Utilities QlikTalk
Esri UK, QlikTech
& Differentia Consulting

QlikView

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Agenda

09:30am: Registration open

10:00am: Arrivals and Networking

10:30am: Welcome and Introduction - Kevin Doughty, Esri UK and Tom Truman, QlikView

11:00am Introduction to QlikView and Business Discovery

Mark Rodell – Senior Enterprise Architect QlikTech UK

11:30am: Refreshment Break

11:45am: Keynote: The Role of IT in the Utility of the Future

Stuart Ravens, Ovum

Agenda

12:15pm: Location-based Dashboards

Kevin Doughty, Esri UK

12:30pm: Differentia Consulting - A Business Discovery Approach - Kit Mundy, Differentia Consulting

1:00pm: Networking Lunch

1.45pm: Integration examples with QlikView and Esri ArcGIS - Alasdair Hind Utilities Industry Lead - Technical

2:30pm: Q&A

2:45pm: End

A New Kind of Software Company

- U.S.-based company, founded 1993 in Sweden
- 26,000+ customers in 100 countries
- 1,400 global partners
- 1,300+ employees across 28 offices in 23 countries
- No. 1 fastest-growing enterprise technology company (ZDNet)
- NASDAQ: QLIK
- Change Their World Grant and Philanthropic Programs
- **QlikTech Hits Top 3 in Forbes Fast Tech 25**

Broad Base of 26,000 Customers

3M, Volvo, Best Buy, RIM, Gatorade, Bell Helicopter A Textron Company, Zurich, Colonial, Deloitte., United States Navy, EAT., T-Mobile, GEN-PROBE, NHS, Autodesk, Aon, Qualcomm, Iberia, Forbes, sonofon, vodafone, AMCOR, Lantmännen Unibake, INTRES retail

…existing QlikView energy and utilities customers

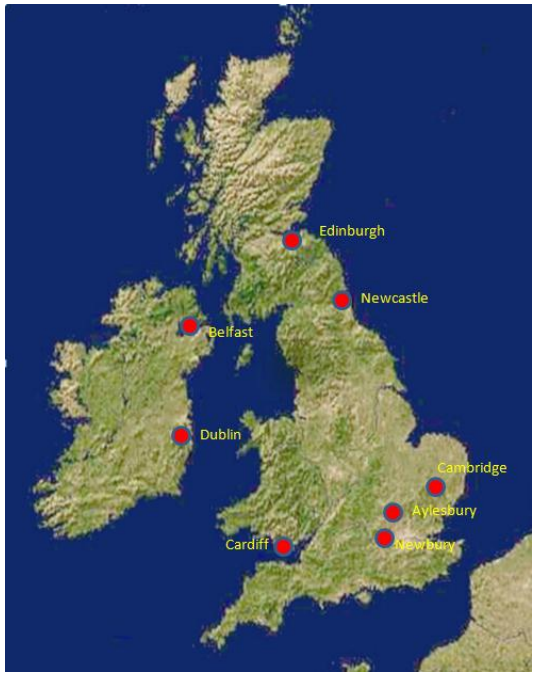
Esri UK Introductory Slides

Kevin Doughty – Head of Business, Utilities- Esri UK

QlikView

Esri

- Esri Inc
  - Founded 1969 - HQ in Redlands, California
  - Operating in 220 countries - 1,500,000+ licences across 350,000+ client sites
  - $730 million revenue - $100> million annual R&D
  - The ArcGIS Platform
- Esri UK
  - Founded 1978 – HQ Aylesbury, offices throughout UK, and Ireland
  - £50 million revenue, UK specific products
  - Core dev team in Edinburgh
  - Key market's – Utilities, Government, Defence, Commercial



Introduction to QlikView and Business Discovery

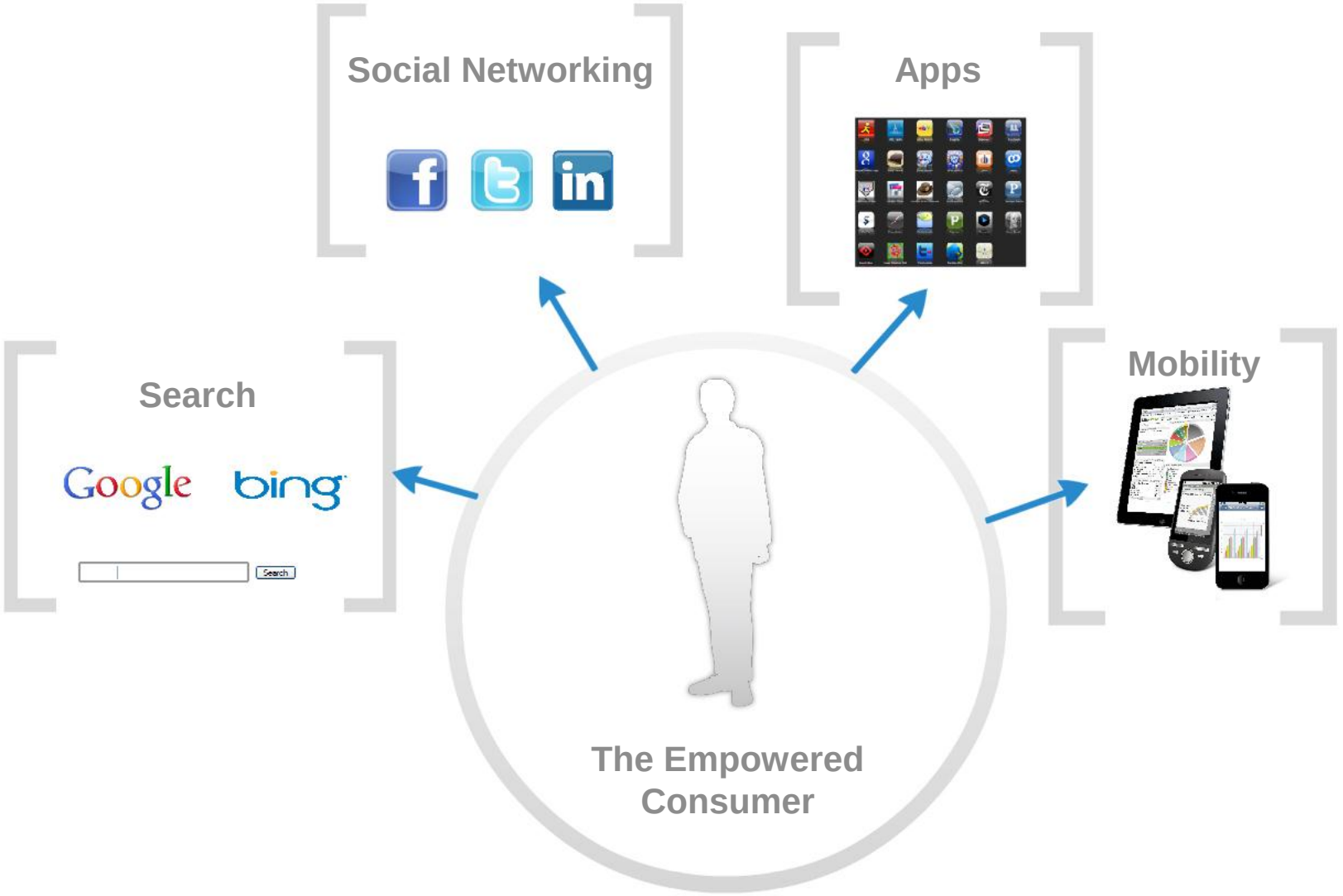
Mark Rodell – Senior Enterprise Architect
QlikTech UK

QlikView

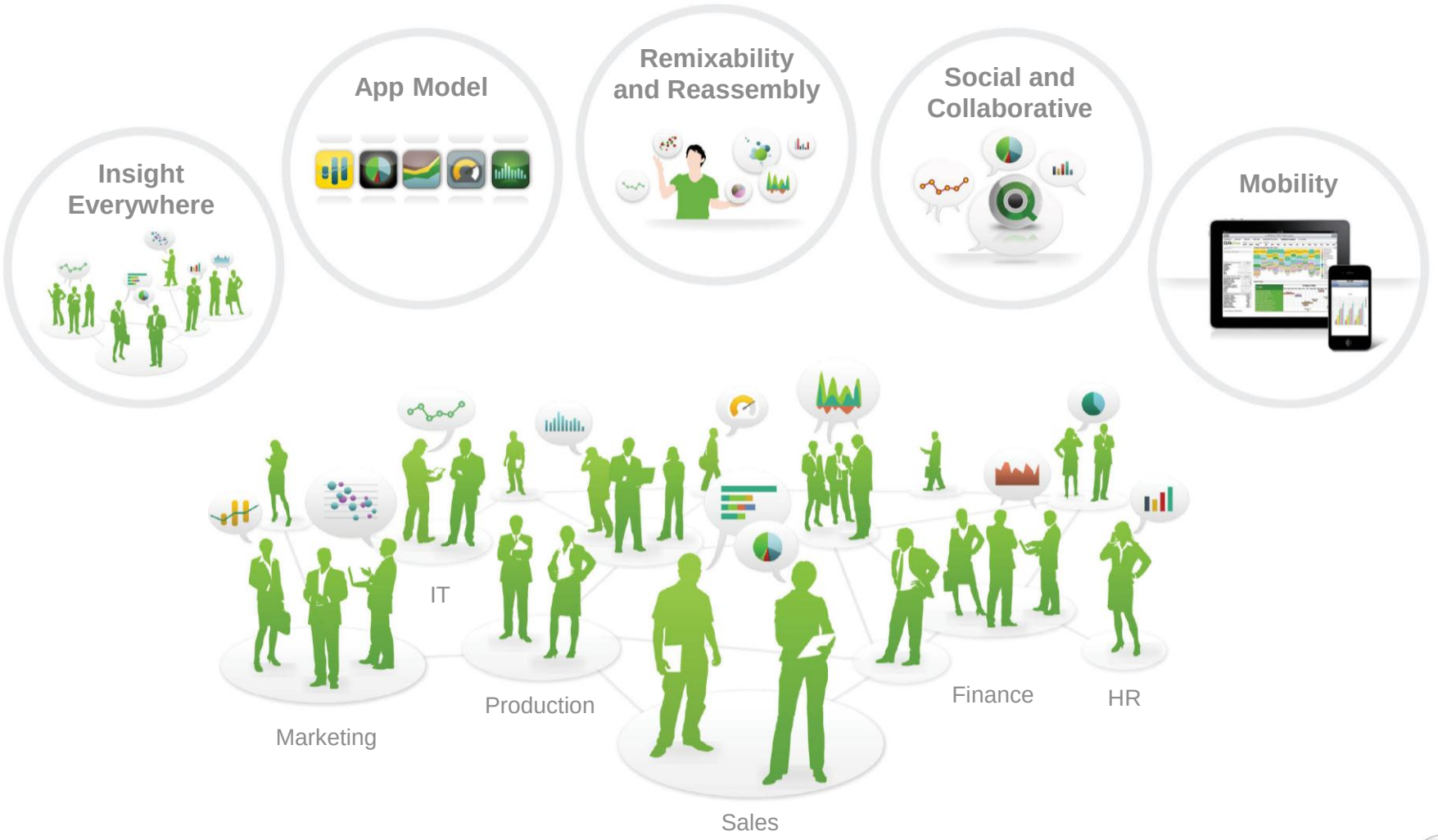
Innovations are Remaking Markets

Google		salesforce.com	QlikTech
PageRank Search	iPhone/iPad	SAAS-based CRM	QlikView Business Discovery
Search	Mobile Devices	CRM	BI
SIMPLICITY	SIMPLICITY	SIMPLICITY	SIMPLICITY

The Empowered Consumer



Business Discovery:
Business User-Driven BI



What Makes QlikView Different

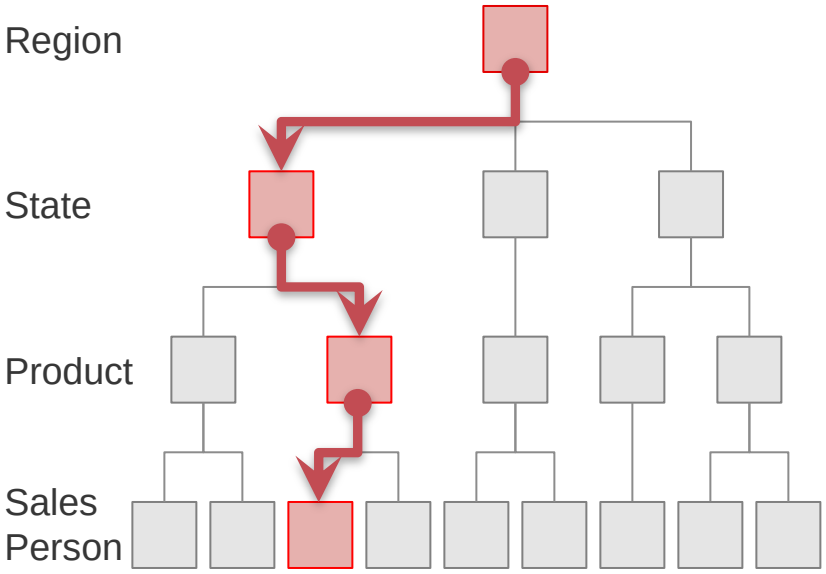
- Associative experience
- Speed-of-thought analysis
- Rapid time to value
- User-centric interactivity
- Access to relevant business data — from anywhere

…making the complex simple

- consolidate information rapidly from any data source
- search data with Google-like ease
- visualize data with state-of-the art graphics

…associative search puts users in control

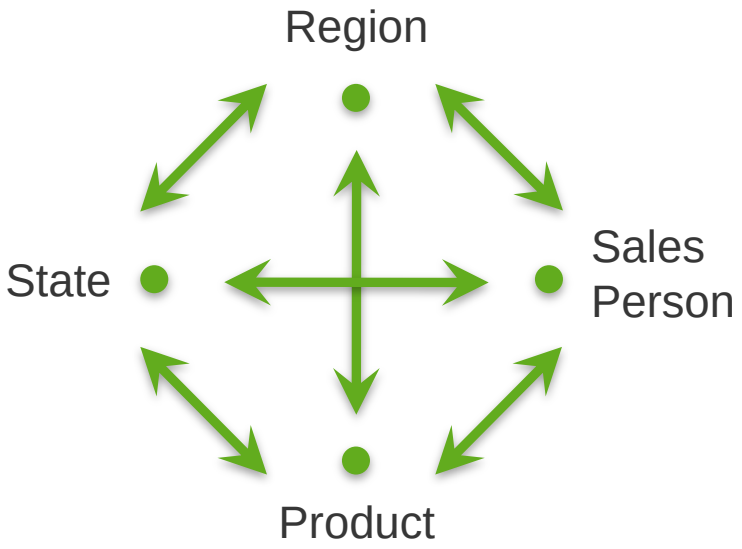
Traditional



IT Driven

- Linear, pre-defined thinking
- Insights missed in hidden data
- Months to change
- Data-centric

