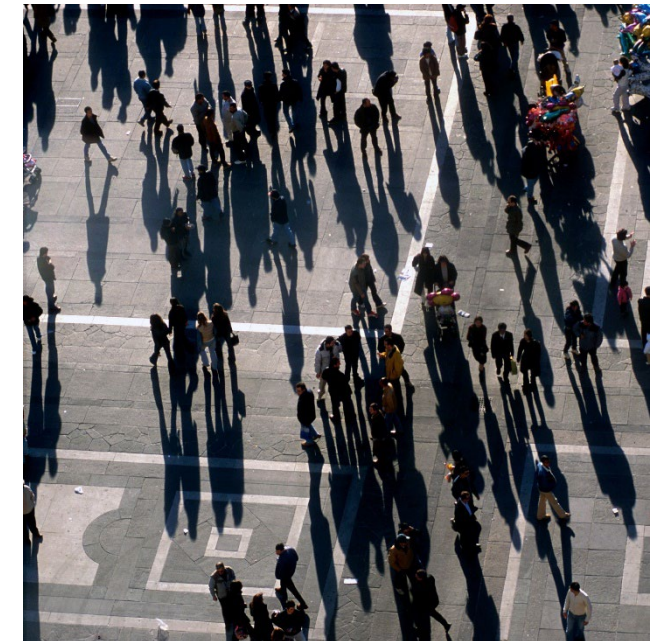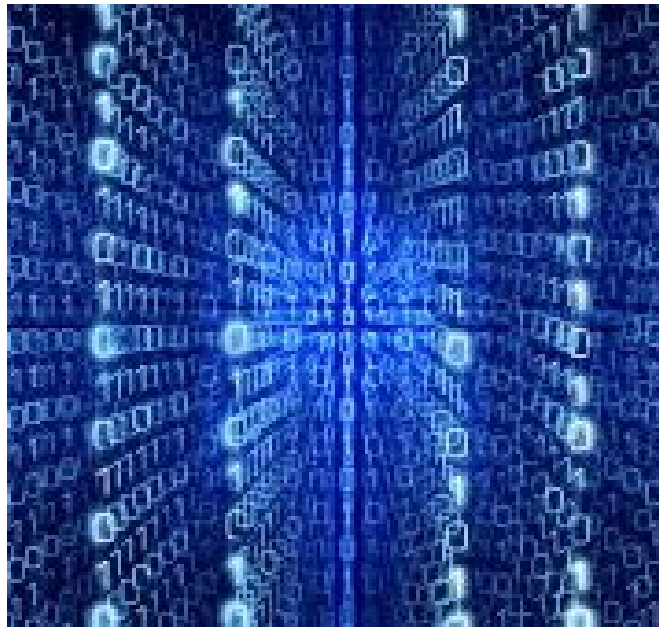# Big Data Framing About Media Coverage in Switzerland and the USA

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1

Overview

The Project

The Results   Media analysis

Survey

Conclusions

The NRP-75-Project:

«Big Data in insurance:
Between Solidarity and Personalization"

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# Goals of the project

The original aims of the project were:

➢ Identify **ethical and legal challenges** of big data applications in the insurance industry.

➢ Detect which values **customers** do see as being threatened by digital exposure.

➢ Assess to what extent **designers** of big data applications are sensitive towards these issues.

➢ Identify **recommendations** to meet these challenges for policy makers.

