Finnish Information Security Cluster

CYBERTALK FINLAND

Salo, 29th of January, 2019

Juha Remes

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- FISC ry - Finnish Information Security Cluster
- Kybermaailma lukuina
- EU Kybermaailmassa
- Kybermaailman ilmiöt

About Finnish Information Security Cluster

- **FISC association**
  - Found in 2012
  - Joint initiative by Finnish Information Security Industry
  - Over 80 member companies and organizations
  - An elementary body in the implementation of the National Cyber Security Strategy
  - Partner of the Federation of Finnish Technology Industries
  - **Member of European Cyber Security Organization**
  - **Member of Northern European Cybersecurity Cluster**

- **Cyberlab Ltd**
  - A non-profit company owned by FISC
  - Cyberlab mission is to support public sector organizations and enterprises in improving their cyber resiliency
  - Building international business opportunities

Cyber Security Nordic 2019

https://cybersecuritynordic.messukeskus.com/

FISC is founders of European Cybersecurity Organization, ECSO

ECS
EUROPEAN CYBER SECURITY ORGANISATION

- Found in 2016
- Contractual partner(H2020)
  of European Union in cybersecurity
- 240 members from 27 European countries

FISC sits on board of managing directors

FISC has significant role in ECSO future strategies

FISC chairs SME working group

FISC is founders of North European Cybersecurity Cluster

Competences: Engaged Northern European cybersecurity industries for advantage on digitalization.

Resources and Funding: to secure Northern positioning in the light of EU cybersecurity competence center framework

Aiming for leadership with selected innovative key edge cybersecurity technologies

- Found in 2018
- Joint initiative by North European Cyber Security Clusters and Industry
- Eight member states
- An elementary body in the implementation of the Cyber Security Collaboration in north Europe

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North European Cybersecurity Cluster (NECC) Registered 5th of March, 2018 in Helsinki

