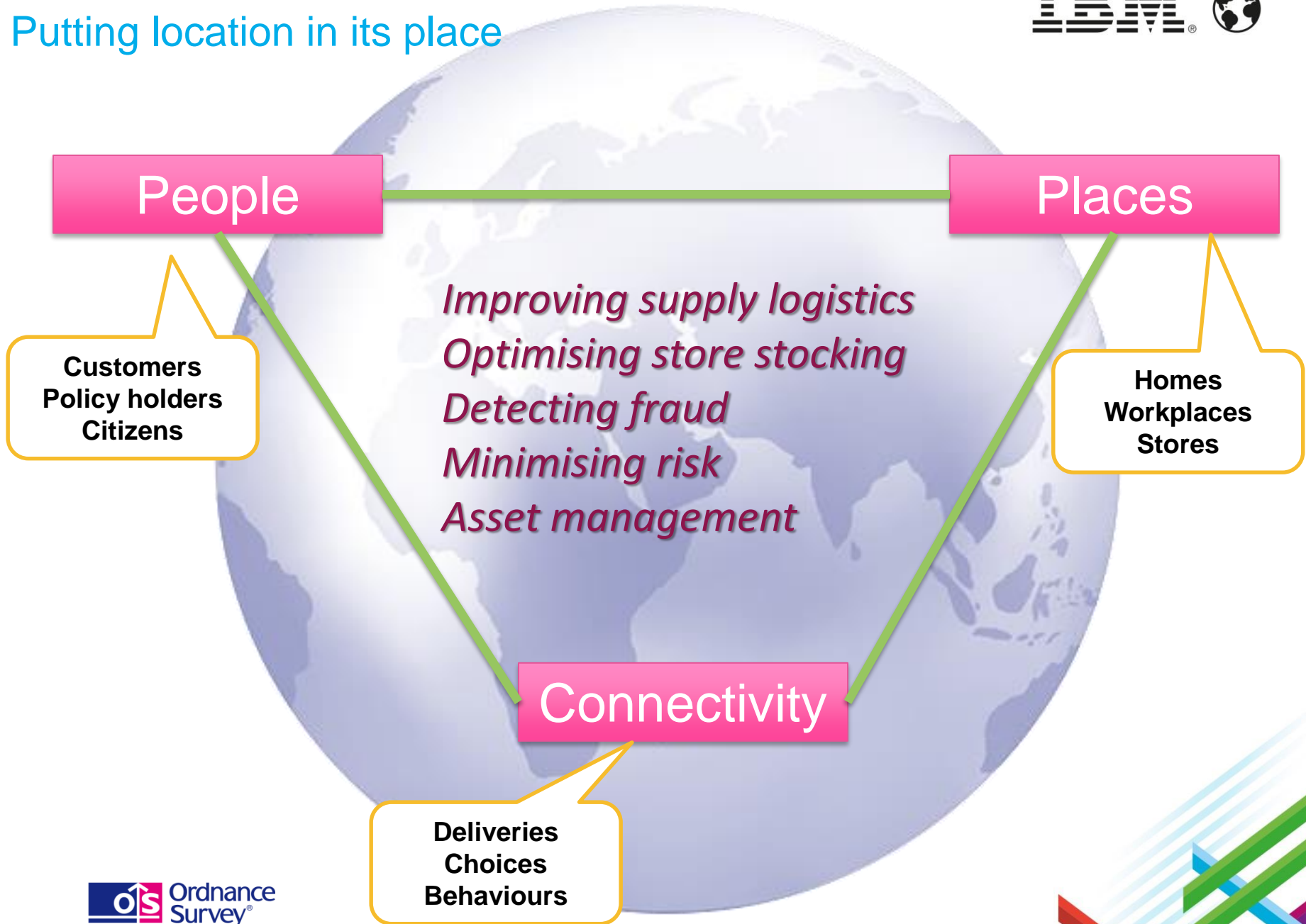| Driver	Rating
Cost control or reduction	40%
Optimization of operations	34%
Financial reporting and analysis	33%
Risk management	32%
Internal reporting and information sharing	30%
Customer retention and service	29%
New customer acquisition	28%
Workforce optimization	27%
Product or service innovation	24%
Regulatory compliance requirements	21%

