

Information Privacy: Does It Really Matter?

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What is information privacy?

Information privacy, or data privacy (or data protection), is the relationship between collection and dissemination of data, technology, the public expectation of privacy, and the legal and political issues surrounding them.

Source: Wikipedia

Legal issues: USA

- Last major privacy law, the Electronic Communications Privacy Act, 1986
- The ECPA has been amended by the Communications Assistance for Law Enforcement Act (CALEA) of 1994, the USA PATRIOT Act (2001), the USA PATRIOT reauthorization acts (2006), and the FISA Amendments Act (2008)
- New Email protection privacy act – still in works?

Political issues: USA

- majority of Americans are not alarmed by the fact that the National Security Agency (NSA) is collecting all of our electronic communications, from phone conversations to email messages and internet searches.

Source: E.D. Cohen What would Aristotle do? In Psychology Today, Published on June 19, 2013

Workplace issues: USA

- A 2007 survey by the American Management Association and the ePolicy Institute found:
- two-thirds of employers monitor their employees' web site visits in order to prevent inappropriate surfing.
- 65% use software to block connections to web sites deemed off limits for employees. This is a 27% increase since 2001 when the survey was first conducted.
- Of the 43% of companies that monitor e-mail, nearly three-fourths use technology to automatically monitor e-mail. 28% of employers have fired workers for e-mail misuse.
- Close to half of employers track content, keystrokes, and time spent at the keyboard. 12% monitor blogs to see what is being written about the company. Another 10% monitor social networking sites.
- Almost half of the companies use video monitoring to counter theft, violence and sabotage. Of those, only 7% state they use video surveillance to track employees' on-the-job performance. Most employers notify employees of anti-theft video surveillance (78%) and performance-related video monitoring (89%).
- Source: <http://press.amanet.org/press-releases/177/2007-electronic-monitoring-surveillance-survey/> retrieved on Nov.1 2014

Technology issues: current

- **Communication anonymizers** hiding the real identity (email address, IP address, etc.) and replacing it with a non-traceable identity (disposable / one-time email address, random IP address of hosts participating in an anonymising network, pseudonym, etc.).
- **Shared bogus online accounts.**
- **Access to personal data:** The service provider's infrastructure allows users to inspect, correct or delete all their data stored at the service provider.

Technology issues: future

- **Wallets of multiple virtual identities** for the efficient and easy creation, management and usage of virtual identities.
- **Anonymous credentials:** asserted properties/ attributes or rights of the holder of the credential and that only reveal so much information as the holder of the credential is willing to disclose.
- **Negotiation and enforcement of data handling conditions** between a user and a provider
- **Data transaction log** hold by users for transparency

Privacy Matters

Can we have
Control and Confidentiality?

Do we have a right to privacy?

Geir M. Køien
University of Agder, Norway



Digital Privacy??

- **No Such Thing (anymore)**
- They know you're a dog
- They know your race
- They know your fur color
- They know your preferences
- ...



July 5, 1993 - Peter Steiner's cartoon, as published in *The New Yorker*

Big Brothers

- **The Really Big Brothers (NSA and similar)**

- Primary target is intelligence and tactical/strategic advantages
- Very resourceful organizations, “legal” interception in many ways



- **The Quite Big Brothers (Google and other large multinational companies)**

- Very resourceful organizations, legal interception in the legalese sense
- Primary target if money/control (long-term view on this)



- **The Evil Big Brothers (organized crime)**

- Primary target iswhatever pays
- Quite resourceful organizations, legality doesn’t matter much

- **The Big Bunch of Lesser Big Brothers**

- Anyone with an intent to eavesdrop on you and to invade your privacy
- May or may not know/care about legal matters

Psychological factors

- **Unprepared and Unaware of it¹**

- We are not all that prepared for privacy invasions
- We are not very skilled in assessing the likelihoods...
- ...this is likely to be true even if we are technically competent

- We are really not all that good at estimating the consequences either
- OK, we may have heard about phishing and may even understand it
- But, what about the long-term consequences of no privacy?

We need to be skilled and aware

1) An analogue is found in: Kruger, Justin; Dunning, David, "Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments.", *Journal of Personality and Social Psychology*, Vol 77(6), pp. 1121-1134, Dec 1999.

- **It really is up to you**

- Are you willing to give up some convenience to get more privacy?
- Are you willing to configure your apps and programs to respect your privacy?
- Are you willing to complain to companies that don't respect your privacy?

