The Future of ICT measurement

Emerging areas of ICT measurement: Online security and trust, Green ICT

Albrecht Wirthmann

European Commission, Eurostat:
Information Society Statistics

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Outline

- Background on ICT usage surveys in the European Union
- Security and trust
  - Businesses
  - Households and individuals
- Green ICT

Background

- Annual Surveys on the usage of ICT in **enterprises** and in **households/by individuals** in European Economic Area, EU candidate and accession countries
- Core set of indicators with possibility to add new indicators
- Elaboration of new indicators and questions based on user needs
  - i2010 strategy and benchmarking framework
  - Digital Agenda for Europe
  - Benchmarking digital Europe 2011-2015
- Module on ICT security in enterprise and household surveys in 2010
- Module on ICT and environmental impact in enterprise survey in 2011 data collection

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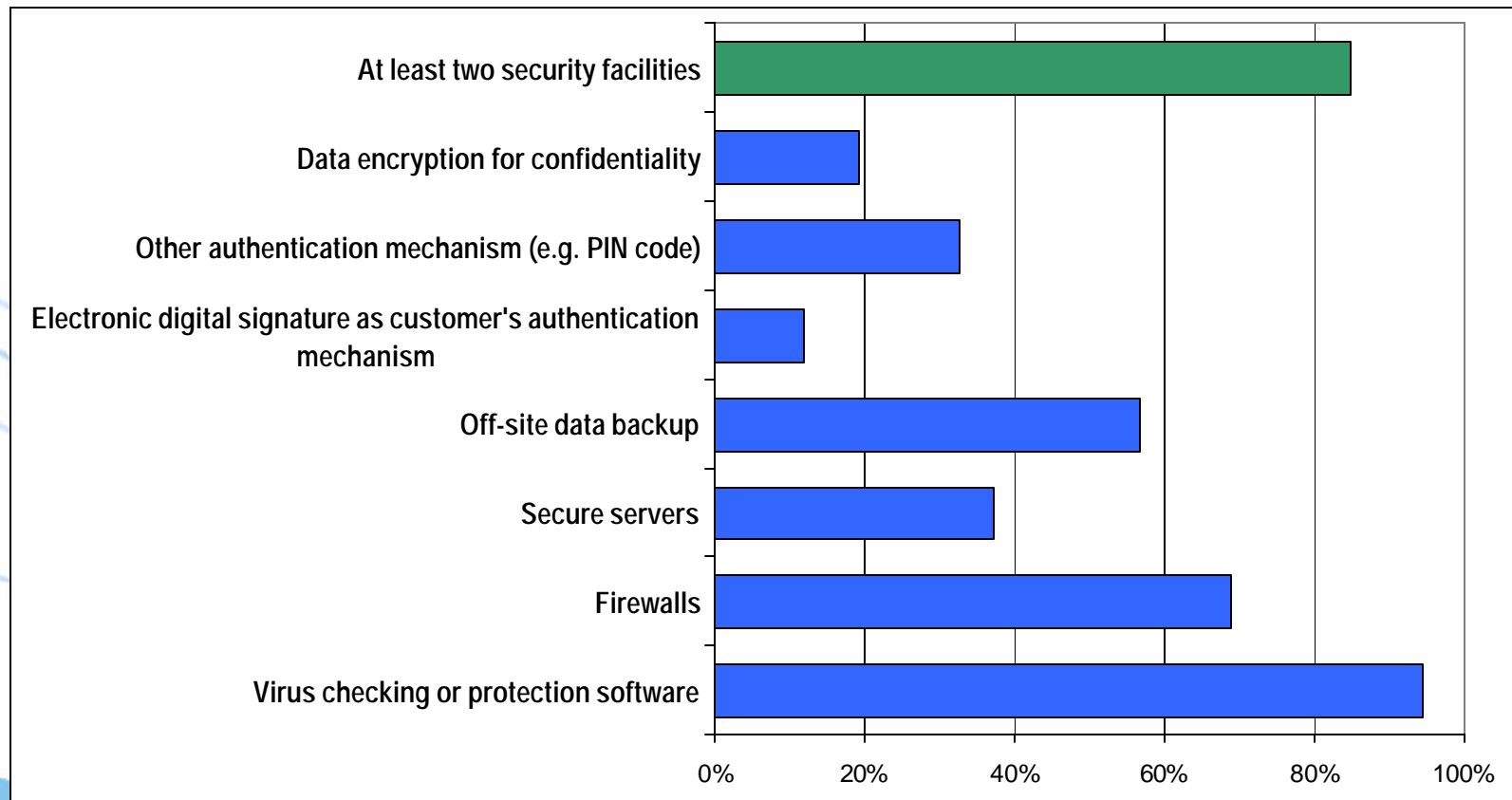
Security and trust in 2010 ICT use Surveys

