FIDIS

Future of Identity in the Information Society

Title:	"D11.4: Workshop on Mobility and Identity"
Author:	WP11
Editors:	Layla Nassary Zadeh (JWG) Denis Royer (JWG)
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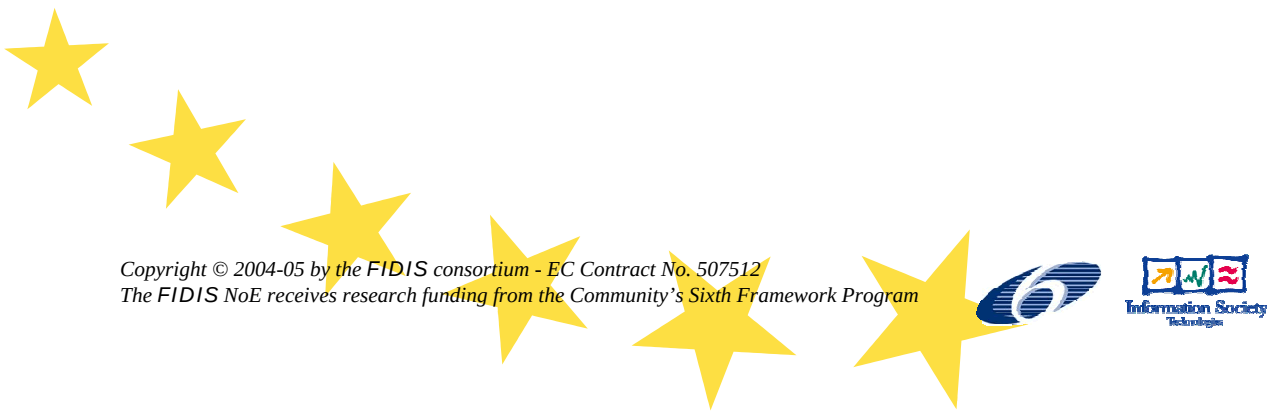
Summary

The workshop on Mobility and Identity was held on September 28th and 29th, 2005 in Frankfurt. This was the Kick-Off workshop for Workpackage 11: Mobility and Identity. The documentation (agenda and presentations) can be found at http://internal.fidis.net/d11_4_presentations.0.html.



The FIDIS NoE receives research funding from the Community's Sixth Framework Program

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Versions

Version	*Date*	*Description (Editor)*
0.1	27.10.2005	Initial release (Layla Nassary Zadeh, JWG)
0.2	11.11.2005	Added Slides and Abstracts
		Continuous editing of the document
1.0	15.11.2005	Final release

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1 Workshop on Mobility and Identity in Frankfurt

Mobile communication networks are becoming more and more important for our everyday life. Countless services, such as data services, are offered for our personal use, which aim to improve the quality of our lives by acknowledging our needs, requirements and preferences. The main focus of current mobile identification concepts is to provide simple, easy-to-handle identities in order to technically enable secure communication and to cover billing issues. For the more recent data services, advanced identity concepts are needed. Unlike the static identity already implemented in current mobile networks, dynamic aspects like the user's position or the temporal context increasingly gain importance for new kinds of mobile applications.

The objective of Workpackage 11: "Mobility and Identity", is the identification, the description, and the application of the concepts and elements in the fields of mobility and identity.

1.1 Objective of this Workshop

The first WP11 workshop had three objectives:

1. Kick-Off Meeting of Workpackage 11: Mobility and Identity
2. Presentations of the contributions by the Workpackage's contributors.
3. To organise, coordinate and exchange the work conducted in WP11; especially the content of D11.2 "Mobility and Location Based Services" and D11.3 "Economic Aspects of mobility and identity"

To provide an appropriate environment for the different objectives, the workshop was planned for one and a half days. Day 1 was foreseen for the objectives 1 and 2. The second day was planned for elaborating objective 3 with members from the FIDIS NoE (the participants list can be found in the Annex of this document).

1.2 Date and Location

Date: 28th and 29th of September 2005

Location:

Johann Wolfgang Goethe-University, Frankfurt
Main Building (IG Hochhaus), Room No. 2.731
Grüneburgplatz 1, D-65090 Frankfurt, Germany

1.3 Agenda, 1st Day

09h30-10h00 Introduction and Welcome:
Kai Rannenberg (JWG) and Denis Royer (JWG)

10h00-10h40 Introduction and overview of WP11:

"Where do we come from and where do we want to go?"

Sven Wohlgemuth (ALU-FR) and Denis Royer (JWG)

10h40-11h00 *Coffee break*

11h00-11h30 Presentation of VUB by Els Soenens:

"Mobile Identity and Location Based Services. A social science point of view"

Presentation of the concepts of Identity, Mobility, Mobile technologies and locational data from a social science point of view

11h30-12h00 Presentation of ICPP by Martin Meints:

"Mobile Working – Selected Socio-Economic Aspects"

12h00-12h30 Presentation of ALU-FR by Sven Wohlgemuth:

"The delegation of rights in IDM systems"

Contribution to WP 11 as a technical evaluation of credential-based identity management systems, e.g. Liberty Alliance and IBM idemix, towards their suitability for privacy in business scenarios if a delegation of a credential is needed.

12h30-14h00 *Lunch*

14h00-14h30 Presentation of ICCS by Vasiliki Andronikou:

"Camera-based Human Tracking and GRIDS"

The first part of the presentation focuses on camera-based human tracking a way of either assisting the provision of location-based services in areas where signals are of low strength or poor quality or adding intelligence to the system through semantics. Scenarios and areas of application of the above mentioned technology were presented. The second part includes a brief introduction to the GRID as a way to provide the location-based services and assist mobility in a more efficient way.

14h30-15h00 Presentation of KU by Christer Anderson & Leonardo Martucci:

"TBA"

The first part (Christer's part) discussed possible contributions to WP 11. The second part (Leonardo's) discussed a project conducted within WP 3.3 where requirements for anonymous overlay networks for enhancing the privacy of mobile ad hoc network users were formulated.

Besides this, also existing peer-to-peer based anonymous overlay networks were analyzed and it was shown that none of them are compliant with those requirements. Finally, the ongoing design of an anonymous overlay network intended for mobile ad hoc environments was outlined.

15h00-15h30 *Coffee break*

15h30-16h00 Presentation of KU Leuven (ICRI) by Eleni Kosta:

"Privacy issues in mobile communications"

16h00-16h15 Short Presentation of KUB by Denis Royer:

"Location Technologies and Surveillance - A Legal Perspective"

Short presentation about the use of location technologies and surveillance in the legal context

16h15-16h45 Presentation of JWG by Denis Royer:

"Economic aspects of mobile IDM"

Presentation gives an example for an evaluation approach for mobile IDM technologies

16h45-17h30 Discussion

1.4 Agenda, 2nd Day

09h30-10h00 WP11 and the upcoming 3rd Workplan

10h00-10h15 Short Presentation of Axsionics by Lorenz Müller

10h15-11h00 ***Part 1:*** Coordination and discussion about the upcoming deliverables of Workpackage 11 "Mobility and Identity"

- **D11.1: Taxonomy of "Mobility and Identity".**
  - *Delivery Date: Month 20 (30.11.2005)*
  - *Editor: Denis Royer (JWG)*
  - *Int. Reviewer: TBA*
- **D11.2: Mobility and Location Based Services (LBS).**
  - *Delivery Date: Month 28 (31.07.2006)*
  - *Editor: Layla Nassary Zadeh (JWG)*
  - *Int. Reviewer: TBA*

- **D11.3: Economic aspects of mobility and identity.**
  - *Delivery Date: Month 24 (31.03.2006)*
  - *Editor Denis Royer (JWG)*
  - *Int. Reviewer: TBA*

11h00-11h30 *Coffee break*

11h30-12h30 ***Part 2:*** Coordination and discussion about the upcoming deliverables of Workpackage 11 "Mobility and Identity"

- Division of Tasks
- Deadlines / Timeline
- Co-Editors for the deliverables
- Structure of the deliverables / TOCs

12h30-13h00 Discussion and conclusion of the workshop

2 Presentations

The presentations slides of this event can be found on the FIDIS communication infrastructure (FCI) at http://internal.fidis.net/d11_4_presentations.0.html.

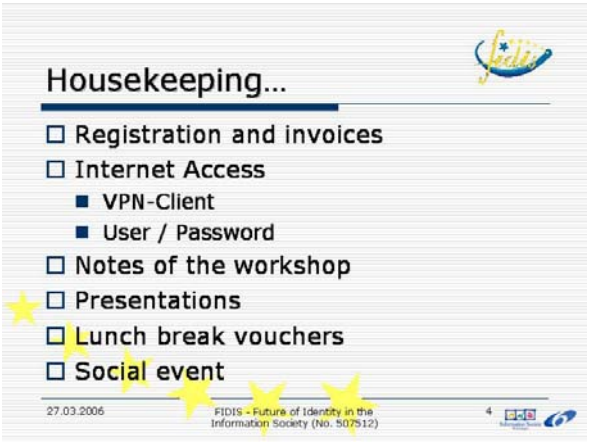
2.1 1st WP11 Workshop - Welcome and Introduction

Author(s):

- Denis Royer (JWG)

Abstract:

Introduction, agenda, and housekeeping issues.




Social Event
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Questions and Answers
Thank you for your attention!
Any questions?
denis.royer@m-lehrstuhl.de
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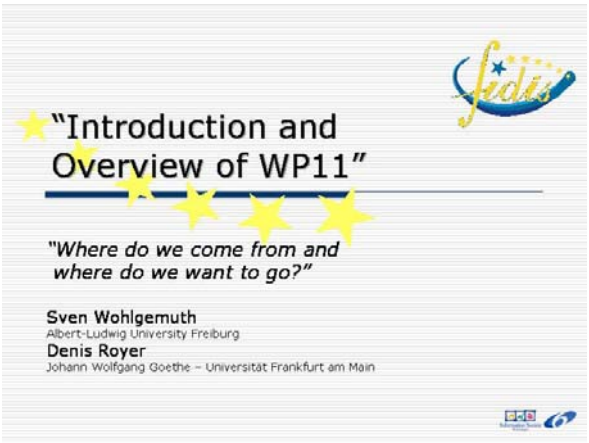
2.2 Introduction and Overview of WP1: Where do we come from and where do we want to go?

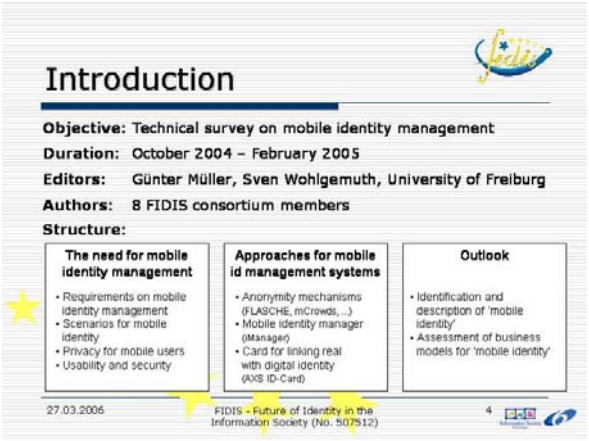
Author(s):

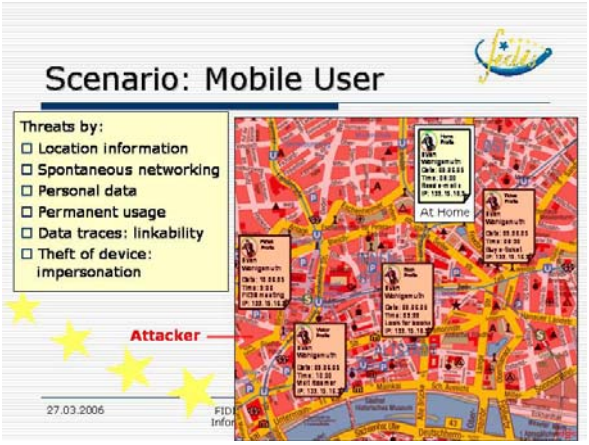
- Sven Wohlgemuth (ALU-FR) and
- Denis Royer (JWG)

Abstract:

This set of slides presents the FIDIS study on mobile identity management (D3.3) and its results, representing the initial starting point of Workpackage 11. The second part is dedicated to the upcoming deliverables and work of Workpackage 11.

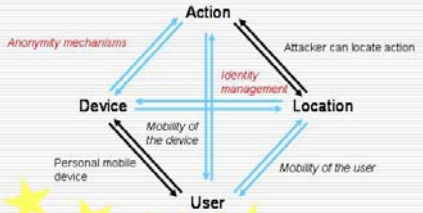






Attacker Model

Objective of an attacker: tracing mobile users
Attacker model considers mobility of device and user



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Privacy and Data Traces

Privacy: User can control disclosure of data which can be used to trace and identify him.

Example: Data traces while using WLAN

Application	Name, e-mail address, e-ticket, ...
Transport	TCP source ports: 132.15.16.3:25, ...
Network	IP address: 132.15.16.3, ...
Physical + data link	MAC address

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Approaches for MIMS

Application	iManager, Ch. 5.5	AXS ID-Card, Ch. 5.6
Transport	FLASCHE (Freiburg Location Adressing Scheme), Ch. 5.1	mCrowds, Ch. 5.2
Network		
Physical + data link		
	Comparison of anonymity mechanisms, Ch. 5.3	Incentive mechanism, Ch. 5.4

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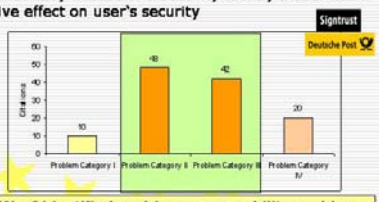
Usability and Security

- User has to configure several anonymity mechanisms
- Security is not a primary objective: 65% of non-experts want to be secure but do not want to learn security mechanisms
- Unintentionally misuse of a security tool by a user has a negative effect on user's security



75% of identified problems are usability problems with negative effect on user's security

27.03.20

Example: iManager

Current partial identity | Necessary personal attributes | Proposed partial identity

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Agenda

- ***„Where do we come from?"***
- ***"Where do we want to go?"***
  - Connection to deliverable D3.3
  - Objectives of WP11
  - Planned Deliverables

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Connection to D3.3

- D3.3: Initial technical survey on mobile IDM
- Key messages of D3.3
  - Protection of both identification characteristics: personal data and device characteristics
  - Usable interfaces for non-experts to prevent unintentionally misuse
  - Verifiable linkage between real and digital identity on user's device is important to prevent impersonation
  - Published identifying data must be protected against misuse by peers

Objectives of WP11

- Identify what makes an identity mobile based on the FIDIS identity concept
- State of the art of mobile identity management technologies
- Technologies beyond 2G/3G
- Location Based Services (LBS)
- Economic evaluation of mobile identity management

Objectives of WP11

- Build upon the work of other Workpackages
  - Taxonomy (WP2) → D2.1
  - High-Tech ID (WP3) → D3.3
  - De-Identification (WP5)
  - Profiling (WP7) → D7.2
  - ...
- Add to the Taxonomy of FIDIS
- Identify the fields related to "Mobile Identity"
  - Technical aspects
  - Socio-cultural aspects
  - Law perspective
  - ...

Planned Deliverables

- D11.1: Taxonomy of "Mobility and Identity".
  - ***Delivery Date:*** Month 20 (30.11.2005)
  - Overview document / claim paper of WP1
  - Common terminology
- D11.2: Mobility and Location Based Services (LBS).
  - ***Delivery Date:*** Month 28 (31.07.2006)
  - Focused on LBS and the related aspects
- D11.3: Economic aspects of mobility and identity.
  - ***Delivery Date:*** Month 24 (31.03.2006)
  - Economic evaluation of mobile identity management systems

Questions and Answers

Thank you for your attention!
Any questions?

wohlgemuth@iig.uni-freiburg.de
denis.royer@m-lehrstuhl.de

2.3 Mobile identity and Location Based Services

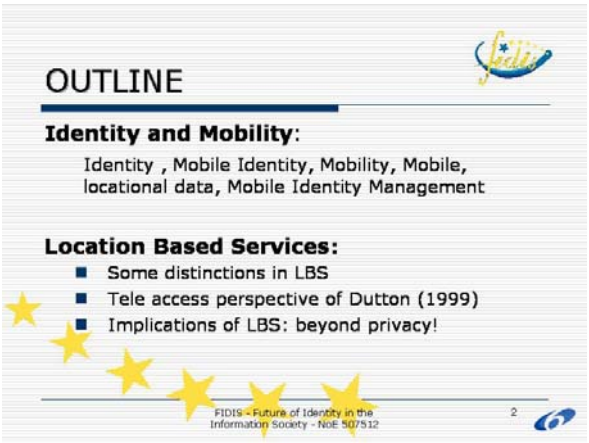
Author(s):

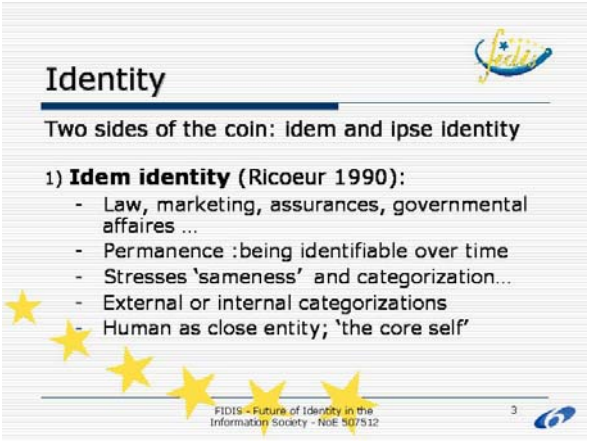
- Els Soenens (VUB)

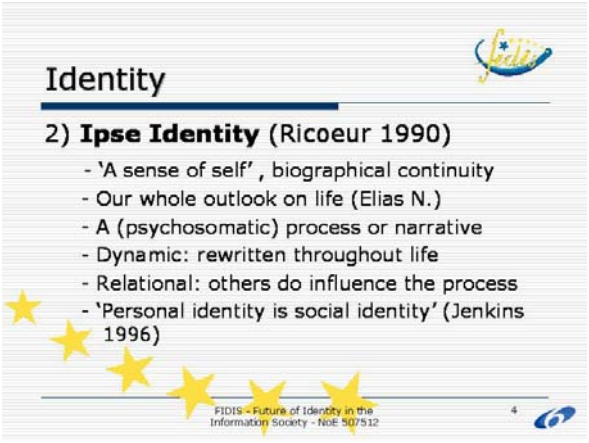
Abstract:

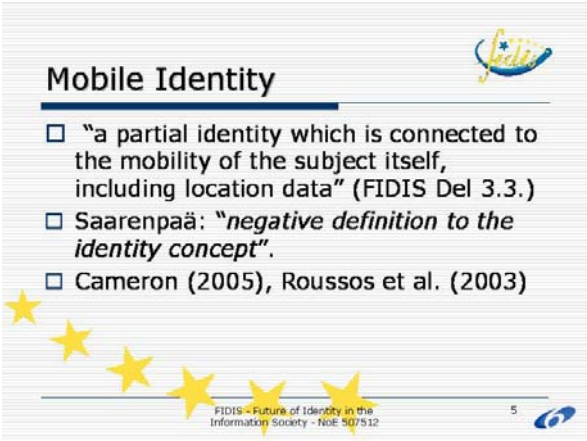
In my presentation on 'Mobile Identity and Location based services', I present the concepts of Identity, Mobility, Mobile technologies and locational data from a social science point of view. Following P. Ricoeur (1990), I believe that the concept of Identity must be understood both as idem (sameness) and ipse identity (sense of self). I stress that technocratic paradigms do influence the understanding of the concept Mobile Identity. In presenting an alternative conceptualization, I want to explicate the implications of the use of mobile devices and the use of locational data on people's identities in everyday life.

