

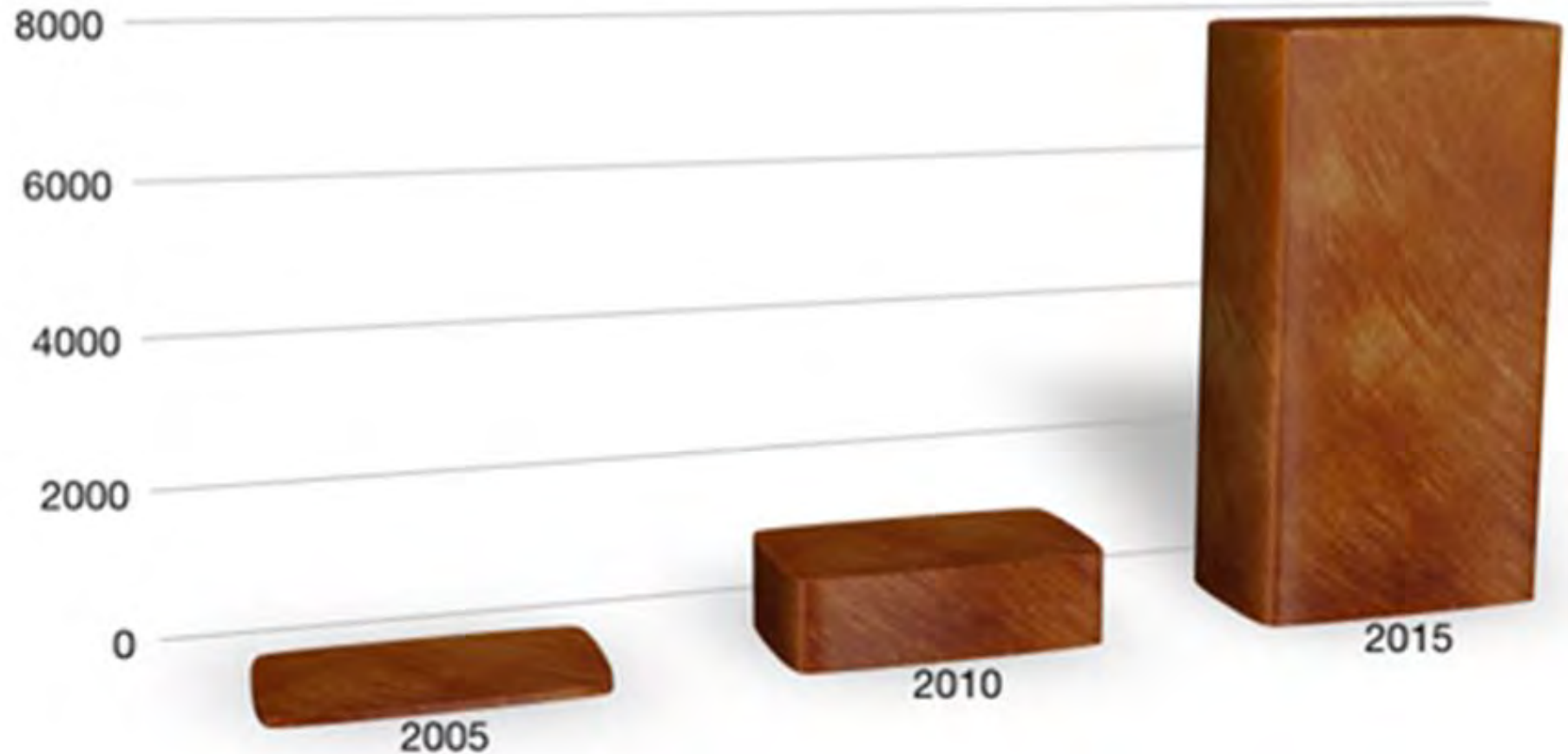
# BUSINESS INTELLIGENCE

## TRACK PRESENTATION

PROF. DR. JÖRG BECKER, DR. STEFAN FLEISCHER, BENJAMIN BARANN  
PROF. DR. GOTTFRIED VOSSEN, DR. JENS LECHTENBÖRGER

# WORLDWIDE DATA STORAGE IN EXABYTES ( $10^{18}$ BYTE):

$10^9$  - GB (gigabyte)  
 $10^{12}$  - TB (terabyte)  
 $10^{15}$  - PB (petabyte)  
 $10^{18}$  - EB (exabyte)  
 $10^{21}$  - ZB (zettabyte)  
 $10^{24}$  - YB (yottabyte)



Source: IDC (2011) Extracting value from chaos

## FACTS AND FIGURES



**\$600**

to buy a disk drive  
that can store all  
of the world's  
music

**30 Billion**

pieces of content shared  
on Facebook every month

**5 Billion**

mobile phones in use in 2010

Can “Big Data” play a useful economic role?



