


ocba vu Amsterdam Business Analytics

# BIG data:

BIG challenge, BIG threat, BIG value or.... BIG hype?



SIERTEELT(DIGI)TAAL

22 januari 2015

All Rights Reserved 2015

ocba vu Amsterdam Business Analytics

# Objectives


Doelstellingen/Opzet:


- 1) **Wat** is BIG data?
- 2) **Waarom** is BIG data relevant?
- 3) Inspireren dmv voorbeelden: **Hoe**?

All Rights Reserved 2015

ocba vu Amsterdam Business Analytics

# INTRO

 **Dr J.F.M. (Frans) Feldberg**  
Associate Professor  
Faculty of Economics & Business Administration  
VU University Amsterdam  
Department: Information, Logistics and Innovation  
[f.feldberg@vu.nl](mailto:f.feldberg@vu.nl)

 FransFeldberg

Knowledge, Information and Networks ([www.kinresearch.nl](http://www.kinresearch.nl))

Research/Education:

- Business Intelligence & Analytics/BIG data
- Data-driven business model innovation
- Online decision making (DSS & GDSS)
- Online (buying) behavior(emerging technologies)

Business Consultant.

All Rights Reserved 2015

ocba vu Amsterdam Business Analytics

# INTRO



- Business Administration & Mathematics & Computer Sciences & ....
- Bachelor and Master Business Analytics
- Post Graduate Education: Business Analytics/ Data Science
- Multidisciplinary Research Center
- Eco System: Businesses & Science
- One stop shop: Access to all relevant academic Expertise

All Rights Reserved 2015

ocba vu Amsterdam Business Analytics



Verbinding door direct contact.

All Rights Reserved 2015

ocba vu Amsterdam Business Analytics

# (BIG) Data..... What is going on?

# Met Big data bezig?

All Rights Reserved 2015

(BIG) Data..... What is going on? 

 **Dan Ariely**  
January 6, 2013 · 

Big data is like teenage sex: everyone talks about it, nobody really knows how to do it, everyone thinks everyone else is doing it, so everyone claims they are doing it...

Like · Comment · Share

© All Rights Reserved 2015

(BIG) Data..... What is going on? 



© All Rights Reserved 2015

(BIG) Data..... What is going on? 

BIG Data..... Hype, kans of bedreiging?




© All Rights Reserved 2015

(BIG) Data..... What is going on? 

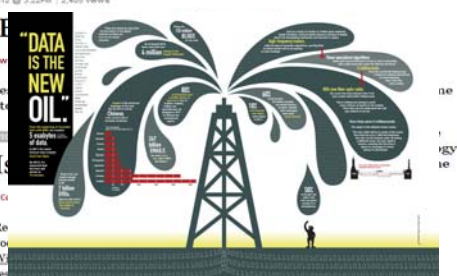
“Data is the new **gold**,  
the new **gold** that waits to be excavated”




© All Rights Reserved 2015

(BIG) Data..... What is going on? 

A lot of BUZZ.....



© All Rights Reserved 2015

(BIG) Data..... What is going on? 

**BIG** *Labels coined over time (last decade).*


Nature 2008:  
Special issue on Big Data

**DATA**

**SCIENCE**  
HBR 2012:  
Data Scientist : The Sexiest Job of 21<sup>st</sup> Century

**BUSINESS ANALYTICS**  
HBR 2006: Competing on Analytics


© All Rights Reserved 2015


(BIG) Data..... What is going on? 

Finally it is all about:  
Transforming data into actionable insights  
(and results).

*(A long block of binary code follows)*

All Rights Reserved 2015


What is BIG data? 




And Future Growth is Staggering

Today, the number of IP packets is ~2 billion  
By 2015, the number of IP packets is ~24 billion  
By 2015, the number of IP packets is ~24 billion  
By 2015, the number of IP packets is ~24 billion  
By 2015, the number of IP packets is ~24 billion

(www.intel.com) All Rights Reserved 2015

What is BIG data? 


Not in the amount of Vs....

