

Privacy vs. Data: Business Models in the digital, mobile Economy

Lecture 12

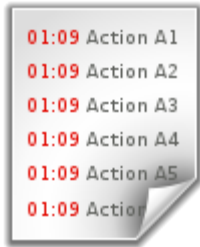
Impacts of Privacy on Online Businesses

WS 2011/2012

Dr. Andreas Albers
www.m-chair.net



- Trade-off between Privacy and Online Business Benefits
- Impacts & Issues of Regulatory Data Protection
- Impacts & Issues of Technical Data Protection
- Impacts & Issues of Privacy by Design
- Mediating between Privacy and the Needs of Online Businesses



Personal
Data



Benefits from
Online
Business



Users

Always a trade-off for users?

Targeted Advertising needs Personal Data

- Personal Data allows to target online advertisements to the personal needs an individual in his current usage situation
- In exchange, individuals benefit from free or subsidized online services or content as well as relevant ads
- **Problem 1:** Individuals often do not consider a free services or content as “payment” for their personal data / attention. This mental link is missing.
- **Problem 2:** Ad relevance is often not perceived as a benefit by individuals. Only if the ads are NOT relevant at all ...



Shooting reported at Holocaust Museum in Washington

updated 7 minutes ago

STORY HIGHLIGHTS

- Police say there is one suspect in shooting, who is contained
- Fire official says at least two people were wounded
- Incident occurred at or near Holocaust Memorial Museum in Washington

Next Article in Crime »

WASHINGTON (CNN) -- Gunfire at or around the U.S. Holocaust Memorial Museum on Wednesday wounded at least one person, a D.C. Fire department official said.



Gunfire was reported near the Holocaust Museum in Washington on Wednesday.

Allen Etter, the fire department spokesman, said another person also was injured, but it wasn't clear whether that was from gunfire.

Emergency vehicles converged on the scene near the Capitol Mall.

According to U.S. Park Police spokesman David Schlosser, there is one shooting suspect, and he thinks this person is contained.

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Shooting reported at Holocaust Museum in Washington

updated 1 minute ago

STORY HIGHLIGHTS

- **NEW:** Schoolteacher visiting Holocaust Museum says he heard a "boom"
- Private security guard is one of those wounded, officials say
- Fire official says at least two people were wounded

[Next Article in Crime >](#)

WASHINGTON (CNN) — Gunfire at the entrance of the U.S. Holocaust Memorial Museum wounded at least two people Wednesday, emergency officers said.



Gunfire was reported near the Holocaust Museum in Washington on Wednesday.

1 of 2

A private security guard and another person were wounded, according to officials of the D.C. police and fire department.

Emergency vehicles converged on the scene near the Capitol Mall.

Dave Pearson, a 6th grade teacher in the Washington, D.C., area, said he was on the museum's fourth floor when he heard a loud noise.

"At the time, we're visiting and all of a sudden there's like a boom, and all of a sudden they told us to stop where we're at," he told CNN's Ed Henry.

"Only thing we heard was a boom, and that was it."

A woman who did not give her name said that she understood the shooting happened inside the museum near the security checkpoint at the entrance.

She said she was quickly evacuated.

"We did see yellow tape down the hall when we were being rushed out," she said. "They came in and said we had to leave right away and they got us out. [E-mail to a friend](#) [Mix it](#) | [Share](#)

All About [United States Holocaust Memorial Museum](#)

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Terrorist Murder Innocents? Where Can I Sign Up?

Terrorists kill the man who gave them water

Published on Thu, Nov 27, 2008 at 20:23, Updated on Thu, Nov 27, 2008 at section

Tags: Mumbai Blast, Mumbai Terror Attack, Mumbai

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Mumbai: The terrorists who attacked the Cama Hospital here early on Thursday did not spare the life of even their benefactor who had served them water when asked for.

