

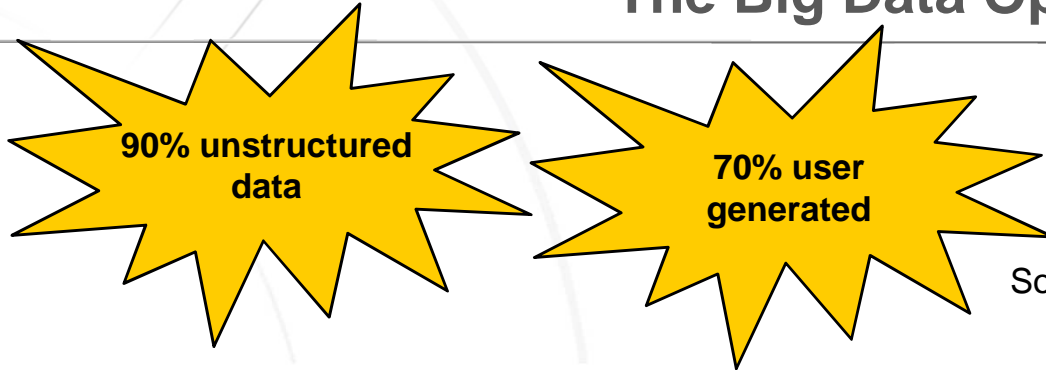
# Semantic Technologies for Big Data Analytics

## Opportunities and Challenges

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# The Big Data Opportunity



Source: IDC

## Big data can generate significant financial value across sectors

### Big data—a growing torrent

**\$600** to buy a disk drive that can store all of the world's music

**5 billion** mobile phones in use in 2010

**30 billion** pieces of content shared on Facebook every month

**40%** projected growth in global data generated per year vs. **5%** growth in global IT spending

**235** terabytes data collected by the US Library of Congress in April 2011

**15 out of 17** sectors in the United States have more data stored per company than the US Library of Congress



#### US health care

- \$300 billion value per year
- ~0.7 percent annual productivity growth



#### Europe public sector administration

- €250 billion value per year
- ~0.5 percent annual productivity growth



#### Global personal location data

- \$100 billion+ revenue for service providers
- Up to \$700 billion value to end users



#### US retail

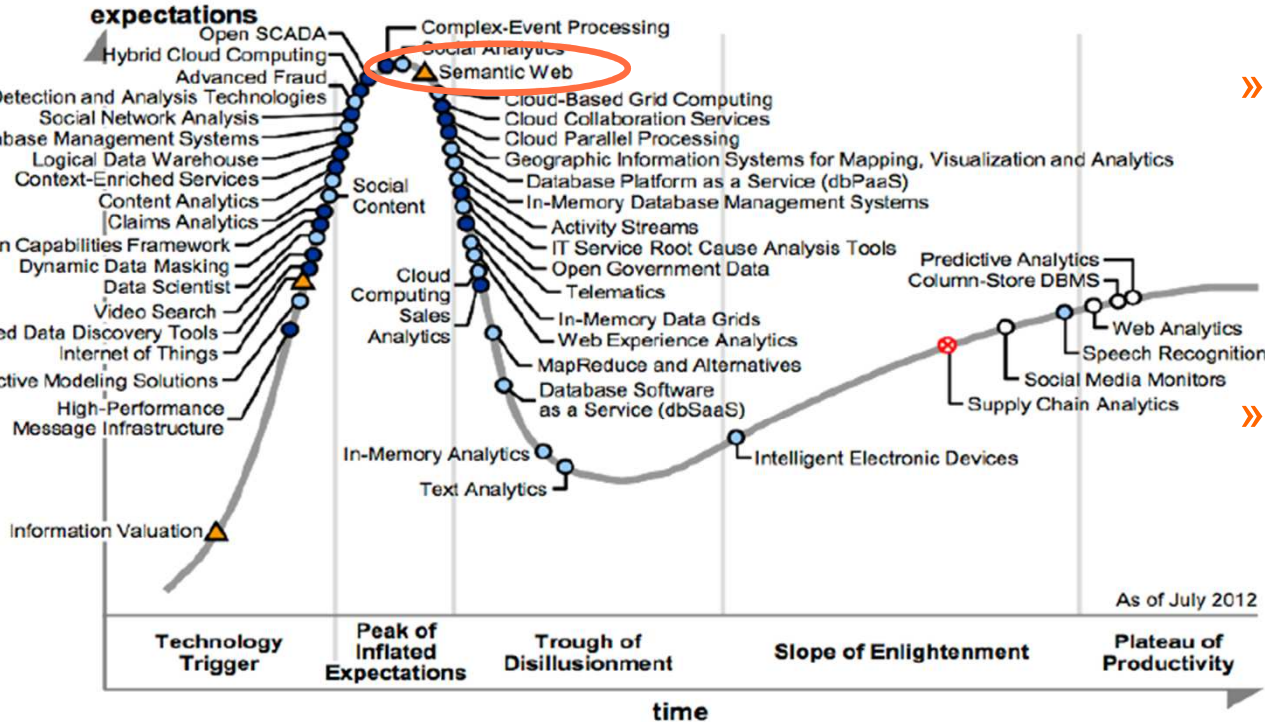
- 60+% increase in net margin possible
- 0.5–1.0 percent annual productivity growth



#### Manufacturing

- Up to 50 percent decrease in product development, assembly costs
- Up to 7 percent reduction in working capital

# Expectations on Big Data touching ground



Plateau will be reached in:

- less than 2 years
- 2 to 5 years
- 5 to 10 years
- ▲ more than 10 years
- ⊗ obsolete before plateau

