



Systemic Cyber Risk – the problem...although not the answers...

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The Future

- Annual global IP traffic will reach 3.3 by 2021. In 2016, global IP traffic was 1.2 ZB per year
- Global IP traffic will have increased 127-fold from 2005 to 2021.
- Smartphone traffic will exceed PC traffic by 2021. In 2016, PCs accounted for 46 percent of total IP traffic, but by 2021 PCs will account for only 25 percent of traffic.
- The number of devices connected to IP networks will be three times as high as the global population in 2021.
- Broadband speeds will nearly double by 2021. (CISCO)

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Current Definitions of Systemic Risk

“the disruption to the flow of financial services that is (i) caused by an impairment of all or parts of the financial system; and (ii) has the potential to have serious negative consequences for the real economy.” (IMF, BIS and FSB (2009))

“Systemic cyber risk is the risk that a cyber event (attack(s) or other adverse event(s)) at an individual component of a critical infrastructure ecosystem will cause significant delay, denial, breakdown, disruption or loss, such that services are impacted not only in the originating component but consequences also cascade into related (logically and/or geographically) ecosystem components, resulting in significant adverse effects to public health or safety, economic security or national security.

The adverse real economic, safety and security effects from realized systemic risk are generally seen as arising from significant disruptions to the trust in or certainty about services and/or critical data (i.e. the integrity of data), the disruption of operations and, potentially, the incapacitation or destruction of physical assets.” White Paper ‘Understanding Systemic Cyber Risk’ (WEF, 2016)

“A systemic risk is a risk that an event will trigger a loss of confidence in a substantial portion of the financial system that is serious enough to have adverse consequences for the real economy” G-10 (2001)

“Systemic risk is generally seen as the potential for a major financial crisis adversely affecting the real economy” (IMF-BIS-FSB, 20

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Narrow aperture of definition

Focussed too **narrowly** – largely on ‘availability’ and immediate impact

“We do not see how cyber risk could be the root cause of a systemic crisis because there is no direct connection between the failure of computer systems, no matter how severe, and the behaviour of those economic agents which ultimately culminates in a systemic crisis.” (Jon Danielsson, Morgane Fouché, Robert Macrae, 2016)

Blockchain

Internet of Things

Mega breaches – by nation states

3rd Party

Artificial Intelligence

Quantum Computing

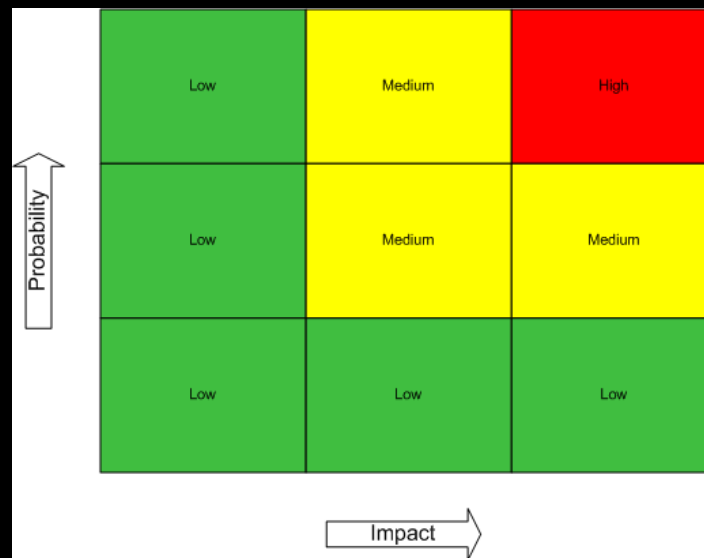
GPS spoofing

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'Traditional' Measurement Fails



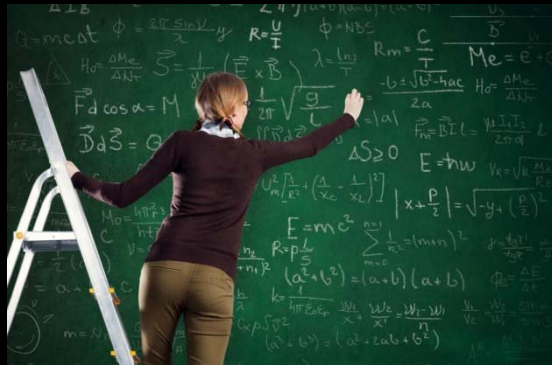
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Measuring the Unmeasurable



CEO: I've heard there's a cyber attack happening in the press - do I need to care?

