



# ***Privacy in the Digital Environment***

## ***The European Perspective***

**Jacques Bus**  
(personal view)

**W3C Workshop**  
**Privacy and Data Usage**

*Boston, US – 4,5 Oct 2010*



## Trust underlies the foundations of Civilization



Agricultural



Industrial



Information...

3000 B.C.

Writing  
(*Cesar's cipher*)



15th

Printing



19th -20th

Electricity

Telephony

Television

21st

Internet/Web





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# Trusted & Smart "everything"



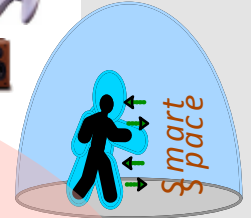
Energy Networks



Transport Networks



Digital Living



## Future Internet

eHealth & Health networks





*“Cloud computing offers new opportunities but present also new risks” (EDPS)*

Watson allegedly made a statement in 1943:

*"I think there is a world market for maybe five computers"*

A computer is a (set of) processors combined with data storage etc.

**Did he maybe foresee this??**



**Will cloud providers take over our ID registration, “local” protection in digital space, other prerogatives of Gov Administrations??**





# Trust on the Web

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## Trust is at the basis of human existence

- reduces complexity and uncertainty
- enables creativity and action
- is cognitive like knowledge and belief



I trust you = I believe to know things about you that make you trustworthy to me in a certain situation for doing certain things

I trust a system, government, institution = I have confidence in its actions, behavior and integrity

## Trust responds to

- local (person-to-person) knowledge (history of contact, reputation, personal characteristics, relationships)
- global (environment) knowledge (role fulfillment, groups control, morality, law, government, certification, punishment, ...)



## Trust on the Web

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The Web creates a transformational change in data collection and processing, as well as in communication and transactions. The local and global channels are narrowed.

We know little about the trustworthiness of the players and systems on the Web:

- The information channels are narrow (little human-to-human knowledge exchange, problems with authentication, identity, privacy)
- The systems are not trustworthy (complex, confusing, no assurances, low transparency or accountability)
- The principles and tools are not developed (authentication, Trusted Parties, witness and reputation systems, user friendly measures, user centric control)



Solutions need an interdisciplinary approach (Web Science):  
social and human sciences, economics, math, technology, law, ...



# Privacy on the Web

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*Working def of privacy (Mireille Hildebrand)*

‘a reasonable measure of control on whether and to which extent one can be **‘read’** by what others in what context.’

This includes **being ‘read’ by our ‘animated’ environments** through

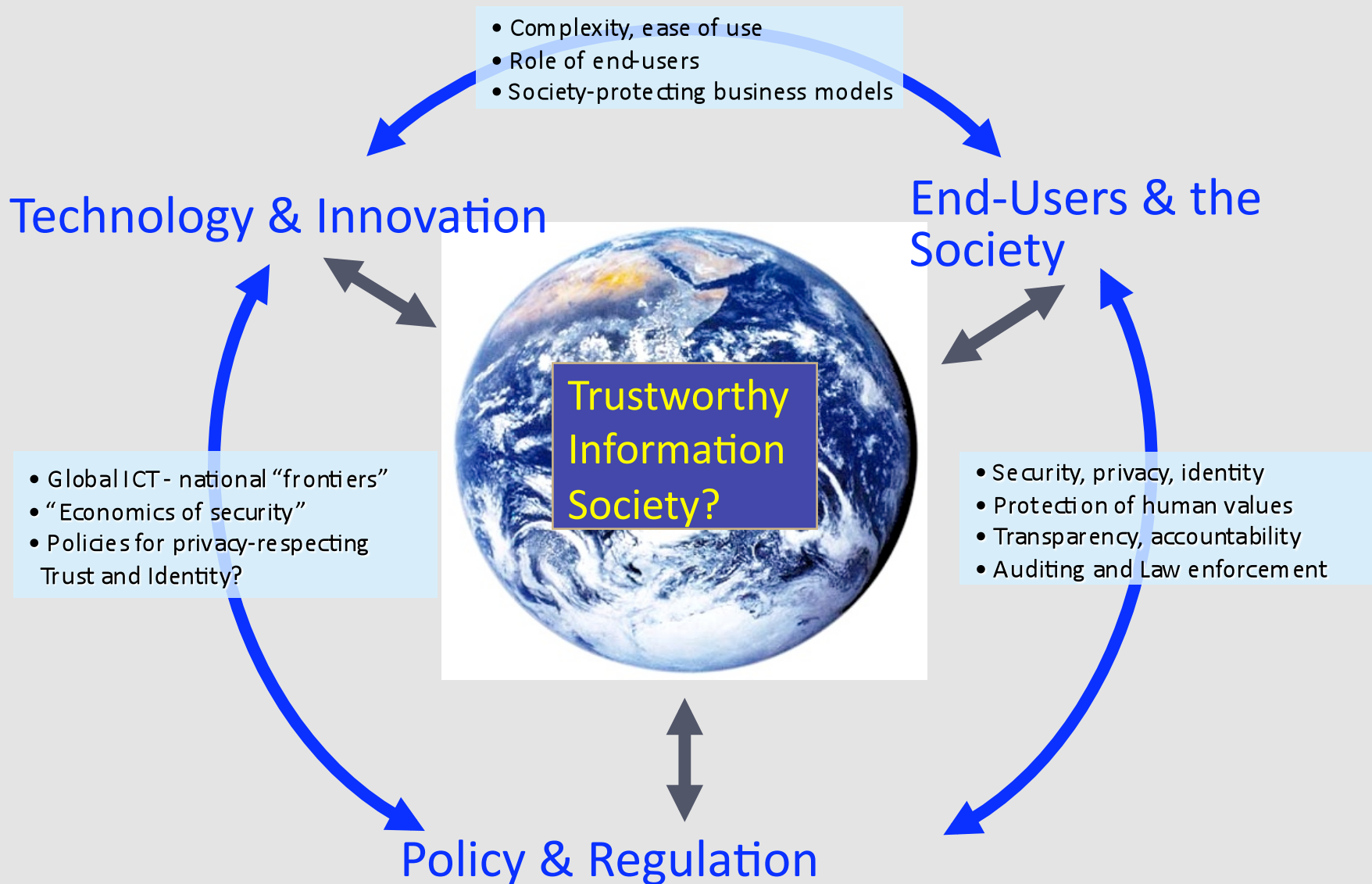
- Profiling, data mining, machine learning, augmented reality, ...
- Behavioural advertising, location based services
- Traffic monitoring, remote healthcare
- Criminal & intelligence profiling