- **Privacy by Default¹**

- Need to get **Privacy-by-Default** implemented in our standard OSes, browsers, apps etc.
- **YOU** are the tech people – you really ought to lead this process

- **As a professional**

- ACM bylaws: “**As an ACM member I will respect the privacy of others.**”
- IEEE code of conduct: “**We will be respectful of the privacy of others and the protection of their personal information and data.**”

- This is of course inspired by the **Privacy by Design** initiative. <http://www.privacybydesign.ca/>



- **Privacy functionality must be the “hassle-free” option**
 - This is a logical extension of Privacy-by-Default
 - We really cannot expect the end-user to know about the technicalities of privacy
- **Better technology & strong security will be needed**
 - Better crypto for privacy-preserving functionality will help
 - All-encompassing use of data confidentiality will help too
- **Technology & security alone will not suffice**
 - It is hard to bolt-on privacy in a credible way
 - Standalone PETs¹ may even hinder real and pervasive privacy
 - Privacy Requirements must be technology neutral and be about rights

• PETs – Privacy Enhancing Technologies

How much privacy does mobility need?

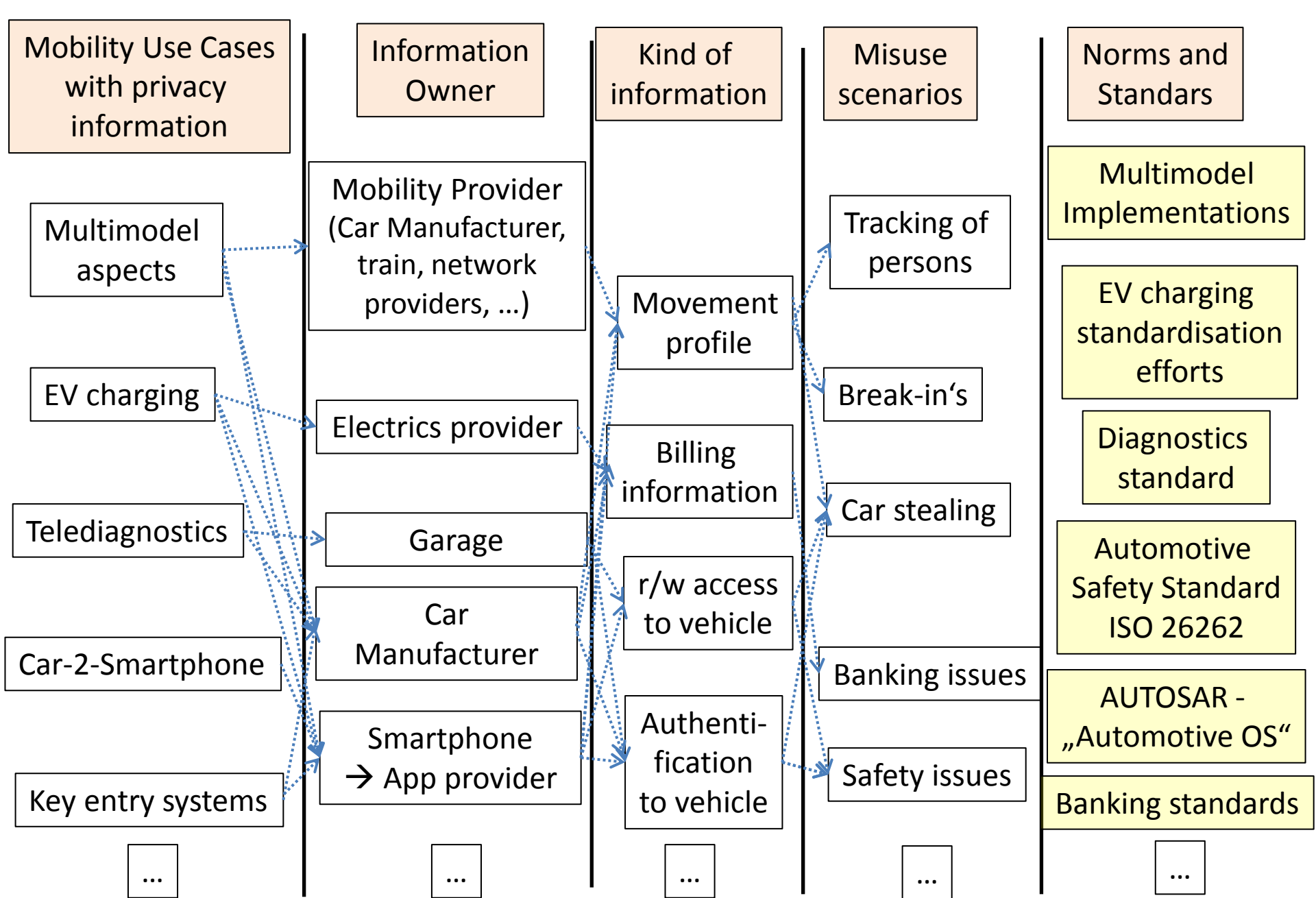
Prof. Dr.-Ing. Reiner Kriesten

Institute of energy efficient mobility (IEEM)

