OSY.SSI[2015][1]

Risks, threats, adversaries

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A definition?

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Key terms: **Strategy**, **Dealing with**, **Risks**, **Information**.

What it's all about...

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– Oscar Wilde, *An Ideal Husband*, Act I.

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Information shapes power relationships.
That is why we care about it.

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Question : what terms do we know in that equation?

Risks and threats

Risk analysis 101

Typical issues with IT?

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- Availability

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(The first three: CIA)

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Risk analysis is the process of:

- Identifying key dangers
- Measuring the associated cost

This results in a *risk profile*.

Note : cost might include more than money.

Risks and mitigation

Risk management 101

Facing risks, different paths can be taken:

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If the risk profile is known, and **if** we know costs and solutions then we can **minimise the risk**.

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Criminology 101

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We we almost exclusively consider *adversarial* situations, where the danger is cause by an *active, reactive, cunning* opponent trying to undermine our operations.

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We we almost exclusively consider *adversarial* situations, where the danger is cause by an *active, reactive, cunning* opponent trying to undermine our operations.

As a consequence, risk analysis requires a good understanding of the *threat landscape* and *adversary models*.

A tentative definition

Technology is a chessboard on which people fight.

Situation

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↓ Risk analysis (0)

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Risk profile

Wow. Such threat. Much risk.

Summary

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The performance of steps (0) and (1) is often measured by the ROI (more on that later)

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Refining risk analysis

In order to get a finer picture of the risk profile, we will mostly use:

- A threat exposure model
- Adversary models

(It's not perfect, but it'll help)

Threat exposure

The “No Sharks on Mt Everest principe”

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The risk profile can be refined to take into account a specific exposure situation, therefore enabling to better focus investments.

Threat exposure: an example

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Examples : power blackout, solar storm, tsunami, fire, ageing (rust...), etc.

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Example : a website user triggers an SQL injections involuntarily and starts exploiting it for fun.

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Example : a group trying to steal and sell industrial IP.

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- Military-grade precision and strategies
- May rely on advanced infiltration and spying operations
- Develops its own tools and gathers its own data
- Specific, high-value targets
- Almost always a government-backed and government-funded special group.

Example : the team behind Operation Aurora, targeting the largest USA-based tech firms.

