Big Data: More than buzz
A new way to do business

GTA Technology Summit 2014
Speaker:
James Ferguson
Practice Principal
HP Enterprise Services
Agenda

• Case for big data
• Big data and the public sector
• Changing landscape of analytics
• HP approach
• Where to start
• Q&A
Case for big data
Big Data: The changing face of information

- Volume
- Variety
- Velocity
- Complexity

- Cloud
- Mobile
- Flash

- Converged devices
- Media
- Smartphone

- Computing
- Handheld
- Sensors

- Pattern-based
- Web
- Interface

- Security
- Strategy
- Mobs

- Collaboration
- Compute
- PDA

- Mobile
- Social

- Viral
- Context-aware
Increased demand for analytics

- Ingest all forms of data
- Extract themes/sentiment from social commentary & media data
- Stream analyze and purge continuous data
- Implement Hybrid data management environments
- Data mining & predictive analytics
- Real time analytics & decision management
Data is changing the world at an explosive rate, so...

Expectations...

Drive need for INNOVATION
Big data and the public sector
Big Data: Public Sector

From Meritalk Survey on Big Data 2012 of Government Leadership

2% State & Local Governments have a big data strategy

50% Not leveraging the data they have to drive positive outcomes
Drivers of Big Data in public sector

<table>
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<th>Engage with constituents and government partners</th>
<th>Manage risk across the public sector</th>
<th>Improve transparency of government</th>
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<td>Improve efficiency and productivity</td>
<td>Retain and manage data for e-discovery and compliance</td>
<td>Integrate social media and intelligence into appropriate processes</td>
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<td>Leverage the value of information</td>
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London Metro Police: Social Media Analytics

Protect and engage citizens for public safety and response

Near real-time understanding of potential threats enabled police planning and proactive engagement to prevent disorder. “To be able to monitor sentiment, respond to messages, and reply on a London-wide or national scale is of tremendous benefit.”

Andrew Watson, MPS Deputy CIO

Automatic contextual analysis of large volumes of unstructured data identified new, key influencers in the community along with early identification of potential issues and a gauge of public sentiment.
Anaheim, CA - ForeSight Situational Awareness Solution

Transform disparate data into actionable information through correlation and analytics

Empower those responsible for maintaining vigilance, planning, and execution with heightened situational awareness of resources, assets, and conditions across multiple locations and data sources—all in real time.

ForeSight provides analytics to automate information flows, interrogate data elements to discover trends and anomalies, and bring information forward in a secure framework—providing leaders with fast, accurate assessments for informed command decisions.
HP Earth Insights & Conservation International
Transforming environmental science

Near real-time data analytics drives new insights about the world’s tropical forests; empowering decision makers to create proactive solutions for conservation management.

The Wildlife Picture Index (WPI) Analytic System serves as an early warning system to enable the protection of hundreds of threatened and endangered species.
Changing landscape of analytics
Shift toward analytic automation & integration
Big data—what does it look like?

- Vehicle registration
- Voter Registration
- Reseller data
- Customer support
- Tax data
- Responses
- Web logs
- Budget data
- Syndicated data

Billions of interactions

Millions of transactions

Enterprise information that comes from line-of-business systems that provide **structured database** information that is used to **run the government**

Global information that comes from **internal and external unstructured** sources that is used to gain **insight on the business drivers**

- Online sales
- Downloads
- Call notes
- SMS
- Web chat
- Blogs
- Social networks
- Mobile apps
- Sensors
- Survey response
- Emails
- Videos
Big Data needs a unified approach

One platform for structured, semi, and unstructured to benefit from 100% of data.

Enable me to:

- Capture
- Store
- Manage
- Analyze
- Optimize
- Govern

100% of data

- Structured (10-15%)
  CRM, transactions, HR, financial

- Unstructured (85-90%)
  Audio, Video, emails, social media
Trends in analytics

DATA INTEGRATION

REPORTING

DATA DEFINED ENTERPRISES

TRANSACTION DEFINED ENTERPRISES

REPORTING

DATA MINING

PREDICTIVE ANALYTICS

DECISION MANAGEMENT

SYSTEM INTEGRATION

ANALYTIC DEFINED ENTERPRISES

What happened?

Why did it happen?

What is likely to happen?

What do we want to happen?

Make it happen

Integrating analytics as a closed-loop process

Enterprise Analytic Solutions integrate data science with business intelligence, enterprise applications and business processes to improve decision making and optimize business operations.