After killing two security personnel in the terrace of the hospital, the two ultras escaped to the housing quarters of the hospital



STONE COLD: The 1 the Taj Hotel at arou (IST) killing two sec Rhanu Narkar and F

http://purethinking.typepad.com/pure_thinking_a_streamofc/2009/08/targeted-ads-gone-bad.html

Targeted Ads gone wrong (4)



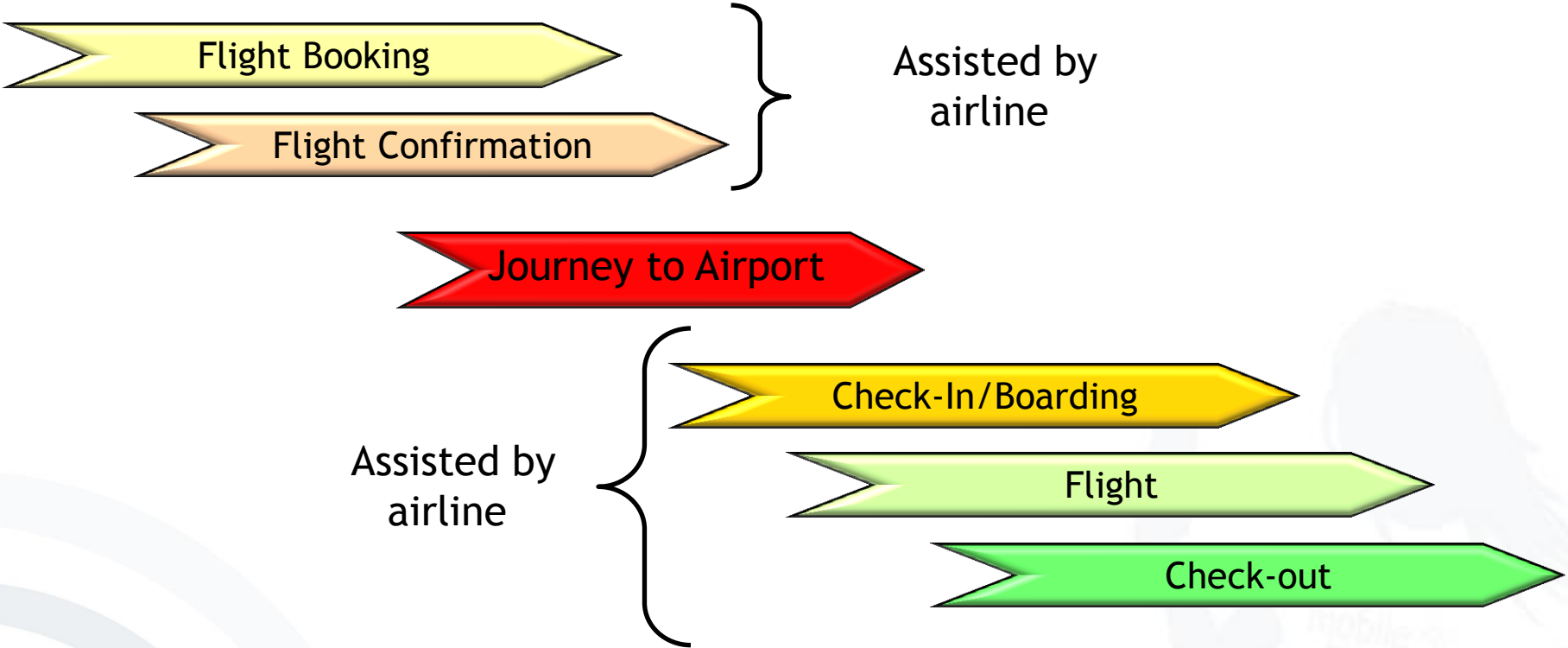
http://purethinking.typepad.com/pure_thinking_a_streamofc/2009/08/targeted-ads-gone-bad.html

Mobile Customer Relationship Management System

- Passengers get assistance during their journey (e.g. by car) to the airport from their airline.
- If delays for the journey are detected (e.g. caused by traffic jam), the passengers are contacted by the airline.
- The passengers will be offered personalised services via their mobile device. (e.g. parking service at the airport)
- Depending on the delay, these services can reduce the risk of passengers actually missing their flight.



