

JonDonym Users' Information Privacy Concerns

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GEFÖRDERT VOM



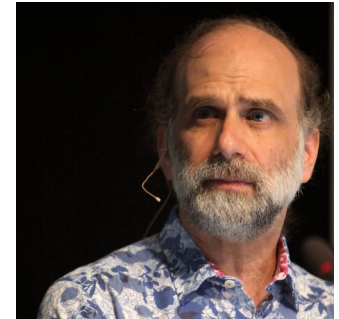
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1. Introduction and Motivation
2. Methodology
3. Results
4. Discussion and Conclusion

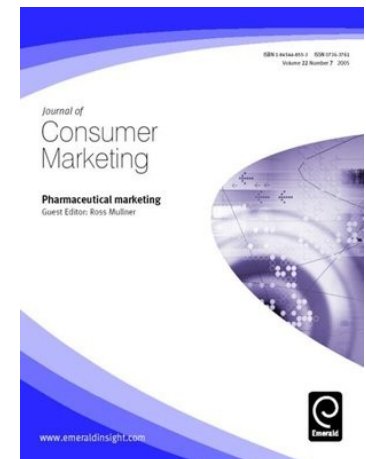
Introduction and Motivation

- Bruce Schneier: “Surveillance is the business model of the internet. Everyone is under constant surveillance by many companies, ranging from social networks like Facebook to cellphone providers.”
(August 2017)
- “The mean value for the statement
‘I feel very strongly about protecting my privacy’
was 3.64 on a five-point scale [...]”

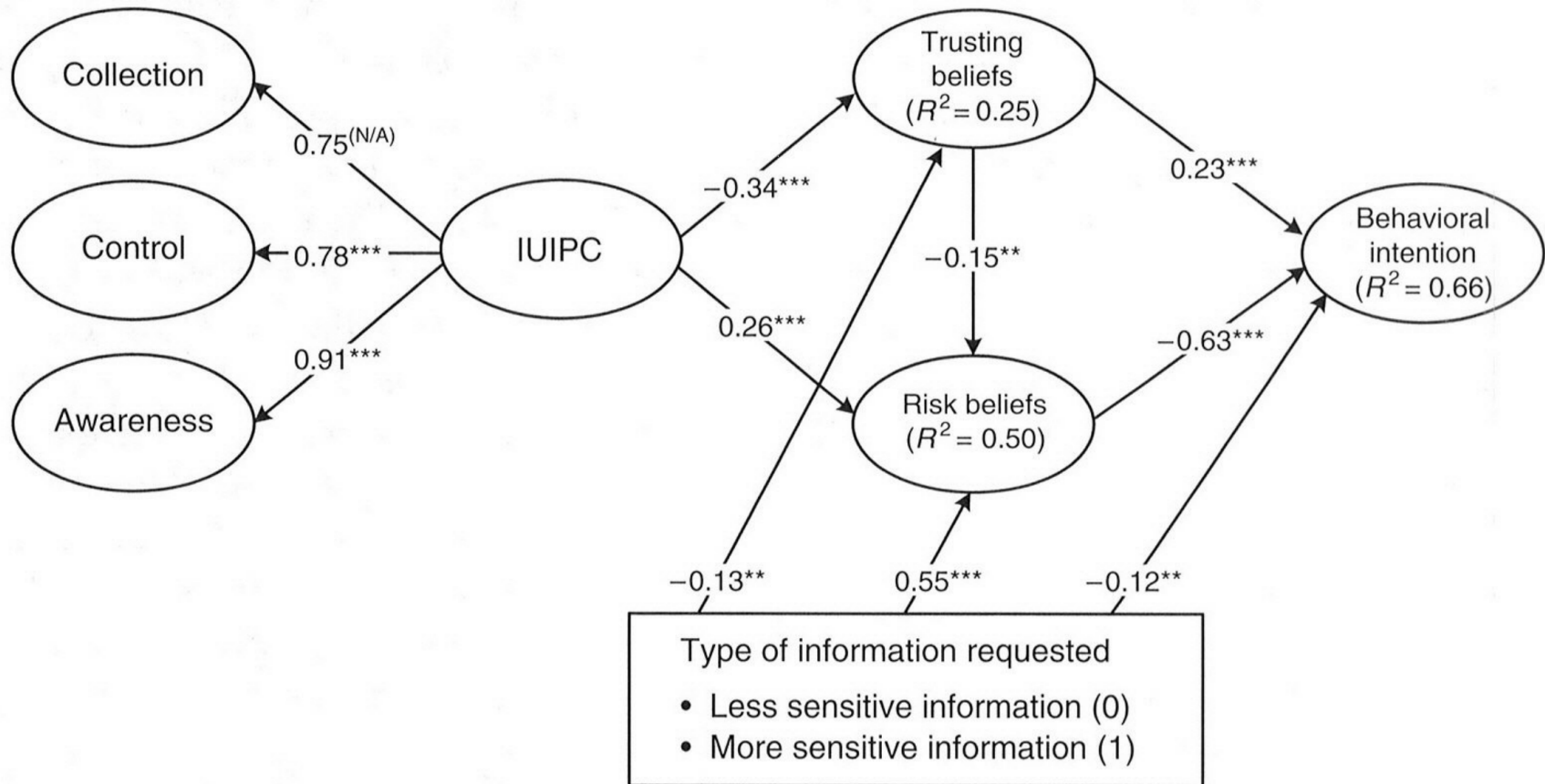
[Singh, T., Hill, M.E.: Consumer privacy and the Internet in Europe: a view from Germany. Journal of consumer marketing 20(7) (2003) 634-651]



