

# Big Data

How it is Transforming  
Learning and Talent  
Development

# Agenda

1. Big Data Background
2. Big Data in Talent and Learning Analytics
3. Examples and Getting Started



# Big Data Defined

*Big Data.....*

The ability of society to harness information in novel ways to produce useful insights or goods or services of significant value.

# How is Society Using Big Data?

- Google searches for flu-like words predicted spread of H1N1 flu virus faster than the CDC
- The Oakland A's used data to build a team that won 1<sup>st</sup> place in the American League West and had a 20 game win streak in 2002
- Target Corporation spending patterns knew a girl was pregnant before the girls father knew it

# What Constitutes Big Data?

Element	Meaning	Example
<b>Volume</b>	Large amounts of data	Wal-Mart collects more data in a day than can fill 20 million filing cabinets.
<b>Velocity</b>	Speed of collection and processing	Location data on mobile phones predicted cars in shopping mall lots to determine holiday sales
<b>Variety</b>	Range of data types and sources	Smart phone users that contain email, text, satellite locations, music, internet sites, etc.
<b>Value</b>	Better decisions with data	Police in Memphis use data to determine where to patrol, reducing crimes by 25%
<b>Veracity</b>	Reliable and accurate data	Reasonable data can be reliable. “Who Wants to be a Millionaire” audience right 91% of time, expert right 65% of time.

Source: KnowledgeAdvisors. *How Metrics that Matter is a Big Data Solution*. 2013

Source: McAfee, Andrew and Brynjolfsson, Erik. *Big Data: The Management Revolution*. Harvard Business Review, Oct 2012

Source: Surowiecki, James. *The Wisdom of Crowds*. Random House,. 2004

# Big Data is / is not

Big Data IS	Big Data is NOT
Correlation	Causation
Prediction	Precision
More data	Less data
Estimates	Exactness
Messy data	Clean data
Objectivity	Emotion
Re-use	Delete
What?	Why?
Profile	Privacy
Opt Out	Opt In

# Big Data – 3 Ingredients

1. Data. Must have data or access to it.
2. Skills. Tools or expertise to mine insights.
3. Mindset. See the potential and unlock value.

# Big Data – 3 Consumers

- Data Scientists – perform the analysis
  - Preferred Format: raw data, flat files
- Business Managers – daily decisions
  - Preferred Format: formatted reports
- Senior Executives – strategic decisions
  - Preferred Format: Dashboards



# Guru's View on Data

- “In God we trust. All others must bring data.”  
-*W. Edwards Deming*
- “You can't manage what you don't measure.”  
-*Peter Drucker*
- “Data-driven decisions are better decisions.  
It's as simple as that.”  
-*Harvard Business Review*

# Big Data in Talent Analytics

Element	Meaning	Example
<b>Volume</b>	Large amounts of data	A government entity analyzes hundreds of thousands of learning evaluations to identify low impact content and revise it. It had 5 years of higher output with no new funds.
<b>Velocity</b>	Speed of collection and processing	A strategic 3 day program of a technology company collects feedback on smart phones and data is instantly available to program managers for analysis and change.
<b>Variety</b>	Range of data types and sources	A federal agency gathered capability data to identify workforce gaps. Financial acumen was rated lowest. L&D created a program on it and recruiting added it to their job profiles.
<b>Value</b>	Better decisions with data	A sales organization collected performance improvement data and saw a 33% variance in performance between regions to displace poor performing management principles.
<b>Veracity</b>	Reliable and accurate data	A statistical analysis calculated an 11.43% performance gain for a marketing team vs. a predictive evaluation calculating an 11.5% performance gain.