- Security is considered as vital issue for the further development of the Internet
- Special modules in enterprise and household surveys
- General Approach
  - **Awareness**
  - **Experience**
  - **Behaviour**
- Difficult topic as respondents might not be aware of security incidents

Security and trust in Enterprise Survey

- Security related questions in 2005 enterprise survey
  - Security incidents
  - Security facilities
- Indicator on use of digital signatures from 2007 onwards
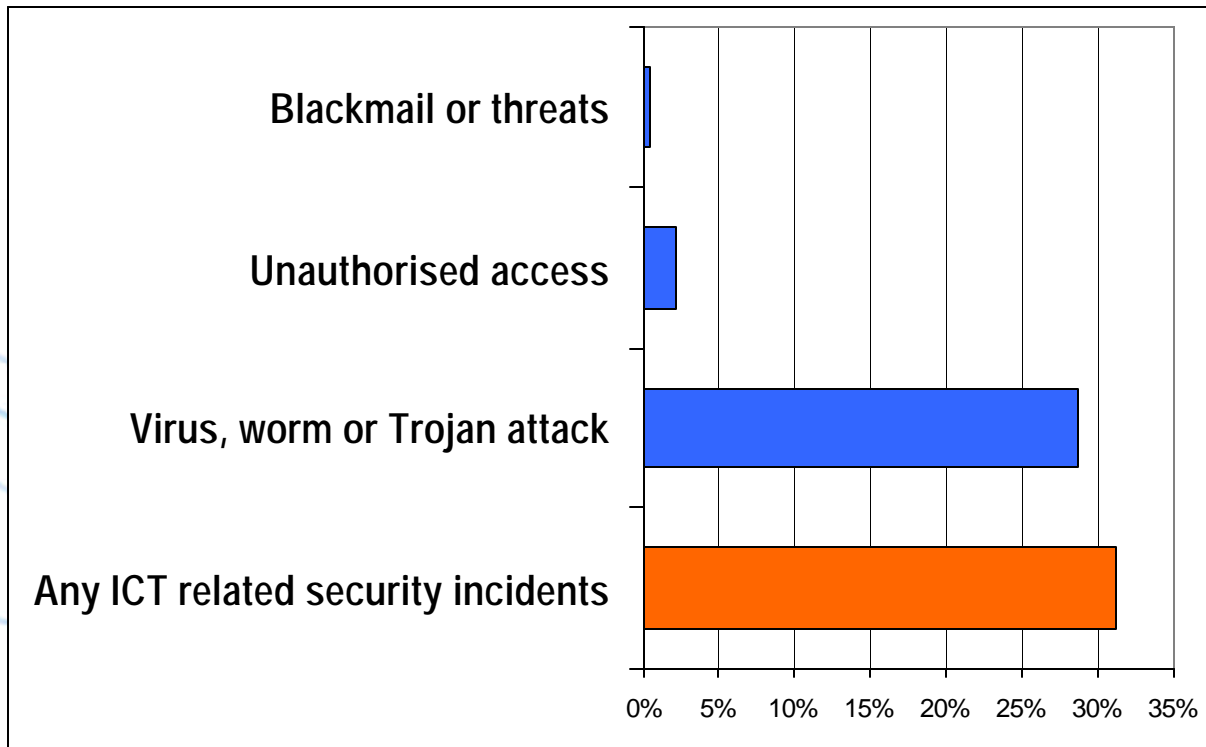
Security and trust in Enterprise Survey

