

# **The Value of Big Data: A Linked-Data Perspective for Corporate Performance**

**Moderator:**

**Thomas Klemas, Sensemaking-PACOM Fellowship & AIRS, Swansea  
University/Hawaii Pacific University, UK/USA**

**Panelists:**

**Karin Hartl, University of Applied Sciences Neu-Ulm, Germany**

**Olaf Jacob, University of Applied Sciences Neu-Ulm, Germany**

**Yuehua Wu, York University, Canada**

**July 20, 2015**

# Introduction of Panel

**Thomas Klemas: Present panelists and introduce panel topics**

**Olaf Jacob: Value of Big Data for Corporate Performance Management - The new role of the Chief Financial Officer?**

**Karin Hartl: A process model for Corporate Performance Management**

**Yuehua Wu: The Role of Statistics in Analytics**

# Moderator Topics

**How do we measure the value of Big Data approaches and assess corporate performance relative to Big Data?**

**Added Revenue or Profit**

**Reduced Cost**

**Risk Reduction**

**Other benefits**

# Moderator Topics (continued)

**To what degree do current corporate performance management model measures depend on Subject Matter Expert (SME) based heuristics?**

**How does this compare to other types of models?**

**Are there additional quantitative measures than can be incorporated to reduce SME dependency.**

# Moderator Topics (continued)

**Can automated pattern recognition approaches such as clustering play a key role in automating statistical analysis?**

**Automated Generation of Hypotheses**

**Selection of key sub-groups for computing statistics**

# Topic 1: Olaf Jacob

## Value of Big Data for Corporate Performance Management - The new role of the Chief Financial Officer?

Topic 1 presentation materials submitted separately.

# Topic 2: Karin Hartl

## A process model for Corporate Performance Management

Topic 2 presentation materials submitted separately.

# Topic 3: Yuehua Wu

**What is the role of statistics in enhancing value of Big Data relative to Corporate Performance?**

Topic 3 presentation materials submitted separately.



Click to edit Master title style

# Questions or comments from audience?

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# THANK YOU!



## Determining the Business Value of Business Intelligence on Corporate Performance Management

**Karin Hartl**

## Research Hypothesis:

The value proposition of Business Intelligence can be measured on the success of Corporate Performance Management.

## Conceptual Understanding

- Business Intelligence (BI)
- Method for analyzing data and the business environment to support the decision making process [M. Aho, 2010]
  - Source of quality data and actionable information [O. Jacob et al.]
- Corporate Performance Management (CPM)
- “...umbrella term that describes all processes, methodologies, metrics and systems needed to measure and manage the performance of an enterprise.” [Gartner, 2001]

- CPM needs BI to work effectively on accurate, timely and high quality data.
- BI needs CPM for a purposeful commitment.

## Research Project „Value of Business Intelligence“

- Aim of the Research: development of a method to assess and evaluate the value of BI for CPM
- Starting Point: CPM process model with detailed processes for strategy, planning and strategy implementation
- Second Step: definition of BI-factors and CPM-factors most suitable to describe these subjects
- Now: Evaluation of the impact of BI-factors on CPM-factors
  - Structural Equation Modelling
  - Data Mining
- Following Step: Recommendations for Action

