

# Risk Nexus

## Global interconnections of cyber risk: impact on the construction industry

April 2014

The world is likely to suffer internet failures for reasons similar to those that put the global financial system at risk in 2008: these included a nearly absolute dependence on an interconnected system so complex as to be unknowable. Disruptions affecting the dependability of supply chains, contractors, and subcontractors will gravely affect the construction industry, but there are solutions.

### Complex systems, unexpected risks

The internet has proved to be incredibly resilient. This is due in large part to a stable technology platform and dedicated, even heroic technicians who work behind the scenes to keep things running reliably. This has allowed the construction industry to increase efficiency and lower costs, making it possible to maximize profitability while deploying fewer resources. But this type of reliance exposes companies to significant risks that they tend to overlook; not just those posed by data breaches or theft of trade secrets, but larger global shocks.

The internet is the most complex system humanity has ever devised, and our track record of successfully managing complex systems is far from perfect. We are rapidly connecting critical business functions and infrastructure systems to the internet, making us dependent on humankind's largest and most complex system, one that itself is very poorly understood.

Past internet incidents and attacks have only disrupted ones and zeros, or things made of silicon. All these can be recreated or replaced with relative ease. Future cyber incidents will break things made of concrete and steel as the internet increasingly connects with real life. As the trend continues, we are finding that there is no separate 'digital' economy, only a single economy where "even the mundane comes to depend on distant digital perfection," in the words of Dan Geer, a noted internet risk expert.

The internet of tomorrow will be both a source of global shocks, and a catalyst for other shocks; things for which risk managers, corporate executives, board directors, and government officials are not prepared. It will almost certainly be less resilient, available, and robust than today. Current cyber risk management ignores the risks arising from dependence on that "distant digital perfection," aggregations of cyber risk that lie outside an organization's internal servers and firewalls: counterparties,

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## Construction continued

outsourcing or contractual partners, supply chains, upstream infrastructure, disruptive new technologies, and external shocks.

### Recommendations for the construction industry

#### Push out the risk horizon:

Perhaps even more than other sectors, the construction industry is heavily dependent on a wide group of sub-contractors, each of which can be disrupted by cyber incidents, with grave impact on already tight deadlines. Companies with more advanced risk management should extend their horizon beyond simply their own internal technology risks, to include in particular sub-contractors and outsourcing agreements as well as upstream infrastructure.

Larger or more advanced companies should extend their risk management horizon to include counterparties, contract and outsourcing agreements, and upstream infrastructure. Each of these risks can be at least partially controlled through contracts, service-level agreements, or in-depth site visits and audits. For example, one financial institution implemented a complete vendor security management plan that reviewed every contract and outsourcing agreement to assess the impact of disruptions or data breaches.

#### Improve basic cyber security:

Regardless of the size of an organization, a relatively small set of actions can protect against most cyber risks. The Council on Cybersecurity maintains a list of critical security controls that presents the most important set of actions that can be taken for

cyber defense: companies should especially rush to adopt the 'First Five Quick Wins.'<sup>1</sup>

#### Shift from protection toward resilience:

Unfortunately, a single set of principles alone will be insufficient. Organizations can no more 'secure' themselves against these interconnected and complex cyber shocks than they can hope to forever stack sandbags to protect from the damage caused by more frequent and severe hurricanes. The main hope for companies, therefore, is to be agile and resilient, and able to bounce back from disruptions through redundant systems and processes, under the leadership of meaningful corporate governance.

#### Incident response, business continuity, and exercises:

Since not even the best companies can protect from increasing frequency and severity of cyber attacks, companies should rely on response teams to quickly identify and respond to incidents affecting their own systems (or those of their sub-contractors). Exercises and simple scenarios can help companies identify vulnerable parts of their supplier network and build 'muscle memory' for responding to disruptions.

#### Board-level risk management:

Some boards might lack knowledge about their information assets, the impact of disruption or loss, or which third parties have access to sensitive corporate data. Boards may hold executives to account and become smarter on cyber risks by taking a broader view of global interconnections, while continuing to focus on issues related to compliance and auditing.

### About this report

This report is part of a series on global aggregations of cyber risk from Zurich Insurance Company Ltd and the Atlantic Council. A larger report more deeply examines aggregations of cyber risk and why the internet is likely to be less reliable in future. It includes recommendations for companies, governments and others. You can find these reports at [www.zurich.com/insight/](http://www.zurich.com/insight/)

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Or visit the webpage of the Cyber Statecraft Initiative of the Atlantic Council, at <http://www.atlanticcouncil.org>.

<sup>1</sup> Critical Security Controls, Council on Cybersecurity, <http://www.counciloncybersecurity.org/practice-areas/technology>, (Accessed 16 February 2014).

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