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Big Data and Analytics

Challenges and business models in a digital world





“Data is the new Oil.
Data is just like crude. It’s valuable, but if unrefined it
cannot really be used.”

– Clive Humby, DunnHumby

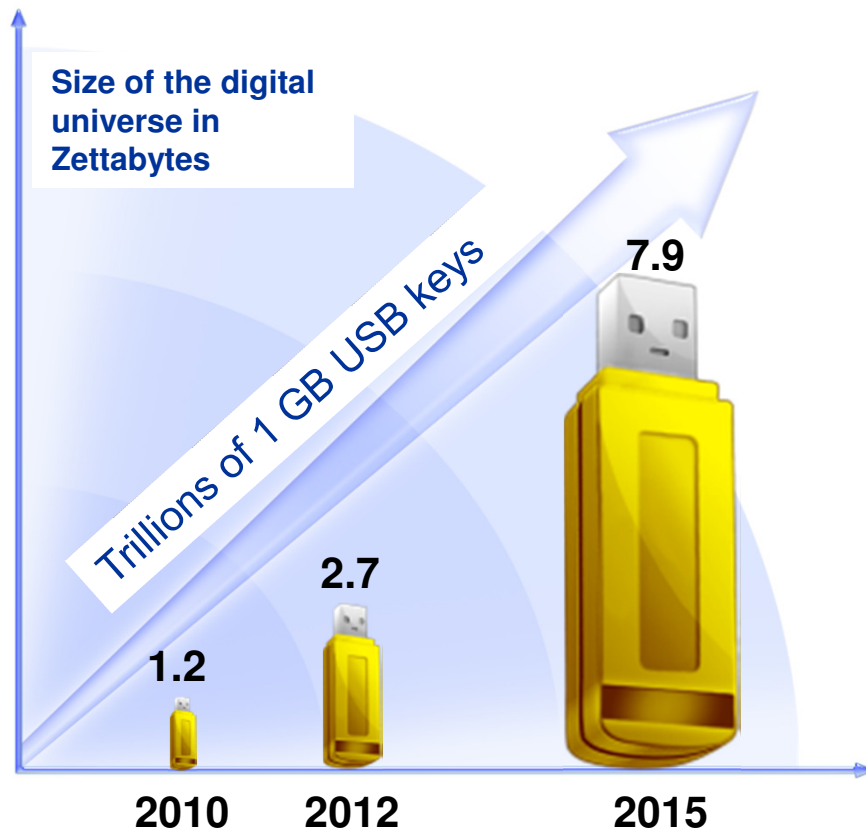
“We have for the first time an economy based on
a key resource [Information] that is not only renewable,
but self-generating. Running out of it is not a problem,
but drowning in it is.”

– John Naisbitt

The potential for insight is there ...

New wave of opportunity ...

... However, there are challenges



1 in 3

Organization leaders frequently make decisions based on information they don't trust, or don't have

1 in 2

Organization leaders say they don't have access to the information they need to do their jobs

60%

of CEOs agree they have more data than they can use effectively

Source:

- IDC Digital Universe Study, sponsored by EMC, June 2011

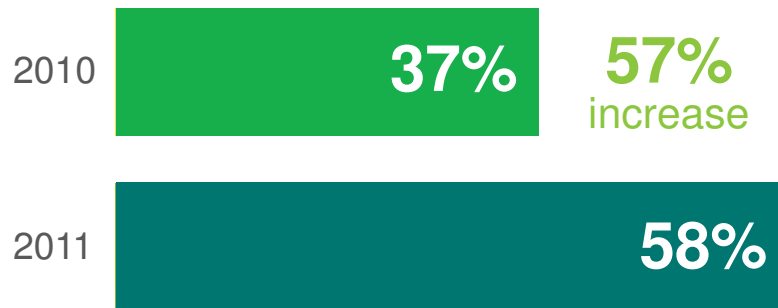
Sources:

- The Guardian, May 2010
- IBM Institute for Business Value, 2009
- IBM CEO Study 2010

And the rewards are compelling...

Analytically sophisticated companies outperform their competition

Respondents who say analytics creates a competitive advantage →



Organizations achieving a competitive advantage with analytics are

2.2x

more likely to **substantially outperform their industry peers**

Source: The New Intelligent Enterprise, a joint *MIT Sloan Management Review* and IBM Institute of Business Value analytics research partnership. Copyright © Massachusetts Institute of Technology 2011

And they can even be touching...

What if...

You could detect a neonatal infections sooner?



24 hour

earlier detection of infections

What if...

You could reduce crime by directing police resources?



30 percent

reduction in serious crime

What if...