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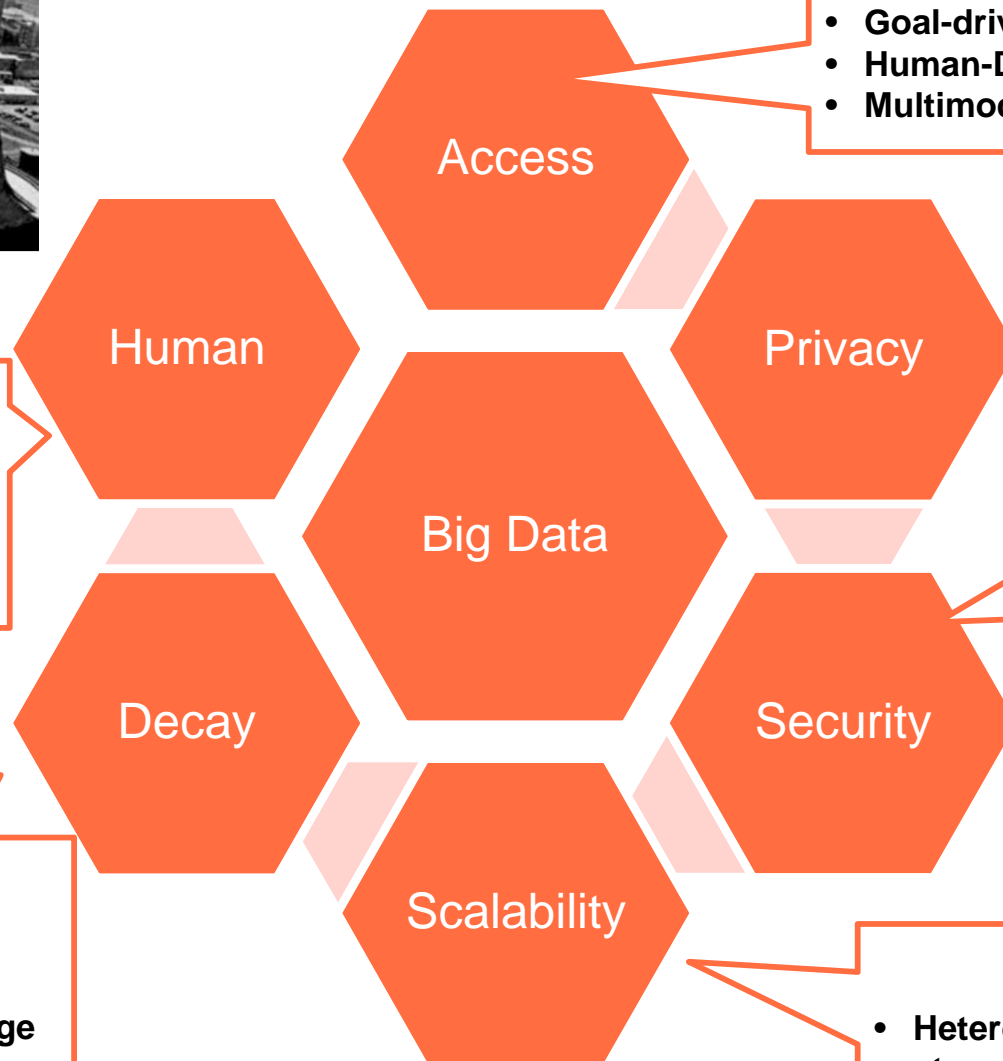
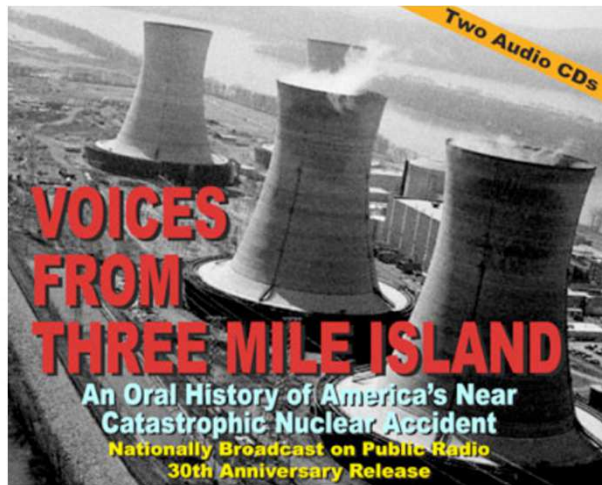


### US retail

- 60+% increase in net margin possible
- 0.5–1.0 percent annual productivity growth

- » Customers
  - › Omnichannel customer experience
  - › Sentiment analysis for product positioning
  - › Personalized loyalty programs
- » Merchandising
  - › Price optimization
  - › Market basket analysis
  - › Best store location analysis
  - › Weather, Geo, season correlation
- » Marketing
  - › Consumer segmentation
  - › Campaign analytics
  - › Sentiment analysis
- » Supply chain
  - › No stock out
  - › Demand-driven sales forecast
  - › Route and Warehouse optimization

## The Big Data Time Bombs



- “IT staff spend 70% of the time looking for information, 30% doing actual work“
- Goal-driven data selection
- Human-Data interfaces
- Multimodal & multichannel

- Fair use of personal data
- Anonymization
- Black market of personal data

- Data is the new currency
- Data custody and investment
- Data firewall & Security
- Intelligence: who is accessing what data, where and when

- Heterogeneous data has different storage and preservation needs (space and time)

- Lack of data-savvy staff (150K positions needed and 1.5M data savvy managers needed)
- Lack of corporate data management plans

- Enabling data reuse and aggregation
- Data reliability
- Accessibility, availability, change
- Discrete vs. Continuous

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**Thank you for  
your attention!**

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