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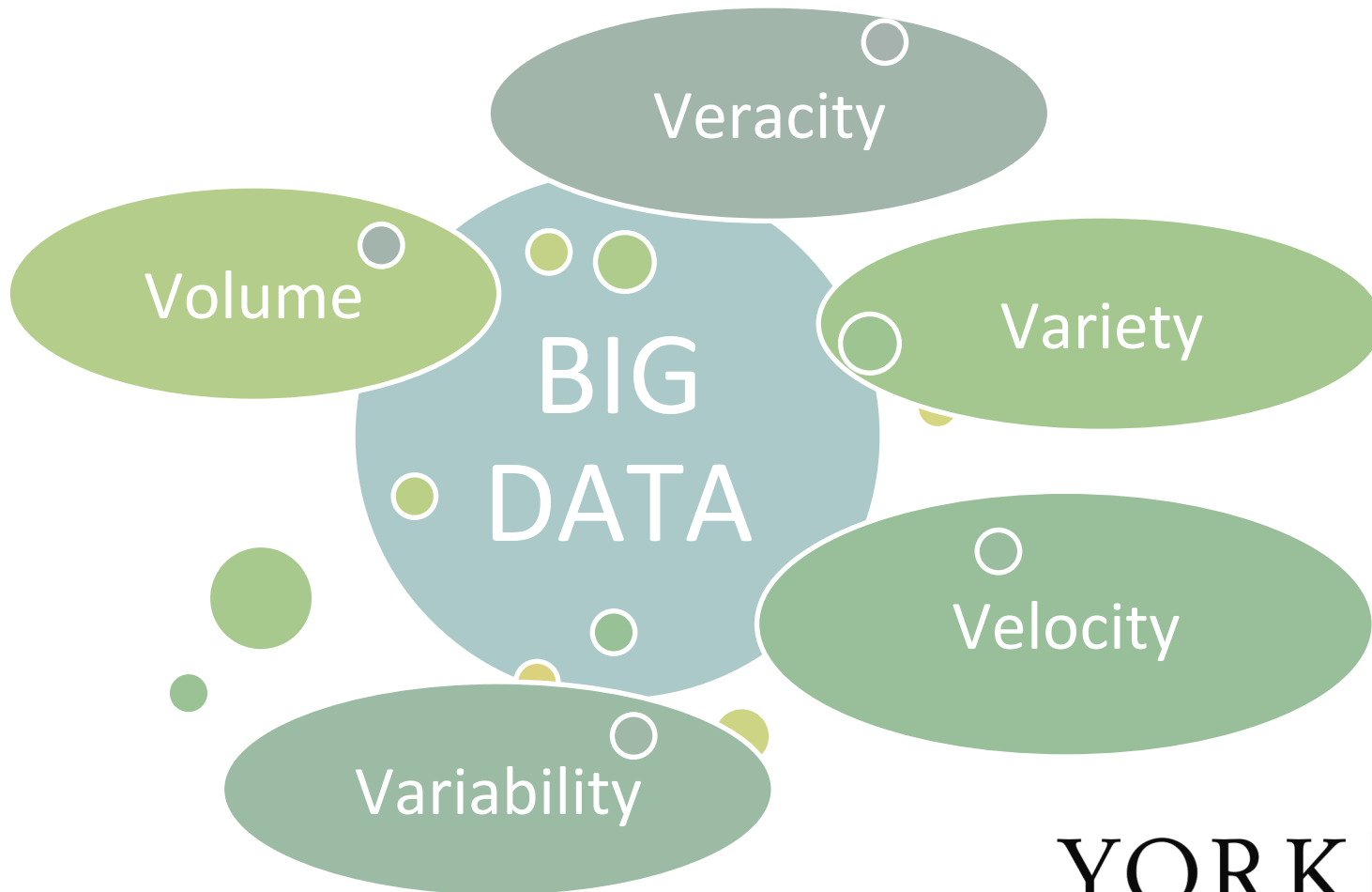
# A Role of Statistics in Big Data

Yuehua (Amy) Wu

Department of Mathematics and Statistics  
York University



# WHAT IS A BIG DATA PROBLEM?



Source: [https://en.wikipedia.org/wiki/Big\\_data](https://en.wikipedia.org/wiki/Big_data)