Top Ten Verticals for Analytics and Big Data Opportunities

1. Discrete Manufacturing
2. Process Manufacturing
3. Government
4. Communications and Media
5. Banking
6. Professional Services
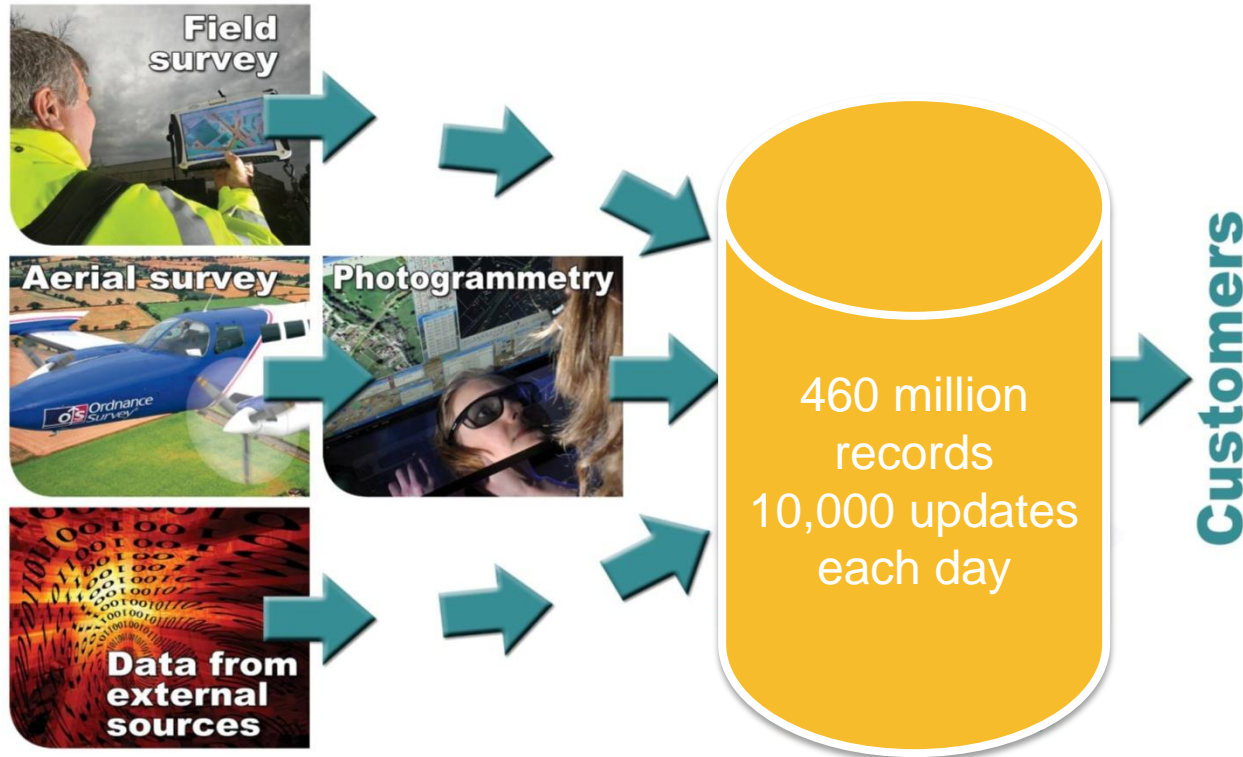7. Retail
8. Healthcare
9. Utilities
10. Insurance

Source: 2013 IDC infographic sponsored by SAP

http://cdn.news-sap.com/wp-content/blogs.dir/1/files/BigDataAnalyticsEcosystemWW.pdf

Ordnance Survey

Putting location in its place

People

Places

Connectivity

Improving supply logistics
Optimising store stocking
Detecting fraud
Minimising risk
Asset management

Customers
Policy holders
Citizens

Homes
Workplaces
Stores

Deliveries
Choices
Behaviours

Ordnance Survey – managing big data challenges

460 million records
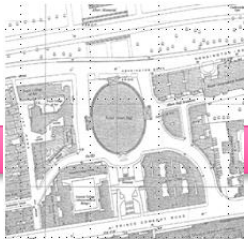10,000 updates each day

Customers

Detailed geospatial data is inherently complex

At the heart of our operation is the world's largest geospatial database

Ordnance Survey: A brief history of transformation
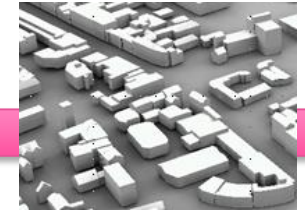