# Key Metrics for Talent

Set Goals

Monitor & Report



## Efficiency

- Volume
- Utilization
- Investment

## Effectiveness

- Content
- Delivery
- Learners

## Outcomes

- Financial
- Operational
- Workforce

Improve

Analyze

# Correlating Data Over Time

Business Result	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011
<b>Leader Retention Rate</b>	<u>57%</u>	50%	52%	56%	<u>58%</u>
<b>Impact of Learning</b>	Participants Indicating Significant Impact on Increasing Organizational Commitment:				
# of Participants	113	108	118	109	111
% of Participants	37%	33%	34%	37%	32%
<b>Employee Engagement Score</b>	77%	75%	71%	77%	<u>79%</u>
<b>Impact of Learning</b>	Participants Indicating Significant Impact on Increasing Employee Engagement:				
# of Participants	121	118	105	116	107
% of Participants	50%	52%	53%	53%	52%
<b>Employee Retention</b>	<u>85%</u>	<u>83%</u>	77%	81%	<u>84%</u>
<b>Impact of Learning</b>	Participants Indicating Significant Impact on Increasing Employee Retention:				
# of Participants	123	112	115	119	109
% of Participants	64%	67%	67%	65%	68%
<b>Productivity</b>	\$ 21,975	<u>\$ 18,569</u>	<u>\$ 21,166</u>	<u>\$ 21,337</u>	\$ 19,091
<b>Impact of Learning</b>	Participants Indicating Significant Impact on Increasing Productivity:				
# of Participants	131	118	115	119	117
% of Participants	68%	67%	69%	70%	72%
<b>Financial Management</b>	<u>8%</u>	<u>7%</u>	3%	2%	1%
<b>Impact of Learning</b>	Participants Indicating Significant Impact on Increasing Financial Acumen:				
# of Participants	123	119	118	125	115
% of Participants	74%	73%	73%	72%	72%

# Onboarding Analytics Example

## Profile:

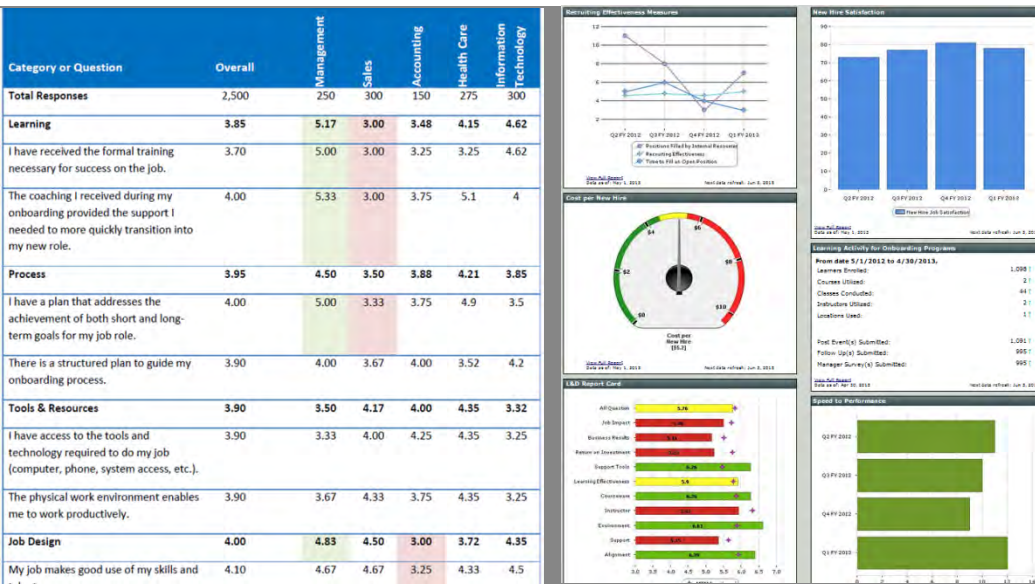
Large Insurance Company  
Over 25% Turnover within 1<sup>st</sup> 90 Days

## Key Metrics:

- Onboarding Effectiveness
- Quality of Hire
- New Hire Satisfaction

## Solution:

- Automated 30, 60, 90-day new hire touchpoints
- Targeted reporting to managers & program owners
- Identified “flight risks” for early intervention



