mobile business

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Information Security and Information Privacy Assessment - Demands, Challenges and Opportunities

1. Your Team

2. Organizational Issues

3. Introduction to the Topics

4. Distribution of Topics

5. Scientific Working

7. Your Questions

1. YOUR TEAM

- **Holder of the Chair of Mobile Business & Multilateral Security**

- **Research Interests**

  - Mobile applications and Multilateral Security in e.g. Mobile Business, Mobile Commerce, Mobile Banking, and Location Based Services

  - Privacy and identity management, communication infrastructures and devices, such as personal security assistants and services

  - IT security evaluation and certification

Fatbardh Veseli
Research Assistant

General Research Interests:

- Privacy enhancing technologies – challenges and opportunities
- User-centric identity management
- Security and privacy evaluation

Projects:

- Attribute-Based Credentials for Trust (ABC4Trust)
- CREDENTIAL

CREDENTIAL

General Research Interests:
- Business Models and Pricing Strategies for information and communication technologies
- Technology use models for privacy-enhancing technologies (PETs)
- Behavioral research with focus on consumer mass markets
- Standardization processes of new technologies

Projects:
- AN.ON-NG Anonymität Online der nächsten Generation: Development of business models and pricing strategies for privacy-enhancing technologies

2. ORGANIZATIONAL ISSUES

- Course Language: English.

- Seminar paper and presentation slides have to be delivered in English.

- Presentations have to be held in English.

- Successful completion of the seminar requires passing 50% of each of the parts of the seminar, including:
    - The written entrance exam,
    - The presentation of the seminar paper, and
    - The seminar paper.

Seminar Paper

- Scientific paper presenting your research question, methodology, results, and the used literature.

- Has to be structured according to scientific guidelines.

- Around 20-25 pages (excluding references).

- Deadlines:
  - Draft version: 08.06.2016, 23:59 (e-mail, editable document)
  - Final Version: 24.06.14, 15:00h (printed + e-mail)

  → Deliver the printed copy to Elvira Koch, RuW 2.257

- Template available: http://bit.ly/24QgT0F
  (Please use the citation style from WIRTSCHAFTSINFORMATIK: http://bit.ly/24QgZFy or MISQ: http://bit.ly/1R19BgM)

Presentation

- Slide set summarizing your results and research methodology.

- Presentation time: 25 min + 15 min discussion

- Format: PowerPoint or OpenOffice Impress

- Deadline final version: 17.06.14, 15:00 (CEST) (via e-mail to your supervisor)

Organizational
Dates & Rooms

Time	Room	
16.04.14, 16:00-17:30	H IV (Bockenheim)	Written Exam
06.05.2016, 13:00-16:00	2.202 (RuW)	Introduction & Assignment of Topics
20.6.2016, 9:00-16:00	2.202 (RuW)	Presentations (Day 1)*
21.06.2016, 9:00-16:00	2.202 (RuW)	Presentations (Day 2)*

* The detailed presentations agenda will be sent to you a few days in advance
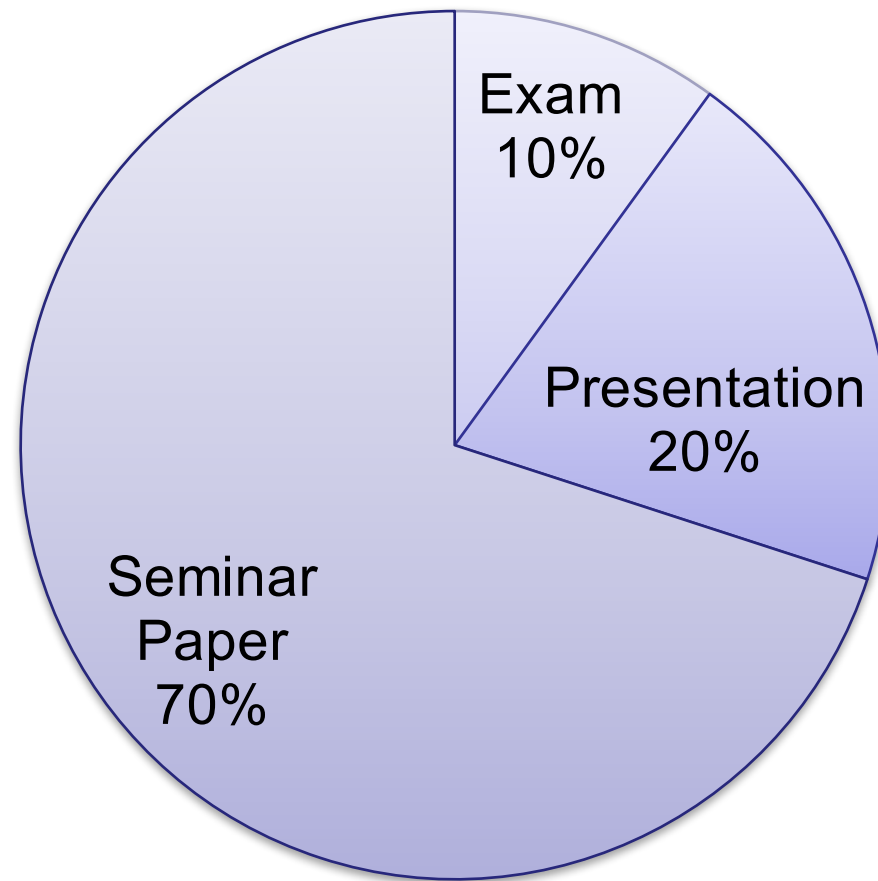
For organizational issues:

seminar@m-chair.de

For topic-specific issues:

fatbardh.veseli@m-chair.de

or

david.harborth@m-chair.de

Please check the course website
regularly! News and material will
be published there.

