



Cyber Defence – Beyond the next wave

Opportunities & Challenges for Societies

**Swiss Networking Day 2016
April 28th, 2016 Lucerne University of Applied Sciences and Arts
Adolf J. Doerig**

It's not just security. It's defence.

The central graphic features a world map with glowing blue lines. Overlaid on the map are three circular logos: the Department of the Army (1775), the Department of the Air Force (1947), and the Defense Information Systems Agency. A red padlock icon is positioned between the Army and Air Force logos. To the right is a grid of 24 small images showing various military assets like ships, aircraft, and satellites, along with abstract digital patterns. Below the map is a diagram titled 'Integrated Fires' with a large arrow pointing right. The diagram is divided into 'Non-Kinetic Fires' (top) and 'Kinetic Fires' (bottom). Under 'Non-Kinetic Fires' are 'Cyber Operations' and 'Electronic Warfare'. Under 'Kinetic Fires' are 'Counter-C4ISR & Targeting' and 'Combat Systems Integration'. The bottom right of the collage shows a woman in a control room wearing a headset and working at multiple computer monitors.

Key Questions

- „What does the digitalisation to our nation, our infrastructure, our business and our life?“
- „What do we need to change in our models?“
- „How could a successful strategy for digital sovereignty look like?“
- „What are the most important measures for a successful transition?“



