BIG DATA
BEYOND THE BUZZ WORD
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COMPANY HISTORY

BAE SYSTEMS
INSPIRED WORK

2014: ACQUIRED SILVERSKY

2014: REPOSITIONED AS BAE SYSTEMS APPLIED INTELLIGENCE

2012: ADDED STRATSEC

2011: ACQUIRED NORKOM AND ETI

2008: BAE SYSTEMS ACQUIRES DETICA

2003 – 2007: DETICA ACQUIRES RUBUS, DFI, M.A.PARTNERS AND EXTRAPRISE

2001: RENAMED DETICA

1971: SMITH ASSOCIATES FOUNDED

Big Data is a broad term for data sets so large or complex that traditional data processing applications are inadequate. Challenges include analysis, capture, data curation, search, sharing, storage, transfer, visualization, and information privacy.

BIG DATA TERMINOLOGY/BUZZ WORDS

Data Lake

3V's – Volume, Velocity, Variety

Machine Learning

Digital Footprint

Data Scientist

Analytic

ANALYTICS

Descriptive analytics (BI)

Core analytics that tells what happened and why. important source to determine what to do next!

Predictive analytics

Anticipates future behaviour or estimates unknown outcomes. It is most often being performed via a variant of machine learning called 'supervised learning'.

Prescriptive analytics

Built on a predictive model, it not only foresees what will happen and when it will happen, but also why it will happen and provides recommendations how to act upon it in order to take advantage of the predictions
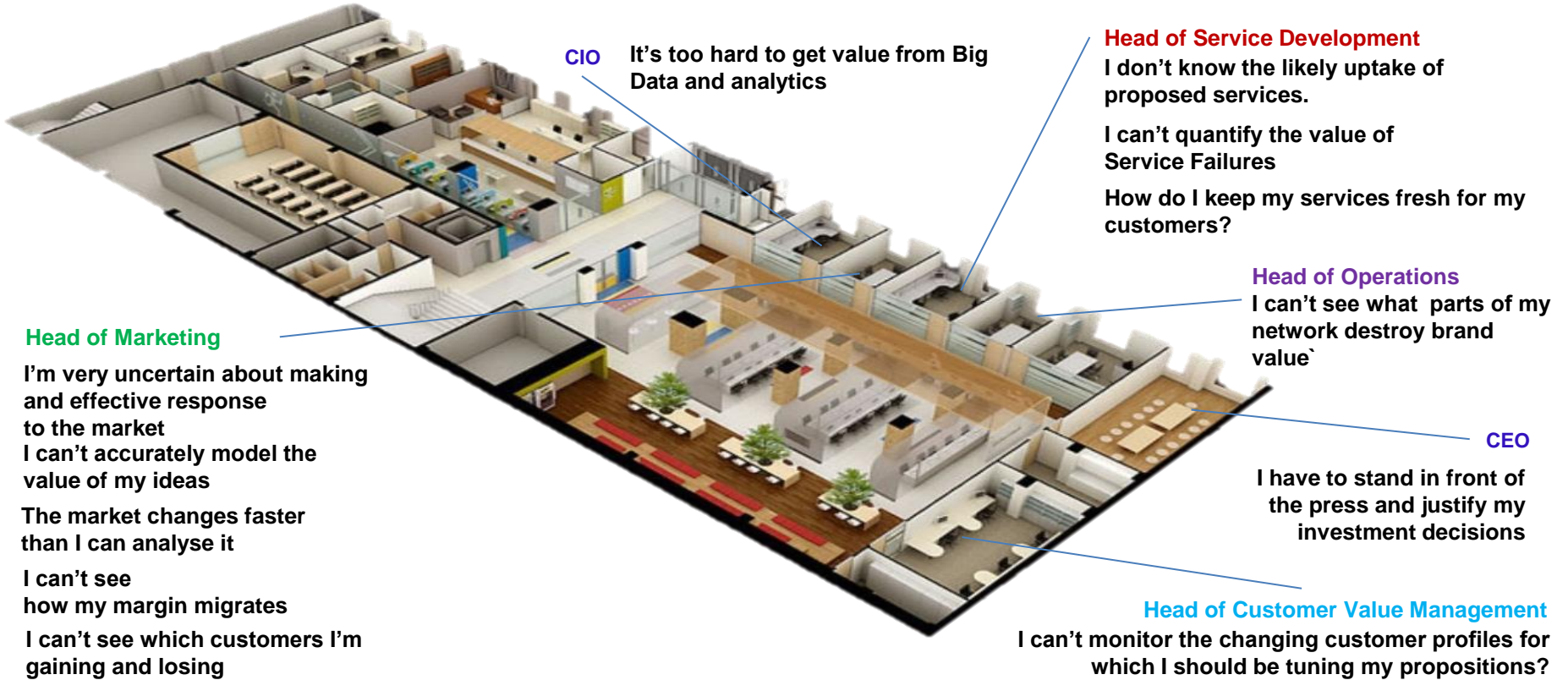
Data science