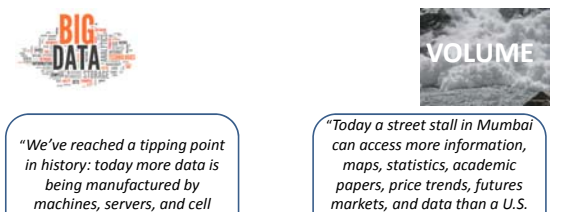


4 times different: 4V

**VOLUME** **VARIETY** **VELOCITY** **VERACITY**

All Rights Reserved 2015

What is BIG data? 





"We've reached a tipping point in history: today more data is being manufactured by machines, servers, and cell phones, than by people"

"Today a street stall in Mumbai can access more information, maps, statistics, academic papers, price trends, futures markets, and data than a U.S. president could only a few decades ago"

Michael E. Driscoll (CTO and co-founder at Metamarkets)  
Juan Enriquez (founding director of the Life Sciences Project at HBS)

All Rights Reserved 2015

What is BIG data? 




Generates up to 25 GB of data per hour.


All Rights Reserved 2015

What is BIG data? 




(McKinsey Global Institute, 2011) All Rights Reserved 2015


What is BIG data? 



- Structured data
- Unstructured data

© All Rights Reserved 2015


What is BIG data? 




Two aspects:

- Speed of data creation
- Speed of data delivery

© All Rights Reserved 2015


What is BIG data? 




- Single Version of the truth....
- 1 in 3 business leaders don't trust the information they use to make decisions.

(<http://www-01.ibm.com/software/data/bigdata/>)

© All Rights Reserved 2015

What is BIG data? 

- Big data is about technologies and concepts that can handle the requirements imposed by these 4 Vs.
- That "Traditional Technologies" can't.



© All Rights Reserved 2015

What is BIG data? 



BIG data is more than simply a matter of size: it is also about creating insights!

*Discovering what you don't know you don't know.....*




© All Rights Reserved 2015

What is BIG data? 




<http://wc2014.ortecsports.com/league/56/team/771>

© All Rights Reserved 2015

What is BIG data? 


**BIG DATA**


BIG data is more than simply a matter of size: it is about creating insights!

Business intelligence and analytics

Competitive advantage	Optimization	What's the best that can happen?	Analytics	PRESCRIPTIVE (how to achieve the best outcome?)
	Predictive modeling	What will happen next?		PREDICTIVE
	Forecasting/optimization	What if these trends continue?	Access and reporting	DESCRIPTIVE
	Statistical analysis	Why is this happening?		
	Alerts	What actions are needed?		
	Quantification	Where exactly is the problem?		
Analysis, reports	How many, how often, where?			
Reporting/dashboards	What happened?			
Degree of intelligence				

(Davenport & Harris, 2006) © All Rights Reserved 2015

What is BIG data? 



New measurement tools give us new insights.

(Courtesy: Andrew McAfee) © All Rights Reserved 2015

What is BIG data? 




<http://nl.wikipedia.org/wiki/Zonnestelsel#mediaviewer/File:Planets2013.jpg>

© All Rights Reserved 2015

What is BIG data? 




© All Rights Reserved 2015

Why BIG data? 


Moore's Law

Imagine this will happen for a technology that is **fundamental** for businesses....


© All Rights Reserved 2015

Why BIG data? 

Second Half of the Chessboard




Erik Brynjolfsson & Andrew McAfee



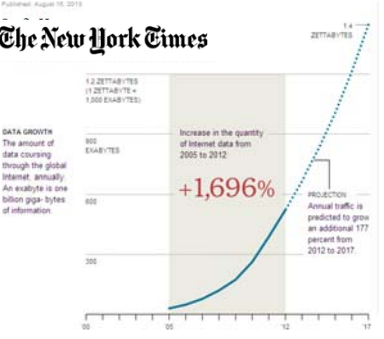
© All Rights Reserved 2015

Why BIG data?



© All Rights Reserved 2015

Why BIG data?



Published: August 16, 2013

**The New York Times**

1.2 ZETTABYTES  
1.1 ZETTABYTES  
1.000 EXABYTES

DATA GROWTH  
The amount of data coursing through the global Internet annually. An exabyte is one billion gigabytes of information.