www.m-chair.de

3. INTRODUCTION OF THE TOPICS

Intro

PART I: PRIVACY AND IDENTITY MANAGEMENT

Intro

PROBLEM DESCRIPTION

Data breaches

World's Biggest Data Breaches
Selected losses greater than 30,000 records
(updated 16th Feb 2016)

Source:
http://www.informationisbeautiful.net/visualizations/worlds-biggest-data-breaches-hacks/

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';--have i been pwned?

Check if you have an account that has been compromised in a data breach

fveseli@gmail.com   **pwned?**

Oh no — pwned!

Pwned on 1 breached site and found no pastes (subscribe to search sensitive breaches)

✉ Notify me when I get pwned   ₿₽ Donate

Breaches you were pwned in

A "breach" is an incident where a site's data has been illegally accessed by hackers and then released publicly. Review the types of data that were compromised (email addresses, passwords, credit cards etc.) and take appropriate action, such as changing passwords.

000webhost: In approximately March 2015, the free web hosting provider 000webhost suffered a major data breach that exposed over 13 million customer records. The data was sold and traded before 000webhost was alerted in October. The breach included names, email addresses and plain text passwords.

Compromised data: Email addresses, IP addresses, Names, Passwords

103	345,003,107	36,147	26,552,628
pwned websites	pwned accounts	pastes	paste accounts

Top 10 breaches

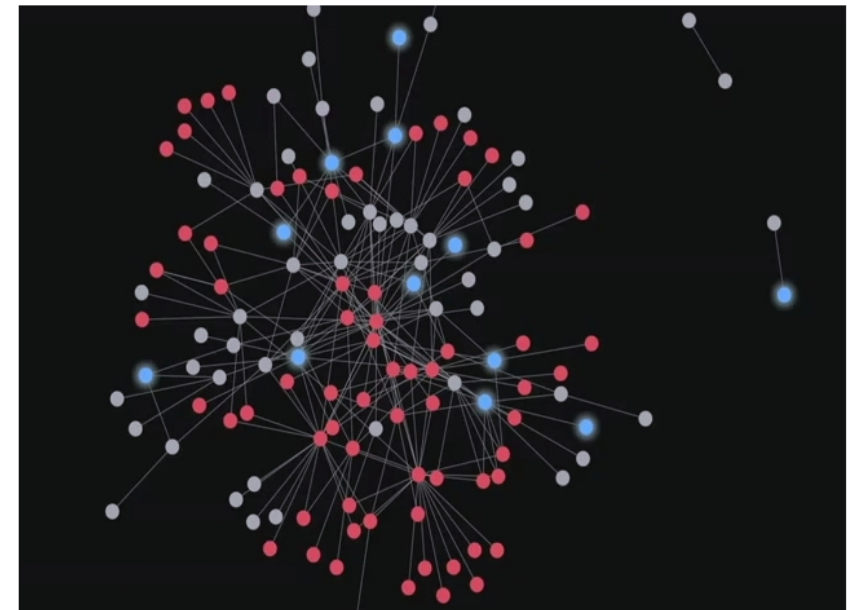|		
152,445,165	Adobe accounts	
30,811,934	Ashley Madison accounts	🔥
27,393,015	Mate1.com accounts	🔥
13,545,468	000webhost accounts	

