12th Annual Acquisition Research Symposium

Big Data:
Big Confusion?
Big Challenges?

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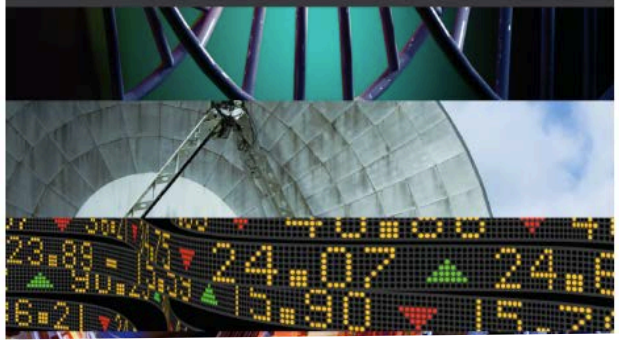

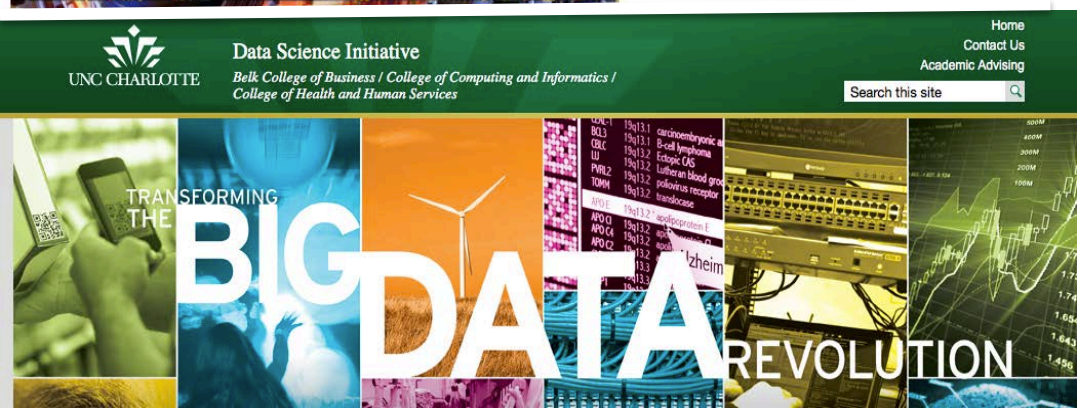

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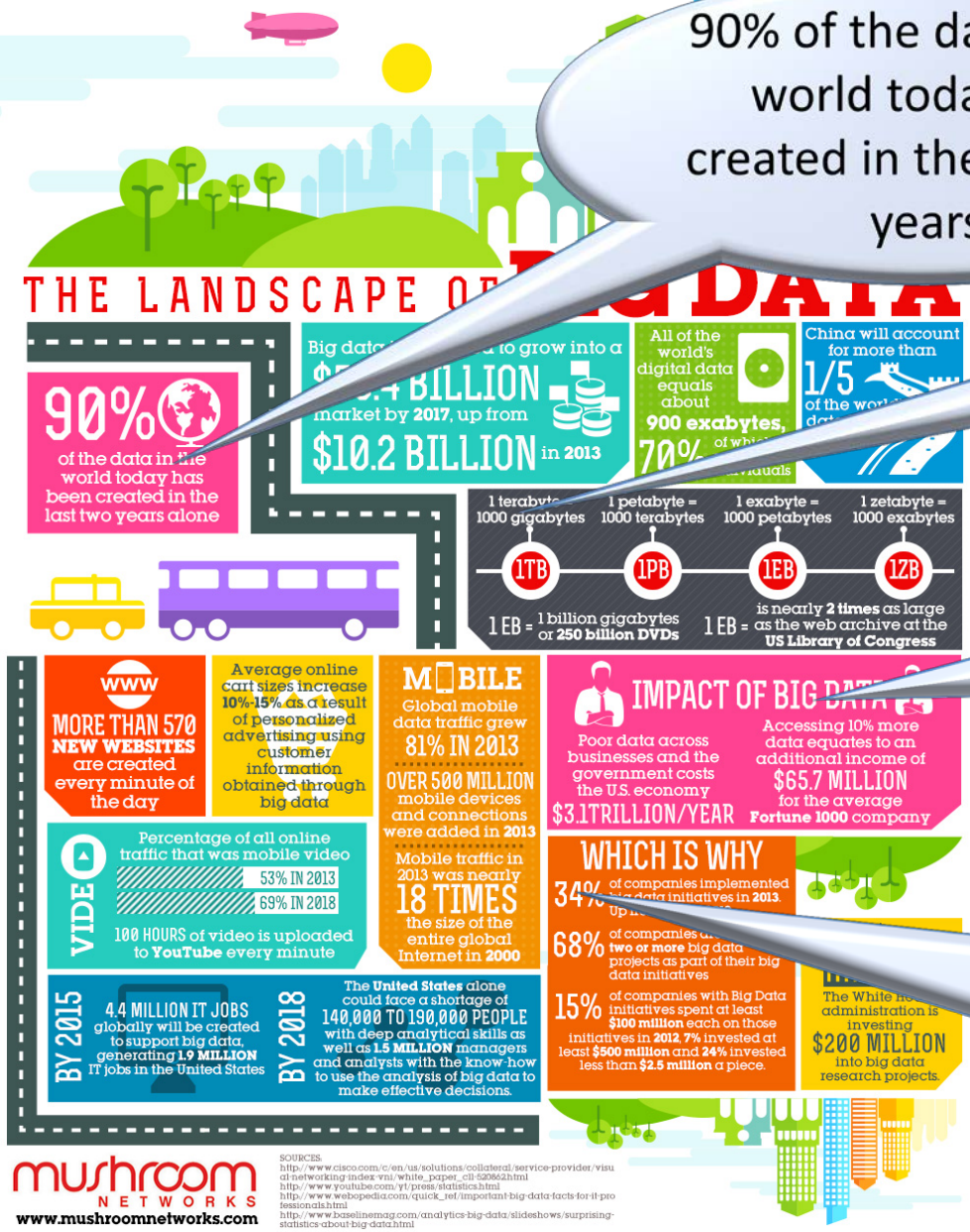
90% of the data in the world today was created in the last two years