University of Applied Sciences, Germany

How much privacy does mobility need?

- Use cases for collection of private data and its result?
 - Multimodal aspects: „last mile“ including billing to other mobility providers: *movement profiles of individual persons / vehicles*
 - Car-2-X applications:
 - Telediagnosics: *movement profiles of individual persons / vehicles*
 - Electrical charging: *billing informations*
 - Car-2-Smartphone: *read/ write access to vehicle (diverse applications: trunk opening, radio control, HMI configuration)*
 - Key entry systems: *authentication to vehicle (memory positioning: personalized data?)*



Information Privacy: Does It Really Matter?

Using Data Mining in different contexts

Information Privacy

Information is required for pattern identification

Without information, data mining is not possible

Results have to be interpreted



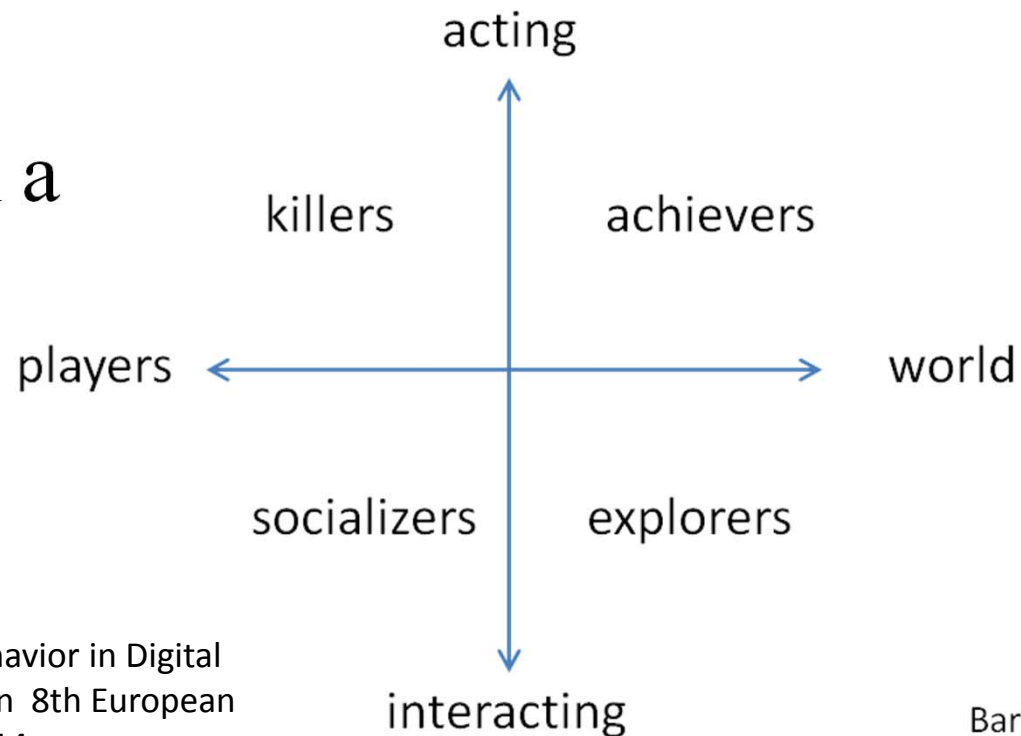
Two examples: From Science and Business

Learning in Games: A research question

Different player types in theory

Research Question: Is there any effect of player type on motivation or learning outcome?

-Game for students in a history class



Anja Hawlitschek , Veit Köppen. Analyzing Player Behavior in Digital Game-Based Learning: Advantages and Challenges. In 8th European Conference on Games Based Learning, 199–206, 2014.