Collusion For Firefox - Discover Who's Tracking You Online
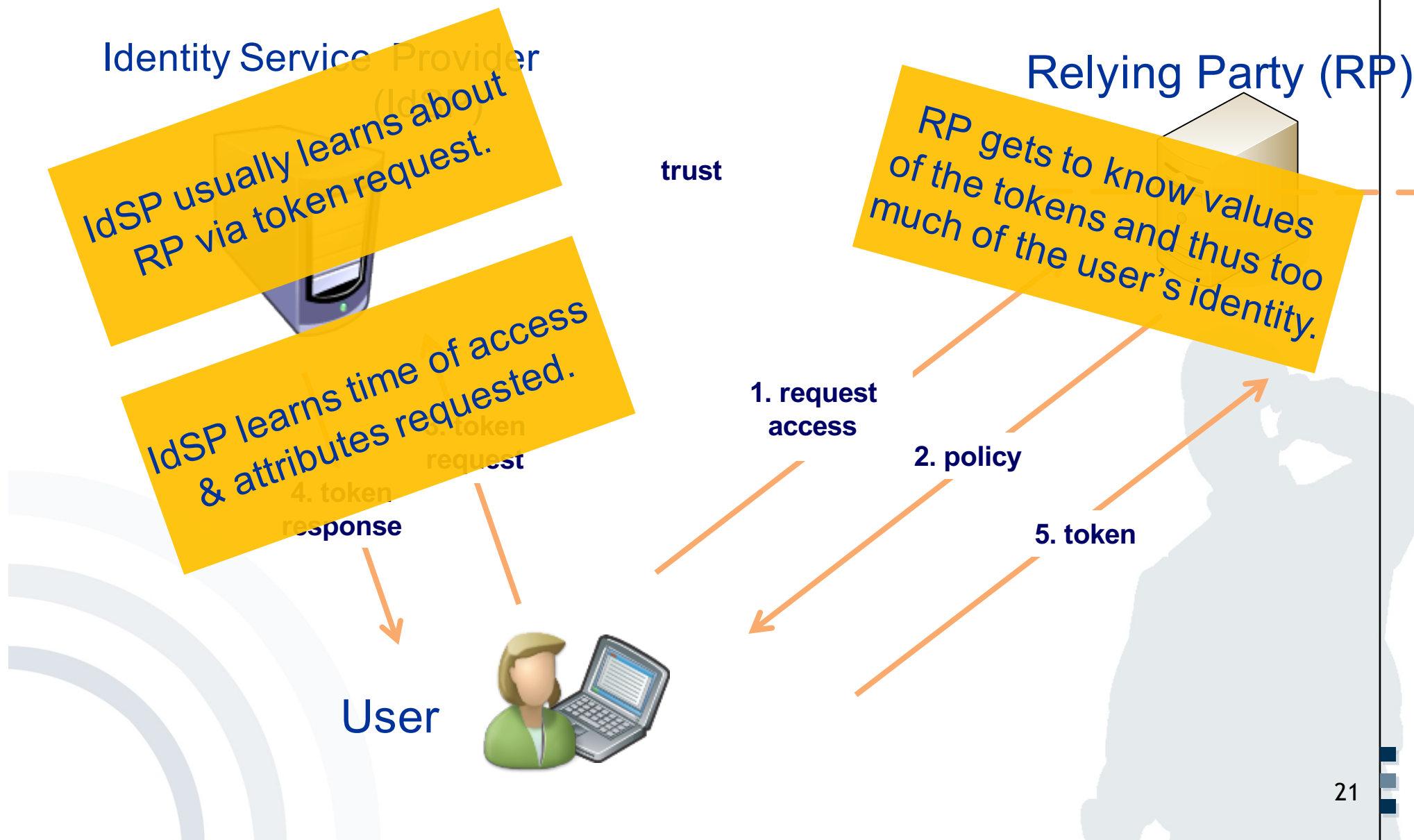
In order to demonstrate how users are being over tracked, Mr. Kovacs presents Collusion, a new Firefox add-on that allows us to see all the third parties that are tracking our movements across the Web. It shows, in real time, how that data creates a spider-web of interaction between companies and other trackers.

Below is a screenshot shared in the presentation that shows how a typical browsing day may look like. The blue dots are websites visited and the red dots are websites not visited that have access to your data.

🏷 Behavioral Targeting   🏷 Personalization   🏷 Personas   🏷 Targeting Videos   🏷 Videos

Sources: https://haveibeenpwned.com/, http://online-behavior.com/targeting/tracking-trackers

Identity Service Provider (IdSP)

Relying Party (RP)

IdSP usually learns about RP via token request.

RP gets to know values of the tokens and thus too much of the user's identity.

IdSP learns time of access & attributes requested.

trust

1. request access

2. policy

3. token request

4. token response

5. token

User

- Privacy features:
    - Different levels of pseudonymity – you can use different pseudonyms, change between them
    - Selective disclosure of attributes (attribute hiding)
    - Unlinkability of user's transactions