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Kybermaailma lukuina

Market size in context

Global Economy
Gross Domestic Product (GDP)
(2016) - World Bank

$75.5T ⬆ 1.4%

$3.5T

Global IT-Market (2017)
Gartner

$3.5T ⬆ 4.3%

$120B

Global information security spending (2017)
FISC

$120B ⬆

>9.0%

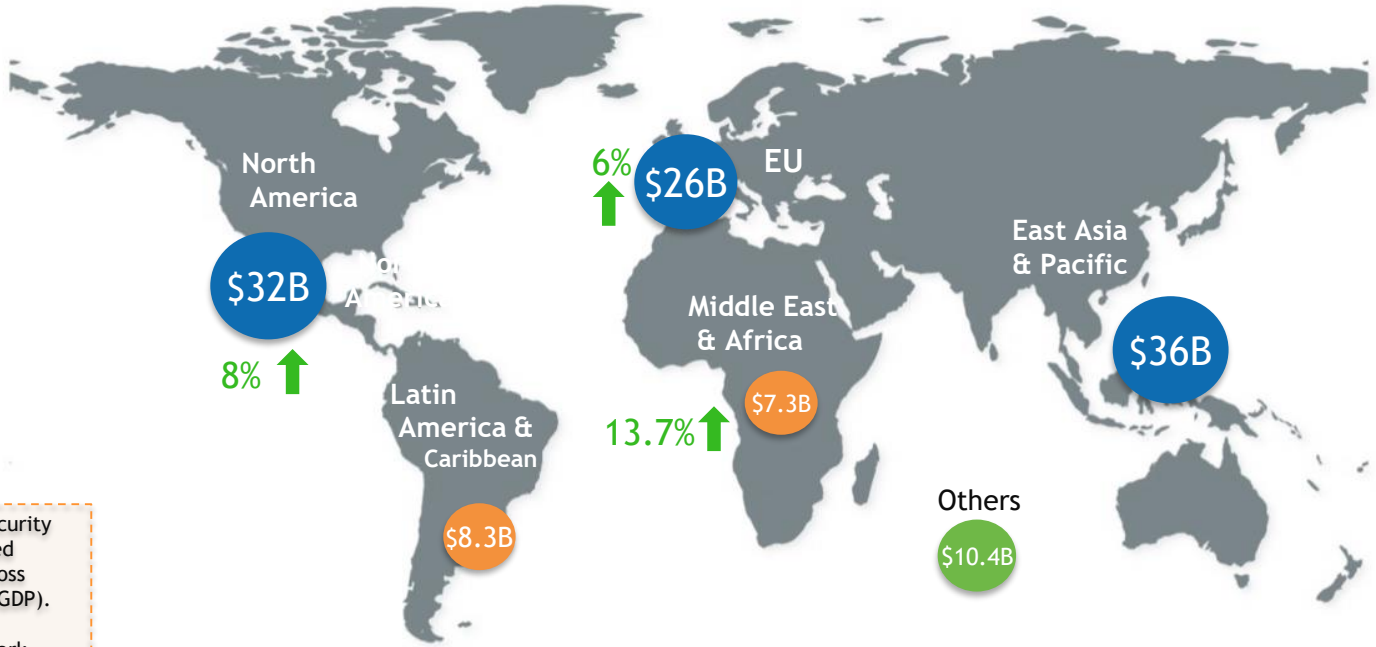
1:8

Global Cost of Cybercrime

$1-1.5T

1 Gartner on IT security: https://www.gartner.com/newsroom/id/3784965
2 Gartner on https://www.gartner.com/newsroom/id/3811363

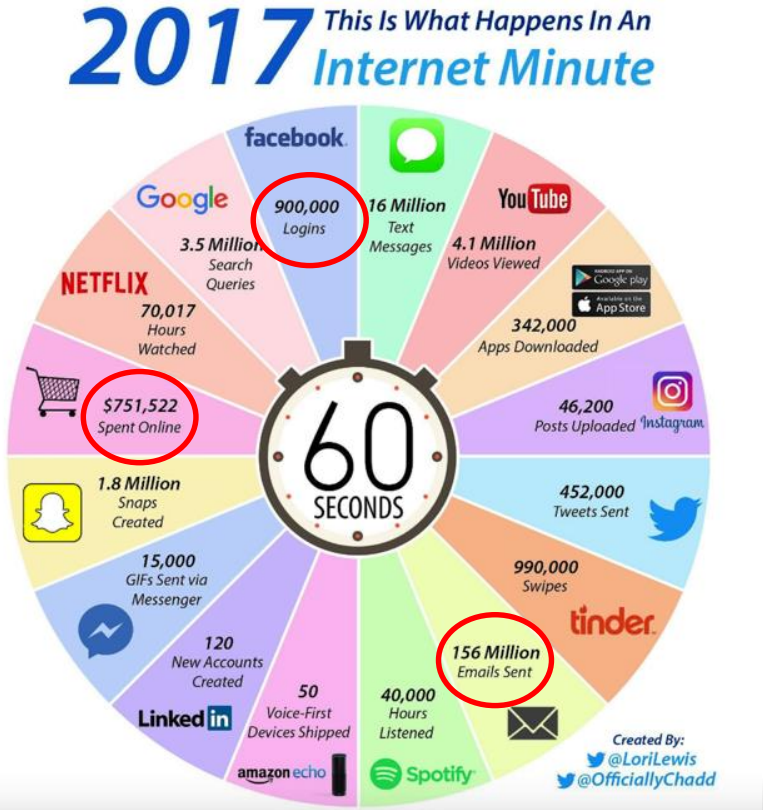
Information security market by region 2017 breakdown



Continental cybersecurity market sizes modeled proportionally to Gross Domestic Products (GDP).

This gives us a ballpark figure of the global market.