\$15 trillion in world trade, highly complex, hyperconnected world

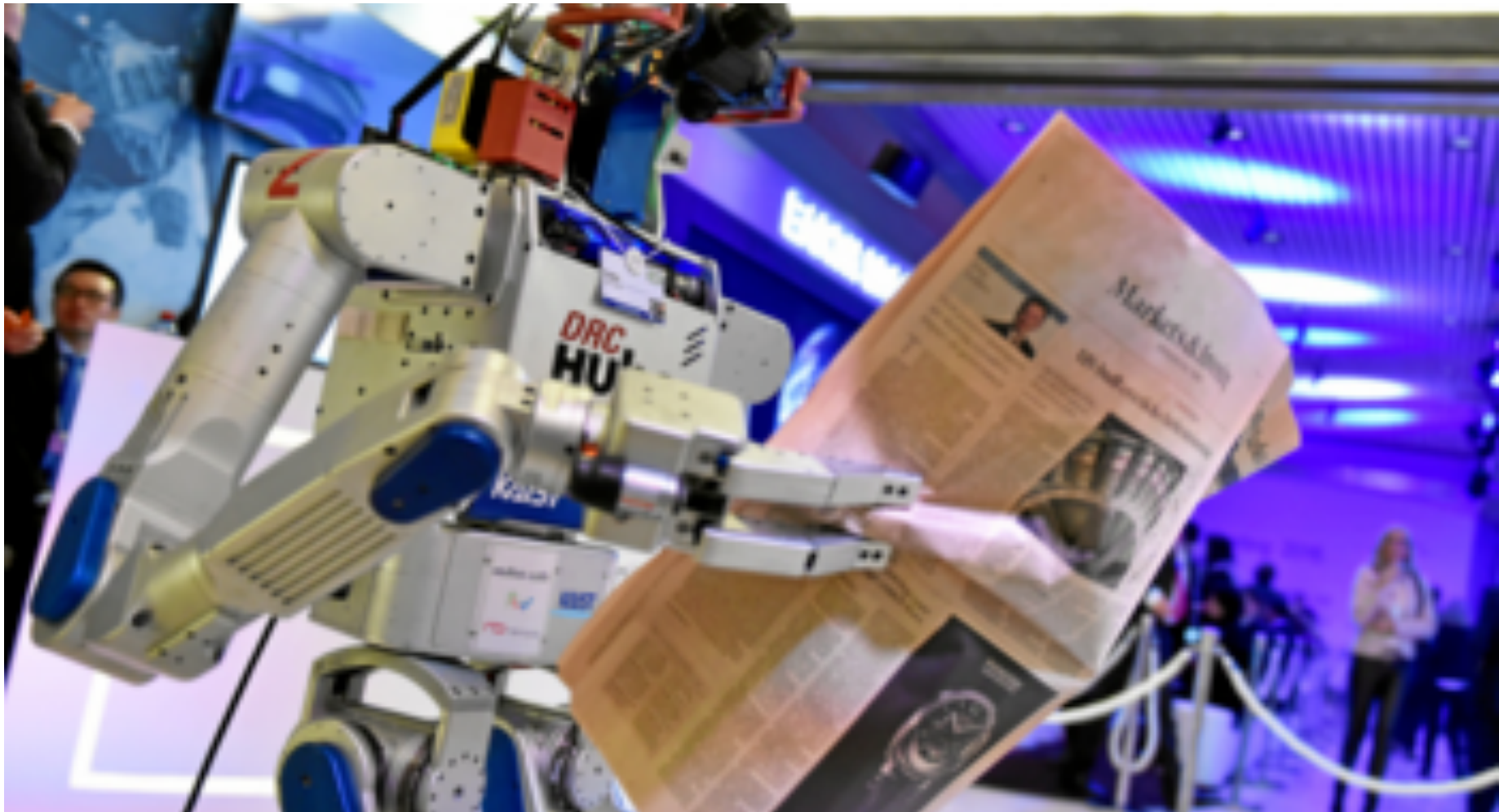


Soaring flows of data and information now generate more economic value than the global goods trade. (McKinsey & Company)

World economy is running on Critical Infrastructures („system of systems“)



4th Industrial revolution (WEF)