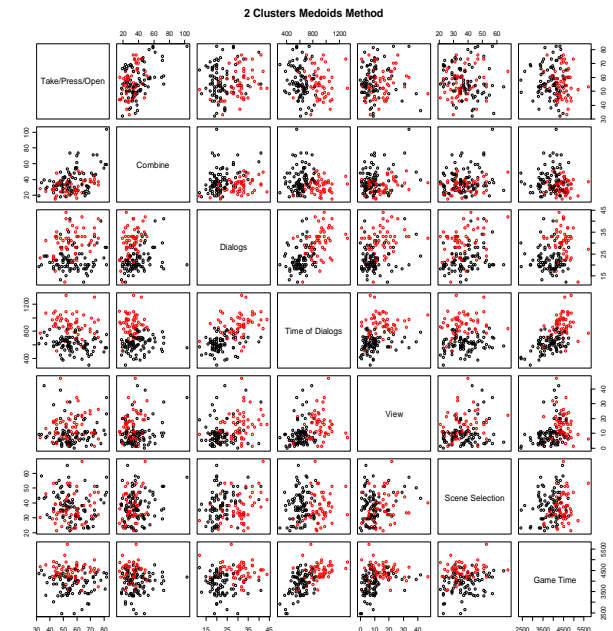
Bartle 1996, 2014

Data Collection, Filtering & Pattern

Log file for monitoring behavior
 Questionnaires for motivation &
 learning outcome



11:46:55	Nehme/Drücke /Öffne	bekanntmachung
11:47:04	Spiel	Szene 4a wird geladen
11:47:25	Spiel	Szene 4b wird geladen
11:47:33	Kombiniere	ball mit hund
11:47:56	Spiel	Szene 4a wird geladen
11:48:29	Spiel	Es wird die dritte Szene geladen
11:48:39	Nehme/Drücke /Öffne	tratschweiber
11:48:46	Dialog:	Junge
11:49:25	Kasi:	Warum weinst du denn so?
11:49:32	Kasi:	Vielleicht kann man ihn irgendwie trösten?
11:49:35	Mann:	Ich muss erst den Kleinen trösten!
11:49:43	Dialog:	Soldat
11:49:51	Kasi:	Warum liegt hier mitten auf der Straße Stacheldraht?
11:49:58	Grenzsoldat:	Das ist jetzt hier allet Grenze. Die da drüben sind unsere Feinde, die



Context Unaware Profiling

Identifying different player groups

Interpreting different groups



Classification of players is possible,
but desired by players?



Help! 20% of my
students are killers!

Buying chocolate @ Amazon



The Chocolate Collection - Edles Präsent mit handgefertigten belgischen Pralinen Size L von ChocolateArt

★★★★★ 20 Kundenrezensionen

Preis: **EUR 25,00** (EUR 10,00 / 100 g)
Alle Preisangaben inkl. MwSt.

Auf Lager.

Verkauf und Versand durch **The Chocolate Collection**. Für weitere Informationen, Impressum, AGB und Widerrufsrecht klicken Sie bitte auf den Verkäufernamen. Geschenkverpackung verfügbar.

- Original belgische Pralinen
- Handgefertigt - keine Industrielle Massenware!
- Ohne Konservierungsstoffe oder Zusatzstoffe
- Edle Geschenkverpackung mit Liebe zum Detail
- Das perfekte Geschenk oder Dankeschön!
- Weitere Produktideen



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EUR 25,00 + kostenloser Lieferung
Auf Lager. Verkauf von The Chocolate Collection

Menge:

In den Einkaufswagen

[1-Click-Bestellungen aktivieren](#)

Auf meinen Wunschzettel

Für eine größere Ansicht klicken Sie auf das Bild

Wird oft zusammen gekauft

Preis für alle drei: EUR 81,00
Alle drei in den Einkaufswagen

[Verfügbarkeit und Versanddetails anzeigen](#)

- Dieser Artikel:** The Chocolate Collection - Edles Präsent mit handgefertigten belgischen Pralinen Size L, EUR 25,00 (EUR 10,00 / 100 g)
- ChocolateArt Preisgekrönte Pralinen vom top Chocolatier Belgiens - Klassische Mischung, 36 Stück, 1er ...** EUR 33,00 (EUR 94,29 / kg)
- ChocolateArt Feinste handgefertigte belgische Pralinen in edler Geschenkverpackung - Helle Mischung, 1er ...** EUR 23,00 (EUR 9,29 / 100 g)