What happens in a minute



This is What Happens in an

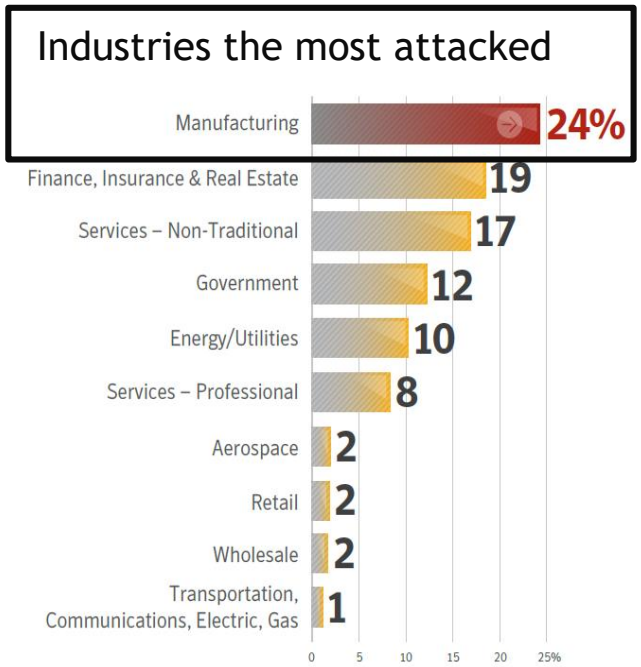
Evil Internet Minute

- ✓ **1,080 victims**
- ✓ **818** pieces of unique malware
- ✓ **7300** Records lost / stolen
- ✓ **1,214 ransomware attacks**
- ✓ **100,000** phishing emails
- ✓ **$1.9 million is lost to of Cybercriminals**
- ✓ New phishing pages: **100 per minute**
- ✓ **14.5** new malicious malvertising ads
- ✓ New blacklisted mobile apps: **0.3 per minute**
- ✓ **4,300** people globally exposed to malware from content theft

http://www.visualcapitalist.com/cybersecurity-fighting-450b-damage/
https://www.riskiq.com/press-release/in-an-evil-internet-minute/
http://www.visualcapitalist.com/happens-internet-minute-2017/

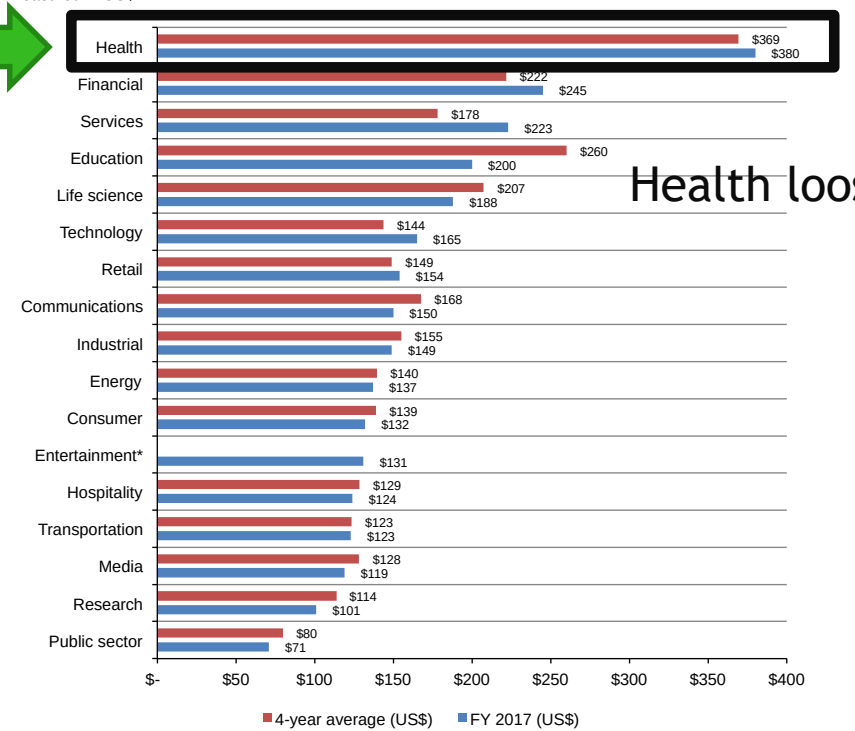
Who hurts the most?

2012



http://www.businessweek.com/articles/2012-08-02/the-cost-of-cyber-crime

2017



Health looses most

”They are already in!”
On aika muuttaa ajattelua – emme ole enää suojassa.

3 **päivää hyökkääjiltä**

Hyökkäystestauksia tekevältä RedTeam – ryhmältä kului noin 3 päivää aikaa saada haltuun pääkäyttäjän oikeudet.

Lähde: Mandiant M-Trends 2017 - FireEye

99 **päivää yrityksiltä**

Vuonna 2016 yrityksiltä kului keskimäärin 99 päivää havaita heihin kohdistunut kyberhyökkäys tai tietovuoto.

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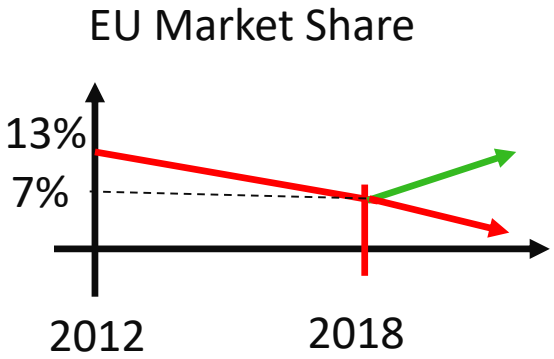
EU kybermaailmassa

What has happened to Europe?



