Maximizing Marketing with Big Data

Brian Ruf
Ruf Strategic Solutions

Maximizing Marketing With Big Data

Marketing Outlook Forum 2015

- Brian Ruf – CIO, Ruf Strategic Solutions
- Natalie Osborn – Senior Industry Consultant, SAS
- Cree Lawson, Founder and CEO, Arrivalist
- Joanie Flynn, Vice President of Marketing, Gulf Shores & Orange Beach Tourism

Moderator: Brian Ruf – Ruf Strategic Solutions

Maximizing Marketing with Big Data

"After careful consideration of all 437 charts, graphs, and metrics,
I've decided to throw up my hands, hit the liquor store,
and get snockered. Who's with me?!"

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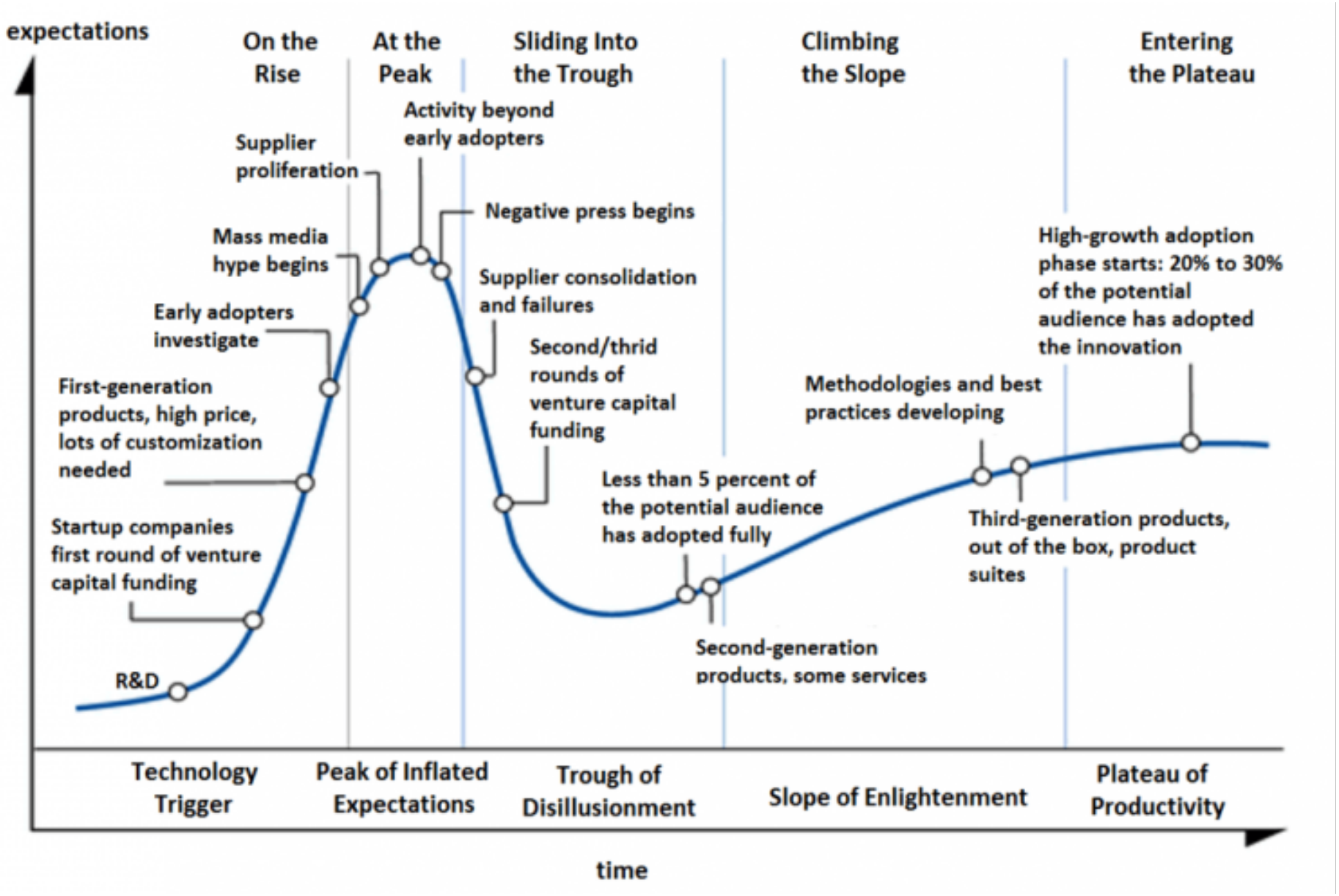
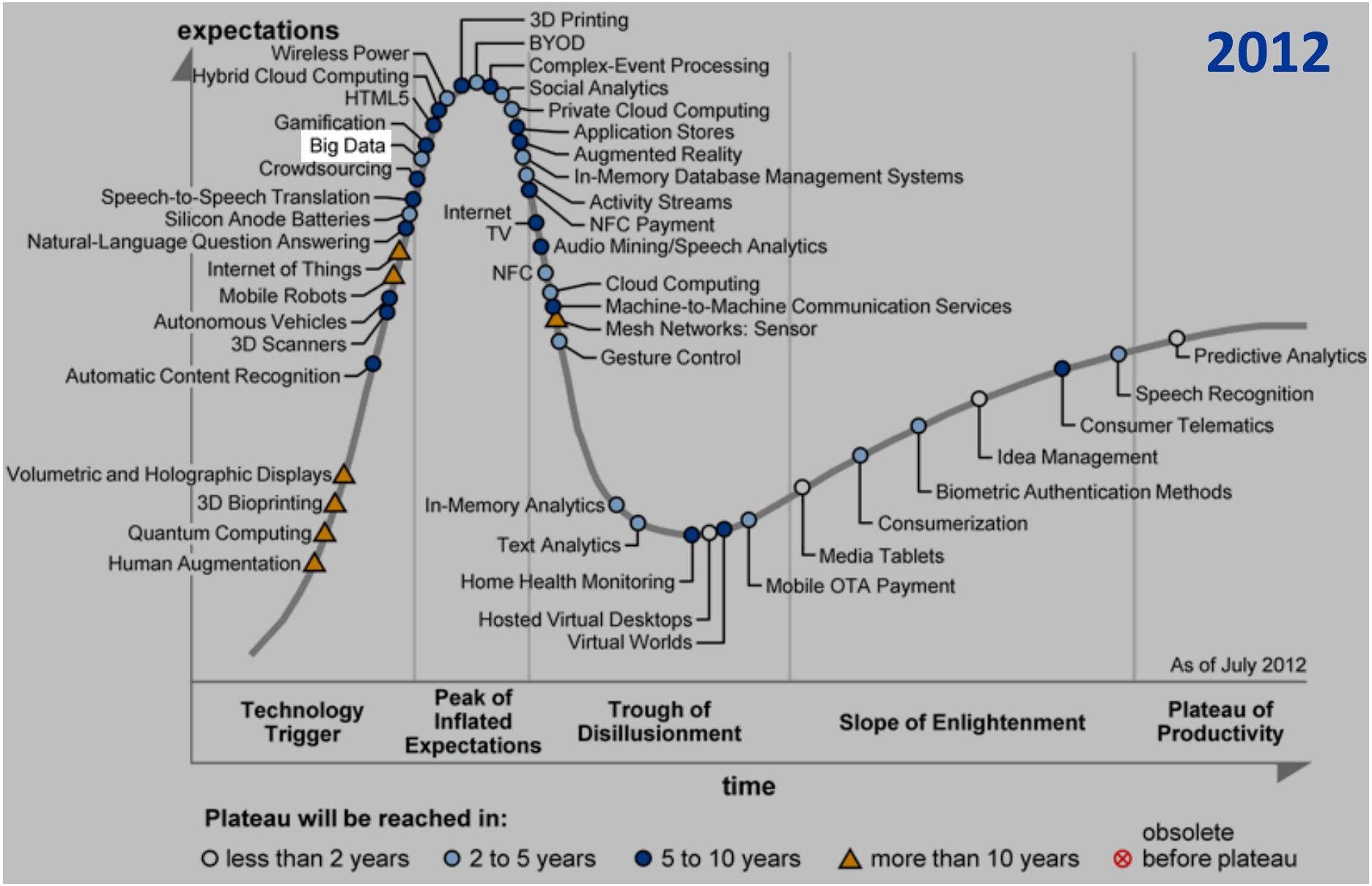
Big Data—Hype or Reality?