Associative



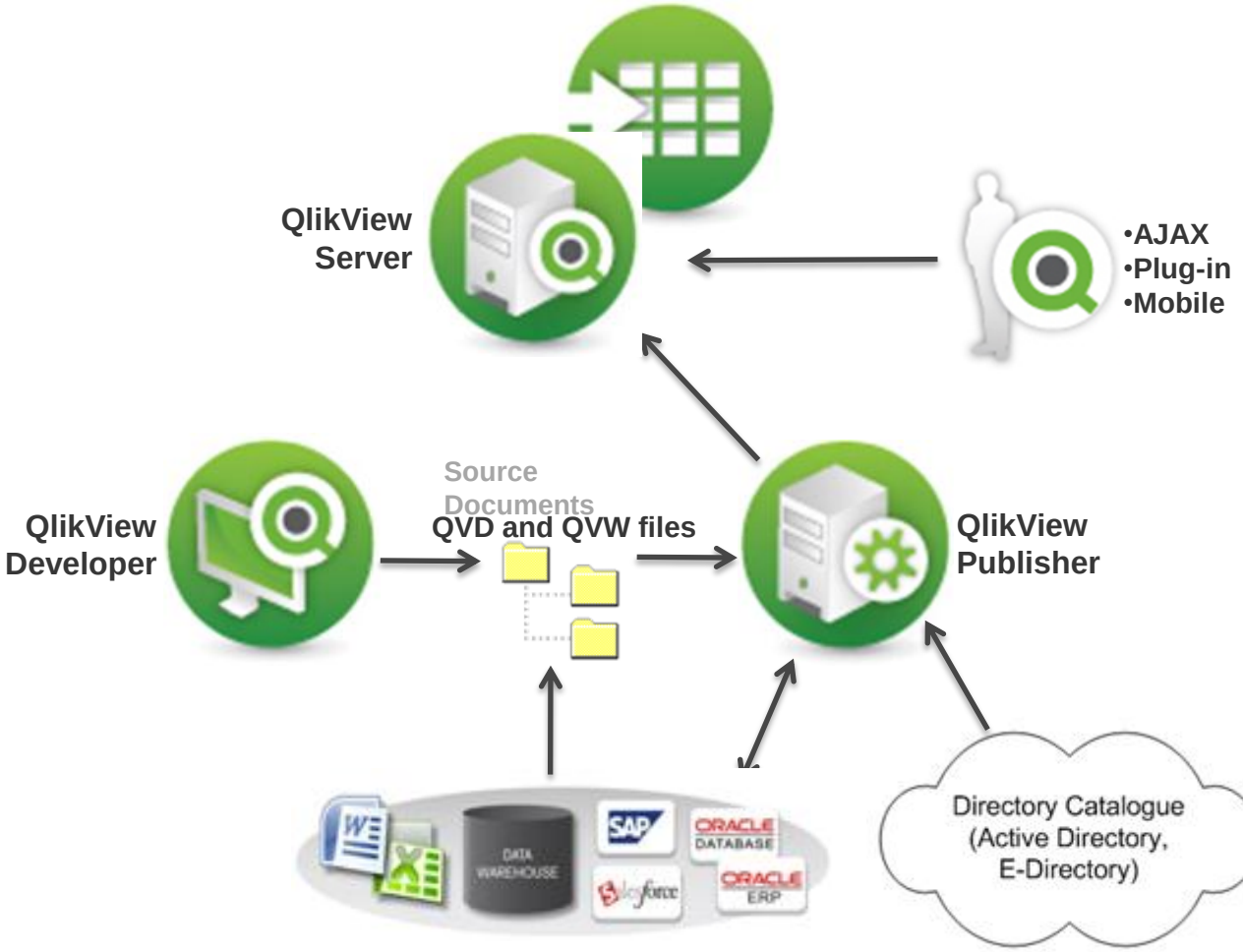
User Driven

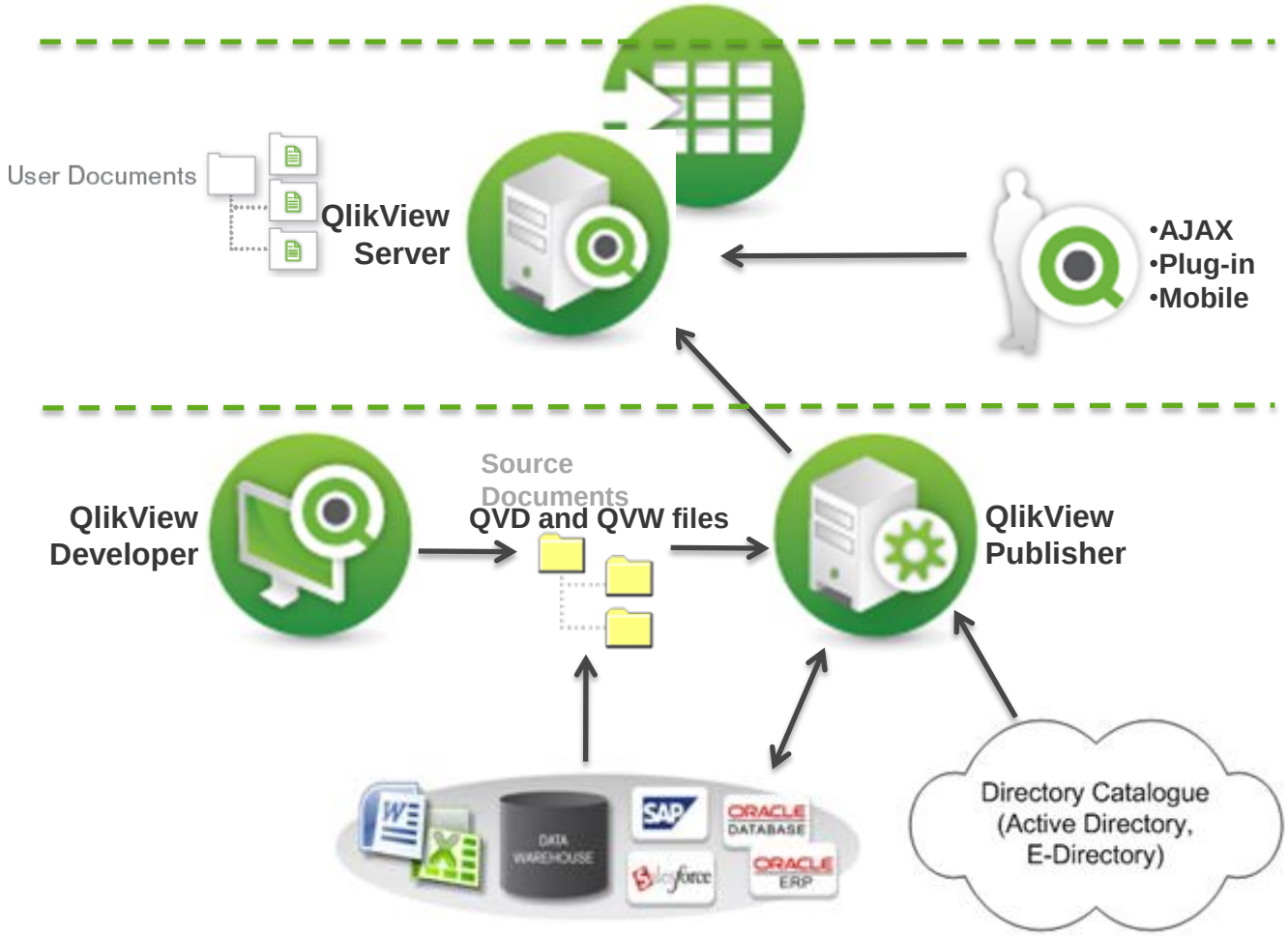
- Follows the user
- All data, always visible
- Minutes to change
- Insight driven

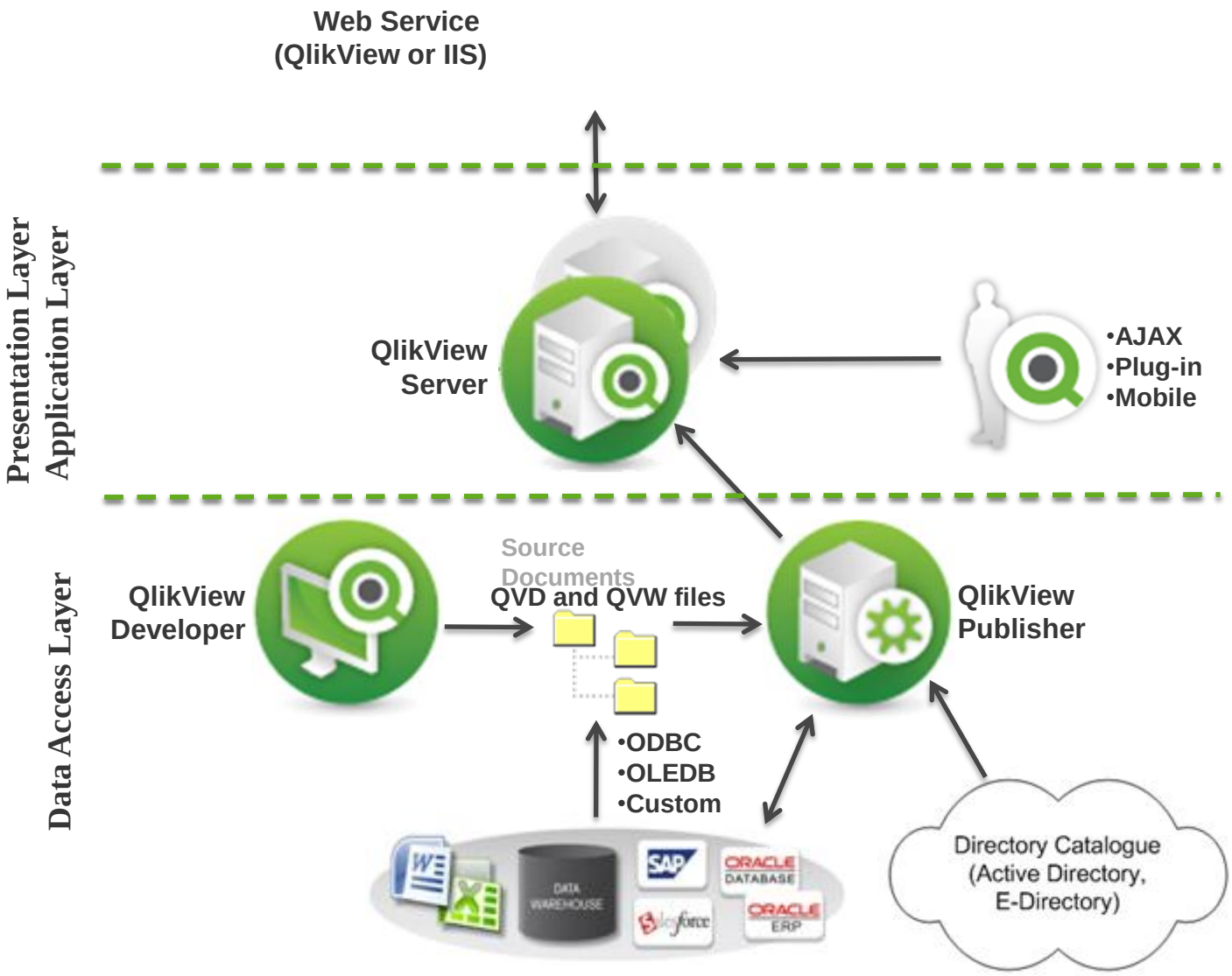
QlikView
Architecture Overview– Whiteboard

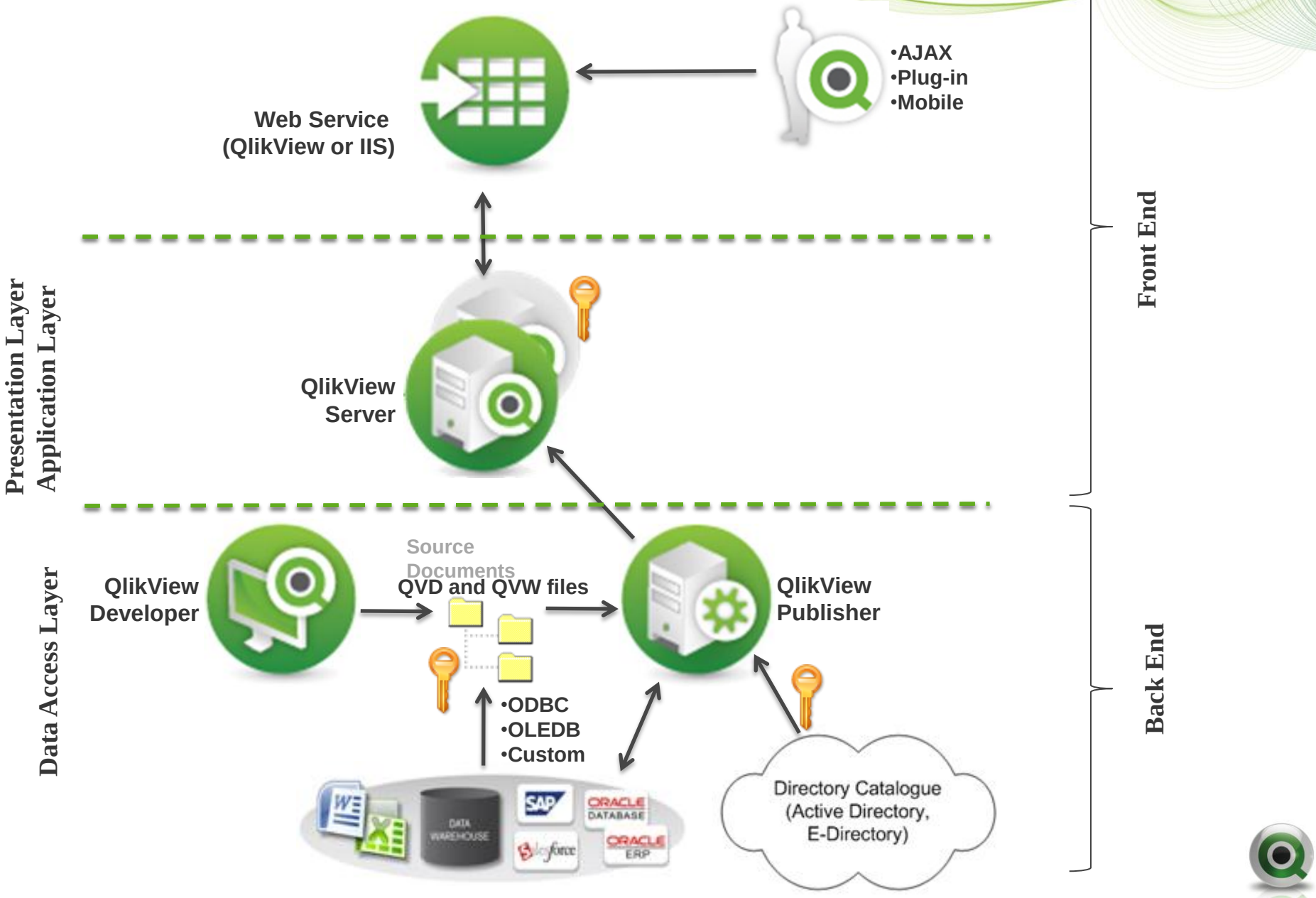
QlikView

•AJAX
•Plug-in
•Mobile


QlikView
Server
•AJAX
•Plug-in
•Mobile
QlikView
Developer
Source
Documents
QVD and QVW files
QlikView
Publisher
DATA
WAREHOUSE
SAP
ORACLE
DATABASE
ORACLE
ERP
Directory Catalogue
(Active Directory,
E-Directory)


User Documents
QlikView Server
•AJAX
•Plug-in
•Mobile
Front End
QlikView Developer
Source Documents
QVD and QVW files
QlikView Publisher
Back End
DATA WAREHOUSE
SAP
ORACLE DATABASE
ORACLE ERP
Directory Catalogue (Active Directory, E-Directory)


Web Service
(QlikView or IIS)
Presentation Layer
Application Layer
QlikView
Server
•AJAX
•Plug-in
•Mobile
Front End
Source
Documents
QlikView
Developer
QVD and QVW files
QlikView
Publisher
Data Access Layer
•ODBC
•OLEDB
•Custom
Directory Catalogue
(Active Directory,
E-Directory)
Back End