- Examples:
    - Prove age without disclosing birthday, e.g. for buying alcohol, showing being over 18
    - Calculations over attributes (no disclosure), e.g. show that two credentials have the same (or different) name
    - Conditional accountability (inspection), if needed
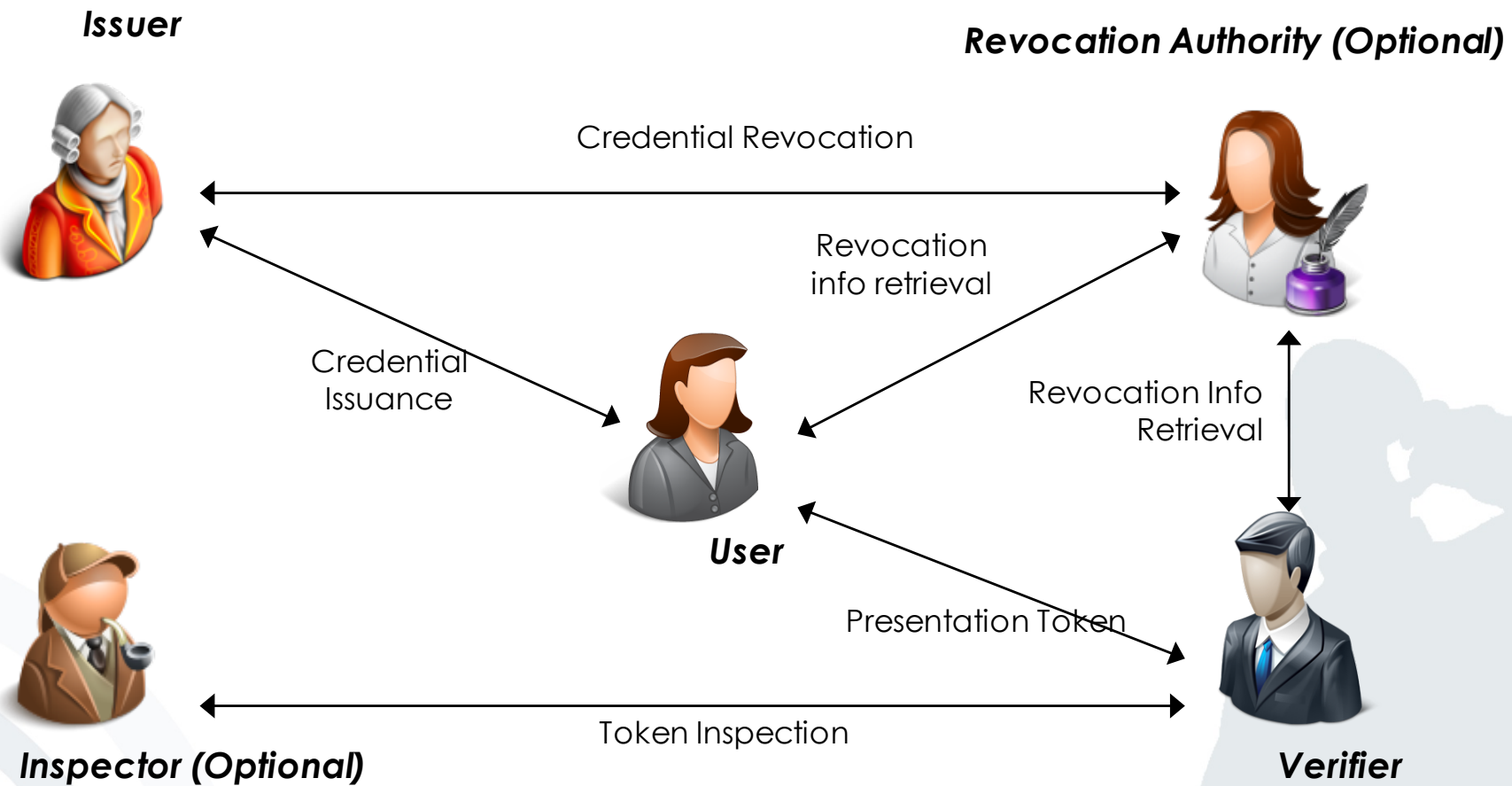
Anonymous Course Evaluation

University Registration Office

Course Evaluation System

Class Attendance System

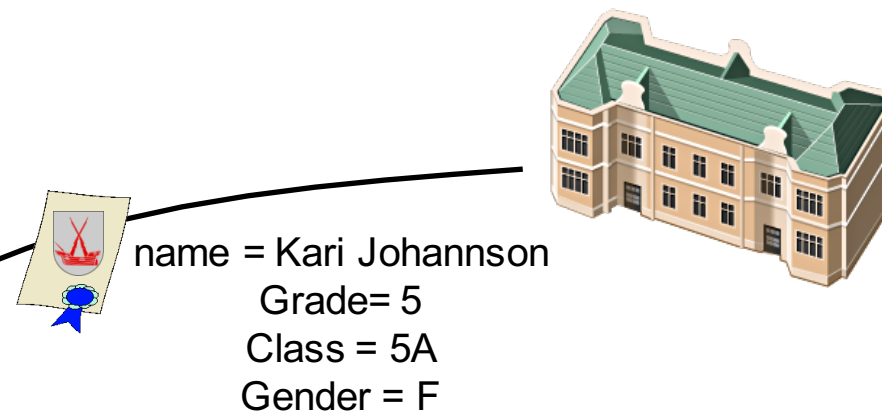- The students receive a credential when they enrol in a course.
- The students anonymously collect credentials for attending each lecture of the courses.
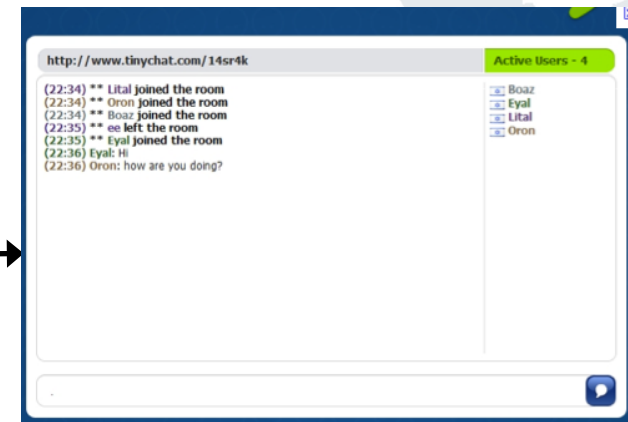- At the end of semester they can prove that they have taken the course and participated at enough lectures to be able to evaluate the course without disclosing their identity.