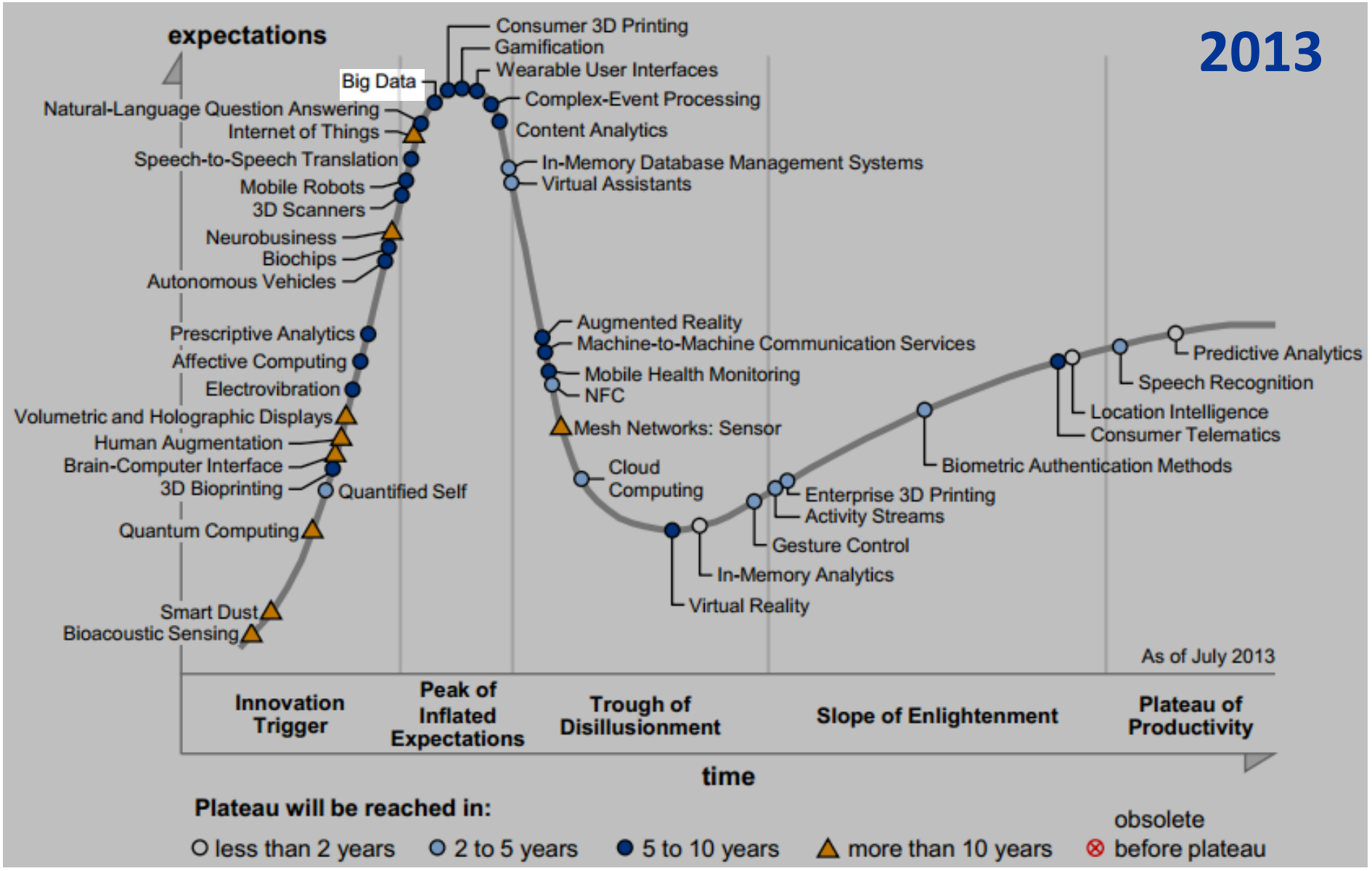


Big Data—Hype or Reality?



Source: Gartner July 2012

Big Data—Hype or Reality?



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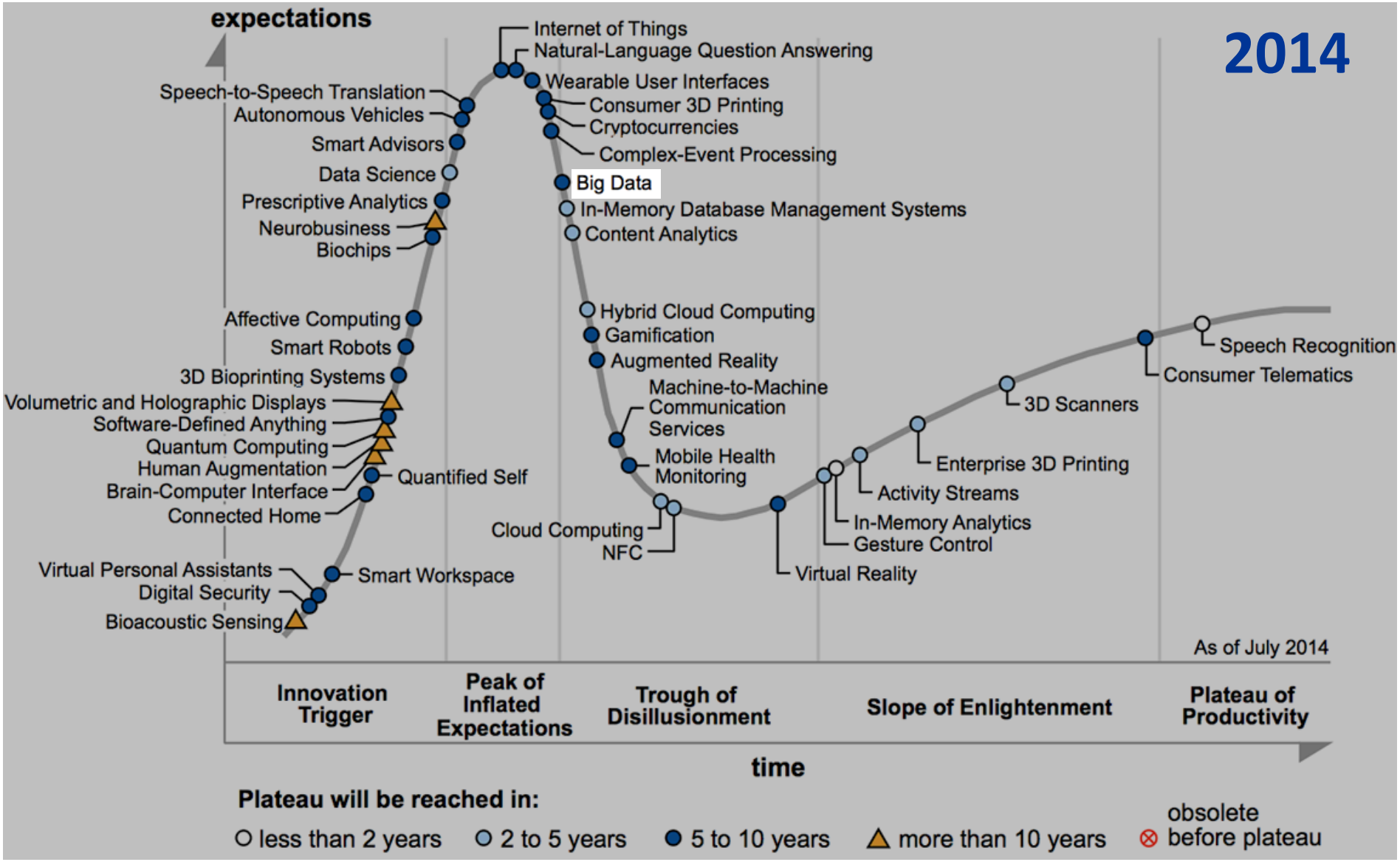