Threats and adversaries: examples

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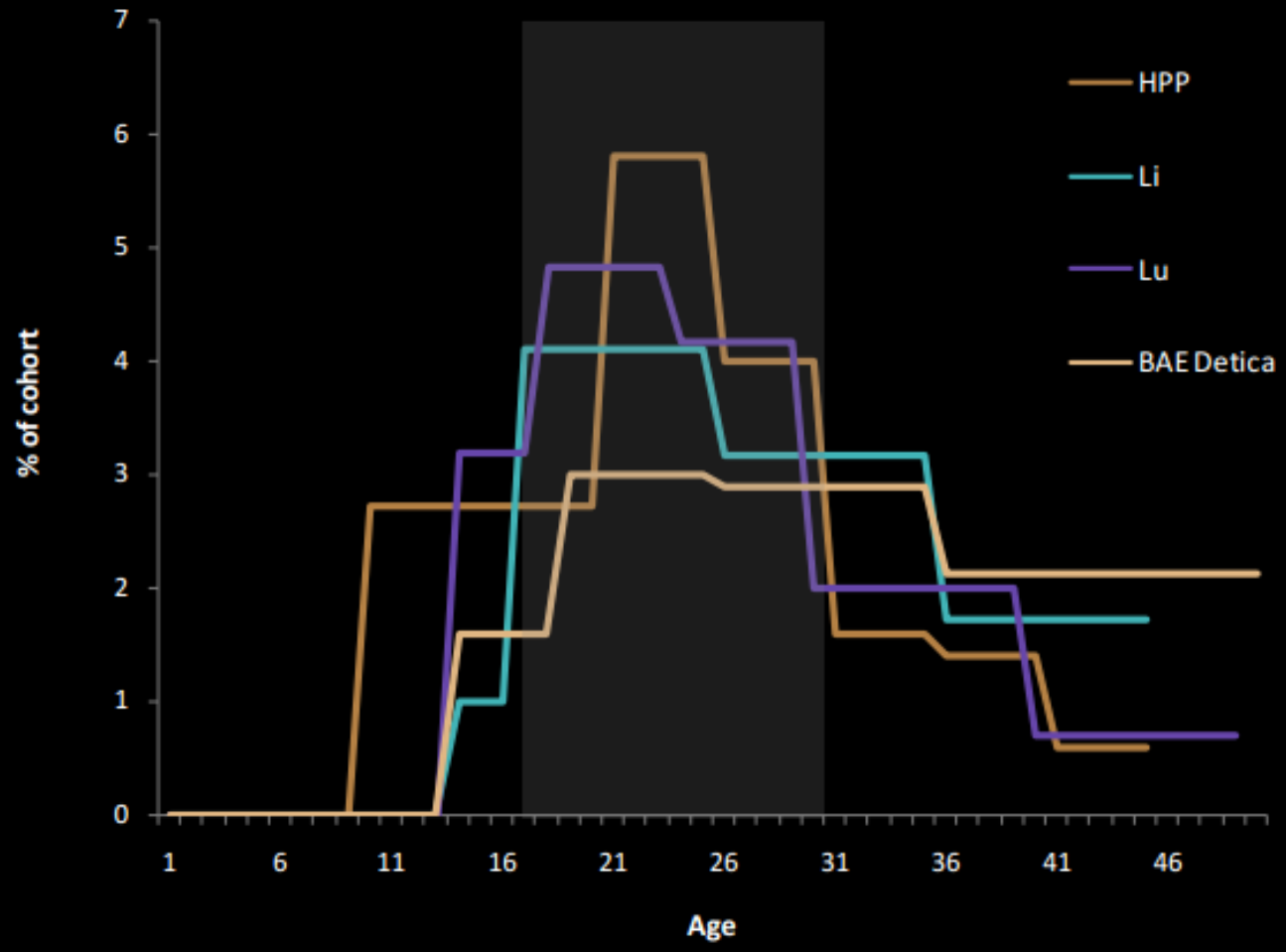
Demographics of cybercriminality



Source: UNODC elaboration of HPP, Li, Lu and BAE Detica

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What drives it all

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- the micro-level, *economical incentives* $\rightarrow$ Economics