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name = Kari Johannson
Grade= 5
Class = 5A
Gender = F

name = ?
Grade = 5
Class = ?

http://www.tinychat.com/14sr4k   Active Users - 4
(22:34) ** Lital joined the room   Boaz
(22:34) ** Oron joined the room   Eyal
(22:34) ** Boaz joined the room   Lital
(22:35) ** ee left the room   Oron
(22:35) ** Eyal joined the room
(22:36) Eyal: Hi
(22:36) Oron: how are you doing?

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Part I

TOPICS IN PRIVACY AND SECURITY

- The goal is to check the differences in privacy preferences of the users in digital services:
  - Social networks
  - Online shopping
- The preferences should match the Privacy-ABC properties: unlinkability, untraceability, selective disclosure, predicates, pseudonymous.
- The assumption is that the user uses one single credential in all the cases.
- Methodology: survey

- The goal is to check the differences in privacy preferences of the users in digital services:
  - Digital payments
  - E-Tickets and e-transportation
- The preferences should match the Privacy-ABC properties: unlinkability, untraceability, selective disclosure, predicates, pseudonymous.
- The assumption is that the user uses one single credential in all the cases.
- Methodology: survey

- The goal is to understand reasons for potential differences in privacy preferences of the users in digital services:
  - Digital payments
  - E-Tickets and e-transportation
  - Social networks
  - Online shopping
- The preferences should match the Privacy-ABC properties: unlinkability, untraceability, selective disclosure, predicates, pseudonymous.
- The assumption is that the user uses one single credential in all the cases.
- Methodology: semi-structured interviews.

- The goal is to understand what are the privacy concerns of the users when using digital services. Here the goal is to find out which services users consider more sensitive to privacy and why (experiences, concerns, expectations, etc.)

- The preferences should match the Privacy-ABC properties: unlinkability, untraceability, selective disclosure, predicates, pseudonymous.

- Another goal is to find out whether the users would prefer to use a single trusted credential or many credentials for different services.

- Methodology: unstructured interviews.

- Goal: for privacy-sensitive scenarios, to understand how long the users would be willing to wait extra time in order to use a privacy-respecting technology to log in to services.

- Example, replacing "Connect with Facebook" with "Connect with Privacy-ABC" to log in to:

  - Online dating website

  - Video search

  - Online payment

- Methodology: survey

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- The goal of this topic is to provide an understanding on how information technology products are evaluated with regard to their security. In particular, the focus should be on manufactured software products.

- Methodology: literature review. Should write with a critical view on existing methods and standards to evaluate the security.

Part 2:

TECHNOLOGY USE MODELS AND PRIVACY-ENHANCING TECHNOLOGIES IN THE CONSUMER MASS MARKET

Applied Methodology for Part 2:

- Literature review following the proposed methodology by von Brocke et al. (2009) and Weber and Watson (2002)

- Write about everything you've done and structure your literature on your computer in folders (I probably will ask you for your whole data)

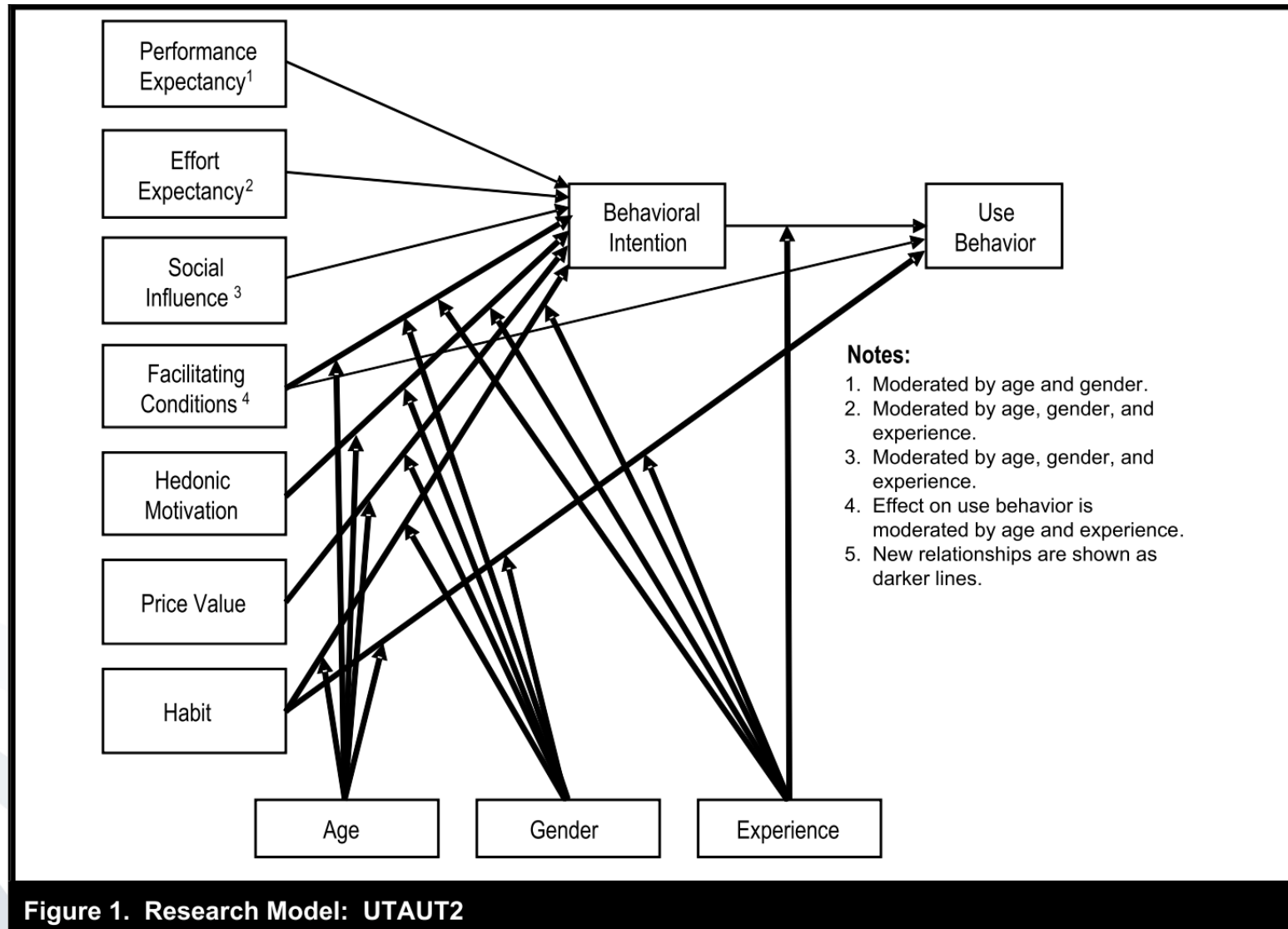- Make screenshots about the search results in each database