# ***CHARACTERISTICS OF A BIG DATA:***

Uncontrollable variables

Correlated observations

Missing data

Clustered observations

Varied sample space

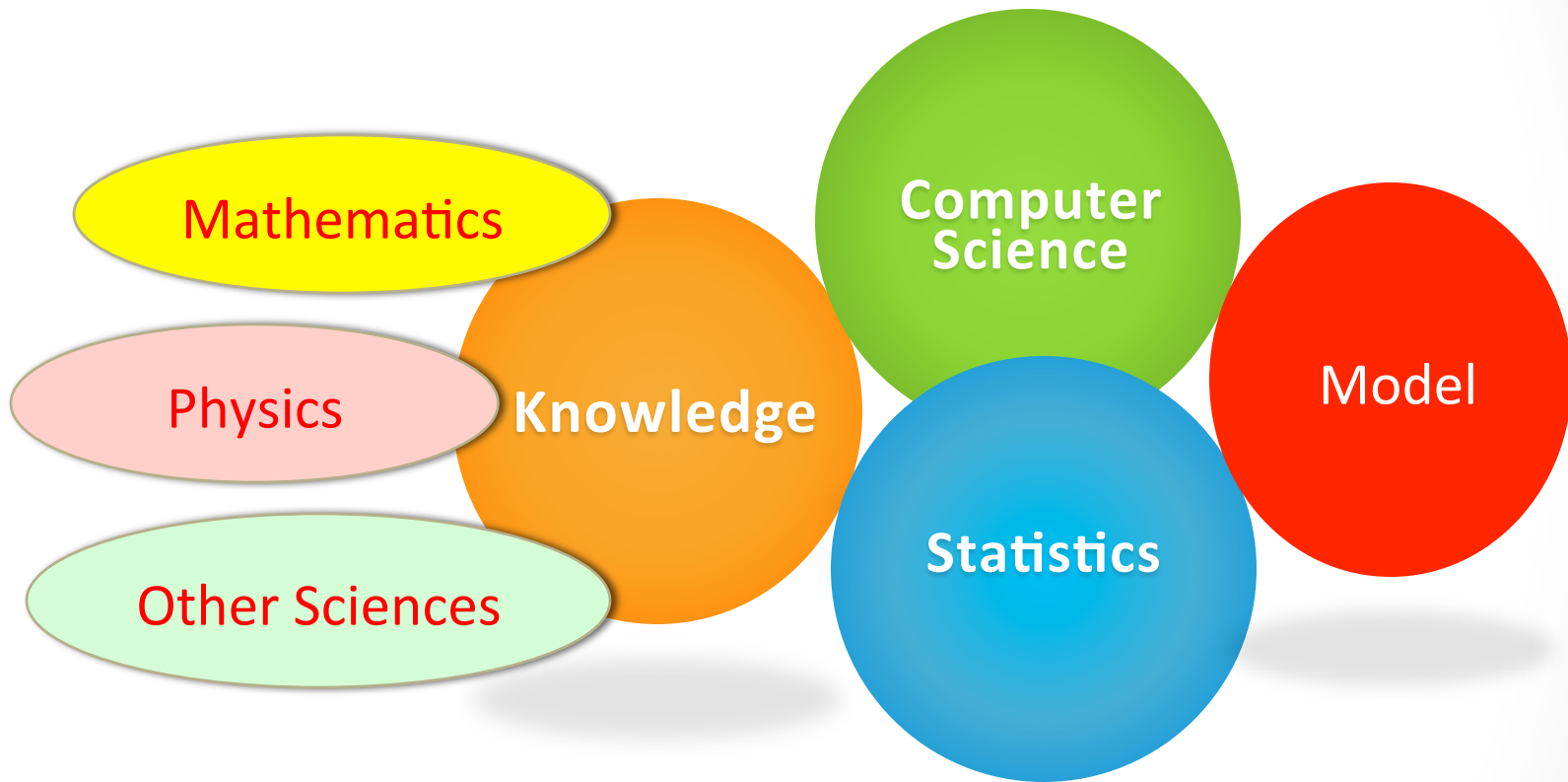
Dynamic observations

Multi-source inputs

Other complex Structures

**BIG  
DATA**

# ***TO BUILD A MODEL FOR A BIG DATA:***



# ***STATISTICAL MODELING:***

Data and problems

Statistical modeling

Inference, prediction  
or forecast