The emergence of Location Based Services Industry must be seen as the result of the interplay of various stakeholders. Location based services do have the ability to enhance your life. But at the same time, they have the ability to influence people's behaviour, their wishes, their interactions and positions. LBS create implications on peoples self - awareness and their autonomy. As such, LBS affect people beyond data protection and privacy protection. There is a tendency of governmental and commercial services to track people through locational information gathering but do we want to live in a 'geoslavery' (Dudson and Fisher 2003).








Mobile Identity
"a partial identity which is connected to the mobility of the subject itself, including location data" (FIDIS Del 3.3.)
Saarenpaä: "*negative definition to the identity concept*".
Cameron (2005), Roussos et al. (2003)
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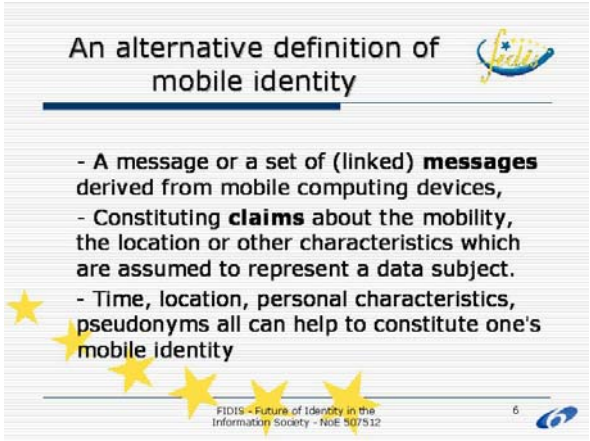
An alternative definition of mobile identity
- A message or a set of (linked) **messages** derived from mobile computing devices,
- Constituting **claims** about the mobility, the location or other characteristics which are assumed to represent a data subject.
- Time, location, personal characteristics, pseudonyms all can help to constitute one's mobile identity
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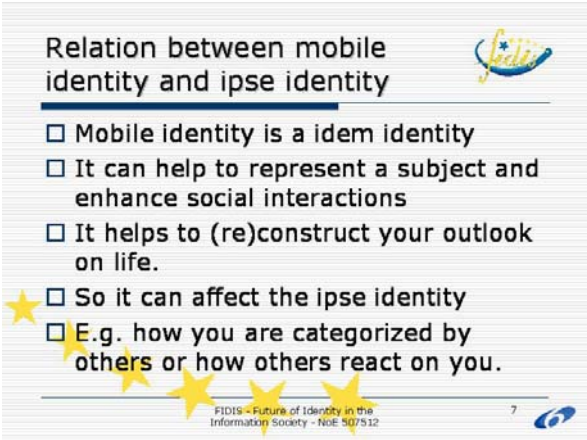
Relation between mobile identity and ipse identity
Mobile identity is a idem identity
It can help to represent a subject and enhance social interactions
It helps to (re)construct your outlook on life.
So it can affect the ipse identity
E.g. how you are categorized by others or how others react on you.
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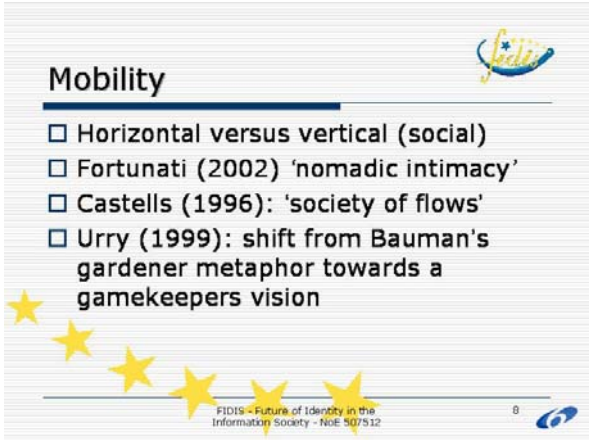
Mobility
Horizontal versus vertical (social)
Fortunati (2002) 'nomadic intimacy'
Castells (1996): 'society of flows'
Urry (1999): shift from Bauman's gardener metaphor towards a gamekeepers vision
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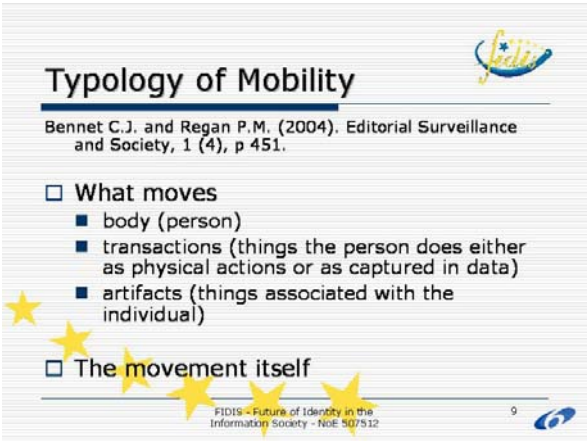
Typology of Mobility
Bennet C.J. and Regan P.M. (2004). Editorial Surveillance and Society, 1 (4), p 451.
What moves
body (person)
transactions (things the person does either as physical actions or as captured in data)
artifacts (things associated with the individual)
The movement itself
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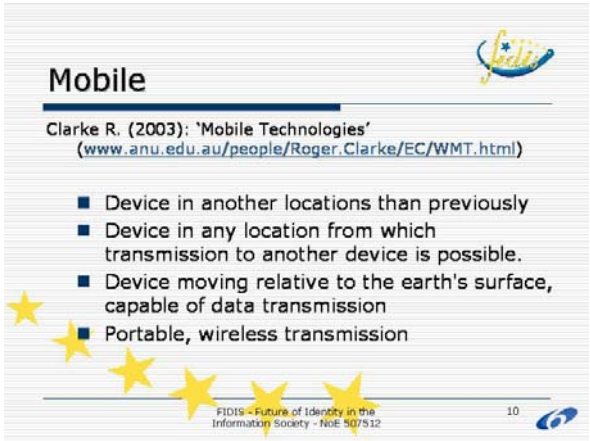
Mobile
Clarke R. (2003): 'Mobile Technologies' (www.anu.edu.au/people/Roger.Clarke/EC/WMT.html)
Device in another locations than previously
Device in any location from which transmission to another device is possible.
Device moving relative to the earth's surface, capable of data transmission
Portable, wireless transmission
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Mobile

Clarke R. (2003): 'Mobile Technologies' (www.anu.edu.au/people/Roger.Clarke/EC/WMT.html)

- Device in another locations than previously
- Device in any location from which transmission to another device is possible.
- Device moving relative to the earth's surface, capable of data transmission
- Portable, wireless transmission

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Mobile identity management

(1) **The mobile management of identities**, by which we stress the management to be mobile,
- mobile technologies in managing (digital) identities from perspective of end user.
- stressing mobile technologies in managing (digital) identities from perspective of third parties

(2) **The management of mobile identities**, in which we stress rather the fact that the identities are mobile identities,
- Mobile identities are managed by end user.
- Mobile identities are managed by third parties

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Location Based services

(Persson and Fagerberg (2002) on GeoNotes)

- Information vs communication services
- Location tracking vs location aware
- Anonymous usage possible?
- Pull or push access
- User as recipient or creator of information
- Location preset or defined by users

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Tele access perspective (Dutton 1999)

Outcome of an ecology of social choices:

- Economic resources or constraints (1),
- Chosen (ICT) paradigms (2),
- Conception of the users (3),
- Geography of space and place (4)
- Institutional arrangement and public policy (5)

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Implications on Privacy

- Privacy? Beyond data protection!
- Positive and negative freedom is necessary for identity building (Hildebrandt).
- Privacy of information, but also of interpretation and attention (Bevering and van Manen)
- Privacy is not absolute but should be able to protect human dignity and autonomy

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Implications on Identity

- Categories are not groups (Clarke 2001).
- 'Fully documentated life' (Sui 2004)
- Monitoring life versus self awareness and autonomy of the individual.
- 'Phenetic fix' (Lyon 2002).
- Digital divide: Jupp (2001) versus Graham and Wood (2003)
- People receive "knowledge about themselves they had no access to…it will impact their sense of Self!" (Hudson 2005)

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Which society do we want?
- 'What do LBS to us, instead of for us?' (Sui 2004)
- 'Nomades in a Global Village' (Sui 2004)
- 'Surveillance society' (Lyon, Marx G.T., Bennet)
- 'Omniperception' (Lyon 2002)
- 'Prisoners of geography' (Sui 2004)
- 'Geoslavery' (Dobson and Fisher 2003)
- 'Electronic panopticum' (Sui 2004)
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Questions?
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2.4 Mobile Working – Selected Socio-Economic Aspects

Author(s):

- Dr. Martin Meints (ICPP)

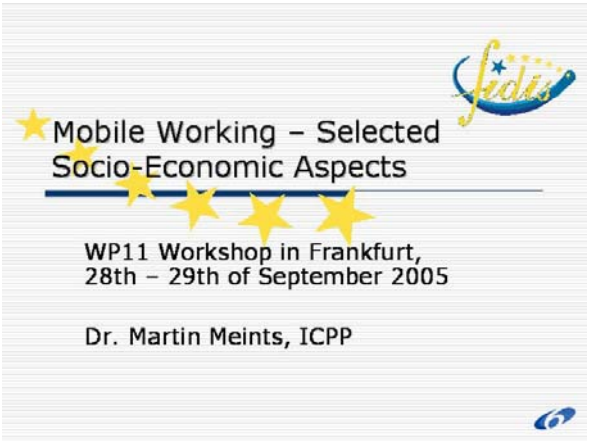
Abstract:

In this presentation, the changes of identity caused by mobile work in combination with mobile communication were highlighted. Organisational requirements that have to be met by enterprises introducing mobile work were analysed using the model of partial identities. Five of these requirements showed the potential to cause changes in identity:

- Flexible working hours
- IT security
- Autonomy and flexibility in mobile work
- Communication and contacts in various communicational contexts and
- Privacy and data protection

When mobile work in combination with mobile communication and flexible working hours is introduced, the kind of changes and the invasiveness of changes in the employee's identity can show a big variety. In general two effects can be observed:

- Borders between communicational contexts can change; identifiers used in private communicational contexts can shift into work-related communicational contexts as well.
- This change of borders can cause a change in control of the identifiers. In some cases the control of policies dictating how to use the identifiers (and thus how to communicate) may shift to the employer.



Mobile working

- Mobile working is not new:
  - Mobile traders
  - Transportation
  - Explorer / Conquistadores
  - Mercenaries
  - Craftsmen such as stonemasons
  - ...

Current developments

- Mobile communication has become very important
- Transportation and travelling is increasing (globalisation of markets)
- Mobile devices such as notebooks and PDAs enable these developments

Current developments (cont.)

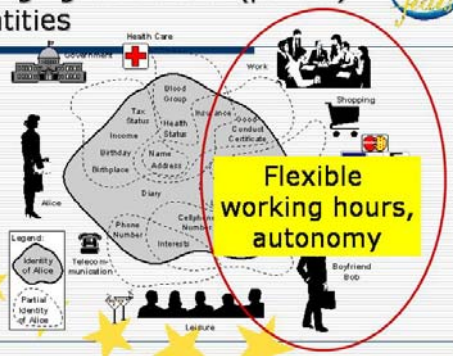
- Examples of today's mobile working:
  - Trucker (documentation, tracking and tracing)
  - Craftsmen
  - Salesmen
  - Police, fire brigades
  - Collaborators in ICT projects
  - ...

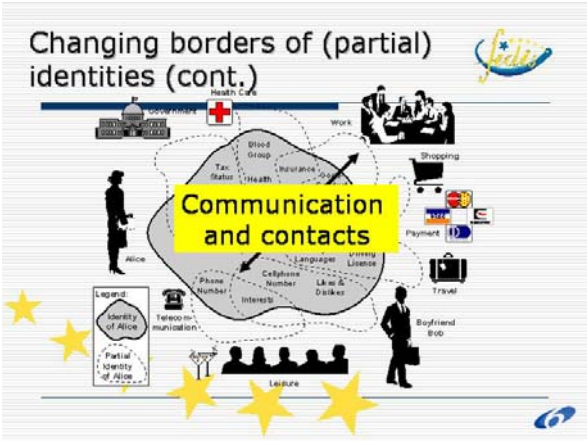
Organisational requirements

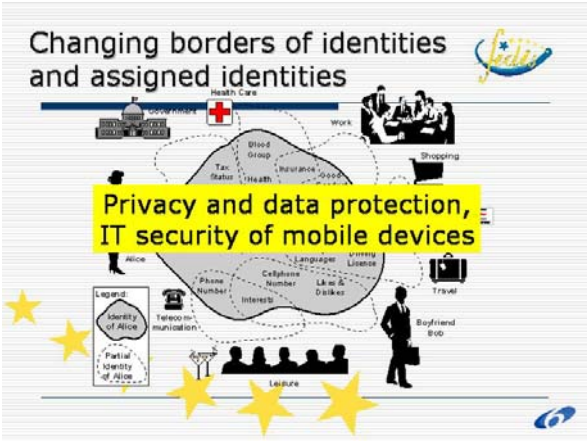
- **(Flexible) Working hours**
- Accomplishments and control
- Health and ergonomics
- **(IT) Security**
- **Autonomy and flexibility**
- Qualification
- **Communication and contacts**
- **Privacy and data protection**
- Use of equipment by mobile workers
  - E.g.: desk sharing, private equipment etc.
- Liabilities and insurances

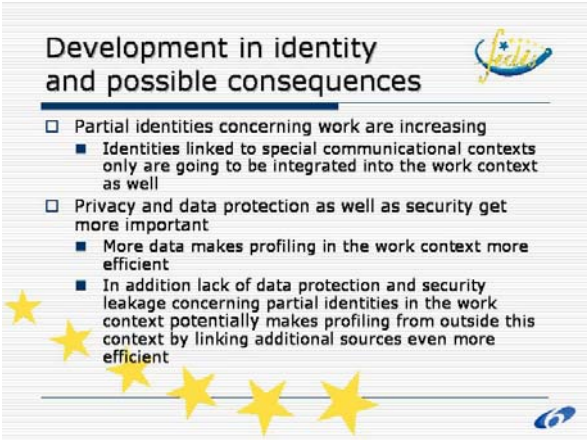
Flexible working hours

Changing borders of (partial) identities




Changing borders of (partial) identities (cont.)
Communication and contacts
Alice
Bob
Boyfriend
Work
Shopping
Payment
Travel
Leisure
Health Care
Government
Legend:


Changing borders of identities and assigned identities
Privacy and data protection, IT security of mobile devices
Alice
Bob
Boyfriend
Work
Shopping
Payment
Travel
Leisure
Health Care
Government
Legend:


Development in identity and possible consequences
Partial identities concerning work are increasing
Identities linked to special communicational contexts only are going to be integrated into the work context as well
Privacy and data protection as well as security get more important
More data makes profiling in the work context more efficient
In addition lack of data protection and security leakage concerning partial identities in the work context potentially makes profiling from outside this context by linking additional sources even more efficient


Thank you for your attention!
?
Dr. Martin Meints, ICPP

2.5 Delegation of Rights in Identity Management Systems

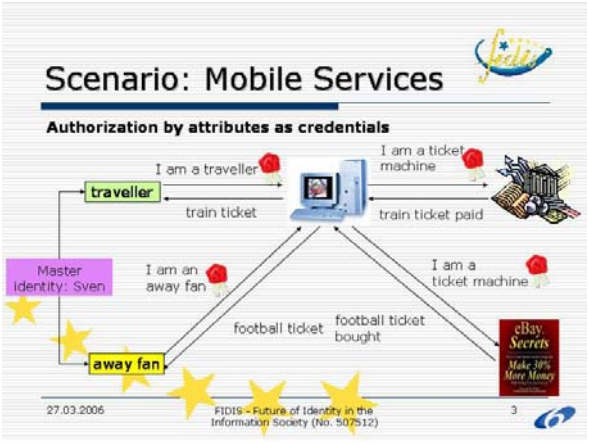
Author(s):

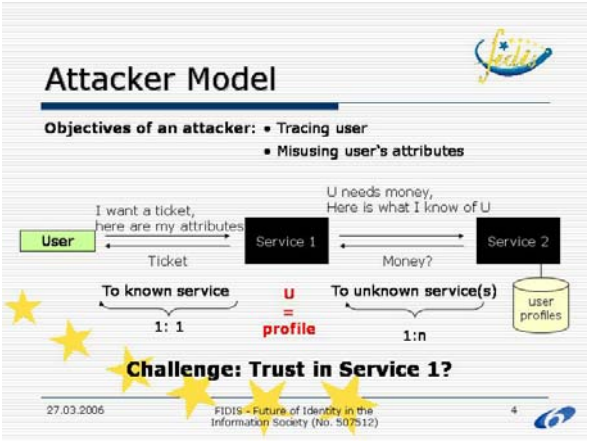
- Sven Wohlgemuth (ALU-FR)

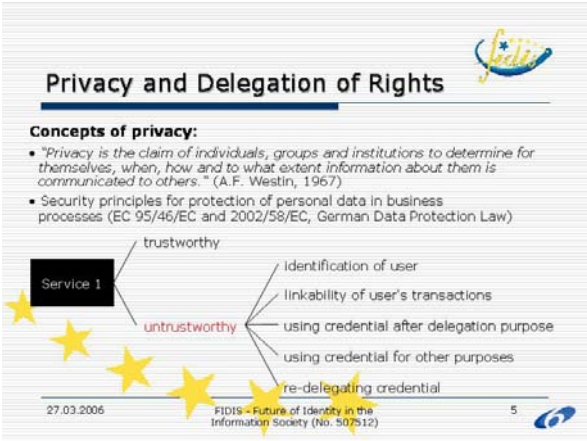
Abstract:

My contribution to WP11 will be a technical evaluation of credential-based identity management systems, e.g. Liberty Alliance and IBM idemix, towards their suitability for privacy in business scenarios if a delegation of a credential is needed.