Discipline of extracting nontrivial knowledge from data in order to improve decision making

Advanced Analytics

BAE SYSTEMS
INSPIRED WORK

PROBLEMS THAT ARE EXPRESSED BY BUSINESS LEADERS

CIO
It's too hard to get value from Big Data and analytics

Head of Service Development
I don't know the likely uptake of proposed services.

I can't quantify the value of Service Failures

How do I keep my services fresh for my customers?

Head of Operations
I can't see what parts of my network destroy brand value`

Head of Marketing
I'm very uncertain about making and effective response to the market
I can't accurately model the value of my ideas

The market changes faster than I can analyse it

I can't see how my margin migrates

I can't see which customers I'm gaining and losing

CEO
I have to stand in front of the press and justify my investment decisions

Head of Customer Value Management
I can't monitor the changing customer profiles for which I should be tuning my propositions?
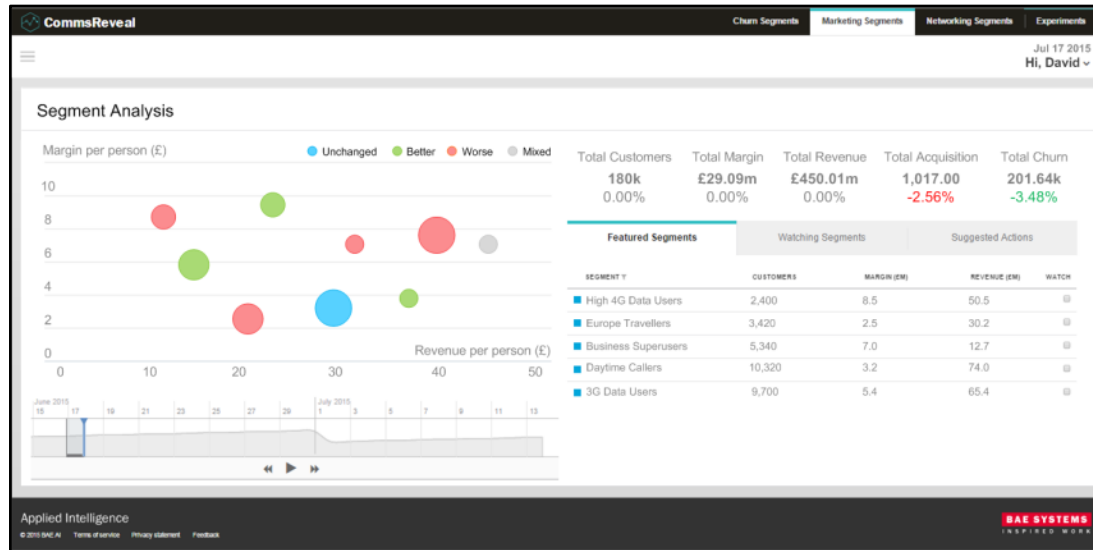
BIG DATA AND TELECOMMUNICATIONS

- Extensive customer and network data already exists.
- With the right tools it can be used to improve network experience, as well as customer value management

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TELECOMMUNICATIONS USE CASES

- Network and Infrastructure

- Service and Security

- Sales and Marketing

- New and Adjacent Business

Identifying segments based on value

Understanding margin and value movement

Visualise the change over time

See growth and cannibalisation

CHALLENGES

Processing vast quantities of complex data requires new tools, new infrastructure and skills