Web Service
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Data Access Layer
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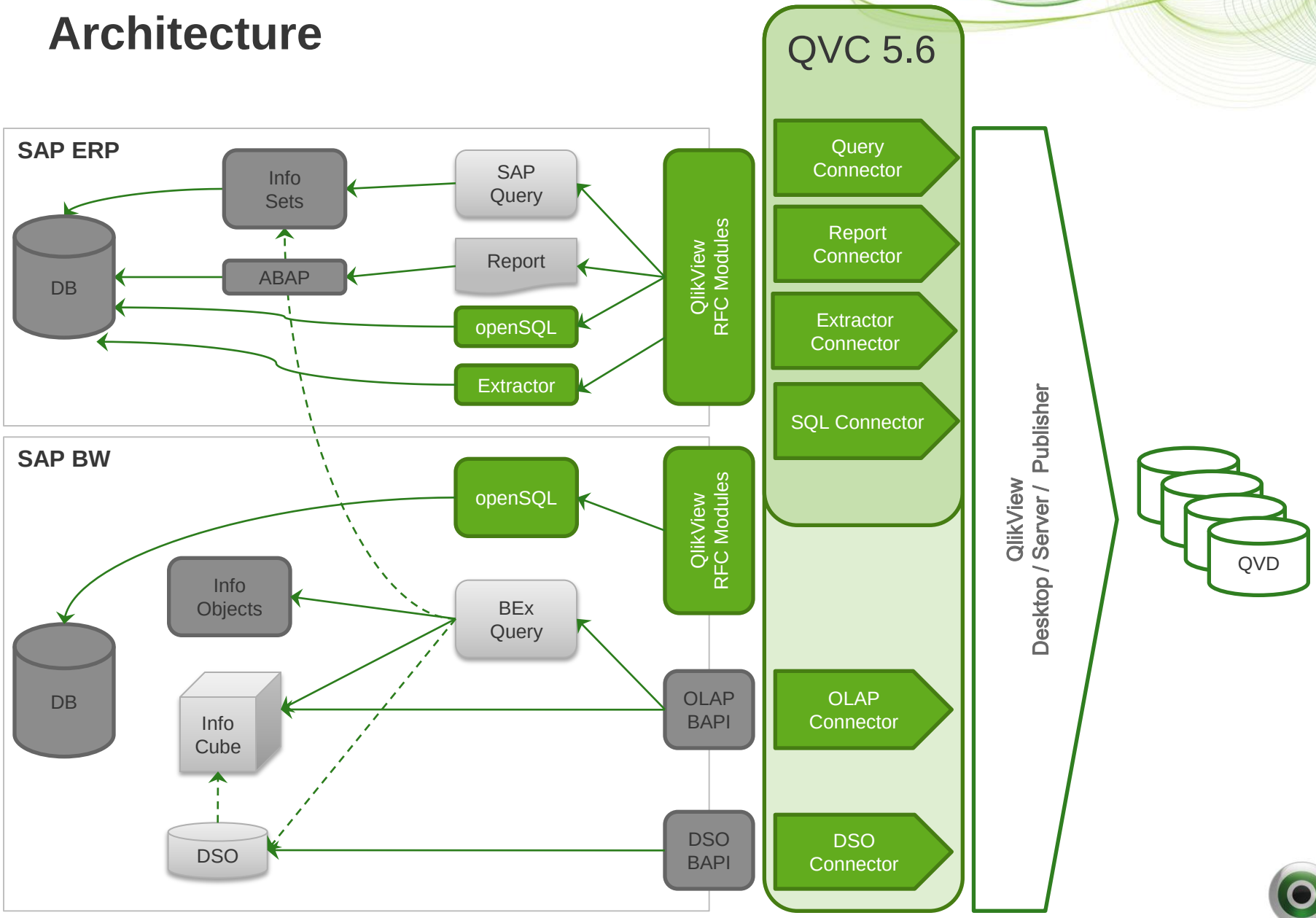
•OLEDB
•Custom
Directory Catalogue
(Active Directory,
E-Directory)
Back End

QlikView
SAP Connector

QlikView

Architecture



Coffee Break

QlikView

The role of IT in the utility of the future

Stuart Ravens – Principal Analyst– Ovum

QlikView

The role of IT in the Utility of the Future

How location intelligence enables improved performance

Stuart Ravens

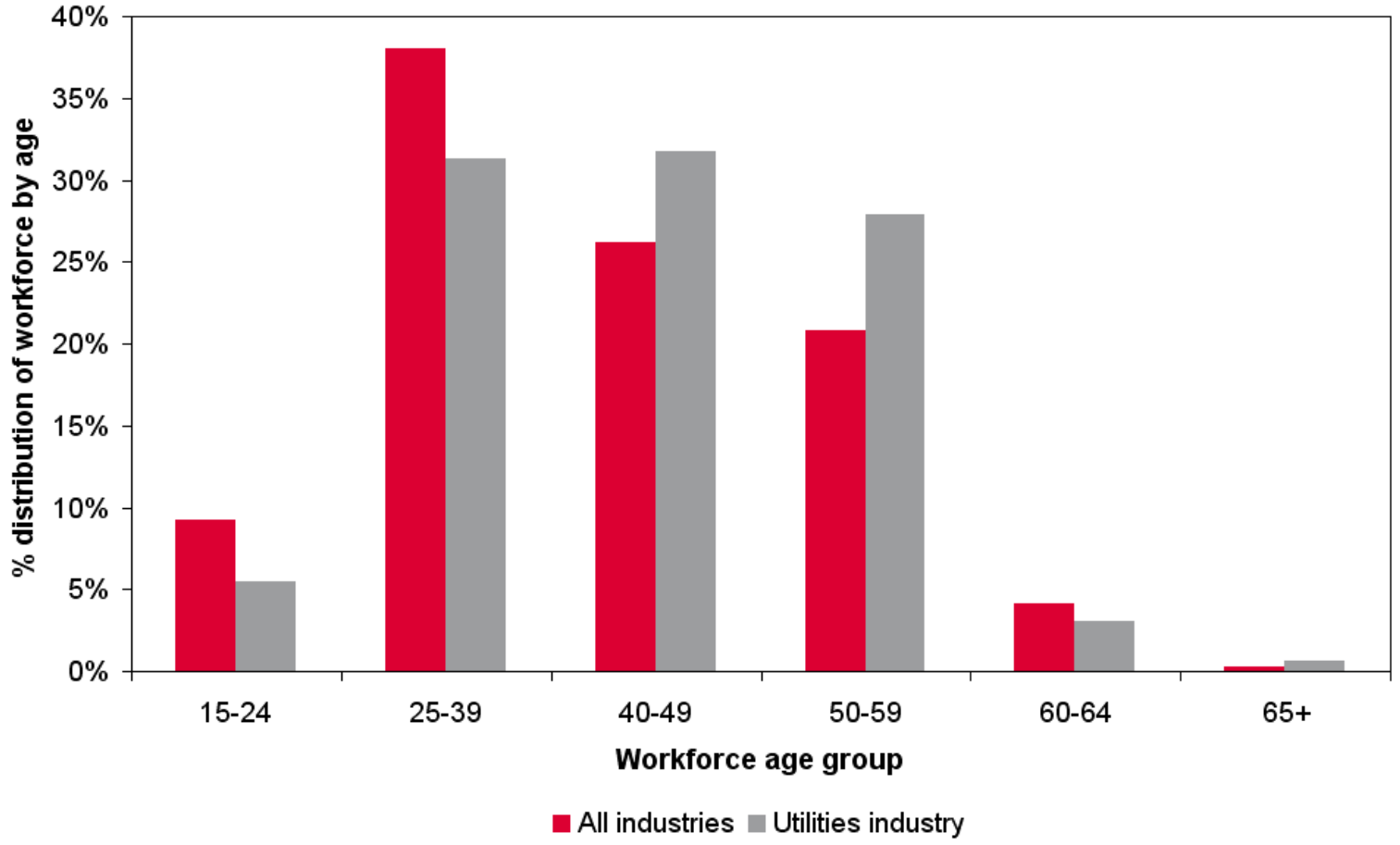
stuart.ravens@ovum.com

19 September 2012

The utility of the future is an analytical utility

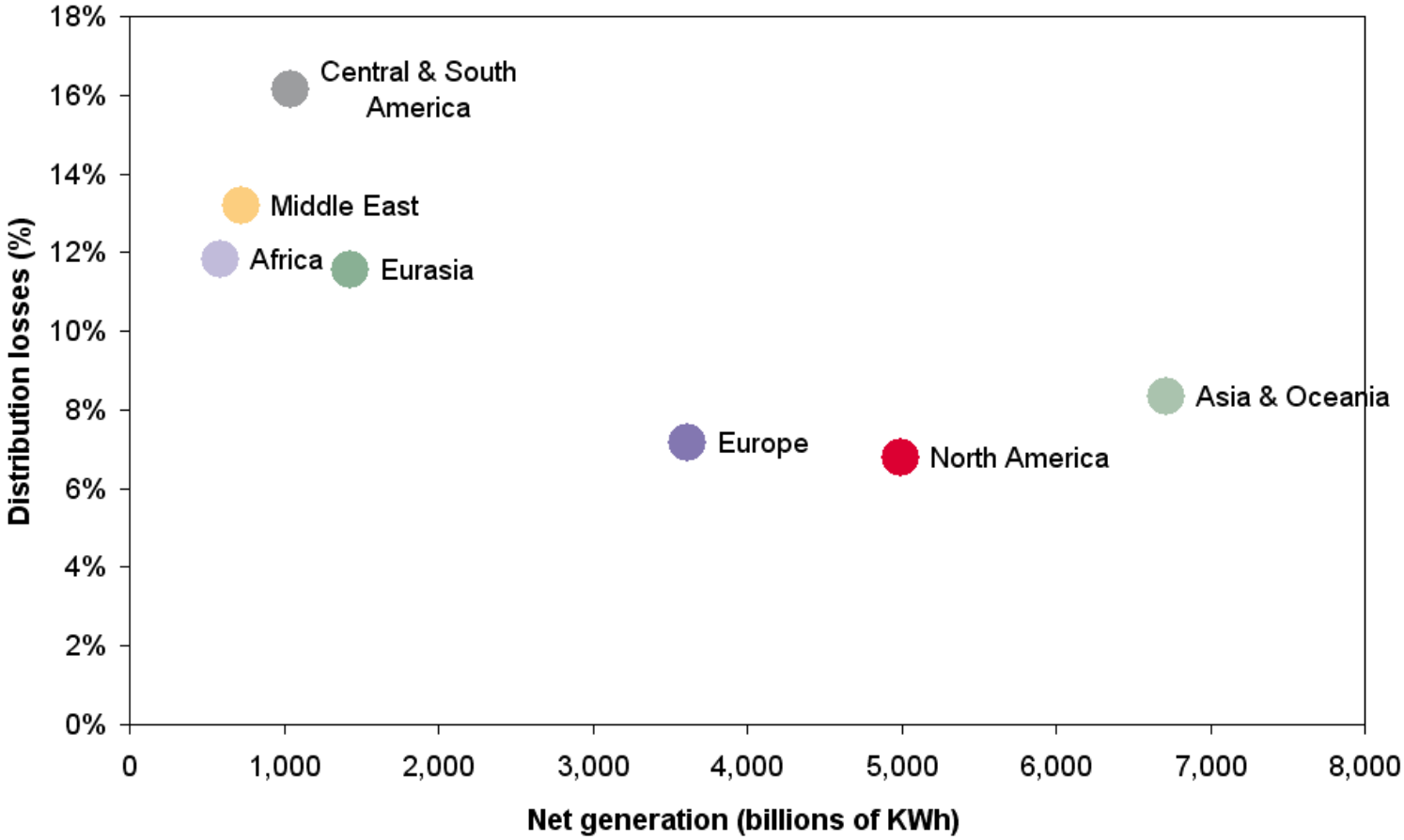
- Unprecedented industry pressures
- An exponential growth in data volumes
- All this data can be referenced geographically
- There’s a natural convergence of GIS and analytics

The European workforce is aging



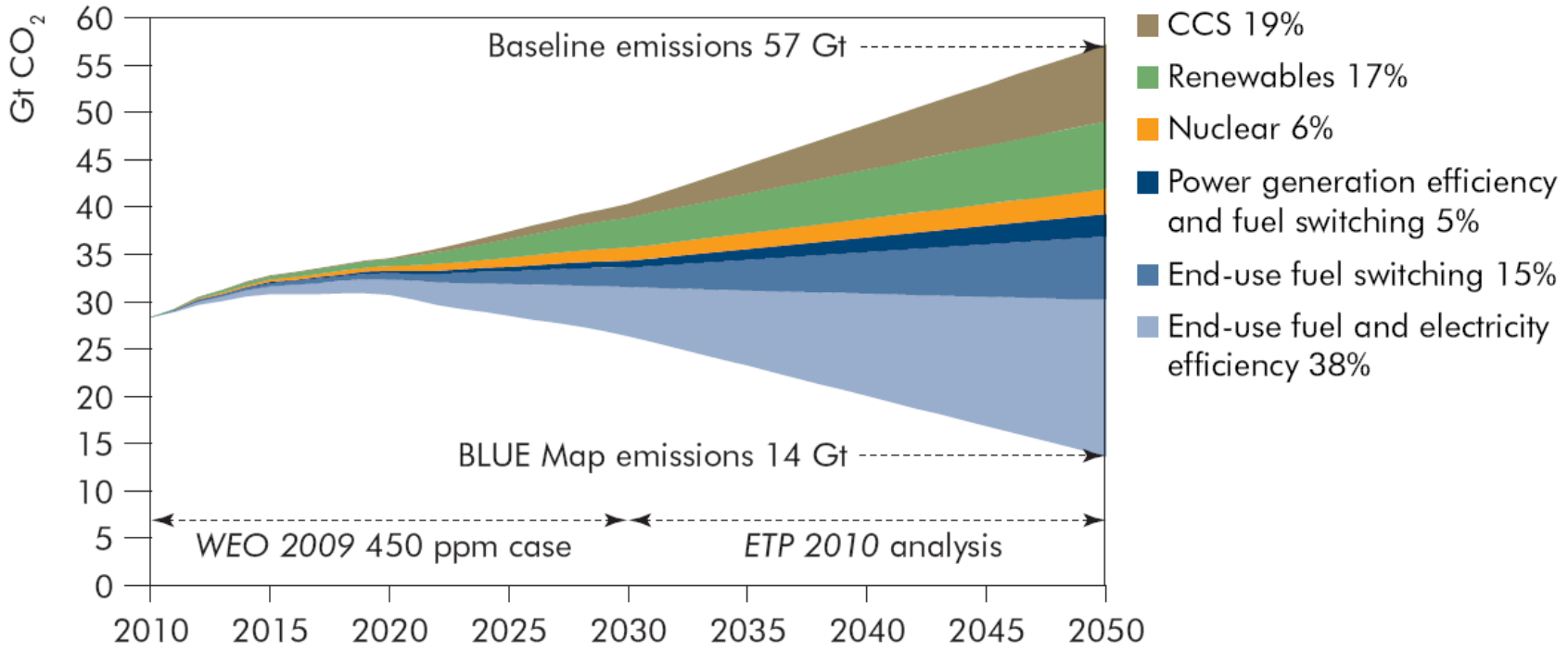
Source: Eurostat

Electricity distribution losses in Europe and N America are driving smart grid investment



Source: EIA

The decarbonisation of the energy value chain has huge direct implications for electricity and gas, and indirect ones for water