The starting point for the evaluation criteria is the FIDIS' study on mobile identity management (D 3.3). These criteria relating to privacy are to be extended in order to be used for the evaluation of credential based identity management systems in given scenarios. As a result, I expect conclusions for the suitability of these identity management systems in these scenarios. The systems will be classified and additional requirements for mobile identity management systems will be derived from the identified shortcomings.






Privacy and Delegation of Rights
Concepts of privacy:
"Privacy is the claim of individuals, groups and institutions to determine for themselves, when, how and to what extent information about them is communicated to others." (A.F. Westin, 1967)
Security principles for protection of personal data in business processes (EC 95/46/EC and 2002/58/EC, German Data Protection Law)
Service 1
trustworthy
untrustworthy
identification of user
linkability of user's transactions
using credential after delegation purpose
using credential for other purposes
re-delegating credential
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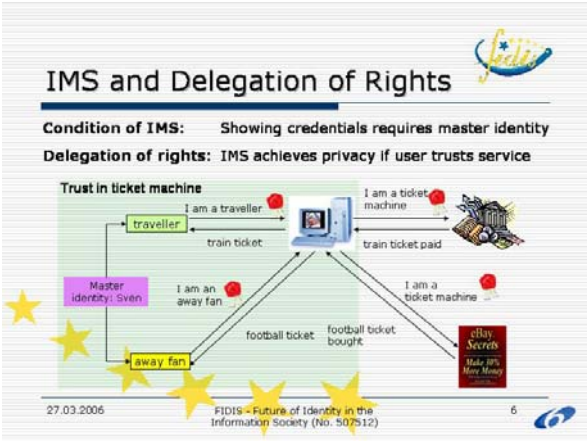
IMS and Delegation of Rights
Condition of IMS: Showing credentials requires master identity
Delegation of rights: IMS achieves privacy if user trusts service
Trust in ticket machine
traveller
I am a traveller
train ticket
I am a ticket machine
train ticket paid
Master identity: Sven
I am an away fan
away fan
football ticket
football ticket bought
I am a ticket machine
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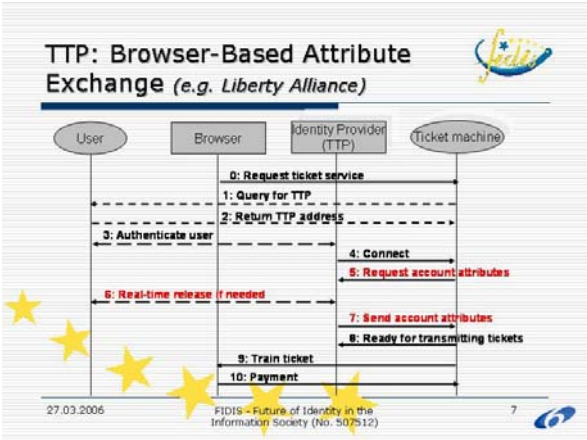
TTP: Browser-Based Attribute Exchange (e.g. Liberty Alliance)
User
Browser
Identity Provider (TTP)
Ticket machine
0: Request ticket service
1: Query for TTP
2: Return TTP address
3: Authenticate user
4: Connect
5: Request account attributes
6: Real-time release if needed
7: Send account attributes
8: Ready for transmitting tickets
9: Train ticket
10: Payment
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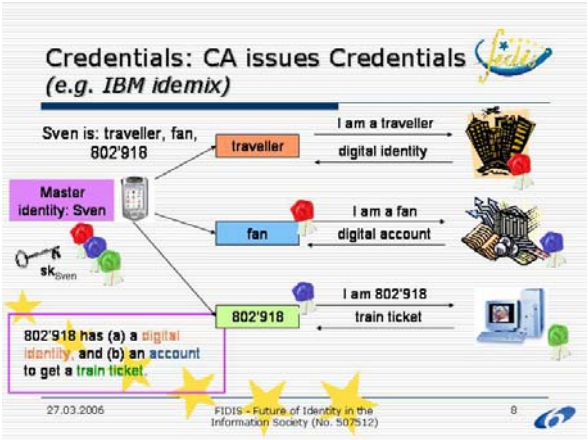
Credentials: CA issues Credentials (e.g. IBM idemix)
Sven is: traveller, fan, 802'918
traveller
I am a traveller
digital identity
Master identity: Sven
fan
I am a fan
digital account
802'918
I am 802'918
train ticket
802'918 has (a) a digital identity, and (b) an account to get a train ticket.
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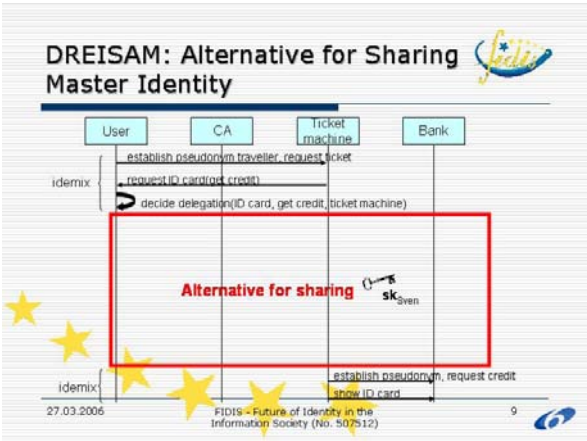
DREISAM: Alternative for Sharing Master Identity
User
CA
Ticket machine
Bank
idemix
establish pseudonym traveller, request ticket
request ID card(get credit)
decide delegation(ID card, get credit, ticket machine)
Alternative for sharing
establish pseudonym, request credit
show ID card
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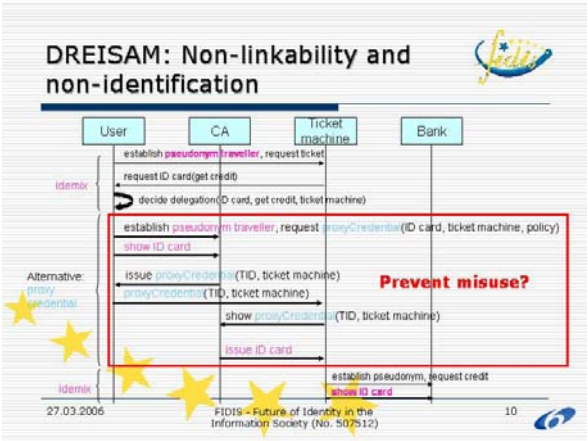
DREISAM: Non-linkability and non-identification
User
CA
Ticket machine
Bank
idemix
establish pseudonym traveller, request ticket
request ID card(get credit)
decide delegation(ID card, get credit, ticket machine)
establish pseudonym traveller, request proxyCredential(ID card, ticket machine, policy)
show ID card
Alternative: proxy credential
issue proxyCredential(TID, ticket machine)
proxyCredential(TID, ticket machine)
show proxyCredential(TID, ticket machine)
issue ID card
Prevent misuse?
establish pseudonym, request credit
show ID card
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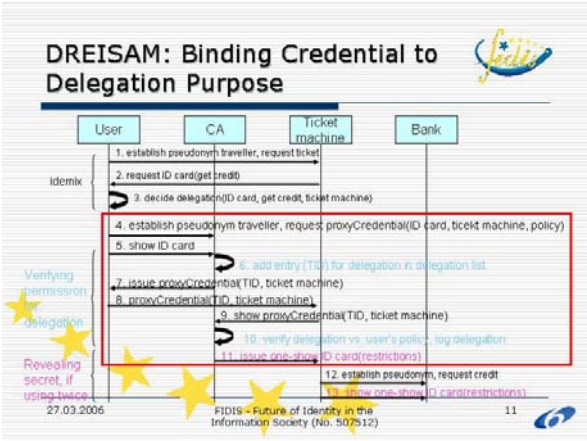
DREISAM: Binding Credential to Delegation Purpose
User
CA
Ticket machine
Bank
idemix
1. establish pseudonym traveller, request ticket
2. request ID card(get credit)
3. decide delegation(ID card, get credit, ticket machine)
4. establish pseudonym traveller, request proxyCredential(ID card, ticekt machine, policy)
5. show ID card
6. add entry (TID) for delegation in delegation list
7. issue proxyCredential(TID, ticket machine)
8. proxyCredential(TID, ticket machine)
9. show proxyCredential(TID, ticket machine)
10. verify delegation vs. user's policy, log delegation
11. issue one-show ID card(restrictions)
12. establish pseudonym, request credit
13. show one-show ID card(restrictions)
Verifying permission for delegation
Revealing secret, if using twice
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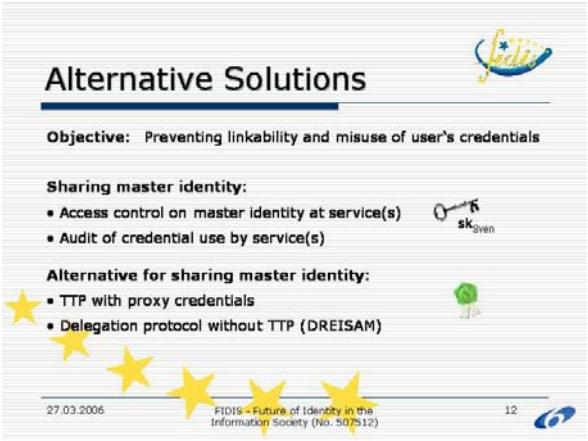
Alternative Solutions
Objective: Preventing linkability and misuse of user's credentials
Sharing master identity:
• Access control on master identity at service(s)
• Audit of credential use by service(s)
sk Sven
Alternative for sharing master identity:
• TTP with proxy credentials
• Delegation protocol without TTP (DREISAM)
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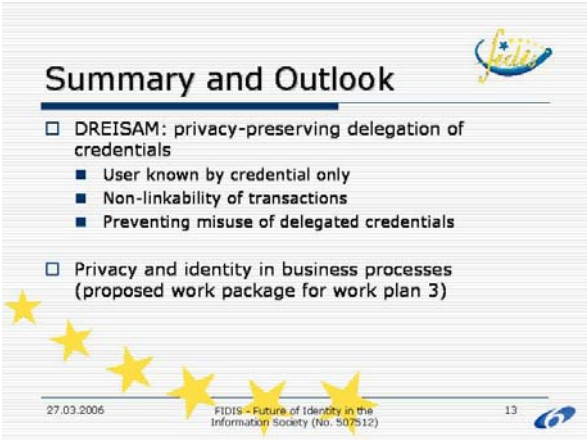
Summary and Outlook
DREISAM: privacy-preserving delegation of credentials
User known by credential only
Non-linkability of transactions
Preventing misuse of delegated credentials
Privacy and identity in business processes (proposed work package for work plan 3)
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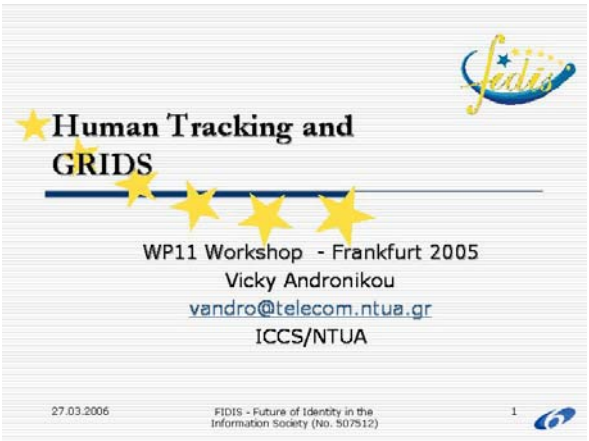
2.6 Human Tracking and GRIDS

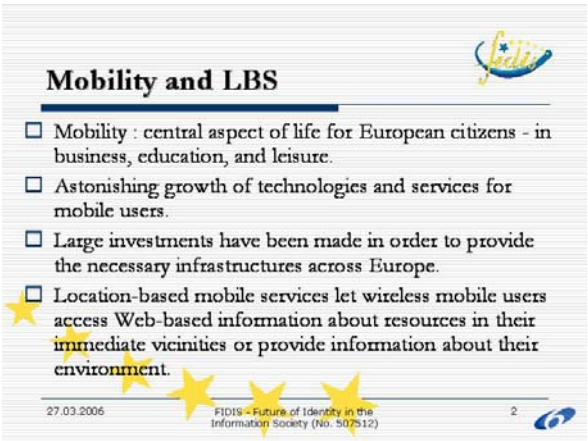
Author(s):

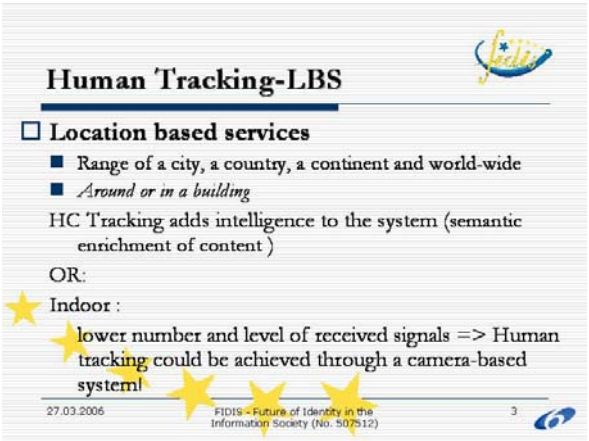
- Vicky Andronikou (ICCS)

Abstract:

This presentation consisted of two parts. The first part focused on camera-based human tracking, a way of either assisting the provision of location-based services in areas where signals are of low strength or poor quality or adding intelligence to the system through semantics. Scenarios and areas of application of the aforementioned technology were presented. The second part included a brief introduction to the GRID as a way to provide the location-based services and assist mobility in a more efficient way.







Human Tracking Process

- Human tracking process:
  - consider initial colour information acquired during detection and localization process (simple or stereoscopic)
  - implemented with the aid of a trained classifier for clustering all colour information of the tracked object against the information of the other objects

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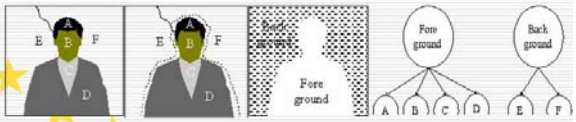
Media Content Representation

- 2 steps for content representation:
  - the spatiotemporal content representation to describe the relationships of different acquired media content in space and time



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Semantic Media Content Representation

- *Semantic Media Content Representation* :
  - description and relation of the extracted human objects in the scenery (high-level concepts of the environment) – e.g. an individual before a painting
  - detailed metadata about the detected and tracked content
  - high level movement descriptions of the visitors (e.g. left-right, front-back, no movement, etc.)
  - semantic links of the human content in the environment
  - improves management, manipulation and access of the content information
  - Enhancement of LBS

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Semantic Representation

Semantic Representation associates image regions to physical objects
E.g.,
Woman and Child together watching painting "sunflowers" and moving towards the painting with speed approximately 0.5m/sec

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Human Tracking

- **Examples of application:**
  - alerts to employees for receipt of e-mails or for attendance in meetings, but only if they are not busy (conference room, boss's office)
  - parents' watching their children's movements around the house or children watching the elderly
  - provision of the greatest offers in the commercial center's sector the person is located based on their profile and their current activity!

