Cybersecurity
The Rough Road Beyond Awareness

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Digital Transformations

Drivers

Four drivers

- Accessibility
- Connectivity
- Datafication
- Automation

Digital innovation

A **dozen** key, enabling technologies

Ex.

- Mobile/Internet
- Cloud computing
- Big data
- IOT
- Wearables
- Robotics
- Additive manufacturing

Technology convergence

An **endless** number of applications

Ex.

- Drones
- Autonomous vehicles
- Forth party logistics
- E-commerce
- Remote maintenance
- Data-based routing
- Demand forecast

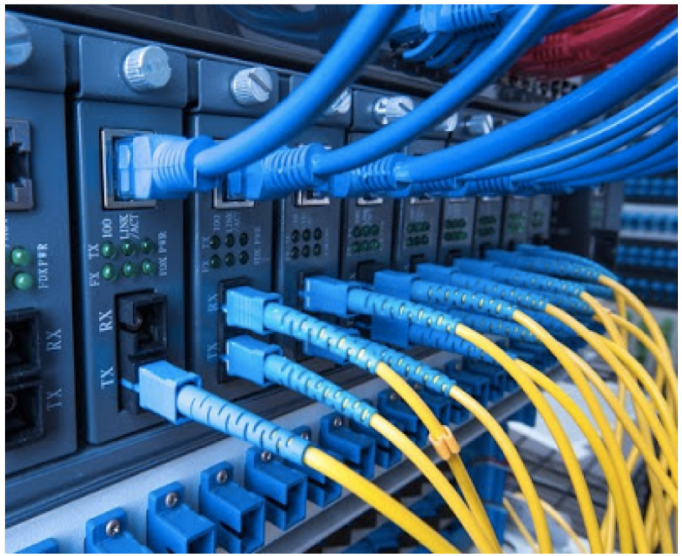
Digitization: Source of Strength or Vulnerability?

- Cybersecurity is the number one problem of humankind

  (Warren Buffett, 2017).

- Cybersecurity threats are outpacing abilities of governments and companies

  (World Economic Forum, 2018)



Sources:
http://www.businessinsider.com/warren-buffett-cybersecurity-berkshire-hathaway-meeting-2017-5
https://www.weforum.org/

Cyber Crime the Greatest Threat to Every Company in the World

- **Cyber crime damage costs: $6 trillion annually by 2021**
  - *More profitable than the global trade of all major illegal drugs combined.*

(Source: https://cybersecurityventures.com/hackerpocalypse-cybercrime-report-2016/

- **Global spending on Cybersecurity will exceed $1 trillion over the next five years**:
  - *More than 4,000 ransomware attacks every day since 2016.*

(Source:https://cybersecurityventures.com/cybersecurity-market-report

- **Awareness**
  - *78% of people claim to be aware of the risks of unknown links in emails but they click anyway.*
  - *52% of companies that suffered cyber attacks in 2016 no changes to their security in 2017*

(Source: Cyber security breaches 2017)

Cybersecurity is a Shared Responsability

Cybersecurity is the **CAPABILITY** to protect digital information and other assets by:

- Enhancing the ability to mitigate cyber threats
- Facilitating the identification and operational response of cyber attacks
- Developing fast recovery and resiliency