## Results:

- 93% of “flight risks” retained
- 73% reduction in measurement costs

# Learning Analytics Example

## Profile:

Large Business Services Company  
Multi-Million \$ Annual L&D Investment

## Key Metrics:

- Program Effectiveness
- L&D Operation Efficiency
- Linkage to Business Outcomes

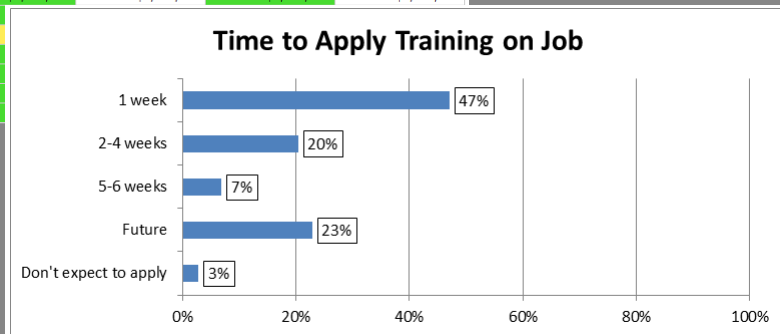
## Solution:

- Automated post-class & on-the-job evaluations
- Monthly imports of business metrics
- Operational & executive reporting

## Results:

- Strengthened partnership with business
- High ranking on Training Top 125

Business Measure	Q1 FY 2011		Q2 FY 2011	
	Actual	Goal	Actual	Goal
# of Participants	346	258	320	260
# of Unique Participants	74	75	74	75
Customer Satisfaction Score	78.0%	75.0%	79.0%	75.0%
Employee Engagement Score	67.0%	66.0%	69.0%	66.0%
Employee Retention Rate	100.0%	98.0%	100.0%	98.0%
Headcount	82	86	87	87
Labor Expense	\$2,130,529	\$2,323,539	\$2,322,123	\$2,207,787
Profit	\$573,395	\$583,758	\$173,877	\$158,878
Revenue	\$3,928,326	\$3,438,690	\$4,124,998	\$3,502,389
Total L & D Investment				
% Employees Trained				
Employee Profit Contribution				
Employee Profit Margin				
L & D Investment per Participant				
Productivity				



# Leadership Analytics Example

## Profile:

Large Technology Company  
1000s of new leaders to develop

## Key Metrics:

- Bench Strength
- Leadership Effectiveness
- Business Outcomes

## Solution:

- Semi-Annual 360s of Emerging & New Leaders
- Leadership Program Evaluation
- Leadership-to-Business Outcomes Correlation

	Leader	Group		Analysis	
	Average Score	N	Average Score	Gap Analysis Average	Group Percentage
Total	4.9	16	4.8	-0.1	13.1%
Business Acumen	5.0	16	5.0	0.0	14.1%
When making decisions, I ensure that a well-defined, transparent, decision making governance structure is followed.	5.5	16	5.0	-0.5	12.5%
I sustain and grow earnings and revenue through judicious operating, investing, and financing decisions. I maintain a reliable financial information system and internal controls which meet regulatory and investor expectations.	4.5	16	5.1	0.6	18.8%
I combine financial acumen with global/multi-cultural expertise to evaluate strategic alternatives.	5.0	16	4.9	-0.1	12.5%
Customer Centricity	5.0	16	4.9	-0.1	12.5%
I use robust methodologies and tools to gather, analyze, and incorporate understanding of the customer to determine best investment for the future.	4.8	16	4.7	-0.1	12.5%
I have established measures of the customers' experience that stimulate innovations and guide decisions.	4.5	16	4.9	0.4	18.8%
Entrepreneurial Mindset	5.0	16	4.5	-0.5	6.3%
I seize market, product, and service opportunities ahead of others, demonstrated a deep understanding of external environments and global developments.	4.3	16	4.6	0.3	8.3%
I have created an atmosphere wherein innovation is championed, rewarded, and expected of each individual.	4.5	16	4.6	0.1	12.5%
I have anticipated future business requirements and implemented innovative solutions to meet emerging market and customer needs.	4.0	16	4.6	0.6	12.5%
	4.5	16	4.6	0.1	0.0%

