Big Data –
Big opportunities –
Big risks?
And what about Europe?

Dr. Richard Benjamins
Director Business Intelligence
Telefonica Digital
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Telefonica Digital is Telefonica’s digital arm

Telefónica Digital is a global business division of Telefónica. Its mission is to seize the opportunities within the digital world and deliver new growth for Telefónica.

Latest news

15th November, 2012
Telefónica and Microsoft to Deploy New Global Video Platform
View details

14th November, 2012
Telefónica Dynamic Insights launches 'Smart Steps' in the UK
View details

@tefdigital
The Big Data Opportunity

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

McKinsey 40% projected growth in global data generated

Big data—capturing its value

$300 billion potential annual value to US health care—more than double the total annual health care spending in Spain

€250 billion potential annual value to Europe’s public sector administration—more than GDP of Greece

$600 billion potential annual consumer surplus from using personal location data globally

McKinsey 60% potential increase in retailers’ operating margins possible with big data
But also society will benefit from big data
And data keeps growing exponentially.

The Digital Universe 2009 - 2020

2020
35 ZB*

*Zettabyte = 1 trillion gigabytes

Source – IDC

Growth of Unprotected Data

Exabytes Created By Year (IDC)

Unprotected in 2020 = Size of Entire Digital Universe in 2018

Created by Mark D. Male
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But what is Big Data

Volume

Big Data

Variety

Velocity
But what is Big Data

Top 5 Myths About Big Data

1. Big Data is Only About Massive Data Volume
2. Big Data Means Hadoop
3. Big Data Means Unstructured Data
4. Big Data is for Social Media Feeds and Sentiment Analysis
5. NoSQL means No SQL
But what is Big Data

Top 5 Myths About Big Data

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The 3 I's Of Big Data

Big Data is:

- Immediate – in the sense that you need to do something about it now
- Intimidating – what if you don’t?
- Ill-defined – what is it, anyway?
But what is Big Data

The 3 I's Of Big Data

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Gartner’s Hype Cycle: technologies, use cases, new sources of data

Dave Feinleib, Forbes blog
A closer look at where Big Data sits
From a telco perspective

<table>
<thead>
<tr>
<th>Type of Big Data</th>
<th>OTT/Telco</th>
<th>Cost of data collection</th>
<th>By product/seeking</th>
<th>Batch/real-time</th>
<th>Strength of telco?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media</td>
<td>OTT</td>
<td>Low</td>
<td>Active</td>
<td>Both</td>
<td>No</td>
</tr>
<tr>
<td>Web logs</td>
<td>Both</td>
<td>Low</td>
<td>Passive</td>
<td>Both</td>
<td>No</td>
</tr>
<tr>
<td>Network data (telco)</td>
<td>Telco</td>
<td>High</td>
<td>Passive</td>
<td>Both</td>
<td>Yes</td>
</tr>
<tr>
<td>M2M (sensor) data</td>
<td>Both</td>
<td>High</td>
<td>Active</td>
<td>Both</td>
<td>Might</td>
</tr>
<tr>
<td>Open data</td>
<td>OTT</td>
<td>Low</td>
<td>Both</td>
<td>Batch</td>
<td>No</td>
</tr>
<tr>
<td>Transact. data</td>
<td>Both</td>
<td>Medium</td>
<td>Passive</td>
<td>Both</td>
<td>No</td>
</tr>
</tbody>
</table>
But be aware of the privacy time bomb

Three Mile Island accident killed the nuclear industry in the US

Data “scandals” abound

“Betrayed by our own data”

Regulators are watching
There is increasing awareness of what customer data companies store.