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Internet Users' Information Privacy Concerns (IUIPC)



Malhotra, Kim & Agarwal: Internet users' information privacy concerns (IUIPC): The construct, the scale, and a causal model, *Information Systems Research* 15(4), 2004

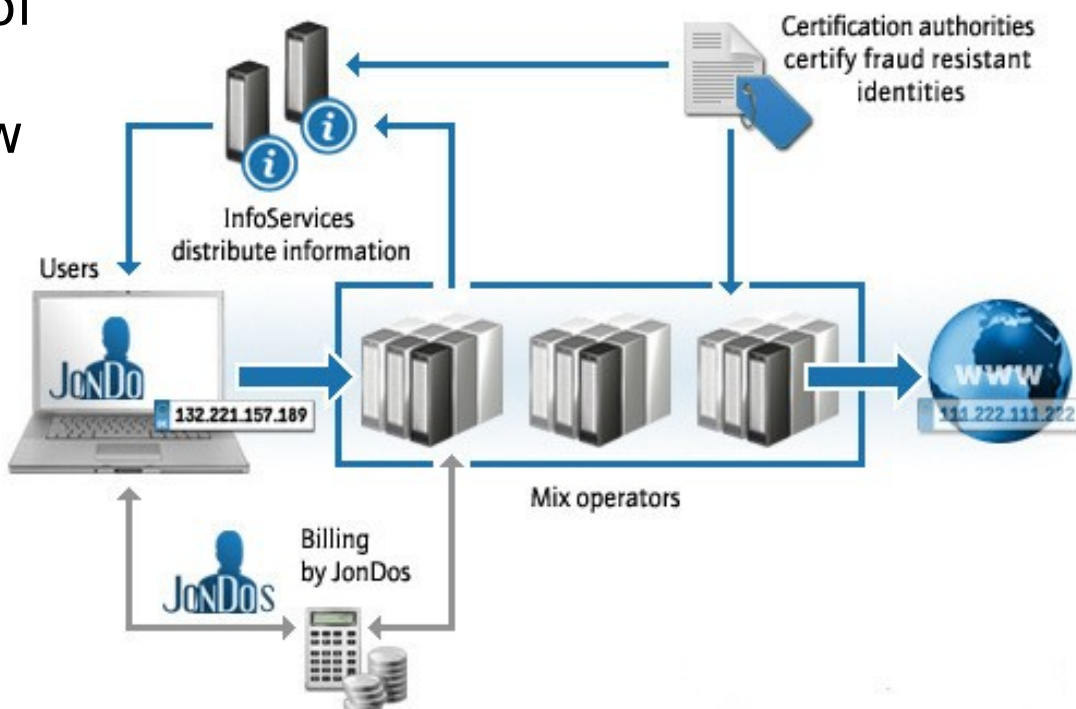
Application of IUIPC to Privacy Enhancing Technologies

- IUIPC applied to a service (primary use)
 - Primary purpose of PETs: Protect Users' Privacy
- => Distinguish between
- trust beliefs with respect to PETs and
 - trust beliefs with respect to regular internet services



