# Text Analytics for Brand Research

Non-reactive Concept Mapping to Elicit Consumer Perception

# Who We Are

**Background**

University of Cologne spin-off
Founded 2011
at the Department of Information Systems
and Information Management
Prof. Dr. Schoder

**Awards**

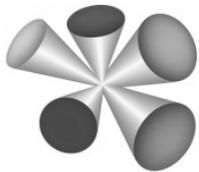IKT Innovativ 2011
(German Federal Ministry of Economics
and Technology)
Innovationspreis-IT 2014
(for InMap in the field of Business Intelligence)

**Location**

Technologiepark Köln

# Some of Our Customers
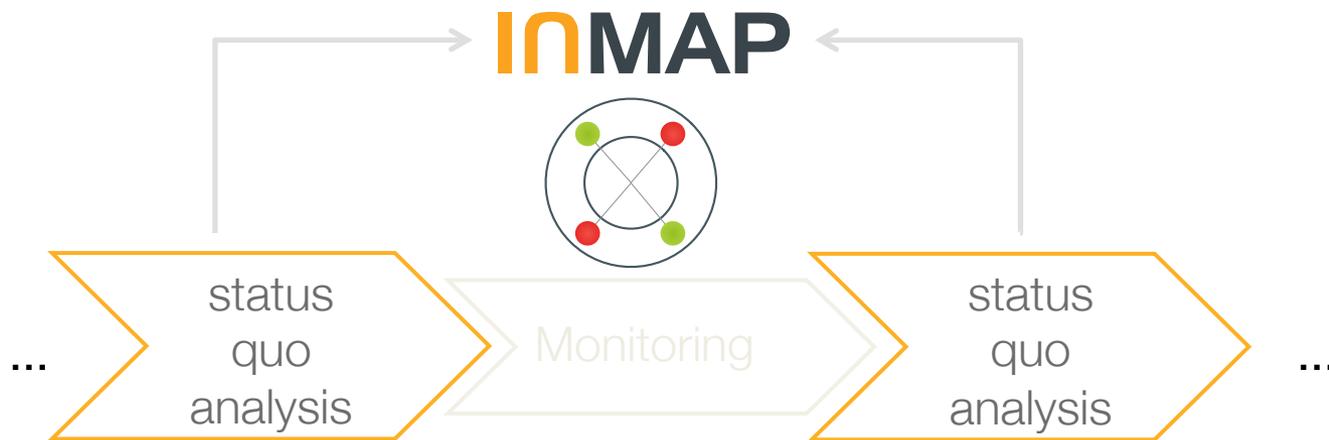
.. via Agencies:

Nestlè

Evonik

Siemens

tesa

Deutsche Bank

Symrise

Deutsche Telekom

Miele

WDR mediagroup

mentos

ROLLER
Clever einrichten!

wacom

# What We Do

**we develop software to
detect, collect and analyse textual consumer content from web and social media
to answer :**

## What do consumers think about products, brands or general topics?

### Services

Customised
Analysis
( Brand / Topic / Product )

Analysing online
consumer statements

... positive / negative
consumer associations

... patterns of thought

... benchmarking
different **brands,
products** and
**topics**

### Products

**INMAP**
Analytics software to elicit
consumer perceptions

**INPULSE**
Web and
Social Media monitoring
service

**INCORE**
Web mining and text
analysis API

# Concept Mapping

**IN**MAP

... status quo analysis → Monitoring → status quo analysis ...

# Concept Maps: Theory, Idea and Objective

**Theory**

"Human Associative Memory" (Anderson et al. 1980)
- semantic memory consists of a set of nodes and links
- nodes store information and are connected by links that vary in strength

**Idea**

Derive those association networks by passive observation of user-generated content to create …

**Objective**

*"a visual representation of the network of concepts that consumers commonly have in their minds when they think about a certain brand/product category or topic"*

# Applications

e.g.

- ## Market Research
  - what do consumers think of topics, products or brands ?

- ## Innovation Management
  - which (emerging) topics do customers discuss ?
  - which topics are most important for future customers ?

- ## Product Management
  - which product attributes are discussed positive/negative ?
  - which product attributes are interrelated ?