Retention Periods of Major Cellular Service Providers

<table>
<thead>
<tr>
<th>Subscribers Information</th>
<th>T-Mobile</th>
<th>AT&amp;T/Cingular</th>
<th>Sprint</th>
<th>Nextel</th>
<th>Virgin Mobile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-paid: 3-5 years*</td>
<td>5 years</td>
<td>Depends on length of service</td>
<td>Unlimited</td>
<td>Unlimited</td>
<td>Unlimited</td>
</tr>
<tr>
<td>Call detail records</td>
<td>Pre-paid: 2 years Pre-paid: varies Post-paid: 5-7 years</td>
<td>18-24 months 18-24 months 2 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cell towers used by phone</td>
<td>Officially 6 months, really a year or more.</td>
<td>From July 2008 18-24 months 18-24 months Not retained - obtain through Sprint</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text message detail</td>
<td>Pre-paid: 2 years Pre-paid: 5 years Post-paid: 5-7 years</td>
<td>18 months (depends on device) 18 months (depends on device) 60-90 days</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text message content</td>
<td>3-5 days Not retained Not retained Not retained Not retained</td>
<td>50 days (search warrant required with “text of text” request) Not retained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pictures</td>
<td>Only if uploaded to website (customer can add or delete pictures any time)</td>
<td>Can be stored online and are retained until deleted or service is canceled</td>
<td>Not retained</td>
<td>Contact provider Contact provider</td>
<td></td>
</tr>
<tr>
<td>IP session information</td>
<td>1 rolling year Not retained Only retained on non-public IP for 72 hours. If public IP, not retained.</td>
<td>60 days 60 days Not retained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP destination information</td>
<td>50 days Not retained Only retained on non-public IP for 72 hours. If public IP, not retained.</td>
<td>60 days 60 days Not retained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bill copies (post-paid only)</td>
<td>3-5 years, but only last 12 months readily available Not retained 5-7 years 7 years 7 years n/a*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment history (post-paid only)</td>
<td>3-5 years, check copies for 6 months*</td>
<td>5 years Depends on length of service Unlimited Unlimited n/a*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Store surveillance videos</td>
<td>Typically 30 days</td>
<td>2 weeks</td>
<td>Depends, most stores carry for 1-2 months</td>
<td>Depends</td>
<td>Depends n/a</td>
</tr>
<tr>
<td>Service applications</td>
<td>Post-paid: 3-5 years*</td>
<td>Not retained Not retained Not retained</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* May vary by former company
** For records older than mid-Nov. 2007, Sprint can only provide bill reprints with outgoing info
† No bill copies, but list of credit card transactions does not expire
‡ Virgin Mobile is now owned by Sprint. Since companies have separate compliance offices, for now they are listed separately.
Path's Formal Apology Should Fix Its iPhone Scandal Right Up

Google May Face Fines in EU Unless It Fixes Privacy Issues

Carrier IQ Tracking Scandal Spirals Out of Control

"We're able to view just everything that they do," Verizon Wireless exec has boasted. Privacy groups say initiative -- including linking databases showing whether customers own pets -- may violate wiretap law.

O₂ trial to offer users control over personal data
Society is also evolving, but in what direction?

**TODAY**

**Ignorance**
- Customers are largely unaware of what is happening

**TOMORROW**

**Trading**
- Customers make an explicit trade-off for each service

**FUTURE**

**Wanting?**
- Are customers wanting organizations to use their (personal) data to improve their lives?

Key evolving data concepts:
- Individual, aggregated, anonymized
- Customer consent (ex/implicit – opt-in/out)
- Legal ≠ accepted by society
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks
So how can businesses play in the Big Data space?

Different "business" models with different maturities and different risks

Leverage data to understand and improve business and products
(x/sell, churn)

Data = improved services

Improve
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks

- **Improve services**
  - Data = improved business
  - Leverage data to understand and improve business (x/up sell, churn) and products

- **Advertising**
  - Data = better advertising
  - Leverage data for targeting users with relevant ads and higher CTR and conversion

Logos: Amazon, eBay, Netflix, Google, Facebook, LinkedIn
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks

“Old wine in new bottles”

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Amazon

Google

eBay

Netflix

LinkedIn
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Data = business

Access to insights

Insights that help improve businesses and governments

M2M

Smart cities

Telefonica Digital
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks

**“Old wine in new bottles”**

- **Improve services**
  - Leverage data to understand and improve business (cross/sell, churn) and products

- **Data = improved business**

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- **Data = better advertising**

**“Big Data”**

- **Access to insights**
  - Insights that help improve businesses and governments

- **Data = business**

*Amazon, eBay, Netflix, Google, Facebook, LinkedIn, comScore, Experian, M2M, Smart cities*
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks

**“Old wine in new bottles”**

- Improve services
  - Data = improved business

- Advertising
  - Leverage data to understand and improve business (x/up sell, churn) and products

- Data = better advertising

**“Big Data”**

- Access to insights
  - Leverage data for targeting users with relevant ads and higher CTR and conversion

- Data = business

- Insights that help improve businesses and governments

- Data = risk = business

- Become a gatekeeper of personal data

- Recognize that digital data is delicate (privacy)
  - Turn that into an opportunity

- M2M
  - Smart cities

- Online
  - Reputation.com

- Experian
  - A world of insight

- Facebook

- Amazon

- eBay

- Netflix

- Google
So how can businesses play in the Big Data space?