Increase in the quantity of internet data from 2005 to 2012  
**+1,696%**

PROJECTION  
Annual traffic is predicted to grow an additional 177 percent from 2012 to 2017.

© All Rights Reserved 2015

Why BIG data?

At some point a difference in degree becomes a difference in kind.



(Jan Rotmans)

*We leven niet in een tijdperk van veranderingen maar in een verandering van tijdperken.*

© All Rights Reserved 2015

Why BIG data?

*“We view big data and big data analytics as the mother lode of disruptive change in a networked business environment.”*

(Baesens, Bapna, Marsden, Vanthienen, Zhao, 2014)

MIS Quarterly Call for Papers  
MISQ Special Issue on  
Transformational Issues of Big Data and Analytics in Networked Business

© All Rights Reserved 2015

Why BIG data?

**Strength in Numbers: How Does Data-Driven Decision making Affect Firm Performance?**  
(Brynjolfsson et al., 2012)

Empirical study: Results provide some of the first large scale data on the direct connection between data-driven decision making and firm performance.

© All Rights Reserved 2015

Why BIG data?

**Digital Innovation.**

Owing to the 50-year march of Moore’s Law, -> relatively **cheap** and increasingly **easy-to-use world-wide** digital infrastructure.


This digital infrastructure has accelerated the emergence of new technologies— ( e.g. social media, analytics and big data, wearable devices, 3D printing) —that enable:

- **transformations in the way we live and work,**
- **how companies organize, and**
- **the structure of entire industries**


(Fitchman et al., 2014)

© All Rights Reserved 2015





Why BIG data? 

Not only data, but also:

- Internet as a Service
- Cloud Computing
- High Performance Computing
- Crowd Sourcing
- Powerful Software (Open Source!) 
- High Performance Analytics

© All Rights Reserved 2015

Why BIG data? 




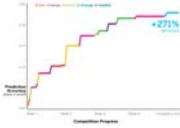
© All Rights Reserved 2015

Why BIG data? 




© All Rights Reserved 2015

Why BIG data? 



© All Rights Reserved 2015


Why BIG data? 

The question is: *To be disruptor or disrupted.....*

Producten/Diensten



		Bestaand	Nieuw
Markten	Bestaand	Ontregelaar: wij of zij?	Ontregelaar: wij of zij?
	Nieuw	Ontregelaar: wij of zij?	Ontregelaar: wij !!

© All Rights Reserved 2015

Why BIG data? 


**From Transaction support to Asset, Value !**

**New business models.....**


*Transaction -> Knowledge (analytics)*

Shell wil hardware delen, maar data niet.




FD 16 maart 2013

© All Rights Reserved 2015

Big data: new business models? 

**From Transaction support to Asset, Value !**

**New business models.....**



© All Rights Reserved 2015

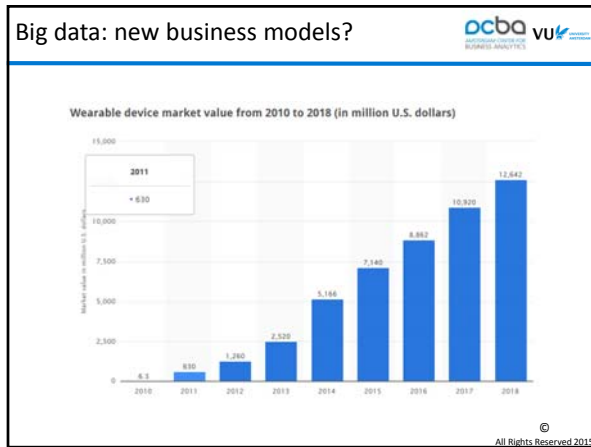
Big data: new business models? 

**Disruptors.....**



<http://www.businessweek.com/articles/2013-11-14/2014-outlook-health-care-apps-and-gadgets>

© All Rights Reserved 2015



Big data: new business models? 