You could affect whether a young person contributes society or not?



50 percent

success rate with intervention cases

Big Data expands the opportunities for insight enabling business model transformation

Volume

12 terabytes
of Tweets create daily

Analyze product sentiment

Velocity

5 million
trade events per second

Identify potential fraud

Variety

100's video feeds
from surveillance cameras

Monitor events of interest

350 billion
meter readings per annum

Predict power consumption

1.5 billion
call detail records per hour

Prevent customer churn

80% data growth
are images, video, documents...

Improve customer satisfaction

New business models can emerge from new technologies



Filming Plays



Movie Production



Media & Entertainment

Apply new technology to existing paradigm

Explore new ways to apply new technology

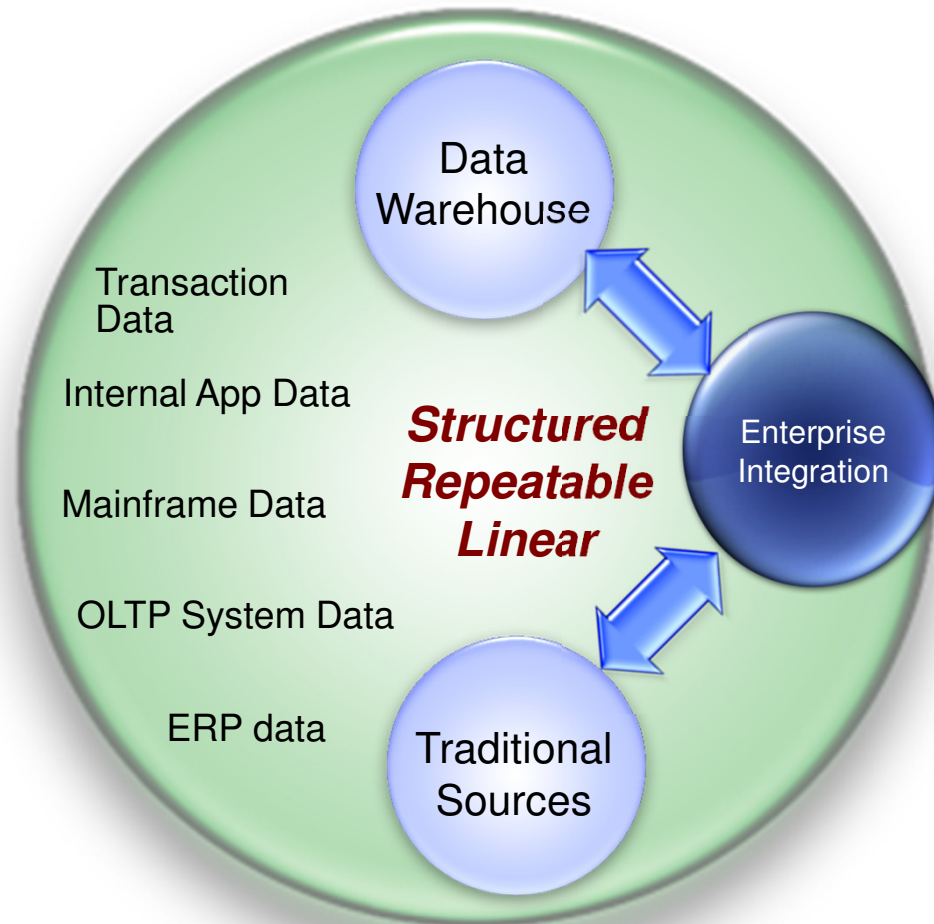
Reinvent entire industries

Phase 1 for Big Data: Incremental improvement

Deep analysis for better decisions

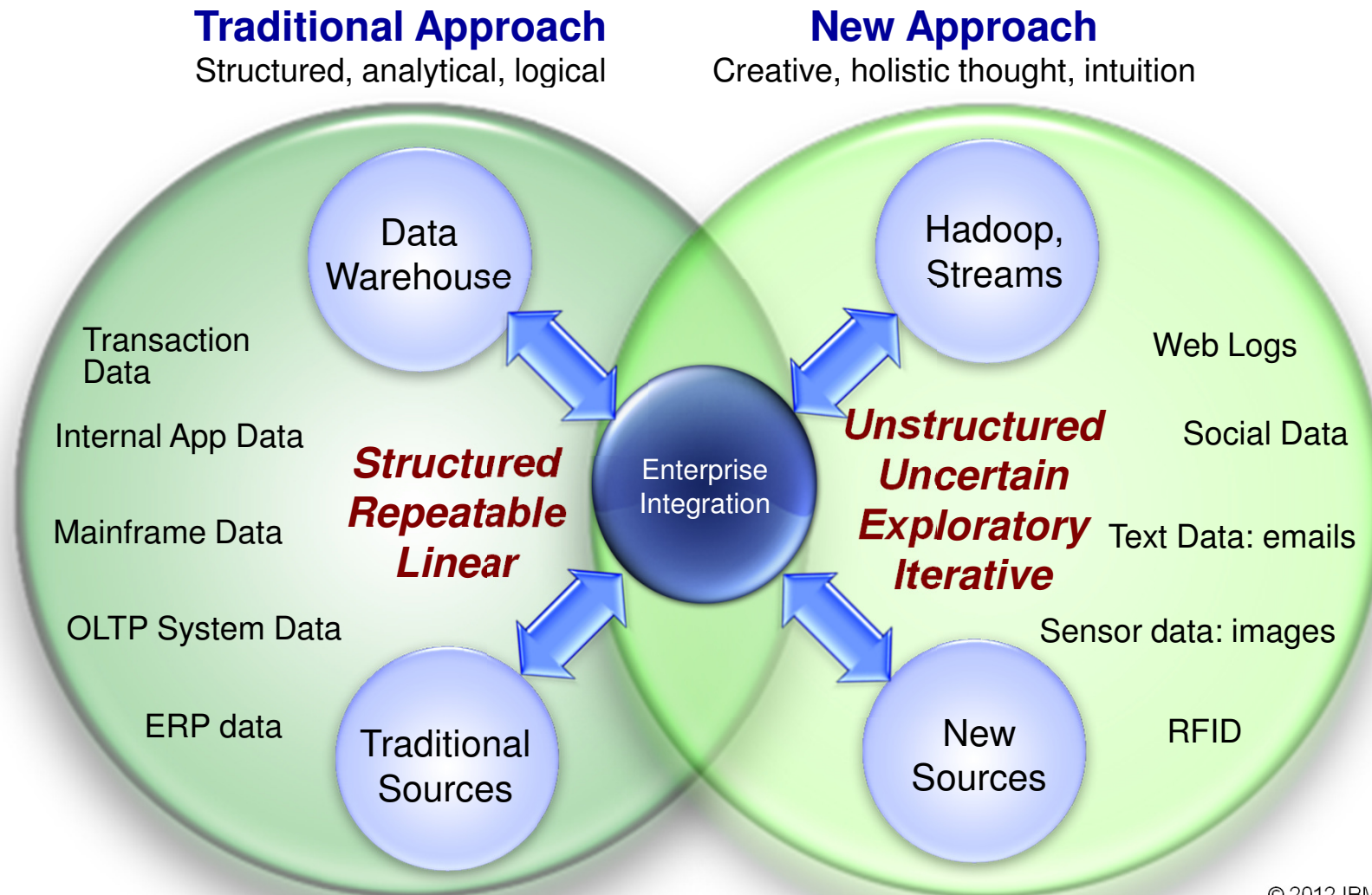
Traditional Approach

Structured, analytical, logical



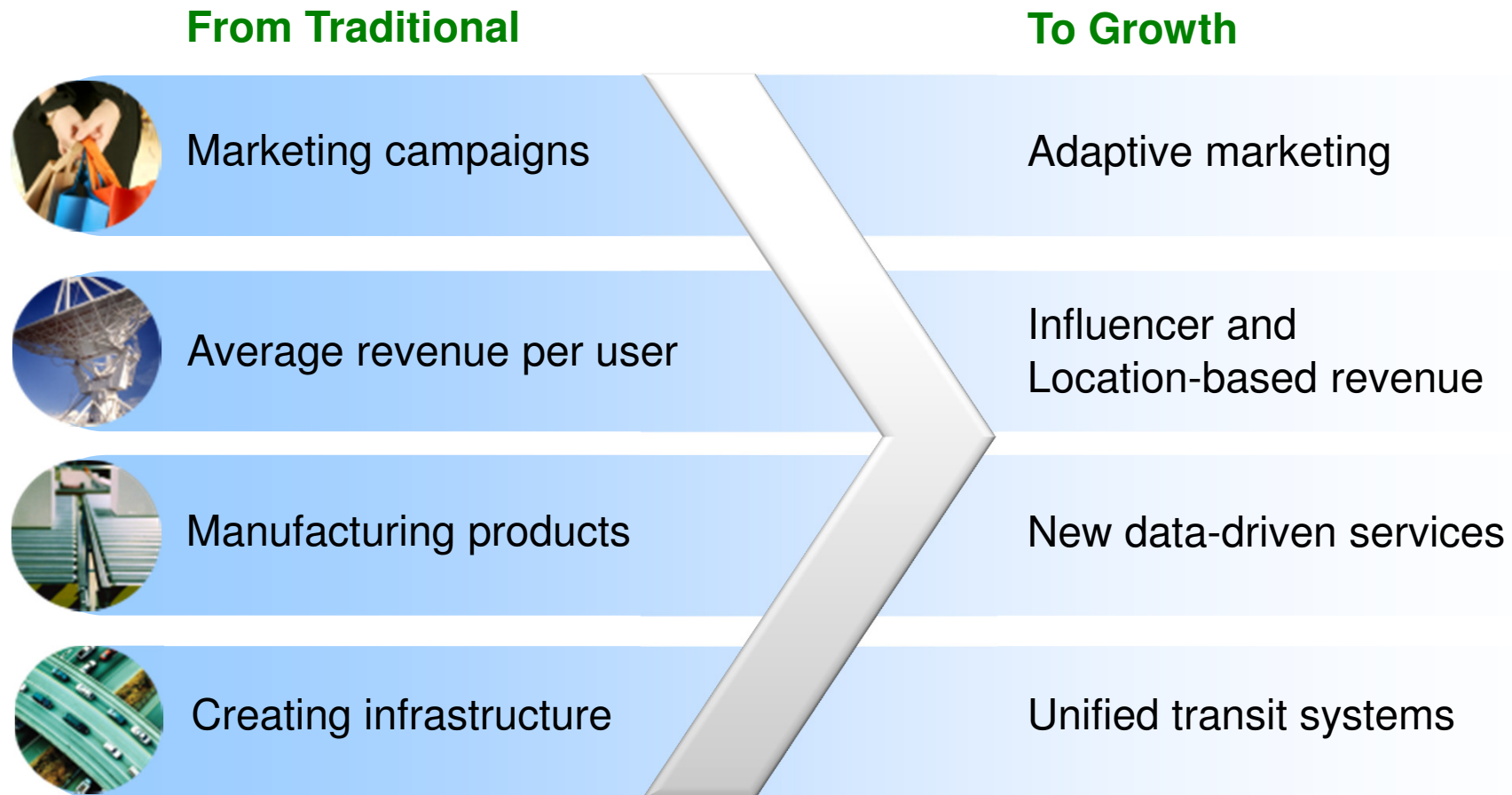
Phase 2 for Big Data: Creative exploration

Explore ideas, uncover patterns



Phase 3 for Big Data: Business Model Transformation