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Human Tracking

- **Entertainment**

Locations in the venue where the visitor can directly interact with the video
In front of large screens with mirror images saying "Hello John!" etc

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Polymnia
Polymnia is a 30 months research and development project co-funded by the European Commission under the Sixth Framework Program.
Start Date: 1st October 2004
End Date : 31st March 2007
9 partners
www.polymnia-eu.org
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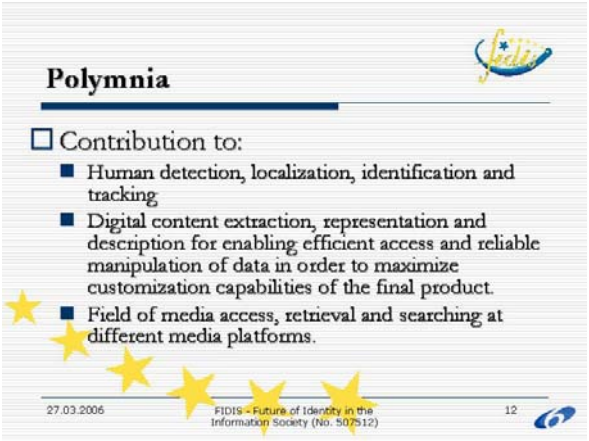
Polymnia
Contribution to:
Human detection, localization, identification and tracking
Digital content extraction, representation and description for enabling efficient access and reliable manipulation of data in order to maximize customization capabilities of the final product.
Field of media access, retrieval and searching at different media platforms.
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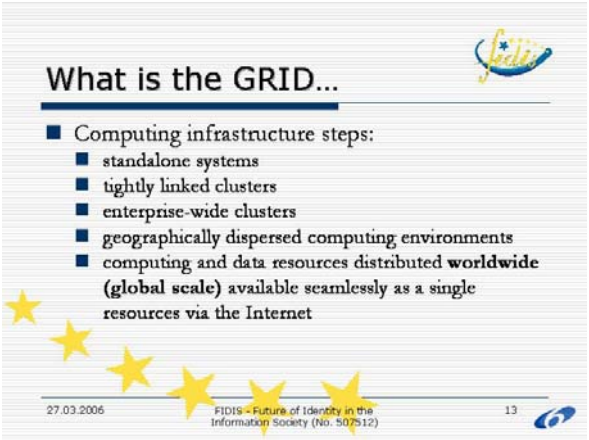
What is the GRID...
Computing infrastructure steps:
standalone systems
tightly linked clusters
enterprise-wide clusters
geographically dispersed computing environments
computing and data resources distributed worldwide (global scale) available seamlessly as a single resources via the Internet
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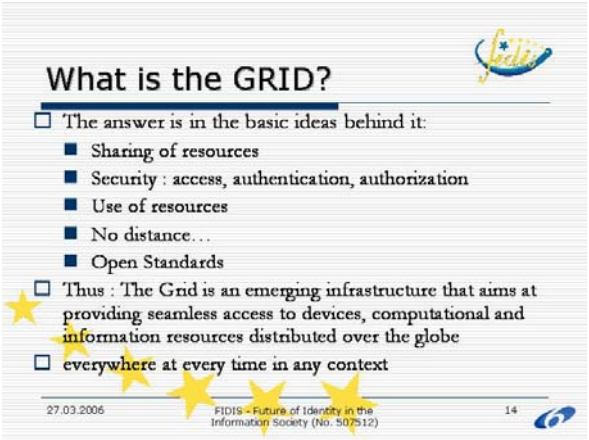
What is the GRID?
The answer is in the basic ideas behind it:
Sharing of resources
Security : access, authentication, authorization
Use of resources
No distance…
Open Standards
Thus : The Grid is an emerging infrastructure that aims at providing seamless access to devices, computational and information resources distributed over the globe
everywhere at every time in any context
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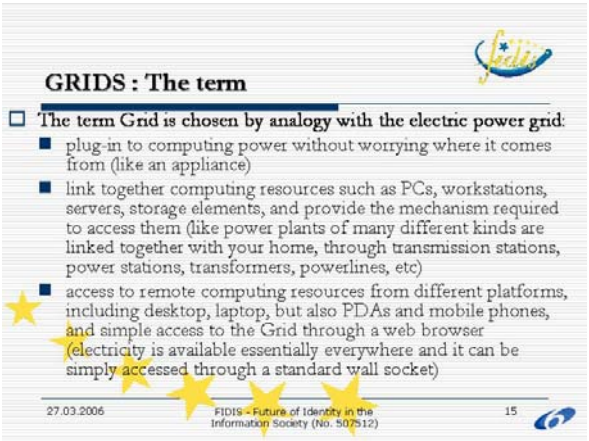
GRIDS : The term
The term Grid is chosen by analogy with the electric power grid:
plug-in to computing power without worrying where it comes from (like an appliance)
link together computing resources such as PCs, workstations, servers, storage elements, and provide the mechanism required to access them (like power plants of many different kinds are linked together with your home, through transmission stations, power stations, transformers, powerlines, etc)
access to remote computing resources from different platforms, including desktop, laptop, but also PDAs and mobile phones, and simple access to the Grid through a web browser (electricity is available essentially everywhere and it can be simply accessed through a standard wall socket)
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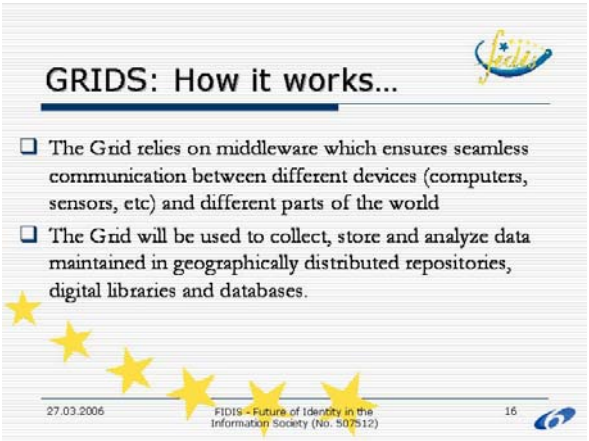
GRIDS: How it works...
The Grid relies on middleware which ensures seamless communication between different devices (computers, sensors, etc) and different parts of the world
The Grid will be used to collect, store and analyze data maintained in geographically distributed repositories, digital libraries and databases.
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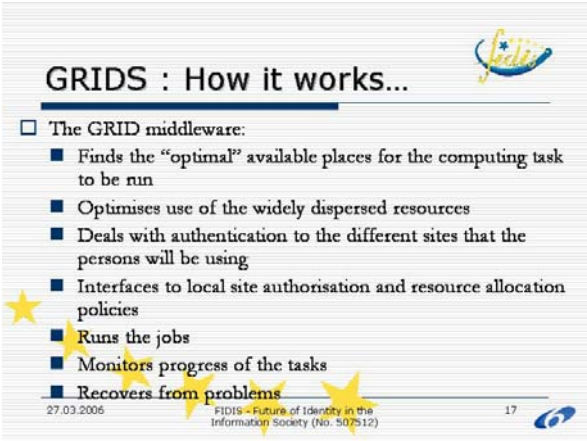
GRIDS : How it works...
The GRID middleware:
Finds the "optimal" available places for the computing task to be run
Optimises use of the widely dispersed resources
Deals with authentication to the different sites that the persons will be using
Interfaces to local site authorisation and resource allocation policies
Runs the jobs
Monitors progress of the tasks
Recovers from problems
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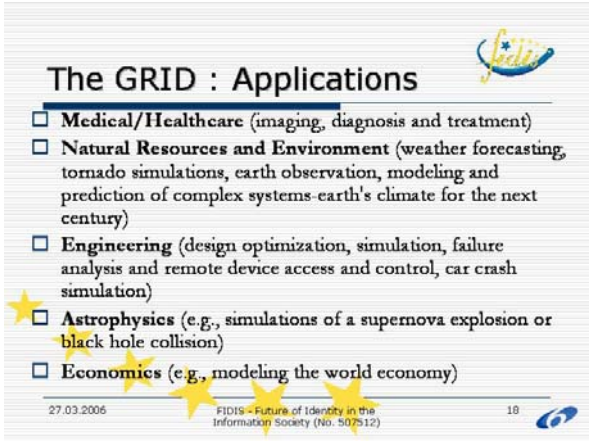
The GRID : Applications
Medical/Healthcare (imaging, diagnosis and treatment)
Natural Resources and Environment (weather forecasting, tornado simulations, earth observation, modeling and prediction of complex systems-earth's climate for the next century)
Engineering (design optimization, simulation, failure analysis and remote device access and control, car crash simulation)
Astrophysics (e.g., simulations of a supernova explosion or black hole collision)
Economics (e.g., modeling the world economy)
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GRIDS Challenges
The GRID faces the challenges of:
sharing data between a great number of users with multiple varying interests
ensuring all data are accessible anywhere, anytime
overcoming present architectural and design limitations
linking major computer centres
coping with different management policies of different centres
growing rapidly, yet remain reliable for several years
ensuring data security: not just money at stake!
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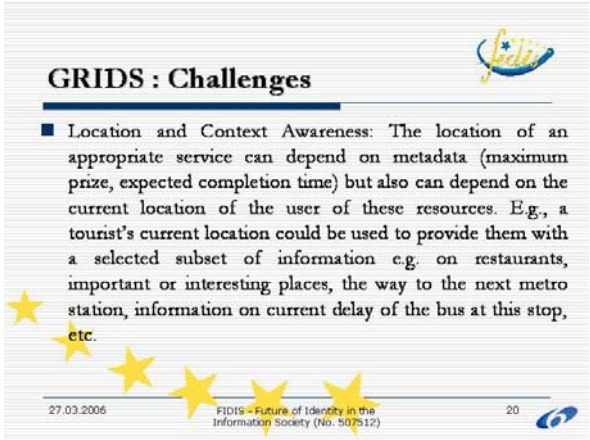
GRIDS : Challenges
Location and Context Awareness: The location of an appropriate service can depend on metadata (maximum prize, expected completion time) but also can depend on the current location of the user of these resources. E.g., a tourist's current location could be used to provide them with a selected subset of information e.g. on restaurants, important or interesting places, the way to the next metro station, information on current delay of the bus at this stop, etc.
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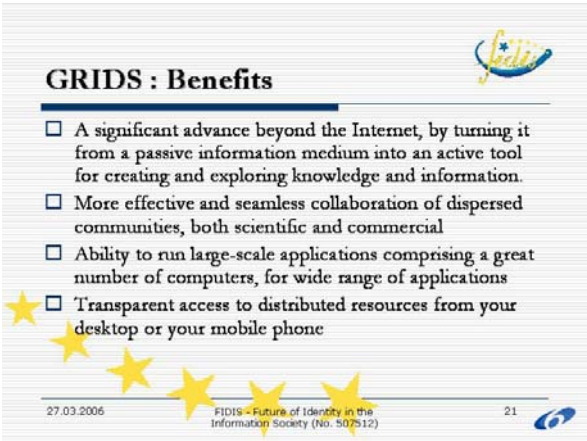
GRIDS : Benefits
A significant advance beyond the Internet, by turning it from a passive information medium into an active tool for creating and exploring knowledge and information.
More effective and seamless collaboration of dispersed communities, both scientific and commercial
Ability to run large-scale applications comprising a great number of computers, for wide range of applications
Transparent access to distributed resources from your desktop or your mobile phone
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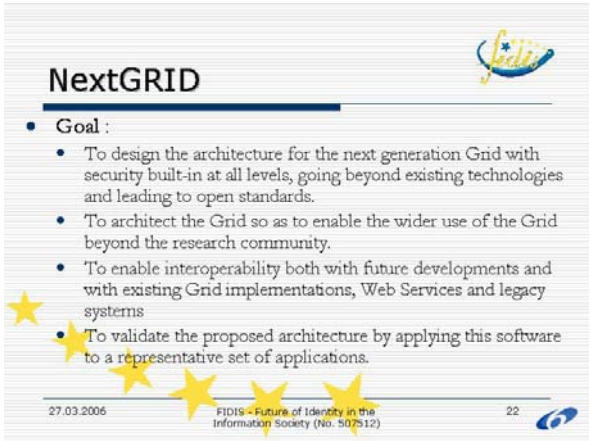
NextGRID
Goal :
To design the architecture for the next generation Grid with security built-in at all levels, going beyond existing technologies and leading to open standards.
To architect the Grid so as to enable the wider use of the Grid beyond the research community.
To enable interoperability both with future developments and with existing Grid implementations, Web Services and legacy systems
To validate the proposed architecture by applying this software to a representative set of applications.
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Akogrimo
Akogrimo addresses issues unresolved so far concerning 'mobile and pervasive services in the Internet world' by looking at the Grid and Internet with an integrative architectural view.
Among others it aims at :
expanding the potential of the Grid adding context awareness, integrated security, spontaneous usability (as easy as using a mobile phone in a foreign country).
getting the return on investment for the 3G infrastructure - in order to make 3G a safe investment, new, world-wide scalable commercial Grid services: new business activities and provision of profitable services in such an integrated world based on Grid and Mobile communications concepts.
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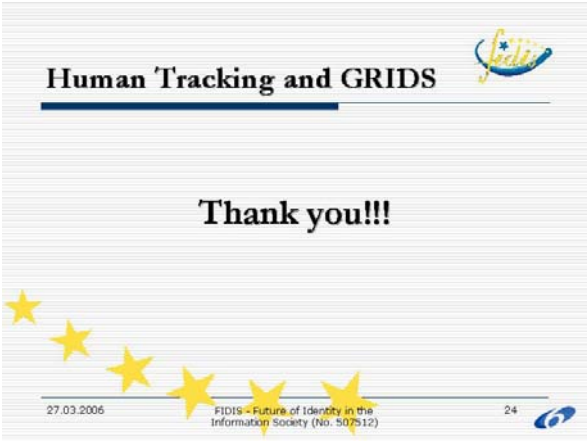
Human Tracking and GRIDS
Thank you!!!
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2.7 Requirements for Privacy-Enhancements in Mobile Ad Hoc Networks / Techniques Behind Anonymity

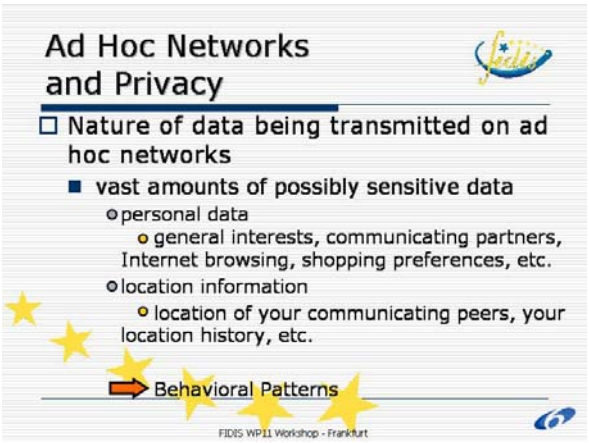
Author(s):

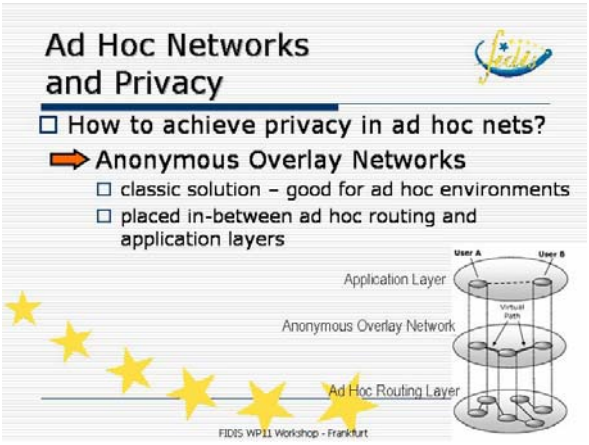
- Christer Andersson (KU),
- Leonardo A. Martucci (KU), and
- Simone Fischer-Hübner (KU)

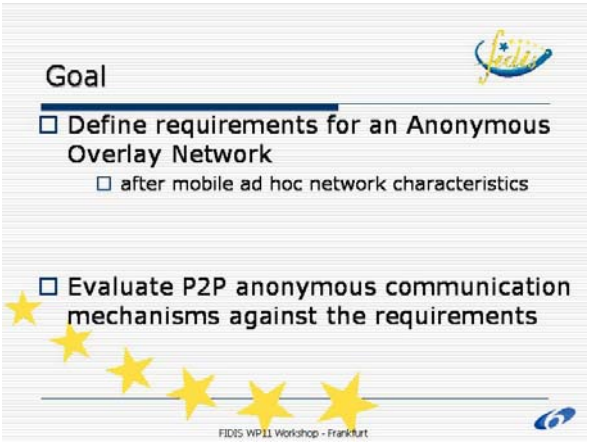
Abstract:

The presentation contained two parts. The first part (Christer's part) discussed possible contributions to WP 11. The second part (Leonardo's) discussed a project conducted within WP 3.3 were we formulated requirements for anonymous overlay networks for enhancing the privacy of mobile *ad hoc* network users. Besides this, we also analysed existing peer-to-peer based anonymous overlay networks and showed that none of them are compliant with those requirements. Finally, we outlined the ongoing design of an anonymous overlay network intended for mobile *ad hoc* environments.

2.7.1 Presentation 1







Ad Hoc Networks Characteristics

- Heterogeneous mobile devices
  - battery-driven devices with heterogeneous computing power
- On-the-fly establishment of data links
  - no aid of central entitities
  - dynamic topologies
- Devices define network services
  - including routing and packet forwarding
- Devices are responsible for their security

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Overlay Network Requirements

- Six requirements were defined:
  - R1 – scalable solution
  - R2 – strong anonymity properties
  - R3 – fair distribution of workload
  - R4 – performance-wise lightweight solution
  - R5 – adherence to P2P model
  - R6 – expected performance in dynamic topologies, especially regarding tunnel repairing

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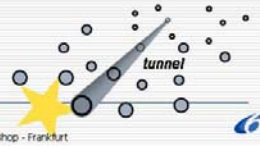
Anonymous Overlay Networks

- Well-known P2P anonymous overlay networks were evaluated:
  - Crowds – users are gathered in crowds of users and messages are forwarded among them.
  - Hordes – Crowds-like, but with a multicast return channel.
  - Morphmix – collusion detection mechanism in the tunnel setting.