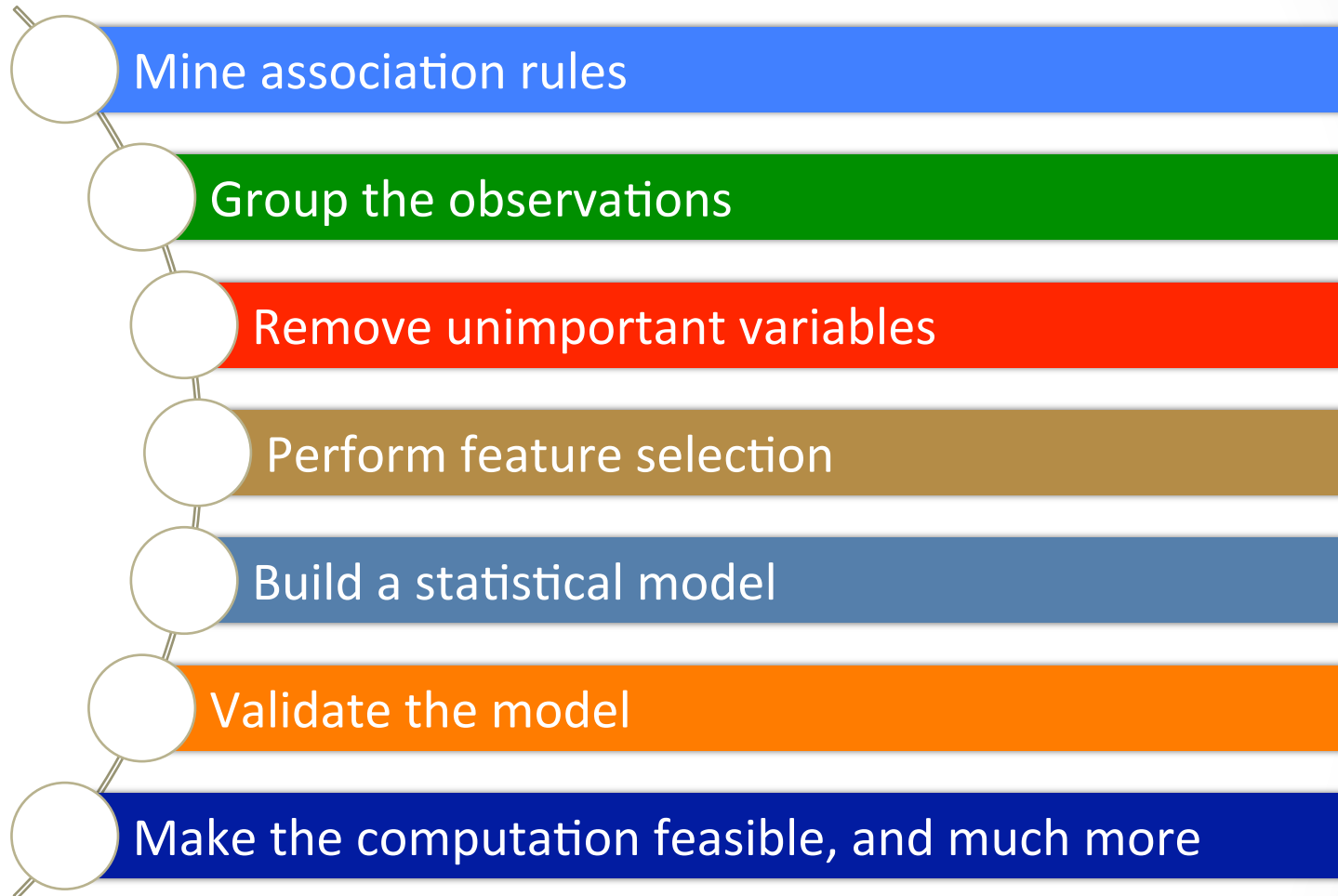
# ***POPULAR STATISTICAL MODELING METHODS:***



# ***MULTIVARIATE STATISTICAL MODELING TOOLS:***

- Principal component analysis
- Factor analysis
- Cluster analysis
- Discriminant analysis
- Canonical correlation analysis
- Multidimensional scaling
- Classification and regression trees, and more

# ***A Role of Statistics In Big Data:***







## Value of Big Data for CPM

The new role of the CFO?