1791 to 1950s
Initial survey

1936 to 1955
National Grid
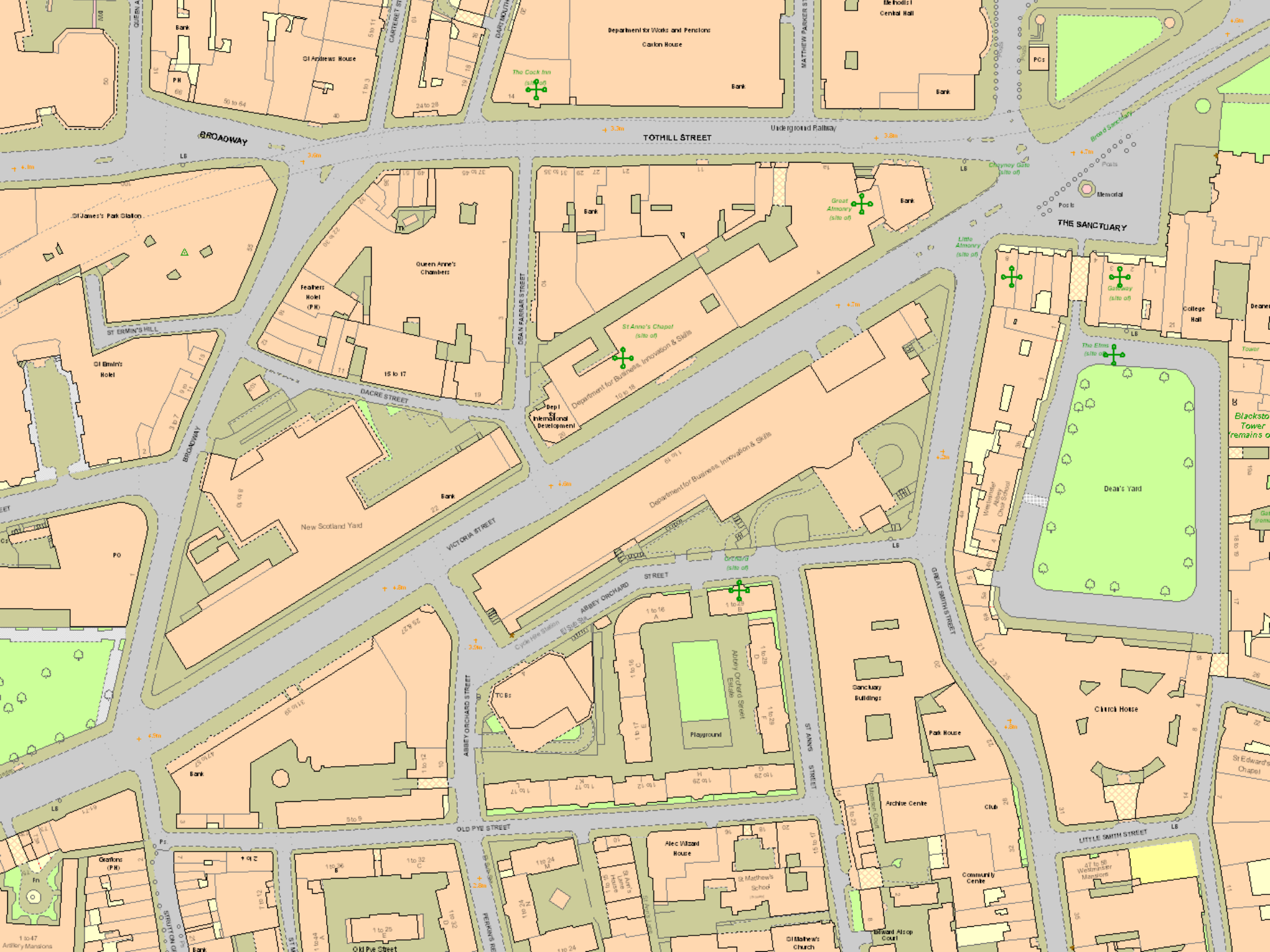