Kunden, die diesen Artikel gekauft haben, kauften auch

Seite 1 von 4

 Chocolate Art Feinste handgefertigte belgische Pralinen in edler... ★★★★★ 1 EUR 23,00 <small>(EUR 9,29 / 100 g)</small>	 Chocolate Art Preisgekrönte Pralinen vom top Chocolatier... ★★★★★ 13 EUR 33,00 <small>(EUR 94,29 / kg)</small>	 Contiserie Bauer, Lauenslein - Pralinen Großpackung... ★★★★★ 10 EUR 42,90 <small>(EUR 42,90 / kg)</small>	 Bille handgefertigte belgische Pralinen MAJILLE Prestige ★★★★★ 4	 Chocolate Art Preisgekrönte Pralinen vom top Chocolatier... ★★★★★ 8 EUR 25,00 <small>(EUR 11,36 / 100 g)</small>	 Fenero Grollo Einzelstange, 15er Pack (1 x 210 g) ★★★★★ 4 EUR 13,35 Prime <small>(EUR 23,12 / kg)</small>	 Wiederegger Contiserie Pralinen, 1er Pack (1 x 210 g) ★★★★★ 4 EUR 16,99 <small>(EUR 8,09 / 100 g)</small>	 Geschenk "Rakibel Pralinen", handgemachte Spielzeuguhr, mit Pralinenverpackung... ★★★★★ 9 EUR 19,95	 Mars Single, 32er Pack (32 x 51 g) ★★★★★ 1 EUR 19,02 Prime <small>(EUR 11,65 / kg)</small>	 The Chocolate Collection - Preisgekrönte Pralinen vom top Chocolatier... ★★★★★ 4 EUR 15,00 <small>(EUR 10,00 / 100 g)</small>	 Chocolate Art Feinste handgefertigte belgische Pralinen in edler Geschenkverpackung... ★★★★★ 8 EUR 23,00 <small>(EUR 9,29 / 100 g)</small>	 PETERO TIDREI und Pralinen 200g ★★★★★ 8 EUR 12,50 Prime <small>(EUR 6,25 / 100 g)</small>	 Steiberer Binköse Jumbo Piesen, 2er Pack (2 x 500 g Packung) ★★★★★ 10 EUR 7,98 Prime <small>(EUR 7,98 / kg)</small>	 ASPIRIN plus C Brauereitabletten, 40 Stk ★★★★★ 3 EUR 11,05	 Lauenslein Contiserie Blesene Kise Nischelken - 168 Stück in edler... ★★★★★ 12 EUR 17,50 <small>(EUR 8,98 / 100 g)</small>
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The Transparent Customer



- Web analytics & Personal information
- Data Mining: Association rule learning
 - Customers who bought A also bought B
- Business: Cross-Selling, Up-Selling, promotions, loyalty programs, discount plans, store layout
- Customer: New products & ideas, Registry or Wish list