2012: European made cybersecurity solutions had globally, **13% market share**

2018: Today: The market share **has fallen to 7%**

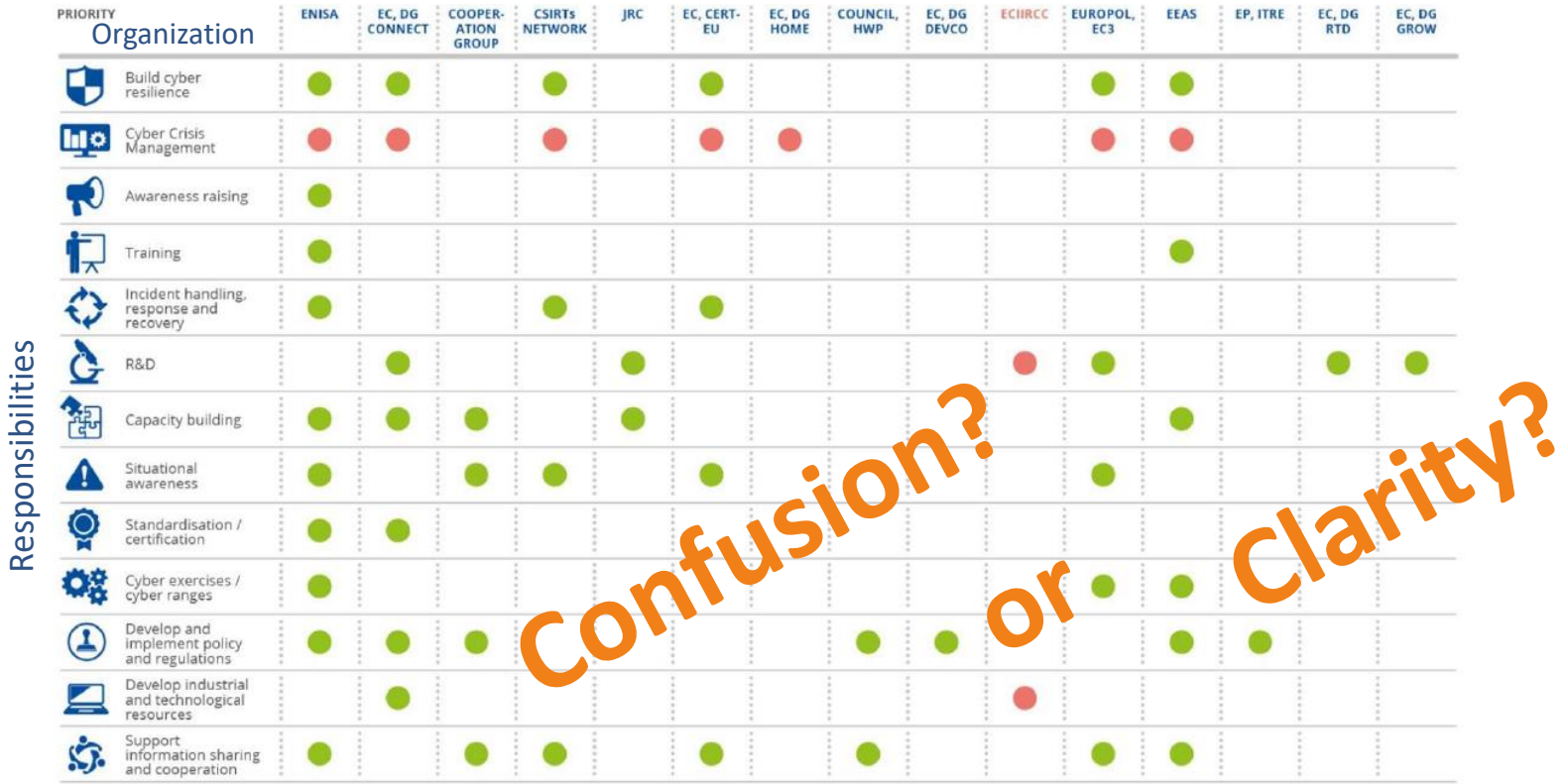
EU (in EU Cybersecurity package) estimates **by 2022**

