Measuring Cybersecurity Effectiveness

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Broadband and Cybersecurity

ICT and broadband are key drivers to achieve economic growth and enhance well-being.

shopping, banking, water and electricity supply, social networking, health care, education, traffic management and commerce

Are we ready for this ever-growing digital world?

CyberSecurity Challenges
« If you can’t measure it, you can’t manage it »
In your opinion, what are the challenges of measuring the impact of security incidents?

- Difficult to identify appropriate indicators
- Difficult to collect appropriate data
- Difficult to clearly define indicators
- Difficult to accurately measure the indicators
- Different measuring methodologies between provider and NRA
- Administration burden
- Other

- No Challenge
- Small Challenge
- Medium Challenge
- Big Challenge
- No answer
Qualitative / Quantitative Indicators

Cybersecurity Indicators

Country Level
- Global CyberSecurity Index
- ITU

Individual Level
- Eurobarometer on Cybersecurity

Organization Level
- Information Security Indicators
- ETSI
<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal</td>
<td>Existence of <strong>legal institutions and frameworks</strong> dealing with cybersecurity and cybercrime</td>
</tr>
<tr>
<td>Technical</td>
<td>Existence of <strong>technical institutions and frameworks</strong> dealing with cybersecurity</td>
</tr>
<tr>
<td>Organizational</td>
<td>Existence of <strong>policy coordination institutions and strategies</strong> for cybersecurity development at the national level</td>
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<tr>
<td>Capacity building</td>
<td>Existence of <strong>R&amp;D, education and training programmes; certified professionals and public sector agencies fostering capacity building</strong></td>
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<tr>
<td>Cooperation</td>
<td>Existence of <strong>partnerships, cooperative frameworks and information sharing networks.</strong></td>
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The Global Cybersecurity Index (developed by ITU-ABIresearch)
Q83 To what extent do you agree or disagree with the following statements: The police and other law enforcement authorities in (OUR COUNTRY) are doing enough to fight...

(%) - EU

- TERRORISM
  - Total ‘Agree’: 63%
  - Total ‘Disagree’: 32%
- DRUG TRAFFICKING
  - Total ‘Agree’: 53%
  - Total ‘Disagree’: 40%
- CYBERCRIME
  - Total ‘Agree’: 49%
  - Total ‘Disagree’: 37%
- ARMS TRAFFICKING
  - Total ‘Agree’: 46%
  - Total ‘Disagree’: 40%
- HUMAN TRAFFICKING AND SEXUAL EXPLOITATION
  - Total ‘Agree’: 46%
  - Total ‘Disagree’: 43%
- CORRUPTION
  - Total ‘Agree’: 42%
  - Total ‘Disagree’: 51%
- MONEY LAUNDERING
  - Total ‘Agree’: 42%
  - Total ‘Disagree’: 46%

June 2017
March 2015

Total ‘Agree’
Total ‘Disagree’
Don’t know
QB8 What concerns do you have, if any, about using the Internet for things like online banking or buying things online? (MANY ANSWERS POSSIBLE) (% - EU)

- June 2017
- October 2014
- May-June 2013

1. You are concerned about someone misusing your personal data:
   - June 2017: 45%
   - October 2014: 43%
   - May-June 2013: 37%

2. You are concerned about the security of online payments:
   - June 2017: 42%
   - October 2014: 42%
   - May-June 2013: 35%

3. You prefer conducting the transaction in person e.g. so you can inspect the product yourself or ask a real person about it:
   - June 2017: 27%
   - October 2014: 26%
   - May-June 2013: 24%

4. You are afraid that you might not receive the goods or services that you buy online:
   - June 2017: 23%
   - October 2014: 22%
   - May-June 2013: 15%
Organizations cybersecurity indicators

- From Qualitative to Quantitative Indicators
  - Assess the level of assurance
  - Measure the effectiveness of cybersecurity investments and performance
  - Benchmark the effectiveness of security measure
- The emergence of commonly recognized and reliable statistics.
ETSI Information Security Indicators

- ISI 001 Part 1: « A full set of operational indicators for organizations to use to benchmark their security posture »
- ISI 001 Part 2: « Guide to select operational indicators based on the full set given in part 1 ».
- ISI 002: A security event classification model and taxonomy
- ISI 003: A set of Key Performance Security Indicators (KPSI) for security event detection
- ISI 004: Guidelines for event detection implementation
- ISI 005: Guidelines for the testing of security event detection capabilities
Security Incidents

- Intrusions and External Attacks (Category IEX)
- Malfunctions (Category IMF)
- Internal Deviant Behaviours (Category IDB)

Vulnerabilities

- Behavioural vulnerabilities (Category VBH)
- Software vulnerabilities (Category WSW)
- Configuration vulnerabilities (Category VCF)
- General security vulnerabilities (Category VTC or Category VOR)

ETSI Information System Indicators
Examples of Vulnerabilities Indicators

- **Not patched vulnerabilities VOR_VNP.2: Rate of not patched systems**
  - Not patched systems to be taken into account are the ones which are **not patched beyond the time limit defined in security policy**.

- **Passwords illicitly handled or managed VBH_PSW.1: Weak passwords used**
  - The required strength of passwords depends on the organization's security policy, but usable general recommendations in ISO/IEC 27002.

- **Workstation used without relevant usual security VBH_WTI.1:**
  - The use of workstation with a disabled or lacking update AV and/or FW.
Examples of Security Incidents Indicators

- **Denial of Service IEX_DOS.1**: Denial of service attacks on websites
  - Detection of an attack on a given website coming from the same origin within a limited continuous timeframe, and a significant incident defined as a user noticeable disturbance and performance drop in the website access.

- **Malware IEX_MLW.1**: Attempts to install malware on workstations
  - Detection of a malware on workstations by organization's Antivirus and IPS.

- **Phishing IEX_PHI.1**: Phishing targeting company's customers' workstations spoiling company's image or business
  - Customer reporting of a phishing attempt.
Thank you for your attention