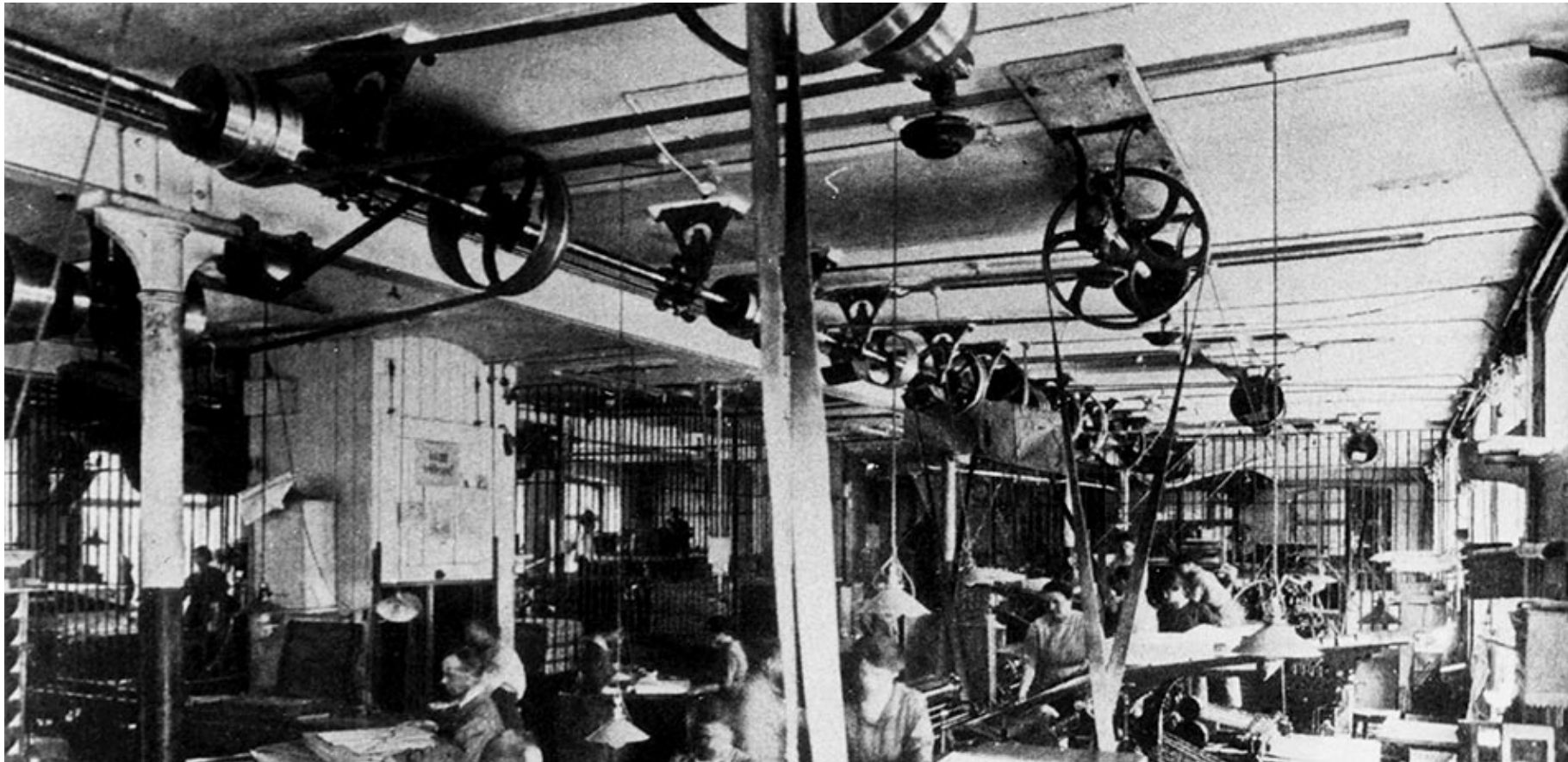


„Don't Be So Sure - The Economy Will Return to Normal“

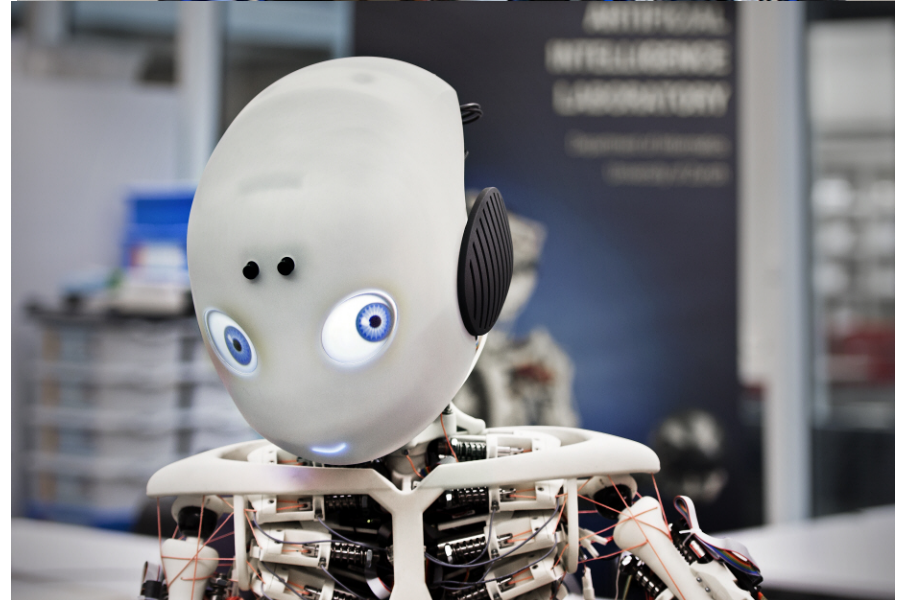


Source: The New York Times, May 15, 2015

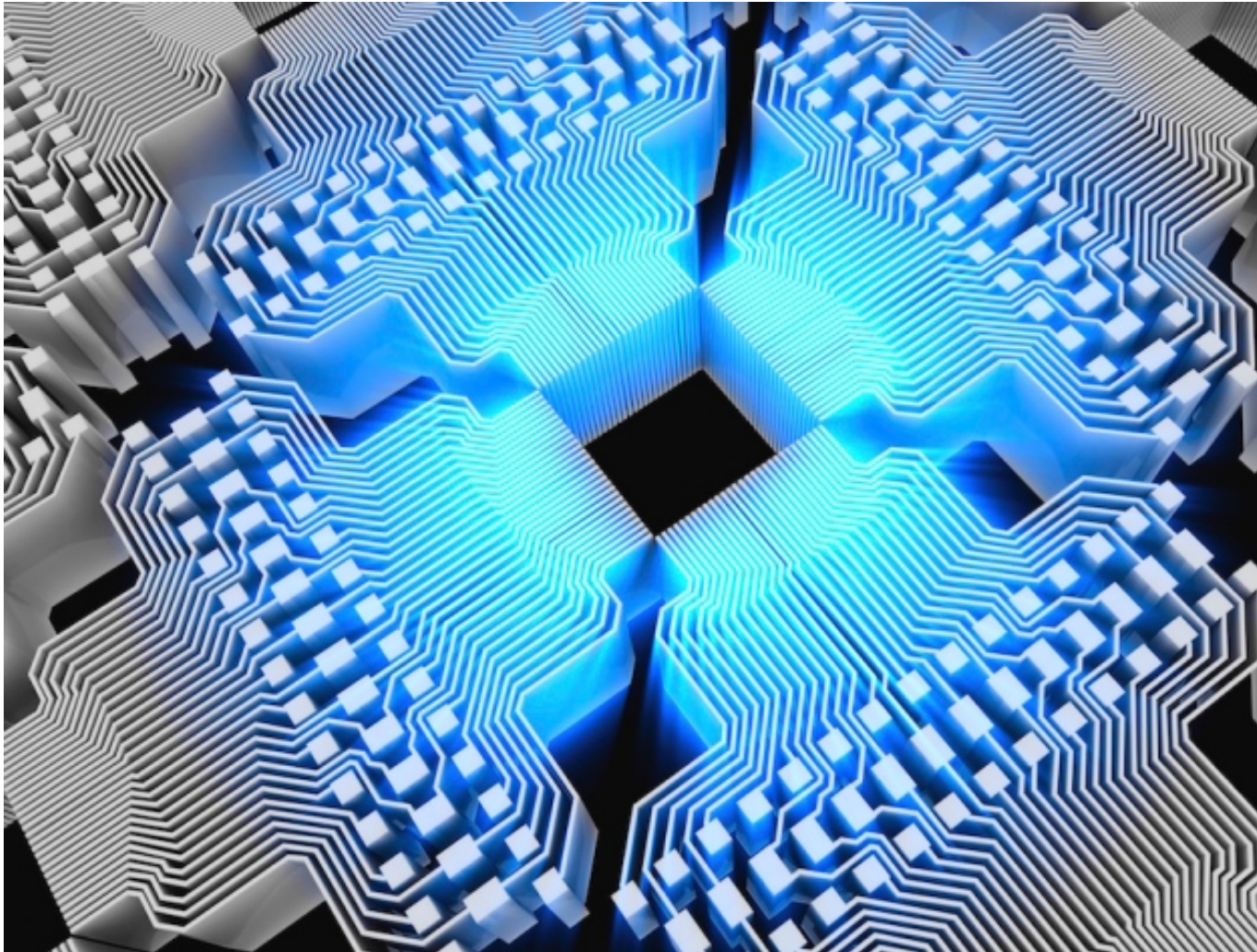
Global Demographics .. Social Security



Robotic / Artificial Intelligence



Europe plans giant billion-euro quantum technologies project



Opportunity Surface and Threat Environment

1/4

ZETTABYTE

> 2

ZETTABYTES

40-60?