Source: McKinsey Global Institute (2011) Big data - The next frontier for innovation, competition, and productivity



# What is a data scientist?



**A.** A mac user who calls himself a data scientist to get a job!

**B.** A statistician who lives in San Francisco.

**C.** Someone who is better at software engineering than any statistician.

**D.** Someone who is better at statistics than any software engineer.

# BUSINESS INTELLIGENCE BUZZWORDS



**Big data**

**ETL**

Multidimensional  
Modeling

Predictive Analytics

In-Memory

**Data Warehousing**

Hadoop

Enterprise  
Reporting

**Data Mining**

**Real-time**

Social Media  
Analysis

**OLAP**

# COURSE ELEMENTS OF TRACK



## MIS + Data Warehousing



Lecture:  
Management  
Information Systems  
+ Data Warehousing

Exercises:  
MIS + DWH, Hadoop,  
IBM Cognos, ...

Presentation:  
BI Research Topic

## Data Analytics I



Lecture:  
Data Mining and  
Statistics:  
mainly **unsupervised**  
learning

Case study:  
Applications of  
Statistical Learning  
and Multivariate  
Statistics

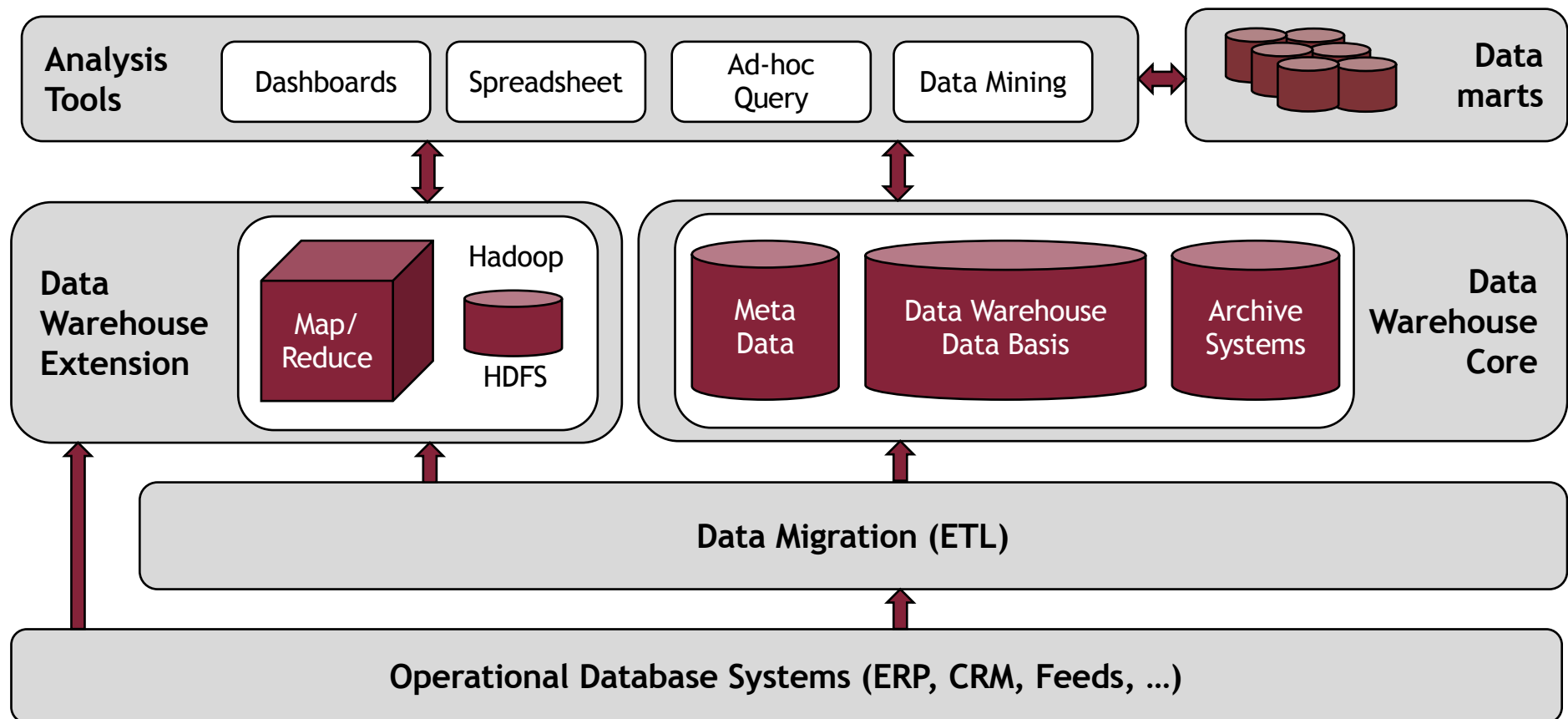
## Data Analytics II



Lecture:  
Data Mining and  
Statistics:  
mainly **supervised**  
learning

Case study:  
Applications of  
Statistical Learning  
and Multivariate  
Statistics

# EXTENDED DATA WAREHOUSE ARCHITECTURE





# COURSE GOALS: MIS + DATA WAREHOUSING



## MIS + Data Warehousing

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Exercises:  
MIS + DWH, Hadoop,  
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Presentation:  
BI Research Topic

- To understand the need for multidimensional reporting and data warehousing.
- Learn how to conceptually design data warehouse queries and table structures
- Get some hands-on experience with online analytical processing (OLAP) using IBM Cognos
- Learn and be informed about latest data warehousing trends (column stores and in-memory data management)

# COURSE ELEMENTS OF TRACK



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# DATA ANALYTICS: APPROACH



Data set

Think about:  
purpose of the  
analysis a-priori,  
data quality

