

# Cyber Security Assessment for the World Economic Forum

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Cyber Crime – Systemic Risk and Resilience – Cyber War – Privacy – New Norms of Collaboration

### Cyber Security Today

Digital interconnectivity has made our world more accessible and convenient, but with rapid data transmissions serving our every impulse come potentially unseen and difficult security challenges. In the coming years, cyber security will take on a new importance as the surface of the digital landscape multiplies with services, infrastructure, and communication networks joining forces to create smart networks.

As new technologies evolve, so do privacy, security, and legal environments, which is why the Data Mining and Security Lab at McGill University has been researching and producing policies that help ensure sustainable innovation.

Topics considered for the World Economic Forum included privacy and security challenges for the increasing popularity of the Internet of Things, Cyber Warfare, and digitally connected Critical Infrastructure.

According to a 2013 report from IT research firm Gartner, Inc., the number of internet of things connected devices excluding PCs, smartphones and tablets, will increase from 900 million in 2009 to 26 billion by 2020 – a **thirtyfold increase**.

It is no coincidence that Hewlett Packard's 2016 *Cyber Risk Report 2016* dubbed 2015 "the year of collateral damage". With cyber threats in the form of ransomware, botnets, and distributed denial of service (DDoS) attacks, users from government agencies to small businesses are being affected by cyber threats.



Source: <http://s1.btimes.com/sites/www.btimes.com/files/2016/01/13/world-economic-forum-north-korea-davos-invite.jpg>

### Cyber Security Trends and Happenings

Attacks on critical infrastructure increased 52% from 130 attacks in 2011 to 198 attacks in 2012. This included six attacks on nuclear facilities, seven on chemical plants, and 82 on the energy sector

(2012 US Department of Homeland Security Industrial Control Systems Cyber Emergency Response Team Report)

80% of customers are more likely to purchase from a brand that they knew protected their cyber security, while only 66% of business executives believe consumers even noticed the difference

(2015 Deloitte Consumer Review)

Attacks by nation states were up 86% in 2014, and incidents attributed to industry competition were up 64% from the previous year

(2015 PwC Report)

In 2015, a team of cyber security professionals fully compromised a US electrical provider in less than 24 hours

(2016 Tech Insider, 2016)

### Future Solutions

Automation procedures should be continually examined and evaluated using metrics, such as those that calculate system confidence, purity, cost utility, and timeliness