For cybersecurity professional demand **worldwide is 1.8M**

EU: **350 000 professional**

FISC: Demand Finnish cybersecurity professionals **20 000**

EU actors and their respective roles in the Cyber Resilience/Security



EU Cybersecurity Institutional Map, by ENISA December, 2018

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European cybersecurity related regulations

European Dual – Use Regime

- Set all cybersecurity or total solutions using cybersecurity under Regime
- Limits exports from EU to outside EU

EU GDPR

- Legal frame starting 25th of May, 2018
- The value DATA shall have a official price-tag
- Controls a right to utilize data

EU Privacy Act

- Limits a right to build data related services

EU Cybersecurity Act

- Billions of new EU funding
- Cybersecurity Center and cross-EU networks

EU NIS Directive

- Valid: 9th of May, 2018
- Boost cybersecurity and sets legal measures
- Sets requirements cloud computing, digital service providers, operators

EU E-Evidence

- E-Evidence valid end of 2019
- Accessing digital evidence cross EU states

Challenges within European Cybersecurity

1. **98% European Cybersecurity companies are SMEs**
   - SMEs must grow EU-wide, bigger, global and competitive
2. **Voice of European Industry, is not heard in EU**
3. **New revolutionary European based innovations are missing**
4. **EU is pursuing "only short term state" interest**
5. **EU is not having Common European Vision**

MarketsandMarkets lists major cybersecurity technology vendors Only one company from EU is listed (2017)

- Cybersecurity Market worth 137.85 Billion USD in 2017 and 231.94 Billion USD by 2022 (annual growth 11%)

- Some of the major technology vendors: IBM Corporation (US), Hewlett Packard Enterprise (US), McAfee LLC (US), Trend Micro, Inc. (Japan), Symantec Corporation (US), Check Point Software Technologies Ltd. (Israel), Cisco Systems, Inc. (US), Palo Alto Networks, Inc. (US), Juniper Networks, Inc. (US), Fortinet, Inc. (US), FireEye, Inc. (US), Sophos Ltd. (UK), Rapid7, Inc. (US), EMC RSA (US), LogRhythm, Inc. (US), Optiv Security Inc. (US), Webroot, Inc. (US), CyberArk Software Ltd. (US), Qualys, Inc. (US), **F-Secure (Finland)**, Trustwave Holdings, Inc. (US), Proofpoint, Inc. (US), Splunk, Inc. (US), Kaspersky Lab (Russia), and Imperva, Inc. (US).

https://www.marketsandmarkets.com/PressReleases/cyber-security.asp

EU Cybersecurity Innovation center

European Union – NEW Framework for Cybersecurity

1. Retain and develop the cybersecurity technological and industrial capacities necessary to secure Digital Single Market
2. Increase the competitiveness of the Union's cybersecurity industry
3. Turn cybersecurity into a competitive advantage of other Union industries

⇨ 2 billion euros for cybersecurity in 2021 .. 2027

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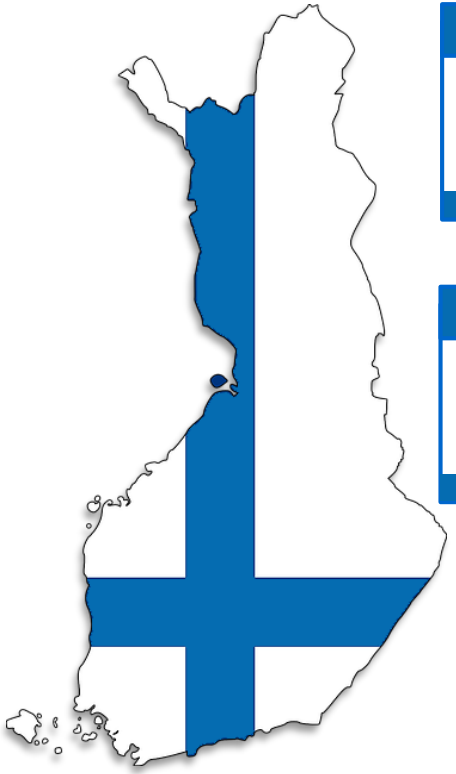
Ehdotuksesta Euroopan parlamentin ja neuvoston asetukseksi Euroopan kyberturvallisuuden teollisuus-, teknologia- ja tutkimusosaamiskeskuksen ja kansallisten koordinointikeskusten verkoston perustamisesta

- Eurooppa ja Suomi yhtenä EU:n jäsenvaltiona tarvitsee kiireellisesti kybertuvallisuuteen panostusta sekä innovaatio, että turvallisuus näkökulmista.