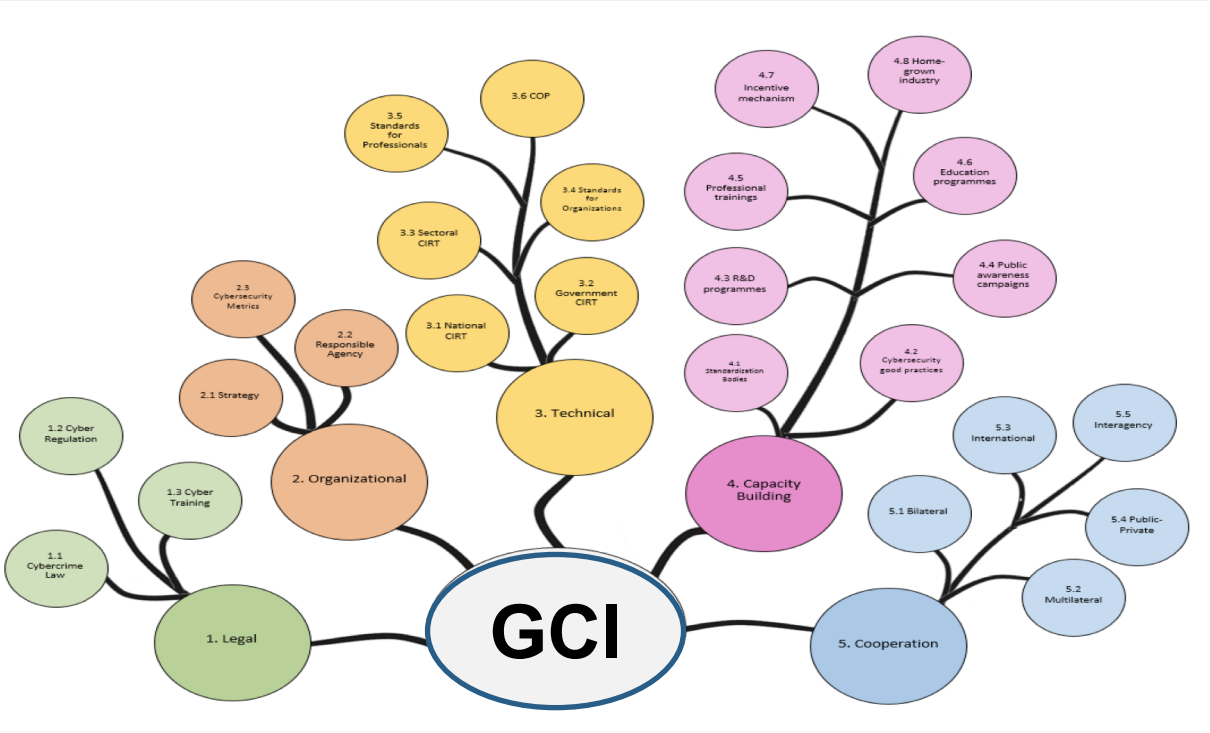
Cybersecurity stakeholders

Threats	• Hacktivism • Corporate espionage • Government-driven • Terrorism • Criminal
Vulnerabilties	• Accidental • Poor practice • Technology/processes/ • People
Values at risk	• Information and communication (data & infrastructure) • Assets • Reputation
Respones	• Policies / Regulations • Governance • Information sharing • Mutual aid • Coordinated actions • Risk markets • Embedded security

Cybersecurity Awareness: A multifaceted phenomenon

- Cognitive awareness is the capacity of :
  - Perception of the cyber threat elements
  - Comprehension of their meaning
  - Projection of their status in the future
- Technical (operational) awareness comprehends the capacities to :
  - Compile- Process-Fuse data
- Institutional
  - Governmental; Corporational; Individual
- Geographical
  - National/ International