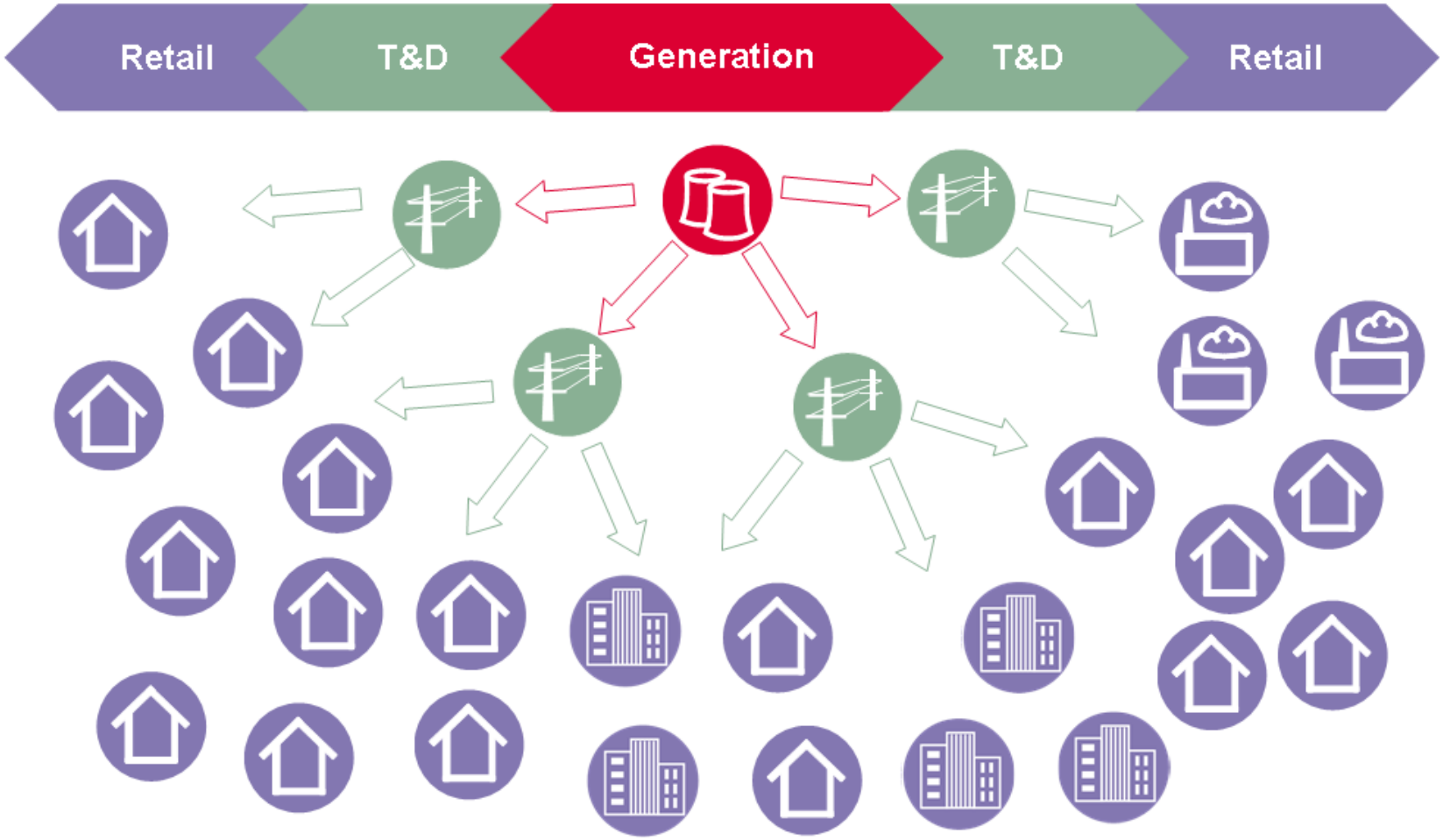


Source: IEA Energy Technology Perspectives 2010

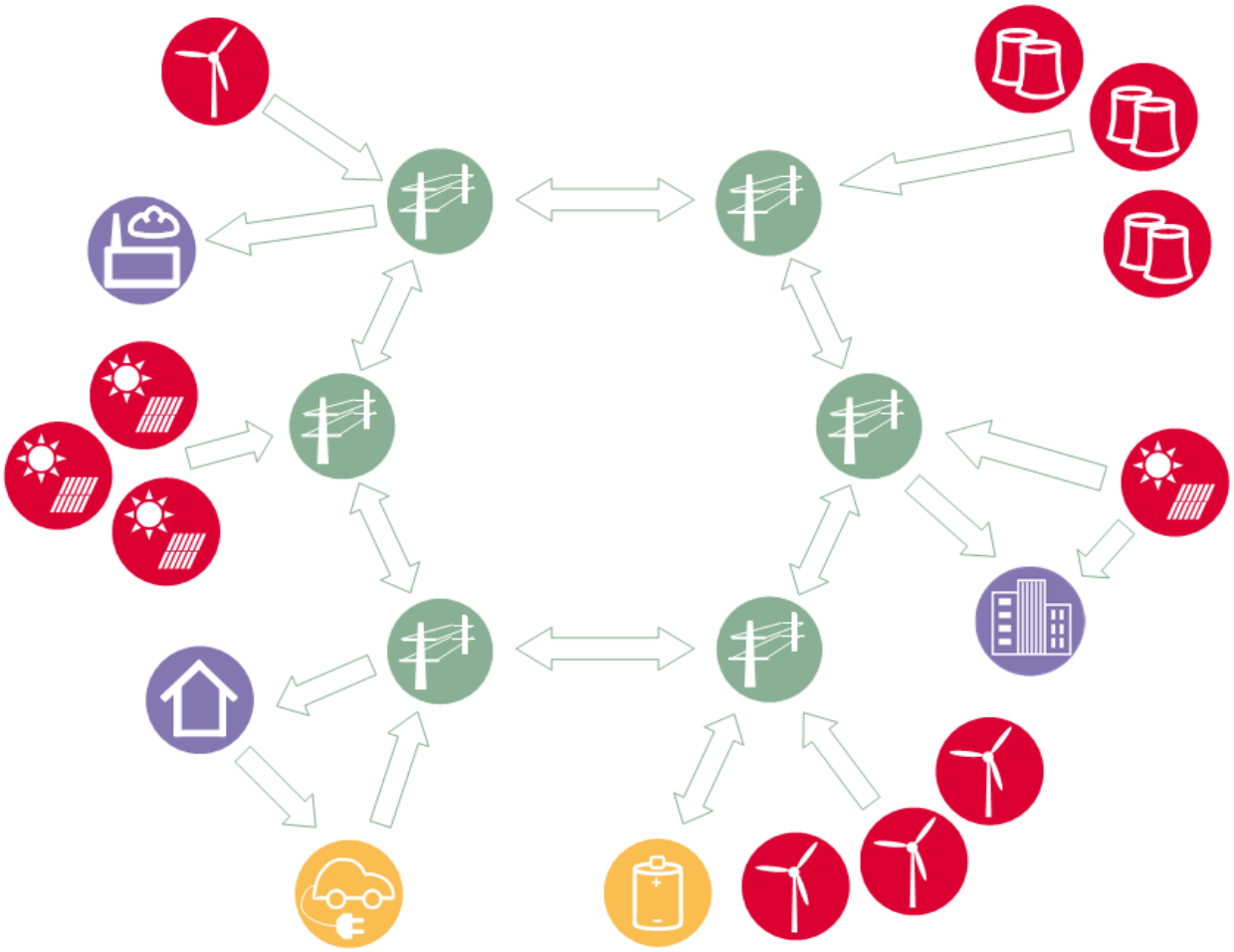
The Blue Map scenario relies on a number of assumptions

- C-intensity of energy use falls 64%
- CO2 from power emissions falls 76%
- Nuclear accounts for 24%
- **Renewables account for 48% of generation**
- **Building emissions cut by 66%**
- **Share of petroleum in transport falls to 50%**
- **80% of LDV sales are PHEVs, EVs or fuel cell**

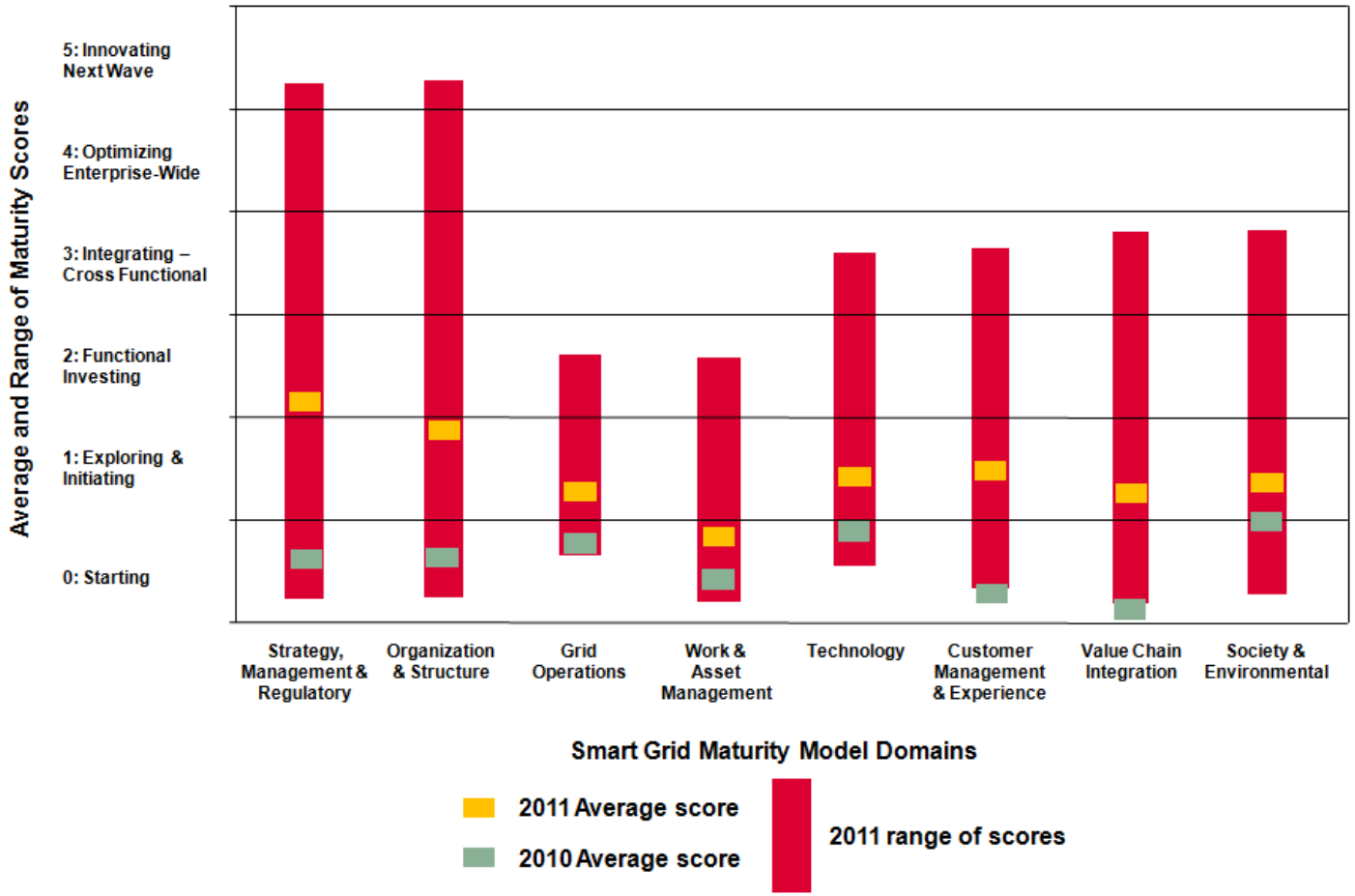
The old centralized distribution model ...



… will look more like this (to varying degrees)



Smart grid is still at an early stage …
(SGMM v4 due September 2012)



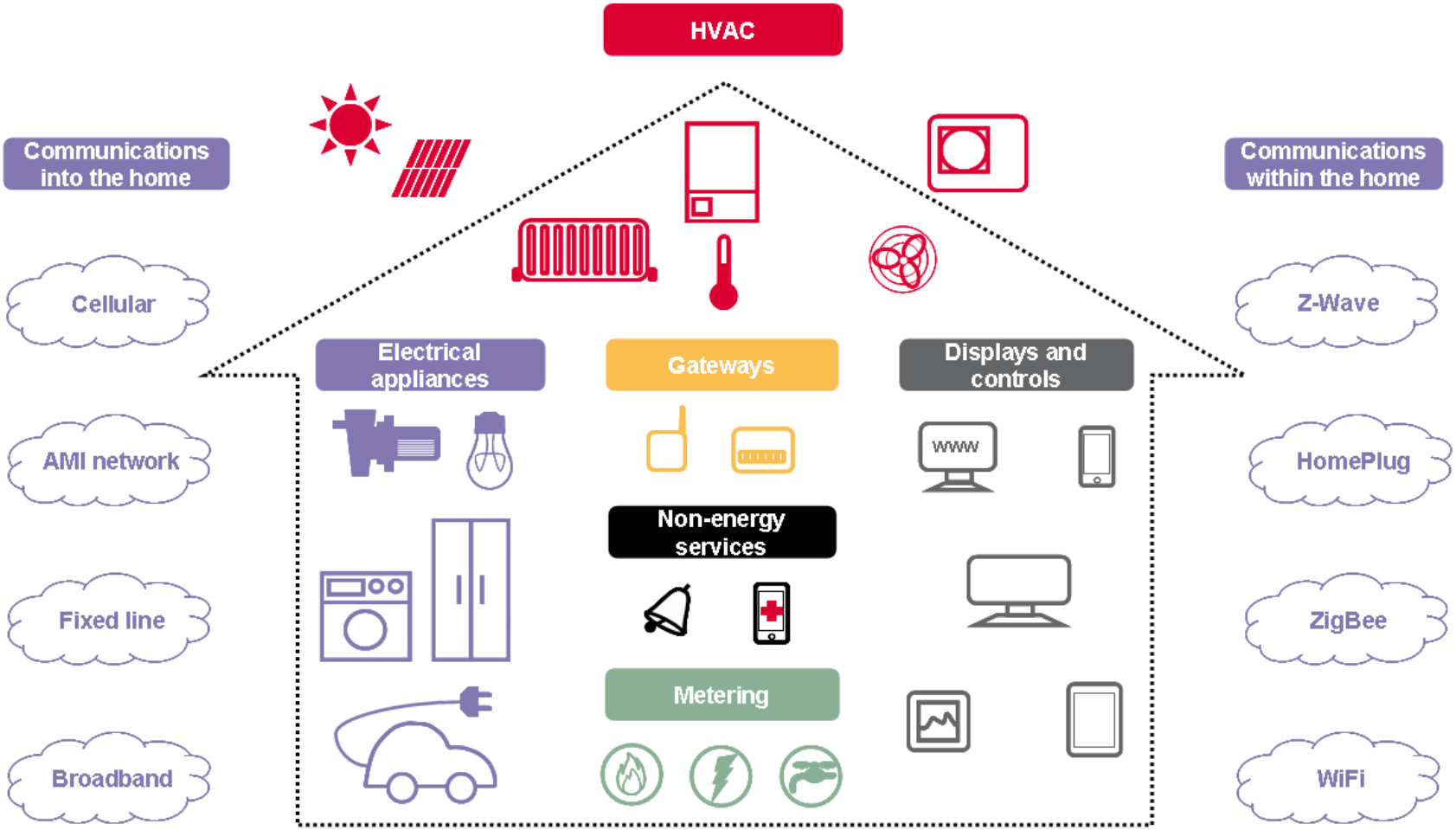
Source: Smart Grid Maturity Model 2011

… but is fast maturing

Technology area	Maturity level	Development trend
Wide-area monitoring and control	Developing	Fast
Information and communications technology integration	Mature	Fast
Renewable and distributed generation integration	Developing	Fast
Transmission enhancement applications	Mature	Moderate
Distribution management	Developing	Moderate
Advanced metering infrastructure	Mature	Fast
Electric vehicle charging infrastructure	Developing	Fast
Customer-side systems	Developing	Fast