Source: Gartner July 2014

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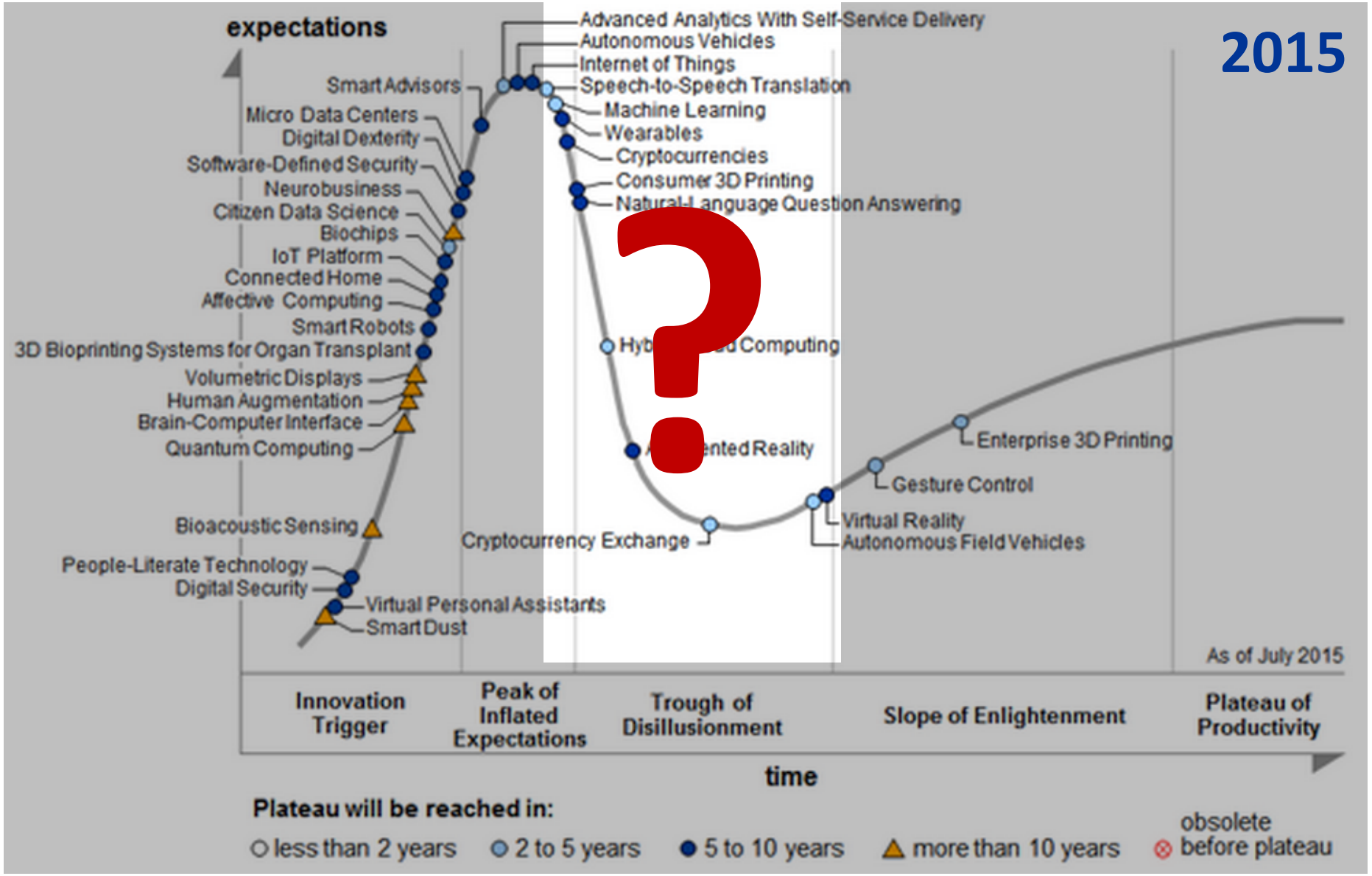

Source: Gartner July 2015

The Next Frontier

Picture Source: Thirst for Kellogg Magazine, Northwestern University

- Basis for competition…
  - Productivity growth
  - Innovation
  - Consumer surplus
- Exponential data growth…
  - Multimedia
  - Social Media
  - Internet of Things

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Journey Through the (Big) Data Revolution

THE PAST

Digital storage grew annually by **23%** between 1986 and 2007.

Most data was stored on **videotapes** such as VHS cassettes in the pre-digital revolution world of the late 1980s, Vinyl LP records, audio cassette tapes, and photography accounted for significant portions as well.

Paper-based storage represented **33%** of all data storage on its own in 1986.

25% of all data stored in the world in 2000 was stored digitally.

2002 is the first year that digital storage capacity overtook analog capacity.

94% of all data was stored in digital format by 2007.

PRESENT

Today, more than **2.5 exabytes** (2.5 billion gigabytes) of data is generated every single day. This is expected to continue growing at a significant rate with mobile devices accounting for much of this data.

Some experts have estimated that **90%** of all of the data the world today was produced within the last two years.