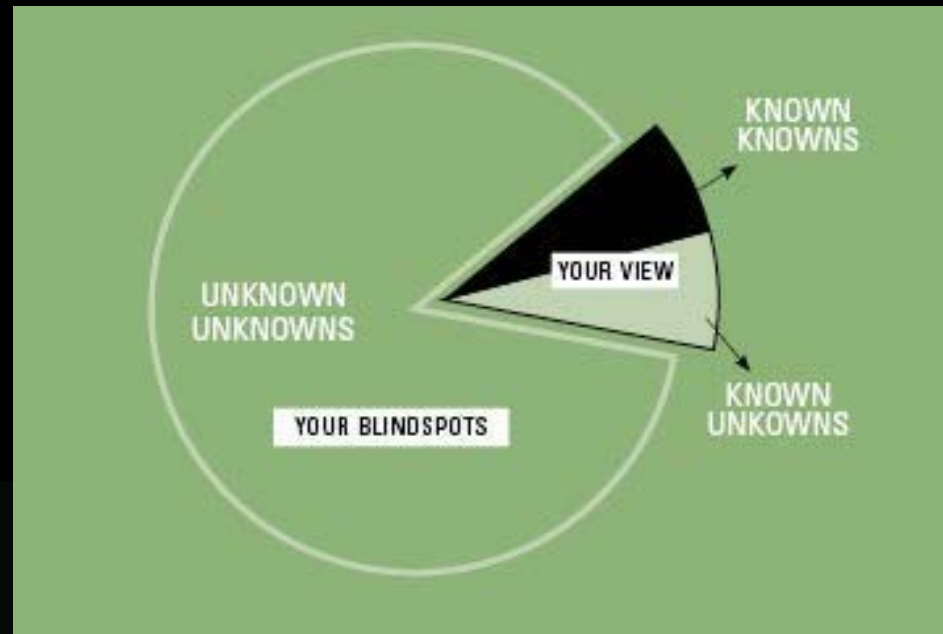
CISO: "well it depends what you mean by attack...and if it was successful...and it depends who the attacker was...and if they intended to impact the people they did...and it depends what defences the victim had...and if we've got the same ones...and if our ones are also vulnerable...or if our controls are stronger...and it depends on whether we would care about this type of impact on us"

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“in a time of deceit telling the truth is a revolutionary act” (Orwell)

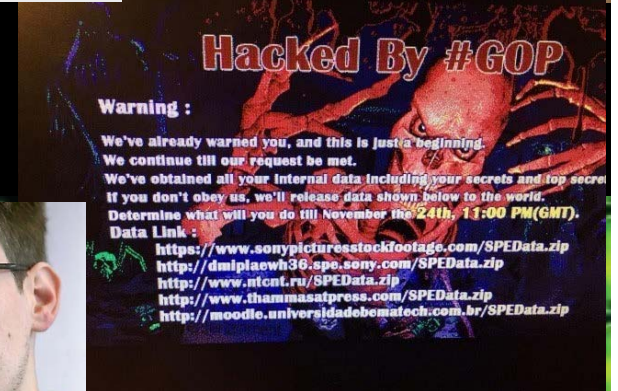
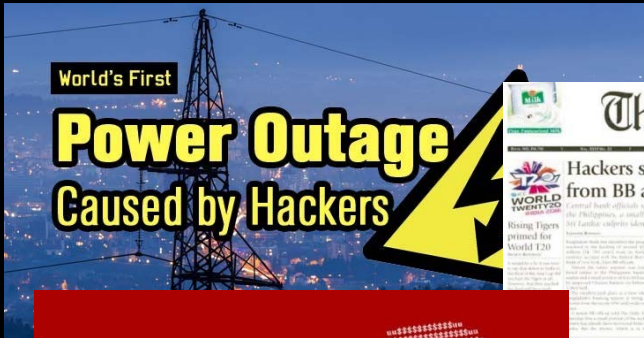


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The known...



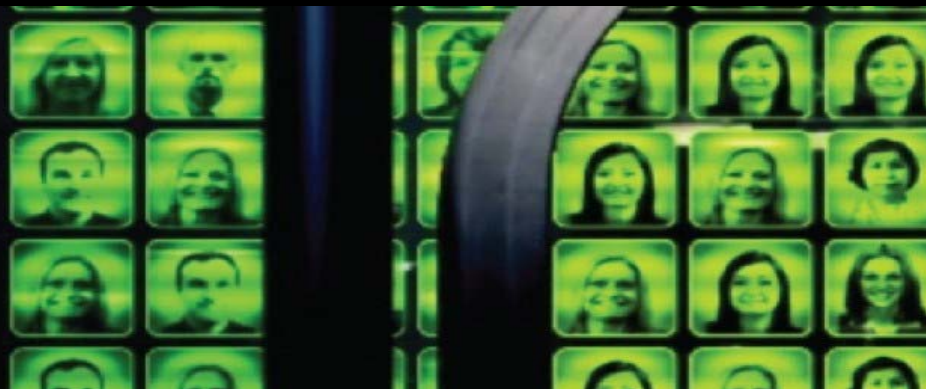
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The known unknown...

- implications of systemic cyber risk are not yet fully realised or understood.
- digital interdependencies, aggregated dependencies and single points of failure
- a convergence of technologies that is blurring the lines between the physical, digital and social worlds
- machine learning and automated decision-making
- more to come...

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The unknown unknown...



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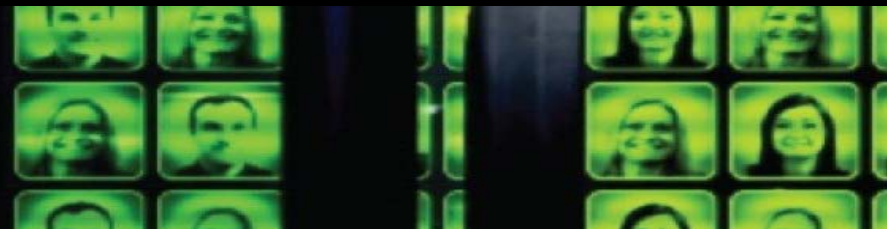


Some thoughts...but not the answers

- Accept compromise or build things in a different way
- Prepare for response and recovery and don't punitively punish the victim
- Tell a story rather than trying to measure everything
- Admit what you don't know
- Think rather than fire-fight
- Basics aren't basic
- Leadership

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Questions?

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