Figure 1. Research Model: UTAUT2

Notes:
1. Moderated by age and gender.
2. Moderated by age, gender, and experience.
3. Moderated by age, gender, and experience.
4. Effect on use behavior is moderated by age and experience.
5. New relationships are shown as darker lines.

Goal: Provide an extensive overview of the use of moderators like age, gender and experience in technology use models.

- Define the purpose of moderators and the statistical handling

- Provide also the sociological explanations of all located moderators

- See UTAUT2 by Venkatesh et al. (2012) for a nice theorizing about the moderators included in this model
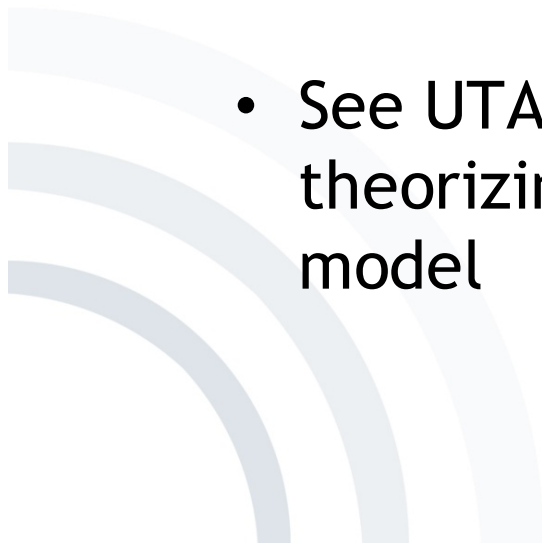
Goal: Investigate the role of the construct "Trust" in technology use models by conducting an extensive literature review.

- How can trust be defined in a general way and how is it defined in the context of selling services or products in the consumer mass market?

- Is trust an independent variable or something different like a moderator?

- How can the degree of trust be quantified in a survey? Which items to ask potential participants are necessary?

- Use the UTAUT2 by Venkatesh et al. (2012) as a starting point

Goal: Identify different constructs that are related to online privacy like risk aversion or privacy awareness from the privacy literature and summarize how they are measured in questionnaires.

- Measures mean here items in questionnaires

- Summarize also the results of the studies you find and provide missing research

- Consider the privacy paradox in your research and think about the implications of the paradox on your results
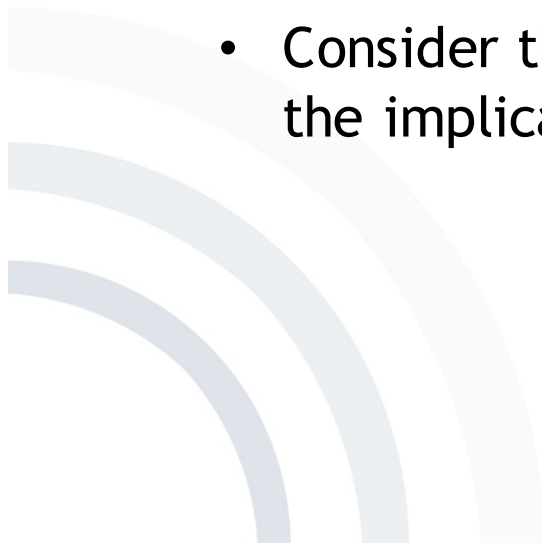
Goal: Conduct a literature review about state-of-the-art measures of customers' willingness to pay for products or services and create a questionnaire based on your results for a fictional ICT service or product.

- Include not only marketing literature but also literature from fields like psychology

- How granular are those measures?

- Can you quantify WTP only by conducting questionnaires or also by interviews?