Source: "Facts and Stats About The Big Data Industry" by Daniel Price (CloudTweaks) March 17, 2015

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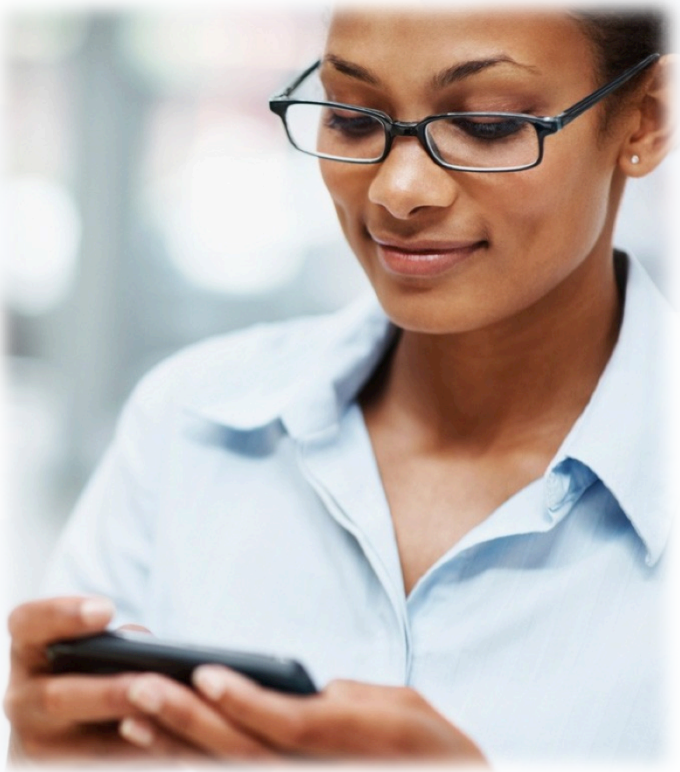
Types of Data: Social Networks (human-sourced data)

- Social Networks (Facebook, Twitter, Tumblr etc.)
- Blogs and comments
- Personal documents
- Pictures (Instagram, Flickr, Picasa etc.)
- Videos (YouTube, etc.)
- Internet searches
- Mobile data content (text messages)
- User-generated maps
- Email



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Types of Data: Traditional Business Systems (process-mediated data)

- Data produced by Public Agencies
- Data produced by businesses
  - Commercial transactions
  - Banking/stock records
  - E-commerce
  - Credit cards

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Types of Data: Internet of Things (machine-generated data)

- Data from sensors
  - Fixed sensors
    - Home automation
    - Weather/pollution sensors
    - Traffic sensors/webcam
    - Scientific sensors
    - Security/surveillance videos/images
  - Mobile sensors (tracking)
    - Mobile phone location
    - Cars
    - Satellite images
- Data from computer systems
  - Logs
  - Web logs

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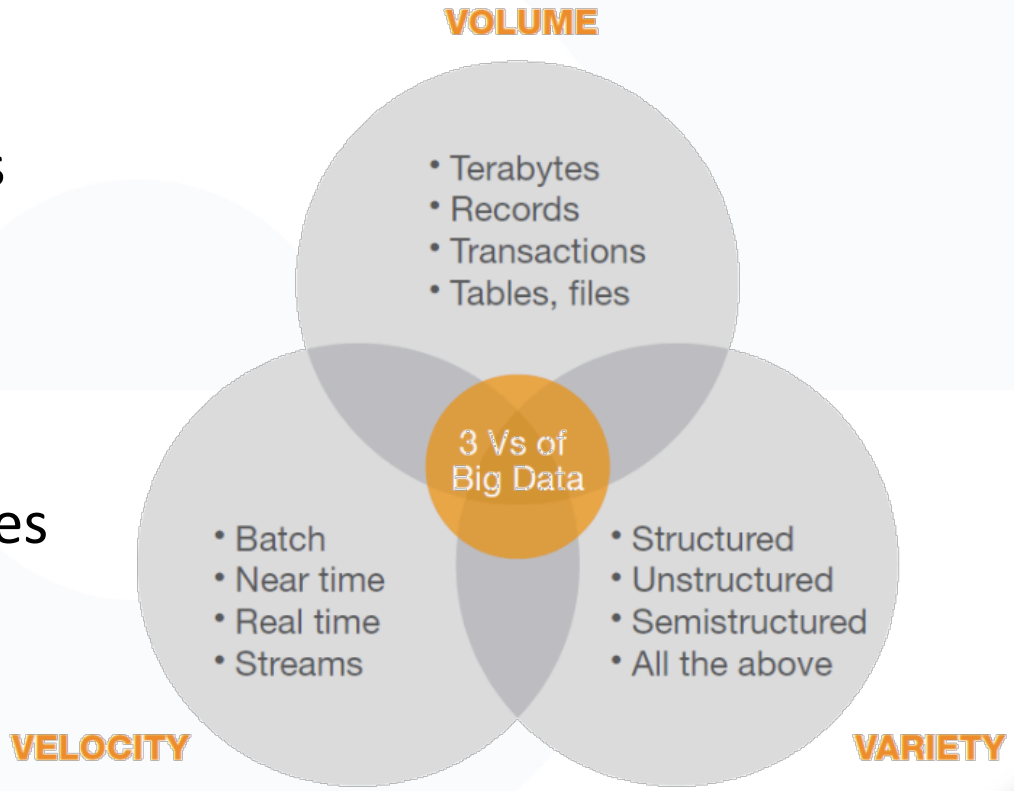
Big Data Characteristics