1971 to 1995
Digital mapping
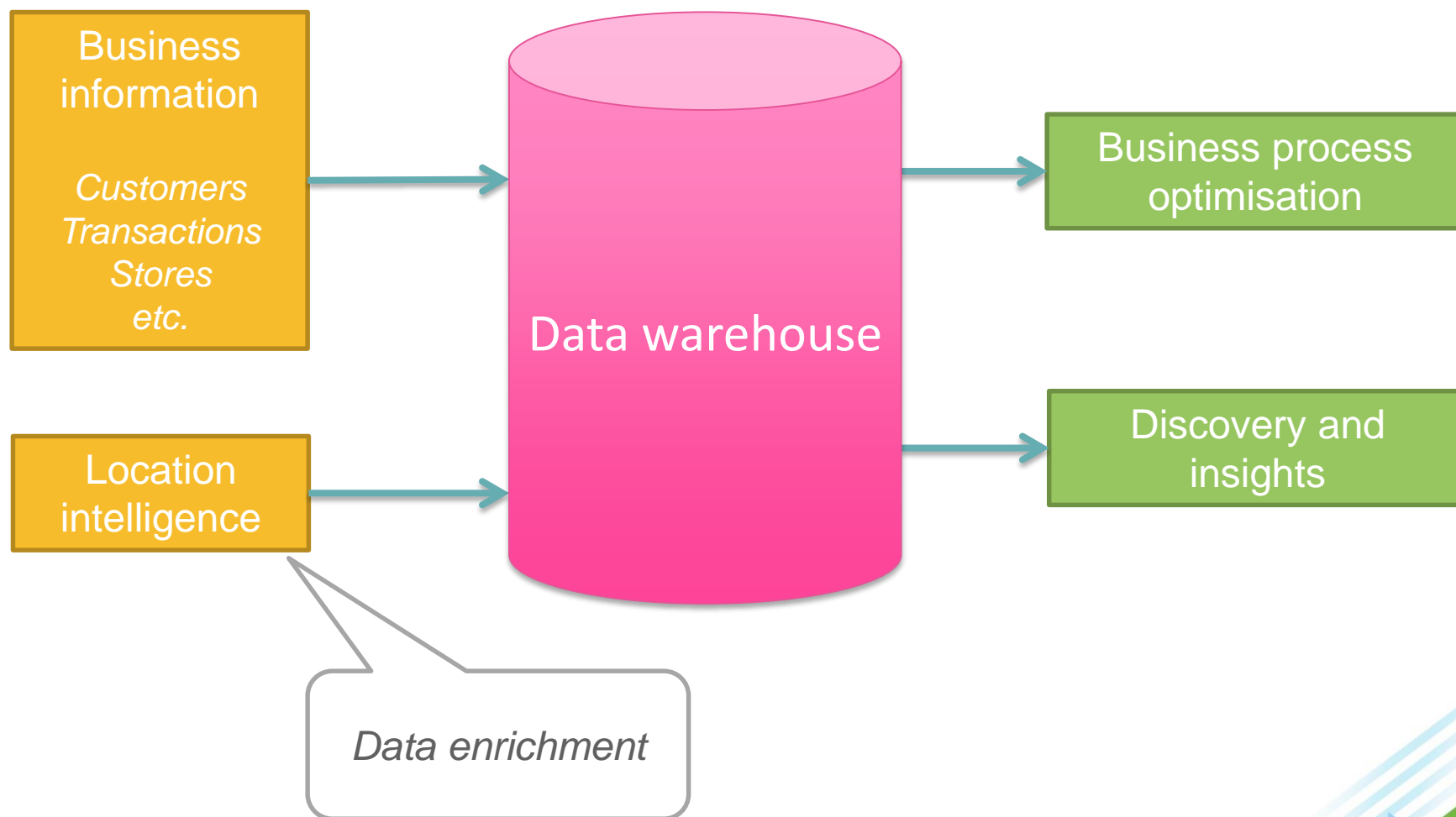
2000 to 2001
Object-based data model