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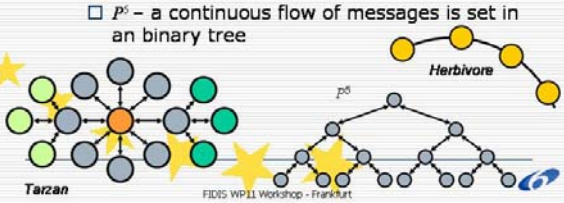
Anonymous Overlay Networks

- Tarzan – messages are hidden in a continuous traffic flow; it also implements a collusion prevention mechanism
- Herbivore – nodes are divided in small anonymous clusters
- P^5 – a continuous flow of messages is set in an binary tree



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Evaluation of Anonymous Overlay Networks

- R1 - Scalability
  No clear evidence against the scalability of those mechanisms
- R2 - Strong anonymity properties
  Crowds, Hordes and Morphmix are not robust against strong adversaries. Tarzan mechanism is not suitable to ad hoc networks
- R3 - Fair distribution of workload
  Morphmix and P^5 have unbalanced workload distribution

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Evaluation of Anonymous Overlay Networks

- R4 - Performance-wise lightweight solution
  Tarzan and P^5 rely on cover traffic; Morphmix demands a lot of messages to set the paths and Herbivore presents high latency.
- R5 - adherence to P2P model
  Crowds, Hordes, Herbivore and P^5 depend on central devices and/or a central point of decision
- R6 - Performance in dynamic topologies
  Morphmix and Herbivore are not efficient in dynamic networks, as no tunnel repair is done.

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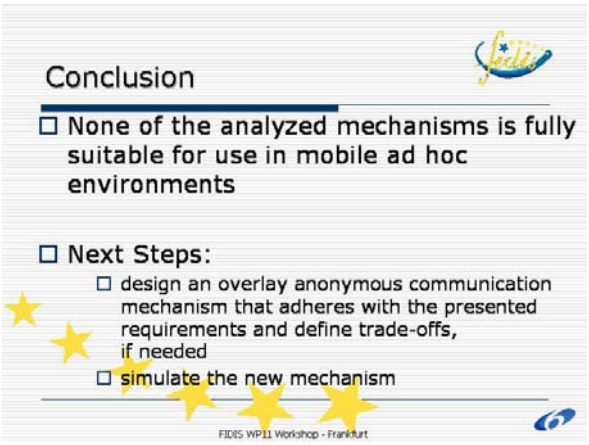
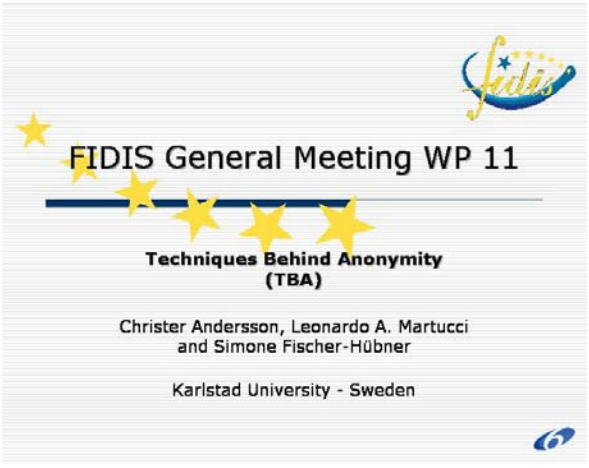
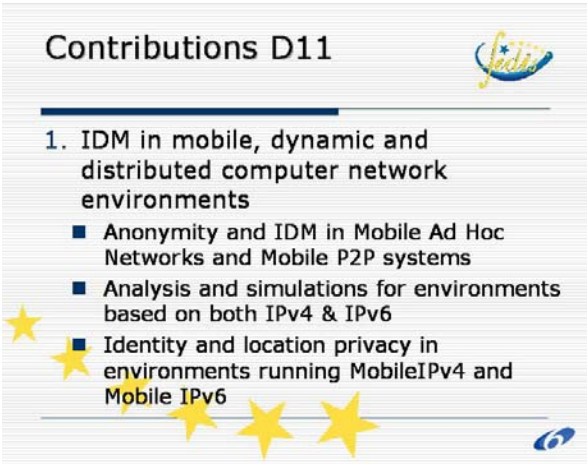
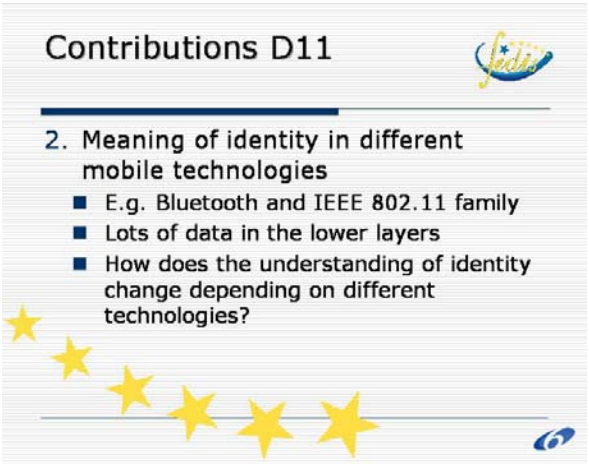
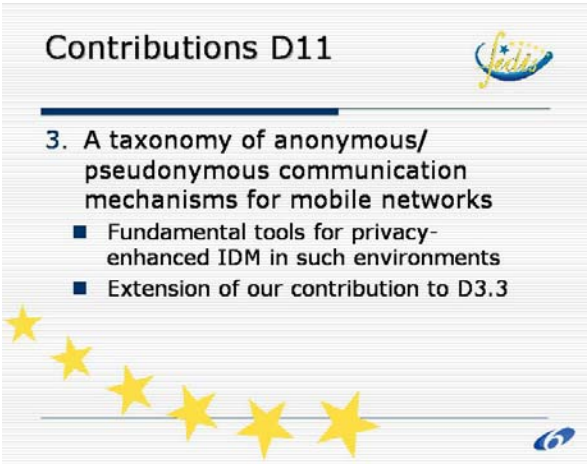


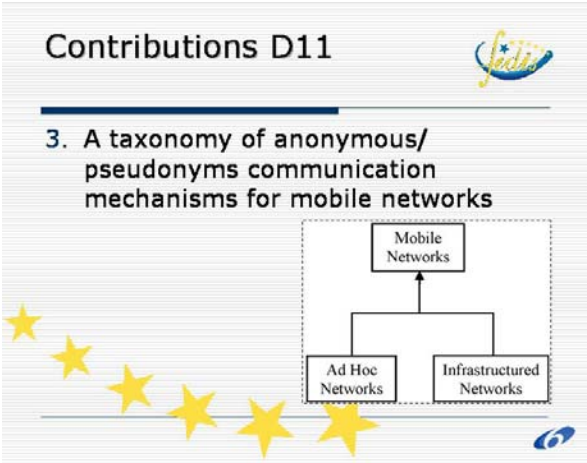
2.7.2 Presentation 2:










Contributions D11
3. A taxonomy of anonymous/ pseudonyms communication mechanisms for mobile networks
Mobile Networks
Ad Hoc Networks
Infrastructured Networks

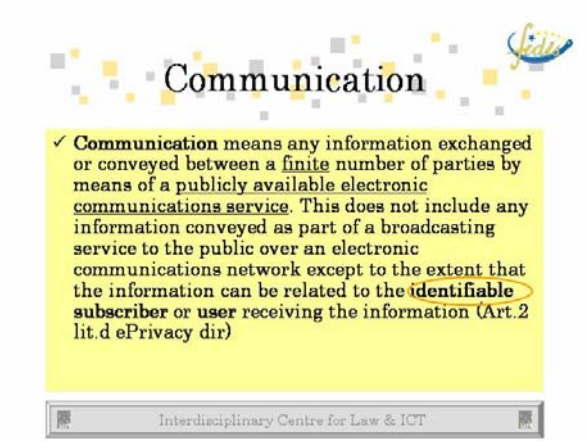
2.8 Mobility & Identity - Privacy issues in mobile communications

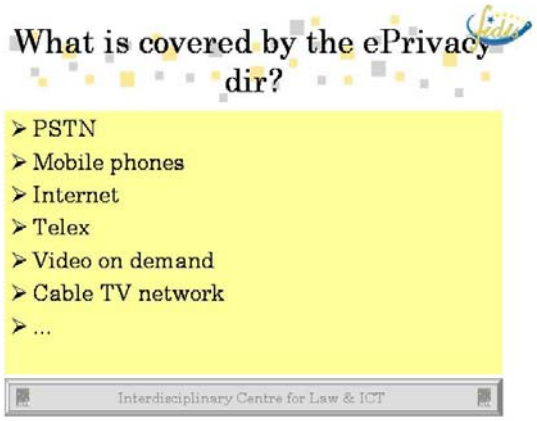
Author(s):

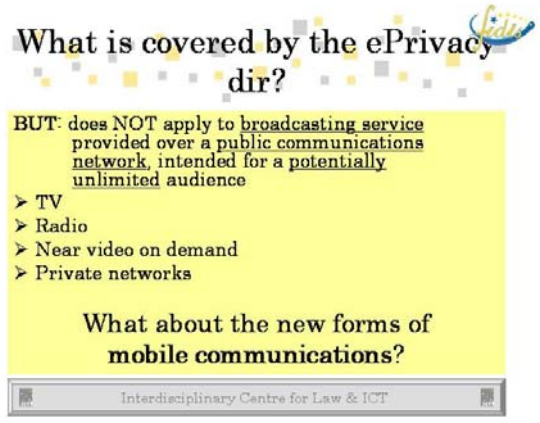
- Eleni Kosta (KU Leuven – ICRI)

Abstract:

The current legal framework is mainly based on two European directives, the data protection directive (1995/46/EC) and the ePrivacy directive (2002/58/EC); ICRI shall apply the existing framework to mobile communications. For D11.2 we will apply the current legislation on LBS in use cases and we will also try to spot the issues that the current legislation does not cover. Many questions arise with regard to 'consent' (who shall give it and who shall be the recipient, how and when shall it be given and how can it be withdrawn), to data retention, to the protection of minors etc. Our main goal is, apart from providing an overview of the existing legal framework related to the mobile communications, to contribute practically to the resolving of the scenarios that will be chosen.






What is covered by the ePrivacy dir?
BUT: does NOT apply to broadcasting service provided over a public communications network, intended for a potentially unlimited audience
TV
Radio
Near video on demand
Private networks
What about the new forms of mobile communications?
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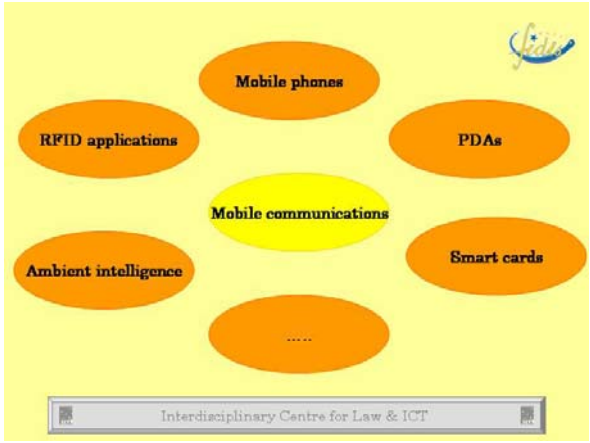
Mobile phones
RFID applications
PDAs
Mobile communications
Smart cards
Ambient intelligence
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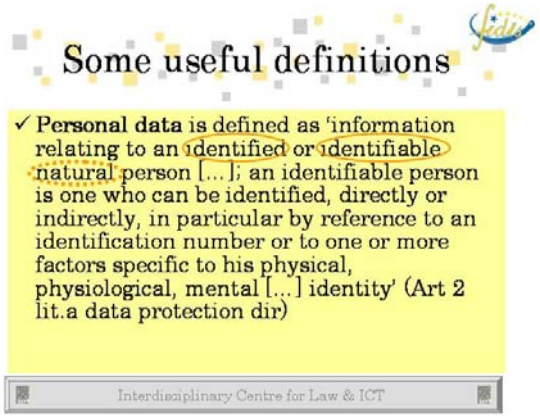
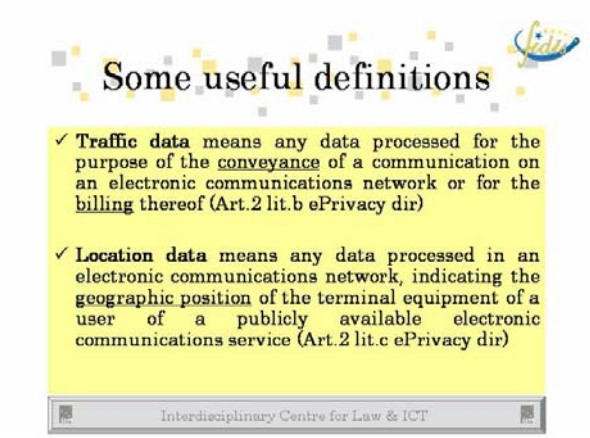

Some useful definitions
Personal data is defined as 'information relating to an identified or identifiable natural person [...]; an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental [...] identity' (Art 2 lit.a data protection dir)
Interdisciplinary Centre for Law & ICT


Some useful definitions
Traffic data means any data processed for the purpose of the conveyance of a communication on an electronic communications network or for the billing thereof (Art.2 lit.b ePrivacy dir)
Location data means any data processed in an electronic communications network, indicating the geographic position of the terminal equipment of a user of a publicly available electronic communications service (Art.2 lit.c ePrivacy dir)
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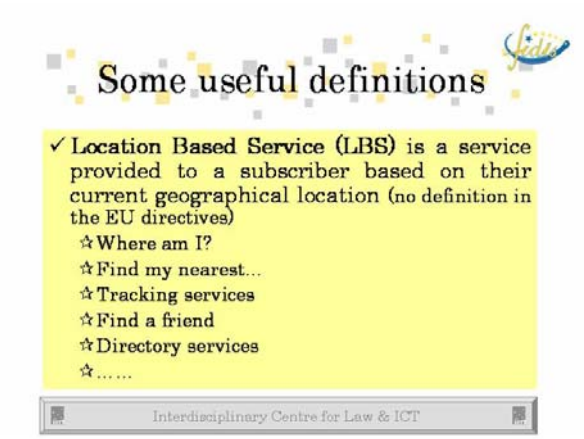
Some useful definitions
Location Based Service (LBS) is a service provided to a subscriber based on their current geographical location (no definition in the EU directives)
Where am I?
Find my nearest...
Tracking services
Find a friend
Directory services
.....
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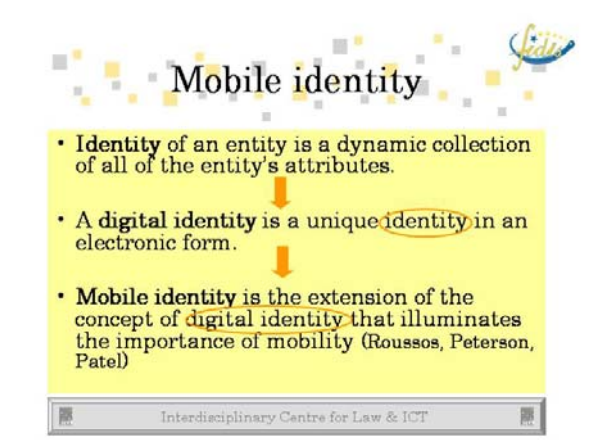
Mobile identity
Identity of an entity is a dynamic collection of all of the entity's attributes.
A digital identity is a unique identity in an electronic form.
Mobile identity is the extension of the concept of digital identity that illuminates the importance of mobility (Roussos, Peterson, Patel)
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Mobility
(Roussos, Peterson, Patel)

- **From device to device**
  Mobile identity can be used to certify the authority of a particular individual to gain access to information and resources while using different mobile devices
- **From location to location**
  An individual moves between different locations but still requires access to systems and information according to their role and credentials
- **From context to context**
  A person receives services based on different societal roles

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Bear in mind!

- Mobile devices have fixed identifiers
- Mobile identity takes onto account location data of mobile users in addition to their personal data.
- Mobile Identity Management is for example the pre-configuration of several profiles

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Anonymity

Rec. 9 ePrivacy Dir.

'The Member States, providers and users concerned [...] should cooperate in introducing and developing the relevant technologies where this is necessary to apply the guarantees provided for by [the ePrivacy] Directive and taking particular account of the objectives of minimising the processing of personal data and of using anonymous or pseudonymous data where possible.'

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Anonymity

Why is anonymity important?

- ✓It enables identity management.
- ✓It is seen as a mechanism for security, assuring especially confidentiality.

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Controller of data

- ✓ **Controller** shall mean the natural or legal person, public authority, agency or any other body which alone or jointly with others determines the purposes and means of the processing of personal data (Art.2 lit.d Data Protection Dir.)