- Volume—too many bytes
- Velocity—too fast at too high a rate
- Variety—too many sources



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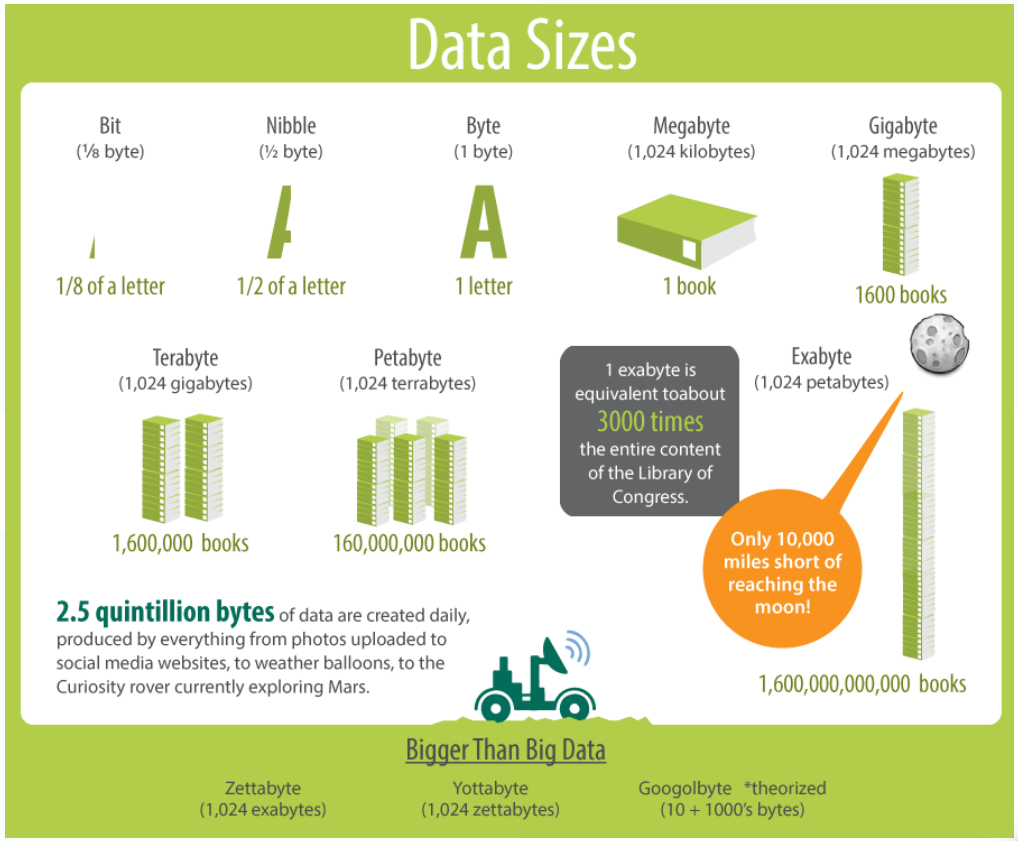
Volume

- More data has been created in the past two years than in the entire previous history of the human race.
- By 2020 our accumulated digital universe of data will grow from 4.4 zettabytes today to around 44 zettabytes, or 44 *trillion* gigabytes!

Source: "Big Data: 20 Mind-Boggling Facts Everyone Must Read" by Bernard Marr • Forbes Sep 30, 2015



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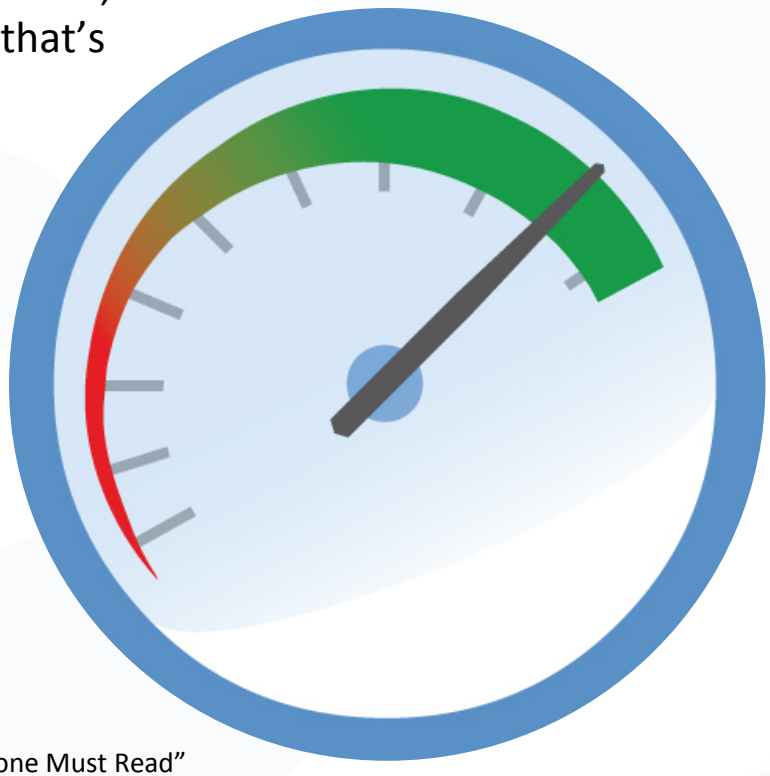
Velocity

- ***Every second*** we create new data—on Google alone, we perform 40,000 search queries every second—that's 1.2 trillion searches per year.
- By the year 2020, about 1.7 megabytes of new information will be created ***every second*** for every human being on the planet.
- In August 2015, 1+ billion people used Facebook ***in a single day***.
- Facebook users send on average 31.25 million messages and view 2.77 million videos ***every minute***.