- **Tehty ehdotus on erittäin tärkeä avaus alan kilpailukyvyn ja eurooppalaisen turvallisuuskehityksen takaamiseksi**, mutta FISC pitää erittäin tärkeänä, että tämä panostus ei jää EU tasolla ainoaksi. **FISC pitää erityisen tärkeänä, että Suomi perustaa kansallisen keskuksen ja toimii EU:ssa edelläkävijänä asiassa.** Olisi hyvä, jos Suomalainen keskusrakenne voitaisiin esitellä jo Suomen EU:n puheenjohtajuuskaudella koko EU:lle, vahvistaen Suomen vaikutusvaltaa ja uskottavuutta kyberturvamaana Euroopassa, ja maailmalla.

Cybersecurity in Finland: Against the European flow…



Finnish information security market

$300
MILLION

Size 2012

Finnish information security market

$1
BILLION

Size 2017

x3

Finnish information security market

2500
Employees

Size 2012

Finnish information security market

6500
Employees

Size 2017

2,500 information security professionals at FISC companies
1,500 information security professionals at other companies
2,000 part-time information security professionals

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Kybermaailman ilmiöt

Your applications & devices requires more data, ”YOU LEAK DATA!”

Ex-CIA-pomo: Data on maailman tärkein raaka-aine!

Cyber Security Nordic

http://cyberwatchtv.fi/fi/video/gus-hunt-rethinking-cyber-security-21st-century

Tiedustelupalvelu CIA:n entinen teknologiajohtaja ja rahoitusyhtiö LLR Partnersin nykyinen osakas Gus Hunt sanoo, että julkisen hallinnon parhaille käytännöille pitää etsiä aivan uutta suuntaa.

"Julkishallinnon it ei enää toimi pelkkien tausta-alueiden ja ulkoringin suojauksella. Maailmassa on nykyään niin ahnaita hakkereita ja tietohallinnon syvillä vesillä uivia haikaloja, etteivät perinteiset palomuurit enää riitä suojaamaan näiltä terävähampaisilta saalistajilta", entinen tiedustelupomo viittaa NSA:n loikkari Edward Snowdenin tapaukseen.

tivi | CIO

17 SEP 2014

Entinen CIA-pomo Gus Hunt menee vieläkin pidemmälle. "Data on kaikkein eniten tavoiteltu raaka-aine, ja sitä kaikki jahtaavat. Tietojen päällä istuvien valtion CIO:ien on pidettävä data hallinnassaan, olipa se pilvessä tai muualla", Hunt sanoo.

http://www.tivi.fi/cio/exciapomo+data+on+tarkein+raakaaine/a1012262

⇨ Tieto on tärkein raaka-aine!

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Menestys perustuu tietoon

Sun Tzu

Statue of Sun Tzu in Yurihama, Tottori, in Japan

Born	544 BC (traditional) Qi or Wu, Zhou Kingdom
Died	496 BC (traditional)
Occupation	Military general, tactician, writer, philosopher
Period	Spring and Autumn
Subject	Military strategy
Notable works	*The Art of War*

”Halutessasi lyödä armeijan, vallata kaupungin tai salamurhata ihmisiä sinun on tiedettävä varuskunnan komentajan, esiupseereiden, portinvartijoiden, ovenvartijoiden ja henkivartijoiden nimet. Kehota asiamiehiäsi selvittämään nämä asiat pienintäkin yksityiskohtaa myöten (Sun Tzu).”

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TRUST: Becoming A new world currency

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Evidence for a global “outbreak of mis-trust”

World trust indicator

2013

2017

Report: U.S. spied on Brazil’s Petrobras, Google

By Bradley Brooks The Associated Press

Comments | Facebook | Twitter 3 | Google+ | Email | ...

This Sunday, June 9, 2013 file photo provided by The Guardian Newspaper in London shows Edward Snowden, in Hong Kong. Snowden has left Moscow's Sheremetyevo airport and entered Russia his lawyer said on Thursday Aug. 1, 2013. (AP Photo/The Guardian, Glenn Greenwald and Laura Poitras, File)

America first!

The day President Trump took office, he declared a change in America's direction.