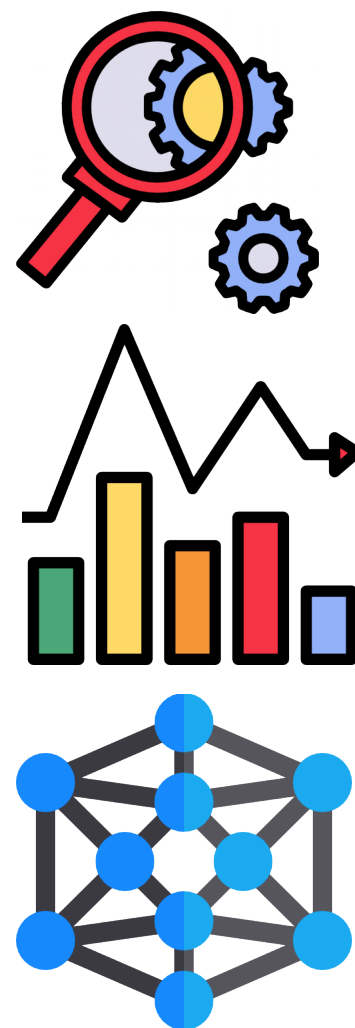
Introduction to JonDonym

- Service developed out of a research project
- Commercial service now
- Different pricing schemes
- Proxy system based on mix cascades
- Main differences to Tor:
 1. commercial
 2. fixed cascades vs. random onion routers



Methodology: Overview

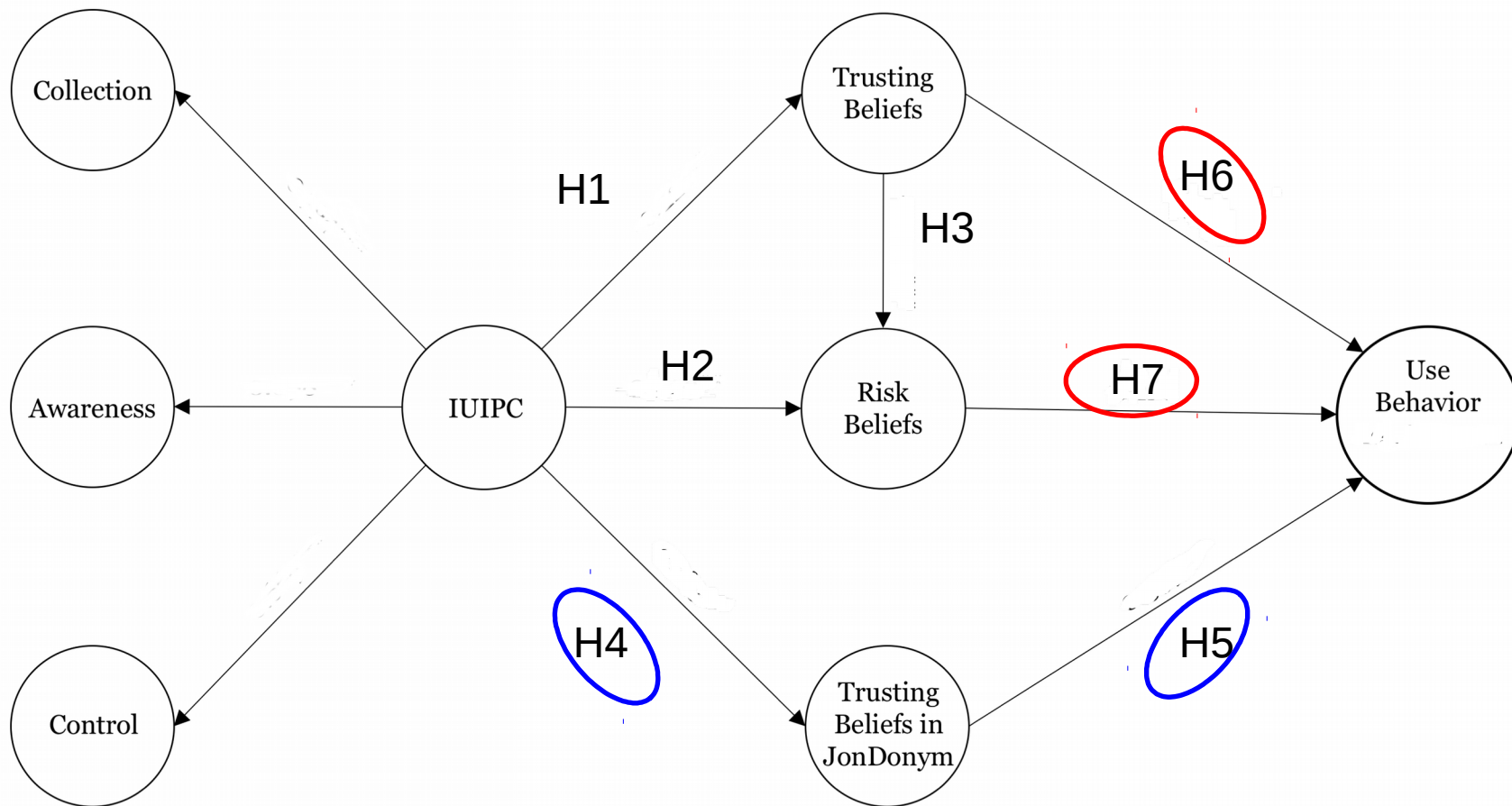
- Adapted Causal Model based on IUIPC
 - Research Hypothesis H1 to H7
- Online Survey
- Partial least squares structural equation modelling (PLS-SEM) with SmartPLS 3.2.7 (Ringle et al. 2015)