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Variety

- Massive growth in video and photo data
  - Every minute up to 300 hours of video are uploaded to YouTube
  - In 2015, 1 trillion photos will be taken and billions of them will be shared online
  - By 2017, nearly 80% of photos will be taken on smart phones
- This year, 1.4+ billion smart phones will be shipped—all featuring sensors capable of collecting all kinds of data, in addition to the data the users create themselves.
  - By 2020 6.1+ billion people around the world will have a smartphone (overtaking basic fixed phone subscriptions)
- Within five years there will be 50+ billion smart connected devices globally—all developed to collect, analyze and share data.

Source: "Big Data: 20 Mind-Boggling Facts Everyone Must Read" by Bernard Marr • Forbes Sep 30, 2015

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Dark Data

- When your data exceeds your ability to utilize it—you've got a dark data.
- At the moment, less than 0.5% of all data is ever analyzed and used!

Source: "Big Data: 20 Mind-Boggling Facts Everyone Must Read" by Bernard Marr • Forbes Sep 30, 2015

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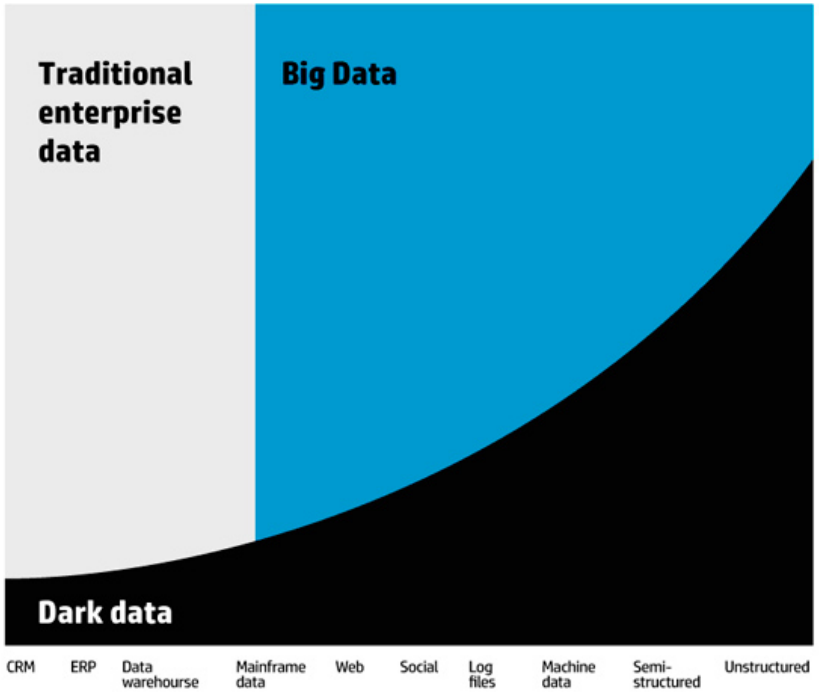
Reasons for Dark Data

- Lack of processing resources (hardware and/or software)
- Lack of effective tools
- Lack of strong enhancement data
- Lack of expertise
- Lack of time
- Lack of interest



A wealth of information lies below the surface of traditional enterprise data—but getting to it requires cutting-edge analytics.

Source: HP/Syncsort

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Special Skills Required—the Data Scientist

Picture Source: SuccessfulWorkplace

- The number of job postings for data scientist grew 57% for Q1 2015 compared to Q1 2014
- Searches for data scientist grew 73.5% for the same period
- The top-paying job listings at Facebook and LinkedIn are for data scientists—not software engineers

"Data science is still white hot, but nothing lasts forever"
by Barb Darrow • Fortune, May 21, 2015

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How Does Big Data Affect Our Daily Lives?

Sports Predictions

Big Data has been shown to be useful in predicting the outcomes of sporting events; big data was famously used in 2012 to predict that the U.S. would win 108 medals in that years' Summer Olympics in which the U.S. ended up winning 104 medals.

Voting Prediction

Big Data has been used to predict the outcomes of elections. Statistician Nate Silver managed to predict the outcome of the 2012 presidential election with perfect accuracy.

Smartphones

When a smartphone user gets directions, asks their phone a question out loud, or any number of other functions, it is the result of analyzing big data.

Personalized Advertising and Purchasing Recommendations

One of the primary uses for big data has been in the recommending of purchases and personalization of ads on websites. One study found that a person is more likely to complete Navy Seal training than to actually click a banner ad. Both customers and companies stand to benefit from more personalized and relevant ads.

Improved Traffic Flow

Several companies and cities have utilized big data to streamline the flow of traffic in their towns. Using data derived from drivers' GPS signals to react in real time to traffic conditions, weather, accidents, etc. in order to maintain smooth traffic flow.

Epidemic Detection and Prevention

Big data has recently come into use by Google and more recently by the traditional medical establishment to predict where outbreaks of potentially epidemic viruses such as the flu are most likely to appear.