## Results:

- Significant Leadership Effectiveness increase
- Business Outcomes linked to leadership development

# Capabilities Analytics Example

## Profile:

Large Biotech Company  
Improve sales competencies

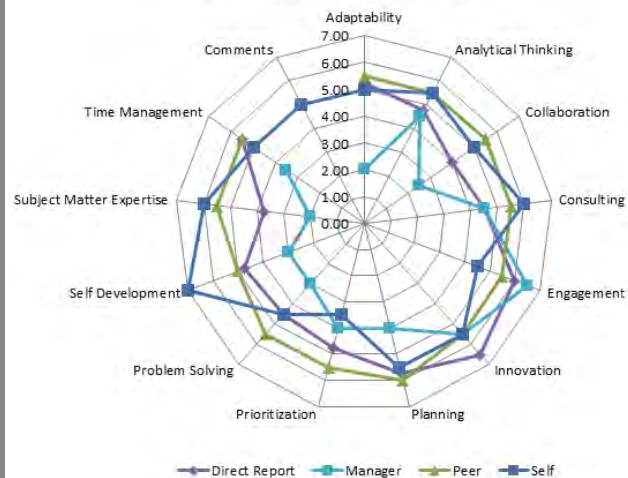
## Key Metrics:

- Certifications
- Quota Attainment
- Sales Employee Retention

## Solution:

- Annual sales competency assessments: 180s & 360s
- Global, 15+ languages
- Correlated competency gains to business outcomes

Competency Ranking Graph



Behaviors as seen by **SELF**

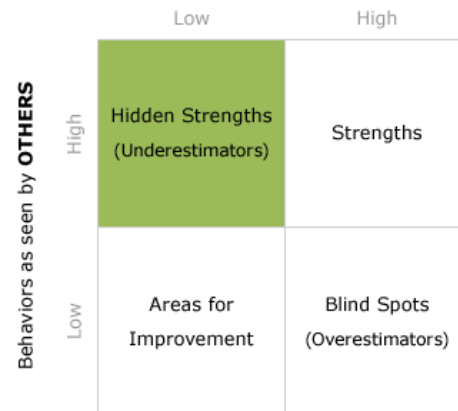


Figure 8 – Underestimators

## Results:

- Increased performance for 70% of sales force
- Increased retention by 8%



# Engagement Analytics Example

## Profile:

U.S. Government Department  
High turnover, little insight into drivers

## Key Metrics:

- Employee Engagement
- Employee Retention
- High Performer Retention

## Solution:

- Automated Exit Interview surveys
- Filtered & ranked by 15 employee demographics
- Monthly management reporting



## Results:

- Identified and addressed key drivers
- Increased retention by 5.6%



# Predictive Analytics via Smart Sheet

- Transaction processing outsourcer
- Call center problems
- Training investment – significant resources
- Smart sheets – 64% not applied, other priorities
- Used data to approve manager support coaching
- After – manager support scores rose 20% and customer satisfaction scores increased 5% almost immediately

# The Cost of Inaction

Benchmark	Scrap Learning	Performance Gain Due to Training
Typical Company	50%	9%
MTM Client Average	33%	13%
MTM Top 25%	18%	28%
MTM Top 5%	10%	39%

# Contact Us

John R. Mattox, II, Ph.D.

615 714 7299

[jmattox@knowledgeadvisors.com](mailto:jmattox@knowledgeadvisors.com)

[www.knowledgeadvisors.com](http://www.knowledgeadvisors.com)