| Create a **survey instrument** to assess the sensitivity for ethical values and the attitudes of stakeholders. | Provide **insights** both for industry representatives and legislators that outline ethical and legal challenges. | Establish **guidelines** ("industry standard") for handling big data risks in the insurance sector. |
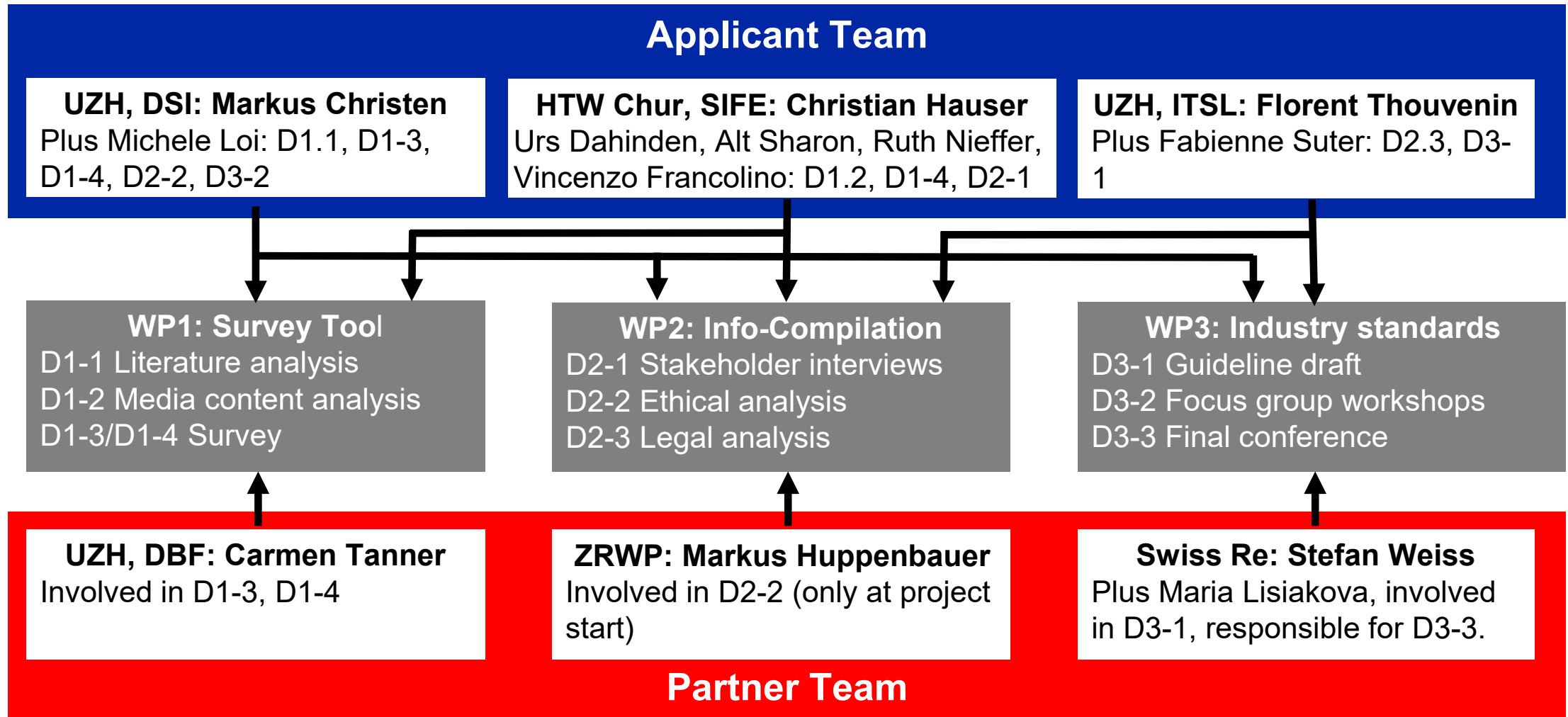
Media analysis: Background and research questions

Background of the media analysis:
- Double role of mass media:
- o Indicator of dominant cultural perspectives and values on a contested issue (here: Big Data)
- o Influencer of public opinion and its perception of Big Data within the population

Research questions of the media analysis:
- RQ1: Which **opportunities and risks** regarding Big Data are discussed in the newspapers?
- RQ2: Which **frames** can be derived from the newspaper content analysis?
- RQ3: What are **cultural difference** between a more European-centric perspective (represented by Switzerland) versus a US-perspective (differences in frequency of the frames)?
- RQ4: How has the debate regarding the different frames changed over **time**?

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Media analysis: What is a frame?

