

FutureSet Systemic Risk Masterclass Series

Masterclass 5: Recognising risk – the systemic effects of internet and utility outages

Key takeaways

Reliance on critical infrastructure

COVID-19 has shifted how we look at risk in a significant way and we have seen first-hand how dependent society is on critical infrastructure and digital technology. For example, the shift towards working from home has changed the risk profile of many businesses and brought intangible risks, such as data breaches, to the forefront of risk management.

Perils which could disrupt critical infrastructure

- **Cyber attacks:** Prior to 2020, risk managers highlighted cyber attacks as the greatest risk to critical infrastructure. Recent high-profile incidents, such as the Microsoft email attack in March 2021, affecting 30,000 companies and prompting the US government to launch an emergency taskforce, have highlighted the scale of disruption.
- **Space weather:** Space weather events can cause extreme currents in the electric grid, widespread blackouts, phone and internet failures, and permanent damage to global communication satellites. Severe events are rare but the impacts to infrastructure can be significant, and second order events impact diverse parts of the system simultaneously to cause extreme impacts.
- **Internet or utility outages:** As enterprise connectedness continues to grow, the risk of systemic impacts on a potential outage increases. Wide scale cloud outages, e.g. those impacting Apple, Amazon or Google, could cause an economic contagion effect, disrupting businesses across the world.

What can the insurance industry do to help customers to manage these risks?

- Ensure insurance modelling reflects these remote and potentially systemic risks, such as space weather.
- Partner with third parties to leverage rich data feeds and conduct scenario analysis to help customers understand the potential impact of systemic and other major risks.
- Use these models and data to educate customers on the existence and realities of these risks.
- Support customers to move towards proactive risk management, such as avoiding reliance on a single technical solution and ensuring data is securely backed up.

90% of all the assets in the Standard and Poor's 500 are **intangible assets** which makes up over **\$21 trillion in global assets**

(Source: Ocean Tomo Intangible Asset Market Value Study)

Space weather events can cause extreme currents in the electric grid, **widespread blackouts**, and **phone and internet failures**

The **cost of broadband outages** to the UK economy in the year to July 2020 was more than **£1.5 billion** and resulted in **5 million working days lost**

(Source: Uswitch)

It is estimated that **less than a quarter** of UK businesses have calculated the potential **cost of a cloud outage**

(Source: Veritas Technologies)

Thoughts from our expert panel

People need to look at systemic risk and catastrophic events with a realisation that they are there, and they need to be quantified. It is critical that this is done pre-event rather than post-event.

Andrew Brooks
Group CEO, Ascot

Not all systems are equal, some are highly resilient – it is about not just the quality of early warning systems, but also how resilient the system is.

Sandra Chapman
Professor, Centre for Fusion, Space and Astrophysics,
Warwick University

Multi-trillion dollar risk events are unlikely to just impact cyber lines – but could look like an event which crosses lines of business including property, health and life, marine and aviation. Such aggregation events have not occurred before but are plausible.

Scott Stransky
Director of Cyber Modelling, Verisk Cyber Solutions

Innovation is potentially the answer to large systemic risks initially. Innovation can allow us to capture systemic risks in a more controlled environment to understand how they behave and gradually get to a position where we can increase line sizes to help our clients and protect their balance sheets.

Luke Ogunlaja
Innovation Underwriter, Tokio Marine Kiln

There has been a new dawn as to the benefits of sound risk management, governance, and practices and as a result these issues will start to filter up in organisations through board and audit committees.

Tracey Skinner
Director, Group Insurance Director, BT and Chair, Airmic

Relevant reading

Protecting intangible assets:

- Lloyd's report: [Protecting intangible assets: Preparing for a new reality](#)

Cloud:

- Lloyd's and AIR report: [Cloud Down: Impacts on the US economy](#)

Space weather:

- Nature Communications article: [Network community structure of substorms using SuperMAG magnetometers](#)
- AGU Geophysical Research Letters: [Quantifying the solar cycle modulation of extreme space weather](#)
- AGU Geophysical Research Letters: [Using the aa index over the last 14 solar cycles to characterize extreme geomagnetic activity](#)
- Professor Sandra Chapman's Royal Astronomical Society James Dungey Lecture: [Reconnection and Turbulence](#)

Skills and capabilities:

- CII Assess: [Introduction to managing change](#) (sign-up required)
- Flux / CII [Innovation Starter Kit](#)
- CII [Innovation subject gateway](#) (CII members only)

Futureset Systemic Risk Masterclasses

Delivered in partnership with the Chartered Insurance Institute (CII) and Lloyd's Market Association (LMA), the Lloyd's Futureset Systemic Risk Masterclass Series explores a number of elements of systemic risk, to support greater understanding and capability across the industry. Each masterclass combines technical content on a specific element of systemic risk with the knowledge and insight of business leaders and risk experts to help you build a body of knowledge and understanding of the systemic risk landscape.

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