2011
Rich data components

Helping customers make sense of their world with authoritative information about location…

…supplied according to the technology requirements of the day

BROADWAY

TOTHILL STREET

Underground Railway

THE SANCTUARY

Department for Works and Pensions
Caxton House

Methodist
Central Hall

Bank

Bank

Bank

Bank

The Cock Inn
(site of)

St Andrews House

QUEEN A...

CARTERET ST

DARTMOUTH

MATTHEW PARKER ST

PH

Bank

Memorial

Posts

Cheyney Gate
(site of)

Great
Almonry
(site of)

Gateway
(site of)

College
Hall

Queen Anne's
Chambers

DEAN FARRAR STREET

St James's Park Station

Feathers
Hotel
(PH)

St Ermin's Hill

St Ermin's
Hotel

DACRE STREET

St Anne's Chapel
(site of)

Department for Business, Innovation & Skills

Dept
for
International
Development

The Elms
(site of)

Blackst...
Tower
(remains o...

Westminster
Abbey
Choir School

BROADWAY

Bank

New Scotland Yard

Department for Business, Innovation & Skills

Dean's Yard

VICTORIA STREET

ABBEY ORCHARD STREET

ST ANN'S STREET

GREAT SMITH STREET

LB

Cycle Hire Station

ABBEY ORCHARD STREET

PO

Cross (?)
(site of)

Sanctuary
Buildings

Church House

TCBs

Abbey Orchard Street
Estate

Playground

Park House

Archive Centre

Club

Community
Centre

St Edward's
Chapel

OLD PYE STREET

LITTLE SMITH STREET

Artillery Mansions

Graftons
(PH)

Fn

Bank

Alec Wizard
House

St Matthew's
School

Edward Alsop
Court

Westminster
Mansions

PERKINS R...

STRUTTON GR...

Old Pye Street

St Matthew's
Church

Generic process – business improvement through location intelligence

Business information

Customers
Transactions
Stores
etc.

Data warehouse

Business process optimisation

Location intelligence

Discovery and insights

Data enrichment

Ordnance Survey®

Location: analytics versus visualisation

Location as an input
Tabular information
Directly served
Database key link

Data warehouse

Location as an output
Map dashboard
Visualisation
Reporting

Location intelligence

Location for visualisation

IBM PureData Systems: location intelligence from map-based big data

Conventional Geographic Information Systems (GIS) technology struggles with big data queries

PureData Systems for Analytics has revolutionised our ability to support our customers

Query	Previously	Now
What length of the GB coastline is beach?	*2 weeks*	4m, 26s
What is the farthest point from the coastline?	*1 day*	9m 12s
Identify all high-rise blocks of flats	*3 days*	49s

- Nature of dwelling
- Main building ground area
- Width of access road
- Distance from main building to edge of property
- Distance from main building to kerb
- Distance from edge of property to kerb
- Verge between property and road
- Total plot size (estimate)
- Front garden area
- Back garden area
- Number of outbuildings
- Height above sea level
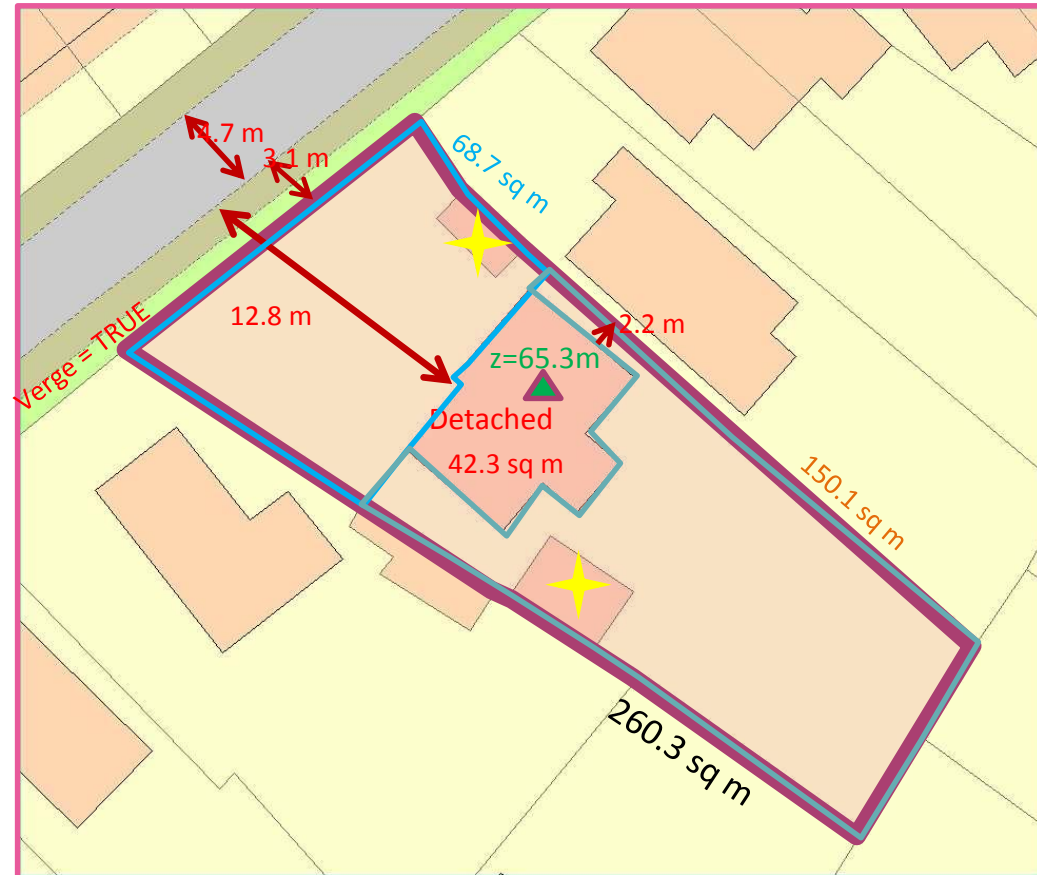
The ability to derive this information as simple tabular data on a national scale is transformational.