A classical definition:

- To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to
  - promote a particular problem definition,
  - causal interpretation,
  - moral evaluation
  - and/or treatment recommendation (Entmann 1993, 52)

A generic definition:
- Frames are interpretation patterns (e.g. narratives) that are not related to the specific content (case, issue) covered by the media

Media analysis: Method

- Quantitative Content analysis: Manual coding accoding to pre-defined catetories (e.g. industry of application of big data, risks, oportunities etc.)
- Data analysis: Cluster analysis → 5 Frames
- Universe: Newspaper articles in Swiss and US-Newspapers (titles: see below) in 2011-2018
- Sampling procedure: Census: all articles with «Big Data» and discussion of that term

Switzerland

Newspapers	N° of articles
NZZ & NZZaS	178
Tages Anzeiger	63
Blick & BlickaS	10
Total	**251**

USA

Newspapers	N° of articles
New York Times	237
USA Today	19
New York Post	2
Total	**258**

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Media analysis: Description of Frames 1/2

Research, medicine & business models

Abuse of data

Product innovation
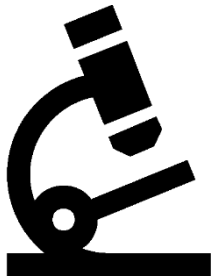
- Medical advancement
- New business models
- Analysis of consumer behaviour

- Data protection breach
- Intransparent handling of data
- Monitoring

- Product improvement
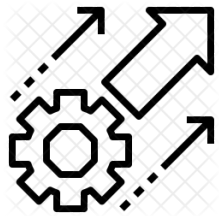- Exchange of knowledge
- Analyzing consumer behaviour

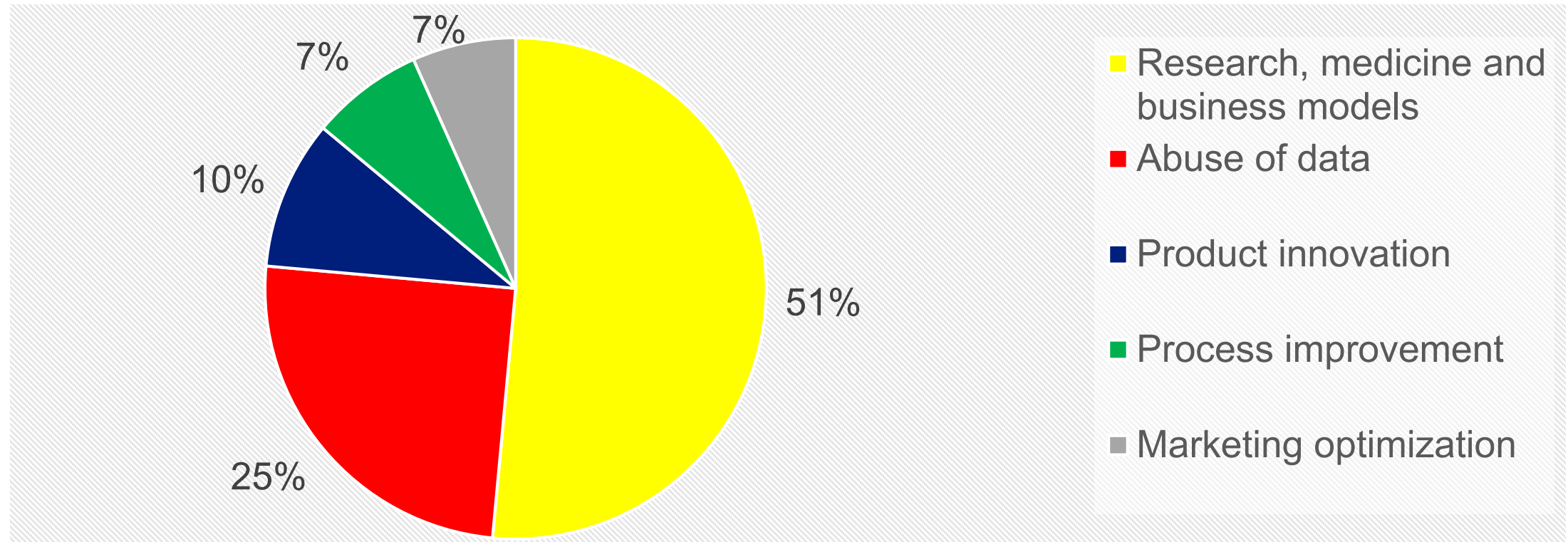# Media analysis: Description of Frames 2/2

Process improvement

- Operational process optimization
- Exchange of knowledge
- Risk management

Marketing optimization

- Analyzing consumer and costumer behaviour
- Exchange of knowledge
- Increasing efficiency