Source: IEA Smart Grids Roadmap, 2011

Smart home data provide tantalizing opportunities



Smart meters rely on incredibly complex data flows

Tariff and consumption data on in-home display	Provision of consumption data to in-home display Provision of tariff data to in-home display	Time-of-use and critical peak pricing	Transmission of pricing signals from retailer/distributor to customer
Accurate bills	Transmission of consumption data from meter to supplier Validation, estimation and editing	Single version of the truth	Transmission of consumption data to in-home display, central hub, retailer, distributor, settlement
Dynamic security upgrades	Real-time upgrading of security software installed in in-home end points	Automated home energy management	Data sharing between in-home appliances Remote management of in-home appliances (web/smart phone)
Personal data protection	Consumer opt-in/opt-out of sharing non-regulated consumption data with retailer or distributor	Incorporation of non-energy home automation	Data sharing between appliances and other automation technologies (e.g. security systems)
Remove barriers to entry	Non-discriminatory access to market information	Enable competitive differentiation	Transmission of tariff and product data from retailer to customer Transmission of energy services information to customer
Improve customer switching	Transmission of tariff and consumption data to the customer Sharing of tariff and consumption data with third party switching sites	Functional interoperability	Sharing of meter register data
Near-real time error detection and correction	Transmission of event data from meter to distributor	Microgeneration feed-in	Automated power-down messaging from distributor to microgenerator Export data to retailer and settlement Provision of export and tariff data to customer
Demand response	Automated power-down and power-up messaging from distributor to appliances	Load balancing of electric vehicles	Automated power-down and power-up messaging to EV recharge stations
Tamper alarms	Transmission of tamper alert from meter to retailer or distributor	Switch to prepay	Communication of retailer's intent to convert to prepay Remote conversion to prepay-credit meter
Customer disconnection	Communication of retailer's intent to disconnect Remote disconnect/reconnect command		

Smart grid functionality is more amorphous …

Network-related functions			Customer premise-related functions
Flow control	Automated islanding and reconnection	Dynamic capability rating	Customer peak shedding
Automated feeder switching	Real time load measurement & management	Automated volt/VAR control	Electric vehicles
Wide area monitoring and control	Fault current limiting	Real time load transfer	Distributed generation
Predictive maintenance	Enhanced fault protection	Electricity storage	Customer demand optimisation

… and based largely on analytics

Prevent a problem before it occurs

- Operational data collection
- Non-operational data collection
- Event diagnostics
- Data analytics
- Predictive maintenance

Speed time to resolution when something does occur

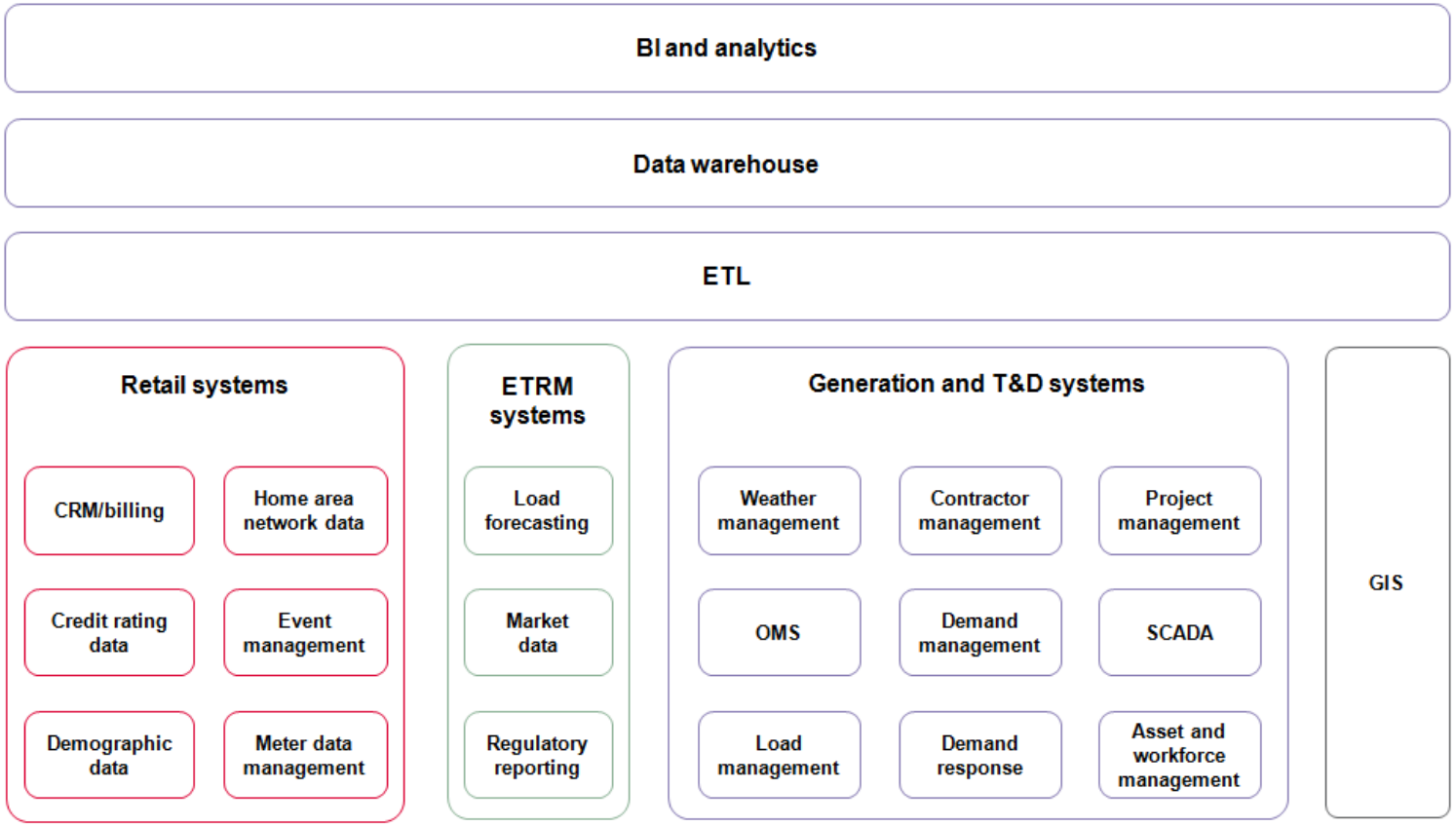
- Demand response
- Realtime condition monitoring
- Event detection & location
- Automated switching
- Condition-based crew dispatch

Functionality delivers numerous smart grid goals

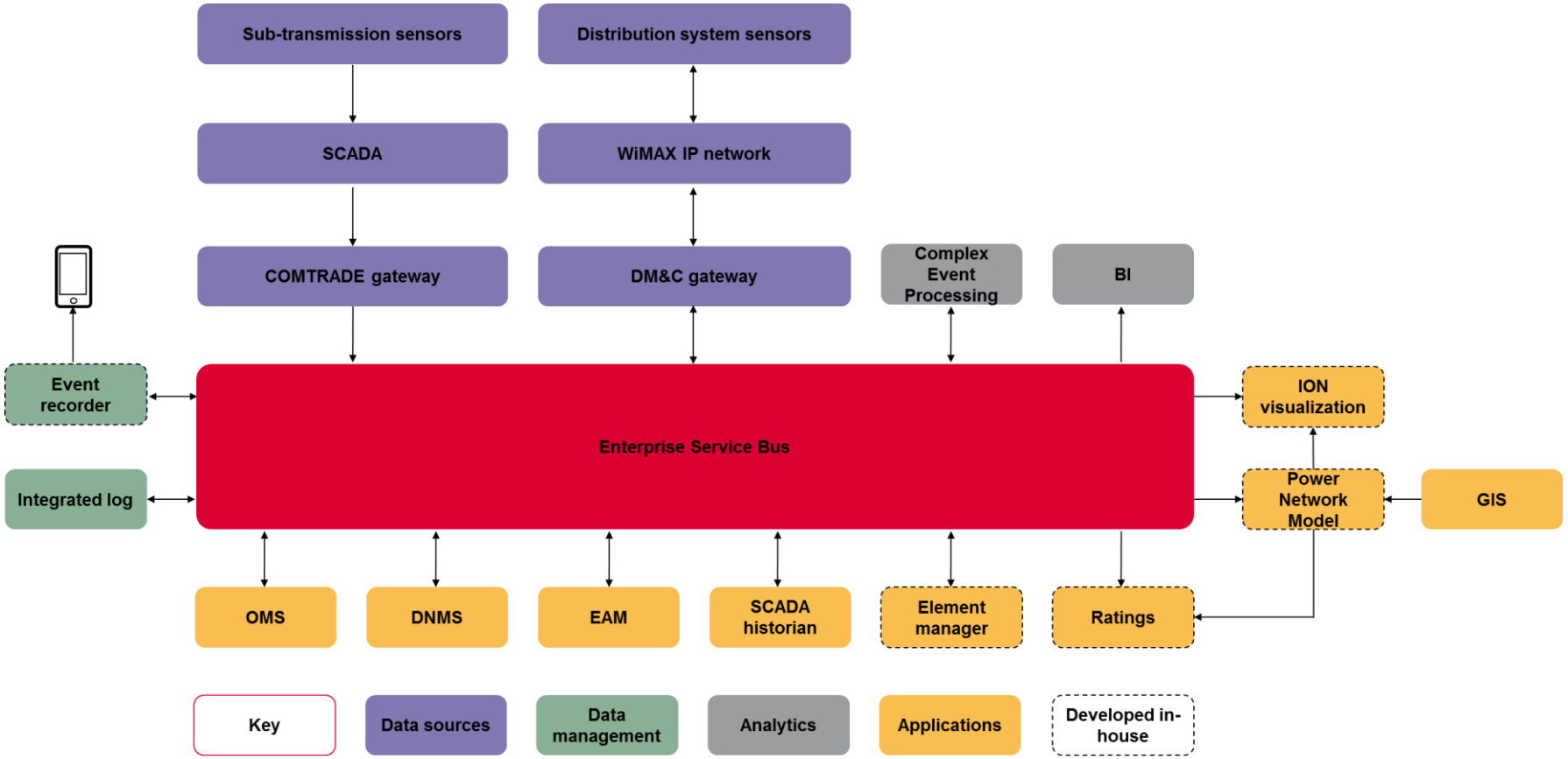
- Direct feedback
- Electric vehicle integration
- Peak load management
- Renewable integration
- Energy efficiency
- Reduced line losses

Although analytics is not restricted to smart grid; it extends across the entire value chain

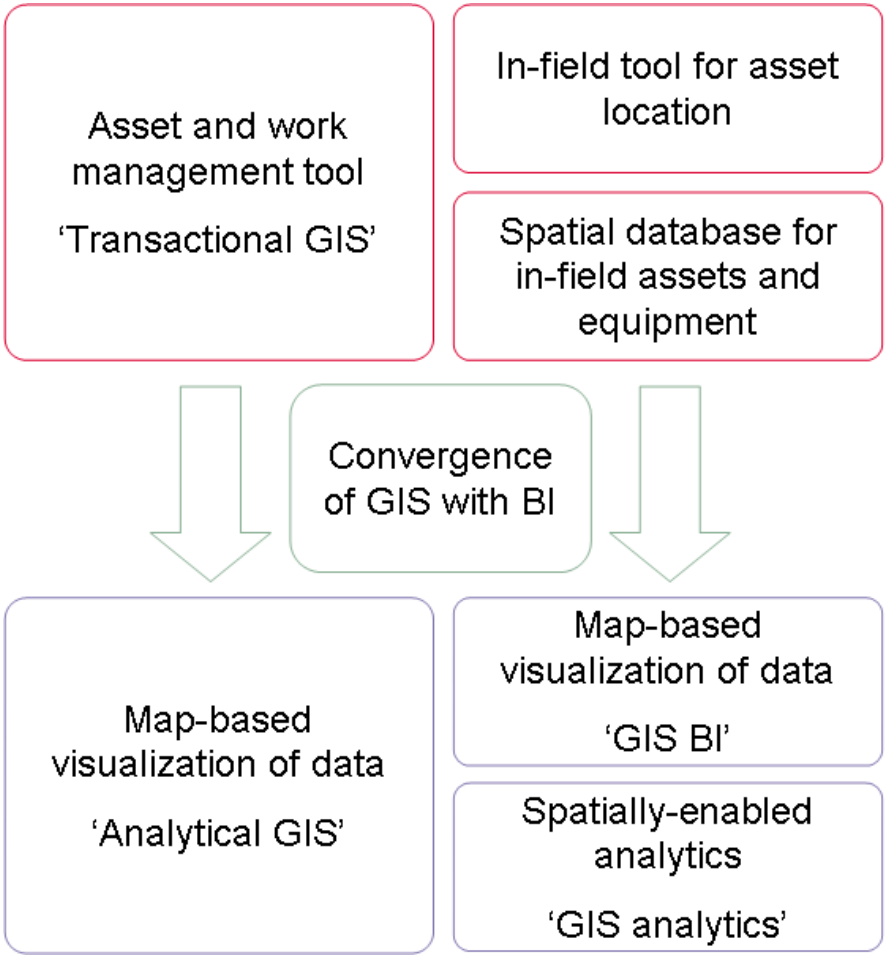
The siloed nature of utilities is a barrier to enterprise-wide analytics; smart grid challenges the ETL-based model