Methodology: Research Hypotheses

	Hypothesis
H1	Internet Users Information Privacy Concerns (IUIPC) have a negative effect on Trusting Beliefs (TB).
H2	Internet Users Information Privacy Concerns (IUIPC) have a positive effect on Risk Beliefs (RB).
H3	Trusting Beliefs (TB) have a negative effect on Risk Beliefs (RB).
H4	Internet Users Information Privacy Concerns (IUIPC) have a positive effect on the trusting beliefs in JonDonym (TB _{JD}).
H5	Trusting beliefs in JonDonym (TB _{JD}) have a positive effect on the actual use behavior of JonDonym (USE).
H6	Trusting beliefs (TB) have a negative effect on actual use behavior of JonDonym (USE).
H7	Risk beliefs (RB) have a positive effect on actual use behavior of JonDonym (USE).

Methodology: Research Model



Methodology: Questionnaire

- Constructs adapted from IUIPC (Malhotra et al. 2004)
- German and English-speaking users of JonDonym acquired via
 - survey ad during the rollout of a new browser and
 - on the official homepage
- Online survey with LimeSurvey
- Constructs translated into German with two certified translators
- Active users (N=141, 53 for the English version and 88 for the German version)

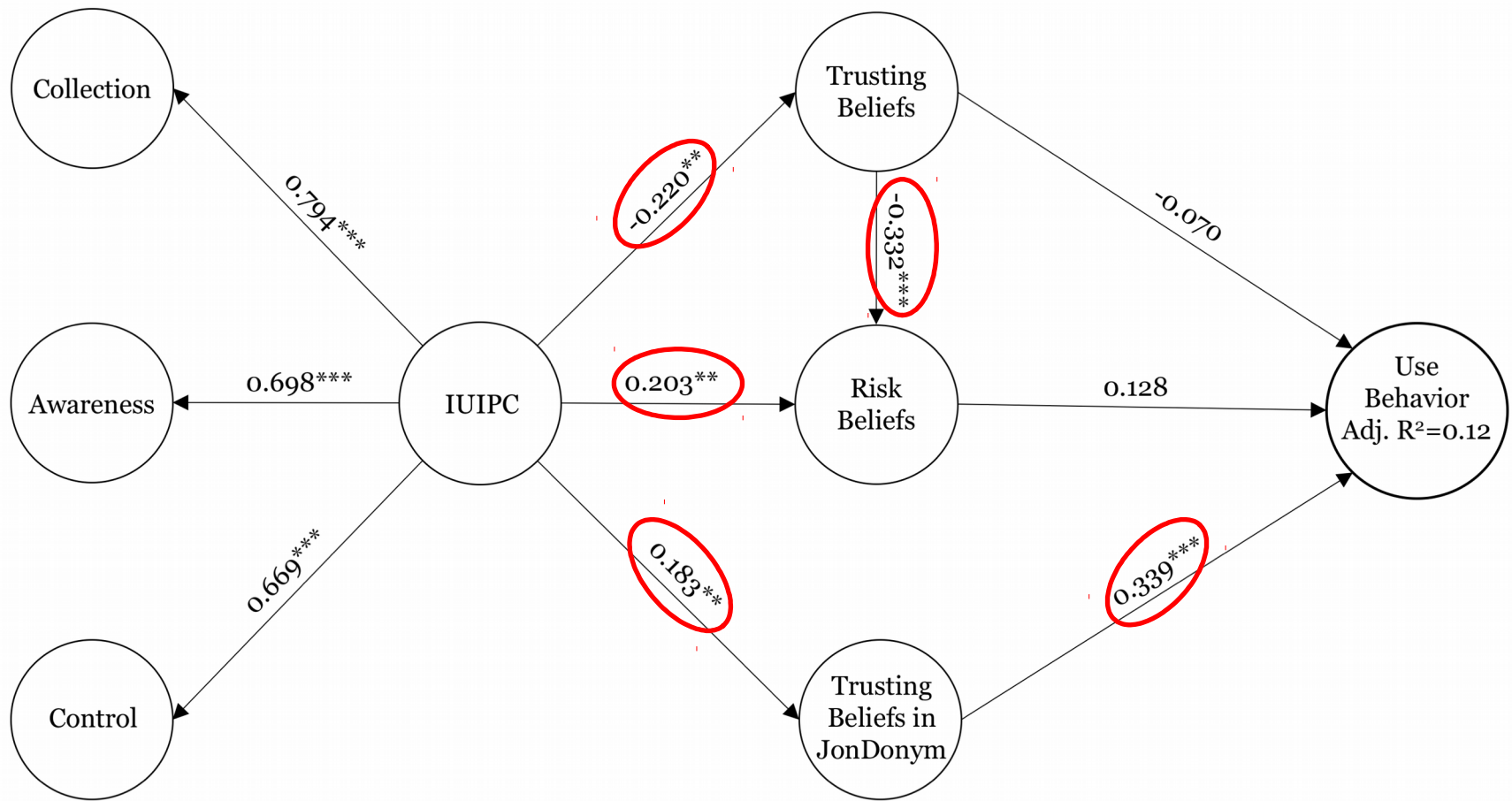


Results: Measurement and Structural Model

Measurement Model Assessment	Structural Model Assessment
Internal consistency reliability ✓	Collinearity ✓
Convergent validity ✓	Significance and Relevance of Model Relationships (see next slide) ✓
Discriminant validity ✓	Predictive Relevance ✓
Common Method Bias ✓	