- Do individuals overestimate their WTP systematically? How can you deal with this problem?
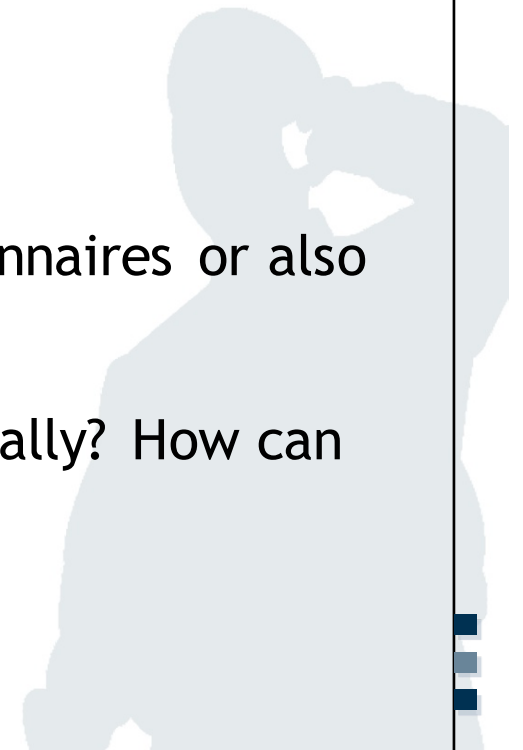
Goal: Conduct a literature review about the standardization of mobile networks, esp. with regard to the future 5G standard.

- Identify all relevant stakeholders and key players in a standardization process of mobile networks.

- What is the process of a mobile network standardization and why is it necessary?

- Determine the general goals and economic benefits of standardization

- Refer for this topic also to perinorm.com
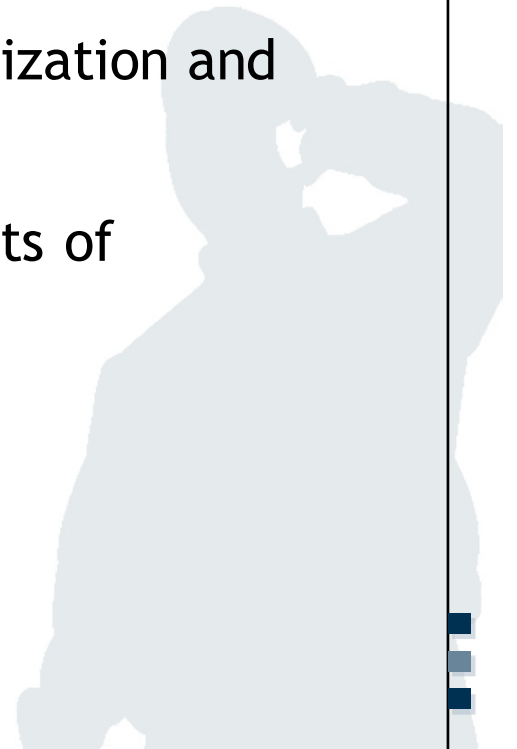
4. DISTRIBUTION OF TOPICS

Overview of the Topics

SP.1	User privacy requirements for using a single e-ID in online services
SP.2	User privacy requirements for using a single e-ID in digital services
SP.3	Understanding user privacy concerns for using a single e-ID in digital services
SP.4	Understanding user privacy concerns in digital services
SP.5	Measuring "willingness to wait" for privacy-preserving authentication
SP.6	Evaluation of security assurance for information technologies
TU.1	Overview of Moderators Age, Gender and Experience in Technology Use Models
TU.2	The Role of Trust in Technology Use Models
TU.3	Measures for Different Privacy Constructs in Surveys
TU.4	Empirical Measures of Willingness to Pay of End Customers
TU.5	Standardization of 5G Mobile Networks

- You will receive your "anchor" literature until Monday (1-2 papers).

- Send 150-word abstract and first table of contents to your supervisor until May 17.

- Individual appointments possible on-request in the starting phase and in the final phase.

  - If you want an appointment in the starting phase, you should request it via email to your supervisor no later than 13.05.2016.

  - For an appointment in the final phase, you should request it via email to your supervisor no later than 05.06.2016.

Groups vs. individual work

- Students working on the same topic have the possibility to work individually or in a group together.
- This can be decided early enough and synchronized with the supervisor of the topic.
- For group works, each student should indicate their part of the research work and the part of the text they have written.
  All students are expected to conduct part of each research method.

5. SCIENTIFIC WORKING

- Based on the structure of common scientific papers (conference papers, journal articles, etc.):
  - Problem statement / Motivation / Introduction
  - State of research / Related work
  - Methodology / Own contribution / Results
  - Summary / Conclusion / Future work
- Other formal requirements:
  - Table of contents / Structuring
  - Standardized reference list
  - Table of figures / tables

- ## Style:
  - No colloquial language
  - Be precise
  - Grammar and typo check
  - No headwords, write line of thought fully out

- ## References:
  - Any direct or indirect passages taken from other publications HAVE to be precisely referenced (according to the citation style of WIRTSCHAFTSINFORMATIK or MISQ)
  - Same for figures and tables, etc.
  - Avoid footnotes when possible.

- **Literature Research:**
  - Work with scientific publications
  - Avoid articles from Wikipedia and/or popular literature
  - Include the state of the art
  - Use databases for scientific literature (Google Scholar, ACM, JSTOR, citeseer, Web of Knowledge, AISNET.)