Big Data growth from $10 Billion in 2013 to $53 Billion by 2017

Poor data across the private and public sectors costs the U.S. economy $3 Trillion/year

By 2018, shortage of 190,000 people with deep analytical skills & 1.5 million managers and analysts evidence based decisions



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Value of Big Data

Improvements in strategic decision making operational efficiency

- Generating new data sources
- Predictive analytics
- Market research

(AMA Survey top 5)

Data to Decisions: “placing a big bet on big data”

The Department of Defense investing $250 million annually

- Harness and utilize massive data in new ways and bring together sensing, perception and decision support to make truly autonomous systems that can maneuver and make decisions on their own.

- Improve situational awareness to help warfighters and analysts and provide increased support to operations.

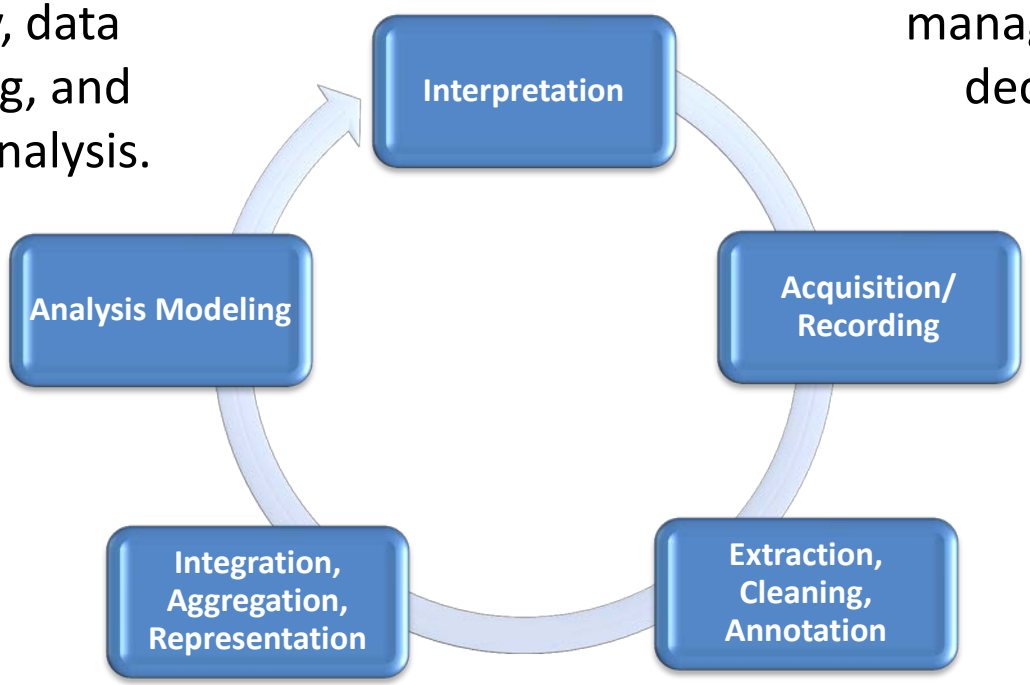
Today, no matter what business you are in, technology, problem-solving and data analytics are at the heart of it.

Definitions

Data Science & Business Analytics

Data Science - knowledge extraction, information discovery, information harvesting, data archaeology, data pattern processing, and exploratory data analysis.