Analytics became realtime in Ausgrid's DM&C project



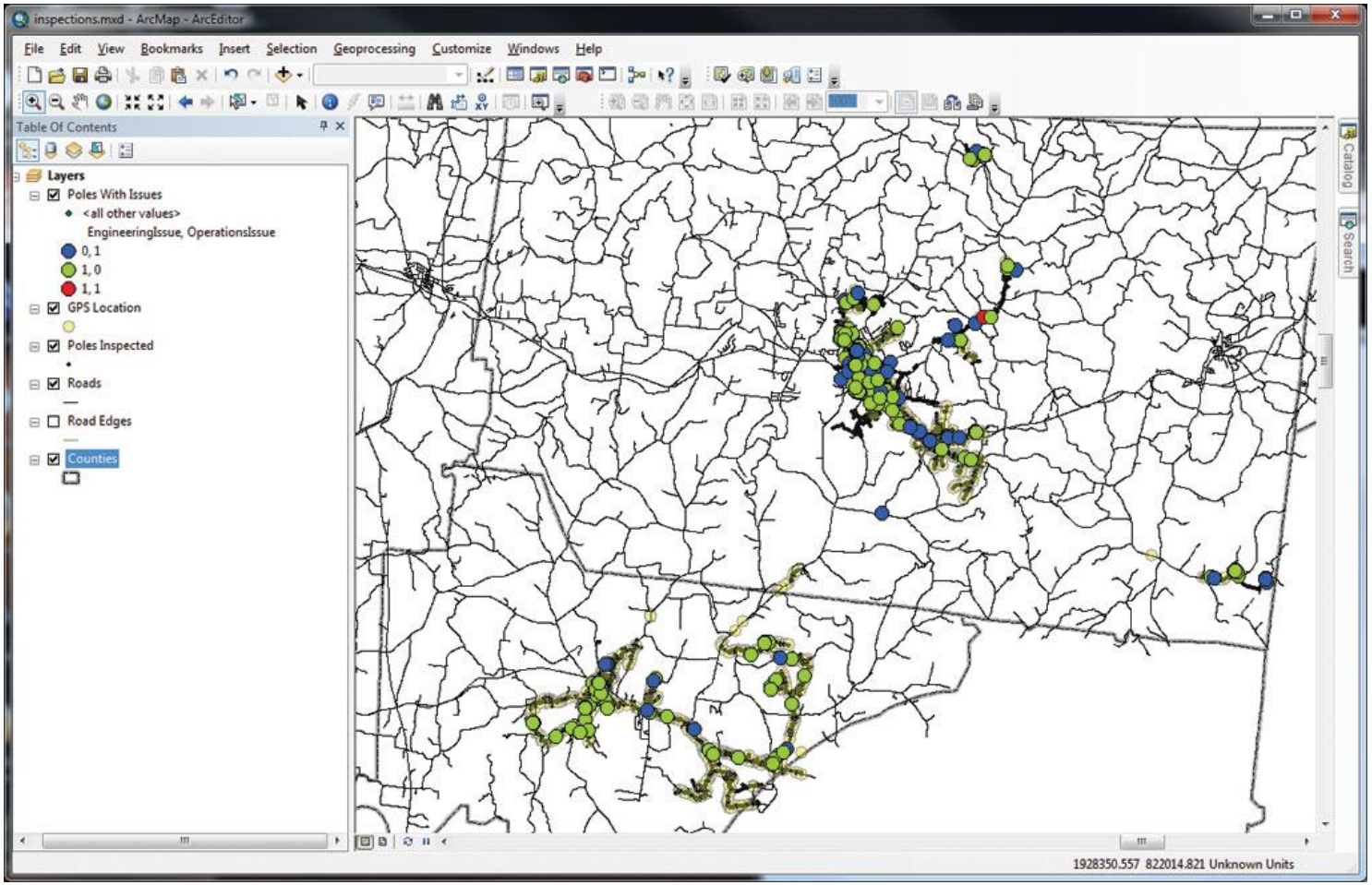
All this data can be visualized geographically; an analytical utility forces a convergence of GIS and analytics



Expect a second wave of better, scalable, GIS-enabled mobile applications …

- Hardware developments
- Device proliferation
- Consumerisation of applications
- Vendor investments in assets
- PAS55
- SIM

… like this tablet based app, which uses the ArcGIS API for Android



There are a number of barriers to overcome for a utility to act on this intelligence …

- System scalability
  - Is ‘infinite scalability’ possible?
- Disparate system architecture
  - Poor system interoperability
  - Multiple ODS/data marts
  - Legacy systems
- Data strategy and governance
  - Data quality management
  - Metadata management
  - Master data management
  - Audit compliance
  - Security
- Cultural barriers
  - IT vs OT

Disclaimer

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed. Please note that the findings, conclusions and recommendations that Ovum delivers will be based on information gathered in good faith from both primary and secondary sources, whose accuracy we are not always in a position to guarantee. As such Ovum can accept no liability whatever for actions taken based on any information that may subsequently prove to be incorrect.

Location Based Dashboards

Kevin Doughty – Head of Business, Utilities, Esri UK

QlikView

esri UK

Understanding Our World

Location based dashboards

Esri and QlikTech QlikTalk

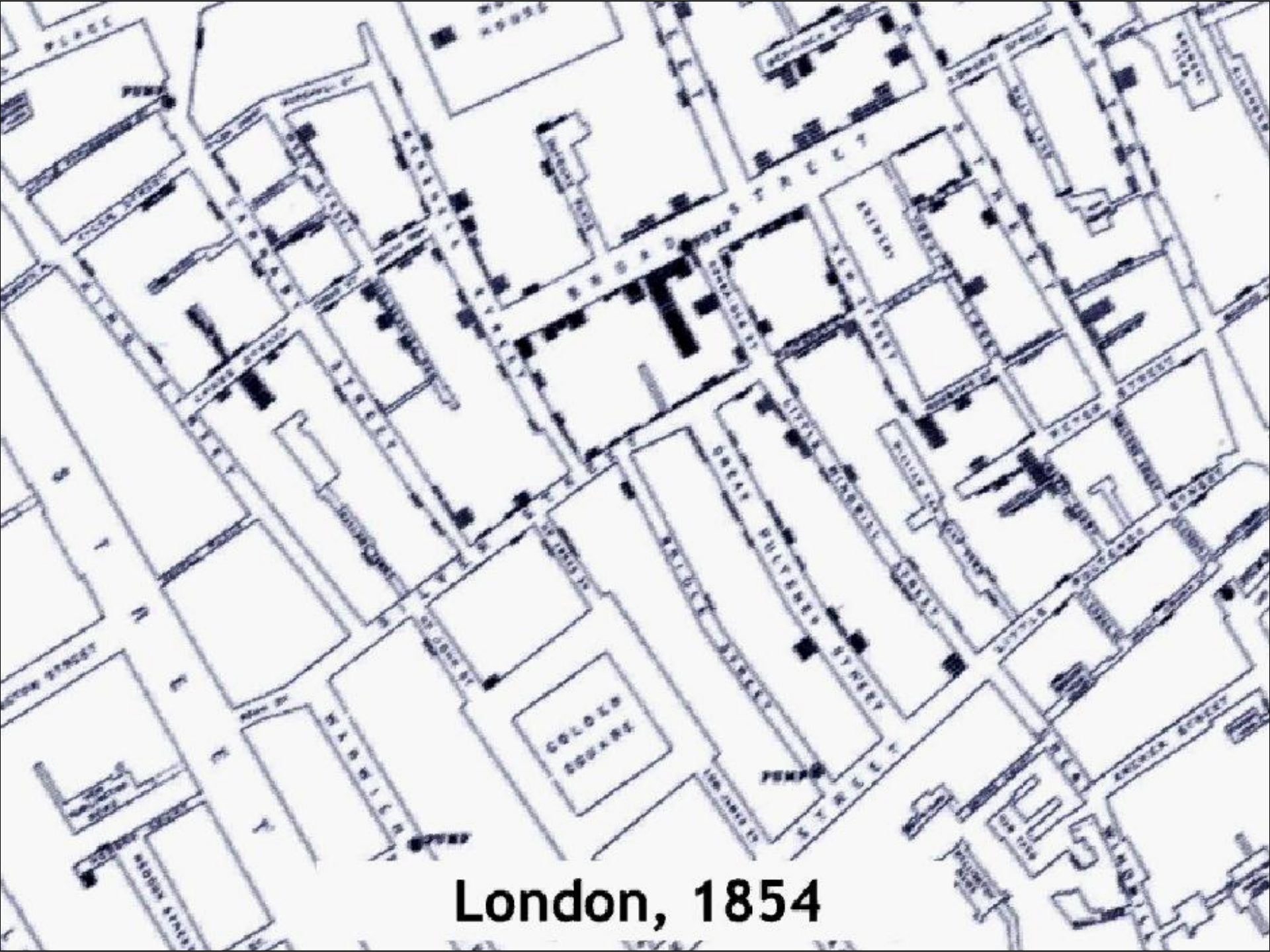
Kevin Doughty

19 September 2012

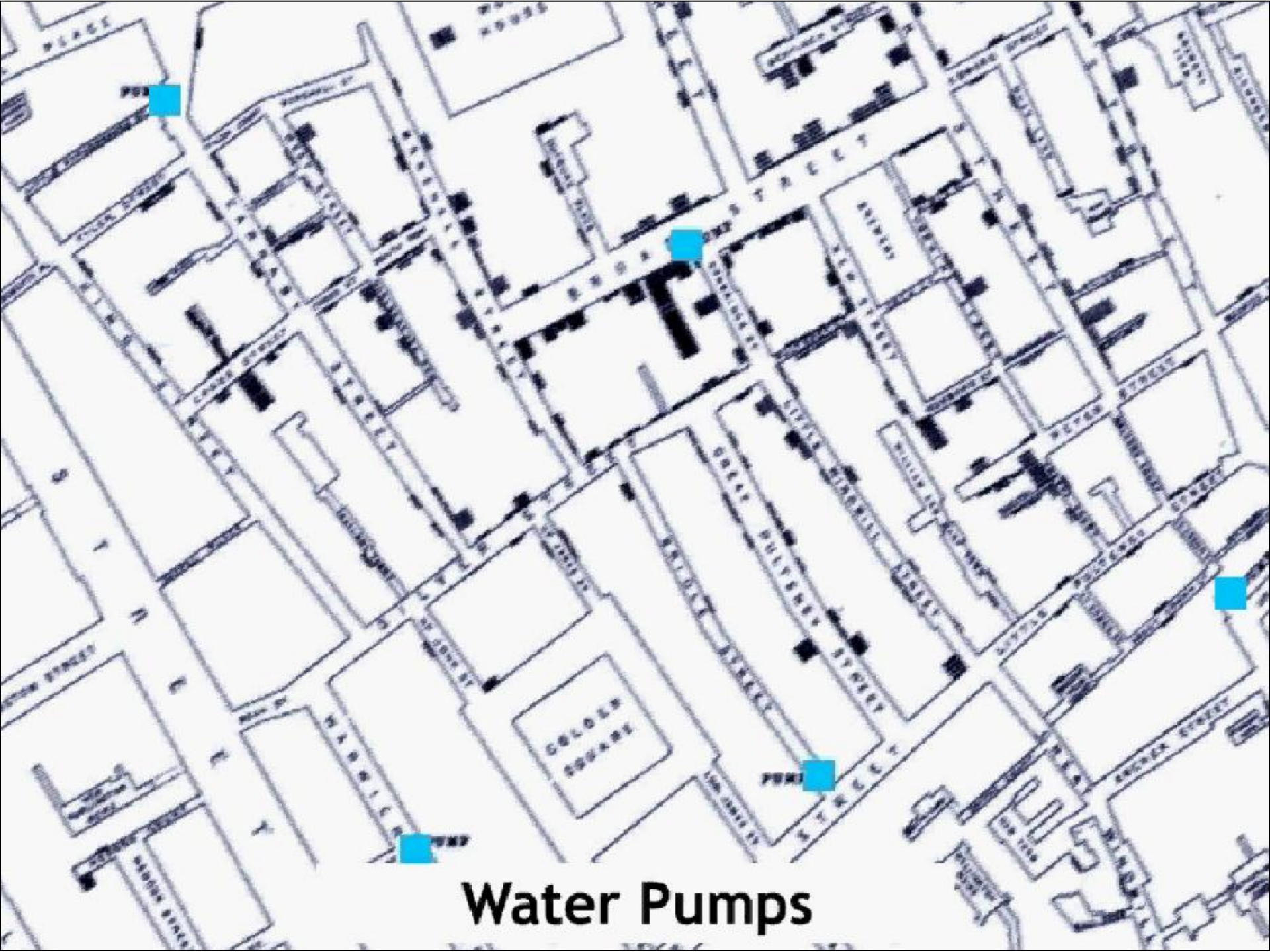
Are women better than men at navigating?

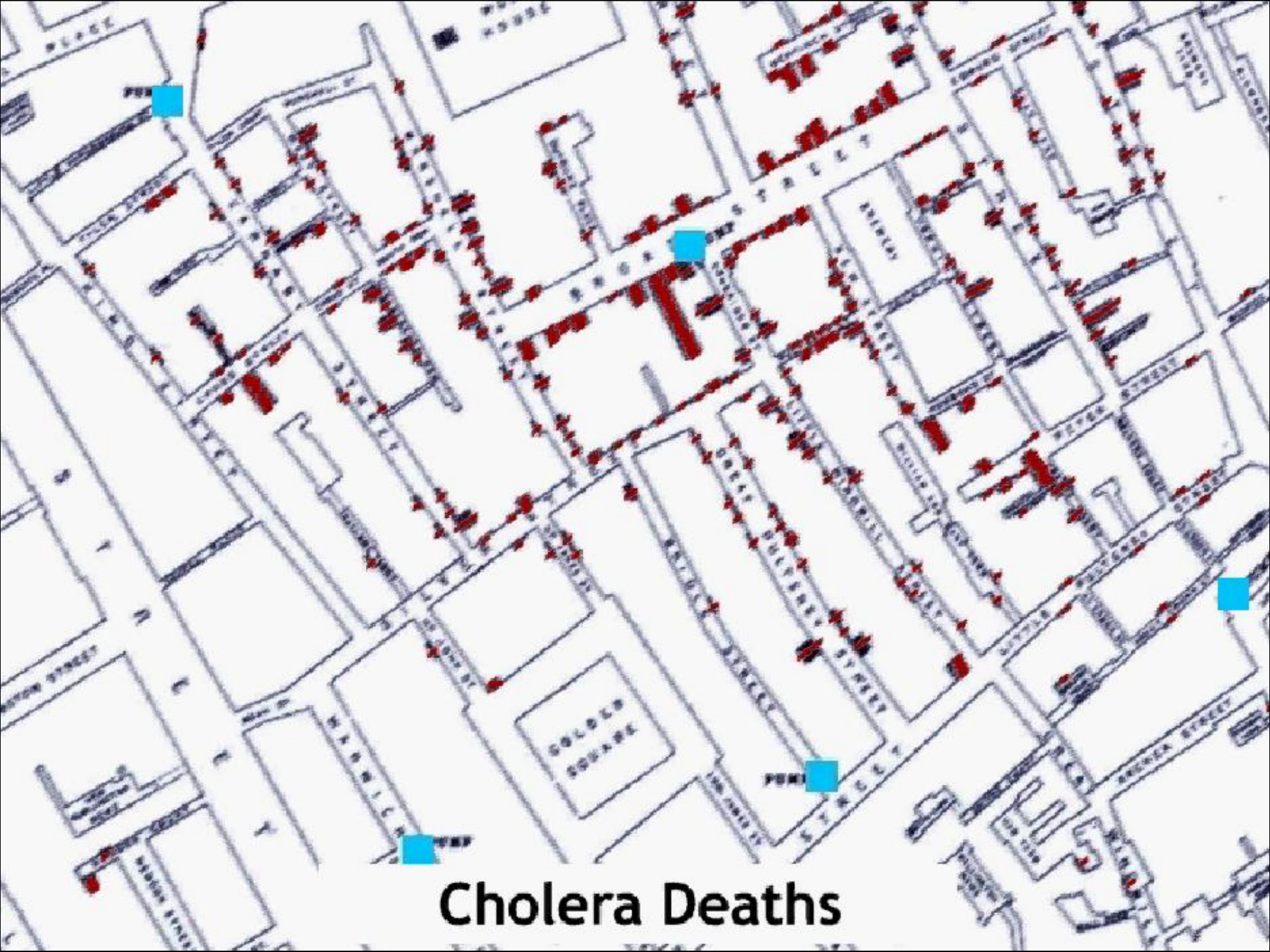
Which way am I looking?