Techniques to  
systematically analyze  
multivariate data



Select and apply  
appropriate  
methods

# COURSE GOALS: DATA ANALYTICS I



## Data Analytics I

Lecture:  
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Case study:  
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Statistics

- Understand methods for data preprocessing and data analytics.
- Understand the functioning of **unsupervised** learning techniques:
  - Principal component analysis
  - Cluster analysis
  - Multidimensional scaling
  - Multiple objective clustering
- Get some hands-on experience with statistical software (pool lectures)

# COURSE GOALS: DATA ANALYTICS II



## Data Analytics I

Lecture:  
Data Mining and  
Statistics:  
mainly **supervised**  
learning

Case study:  
Applications of  
Statistical Learning  
and Multivariate  
Statistics

- Understand methods for missing values treatment.
- Understand the functioning of **supervised** learning techniques:
  - Regression techniques
  - Classification techniques
- Get some hands-on experience with statistical software (pool lectures)

# COURSE ELEMENTS OF TRACK



## MIS + Data Warehousing



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Exercises:  
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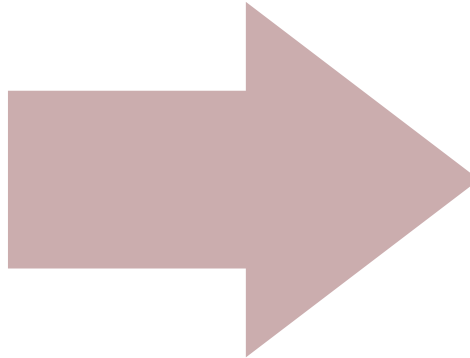
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# JOB PROFILE

## ~~DATA SCIENTIST~~ INFORMATION ANALYST



Data



Information

- Analyze corporate information demands
- Access appropriate data sources
- Design and implement MIS and BI solutions
- Apply sophisticated analytics

Gartner predicts that by 2015 „Big Data“ will create more than 4.4 million jobs

## TRACK PRESENTATION: BUSINESS INTELLIGENCE

Big Data exceeds an organization's storage or compute capacity for accurate and timely decision-support data.

Information analysts design and implement Business Intelligence solutions to support meaningful planning decisions.

Life is about making choices... Start today with making good decisions and choose track Business Intelligence!

THE IS RESEARCH NETWORK

[www.ercis.org](http://www.ercis.org)