Supermodularity in action

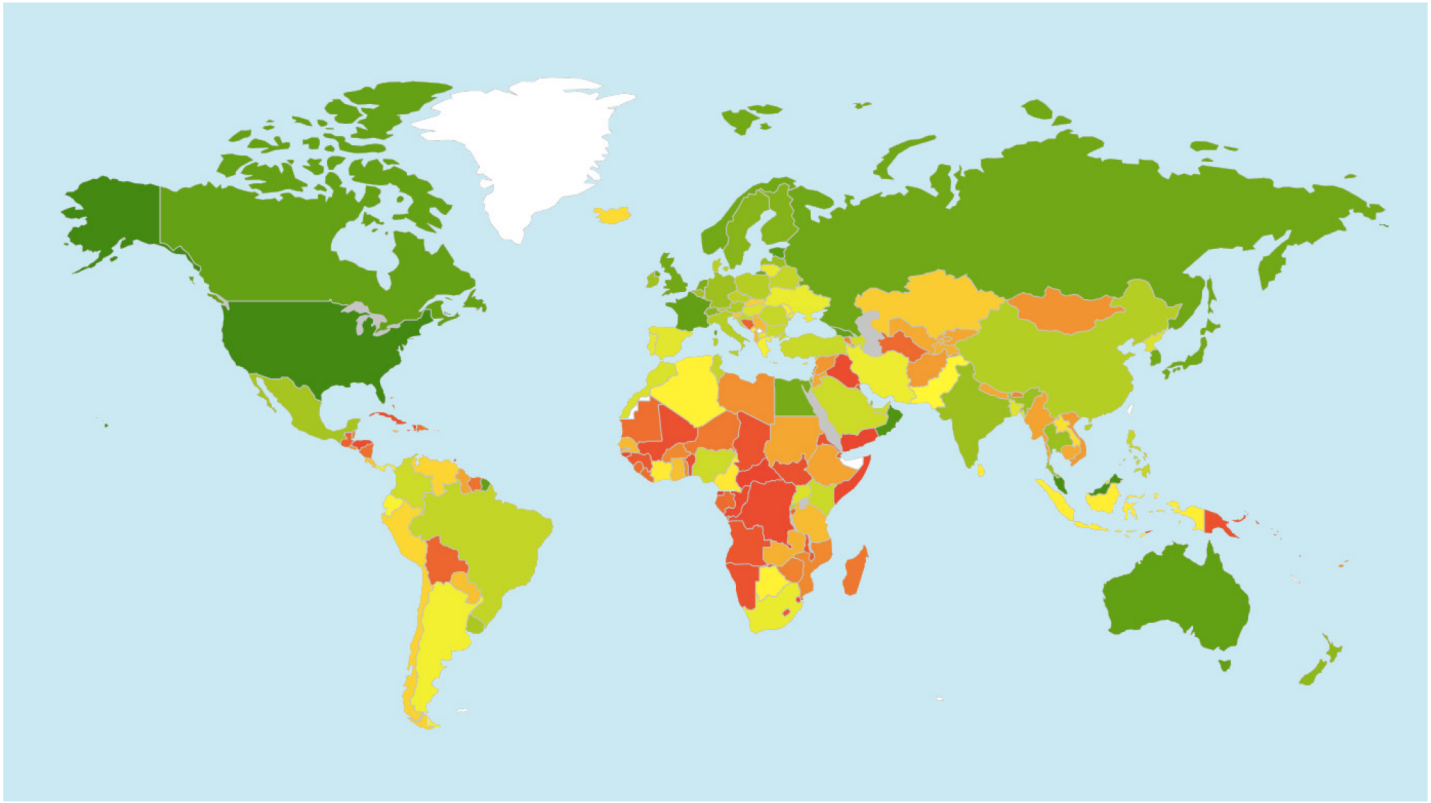


Source: International Telecommunication Union.

The pillars of
Global Cybersecurity Index

- Legal
- Technical
- Organizational
- Capacity building
- Cooperation

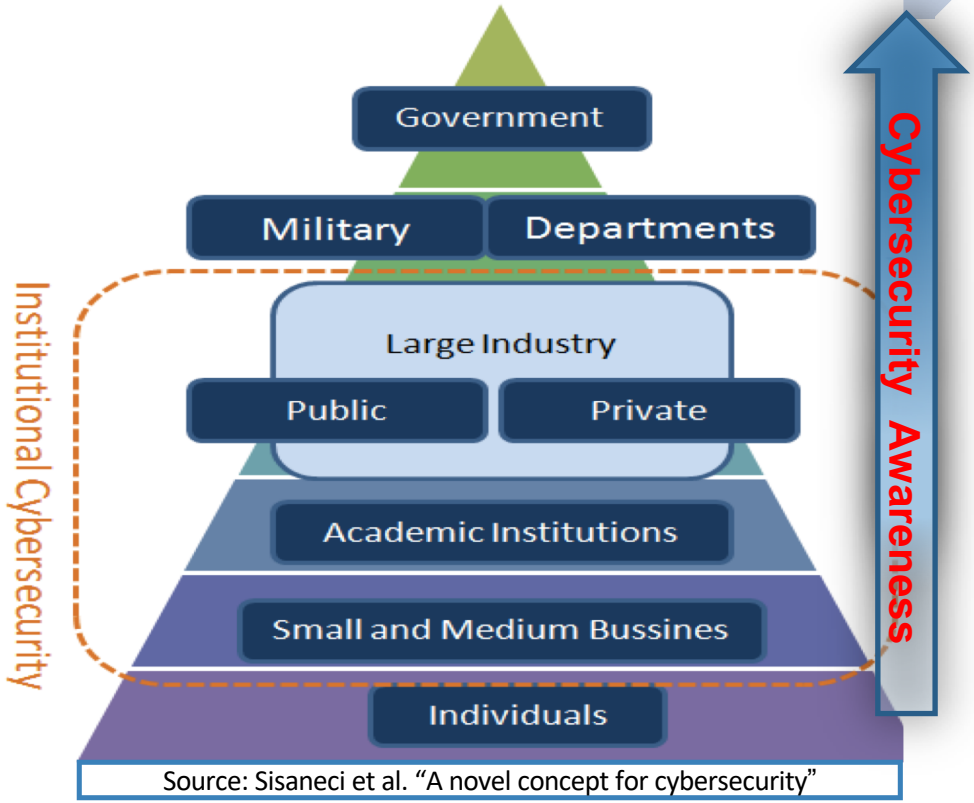
Global Cybersecurity Index (GCI)