To provide benefit it is necessary to translate analytic results into decision making
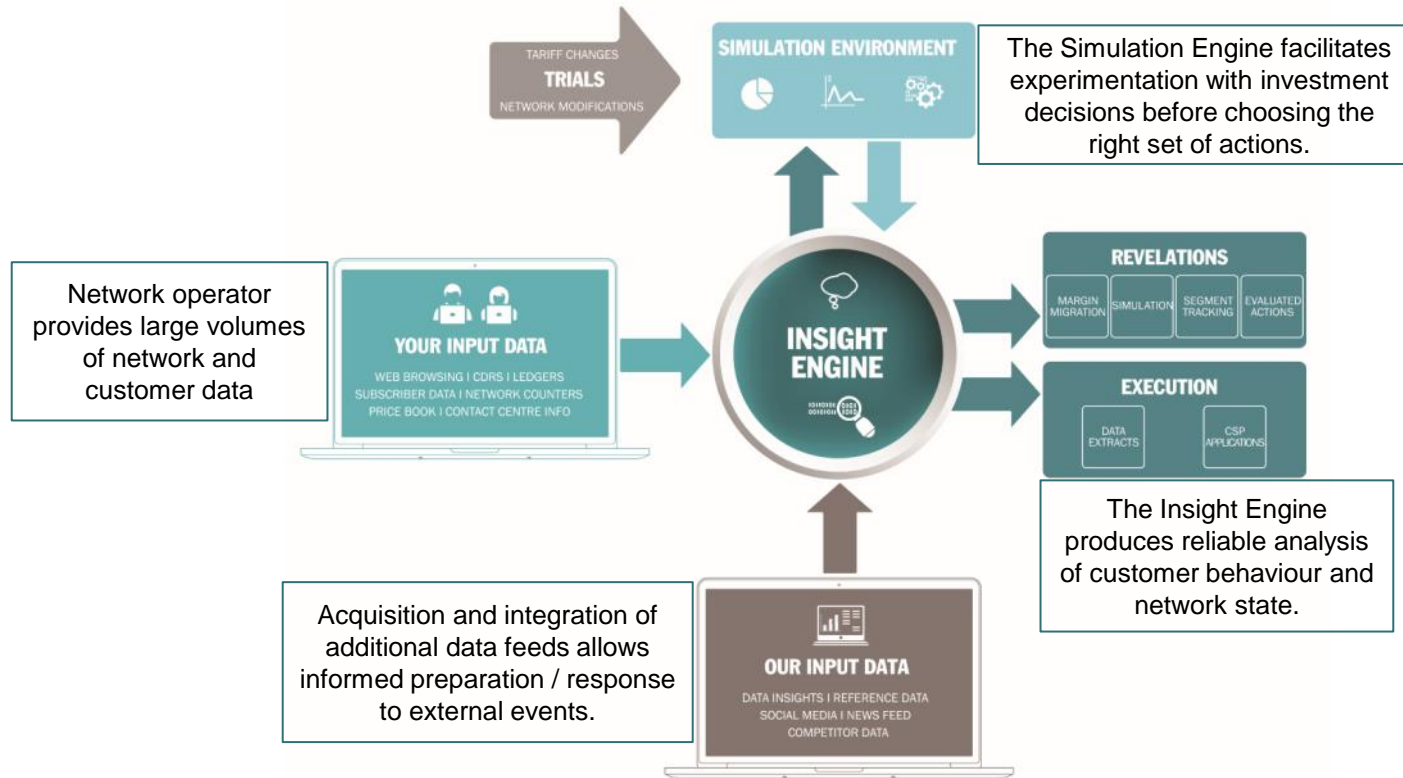
Corporate posture on data analysis – privacy policies, internal process, retention and security

ORGANISATIONAL READINESS FRAMEWORK

Level 1	Reactive and Siloed
Level 2	Concerned and Planning
Level 3	Aware and Managed
Level 4	Active and Delivering
Level 5	Organised and Optimising