**Disruptor: customer intimacy.....**

**'Health apps in 2015 gedistribueerd via ziekenhuizen'**

Niet de app stores, maar ziekenhuizen en zorginstellingen gaan in de toekomst health apps voor de mobiele telefoon verkopen. Dat is de uitkomst van de Global mHealth-enquête onder Amerikaanse bedrijven in de gezondheidszorg.



Dit zou een aanzienlijke verandering in de markt betekenen, aangezien app stores nu de belangrijkste distributeurs zijn. Ondanks dat de telefoonproviders wel gezien worden als belangrijke onderdelen van de opbouw in de markt, denken de bedrijven niet dat zij in de toekomst geschikte distributiekanaal zijn, zo staat geschreven in het onderzoek van Global eHealth.

(www.zorgvisie.nl)

© All Rights Reserved 2015


BIG data: How (Social Listening) 

**Social Listening:**




**Big data as enabler.**

© All Rights Reserved 2015

BIG data: How (Social Listening) 

**ACBA: Automatic news detection on Twitter (NU.nl)**



Topic	Count
WATER W LEIDEN - INZITTENDE VAN TE WATER GERAAKTE ALTO OVERLEDEN GERAAKTE INZITTENDE	82.12
MEDIA SOCIAL GEDOWNLOAD GEEELCODEBOER	71.26
AIR INSULTES DELTA AIRLINES HELPT PASAGERS AAN STROOKOUD BUSINESS TRAVEL	69.95
ROBOTICA WILDE INVESTERING MILJOENEN IN EUROPESE ROBOTIEK WILDE INVESTERING MILJOENEN	62.82
DRUK	60.4
DRUK	60.4

© All Rights Reserved 2015



**BIG data: How (Social Listening)**

**How Do You Feel Today?**  
Harnessing the Power of Social Media Analytics in a Hyperconnected World

www.anglobaldata.org  
#anglobaldata

**Food Price Inflation**

**Tweets about the price of rice (per month)**

All Rights Reserved 2015

**BIG data: How (Social Listening)**

**Marketingfacts**

Channels: M | Blog | Updates | Jobs | Announcements | Tools | Partners

Health apps: 1 op de 5 smartphone-bezitters manageert gezondheid

http://www.marketingfacts.nl/

All Rights Reserved 2015

**BIG data: How (Social Listening)**

**Myfitnesspal.com**

**RunKeeper**

All Rights Reserved 2015

**BIG data: How (Social Listening)**

**Myfitnesspal.com**

Recent gegeten

- Walmart Great Value - Est...
- Thomas' - English Muffin...
- Food for Life Ezekiel Ore...
- Kiinger - Peanut Butter, C...
- Village Inn - 1/2 Waffle...
- Great Value (Wal-Mart) - ...
- Generic - Pera
- Great Value - Light Brown...
- Burgen - Bread - Wholema...

Nieuwste voeding

- Vegetaria - Luau-cabasa...
- Sola - Lachosa Free Skim...
- Arrowhead Mills - Organic...
- Ugg - Spiced Fruit Muffi...
- Affiliato - Biscotti
- Ugg - Spiced Fruit Muffi...
- Flage - Total O's Fat Creek...
- Robin-Hardies Bacon - Ha...
- Gut "drei Eichen" - Coma...

**Populaire tags**

- chicken shawarma chocolate
- white cream milk fat white
- brandy brandy brandy brandy
- bailed baied light low rice
- vigant butter soap butter
- crabbs white dressing
- pizza roasted sugar honey
- strawberry rose wrapped
- also that general gran...
- organic salt chocolate style
- lemons juice low bread
- chips sandwich sugar ice
- corn hot cinnamon cookies
- evest juice pork cerea
- banana pasta apple bacon
- honey also protein orange
- frunch port vegetable
- green bean crackers
- strawberry apple raspberry
- oreano tea little natural
- ham med red bacon beach
- chip egg oat greek salad
- granola oatmeal orange fish
- potatoes dry medall
- broom reduced

All Rights Reserved 2015

**BIG data: How (Social Listening)**

**Gezondheid en fitness: verkopen lifestyle-apps jouw informatie?**

http://nieuws.nl.softonic.com/gezondheid-en-fitness-verkopen-lifestyle-apps-jouw-informatie

All Rights Reserved 2015

**Why BIG data?**

The question is: *To be disruptor or disrupted.....*


		Producten/Diensten	
		Bestaand	Nieuw
Markten	Bestaand	Ontregelaar: wij of zij?	Ontregelaar: wij of zij?
	Nieuw	Ontregelaar: wij of zij?	Ontregelaar: wij !!