# Application to Brand Market Research

- Brand Concept Map (John et al. 2006)
  - Brand image is represented by a network of brand associations with the brand node as the central node

allows to measure

- Customer-based brand equity (Keller 1993)
  - … a network of favorable, strong and unique brand associations in the consumer memory (simplified)

# Concept Network Analysis

**online customer perception by analysis of user-generated content to determine four components of customer-based brand equity**



### Association strength
.... representing how tightly certain concepts are coupled to a brand, product or topic in consumers' minds

### Favourability = Sentiment
.... are concepts discussed by consumers in a positive or negative way and why?

### Uniqueness
.... benchmarking how unique concepts are to a brand when comparing against competitors

### Patterns of Thought
.... reveal which concepts consumers unknowingly connect

# Result

The InMap Concept Network Map shows concepts that represent consumer associations, their strength, favourability and patterns of thought

## Favourability

Positive concepts are shown in green, negative in red

## Strength

the closer to the central a concept is shown, the more often it is mentioned in the collected articles
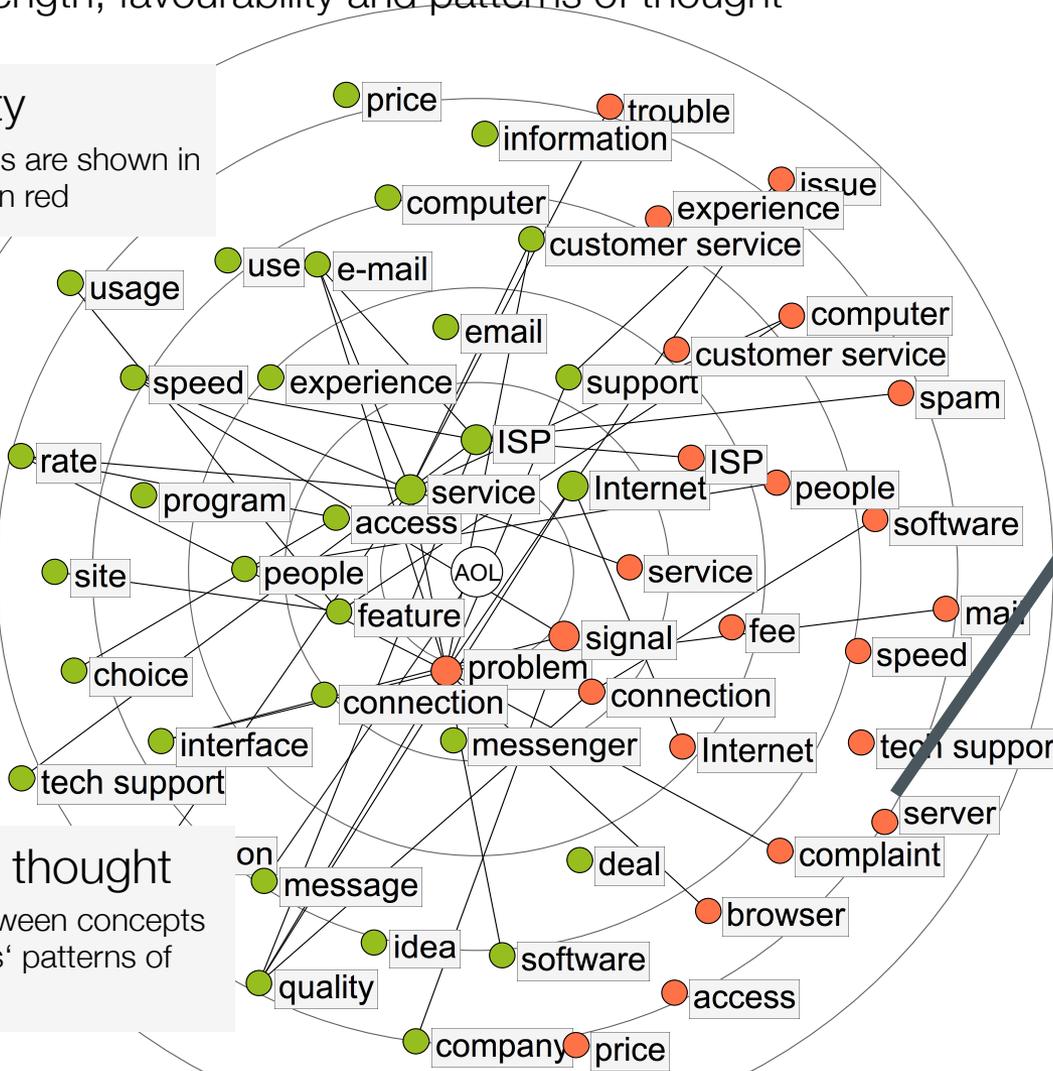
## Patterns of thought