■ Security Facilities in enterprises 2005
(% enterprises with Internet access)

Source: Eurostat, survey on ICT usage and e-commerce in enterprises 2005
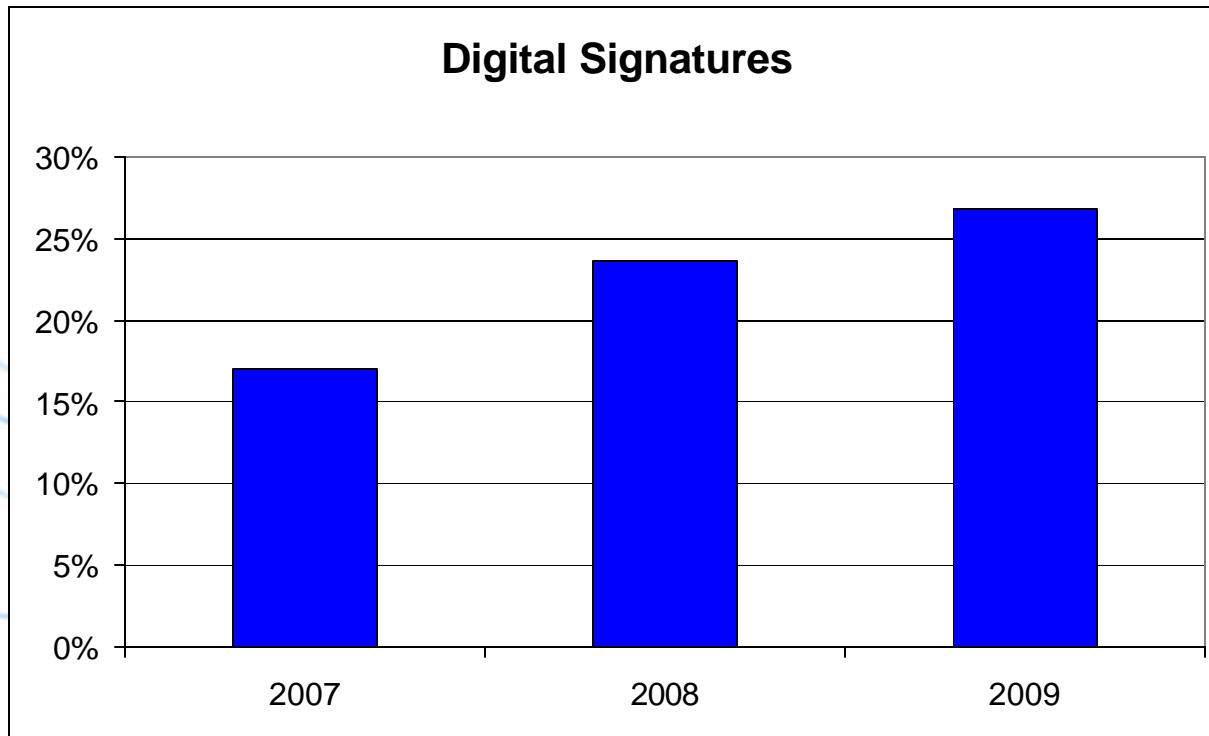
Security and trust in Enterprise Survey

■ Security incidents in enterprises in 2004
(% enterprises with Internet access)

Source: Eurostat, survey on ICT usage and e-commerce in enterprises 2005

Security and trust in Enterprise Survey

■ Use of digital signatures in enterprises 2007 - 2009
(% enterprises with computers)

Digital Signatures

Source: Eurostat survey on ICT usage and e-commerce in enterprises 2005

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Security and trust in Enterprise Survey 2010

- **Definition**
  - ICT security includes all measures, controls and procedures applied on ICT systems in order to ensure integrity, authenticity, confidentiality and availability of data and systems.