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Controller

The data must be adequate, relevant and not excessive in relation to the purposes for which they are processed (Rec.28 Data Protection Dir)

- ❖Obligations of the data controller
- ✓ Proportionality principle

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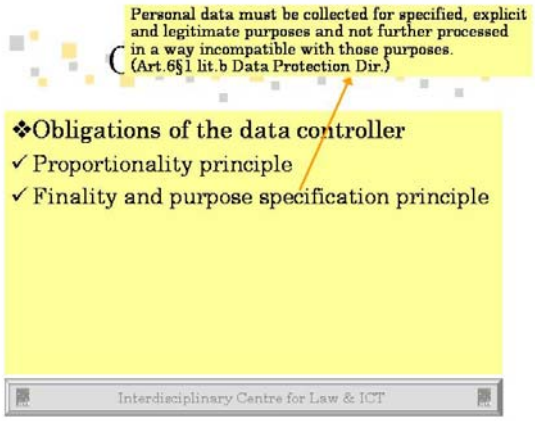
Personal data must be collected for specified, explicit and legitimate purposes and not further processed in a way incompatible with those purposes. (Art.6§1 lit.b Data Protection Dir.)
❖Obligations of the data controller
✓ Proportionality principle
✓ Finality and purpose specification principle
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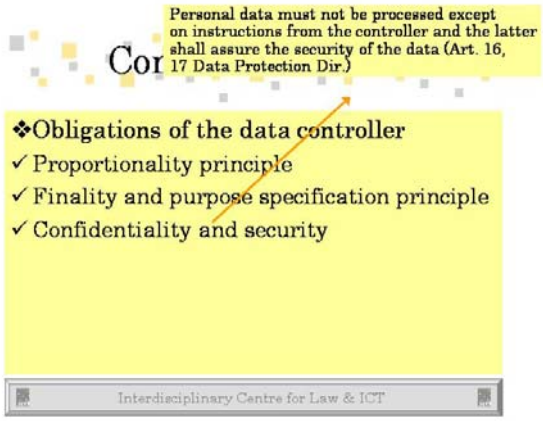
Personal data must not be processed except on instructions from the controller and the latter shall assure the security of the data (Art. 16, 17 Data Protection Dir.)
❖Obligations of the data controller
✓ Proportionality principle
✓ Finality and purpose specification principle
✓ Confidentiality and security
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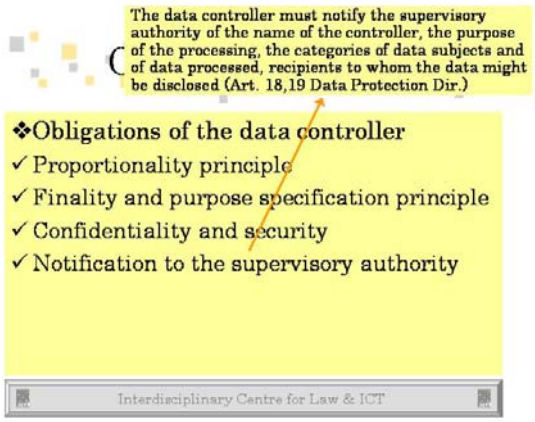
The data controller must notify the supervisory authority of the name of the controller, the purpose of the processing, the categories of data subjects and of data processed, recipients to whom the data might be disclosed (Art. 18,19 Data Protection Dir.)
❖Obligations of the data controller
✓ Proportionality principle
✓ Finality and purpose specification principle
✓ Confidentiality and security
✓ Notification to the supervisory authority
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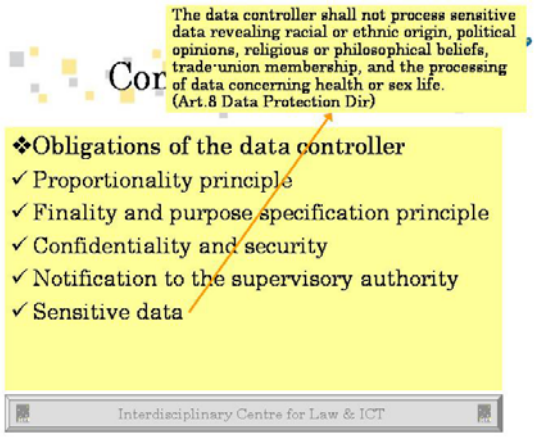
The data controller shall not process sensitive data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, trade-union membership, and the processing of data concerning health or sex life. (Art.8 Data Protection Dir)
❖Obligations of the data controller
✓ Proportionality principle
✓ Finality and purpose specification principle
✓ Confidentiality and security
✓ Notification to the supervisory authority
✓ Sensitive data
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Controller of data
Who is the controller of data in mobile communications?
✓ 'Where a message containing personal data is transmitted by means of a **telecommunications** or **electronic mail service**, the sole purpose of which is the transmission of such messages, the controller in respect of the personal data contained in the message will normally be considered to be the person from whom the message originates, rather than the person offering the transmission services [...]'. (Rec. 47 Data Protection Dir)
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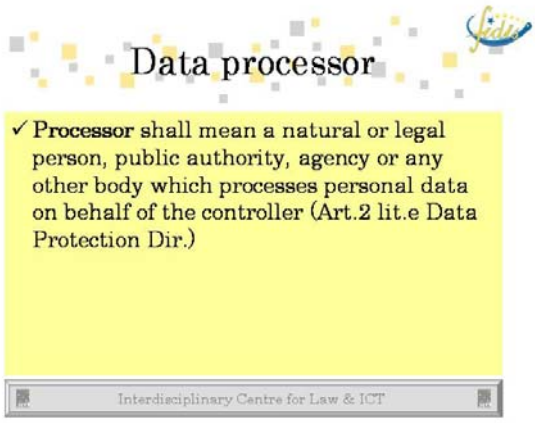
Data processor
✓ **Processor** shall mean a natural or legal person, public authority, agency or any other body which processes personal data on behalf of the controller (Art.2 lit.e Data Protection Dir.)
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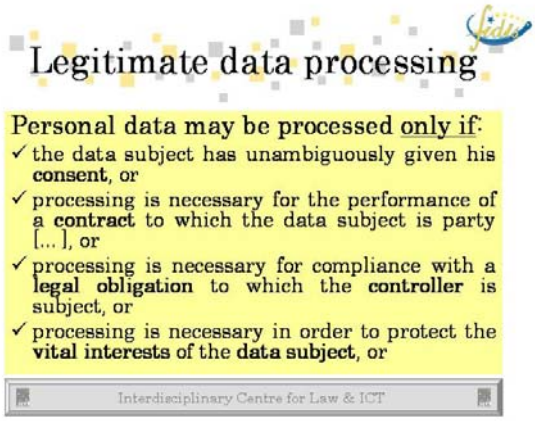
Legitimate data processing
Personal data may be processed only if:
✓ the data subject has unambiguously given his consent, or
✓ processing is necessary for the performance of a contract to which the data subject is party [...], or
✓ processing is necessary for compliance with a legal obligation to which the controller is subject, or
✓ processing is necessary in order to protect the vital interests of the data subject, or
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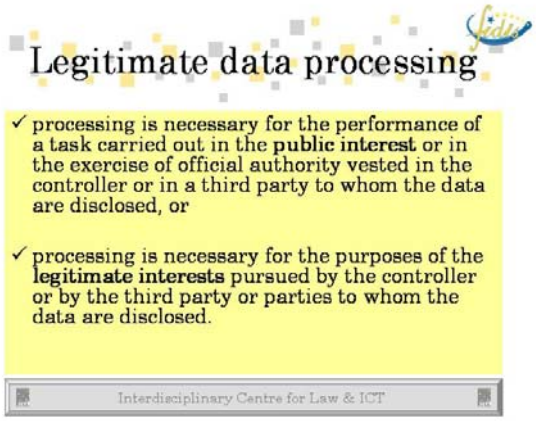
Legitimate data processing
✓ processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller or in a third party to whom the data are disclosed, or
✓ processing is necessary for the purposes of the legitimate interests pursued by the controller or by the third party or parties to whom the data are disclosed.
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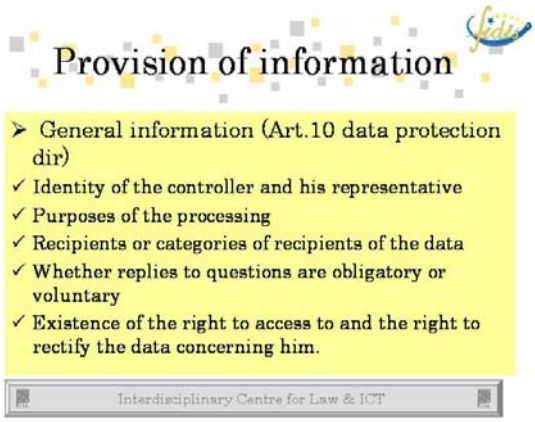
Provision of information
➢ General information (Art.10 data protection dir)
✓ Identity of the controller and his representative
✓ Purposes of the processing
✓ Recipients or categories of recipients of the data
✓ Whether replies to questions are obligatory or voluntary
✓ Existence of the right to access to and the right to rectify the data concerning him.
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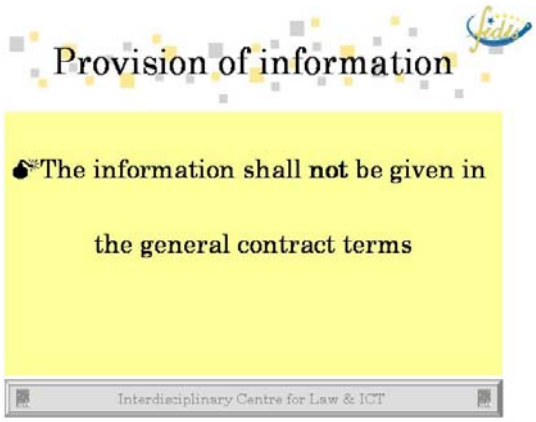
Provision of information
The information shall not be given in the general contract terms
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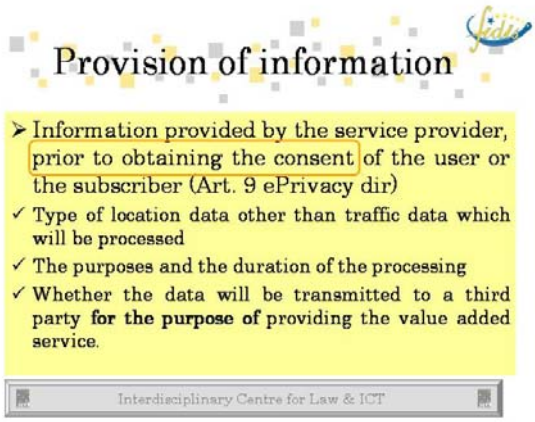
Provision of information
➢ Information provided by the service provider, prior to obtaining the consent of the user or the subscriber (Art. 9 ePrivacy dir)
✓ Type of location data other than traffic data which will be processed
✓ The purposes and the duration of the processing
✓ Whether the data will be transmitted to a third party for the purpose of providing the value added service.
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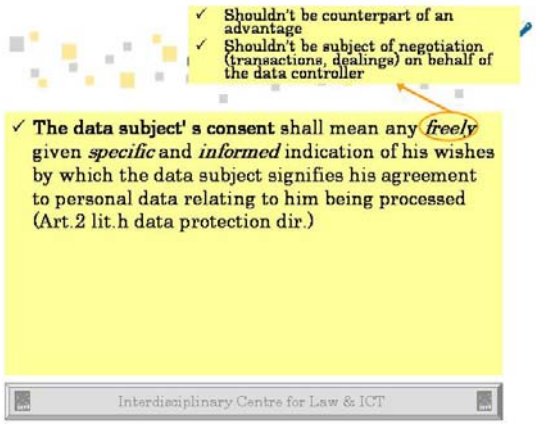
✓ Shouldn't be counterpart of an advantage
✓ Shouldn't be subject of negotiation (transactions, dealings) on behalf of the data controller
✓ The data subject' s consent shall mean any freely given specific and informed indication of his wishes by which the data subject signifies his agreement to personal data relating to him being processed (Art.2 lit.h data protection dir.)
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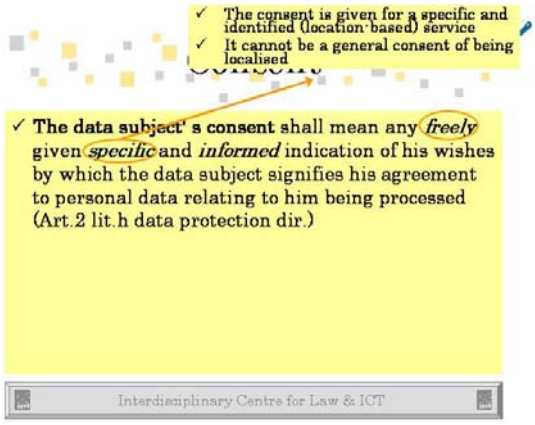
✓ The consent is given for a specific and identified (location-based) service
✓ It cannot be a general consent of being localised
✓ The data subject' s consent shall mean any freely given specific and informed indication of his wishes by which the data subject signifies his agreement to personal data relating to him being processed (Art.2 lit.h data protection dir.)
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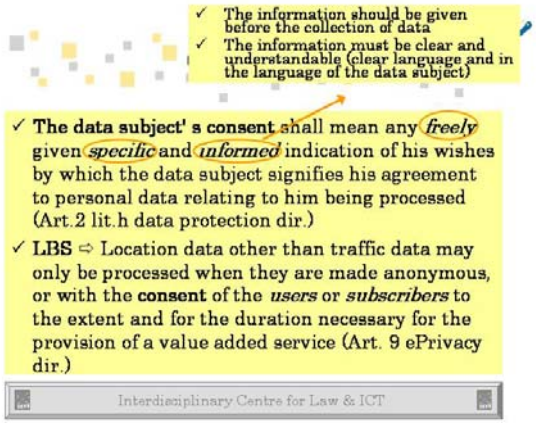
✓ The information should be given before the collection of data
✓ The information must be clear and understandable (clear language and in the language of the data subject)
✓ The data subject' s consent shall mean any freely given specific and informed indication of his wishes by which the data subject signifies his agreement to personal data relating to him being processed (Art.2 lit.h data protection dir.)
✓ LBS ⇨ Location data other than traffic data may only be processed when they are made anonymous, or with the consent of the users or subscribers to the extent and for the duration necessary for the provision of a value added service (Art. 9 ePrivacy dir.)
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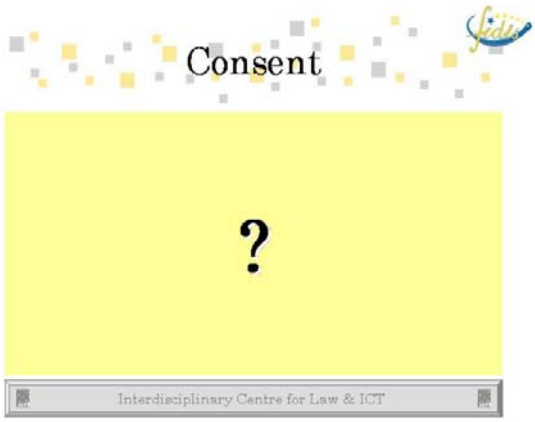
Consent
?
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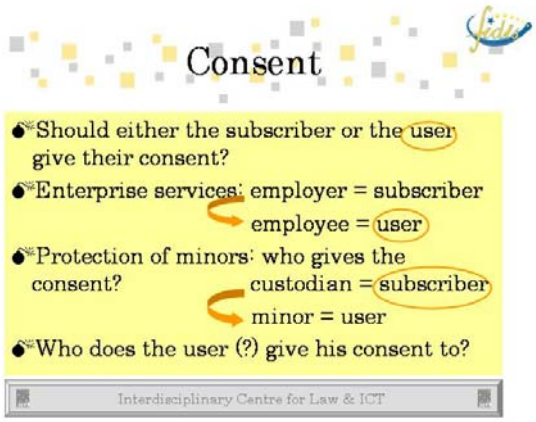
Consent
Should either the subscriber or the user give their consent?
Enterprise services: employer = subscriber
employee = user
Protection of minors: who gives the consent?
custodian = subscriber
minor = user
Who does the user (?) give his consent to?
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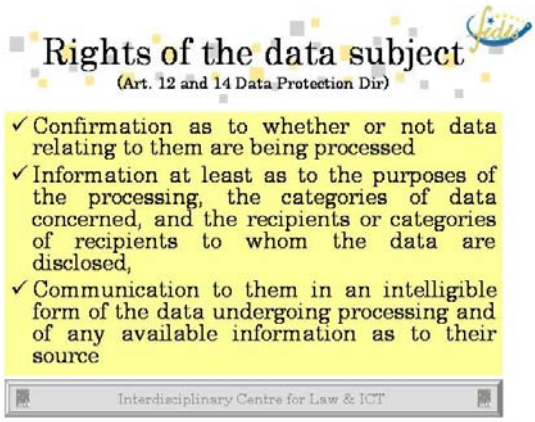
Rights of the data subject
(Art. 12 and 14 Data Protection Dir)
✓ Confirmation as to whether or not data relating to them are being processed
✓ Information at least as to the purposes of the processing, the categories of data concerned, and the recipients or categories of recipients to whom the data are disclosed,
✓ Communication to them in an intelligible form of the data undergoing processing and of any available information as to their source
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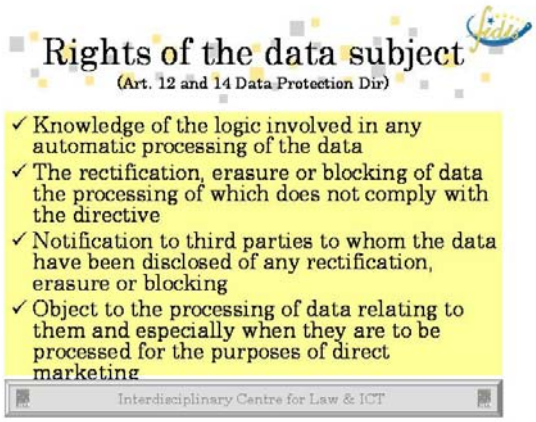
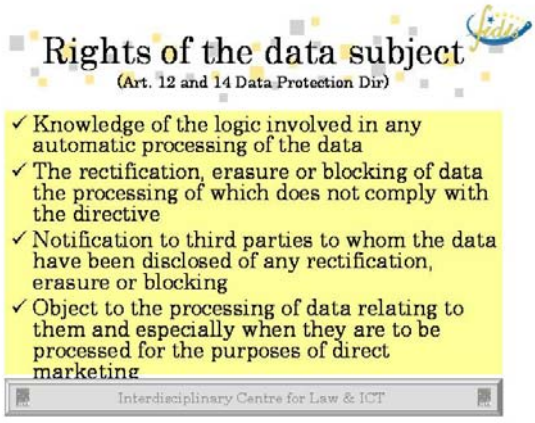
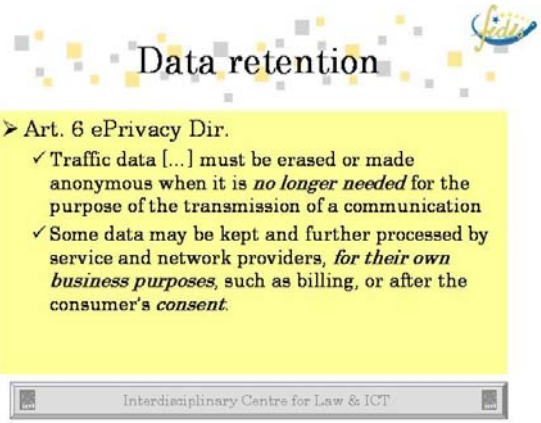
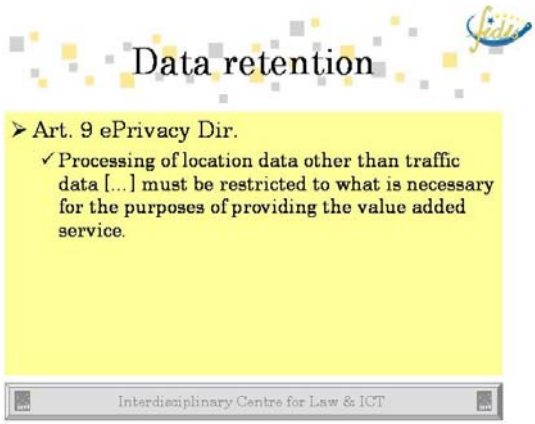
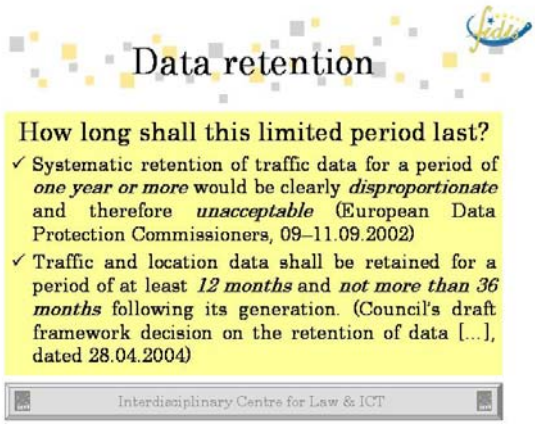