**It is about:**

- **Secure data storage**
- **Limiting and/or controlling data usages**
- **Understanding and control of inferences**
- **Enabling of living in Trusted Circles**



# Security, Privacy, Trust: the Interplay







# **RISEPTIS: Research and Innovation in SEcurity, P rivate and T rustworthiness in the Information Society**

Trust is the core of social order and economic prosperity.  
The Internet and Web are fundamentally transforming society.  
The mechanisms of trust must be maintained through this transformation

## Recommendations

- Technology, social, economic and other sciences – an interdisciplinary effort
- Large scale actions in public-private partnerships
- A techno-legal ecosystem for a trustworthy Information Society
- International cooperation for trust in global transactions

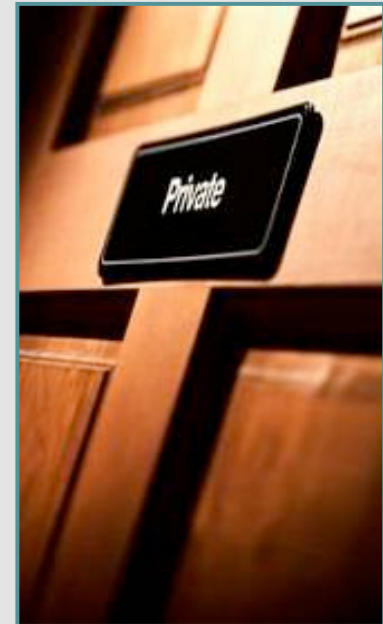
George Metakides (U Patras, CTI, chair), Dario Avallone(Engineering), Giovanni Barontini (Finmeccanica), Kim Cameron (Microsoft), William Dutton (Oxford Internet Institute), Anja Feldmann (Deutsche Telekom), Laila Gide (Thales), Carlos Jimenez (Secuware), Willem Jonker (Philips), Mika Lauhde (Nokia), Sachar Paulus (U. Brandenburg, ISSECO), Reinhard Posch (CIO GOV. Austria, TU Graz, A-SIT), Bart Preneel (KU Leuven), Kai Rannenber (U. Frankfurt, CEPIS), Jacques Seneca (Gemalto); Peter Hustinx (Observer)  
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## Technology, social, economic and other sciences - an interdisciplinary effort

### Priority Fields:

- Trustworthy network, service and computing environments (incl. Future Internet)
- Trust, privacy and identity management frameworks
- Engineering principles and architectures for trustworthiness (metrics, crypto, secure SW, ...)
- Data and policy governance, socio-economic aspects, liability, management





## Large scale actions in public-private partnerships

- Common EU framework for identity and authentication management
- Next generation social networks (privacy, data portability)
- EU-wide legally accepted electronic documents on various media
- European trustworthy Cloud infrastructure





## Technology, Law and International Jurisdiction

- **An ecosystem of technology and law** for data protection, privacy, consumer protection and related policy and regulation, ensuring a smooth transposition of European values; based on a user-centric approach
- **International cooperation** to promote the development of standards, interoperability frameworks and procedures to control cyber crime and promote trust, transparency and accountability in the Information Society





# Trust on the Web

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## EU RESEARCH IN TRUSTWORTHY ICT(€70 Mi – IP, Strops - call 8, 17/1/12)

### **Heterogeneous networked , service and computing environments**

- Trustworthy (meta) architectures and protocols
- Trustworthy polymorphic future Internet
- Virtualisation and other techniques for protection, assurance and integrity in complex, high-demand critical services
- Metrics and tools for quantitative security and trust
- Enabling technologies (crypto, formal methods, biometrics, ...)

### **Trust, e-Identity and Privacy management infrastructures**

- Trust architectures
- Privacy infrastructures
- Management of ID claims and attributes

### **Data policy, governance and socio-economic ecosystems**

- Management and governance frameworks for security and trust policies in data governance and means for implementation, including in the Web or Cloud.

**Projects must ensure strong interplay with legal, social and economic research in view of development of a techno-legal system that is usable, socially accepted and economically viable.**





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## **EU RESEARCH IN TRUSTWORTHY ICT (€10 Mi – NoE, CSA - call 8, 17/1/12)**

- **Networking and coordination , road mapping, awareness**
  - Coordination, management of interplay between technology, legal, social and economic research
  - Support of standardisation and certification
  - Coordination of national activities

## **A TRUSTWORTHY Future Internet PPP (€90 Mi – all actions – Call 2/12/10)**

- **Security and Trust in the FI network and services**
  - Core platforms, Use cases, Capacity building, Coordination

## **EU – Brazil cooperation on security in the internet (~ €1 Mi – Strep – 18/1/11)**

- **Trusted communication and application services; focus on personalisation, usability and accessibility**



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# Questions ?

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