**Prof. Dr. Olaf Jacob, Neu-Ulm University of Applied Sciences**

Neu-Ulm/Germany

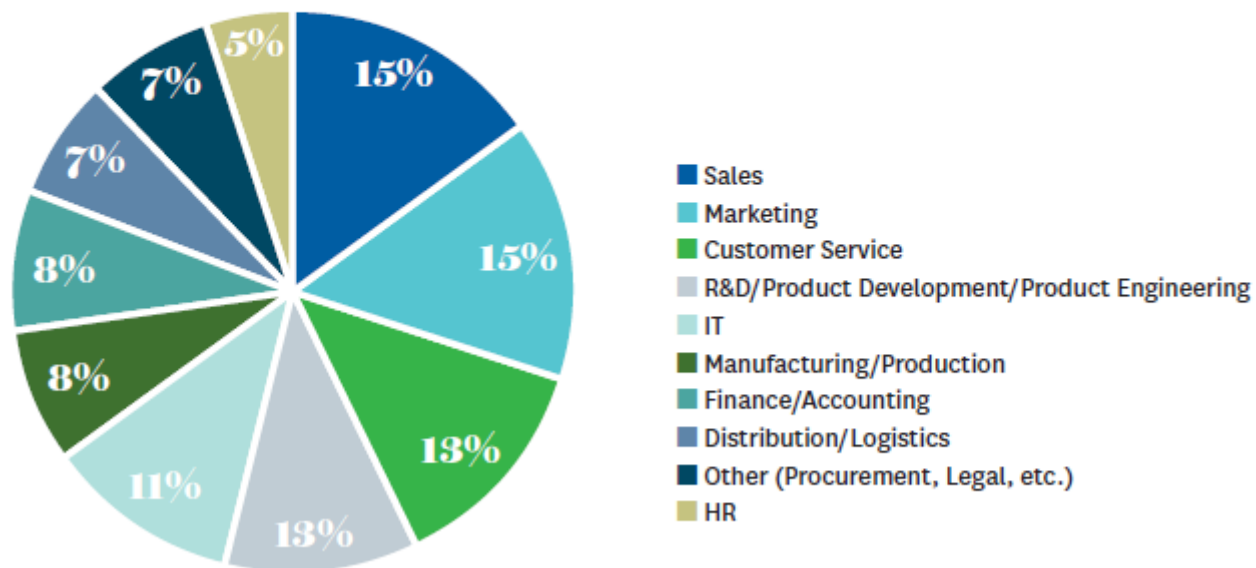
Nice, July 2015

## Big Data Investments

### Low Big Data Investments for HR and Finance

Percentage of total big data investments, by department.