- Assessments indicate valid and reliable results

Results: Path Estimates and R²-values



***p < 0.01; **p < 0.05; *p < 0.10.

Summary of the Results

Hypotheses	Confirm / Reject
H1 (IUIPC → Trust Beliefs)	Confirmed ✓
H2 (IUIPC → Risk Beliefs)	Confirmed ✓
H3 (Trust Beliefs → Risk Beliefs)	Confirmed ✓
H4 (IUIPC → Trust Beliefs (Jondonym))	Confirmed ✓
H5 (Trust Beliefs (Jondonym) → PEOU)	Confirmed ✓
H6 (Trust Beliefs → USE)	Not confirmed
H7 (Risk Beliefs → USE)	Not confirmed

- Sample size (141 participants)
- Self-reported biases
- Translation of existing constructs to other languages & combination of answers from English and German questionnaire
- Sample is biased “by default” since it only includes user

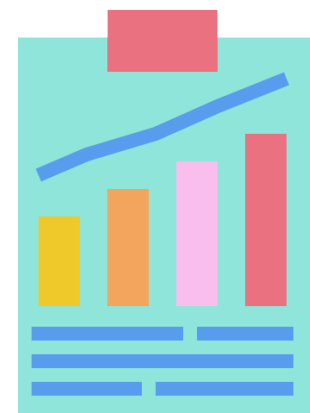


- Certain PET-specific constructs might be missing
 - i.e. distinguish between trust in company and trust in PET itself
- Analyze perceptions of non-users about PETs to provide deeper practical insights to enhance mass market adoption
- Research part of a larger research agenda:
Comparison of results from different models over different PETs (JonDonym, Tor, VPN)



Summary and Key Findings

- Investigated relationship between
 - Information privacy concerns
 - trusting beliefs in
 - online firms and
 - a privacy-enhancing technology (JonDonym)
 - risk beliefs for online firms data processing
 - actual use behavior of JonDonym
- Extended IUIPC [Malhotra et al.] for use with PETs
- Regarding to trust regular online services are different than PETs.





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