All Rights Reserved 2015

**BIG data: Social Listening**

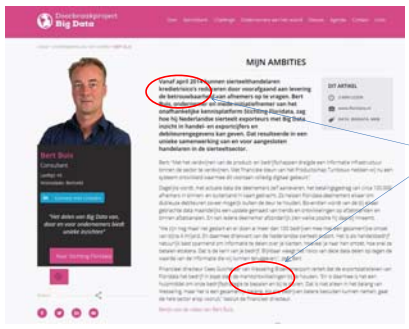
The Future of Prediction:  
How Google Searches Foreshadow Housing Prices and Sales

Housing Search Index (HSI) is strongly predictive of the future housing market:  
-Sales, and  
-Prices



All Rights Reserved 2015

**BIG data: How**



Kredietrisico's  
Marktonwikkelingen

All Rights Reserved 2015

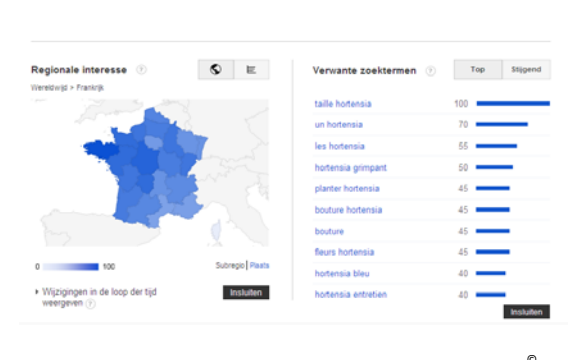
**BIG data: How**



INTERNET of THINGS

All Rights Reserved 2015

**BIG data: How**



Regionale interesse  
Vervante zoektermen

Term	Score
taille hortensia	100
un hortensia	70
les hortensia	55
hortensia grimpant	50
planter hortensia	45
bouture hortensia	45
bouture	45
feurs hortensia	45
hortensia bleu	40
hortensia entretien	40

All Rights Reserved 2015

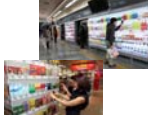
**BIG data: Challenges, Risks**

- Data Privacy and Ethics: BIG Dilemma's!
- Data Obsession ("the dictatorship of data")
- Data Quality: new paradigms?
- Skills: Data Scientists
- Energy

All Rights Reserved 2015

**Big data: big change...**

What must be taken out of our head and left behind?

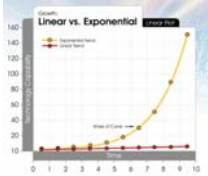


Question: "What are we going to do with the 'new thing'", must be changed in: "How are we going to change the old idea"!

All Rights Reserved 2015

Big data: big change....

Paradigm shift: Linear thinking will not do!



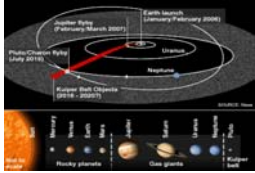
The graph shows two lines: a red line representing linear growth and a yellow line representing exponential growth. The x-axis is labeled 'Time' and ranges from 0 to 10. The y-axis is labeled 'Value' and ranges from 0 to 140. The red line starts at (0,0) and increases linearly to (10,10). The yellow line starts at (0,0) and increases exponentially, reaching approximately 140 at time 10.

© All Rights Reserved 2015

Remember....

Digital Innovation.

# Journey.....



The diagram shows the solar system with planets labeled: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. A red arrow points from Earth towards Uranus, indicating a progression or journey. Below the planets, there are labels for 'Rocky planets' (Mercury, Venus, Earth, Mars) and 'Gas giants' (Jupiter, Saturn, Uranus, Neptune).

© All Rights Reserved 2015

Dank voor uw aandacht!

© All Rights Reserved 2015

?

© All Rights Reserved 2015