		Reactive & Siloed	Concerned & Planning	Aware & Managed	Active & Delivering	Organised & Optimising
		Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Requirements	**Strategy & Business Case**	No strategy or coordinated investment in Big Data	High level strategy agreed and planning started	Value of Big Data strategy recognised	Roadmap agreed and business case defined	Big Data strategy fully aligned with business strategy
	Culture	'Gut feel' rather than data based decision making	Value of data recognised but conflicting views on methods	Usage of Big Data embedded in some parts of the organisation	Big Data embedded in many key decision making processes	Strategic, tactical and operational Big Data widely used
	Use Cases	Isolated usage, no agreed view on key use cases	Need for a comprehensive view is recognised	Plans in place to maximise Big Data usage across the organisation	Enterprise wide usage of Big Data, including strategic planning	Big Data used at all levels of the enterprise
People	**Roles & Responsibilities**	No Big Data accountabilities or organisation structures	Big Data roles in place but local and uncoordinated	Need for a coordinated Big Data function recognised	Single function for coordinating Big Data set up	Balanced business and tech team in place
	Competency & skills	No in-house skills in Big Data tools or Big Data processing	Big Data skills sporadically developed / few key individuals	Programme in place to develop or recruit required skills	Critical mass of Big Data skills developed	Sustainable Data Scientist capability in place
Data	**Data sources**	No control or awareness of Big Data sources	Internal Big Data sources identified but not actively managed	Current state of Big Data sources understood	Internal and external data sources identified and collection strategy in place	Current and future requirements defined and strategy in place
	Provenance, quality and velocity	No measurement of contribution from Big Data	Recognition of value add but not quantified	Limited performance information captured	KPIs measuring Big Data effectiveness agreed	Clear processes to track benefits from Big Data
Technology	**Platform purpose**	Tools do not support needs or are not used correctly	Toolset requirements defined	Strategic toolset for reporting and analysis agreed	Migration to strategic toolset underway	Diverse end user needs met in full by strategic toolset
	Technology	No recognised Big Data delivery model	Plans in place to improve Big Data delivery process	Big Data development method agreed but not implemented	Big Data development method used for some Big Data projects	Best practice Big Data methods employed for all projects
	Storage	No SLAs for Big Data platform	Need for SLAs recognised, in process of definition	SLAs agreed but limited mechanisms to manage	Full SLA management in place	SLA performance used to drive platform improvements
	Integration	Information architecture comprised of independent silos	Need to integrate information recognised	Integration plans in place but ends users still using silos	Consolidated platform in place and data being migrated	Best of breed integrated platform embedded
Risk / compliance	**Risk and security**	Security requirements for Big Data not recognised	Risks identified but security measures not in place	Basic security measures under development	Big Data security in place but not linked to wider information security	Big Data fully integrated with enterprise information security management
	Legal & Compliance	Compliance status for Big Data unknown	Compliance or legal risks identified	Compliance framework established	Big Data achieves compliance against framework	Proactive management of legal or compliance issues, involving external bodies (e.g. ICO)

KEY SOLUTION COMPONENTS

The Simulation Engine facilitates experimentation with investment decisions before choosing the right set of actions.

Network operator provides large volumes of network and customer data

A browser-based interface provides intuitive and extensible access to insights.

The Insight Engine produces reliable analysis of customer behaviour and network state.

Acquisition and integration of additional data feeds allows informed preparation / response to external events.

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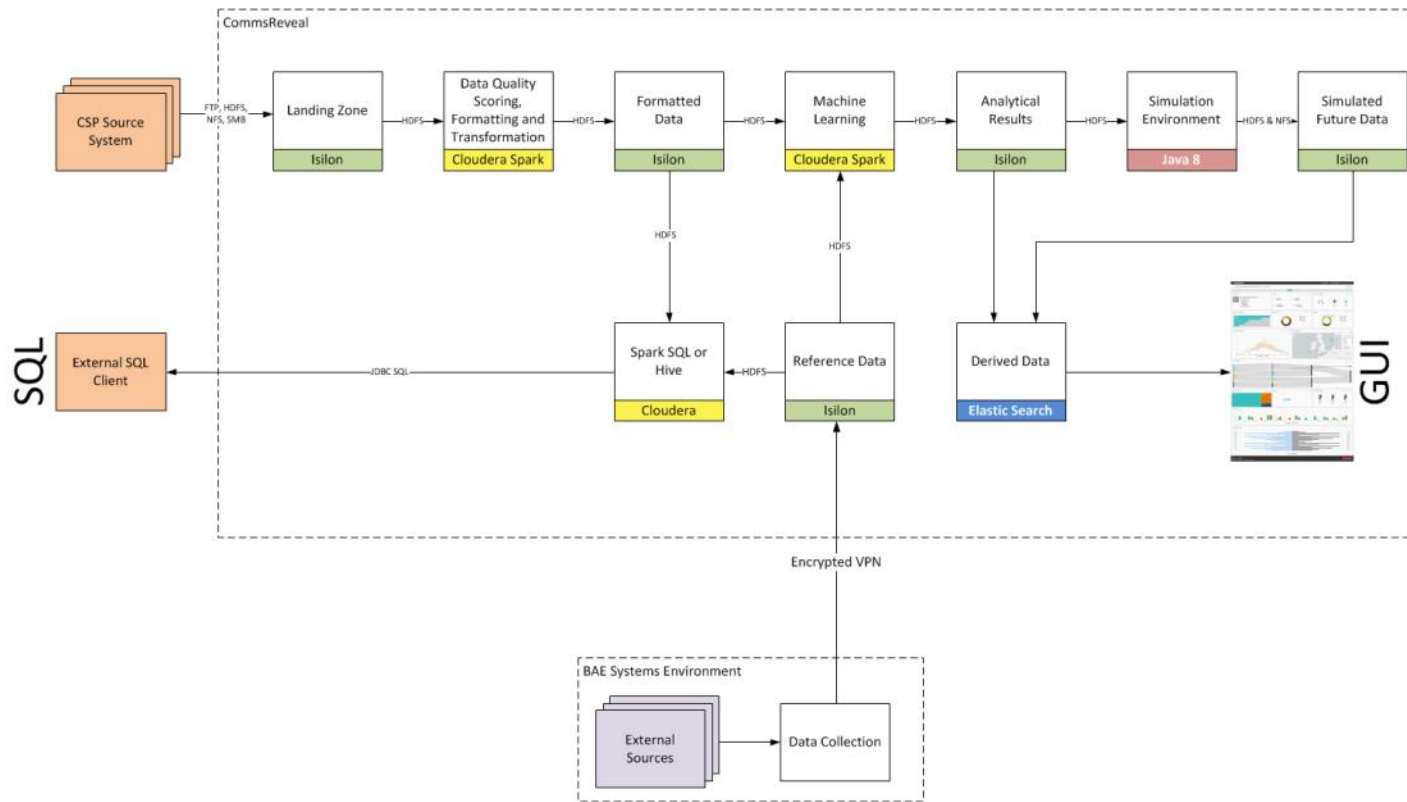
REAL WORLD EXAMPLE