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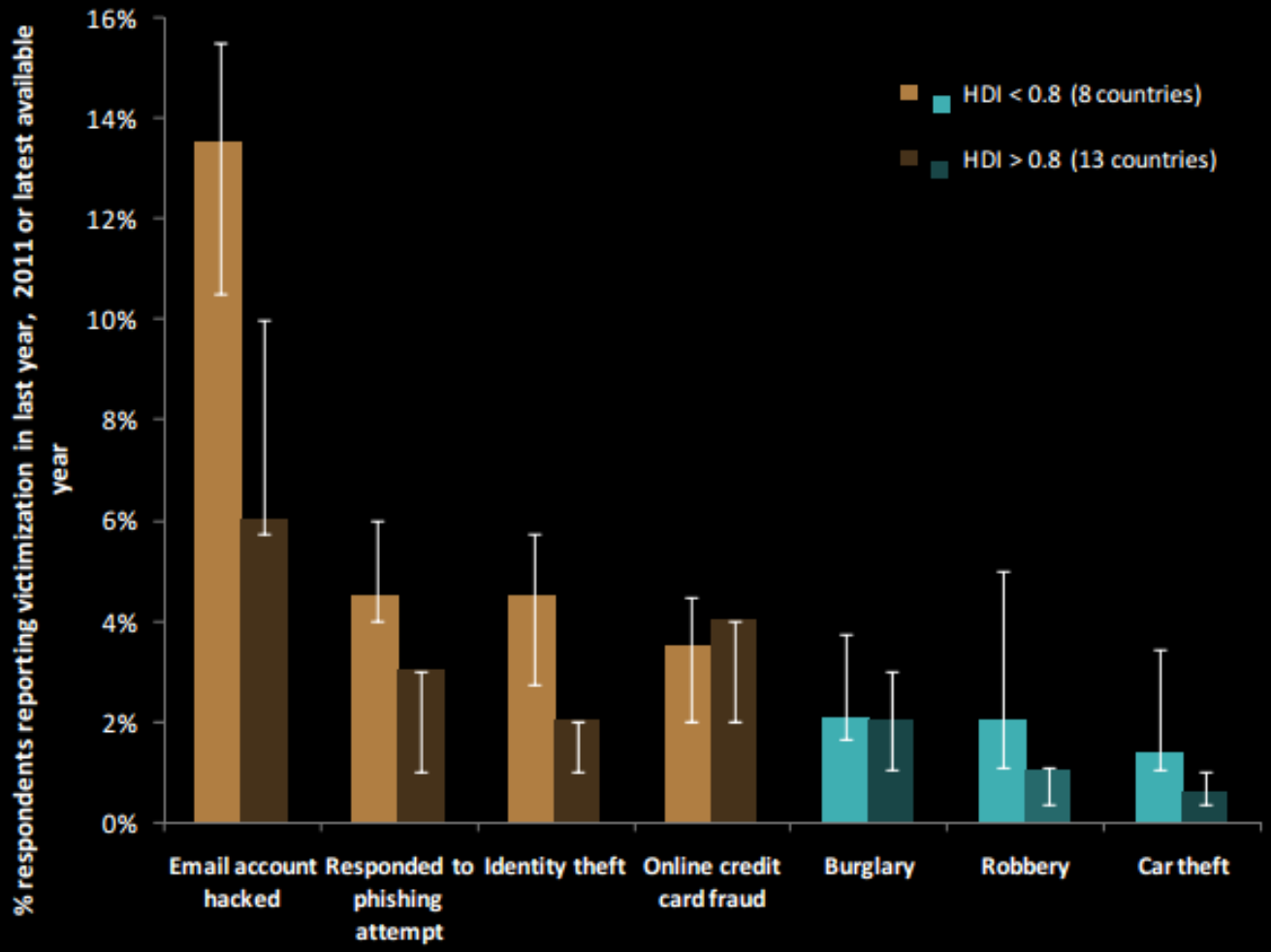
How serious is it?