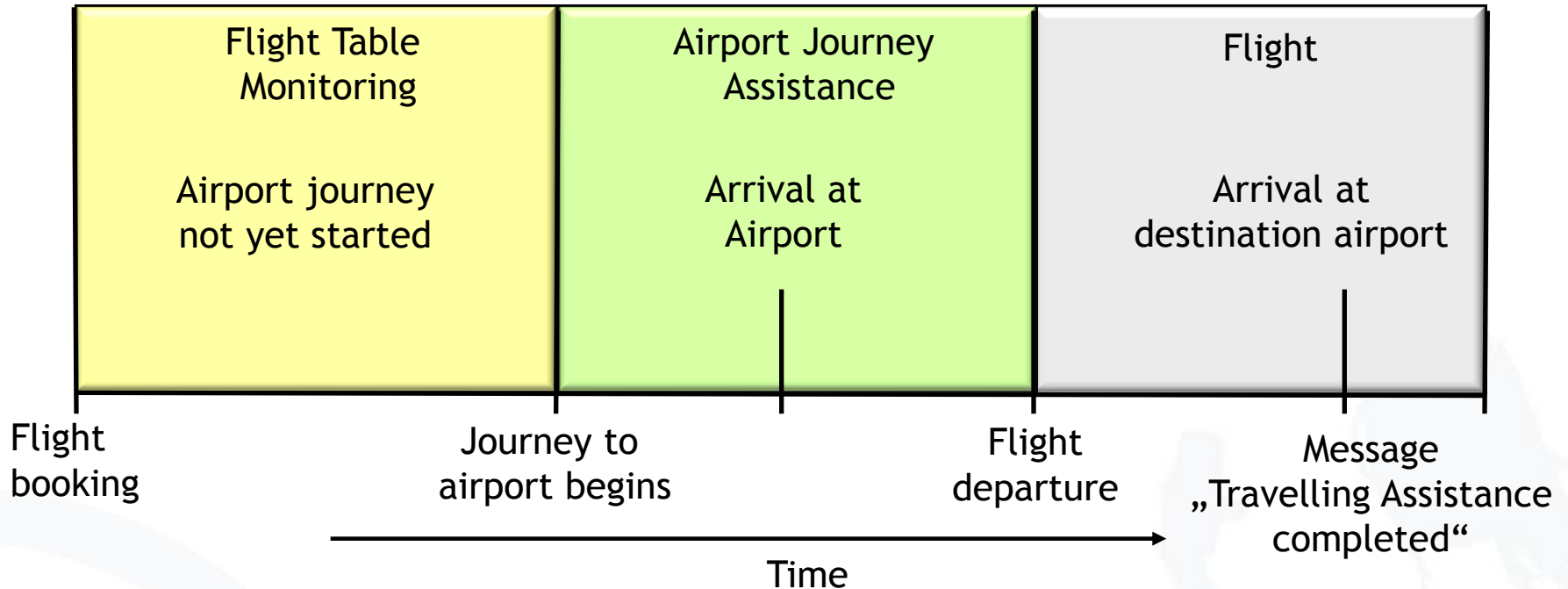
Motivation for Travelling Assistance for Frequent Flyers



Disruption in Flight Travelling Service Chain

Why Frequent Flyers?

- High-profit customers of an airline
 - Customer loyalty through service provision
- Frequent Flyers are typically business people
 - Reaching flight = reaching business appointment
 - Costs for service are not relevant
- Preferences of target group are well-known
 - High personalisation of services possible



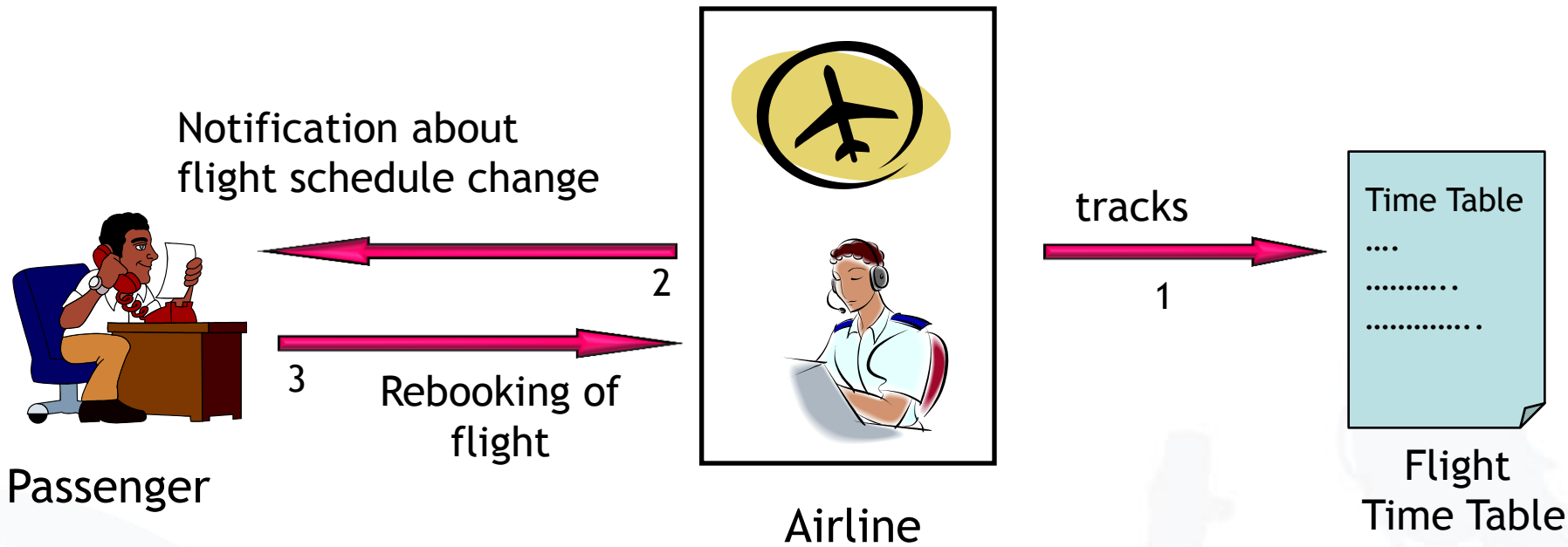
The Travelling Assistance can be divided into 3 phases:

- Flight time table monitoring until departure to the airport
- Assistance during journey to the airport
- Flight to till arrival at destination airport

mobile business Booking of Travelling Assistance

- Travelling Assistance is offered subsequently to the flight booking.
- Passengers have to submit their prospective luggage type (travel or carry-on luggage) and their means of transport (e.g. by car or train).
- Passengers provide airline with preferred communication channel in case of delays. (Voice, SMS, etc.).
- Passengers book support services in advance:
 - Parking service at the airport
 - Transfer from parking garage to gate
 - Live traffic and travel information

Flight Time Table Monitoring



Airline tracks flight time table changes until passenger begins journey to the airport.



Begin of Journey to the Airport

Passenger

- Check of current service configuration
- Check of current traffic situation
- Check of status journey status (e.g. delayed, on time, etc.)



Passenger



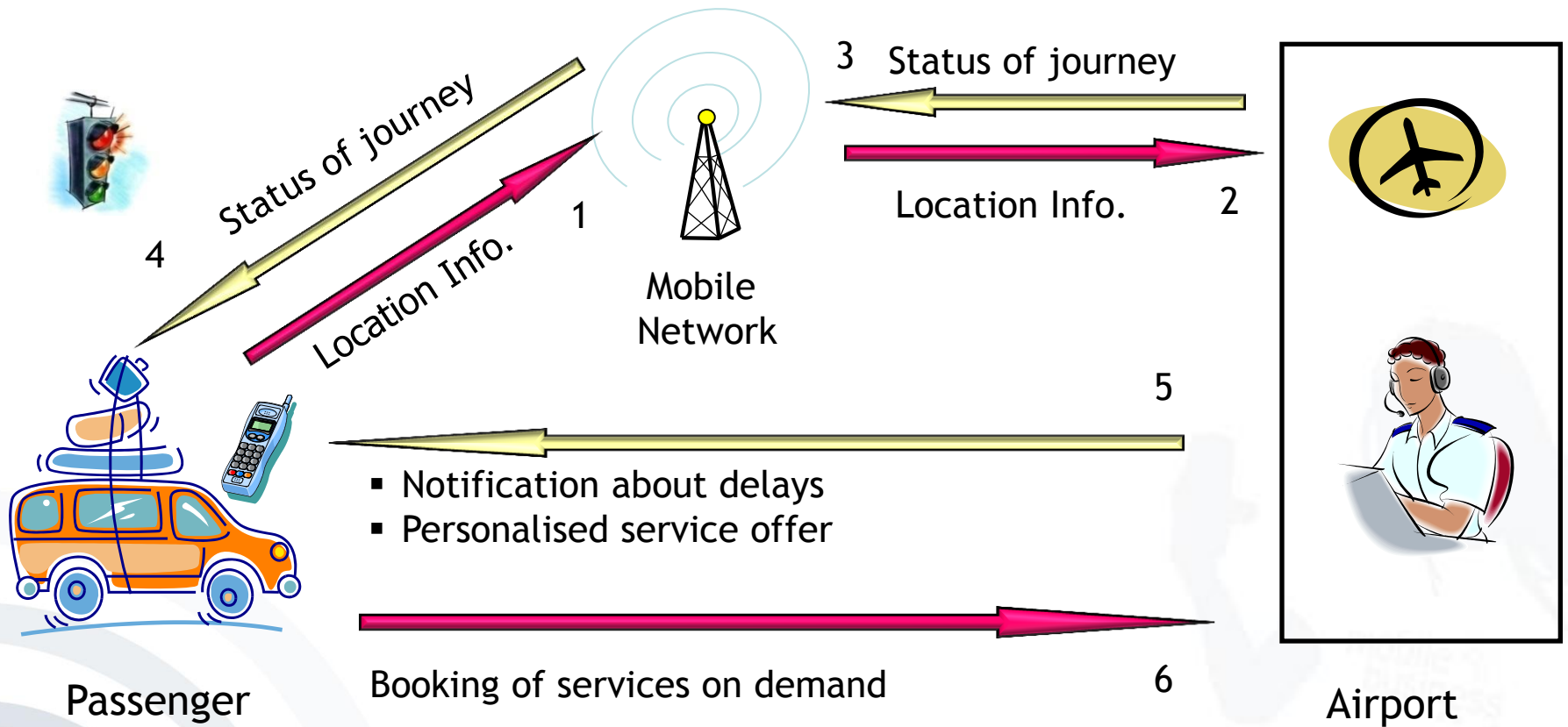
Explicit activation of assistance for the journey to the airport