Source: The Emerging Big Returns on Big Data, Tata Consulting Services, 2013



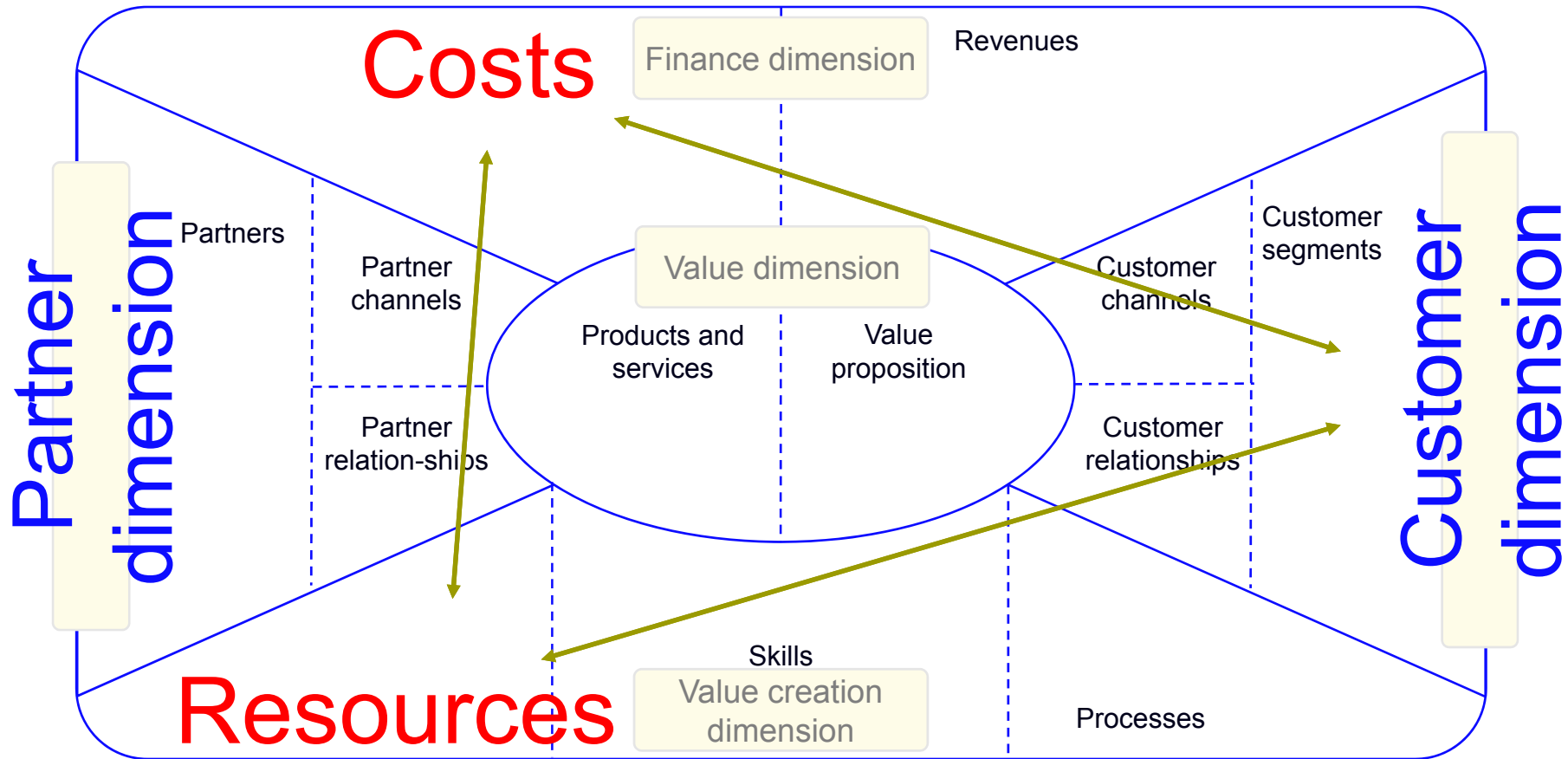
**Example:**  
**Daimler**  
**FleetBoard**



- Daimler FleetBoard GmbH (FleetBoard) is a subsidiary of Daimler AG and Mercedes-Benz.
- Daimler FleetBoard offers its logistics customers an innovative insurance policy for fleets. The solution analyzes vehicle usage, factoring in details of driver performance and vehicle maintenance transmitted from an onboard computer using a mobile radio network.