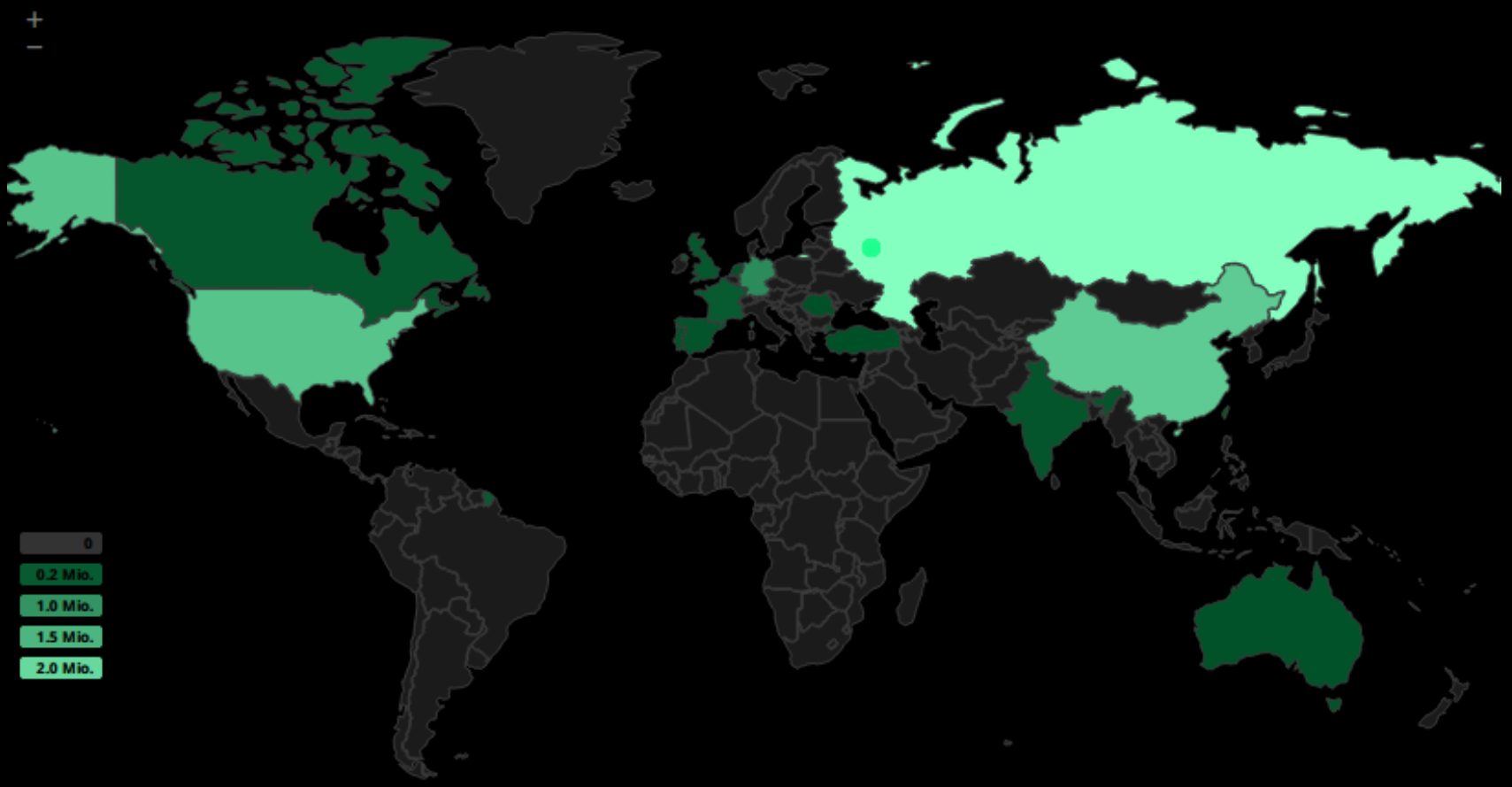


Source: UNODC elaboration of Norton Cybercrime Report and crime victimization surveys.

A good read is the *Comprehensive Study on Cybercrime*, commissioned by the United Nations.

Geopolitics

Inter-state cyberwars



Source of attacks against Germany as of 09.2014 (source : honeymap)

Inter-state cyberwars

The invisible casualties

Top 3 attackers (as of this morning, 12.01.2015):

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You can check out `http://www.digitalattackmap.com/` or `http://map.ipviking.com/` for a nice view

Two factors: covert wars and internal attacks.