Rights of the data subject
(Art. 12 and 14 Data Protection Dir)
✓ Knowledge of the logic involved in any automatic processing of the data
✓ The rectification, erasure or blocking of data the processing of which does not comply with the directive
✓ Notification to third parties to whom the data have been disclosed of any rectification, erasure or blocking
✓ Object to the processing of data relating to them and especially when they are to be processed for the purposes of direct marketing
Interdisciplinary Centre for Law & ICT

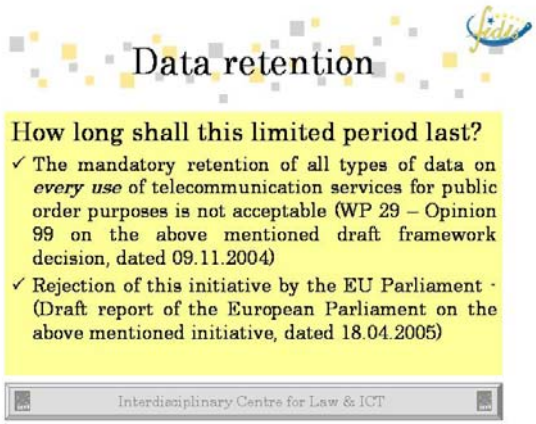

Rights of the data subject
(Art. 12 and 14 Data Protection Dir)
✓ Knowledge of the logic involved in any automatic processing of the data
✓ The rectification, erasure or blocking of data the processing of which does not comply with the directive
✓ Notification to third parties to whom the data have been disclosed of any rectification, erasure or blocking
✓ Object to the processing of data relating to them and especially when they are to be processed for the purposes of direct marketing
Interdisciplinary Centre for Law & ICT

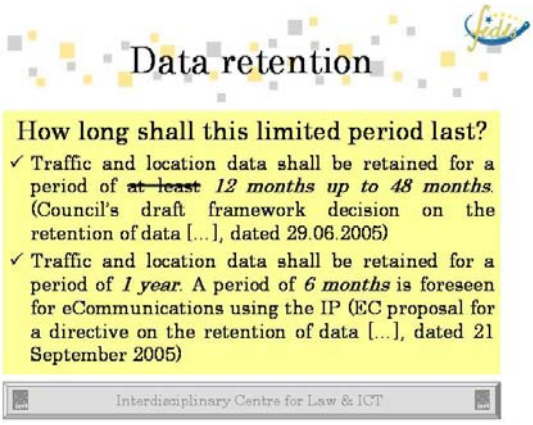

Data retention
➢ Art. 6 ePrivacy Dir.
✓ Traffic data [...] must be erased or made anonymous when it is *no longer needed* for the purpose of the transmission of a communication
✓ Some data may be kept and further processed by service and network providers, *for their own business purposes*, such as billing, or after the consumer's *consent*.
Interdisciplinary Centre for Law & ICT


Data retention
➢ Art. 9 ePrivacy Dir.
✓ Processing of location data other than traffic data [...] must be restricted to what is necessary for the purposes of providing the value added service.
Interdisciplinary Centre for Law & ICT


Data retention
➢ Art. 15 ePrivacy Dir.
✓ The measures shall be *legislative* in nature
✓ only for a *limited* period
✓ where *necessary, appropriate* and *proportionate* within a democratic society
✓ to safeguard *national security, defence, public security* and the *prevention, investigation, detection* and *prosecution of criminal offences* or of *unauthorised use of the electronic communication system*
Interdisciplinary Centre for Law & ICT


Data retention
How long shall this limited period last?
✓ Systematic retention of traffic data for a period of *one year or more* would be clearly *disproportionate* and therefore *unacceptable* (European Data Protection Commissioners, 09–11.09.2002)
✓ Traffic and location data shall be retained for a period of at least *12 months* and *not more than 36 months* following its generation. (Council's draft framework decision on the retention of data [...], dated 28.04.2004)
Interdisciplinary Centre for Law & ICT


Data retention
How long shall this limited period last?
✓ The mandatory retention of all types of data on *every use* of telecommunication services for public order purposes is not acceptable (WP 29 – Opinion 99 on the above mentioned draft framework decision, dated 09.11.2004)
✓ Rejection of this initiative by the EU Parliament - (Draft report of the European Parliament on the above mentioned initiative, dated 18.04.2005)
Interdisciplinary Centre for Law & ICT



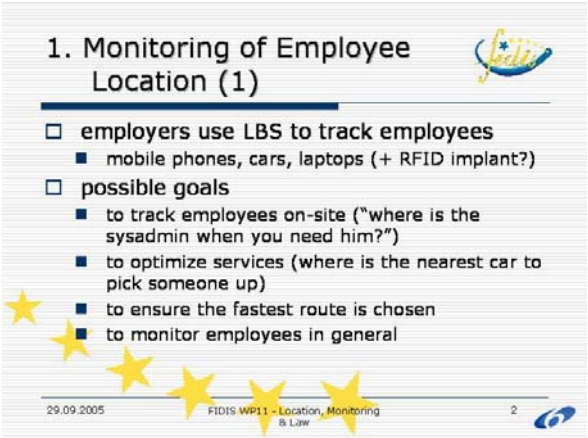
2.9 Location Technologies and Surveillance - A Legal Perspective

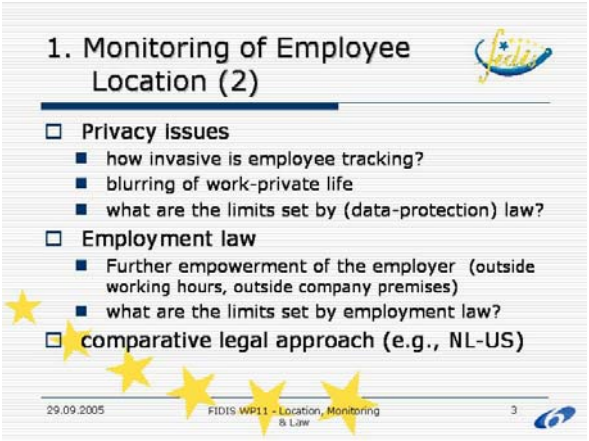
Author(s):

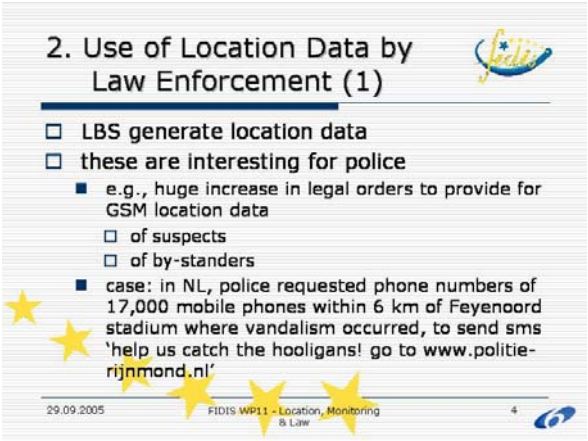
- Bert-Jaap Koops, Colette Cuijpers (KUB)

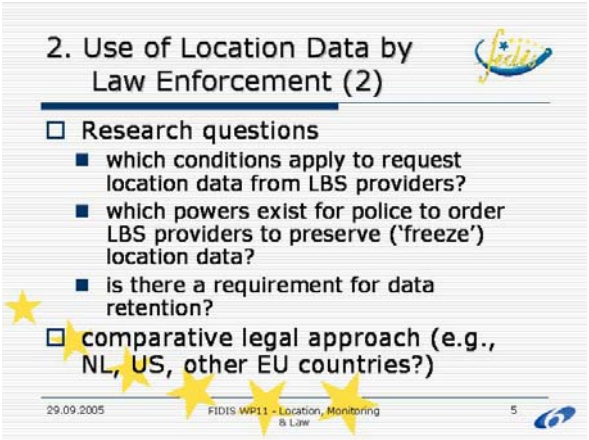
Abstract:

Short presentation about the use of location technologies and surveillance in the legal context.

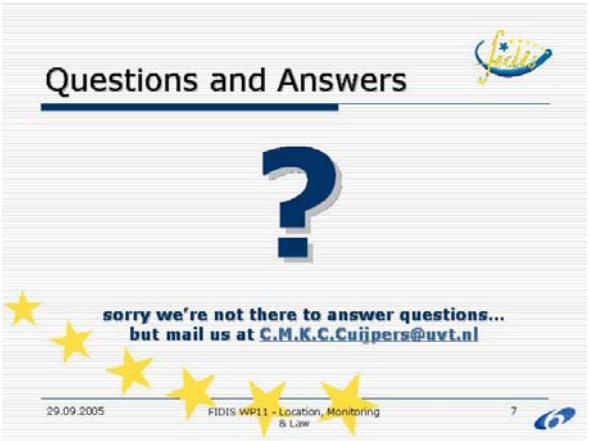



1. Monitoring of Employee Location (2)
Privacy issues
how invasive is employee tracking?
blurring of work-private life
what are the limits set by (data-protection) law?
Employment law
Further empowerment of the employer (outside working hours, outside company premises)
what are the limits set by employment law?
comparative legal approach (e.g., NL-US)
29.09.2005
FIDIS WP11 - Location, Monitoring & Law
3


2. Use of Location Data by Law Enforcement (1)
LBS generate location data
these are interesting for police
e.g., huge increase in legal orders to provide for GSM location data
of suspects
of by-standers
case: in NL, police requested phone numbers of 17,000 mobile phones within 6 km of Feyenoord stadium where vandalism occurred, to send sms 'help us catch the hooligans! go to www.politie-rijnmond.nl'
29.09.2005
FIDIS WP11 - Location, Monitoring & Law
4


2. Use of Location Data by Law Enforcement (2)
Research questions
which conditions apply to request location data from LBS providers?
which powers exist for police to order LBS providers to preserve ('freeze') location data?
is there a requirement for data retention?
comparative legal approach (e.g., NL, US, other EU countries?)
29.09.2005
FIDIS WP11 - Location, Monitoring & Law
5


Research options
employee tracking
Colette Cuijpers (TILT) + ?
ca. Oct 05 – Feb 06
joint academic article?
law-enforcement tracking
Bert-Jaap Koops (TILT) + ?
ca. Jan – Apr 06
joint academic article?
29.09.2005
FIDIS WP11 - Location, Monitoring & Law
6


Questions and Answers
?
sorry we're not there to answer questions...
but mail us at C.M.K.C.Cuijpers@uvt.nl
29.09.2005
FIDIS WP11 - Location, Monitoring & Law
7

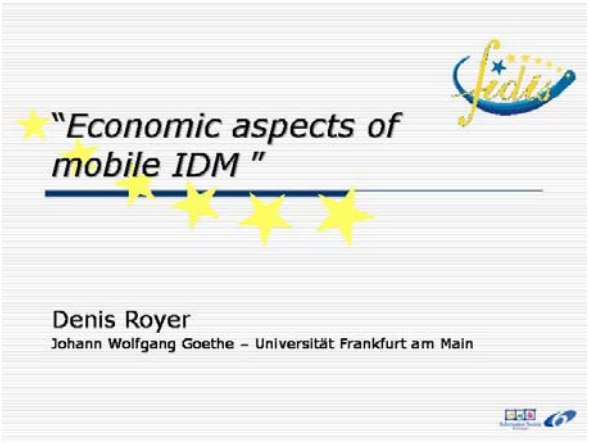
2.10 Economic aspects of mobile IDM

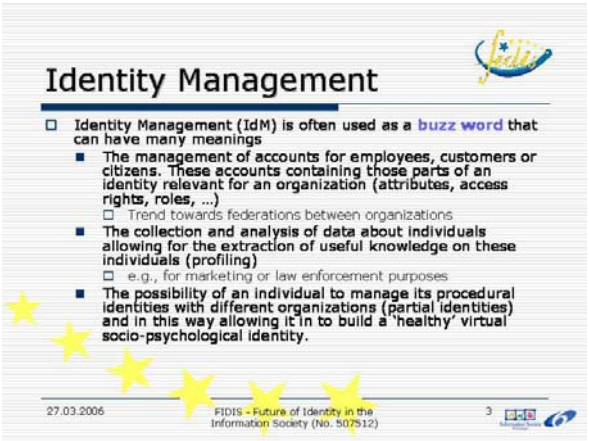
Author(s):

- Denis Royer (JWG)

Abstract:

Identity Management (IDM) is often used as a buzzword that can have many different meanings, ranging from the management of user data to the collection and analysis of data (profiling). However, the systems used to perform such actions are costly and it is difficult to anticipate their value for business organisations, etc. This presentation gives an example for an evaluation approach for mobile IDM technologies.





Digital Identity

- A concept that **links** a „token" from the *digital/syntactical world* to an object in the *real/semantical world* **(idem identity)**

- Accompanied by a set of **properties** and attributes **(ipsem identity)**

Interests Position Age Income

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Mobile Identity

- **GSM** provides the foundation for a mobile identity
- **Subscriber Identity Module (SIM)**
- A mobile identity in this definition is inherently related to the **mobile network operator** business
- **Represents contract** between subscriber & network operator
- **Authorizes** subscribers to use the network
- Lets subscribers **authenticate** themselves
- **1 Billion** GSM subscriptions (IDs) (05.2003)
- More countries with SIM infrastructure (197, May 2003) than with McDonald's (119, Aug 2003) and more than UN member states (191, Aug 2003)

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Market Reality

- In the past years Qualified Signatures were not as successful as anticipated before.
- **Example Germany:** Until the year 2003 25,000 Qualified Certificates were issued by the 23 accredited CSPs.
- **However, the mobile communication market offers a high potential for making Qualified Signatures a success.**

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Mobile Signing Solutions

- Server-based
  - No advanced Signatures
- Client based
  - Dual Chip -> Inconvenient
  - Dual Slot -> No Devices
  - SIM -> Special SIM needed

- ***SIM based Signatures are most secure and convenient Solution***
- ***Device has to be under sole control of the user (EC-Directive)***

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Question: Profitability

Questions to be asked:

- Mobile Operator will only offer signature capable SIM cards, if a positive return on the investment (ROI) can be expected.
- Can enough traffic be generated for this solution to be profitable for Mobile Operators?

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Initial Assumptions

1. Customer panels / market segmentation
2. Initial traffic:

Panel / Market Segmentation		Optimistic			Conservative		
		Year 1	Year 2	Year 3	Year 1	Year 2	Year 3
Pro Users	(60,00%)	3,000kB	4,500kB	7,500kB	1800kB	2400kB	3,600kB
Mid Users	(30,00%)	1500kB	2250kB	3,000kB	450kB	600kB	750kB
Private Users	(10,00%)	300kB	600kB	750kB	150kB	225kB	375kB

3. Market growth
   - Similar technology: SSL
   - Positive network effects
   - Opt. scenario: Year 1: 15% - Year2: 30% - Year 3: 45%
   - Con. Scenario: Year 1: 10% - Year 2: 12.5% - Year 3: 15%

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Initial Assumptions (cont'd)

6. Initial customer-base (15.000 vs. 10.000)
7. Current price of GPRS traffic (1 Cent/KB)
8. Future Price for GPRS traffic
9. Initial certification costs
   - 150,000 Euro
10. Initial infrastructure costs
    - 500,000 Euro
11. Running process costs for the SIMs
12. Used interest rate
    - 3,85% as interest rate
    - Market's interest rate for investments

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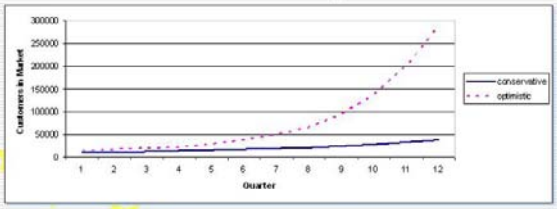
Results

Customer base development:



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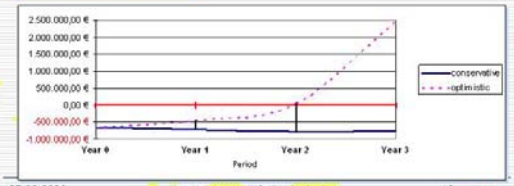
Results (cont'd)

	Optimistic	Conservative
NPV after 3 Years	2,468,986.91 €	-749,811.26 €
Payback Period	1.91 Years	> 3 Years
IRR after 3 Years	90.52%	Negative



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Future Research Fields

- Diffusion of Innovations
  - What makes a technology successful?