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Today's the most wanted and valuable

Zetta bytes of data 1 000 000 000 000 000 000 000 bytes, 10^{21}

Governments are collecting it by the force …

Unlimited storage capacity of data, oversize secret project on San Francisco's TRESURE BAY.

This large structure, which is likely being built by Google, could be a floating data center. It is located on a barge just off Treasure Island, between San Francisco and Oakland.

Google gets it free …

Russia “Masters hybrid operations”

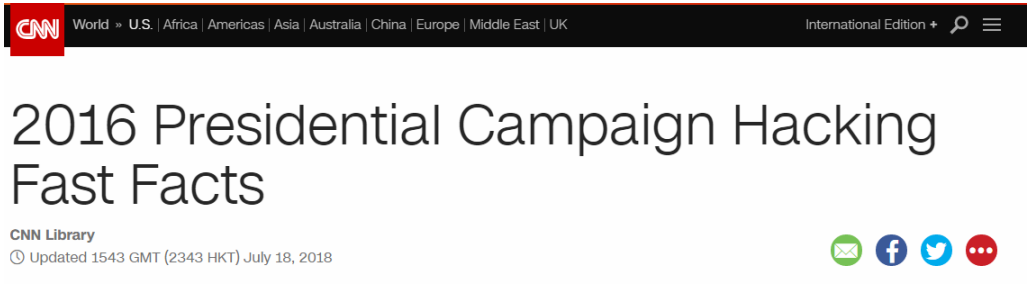
World trust indicator

2014

2016

Crimean operation starts: 27th-28th February

Manipulation?



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Facebook says new hack leaked data of 50 million users

Chris Mills @chrisfmills
September 28th, 2018 at 12:57 PM

https://bgr.com/2018/09/28/facebook-data-breach-2018-yep-another-one/

Facebook has announced that a previously unreported attack on its network exposed the personal data of nearly 50 million users. The company said that it discovered the breach earlier this week. Attackers used a flaw in Facebook's code to take over user attacks, the company said.

The social network says that the vulnerability has been fixed and law enforcement has been notified. Some 90 million users have been forced to log out of their accounts as of Friday morning, and when they log back in, Facebook will notify them about the breach.

Our investigation is still in its early stages. But it's clear that attackers exploited a vulnerability in Facebook's code that impacted "View As", a feature that lets people see what their own profile looks like to someone else. This allowed them to steal Facebook access tokens which they could then use to take over people's accounts. Access tokens are the equivalent of digital keys that keep people logged in to Facebook so they don't need to re-enter their password every time they use the app.

The forced logouts will ensure that no ongoing access to an account is possible with the stolen security token. Facebook has forced the 50 million accounts it knows were affected to log out, as well as 40 million more that have used the "View As" feature in the last year.

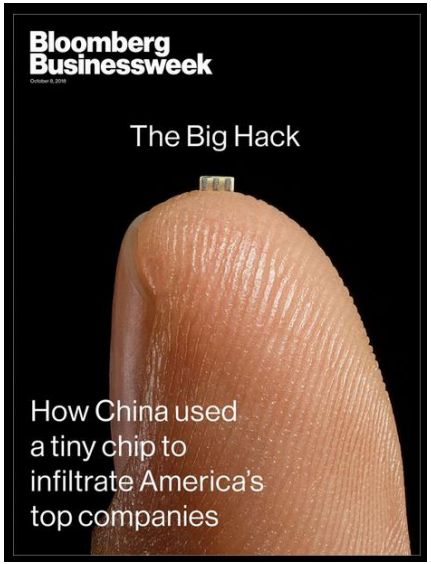
http://cyberwatchtv.fi/fi/video/mikael-krogerus-rise-and-fall-cambridge-analytica

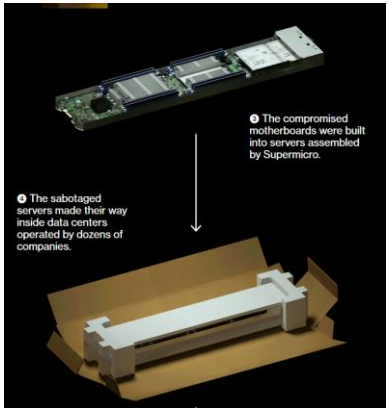
The Big Hack: How China Used a Tiny Chip to Infiltrate U.S. Companies