- **Categories**
  - Destruction or corruption of data
  - Disclosure of data
  - Disruption of services

Security and trust in Enterprise Survey 2010

- Awareness
  - Existence of ICT security Policy
  - Addressed Risks
    - Destruction or corruption of data (attack or accident)
    - Disclosure of confidential data
    - Unavailability of ICT services due to attack
  - Approach of enterprise to raise awareness among employees
    - Compulsory training sessions
    - By contract, e.g. contract of employment
    - Voluntary training or dissemination of relevant information

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Security and trust in Enterprise Survey 2010

- Experience
  - ICT related security incidents
    - Unavailability of services or corruption of data due to hardware or software failures
    - Unavailability of services due attack from outside, e.g. DoS
    - Corruption of data due to malicious software or unauthorised access
    - Disclosure of data
      - due to intrusion, pharming, phishing attacks, etc.
      - By employees (intentionally or not)

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Security and trust in Enterprise Survey 2010

- **Behaviour**
  - Use of internal security facilities or procedures
    - Identification and authentication
      - Strong password authentication
      - Via hardware tokens
      - Via biometric methods
    - Offsite data backup
    - Logging activities for analysing security incidents

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Security and trust in Household Survey 2010

■ Awareness

   – Degree of concern of the respondent

- Virus or other computer infection

- Receiving unsolicited emails (spam)

- Privacy violations

- Financial loss due to phishing or pharming attacks

- Financial loss due to fraudulent payment

- Children accessing inappropriate websites

Security and trust in Household Survey 2010

- **Experience**
  - Security related incidents
    - Virus or other computer infection
    - Receiving unsolicited emails (spam)
    - Privacy violations
    - Financial loss due to phishing or pharming attacks
    - Financial loss due to fraudulent payment
    - Children accessing inappropriate websites

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Security and trust in Household Survey 2010

- Behaviour
  - Omission of activities due to security concerns
    - Ordering goods or services
    - Internet banking
    - e-government services
    - Provision of personal information to social networking sites
    - Download of files (software, audiovisual content, data, …)
    - Wireless connection to Internet outside home
  - Use of IT security software
    - Virus, anti-spyware, firewall, email filtering, parental control
  - Regular update of IT security software
  - Reasons for not updating IT security software
  - Frequency of safety copies or data back-up

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Environmental Impact: Conceptual Approach

Distinction between

- Possible environmental impacts through the use of ICTs
  - Energy consumption
  - Printing output
  - Production of waste
  - …

- Use of ICTs to reduce possible environmental impact of business processes within an enterprise
  - Intelligent management of business processes
  - Replacement or modification of business processes with ICTs

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Environmental Impact: Conceptual Approach

- Questionnaire avoids to ask about reasons or opinions for introducing ICTs in enterprise
- Actions leading to a reduction of environmental impact might be motivated by other reasons than environmental protection
- Information on readiness of enterprises to provide remote access to enterprises ICT systems for employees
- Condition for i.a. teleworking

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Questions

- ❑ **Existence of policies aiming at reduction of environmental impact**

a) **Reduction of the amount of paper** used in printing or copying.

b) R**eduction of energy consumption** of ICT equipment. e.g. computers and screens to be turned off, use of automated power down devices for the ICT equipment, use of multi-function peripheral imaging devices (printers, scanners, photocopiers) etc.

c) Replacing physical travel by **telephone, web or video conferencing**

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Questions

- "**Policies**" refers to procedures, measures, actions and guiding principles that are followed by the persons employed in the enterprises either individually or collectively.

- Indicator
  - Percentage of enterprises having such policies in place

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Questions

- Use of dedicated IT applications to reduce the energy consumption of business processes?
  (including the optimisation of work routines, production processes, transport or logistics)

- Focus on energy efficiency
  - Optimisation of work routines and energy use per product unit,
  - Equipment operation and maintenance driven by IT applications
  - Optimisation of transport or logistics via ICTs

- % of enterprises with dedicated IT applications to reduce energy consumption of business processes

Questions

- Provision of remote access to the enterprise's e-mail system, documents and applications to employees

- Indicator:

    % of enterprises providing remote access to enterprises' ICT resources

Thank you for your attention

- Questions?

- Further information
  Albrecht.Wirthmann@ec.europa.eu
  http://ec.europa.eu/eurostat/ict

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