Different “business” models with different maturities and different risks

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<th>PI Economy</th>
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Insights that help improve businesses and governments

M2M

Smart cities

Access to insights

Personal

Accountable

Smart cities

M2M

Smart cities

M2M

Smart cities
Conclusions on “Big Data”

Find your position in three key dimensions:

- **Value**
- **Risk**
- **Tech**

- Value
- Privacy risk
- Native big data technology

“Bigness” of data
Conclusions on “Big Data”

Find your position in three key dimensions

Value  Risk  Tech

“Bigness” of data  “Bigness” of data  “Bigness” of data

Value  Privacy risk  Native big data technology
Conclusions on “Big Data”

Find your position in three key dimensions

Value
- Apps
- Insights
- Processed data
- Raw data

Risk
- Privacy risk

Tech
- Native big data technology

“Bigness” of data
Conclusions on “Big Data”

Find your position in three key dimensions

Value

Risk

Tech

Value

Risk

Tech

“Bigness” of data

Apps

Insights

Processed data

Raw data

“Bigness” of data

Privacy risk

Native big data technology

“Bigness” of data

Telefonica Digital
Conclusions on “Big Data”

Find your position in three key dimensions

**Value**

- Apps
- Insights
- Processed data
- Raw data

**Risk**

- Privacy risk
- Anonymous data

**Tech**

- Native big data technology

“Bigness” of data

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Conclusions on “Big Data”

Find your position in three key dimensions

Value

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Tech

“Bigness” of data

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Apps

Insights

Processed data

Raw data

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Native big data technology
And what should Europe’s role this time?
Big Data looks like an ideal opportunity for Europe
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A second opportunity?
Europe knows the Lisbon Council failed
To become the most competitive and dynamic knowledge-based economy in the world
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To become the most competitive and dynamic knowledge-based economy in the world

Innovation Union
Competitiveness
report 2011
Europe knows the Lisbon Council failed
To become the most competitive and dynamic knowledge-based economy in the world

Innovation Union
Competitiveness
report 2011

1. The EU is slowly advancing towards its 3% R&D target - but there is a widening gap between the EU and its world competitors notably due to weaker business R&D investment
Europe knows the Lisbon Council failed to become the most competitive and dynamic knowledge-based economy in the world.

Innovation Union Competitiveness report 2011

4. While remaining a top player in terms of knowledge production and scientific excellence, Europe is losing ground as regards the exploitation of research results.
Europe knows the Lisbon Council failed
To become the most competitive and dynamic knowledge-based economy in the world

Innovation Union
Competitiveness report 2011

5. Member States are introducing reforms to improve the functioning of the public research base and increase public-private cooperation - however knowledge transfer in Europe remains weak
Europe knows the Lisbon Council failed
To become the most competitive and dynamic knowledge-based economy in the world

Innovation Union
Competitiveness report 2011

7. Europe is increasing its international cooperation in science and technology, while striving to catch up with the United States
Europe knows the Lisbon Council failed to become the most competitive and dynamic knowledge-based economy in the world.

9. European SMEs are innovative but they do not grow sufficiently. The United States has shown a much better capacity to create and grow new companies in research-intensive sectors over the last 35 years.
Why is it so hard for Europe to be competitive compared to US? – my observation
Why is it so hard for Europe to be competitive compared to US? – my observation

Situation in US

Geoffrey Moore’s ‘Crossing the Chasm’ diagram
circa 1991
Why is it so hard for Europe to be competitive compared to US? – my observation

Situation in US

Geoffrey Moore’s ‘Crossing the Chasm’ diagram
circa 1991
Why is it so hard for Europe to be competitive compared to US? – my observation

Situation in US

Situation in EU

Geoffrey Moore’s ‘Crossing the Chasm’ diagram

The Innovation Funnel

- Ideas
- Assessment Gate
- Development Gate
- Test Gate
- Launch

Innovators
Early Adopters
Early Majority
Late Majority
Laggards
Why is it so hard for Europe to be competitive compared to US? – my observation

**Situation in US**

**Situation in EU**

- Geoffrey Moore's 'Crossing the Chasm' diagram
- The Innovation Funnel
**A lively Quora discussion (another US innovation)**

* Why do most of the successful startups come out of the USA? 

I'm not from USA and we (me and my friends) tend to have long interesting discussions about why most of the successful startups come out of the USA?

What is there in the USA that doesn't exist in other countries? Is it the culture? Is it the community? The early adopters? The investors? The environment?

81 Answers

Access to the largest homogeneous (mostly) affluent market in the world. Nowhere else in the world do you have access to 300M+ people that are on average quite affluent and speak the same language. True,

The experience gained by founders in a "failed" startup is accepted and valued more in the US than in most other countries.

Supportive infrastructure. It's incredibly easy to get started from a legal, tax, etc. perspective. You can throw together a website and see

Valuing work over leisure. Two weeks summer vacation, 50-80 work hours a week, when you work in high-tech in the US, you have a lot...
But Europe is improving …

Forced by the crisis

How Greek startups are doing their part to beat the crisis

Spain’s Economic Crisis Inspires Young Professionals to Launch Startups

Private initiatives

Neelie Kroes, Vice President of the European Commission, visiting the Wayra academy

Neelie Kroes: “All EU-funded research results will be available under open access”

The big data revolution, March 26, 2013