Airline

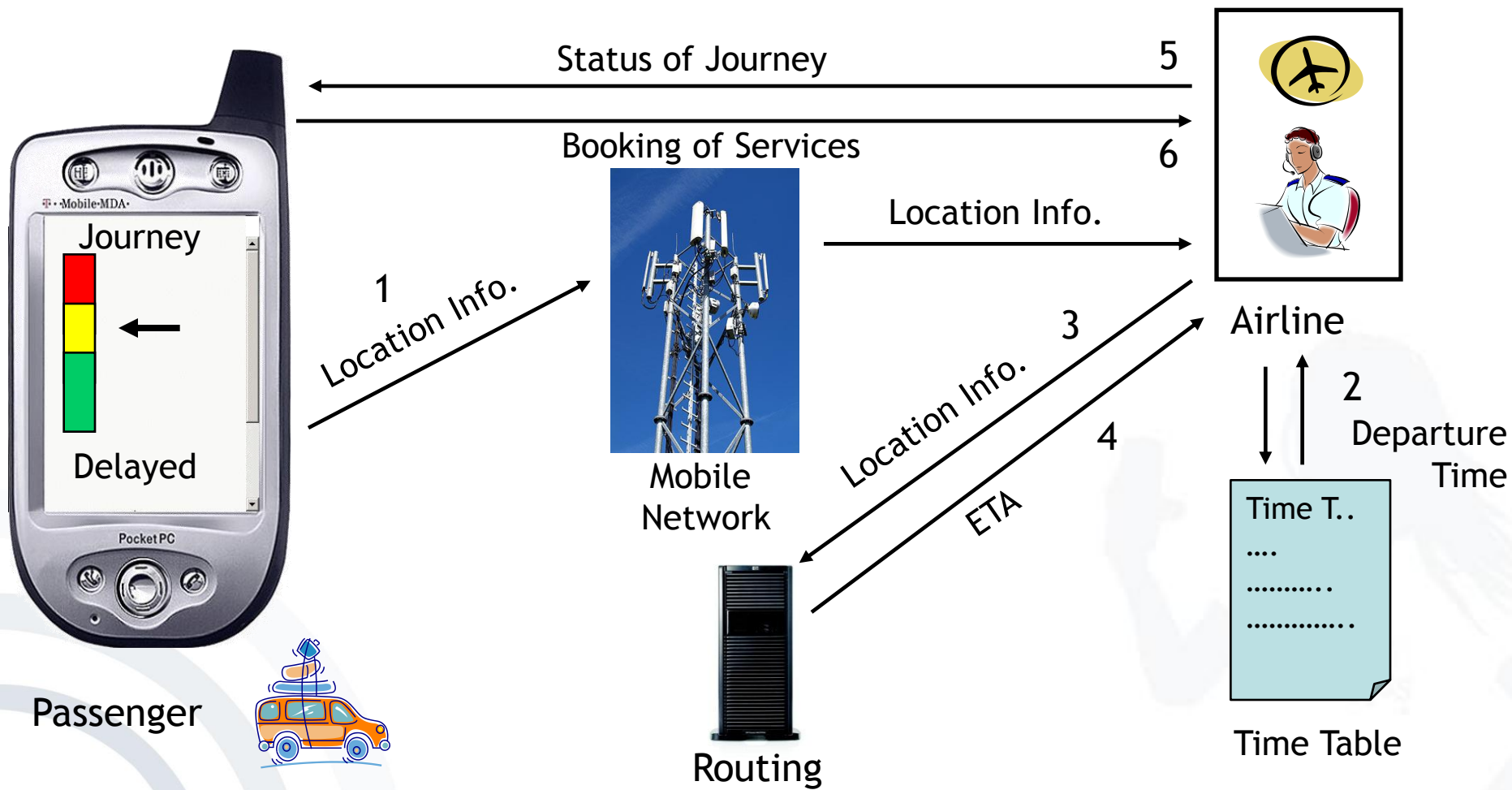
Shortly before a passenger leaves for the airport, they activate the assistance.