ZETTABYTES

2008

2016

2020

Worldwide Digital Assets

Opportunity Surface and Threat Environment

Web Front Ended
apps



2007

There's an "app" for
that



2016

**Big Data apps or
bots
everywhere!**



2020

Apps

Opportunity Surface and Threat Environment

Dawn of
Smartphones



2007

Smartphone/tablet
ubiquity



2016

**Internet
of Things**



2020

Devices

Opportunity Surface and Threat Environment

MySpace



2007

Focus on
monetizing



2016

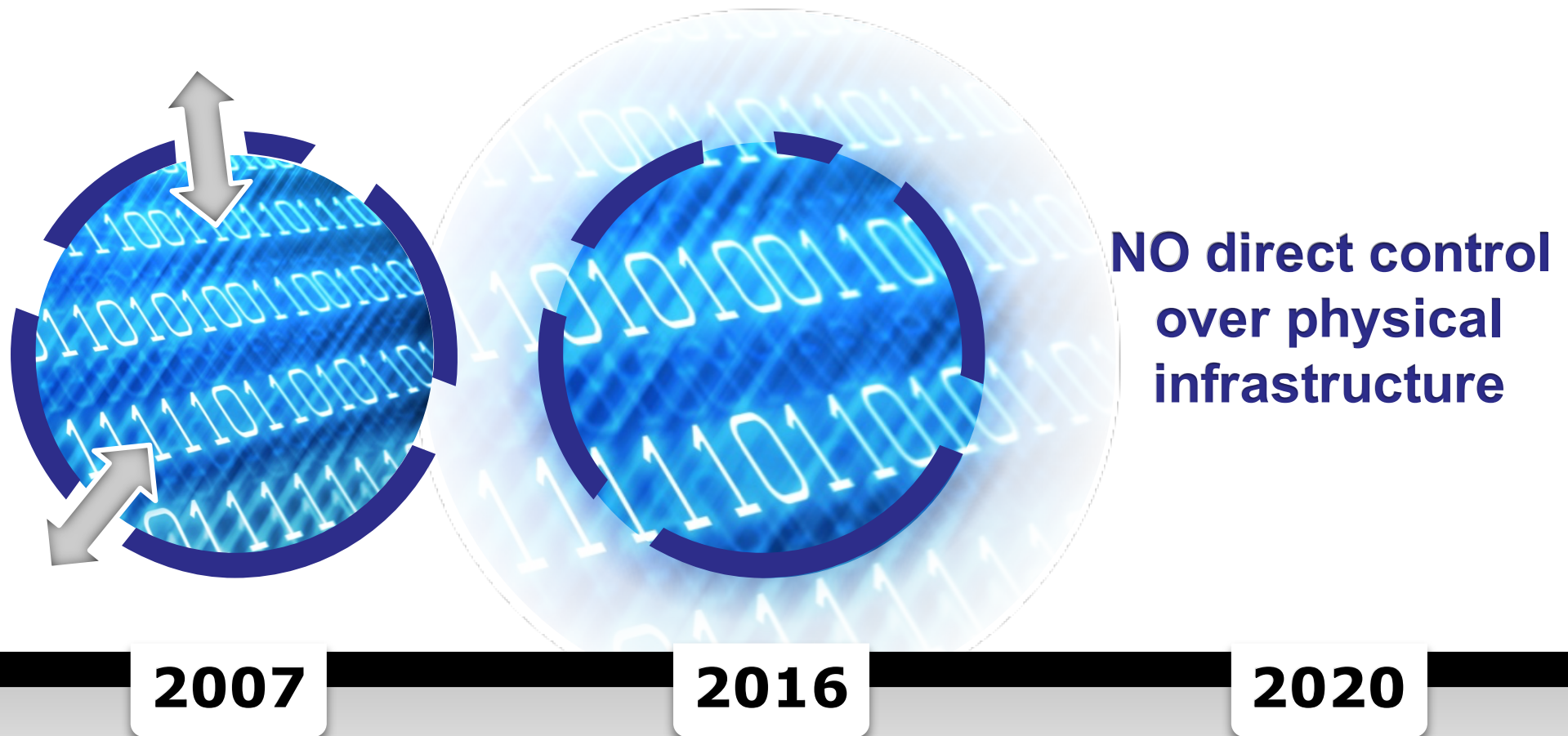
Total
Commercialization
of social media:
**absence of
privacy**



2020

Social Media

Opportunity Surface and Threat Environment



“Perimeter”



Attack Surface and Threat Environment



Cyber Arms Race .. Cyber Deterrence

- Arms races can end in three ways: conflict, mutual amity via trust-building, or exhaustion/outstripping of players.
- Conflict is the more likely outcome under conditions of deep uncertainty and complexity of interaction,
 - as a result of the pace of technical innovation,
 - a high number of players,
 - and tendencies towards opacity in states strategies and activities.
- Now that most major states are committing serious resources and political will toward the large-scale development of cyber conflict and espionage capabilities, the actual threats the states pose to one another will intensify much more rapidly and severely than has hitherto been the case.

Source: Eli Jellenc, Stroz Friedberg (Explaining the Global Cyber Arms Race : Strategic Rivalry and the Securitization of Cyberspace among Nation-States)

A Cyber JSOC Could Help the US Strike Harder and Faster ..



April 25, 2016 [By Frank Cilluffo Sharon L. Cardash](#)

A network-attack analogue to the manhunting Joint Special Operations Command would allow cyber warriors to decide, deconflict, and execute more effectively.

Source: www.defenseone.com



I am pleased to answer your questions.

**Thank you
for your attention.**