- What if you could identify network outages more quickly and understand their impact on your customers better?
- Customer was experiencing poor response times for faults in the network - serious faults not being detected for several days.
- Set up a pilot in just two weeks

Data feeds:
- network ticketing information (processing real-time)
- crowd-sourced outage data
- customer interaction
- social media and demographics data

Outputs:
Predictions of outages
- inform the customer when outages were occurring,
- properly grade how serious these are in real-time i.e. how many customers are impacted and what the value of these customers is.
- how many customers and what kind of traffic would occur in this cell,
- risk of churn, how much influence these customers have, etc.

LIVE EXAMPLE

Calculate true impact of outages

Supplement standard ticketing information with customer interaction, sentiment analysis, demographics and social media

Detect trends between (normalised) outages, customer interaction over time and geo-spatially

PPT exports for reporting / business case development, CSV exports for further analysis
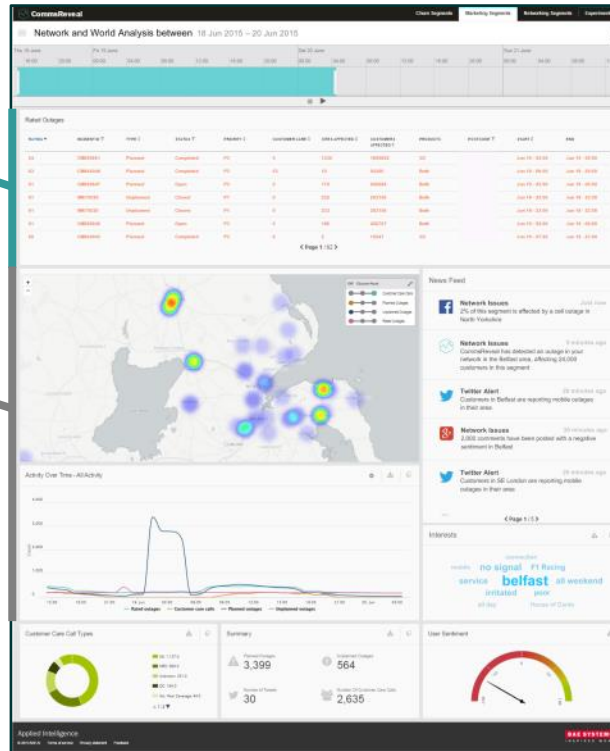
Proactive response: real-time analytics and visualisation

Historic analysis: date period selection and playback

Entity extraction and aggregation across social media and customer interaction channels

Sentiment analysis across a number of internal and external unstructured data sources

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