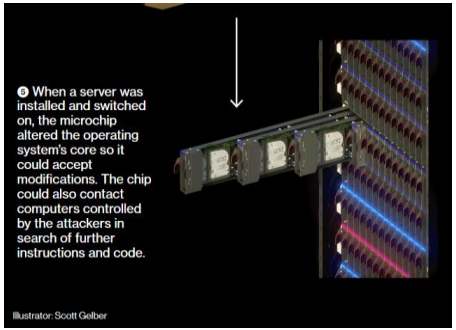
World trust indicator

2013

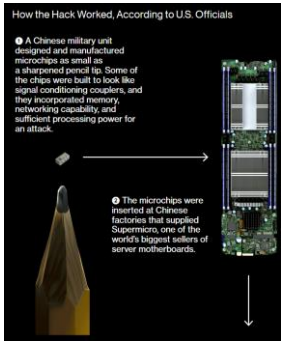
2018







Trustworthy?



https://www.bloomberg.com/news/features/2018-10-04/the-big-hack-how-china-used-a-tiny-chip-to-infiltrate-america-s-top-companies

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Huawein talousjohtaja pidätetty Kanadassa, Mitä uutisoidaan?

Huawei-pomon pidätyksen jälkipyykki jatkuu Kiinassa: "Pidätys oli huomattava virhe"

Kauppalehti

22.12.2018 09:00 | päivitetty 23.12.2018 16:01 DIGITALOUS MEDIA

UUTISET

Uutiset | Ulkomaan uutiset

Ensin Huawein johtajan pidätys ja nyt Kanada selvittää: jo toinen kanadalaismies katosi Kiinassa

Huawei-johtajan pidätyksestä alkanut markkinahermoilu rauhoittui – Tokion pörssi avasi kasvuun

mtv UUTISET

Kiina ja USA riitelevät Huawein perustajan tyttären pidätyksestä

SATAKUNNAN KANSA

Trudeau: Huawei-johtajan pidätys ei ollut poliittinen päätös

Länsi-Suomi

PIDÄTYS | Suvi Korhonen 7.12.2018 klo 15:21

Huawei-pomon pidätys kiristää Kiinan ja USA:n välejä

Nokia nousee kilpailijan johtajan pidätyksestä – analyytikko: suomalaisyhtiö on hyötyjä

ARVOPAPERI

Demokraatti VALIKKO ALUEET ARBETARBLADET

Kiina on pidättänyt jo kaksi kanadalaista reaktiona Huawein johtajan pidätykseen – heitä tutkitaan "Kiinan valtion turvallisuuden vaarantamisesta"

AAMULEHTI

Talous

Huawei-pomon pidätys raivostutti kiinalaismedian

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The Global Risk Report 2018

WORLD ECONOMIC FORUM

- ” Cyber attacks are perceived as the global risk of highest concern to business leaders in advanced economies.”
- - World Economic Forum

Global Risks Report

North America

The risks of greatest concern for doing business

	rank
Cyber attacks	1
Terrorist attacks	2
Asset bubble	3
Fiscal crises	4
Failure of climate change adaptation	5

Source: Executive Opinion Survey 2017, World Economic Forum

Global Risks Report

East Asia and the Pacific

The risks of greatest concern for doing business

	rank
Cyber attacks	1
Asset bubbles	2
Fiscal crises	3
Unemployment or underemployment	4
Energy price shock	5

Source: Executive Opinion Survey 2017, World Economic Forum

https://www.weforum.org/agenda/2018/01/our-exposure-to-cyberattacks-is-growing-we-need-to-become-cyber-risk-ready

Uhkista huolimatta eteenpäin!

Tulevaisuus on mahdollisuus

Digitalisaatiota ja kyberturvallisuutta on rakennettava yhdessä.

Rohkeus ja kyky hyödyntää uusia mahdollisuuksia

määrittää myös kuinka hyvin pärjäämme digitalisen kehityksen keskellä.

Kyberturvallisuuden tulisi olla osa liiketoimintastrategiaa

Organisaation ja Yrityksen ylimmän johdon sitoutuminen ja tilanneymmärrys ovat tässä avainroolissa.

Kyberturvallisuus on ymmärrettävä uutena investointina, mahdollistajana – ei vain liiketoimintakuluna!

Thank you!

Juha REMES
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Finnish Cyber Security
No strings attached

www.fisc.fi

Check these links for more:

http://cyberwatchtv.fi/

https://www.youtube.com/watch?v=1ozC9BTjZLI&feature=youtu.be

https://cybersecuritynordic.messukeskus.com/