Lines drawn between concepts reveil consumers' patterns of thought



## Driver

### server

| server: | # | % |
|---|---|---|
| busy | (10) | (32) |
| slow | (6) | (19) |
| enough (neg.) | (4) | (12) |
| bad | (2) | (6) |
| expensive | (2) | (6) |
| best (neg.) | (2) | (6) |
| antiquated | (1) | (3) |
| unreliable | (1) | (3) |
| ready (neg.) | (1) | (3) |
| worthless | (1) | (3) |
| frail | (1) | (3) |
| notorious | (1) | (3) |
| clogged | (1) | (3) |
| inferior | (1) | (3) |

# … two selected Challenges

Collection → Analysis → Insight
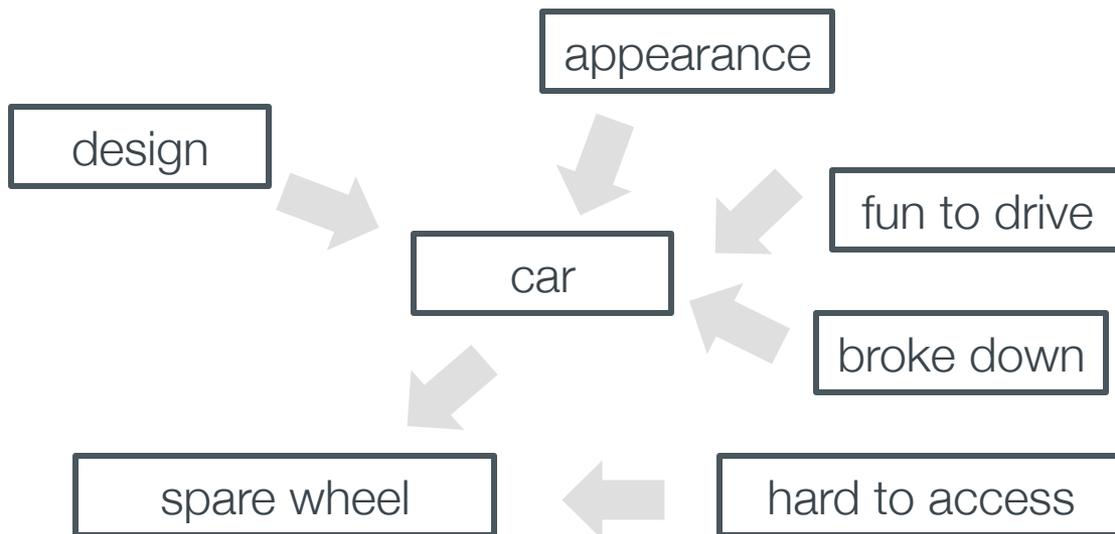
# Concept Candidate Detection

Detect words and phrases as a basis for concept detection

> "*I liked the car's the car's appearance and design, it was fun to drive, but the car broke down rather often and the spare wheel was hard to access*

appearance

design

car

fun to drive

broke down

spare wheel

hard to access

**Techniques:**
- word distance, PoS/dependency tree patterns
- machine learning approaches
- LDA/PLSA (results often hard to understand)

**Challenges and Needs:**
- weak PoS Tagging and dependency parsing on UGC (… hard to evaluate)
- intra-article topic relevance
  - few features
- Composite Nouns
- German Named Entity Recognition
- German Anaphora resolution
- Compare Concept Maps across languages

# Concept Aggregation

Opinion Aggregation: simply summing up words does not lead to satisfactory results

+ spelling: "burger" = "burgr"
  - statistics (e.g. google)
  - dictionaries (Problem: existing misspelled words)


+ synonymous concepts:
  + "tasty burger" ⬅➡ "delicious burger",
  + "hamburger" ⬅➡ "burger"
  + "delicious strawberry taste" ➜ belongs to different concept classes (e.g. strawberry (positive), taste (positive)
  + ... cognitive process: often times difficult to decide which concepts have to be aggregated.
+ Linked Data ?

# Thank you!

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