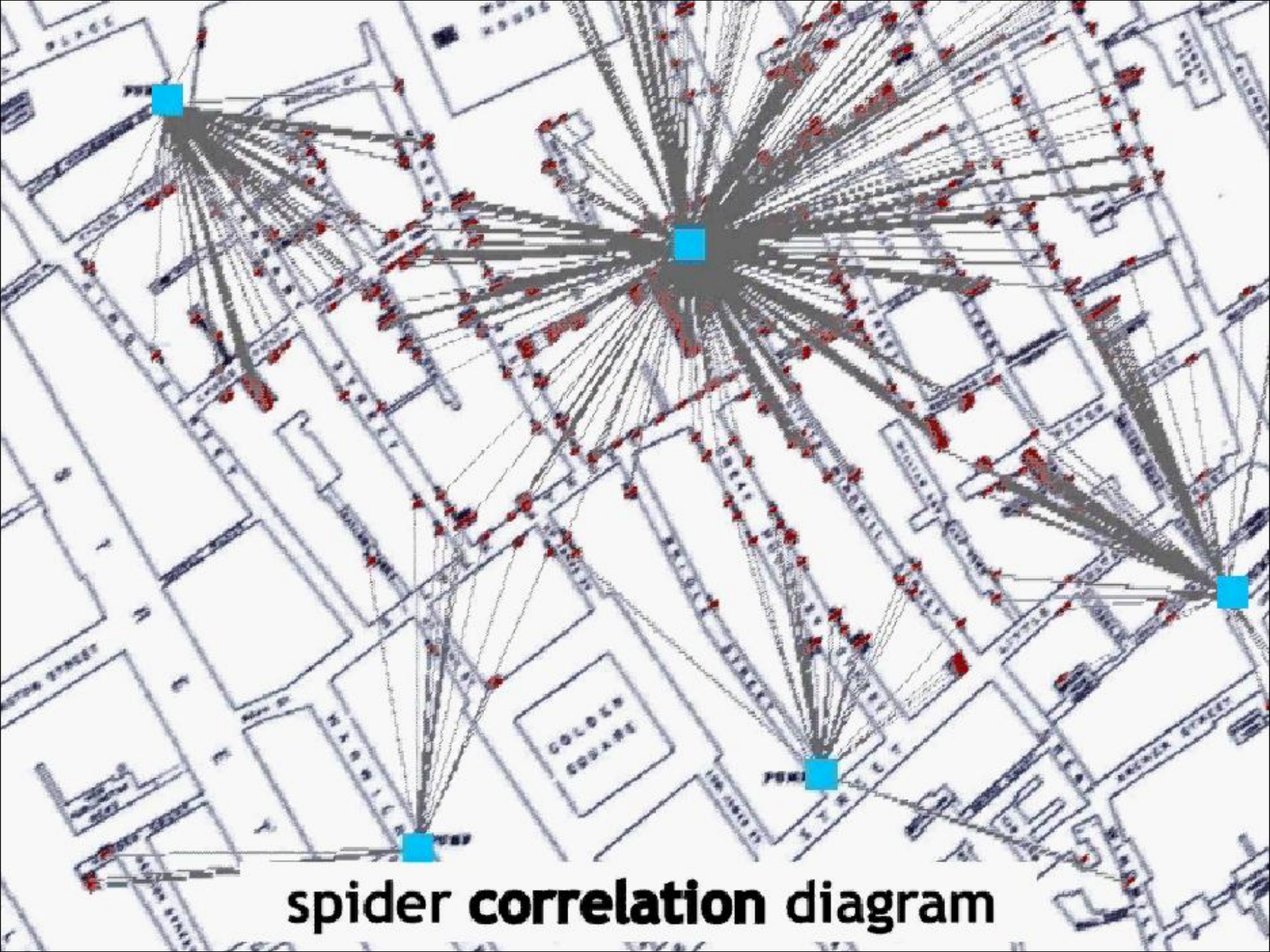
First Generation – Location Intelligence



London, 1854


Water Pumps


Cholera Deaths



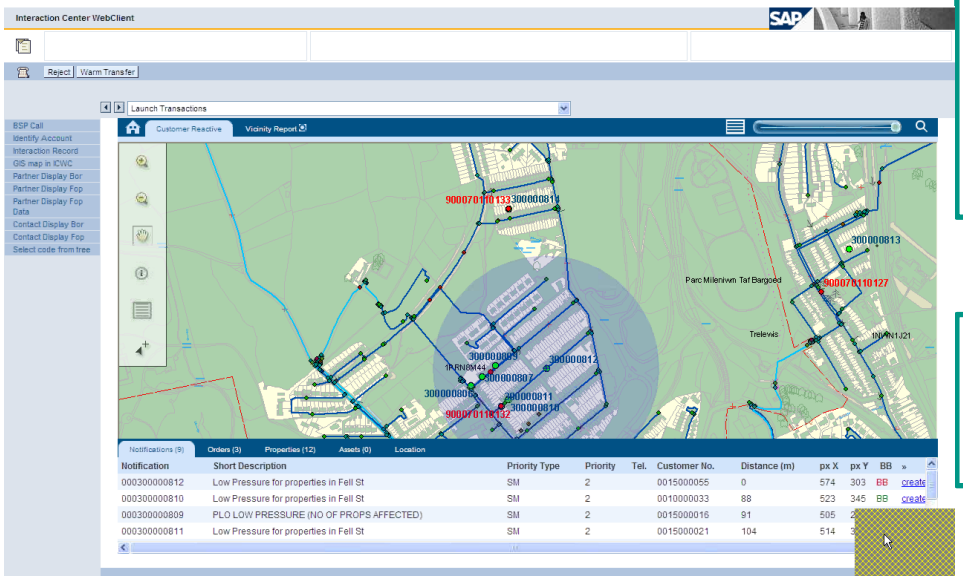
spider **correlation** diagram

Trends

- Big Data (Smart Grids, Smart metering etc – the three V's
- Real time GIS – SCADA, Weather...
- The Cloud – new ways to deploy
- Mobile – efficiency, access
- Integration - efficiency
- Usability - efficiency

Case Studies – Location Dashboards

Customer Service



Improved customer engagement

- The incidents are displayed on the map and colour coded according to incident type, the reference is also displayed

Efficient deployment of resources

- Appropriate level of response

Analysing performance

- Provide an audit trail for regulatory reporting

Emergency response

Example – Flooding in England

Building resilience in to infrastructure

- Reduce the potential impact of hazard scenarios

Risk modelling

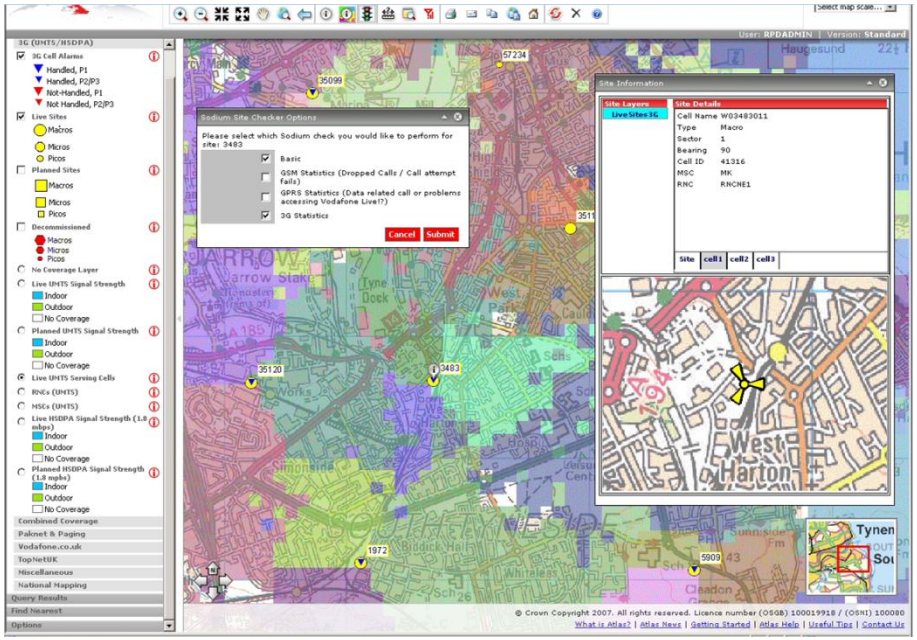
- Quantify and prioritise investment to mitigate risk

Stakeholder reporting

- Providing complete information to support shareholder value, brand reputation & customer satisfaction

Network Performance

Example – UK Mobile operations



How do we reduce customer churn in high value customers?

- Track high customer usage and reinforce network

How do we optimise network capacity?

- Use real time coverage analysis to mobilise resources

Stakeholders questioning future levels of investment

- Visually report on projects, investment and benefits.

What happens next?

- GIS turns big data into information
- Information enables better strategic and operational decision making
- See the detail, find your way!

Example QlikView applications in Energy and Utilities

Kit Mundy – Director – Differentia Consulting
Dean Ansermoz – Solutions Architect - QlikTech

QlikView

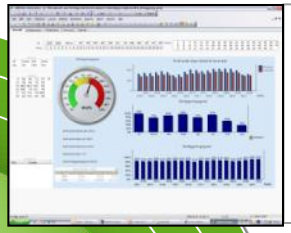
Differentia Consulting
QlikView Elite Solution Provider

- Independent consulting firm, specialising in ERP and BI (QlikView)
- ex KPMG Consulting
- Leading QlikView partner in the UK (#1in the UK in 2011, #2 in 2010)
- Providing a full service for QlikView
  - Consulting / applications development
  - Software licences
  - Training (Certified QlikView training partner)
  - Applications and technical support
  - Technical architecture / hardware sizing
- Currently working with a number of leading companies in the energy and utilities sector

…QlikView solutions

R&D and IT
- Product Portfolio Analysis
- Product / Project Management
- System Performance Controlling
- Service Level Reporting
- Infrastructure Planning / Sizing

Executive
- Balanced Scorecard
- Performance Management
- Predictive Analysis
- What-if Analysis
- Activity-Based Management



Finance & HR
- Financial Consolidation Reporting
- P&L Analysis by Division / Business Unit
- IFRS / GAAP / SOX Compliance
- Risk Management & Sustainability Report
- Workforce and Benefits Analysis

Sales, Marketing, Service & Web
- Sales Planning Analysis
- Customer Analysis
- Campaign Performance Analysis
- Product Profitability / Price Waterfall
- Contact Center / SR Performance

Operations
- Production Planning & Scheduling
- Production Management
- Quality Management
- Six Sigma / Process Analysis
- Plant / Equipment Maintenance Analysis

Dashboard
Analysis
Reporting

Supply Chain
- Demand Planning
- Procurement Analysis
- Supplier Performance
- Inventory and Warehouse Management
- Logistics & Fulfillment Analysis

…example QlikView applications

- Asset Management
- Regulatory reporting
- Customer Service
- Debt Management

Applications of QlikView within Utilities Organisations

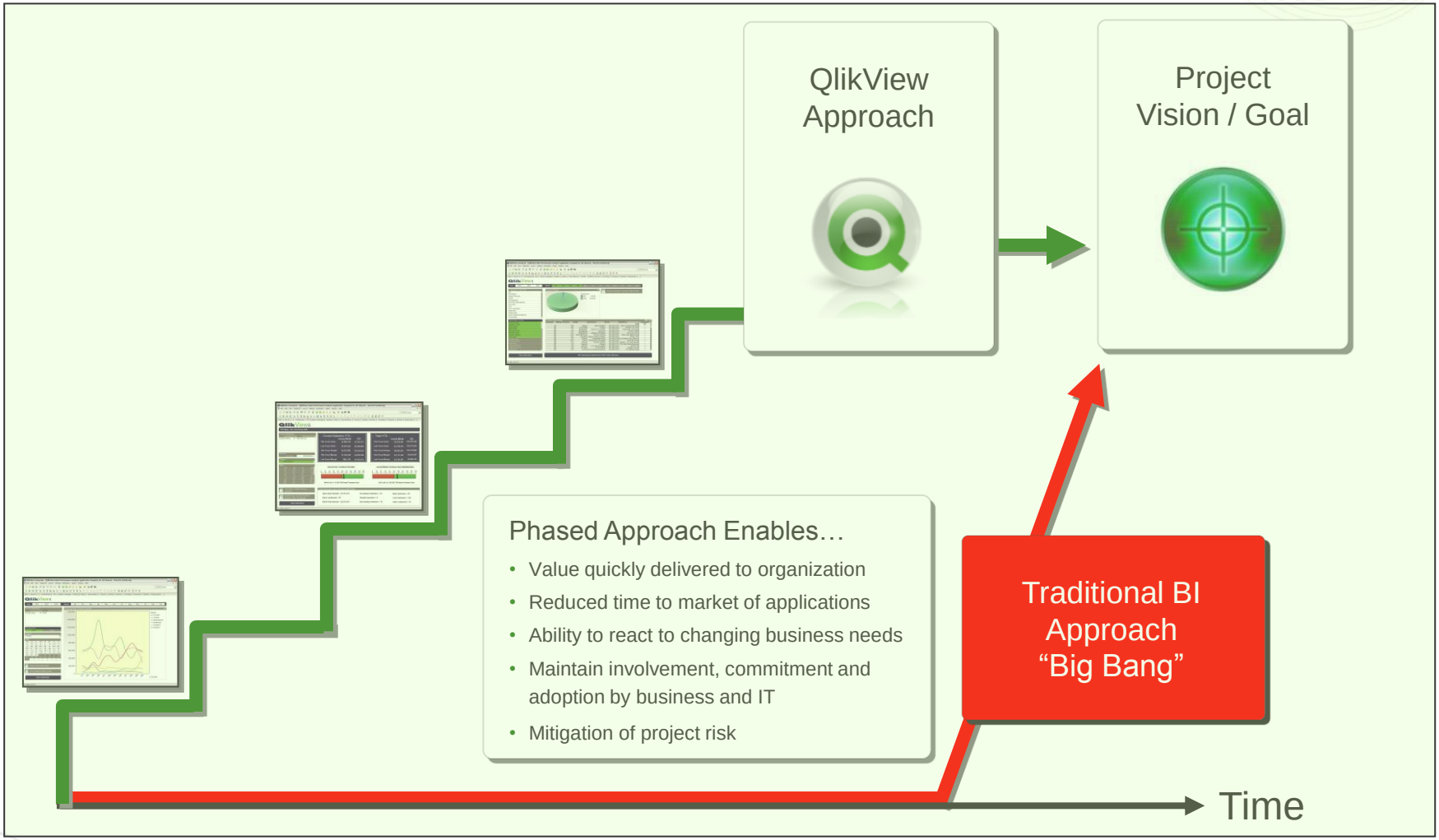
- Contact Centre Analytics - Customer Service / Complaints / Outbound Sales
- Unbilled Analysis
- Metering
- Sales Analytics
- Campaign Analytics
- Commercial Finance Decay Modelling/Campaign Analysis
- Bad Debt Reporting
- Health & Safety
- Energy Trading
- Project Costing
- Finance / HR
- Asset Maintenance / Workforce Planning