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Media analysis: Results RQ 1+2: Five Frames as result of cluster analysis of risks and opportunities
(N=509 newspaper articles from USA and Switzerland)
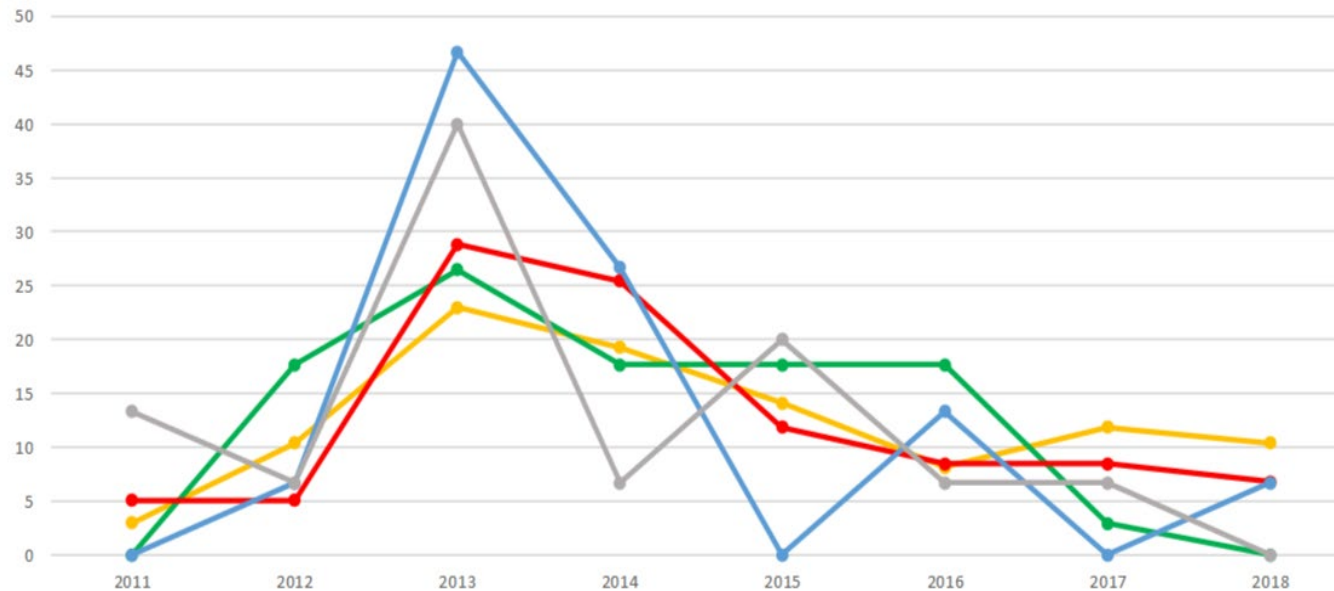
Legend:
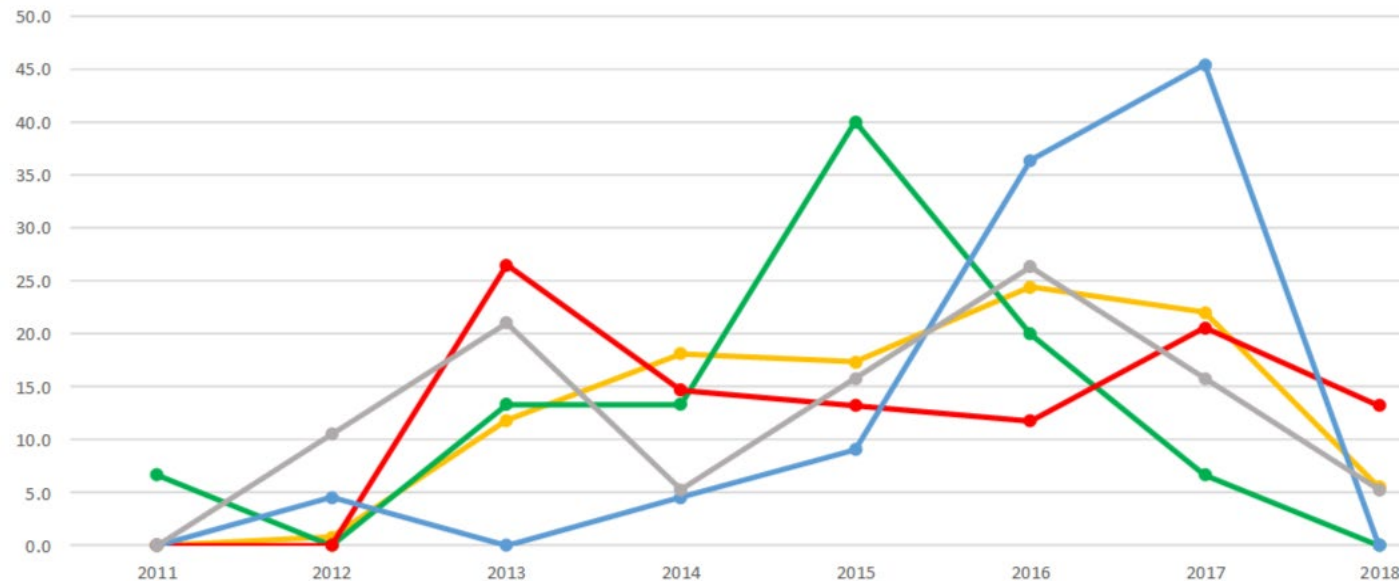- Research, medicine and business models
- Abuse of data
- Product innovation
- Process improvement
- Marketing optimization