- Literature Management tools help with the organization of used literature.

- Mendeley:
  - Online/Offline synchronization
  - File organizer
  - One-click import
  - Word Plug-in
  - BibTex export
  - Sharing through Social Networking
  - Support of many citation styles
  - Client for Windows and Mac
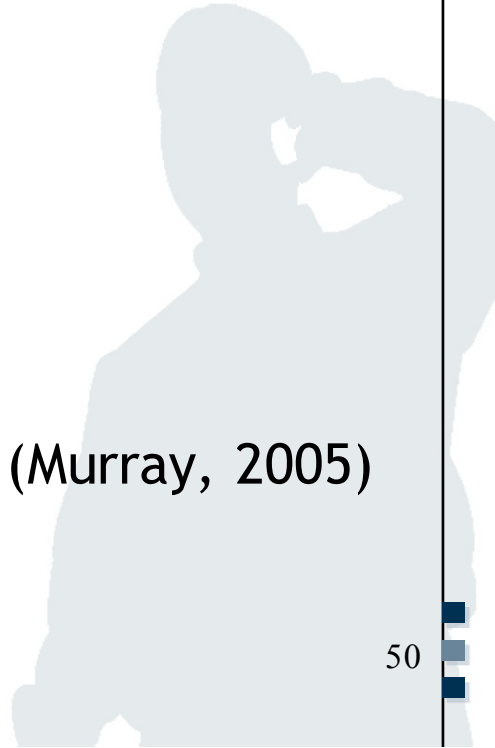 - It's free (up to 2 GB)
  - http://www.mendeley.com/

- ## Freewriting exercise:
  - 5 minutes for writing about any topic you like
  - Do not stop writing for this time period
  - Write in full sentences
  - Nobody will read or see it
  - Not structured
  - Does not matter which language

(Murray, 2005)

- As a warm-up for academic writing
- To overcome procrastination
- To start writing
- To develop confidence – that you can write
- To develop fluency – ease of writing
- To write your first draft
- To clarify your thinking or your argument
- To stop yourself editing and getting bogged down
- To generate topics for your papers and sections
- To start developing the habit of writing in increments
- To develop 'snack' writing

(Murray, 2005)

Summary: Important Dates

Time	Where	How
16.04.14, 16:00-17:30	H IV (Bockenheim)	Written Exam
06.05.2016, 13:00-16:00	2.202 (RuW)	Introduction & Assignment of Topics
17.05.2016, 23:59	e-mail	Abstract & TOC
08.06.2016, 23:59	e-mail	Draft version seminar paper
17.06.2016, 15:00	e-mail	Draft version presentation (for quick layout feedback)
20.06.2016, 16:00	e-mail	Final version presentation
20.06.2016, 9:00-16:00	2.202 (RuW)	Presentations** (Day 1)
21.06.2016, 9:00-16:00	2.202 (RuW)	Presentations** (Day 2)
24.06.2016, 15:00	2.257 (RuW) + e-mail	Final version seminar paper

*seminar@m-chair.de; **Each student should be prepared to present on the first day, regardless of the agenda.

6. ADVERTISEMENT

mobile business

Die **Professur für Mobile Business & Multilateral Security** sucht für das Projekt SIDATE (www.sidate.org) **studentische Hilfskräfte (m/w)**, die an einer längerfristigen Mitarbeit interessiert sind.

Aufgabengebiete

▪ Unterstützung der Projektarbeit durch die Entwicklung von Softwareprototypen und allgemeine Recherchetätigkeiten

Wir bieten

▪ Eine äußerst interessante, abwechslungsreiche und praxisnahe Tätigkeit
▪ Einblicke in aktuelle Fragestellungen der IT-Sicherheit kritischer Infrastrukturen
▪ Arbeit mit Industriepartnern
▪ Möglichkeit zur Anfertigung einer Bachelor- oder Masterarbeit im selben Themenkomplex
▪ Die Chance zum selbständigen Arbeiten
▪ Eine monatliche Arbeitszeit von 40-80 Stunden, je nach Vereinbarung

Anforderungen

▪ Sehr gute Programmierkenntnisse in Java
▪ Gute Kenntnisse in HTML5, JavaScript und CSS
▪ Bereitschaft sich selbständig in neue Themengebiete einzuarbeiten
▪ Gute Englischkenntnisse

Wünschenswert

▪ Grundkenntnisse in der Portlet-Entwicklung mit Liferay
▪ Interesse an IT-Sicherheit
▪ Interesse an ISO/IEC 2700x

Bewerber/-innen schicken ihre Bewerbungsunterlagen bitte per E-Mail an:
Christopher Schmitz, M.Sc., sidate@m-chair.de

7. YOUR QUESTIONS

Murray, R., 2005. Writing for Academic Journals. *Open University Press*.

Venkatesh, V., Thong, J. & Xu, X., 2012. Consumer acceptance and user of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), pp.157–178.

von Brocke, J. et al., 2009. Reconstructing the Giant: On the Importance of Rigour in Documenting the Literature Search Process. *17th European Conference on Information Systems*, pp.2206–2217.

Webster, J. & Watson, R.T., 2002. Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MISQ Quarterly*, 26(2), pp.xiii–xxiii.