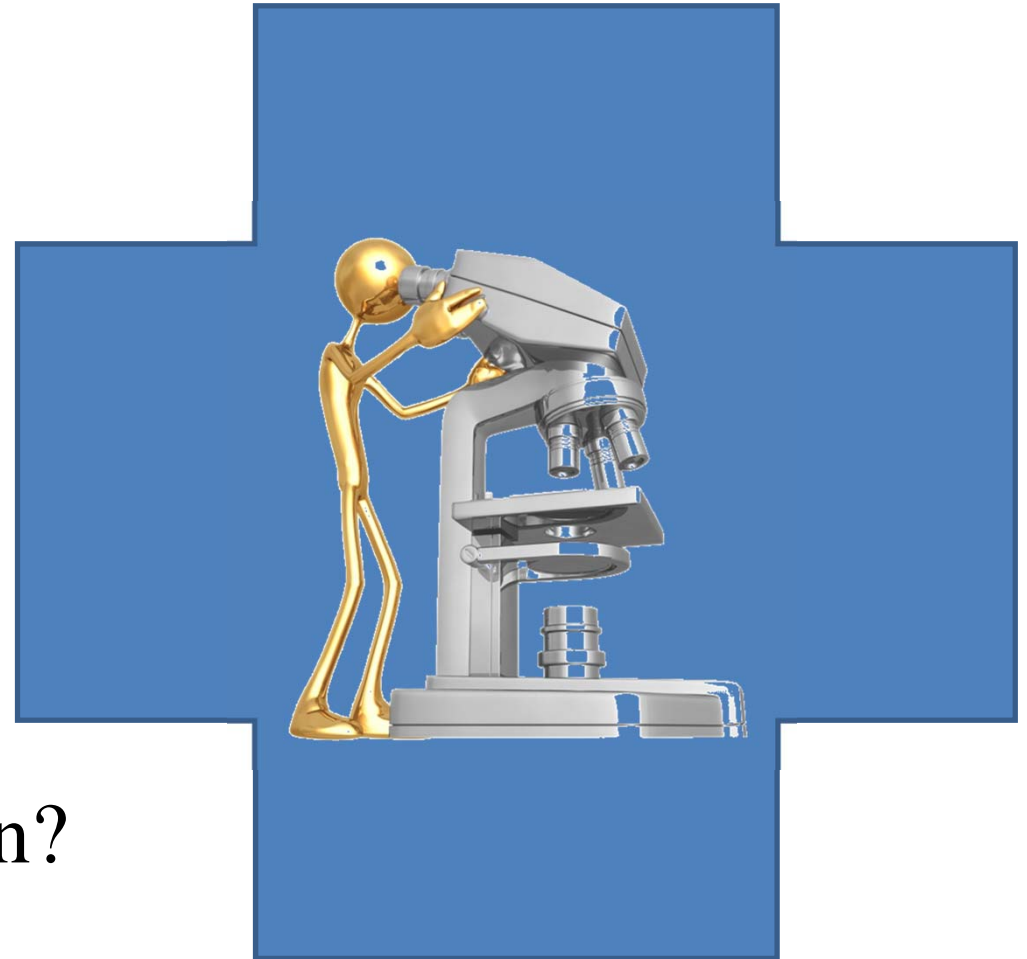
Same information – other purpose

Increase of chocolate buys

Same data mining methods

→ Increase of health risk

→ Increase of
health insurance contribution?



Contact Details

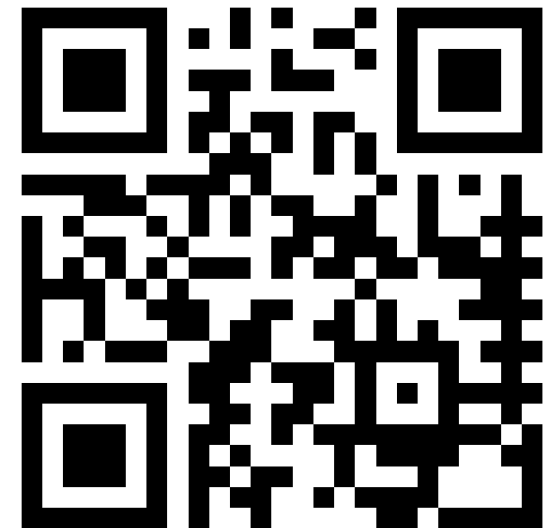
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Does Privacy Matter?

Ron Watro

Cambridge MA USA

Securware 2014

Does Information Privacy Matter ?

- For individual humans, social scientists say “yes!”
 - Needed to allow human development, experimentation, relaxation
 - To difficult to be always be “on your guard”
 - Even if you have nothing to hide ...
- And nation states desire privacy, especially for their security concerns
- So maybe the hard question are
 - Is information privacy even possible in the information age ?
 - What laws are needed? Limits on privacy? Protection for privacy?
 - Do privacy protection laws/culture hurt innovation and commerce?

Is Information Privacy Even Possible Today?

- My view – privacy is still possible but comes at a cost
- Popular companies like Google offer free services in exchange for violating privacy (reading your emails)
 - Many Google/Facebook/etc users are young and/or naïve
 - They don't understand the deal that they've made
 - This should be fixed!
- National security concerns may interfere with individual privacy
 - This a political choice

What sort of laws are relevant?

Privacy Restricting

- Legal intercept
- Key escrow
- Key surrender
- Strong encryption prohibition
- Network interception laws

Privacy Protecting

- Rule on storage of personal data
- Rules on notification when data is shared
- Special rules for medical, financial, etc
- Rules on destroying data after need is gone

Does Privacy Protection Limit Innovation?

- Advertising is at the core of much commercial activity
- The ability to target advertisements is incredibly valuable
- Private user data is a huge advantage for targeting

Conclusions

- Yes, we still need privacy
- Need flexible controls to allow individuals to opt in/out