During the Journey to the Airport



The airline monitors the location of the passenger's mobile device and thereby calculates their ETA.

mobile business Underlying technological Concept of the Travelling Assistance



Arrival at the Airport

Execution of booked services by airline

- Parking Service
- Transfer to Gate
- Priority Check-In
- Accelerated luggage transportation
- ...



Compensation of delays during journey to the airport allows passenger to reach their flight.

After the arrival at the destination airport, the passenger receives the notification that travelling assistance is completed.

Learnings from the Mobile Customer Relationship Example

- Personalisation vs. Privacy - always a Trade-off?
- For frequent flyers to receive a personalised service, the airline has to know their preferences. Therefore, they have to give up parts of their privacy.
- But what if the knowledge about a frequent flyer is distributed across multiple service providers - and not only stored at the airline?



- Personal data is used by online businesses
 - as fundamental part of their business model (e.g. advertisers)
 - to offer personalised services
 - to foster sales using recommender systems
 - to fosters the generation of switching costs for users
 - ...
- Personal data known to online businesses helps consumers to reduce search costs (i.e. online businesses should know what consumers like but NOT how much they like it)
- ... but what personal data is collected by Third Parties and used outside the original business-consumer relationship?



Personal data of user „can“ be protected by

- Regulation / Data Protection Law
- Technical Data Protection
- Privacy by Design



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- Study on how privacy regulation might impact economic activity on the advertising-supported Internet:
 - Avi Goldfarb, Catherine E. Tucker (2011) Online Advertising, Behavioral Targeting, and Privacy, *Communication of the ACM* (54:5), New York, USA.
- Comparison of Online Advertising effectiveness on websites within the EU (under EU regulation) and outside the EU.
- Due to EU regulations, advertising networks are no longer allowed to collect and link certain information about online user behavior.
- As a result, advertising effectiveness dropped by 66% on European websites



- Each advertiser is affected differently by the same regulation
- Advertisements on websites with a high diversity of content (e.g. news portals) are more affected by dropping advertising effectiveness than highly specialised websites (e.g. travelling portal), which focus only on a few topics.
- Why?



- The EU is regulated, but what happens to advertisers operating outside the jurisdiction of the EU but doing business in the EU (e.g. Facebook)?
- Regulation is often slow and lacking behind technical and societal developments.





- Regulation provides only a very basic protection because it needs to address the demands of as many as possible organisations within EU.
- Regulation is often unclear or interpreted in many different ways by authorities.
- Regulation has to be enforced, which is often slow or even sometimes too late.

- Self-Regulation of an industry is better than regulation by law
- Self-Regulation is often difficult to audit and not transparent enough
- Self-Regulation as means to avoid regulation by law?



- Indicators that regulation affects Online Business or at least the advertising industry exist
- Regulation has many issues, but regulation is necessary and also beneficial as it
 - provides enforceable basic data protection
 - provides data processing guidelines for organisations
 - generates awareness in the population about data protection
 - ...



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- Individuals have to be *aware* about privacy threats. However,
 - this often requires technical understanding
 - data flows exchanged with online services are often not transparent to a user
 - data flows transparent to users are often too complex for them to understand (e.g. logs files)
 - ...