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Media analysis: Results RQ 3+4: Cultural differences, time

USA in %

Research, medicine and business models

Abuse of data

Product innovation

Process improvement

Marketing optimization

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Media analysis: Results RQ 3+4:
Cultural differences, time

Switzerland in %

Legend:
- Research, medicine and business models (yellow)
- Abuse of data (red)
- Product innovation (dark blue)
- Process improvement (green)
- Marketing optimization (grey)

Survey study – Research questions (selection)

Customer survey:

➢ To what extent and with which intention are customers willing to share data?

➢ To what extent do customers **trust** insurance companies, providers of digital services and other stakeholders with respect to data handling?
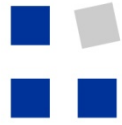
Survey study – Methodology

Customer survey:

- CH population (differentiated between French and German part) and US population.
- Completion time was around 15 minutes (mean: 15, median: 12)
- N_{CH-F} = 317 / N_{CH-G} = 764 / N_{USA} = 1083

Survey study – Focus on trust

Multivariate analysis based on N=1757 responses. Factor analysis reveals **two trust dimensions** and **four intention dimensions**.

Variable	Definition
Trust_general	General institutions: government, media, industry, **insurance**
Trust_GAFA	Big internet companies: Google, Apple, Amazon, Facebook
Intention 1	„to influence others"
Intention 2	„access information"
Intention 3	„monetary reasons"
Intention 4	„for fun"

Survey study – Focus on trust (GAFA Google, Amazon, Facebook, Apple)

	Model 1	Model 2	Model 3
Trust in institutions	0.037	**0.053***	0.016
Trust in GAFA	**0.18****	0.086	**0.208****
Influence others	**0.117****	**0.07****	**0.124****
Access information	0.000	-0.017	0.013
Monetary	**0.047***	0.037	0.043
For fun	**0.086****	-0.001	**0.132****

Statistical significance: *p < 0.05, **p < 0.01.

Model 1: Generalized information sharing index

Model 2: Sharing of «factual information»

Model 3: Sharing of «emotional/personal» information

Two key findings:

- For sharing of «factual information», **trust in general institutions is decisive**

- For sharing of «emotional information», **trust in GAFA is decisive**

Multiplicative linking has been found for intention 2 (access information) and trust_GAFA and intention 4 (for fun) and trust_GAFA

Conclusions

Survey:
- Data sharing: several, distinct intention factors
- Trust as a key influencing factor for willing to share data
- Strong differences between traditional institutions and Big internet companies (Google, Apple, Amazon, Facebook GAFA)

Media analysis: Most frames focus on opportunities rather than risks
- Only one frame («abuse of data») refers to risks and the associated legal, ethical and social aspects of Big Data
- Dominance of Big Data industry perspective

Cultural differences concerning frame frequency:
- USA: «product innovation»
- Switzerland: «marketing optimization», «process innovation» and «abuse of data»

Conclusion
- Further analysis is needed

Thank you for your attention!

Questions? Comments?