Effective Enterprise Analytic Solutions are delivered through the coordination of business processes, analytics, platform management and infrastructure.
HP approach
Analytic solution skills and processes
Hybrid Data Management

Diverse methods of collecting, encoding, indexing and sensing data

Hybrid approaches to store, integrate, aggregate, stream and purge data

- Transactional
- Market
- Behavioral
- Social
- Sensor
- Machine Logs

- Enterprise DW/DM
- Business Discovery
- Analytic DB
- Unstructured Data Index
- Hadoop
- NoSQL
- Streaming Data
## Advanced Analytics – Domains

### Business Analytics
Measure, monitor and predict key indicators of business performance. Use analytics to simulate and forecast business outcomes.

### Contextual Analytics
Combine all available transactional, behavioral, attitudinal, demographic and performance data for a complete 360° view of products or stakeholders.

### Social/Media Analytics
Collect and analyze external data to understand, monitor and respond to events that impact business objectives.

### Operations Analytics
Analyze systems and processes to identify opportunities for process improvement and predictability.

### Continuous Analytics
Monitor continuous streams of information from sensors and machines to predict and manage performance – in real time.

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<th>Analytic Modeling and Insight</th>
<th>Embedded Analytics</th>
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Analytic & Data Management - Capability stack

**Business Analytics**
- Executive Dashboards
- Standard Reports
- Self-serve Reporting
- Analytic Applications
- Embedded Analytics
- Decision Management
- Streaming Analytics

**Contextual Analytics**
- Visualization
- Text Analytics
- Audio/Video Analytics
- Optimization
- Business Rules Engine
- Statistical Process Control

**Social/Media Analytics**
- Real time Data Processing
  - Data Streaming
  - In-memory DB
  - In-memory Analytics
  - CEP
  - Data Virtualization

**Operations Analytics**
- Enterprise DW/DM
- Business Discovery
- Analytic DB
- Unstructured Data Index
- Big Data (Hadoop)
- NoSQL
- Streaming Data

**Continuous Analytics**
- Information Advisory Services
- Information Governance
- Information Governance

- CRM, SCM, ERP
- Transactional data
- Email
- Texts
- Documents
- Images
- Audio
- Video
- Social
- Mobile
- Machine Data
- Weather Data
- GPS
- Open Data
- Sensor Data

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Information Advisory Services

Pave your path to innovation with workshops, assessments and discovery environments

• Align business priorities and create roadmaps through collaborative workshops
• Strategically assess the use and value of your data to design information plans
• Explore, test and analyze your data’s value within discovery environments

Benefits

• Accurately identify, assess and test information and Big Data sets before investing capital
• Decrease resource expenditures by leveraging HP’s consultants and data scientists, specialized methodologies, tools and private cloud-analytics resources
• Quickly align business and data priorities to drive growth and innovation

HP Services

• Big Data Discovery Experience
• Information Optimization Transformation Experience Workshop (IO TEW)
• Master Planning
• Business Value Assessment
• Enterprise Data Warehouse (EDW) Assessment
HAVEn: Big Data platform

Standard platform with connectors, applications, and engines

Hadoop/HDFS
Catalog massive volumes of distributed data

Autonomy IDOL
Process and index all information

Vertica
Analyze at extreme scale in real-time

Enterprise Security
Collect & unify machine data

Apps
Powering HP Software + your apps

Social Media
Video
Audio
Email
Texts
Mobile
Transactional Data
Documents
IT/OT
Search engine
Images
Information Governance Services

Govern your information as a strategic asset through a holistic approach

- Classification models to assess what data is relevant and align it to requirements
- Archiving models to optimally organize and control data within a centralized policy engine
- Record management models to manage physical and electronic records reliably and cost-effectively

Benefits

- Govern information more holistically to maximize its value
- Improve processes for information classification, archiving, and records management
- Experience lower costs, less risk, and greater efficiency

HP Services

- Classification Services
- Archiving Services
- Records Management Services
Where to start
Embark on your path forward

Take the first step towards seizing the power

Business alignment: workshop – business executives and IT

Big Data Initiative: strategy & planning

Pilot and measure value and build business case for enterprise roadmap and implementation

Solution: design & implement

Iterative phases

Governance, Maintenance and support

“The power to innovate and drive growth”
Identify relevant use cases

- **Business & Economy**
  - Fraud detection
  - Lottery
  - Tax & Revenue
  - Digital cities

- **Education & Children**
  - Child welfare
  - Human trafficking

- **Resources & Environment**
  - Agriculture
  - Wildlife
  - Water/air quality

- **Safety & Security**
  - Flash point prediction
  - Situational awareness
Summary

- **Identify** your business value and vision
- **Examine** your current state
- **Balance** the demand between your tactical and strategic Big Data initiatives
- **Create** breakthrough changes in how to optimize, leverage, and use your data
- **Build** an executive-business value roadmap that jump-starts your journey
Resources

Public Sector e-Zine on Big Data
http://www.epageflip.net/t/95928

Public Sector e-Zine
http://www.epageflip.net/t/112819
Thank You