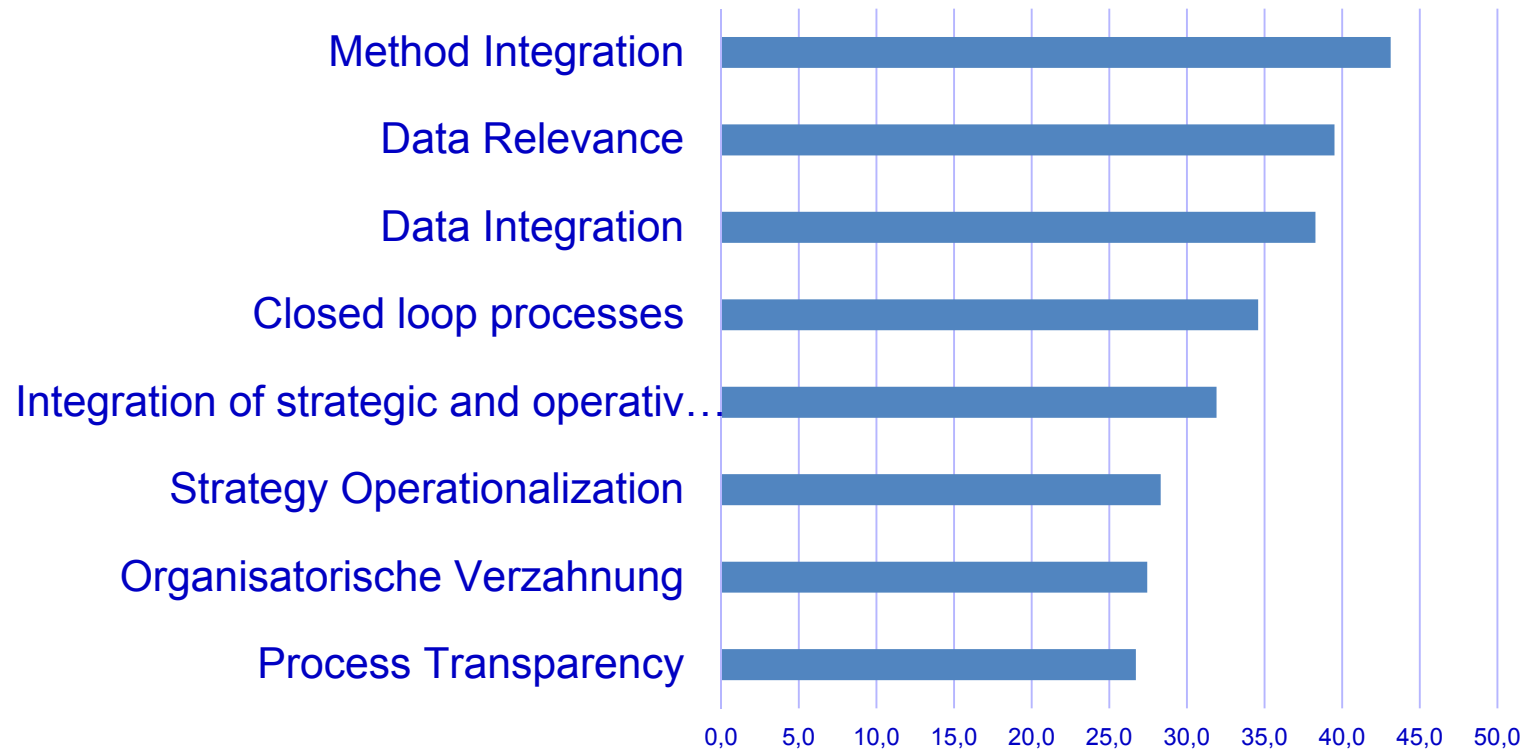
Source: IBM

## Analytical Framework



## Value of BI for CPM in the next 3-5 Years

### Empirical Findings in Germany



## The Role of CFO: Planning & Forecasting

### Planning & Forecasting

- Integration of unstructured social analytics and financial forecasting
- New forecasting tools based on customer sentiment about products, customers, and campaigns.

### Cash Flow Projection

- Better prediction by quantifying customer lifetime values (LTVs) of current and future customers
- Valuable and customer-centric view into “firm value.”

## Value of Big Data: Efficiency of CPM

- How long do we need to react to a change in the external environment?
- How long do we need to start a new strategic initiative to react?
- How long does it take to define a new KPI?
- Are we able to online monitor the KPI?
- How many loops do we have to run through in our budgeting process?
- ...

## Summary and Hypotheses

- Efficiency of CPM is an important domain of Big Data

CPM processes of a company become the subject of performance management itself.



Thank you!