Case study 2 – retail home deliveries

SURVEY: 21% of retailers' deliveries fail

Monday April 29 2013

Industry poll reveals each delivery or appointment failure costs £151, while 43% say 'lack of notification about delays' are a problem

Over a fifth (21%) of all retailers' deliveries and home appointments are unsuccessful, wasting millions of pounds in inefficiencies, according to research commissioned by business SMS experts, Esendex.

The research carried out by Coleman Parkes Research included in-depth telephone interviews with 200 logistics and customer service decision makers at UK retailers, including 75 with an average revenue of £149 million, and found that each failed delivery or appointments costs £151, on average.

http://www.retailtechnology.co.uk/news/4592/survey:-21-of-retailers-deliveries-fail/

1 million

supermarket home deliveries each week

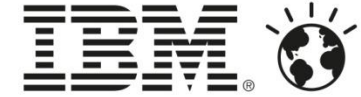Annual online growth of

15%

How do you plan delivery times for new customers?

Ordnance Survey®

Case study 3 – smart meter installation

All **26 million** homes in GB to be offered smart meters by **2020**

The comms technology is **not yet mature**

Large **multi-occupancy** buildings are problematic

Property intelligence can ensure an early focus on straightforward installations

Building Address	Number of Flats
GEORGE BEARD ROAD, LONDON, SE8 3AH	54
7, GATLIFF ROAD, LONDON, SW1W 8DE	98
21, DURNSFORD ROAD, LONDON, SW19 8GY	44
VICTORIA ROAD, LONDON, W3 6AD	84
21, DURNSFORD ROAD, LONDON, SW19 8GW	70
8, WALWORTH ROAD, LONDON, SE1 6EE	90
116, CROMWELL ROAD, LONDON, SW7 4XL	55
BECKFORD CLOSE, WARWICK ROAD, LONDON, W14 8TX	59
PEMBROKE ROAD, LONDON, W8 6DW	32
30, GATLIFF ROAD, LONDON, SW1W 8QN	83

Case study 1 – property flood insurance

- In June 2013 the UK Government and the Association of British Insurers negotiated a successor to the 'Statement of Principles' covering properties at high risk of flooding built prior to 1 January 2009.
- Ordnance Survey was asked to help quantify the problem

- How much development had taken place since this date?

- Starting point: A total of 768,960 new buildings were added to our data between January 2009 and June 2013.

Photo: flickr - davethroup

Location intelligence approach to property flood risk

Description	New buildings	Buildings in EA flood zone	Council tax Band H buildings in EA flood zone
Residential	226,560	15,992	2,208
Commercial	18,982	2,696	474
Dual Use	275	24	12
Military	8	0	0
Other	3335	497	98
Totals	**245,825**	**18,712**	**2,694**

County	New buildings	Ranking by new construction	Buildings in EA flood zone	Ranking by flood risk
Greater London	11,420	1	1,484	2
Kent	6,154	2	500	7
Hampshire	5,867	3	155	19
Essex	5,809	4	354	10
Lincolnshire	5,740	5	1,630	1

Conclusions

Location as an input
Tabular information
Directly served
Database key link

Data warehouse

Location as an output
Map dashboard
Visualisation
Reporting

- Location is inherent in most business information

- We have proved the value of IBM Analytics to deliver location intelligence from geospatial big data

- We are now helping our customers to realise this value for business performance improvement

Thank You!

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