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Contribution to D11.3

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Questions and Answers

Thank you for your attention!
Any questions?

denis.royer@m-lehrstuhl.de

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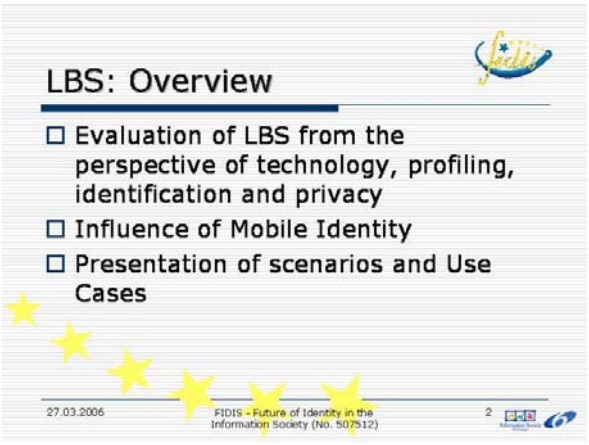
2.11 WP11: 3rd Workplan

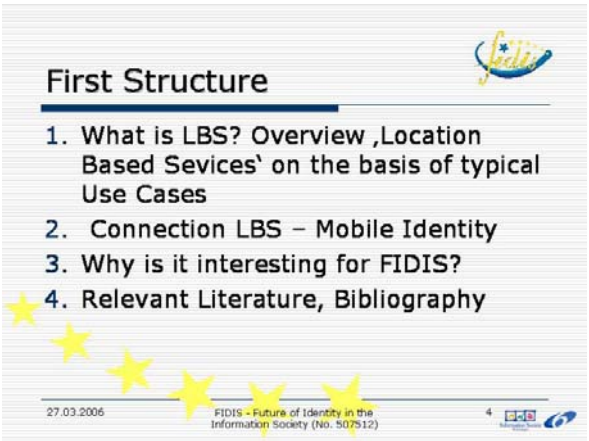
Author(s):

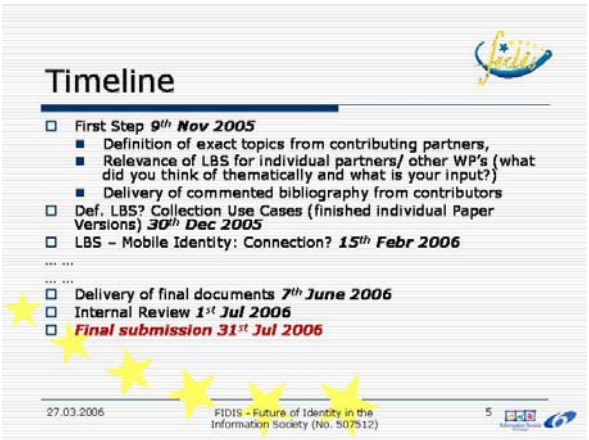
- Denis Royer (JWG)

Abstract:

This set of slides was introduced to plan the deliverables for the 3rd Workplan and to integrate the contributors of WP11 into the further planning process.








Thank you for your attention!
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7

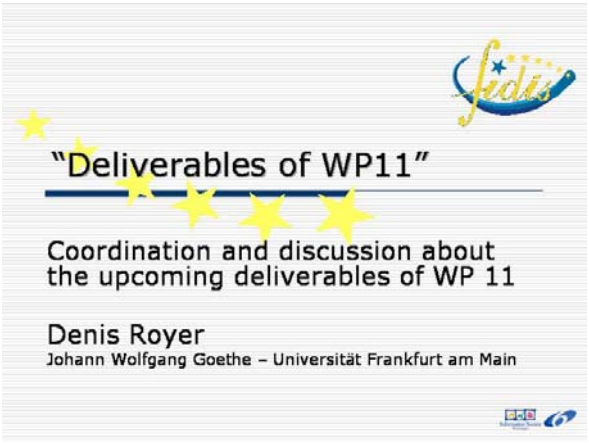
2.12 Deliverables of WP11 - Coordination and discussion about the upcoming deliverables of WP 11

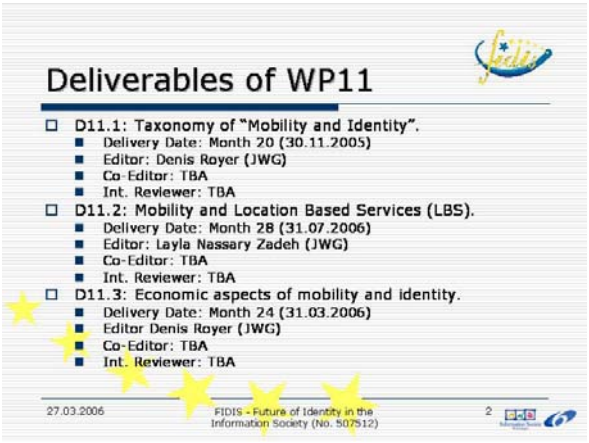
Author(s):

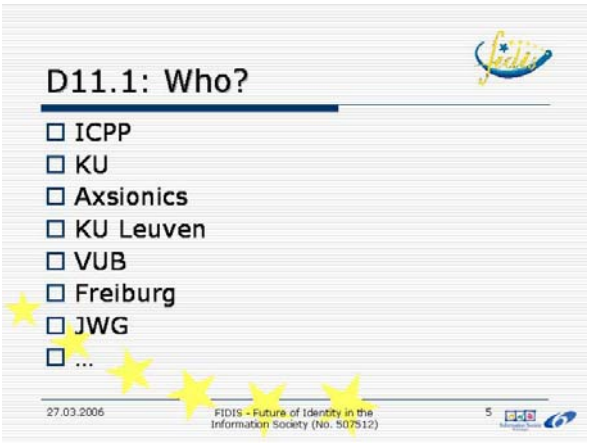
- Denis Royer (JWG)

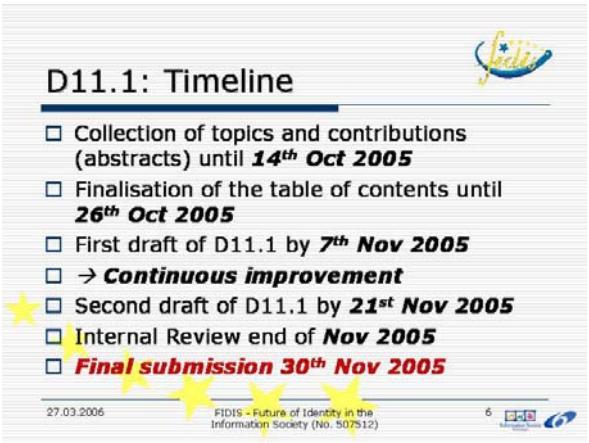
Abstract:

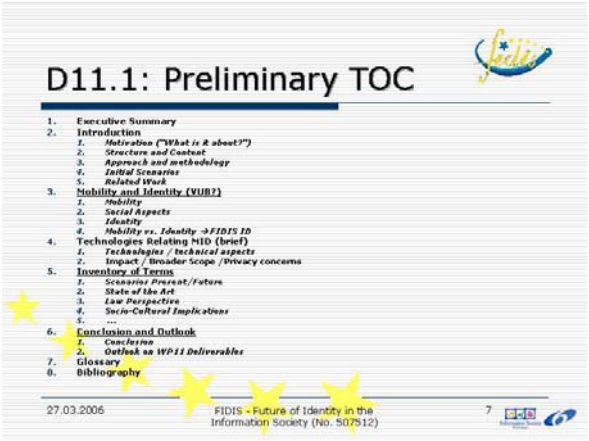
This set of slides was introduced for the coordination of the work in WP11.










D11.1: Preliminary TOC
1. Executive Summary
2. Introduction
1. Motivation ("What is it about?")
2. Structure and Content
3. Approach and methodology
4. Initial Scenarios
5. Related Work
3. Mobility and Identity (VUB?)
1. Mobility
2. Social Aspects
3. Identity
4. Mobility vs. Identity → FIDIS ID
4. Technologies Relating MID (brief)
1. Technologies / technical aspects
2. Impact / Broader Scope /Privacy concerns
5. Inventory of Terms
1. Scenarios Present/Future
2. State of the Art
3. Law Perspective
4. Socio-Cultural Implications
5. ...
6. Conclusion and Outlook
1. Conclusion
2. Outlook on WP11 Deliverables
7. Glossary
8. Bibliography
27.03.2006
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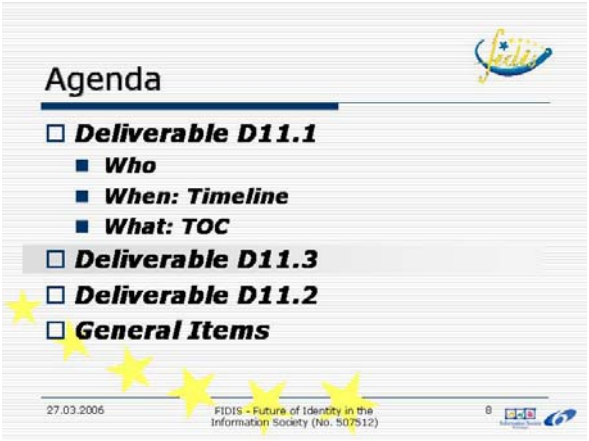
Agenda
Deliverable D11.1
Who
When: Timeline
What: TOC
Deliverable D11.3
Deliverable D11.2
General Items
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
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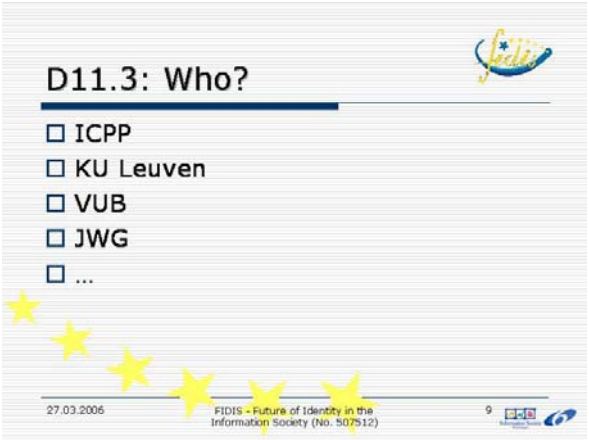
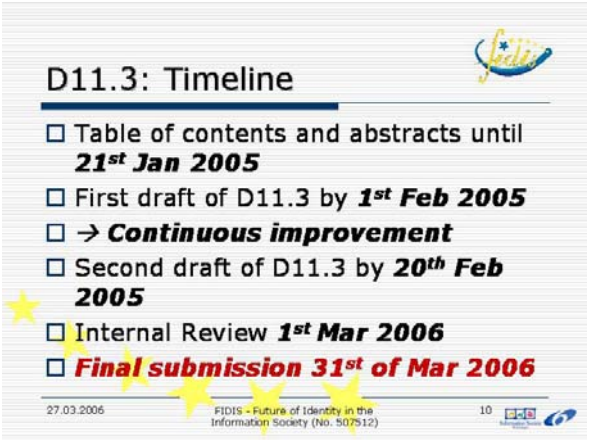

D11.3: Who?
ICPP
KU Leuven
VUB
JWG
...
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
9


D11.3: Timeline
Table of contents and abstracts until 21st Jan 2005
First draft of D11.3 by 1st Feb 2005
→ Continuous improvement
Second draft of D11.3 by 20th Feb 2005
Internal Review 1st Mar 2006
Final submission 31st of Mar 2006
27.03.2006
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D11.3: Research Topics
Economy of (mobile) Identity
Business value
Costs vs. benefit
Business Cases
Perceived risk theory
Risk management → link to economy
Profiling
Price of convenience
Technology acceptance model
Diffusion theory (Rogers)
Case Studies
New business models, business processes, and mobile services
27.03.2006
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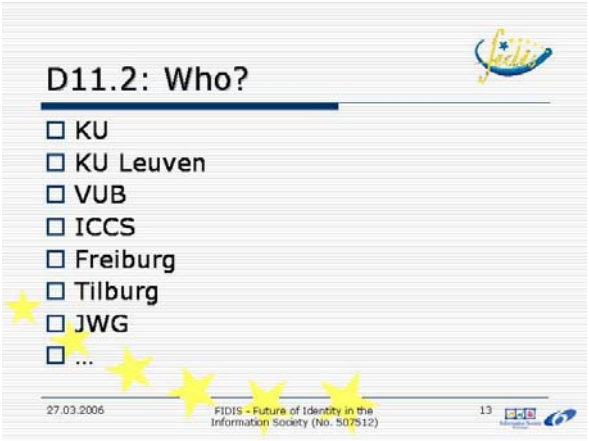
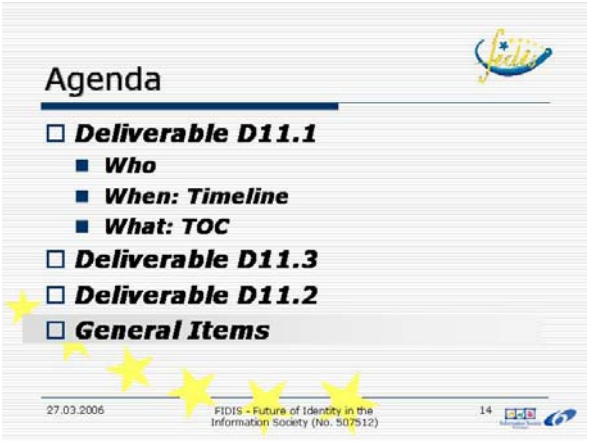
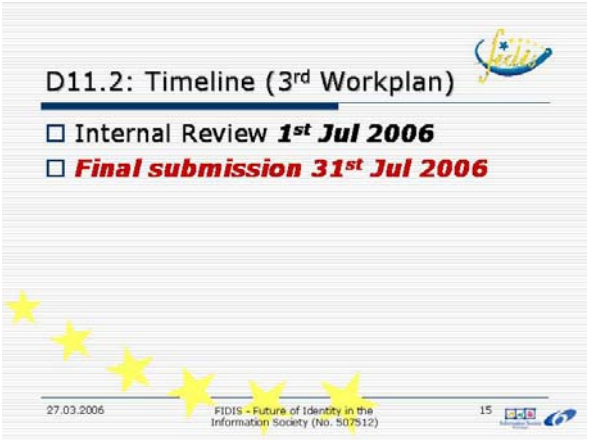
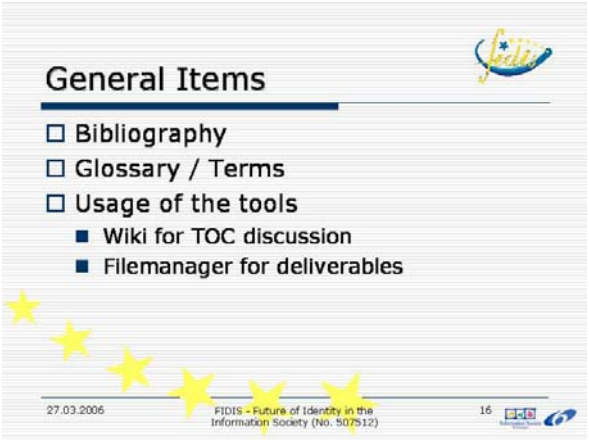
Agenda
Deliverable D11.1
Who
When: Timeline
What: TOC
Deliverable D11.3
Deliverable D11.2
General Items
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
12


D11.2: Who?
KU
KU Leuven
VUB
ICCS
Freiburg
Tilburg
JWG
...
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
13


Agenda
Deliverable D11.1
Who
When: Timeline
What: TOC
Deliverable D11.3
Deliverable D11.2
General Items
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
14


D11.2: Timeline (3rd Workplan)
Internal Review 1st Jul 2006
Final submission 31st Jul 2006
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
15


General Items
Bibliography
Glossary / Terms
Usage of the tools
Wiki for TOC discussion
Filemanager for deliverables
27.03.2006
FIDIS - Future of Identity in the Information Society (No. 507512)
16


Questions and Answers
Thank you for your attention!
Any questions?
denis.royer@m-lehrstuhl.de
27.03.2006
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3 Conclusion

The workshop on "Mobility and Identity" was planned to coordinate the work of Workpackage 11. The following dates and roles were discussed:

- **D11.1: Taxonomy of "Mobility and Identity".**
  - Delivery Date: Month 20 (30.11.2005)
  - Editor: Denis Royer (JWG)
  - Int. Reviewer: Mark Gasson (Reading)
- **D11.2: Mobility and Location Based Services (LBS).**
  - Delivery Date: Month 28 (31.07.2006)
  - Editor: Layla Nassary Zadeh (JWG)
  - Int. Reviewer: Ammar Alkassar (Sirrix), Vashek Matyas (MU)
- **D11.3: Economic aspects of mobility and identity.**
  - Delivery Date: Month 24 (31.03.2006)
  - Editor Denis Royer (JWG)
  - Int. Reviewer: TBA

Annex 1: List of Participants

28th of September 2005:

Name	First Name	Institution
Alkassar	Ammar	Sirrix
Anderson	Christer	KU
Andronikou	Vasiliki	ICCS
Fischer-Hübner	Simone	KU
Gasson	Mark	Reading
Kosta	Eleni	KU Leuven
Maier	Robert	KU Leuven
Martucci	Leonardo	KU
Matyas	Vashek	MU
Meints	Martin	ICPP
Nabeth	Thierry	INSEAD
Nassary Zadeh	Layla	JWG
Rannenberg	Kai	JWG
Royer	Denis	JWG
Soenens	Els	VUB
Vyskoc	Jozef	VaF
Wetzker	Robert	TU Berlin
Wohlgemuth	Sven	Freiburg

29th of September 2005:

Name	First Name	Institution
Alkassar	Ammar	Sirrix
Anderson	Christer	KU
Andronikou	Vasiliki	ICCS
Fischer-Hübner	Simone	KU
Kosta	Eleni	KU Leuven
Maier	Robert	KU Leuven
Martucci	Leonardo	KU
Matyas	Vashek	MU
Meints	Martin	ICPP
Müller	Lorenz	Axsionics
Nassary Zadeh	Layla	JWG
Royer	Denis	JWG
Soenens	Els	VUB
Wetzker	Robert	TU Berlin
Wohlgemuth	Sven	Freiburg