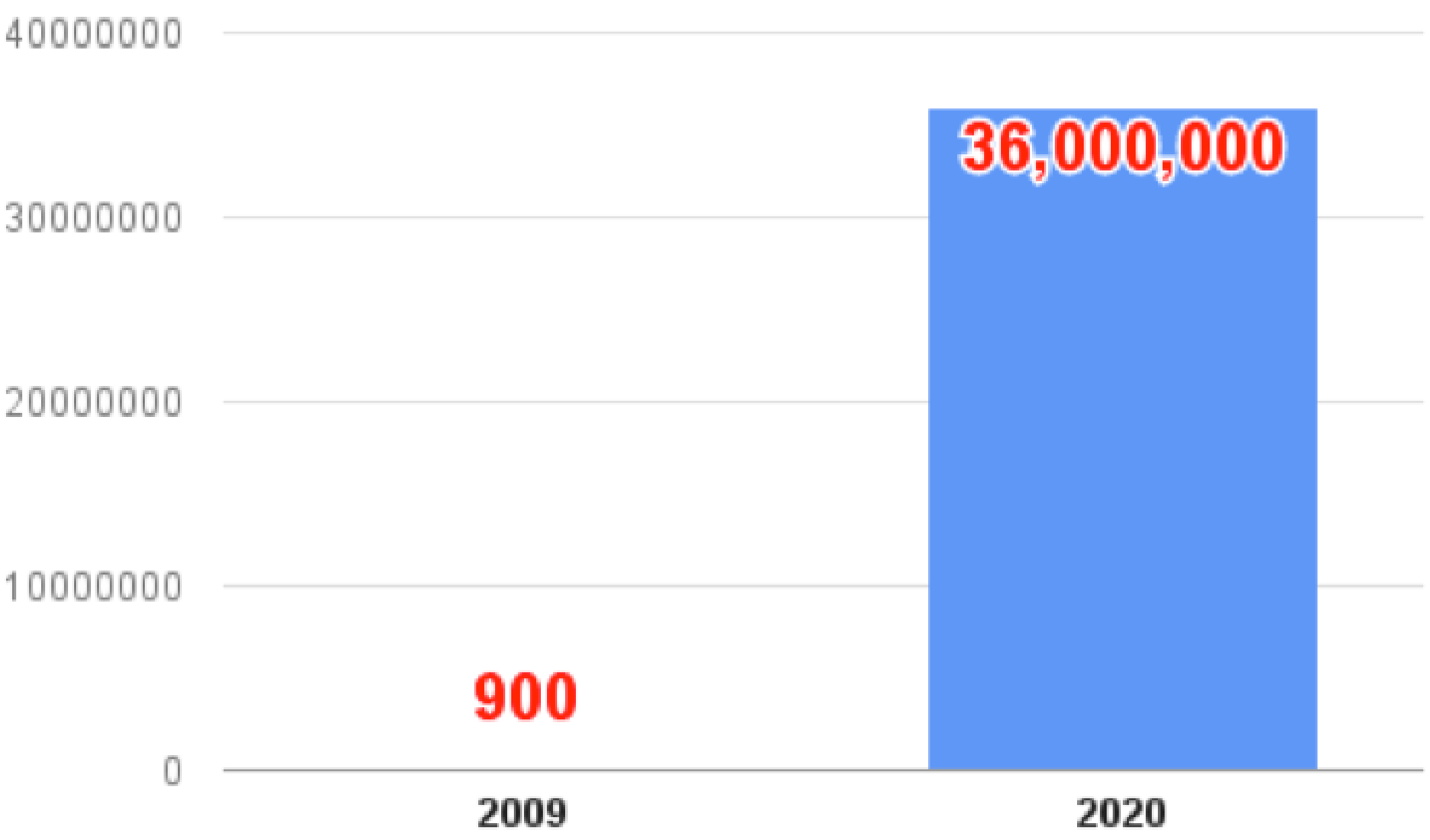
Security researchers must be incentivized to share their discoveries with software creators. In 2013, researchers at University of California, at Berkeley found that rewarding external security researchers for finding bugs was up to 100 times more cost effective than not.

For cyberspace collaboration to be effective, new channels of data sharing should be built both vertically for industry specific purposes and horizontally across multiple industries.

Organizations like the Canadian Cyber Threat Exchange (CCTX) and National Cyber-Forensics & Training Alliance (NCFTA) in the United States can help facilitate discussions between unfamiliar entities and provide secure forums for information exchange

Data anonymization must go beyond stripping names from data sets and should instead utilize methods of data transformation that minimize the possibility of personal re-identification while remaining useful to researchers

Number of Internet of Things Objects



Projected Amount of Internet of Things Objects, Source: Gartner Inc.



Source: [http://www.elp.com/content/elp/en/articles/2016/05/alabama-politicians-urge-tva-to-sell-unfinished-nuclear-power-plant/\\_jcrcontent/leftcolumn/article/headerimage.img.png/146220797271.png](http://www.elp.com/content/elp/en/articles/2016/05/alabama-politicians-urge-tva-to-sell-unfinished-nuclear-power-plant/_jcrcontent/leftcolumn/article/headerimage.img.png/146220797271.png)

### Black Market Personal Information Prices

Visa/MasterCard	\$ 4
American Express	\$ 7
Discover Credit	\$ 8
Social Insurance	\$ 30
Health Insurance	\$ 20
CC Chip Data	\$ 12
Bank Account	< \$ 300
Complete Identity	\$ 1,200 - \$ 1,300

Source: Anton Stiglic, February 2016, "Value of Personal Information, A Cyber Security Perspective"