Inter-state cyberwars: the most famous example

Stuxnet 2009–2011

- We will study it in details another time

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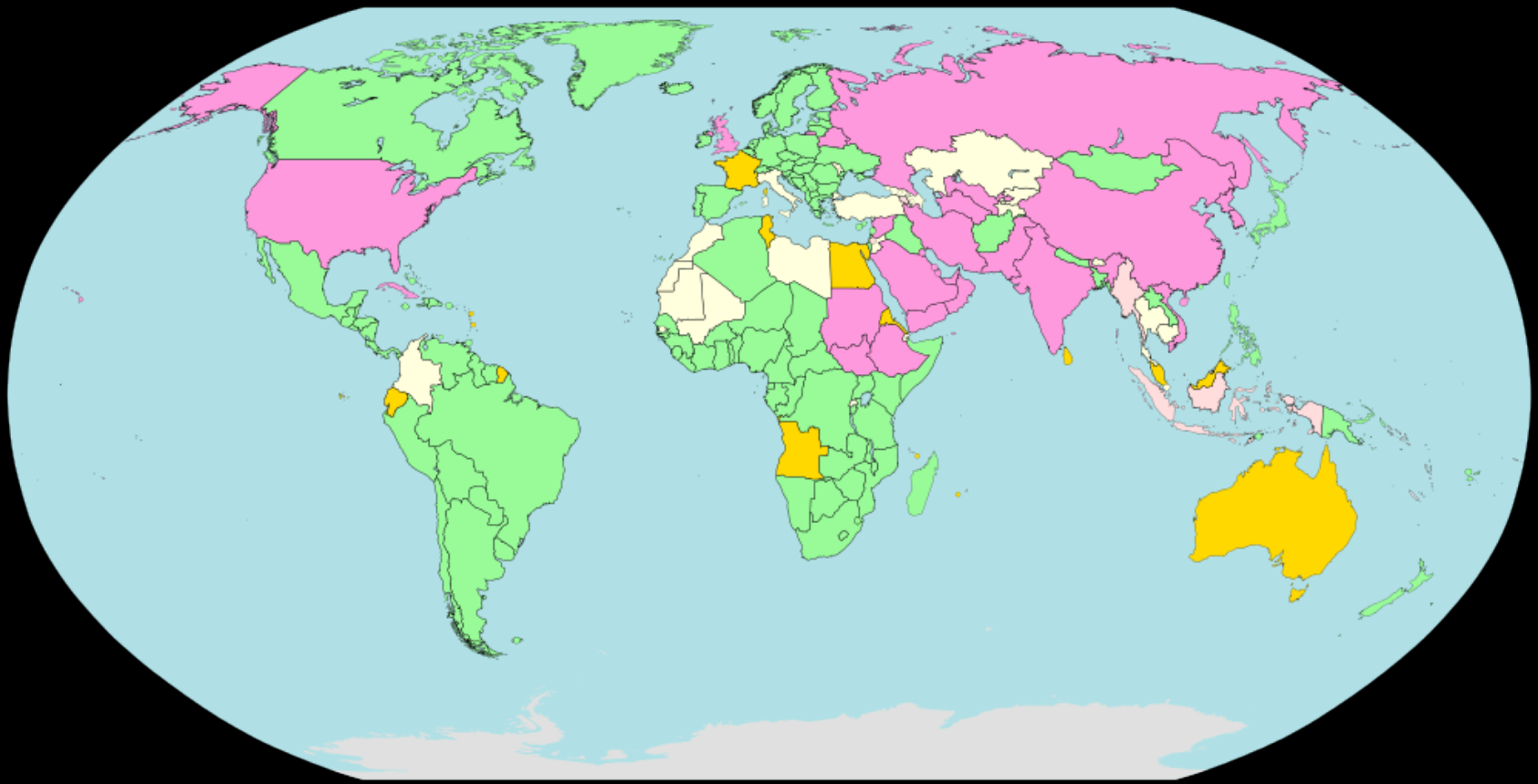
It all started with a USB stick.

Inter-state cyberwars

They are not Charlie



Hindrances to freedom of information, surveillance and censorship in 2014
(source : Reporters sans Frontières)

Debate material: privacy *vs* security

In May 2012, a WE court sentenced one of its nationals to 5 yrs

- "Participation in a criminal conspiracy for the preparation of a terrorist act."
- Prosecution presented dozens of decrypted e-mail communications of jihadist content
- Traced back to a member of a globally operating extremist group
- "translation, encryption, compression and password-protection of pro-jihadist materials"
- "taking concrete steps to provide financial support to extremist group"

The court found the required sufficient evidence to demonstrate that the defendant had provided not merely intellectual support, but also direct logistical support to a clearly identified terrorist plan.

Question : how do you feel about that?

Source: UNODC. *Use of the Internet for terrorist purposes*, 2012.