Level of commitment: from Green (highest) to Red (lowest)

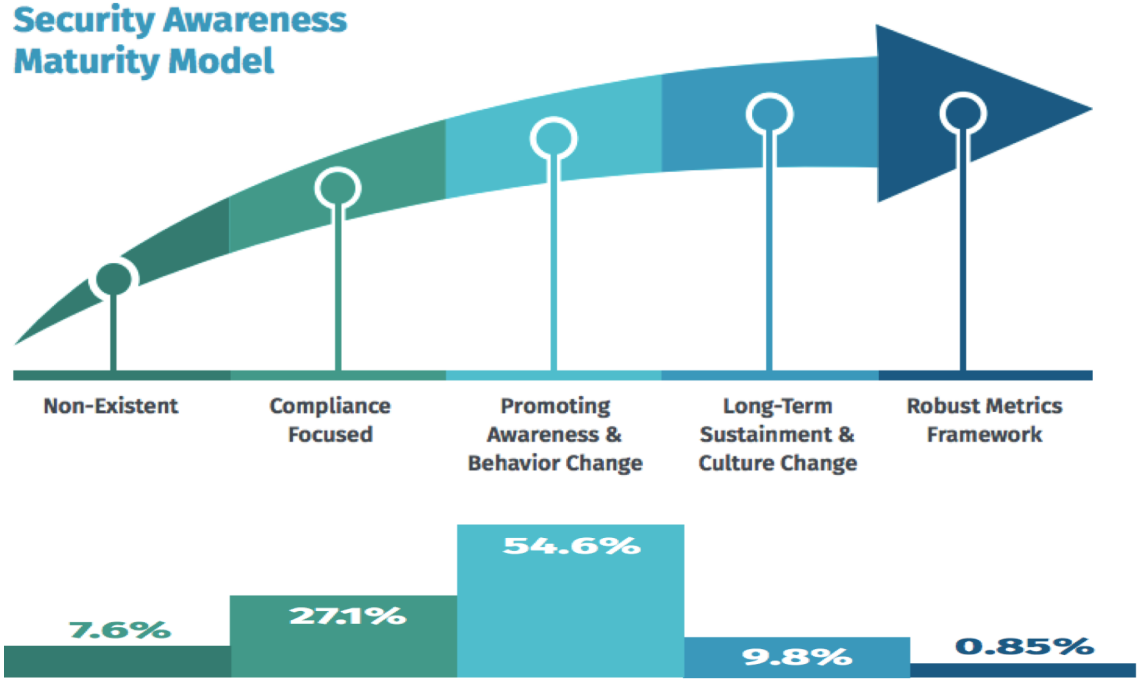
Source: International Telecommunication Union, 2017

National Systems of Cybersecurity



Source: Sisaneci et al. “A novel concept for cybersecurity”

Beyond Awareness, Toward Resiliency



Source: SANS. Cybersecurity Awareness Report, 2017

	Citizens	*SME*	*ISP*	*Large organisations*	*CI operators*	*The state/national security*	*Global infrastructure and issues*
AUS	■	■	■	■	■	■	□
CAN	■	□	□	■	■	■	□
CZE	■	■	■	■	■	■	
DEU	■	■	■	□	■	■	■
ESP	□	□	□	□	■	■	
EST	■	■	■	■	■	■	■
FRA	■	■	□	■	■	■	□
GBR	■	■	■	■	■	■	■
IND	■	■	□	■	■	■	
JPN	□	□		□	■	■	□
LTU	■				■	■	
LUX	□	□	□	□	■	■	
NLD	■	■	□	■	■	■	□
NZL	■	■	■	■	■	■	
ROU	■				■	■	
UGA	■	■		■	□	■	
USA	■	■	□	■	■	■	■
ZAF	□	□		□	■	■	

Notes: □ = when discussed in the NCSS but limited set of related actions/activities

Source: Luiijf & Besseling " Nineteen national cyber security strategies "

The future of Cybersecurity

Human approach

- Cybersecurity education
- A culture of cybersecurity

Artificial Intelligence approach

- The quantum computer
- The block chain technology

Cooperation imperative

- National
- International

Let’s recapitulate

- Cyber threats: exponential growth, permanent risk
- Cybersecurity: scale, scope and complexity
- The disjoint nature of national and global discussions and actions

Building Bridges toward Cybersecurity Resiliency

- A joint commitment
- Cooperation
  - Time
  - Space
  - Communication
  - Leadership
- A symbolic step?

  OSCE Cybersecurity **Resilience** Day

Thank you for your attention!

Questions & Comments?

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