Source: "Facts and Stats About The Big Data Industry" by Daniel Price (CloudTweaks) March 17, 2015

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Making Big Data Small (and Actionable) the Persona

Suburban Splendor

- Married with Children
- Ages 35-54
- $400k Household Income
- Bachelor's and Post-Graduate degrees
- White Collar Careers
- Suburban Homeowners

- Frequent reader of magazines

- Rented vehicle for business use
- Bought sports/recreation equipment
- Took a foreign trip for vacation
- Own or lease a luxury car

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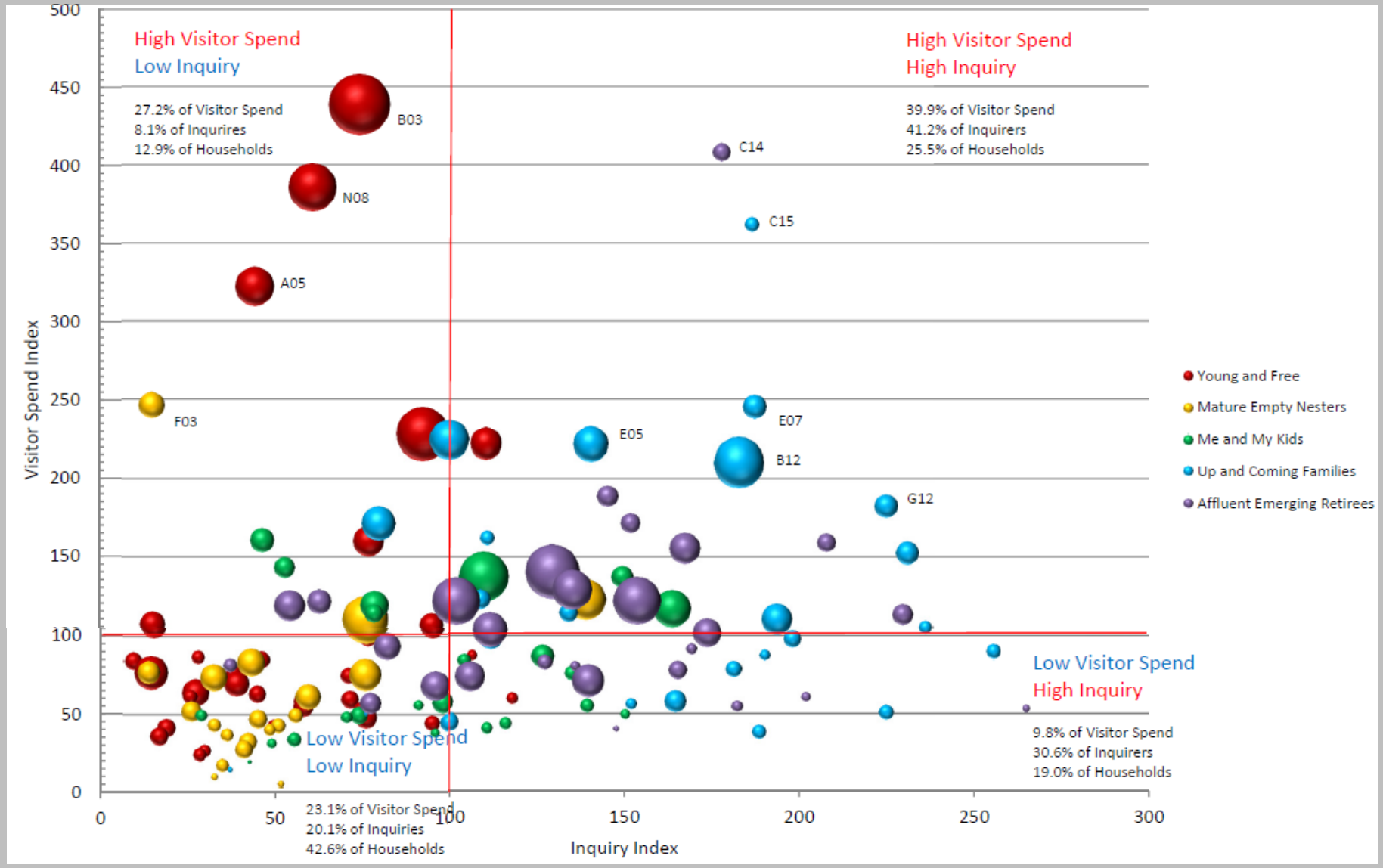
VTC
Index Analysis - Visitor Spend vs. Inquiries



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CONNEX by Ruf Strategic Solutions

How helped Virginia Tourism Corporation

- Helped us to see underlying relations and shifts
- Revealed that the younger groups (i.e. Millennials) were behaving like older groups (i.e. Boomers)
- Helped us to go a step further
- Digital group – helped us determine how do we keep them better engaged
- Helped us to connect the dots and tie data sets together
- Overall it helped with our strategic and tactical decision making
- Etc.

Esra Calvert – Director of Research
Virginia Tourism Corporation

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In Conclusion

- Availability of Data is growing faster than our ability to leverage it (Data Rich and Information Poor)
- Big Data can be characterized in 3 ways (3 V's)
  - Volume
  - Velocity
  - Variety
- Strong Tools and quality Data aren't enough to deliver insights – Need Expertise or Data Scientists to turn data into actionable insight

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Thank You

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