Business Analytics – heavily grounded in OR, including explanatory and predictive modeling, and fact based management to drive decision making



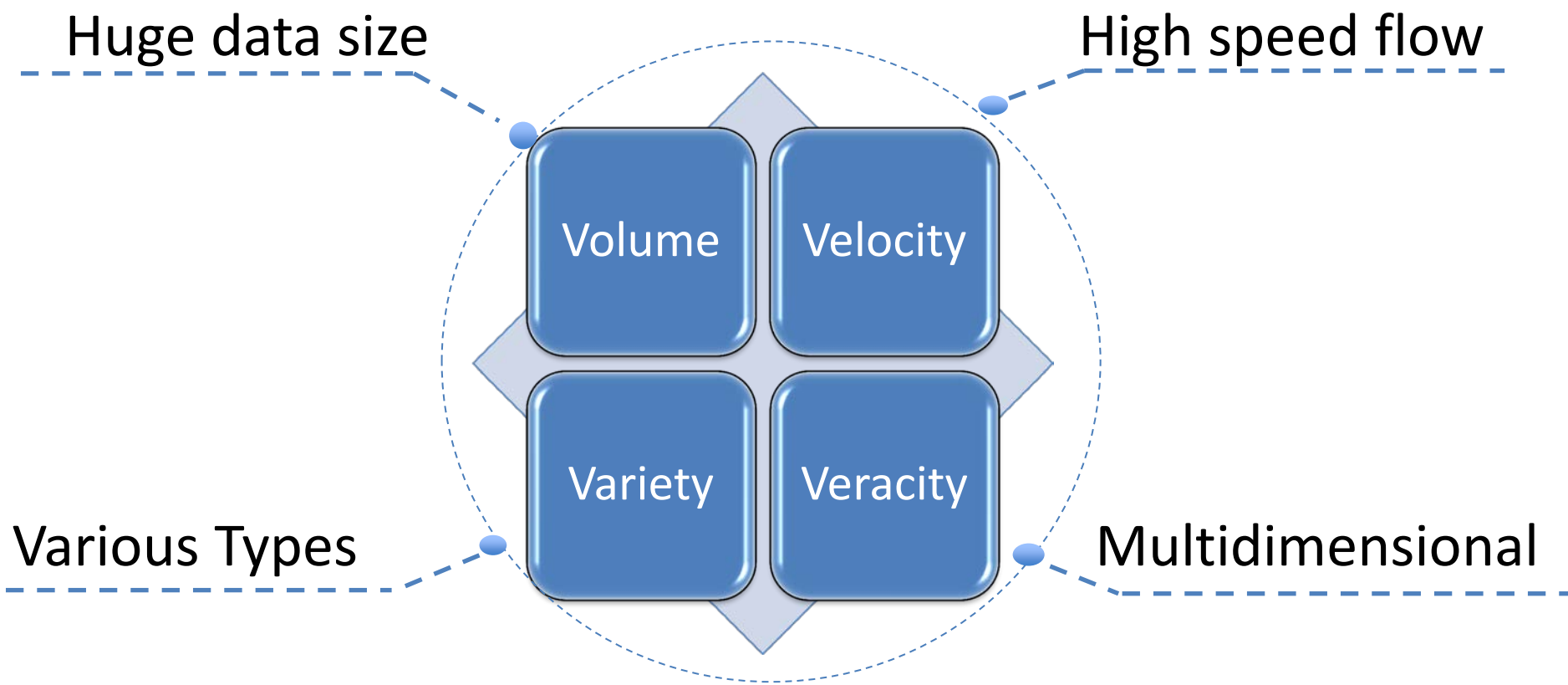
Big Datasets Bring….

- noise accumulation, spurious correlations and incidental homogeneity
- heavy computational cost and algorithmic instability
- Aggregation from different systems can result in statistical biases & measurement error

Big Datasets Demand….

more adaptive and robust procedures

According to IBM,
2.5 quintillion bytes of data are produced every day



Big data will intensify the need:

- For changes in data quality and governance,
- For embedding analytics into operational systems, and
- For security, privacy, and regulatory compliance

Big Data's power does not erase the need for human insight

– it only elevates it.

Typical software engineering problems

Four management challenges:

1. Leadership

2. Talent management

3. Decision making responsibility and accountability

4. Culture

Far and above all others

Turning data into insight is by far the biggest challenge…Forcing a major change in paradigms

Traditional Analytical Approach – Specifications and Requirements for canned queries and reports

Too many permutations

Big Data Analytical Approach – Foster On Demand Analysis

Skills gap - Most of us today are woefully data illiterate

Top 5 Needs:

- Critical Thinking
- Problem Solving
- Extrapolating Conclusions
- Communicating and Presenting
- Evidence Based Decision Making

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BIG DATA // BIG DATA ANALYTICS

Big Data, 'Breaking Bad' And Orange Juice

MailChimp's chief data scientist has a unique way of explaining data science to the masses. If you know a little Excel, you're ready to learn.

What's the best way to teach data science to people who lack sufficient training in analytics, computer science, modeling and statistics? A little humor can't hurt, perhaps, particularly when delving into potentially mind-numbing topics like algorithms and programming.

John Foreman, chief data scientist for MailChimp, an email marketing service provider, is doing his part to demystify the dark art of data science by speaking and writing extensively on the subject. His data science blog features an eclectic blend of real world -- if a bit unorthodox -- examples of big data in

Big Data Analytics Masters Degrees: 20 Top Programs

(click image for larger view and for

"What's the best way to teach data science to people who lack sufficient training in analytics, computer science, modeling and statistics?"

"A little humor can't hurt"

Take Away

"The evidence is clear: Data-driven decisions tend to be better decisions"

Biggest Challenge

organizations are in the difficult position of having to build the capacity to approach problems in an analytical way

Erik Brynjolfsson

Andrew McAfee