- Protection of personal data by individuals always **takes effort**, e.g.
 - installing and understanding technical solutions (e.g. browser plug-ins)
 - accepting lower service quality due to lack of data because of technical solutions (e.g. slow webpage loading time because used proxy servers)
 - maintaining privacy settings for online/mobile services
 - because data protection can currently not be centrally managed (availability of multiple devices, services, data flows which have to be managed)
 - consciously limiting data disclosure or service usage
 -



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- In order for individuals to take up this effort, they need to receive **directly perceivable benefits or incentives** in exchange, e.g.
 - Protection from possible data disclosure consequences
 - Disclosure of embarrassing pictures on social networks
 - Protection from manipulation of behavior, e.g.
 - getting lured into buying certain products
 - influencing one's opinion on something
 - ...



- Between individuals (e.g. on Facebook)
 - Directly perceivable consequences (e.g. posting of embarrassing pictures)
- Between individuals and service providers
 - No directly perceivable consequences for users
 - if their Online behavior is tracked
 - If user-generated content (e.g. pictures, videos, etc.) is analysed and used by online platform providers
- Users in general ignore long-term consequences in exchange for short-term benefits ...



- Privacy settings of Social Network sites are often very complicated and often hard to find.
- Users mostly stay with the default privacy settings. Thereby, users often simply do not post certain things instead of restricting their disclosure via configuration of privacy settings.
- Note: Privacy settings do not apply for social network sites, it has access to all posted personal data anyway



- Default settings hardly get changed by users. Therefore these settings are very powerful mechanism for those controlling the default settings.
- Examples: Consequences of
 - turning on tracking protection lists for the Internet Explorer by *default*?
 - Facebook changing of *default* privacy settings (<http://mattmckeon.com/facebook-privacy>)?
 - ...



- Tracking Protection is technically easy
 - Internet Explorer has build-in Tracking Protection
 - Tracking Protection is available via Browser Plug-Ins
 - Some browsers support the DoNotTrack flag
- However, Tracking Protection does not really work on mobile devices for web apps
 - Mobile browsers typically don't support plug-ins
 - Mobile apps are more relevant than browser apps
 - Mobile apps have trackers directly integrated



- Missing mental link for users between data protection and the availability and quality of free services
 - An individual blocking the tracking of his online behaviour does not experience any disadvantages with regard to free services
- Mental link does exist for data protection against other users of a Social Networking Site.
 - E.g. a user posts a picture, which was intended for a limited audience but was leaked due to sloppy privacy settings.



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- Privacy by Design advances the view that the future of privacy cannot be assured solely by compliance with regulatory frameworks; rather, privacy assurance must ideally become an organization's default mode of operation.

Ann Cavoukian,
Information & Privacy Commissioner Ontario, Canada

Privacy by (Re)design Principles

1. Proactive not Reactive; Preventative not Remedial
2. Privacy as the Default Setting
3. Privacy Embedded into Design
4. Full Functionality – Positive-Sum, not Zero-Sum
5. End-to-End Security – Full Lifecycle Protection
6. Visibility and Transparency – Keep it Open
7. Respect for User Privacy – Keep it User-Centric

Ann Cavoukian,
Information & Privacy Commissioner Ontario, Canada

- No incentives for online business to do Privacy by Design
 - Users are not demanding it
 - No competitive advantage for businesses
 - Regulatory does not directly demand it
- There is so far no real best practice/approach to develop online services based on Privacy by Design principles



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Potential Business Issues caused by Data Protection Means

- Issues of theoretically switching on Tracking Protection by Default
 - Online/mobile advertising business loses their data for targeting advertisements
 - Advertisers have to cope with incomplete, varying data which makes targeting more difficult
 - Increasing use of content-based targeting with lower targeting efficiency
 - ...
- Possible consequences
 - Lower number of ad-financed online/mobile services
 - Users have to pay Service Services have to be paid for
 - Lower service quality
 - ...
- When users realise these consequences, it may be too late ...



Fair Data-Service Exchange?

- Users are becoming more aware about existing privacy threats
 - Online Business relies on personal data
- Enabling a Fair data-service exchange under the control of the user?



- Transparency and understanding of personal data flows for users
- Assistance of identity management across all channels for users
- Incentives for users to protect/disclose their personal data
- Any further ideas?



- Avi Goldfarb, Catherine E. Tucker (2011) Online Advertising, Behavioral Targeting, and Privacy, Communication of the ACM (54:5), New York, USA.