Implementation approach

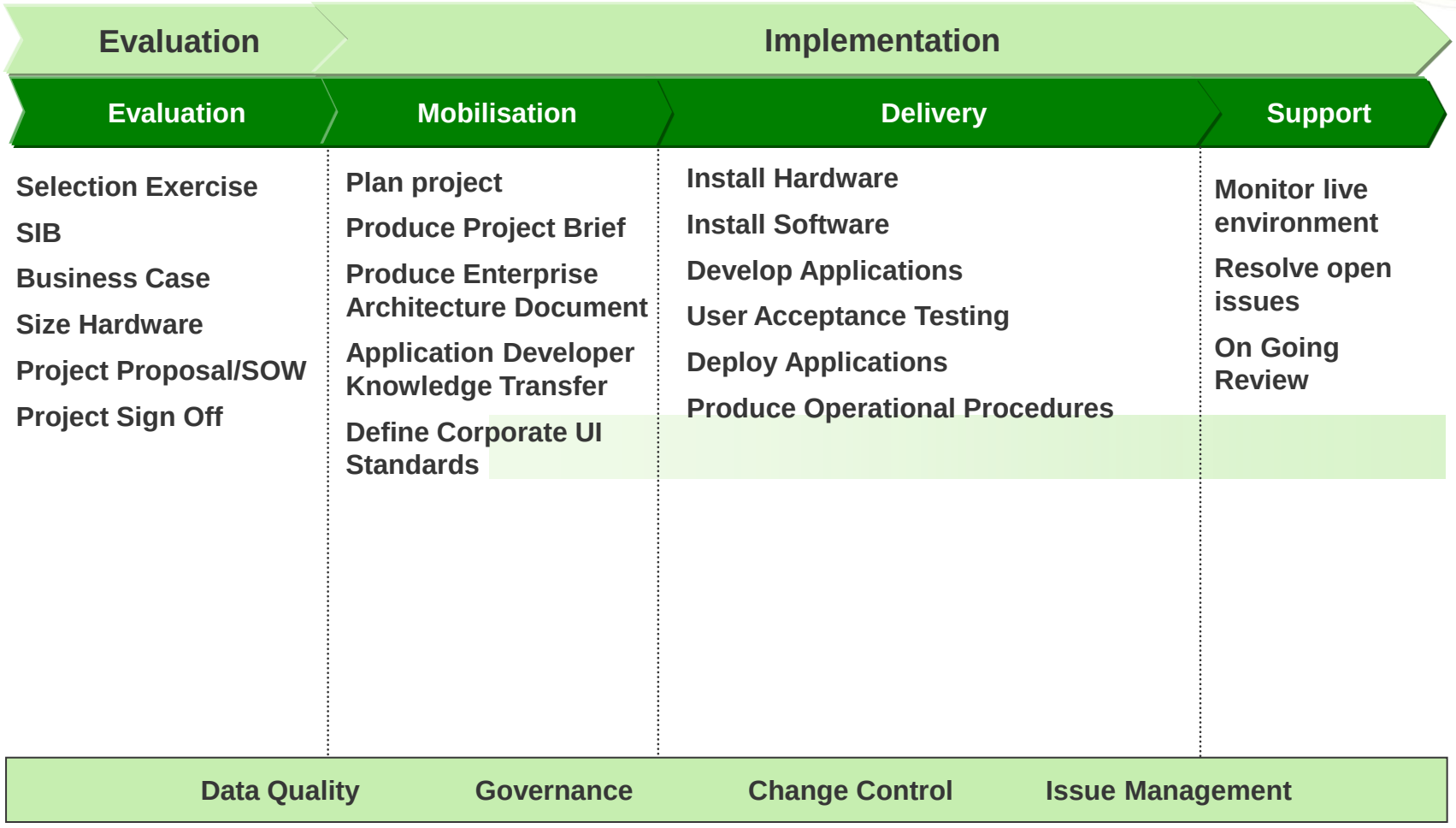
Kit Mundy – Director – Differentia Consulting

QlikView

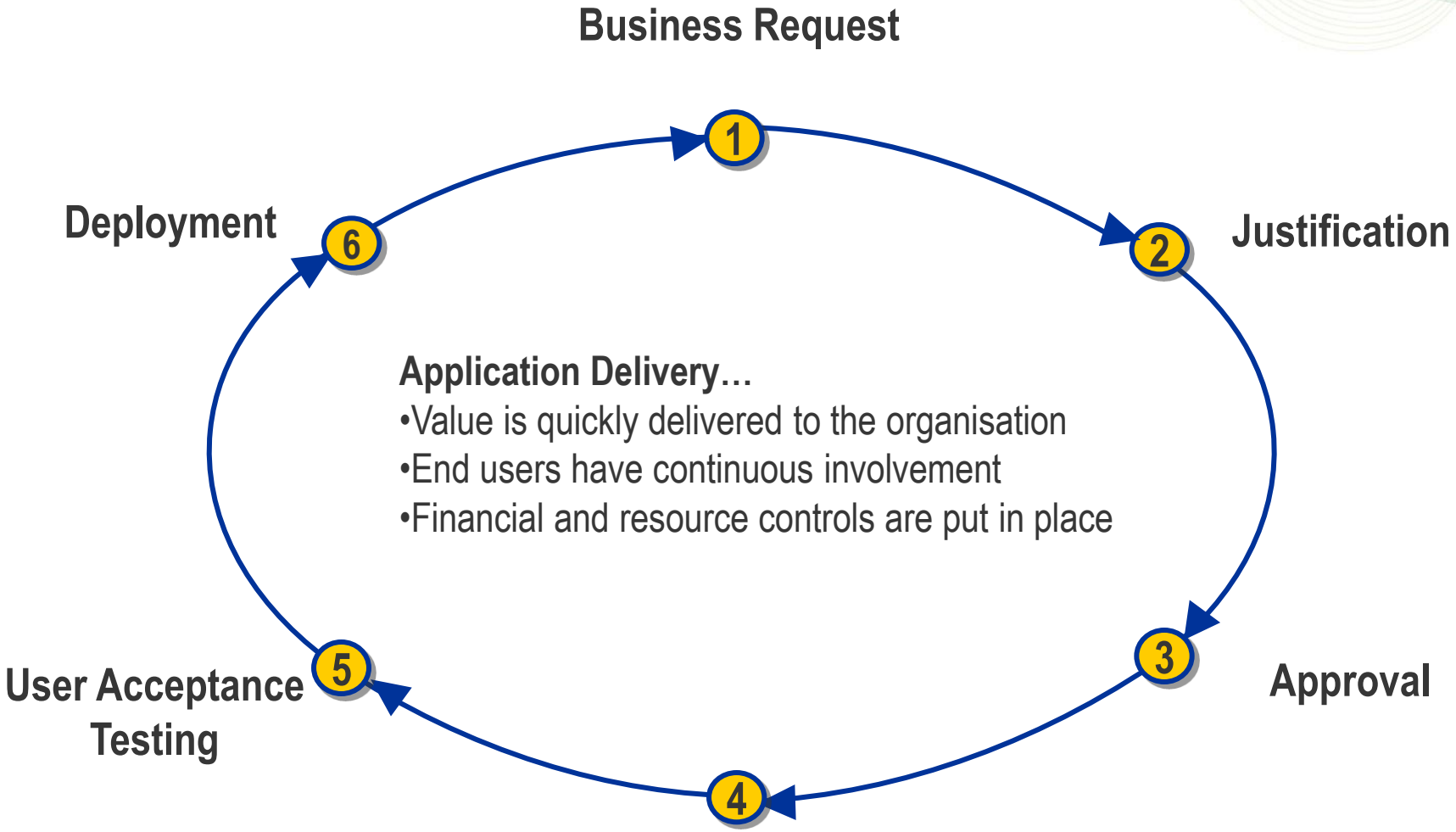
...fast time to value



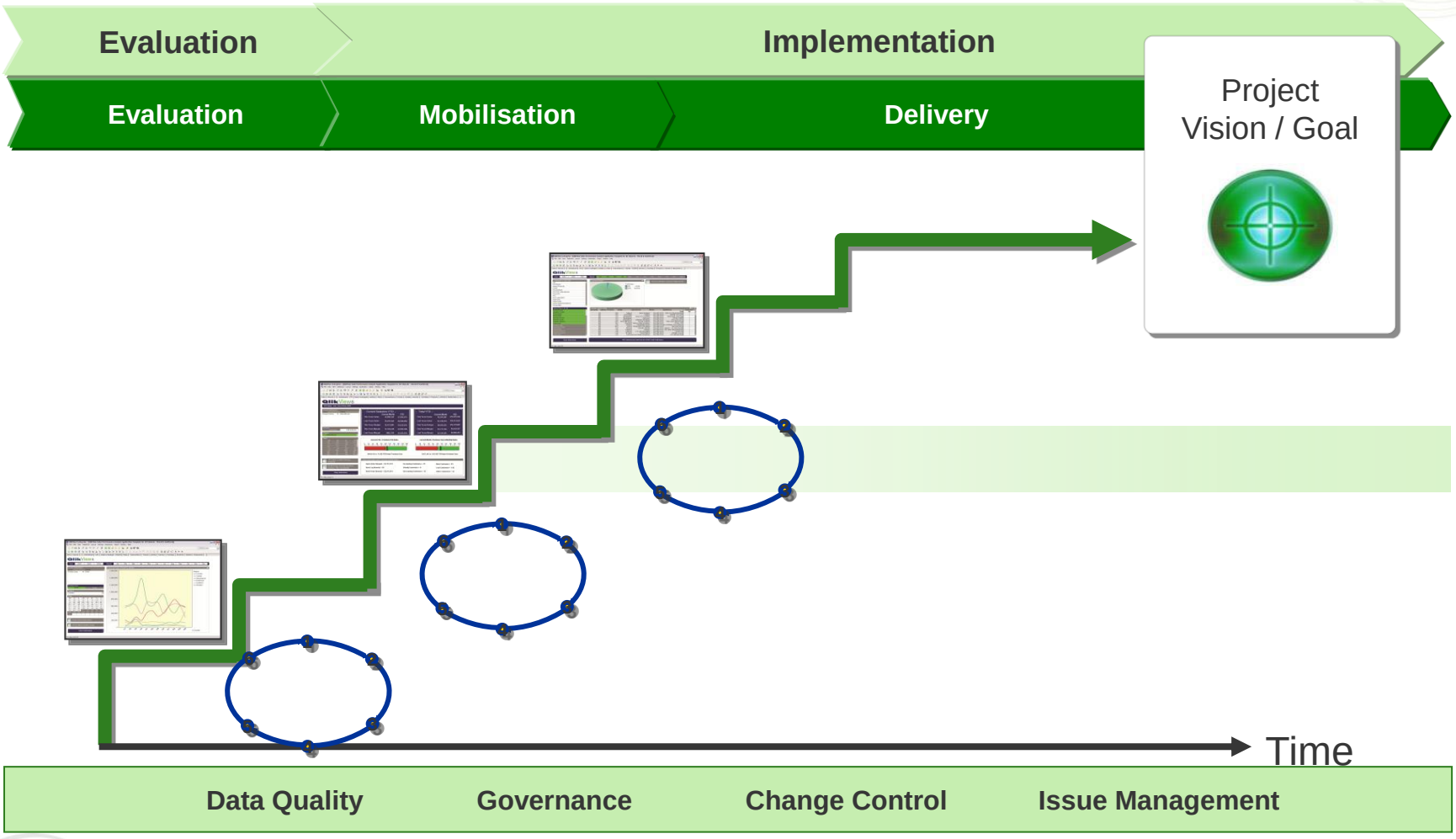
…**OneView** Framework



…application delivery



...fast time to value within a framework



differentia.co
...making the difference

Lunch

QlikView

Smart metering application using QlikView - integrated with ESRI UK ArcGIS

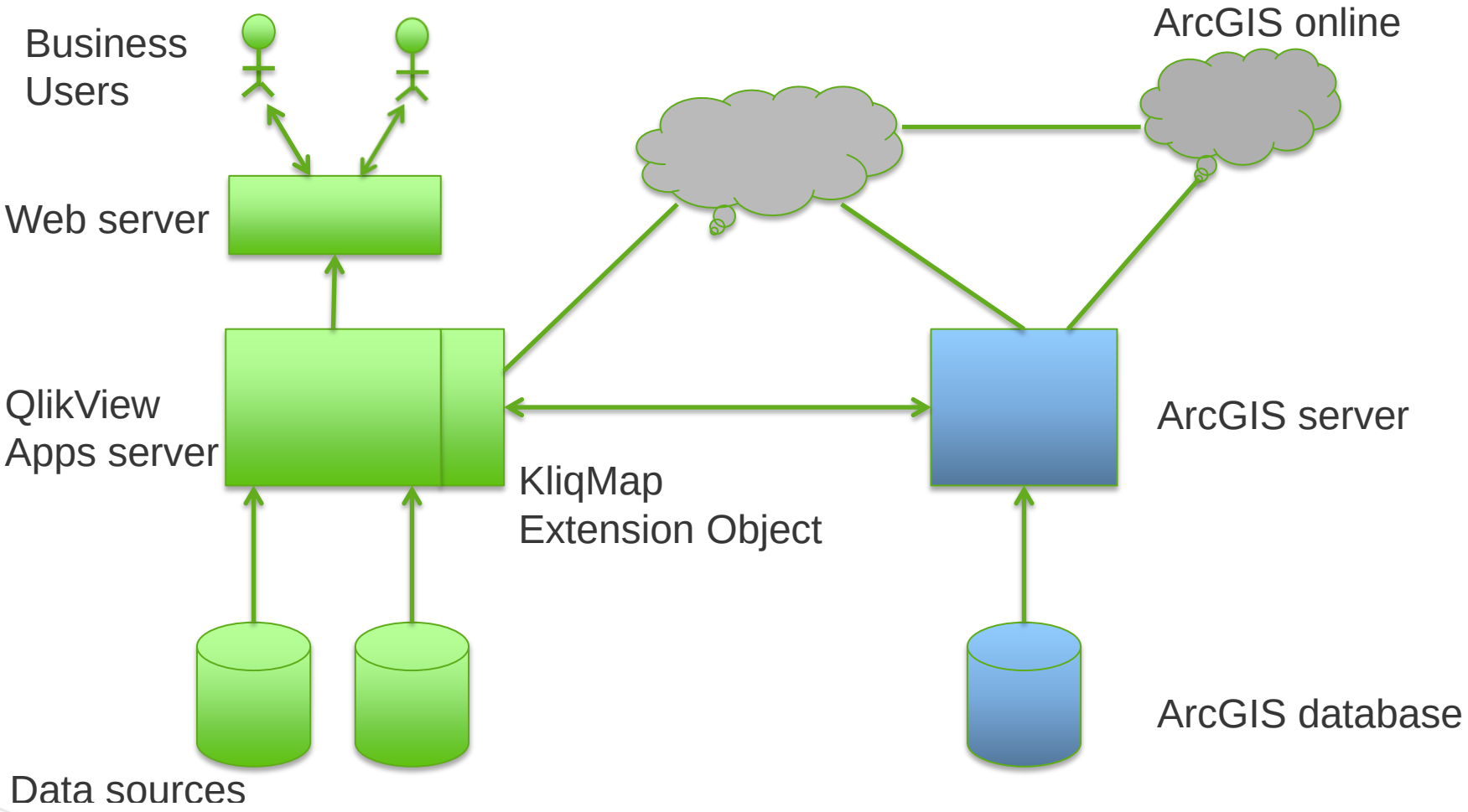
Kit Mundy – Director – Differentia Consulting
Alasdair Hind – Presales Consultant – ESRI UK
Andrea Traverso – Director – KT Labs

QlikView

…Smart Metering demo

- Integration between QlikView and ArcGIS, delivered in conjunction with Differentia Consulting
- Utilises the KliqMap extension object from KT Labs
- Objective is to demonstrate the power of combining QlikView business discovery with ArcGIS geographic information to create *location intelligence*
- This allows you to map multiple layers of geographic information and properties from ArcGIS based on selections made from within QlikView

…solution architecture



esri UK

Search

Death per pump: 64.2

Crapulation: 4

Dirty Water?: 4

Region

East Midlands Euro Region

District

City of Nottingham (B)

Ward

Arboretum Ward
Aspley Ward
Basford Ward

LSOA

Ashfield 013A
Broxtowe 006A
Broxtowe 009A

Address

1 UTILE GARDENS NOTTINGH...
67 CINDERHILL WALK NOTTI...
70 CINDERHILL WALK NOTTI...
64 CINDERHILL WALK NOTTI...
63 CINDERHILL WALK NOTTI...
122 LATHKILL CLOSE NOTTIN...
39 CINDERHILL WALK NOTTI...
7 ALDER GARDENS NOTTING...

KlqMap

XL

Layers

- Broad Street Water Pump
- Other Water Pumps
- Recorded deaths from Cholera (coloured...
- Analysis of the closest pump
- Links between each death and the Broad Street pump
- JohnSnowTiledBasemap

Imagery with Labels