New sources of value and revenue



Improving our lives ...



Individuals

- **Usage of public transport**
- Healthcare monitoring
- Home energy management



Optimize public transport operations and improve customer experience

- Implemented Intelligent Transportation System designed to monitor traffic conditions in real-time
 - Analyzes 50 bus location updates per second
 - Provides real-time visualization and visibility into the arrival times of 1,000 buses
- Enabled the optimization of its 150 bus routes and 5,000 stop locations

Optimizing our businesses ...



Companies

- **Churn prevention in Telco**
- Advertising and IP management
- Social sentiment analysis



Asian Telco

Reduce billing costs and improve customer satisfaction

- Ensure real-time mediation and analysis of 6 billion Call Detail Records per day
- Uses stream computing for real-time data integration and analytics
 - Data processing time reduced from 12 hours to 1 second
 - Hardware cost reduced to 1/8th
- Proactively address issues (e.g. dropped calls) impacting customer satisfaction

And improving our world



Society

- **Alternate sources of energy**
- Epidemic early warning
- Water management

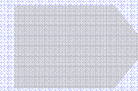


Optimizes wind turbine placement and operating life expectancy

- Analyze 2.8 petabytes of climate data to predict weather patterns at potential sites.
- More data means more accurate and richer models and results
 - Granularity 27km x 27km grids: driving to 9x9, 3x3 to 10m x 10m simulations
- Reduced response time for wind forecasting from weeks to hours
- Shortened time to develop a wind turbine site by nearly a month

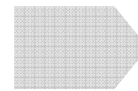
Get started

**Information is exploding
whether you like it or not**



**Establish the
right big data
foundation**

**Organizations that figure
this out will outperform**



**Assess your
Analytics
Quotient**

**And you have to get
ready**



**Create an
Information
Agenda**

How will you change the world with big data?



7 billion

People in the world¹ with unlimited potential and ideas



48%

Expected growth in the digital universe in one year²



Limited

Resources and time on the planet

Let's build a Smarter Planet.



¹ According to the United Nations Population Fund, it reached 7 billion on October 31, 2011.

² IDC Worldwide Big Data Technology and Services 2012-2015 Forecast, doc #233485, March 2012.

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