
Swiss Re
Corporate Solutions
The Road to Resilience – Managing Cyber Risks
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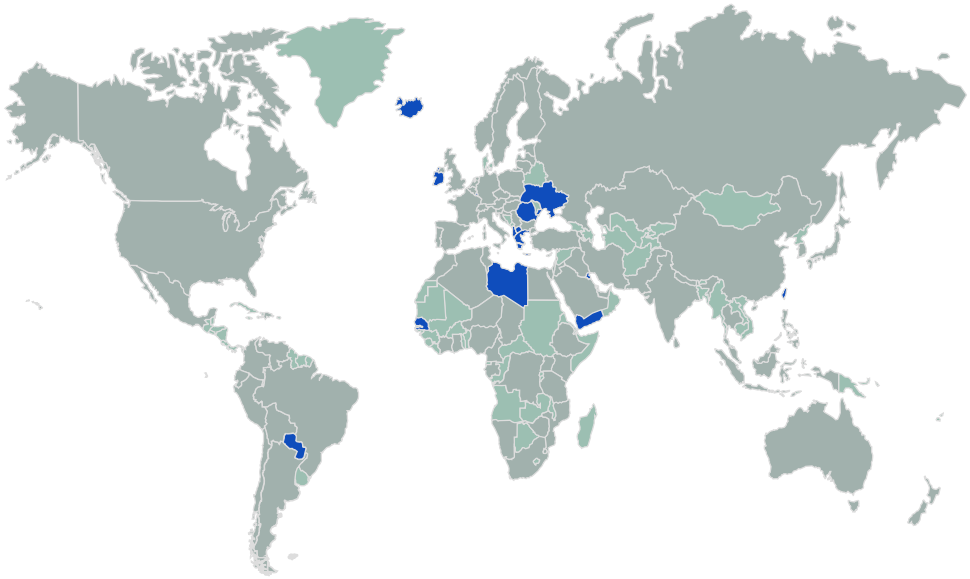
Energy leaders identify key issues critical for energy transition



- 90 contributing countries
- Over 1,200 energy leaders
- Main concerns of energy leaders

WEC Issues Monitor confirmed the importance of three main concern areas:

- Cyber threats
- Extreme Weather Events
- Energy-Water-Food nexus

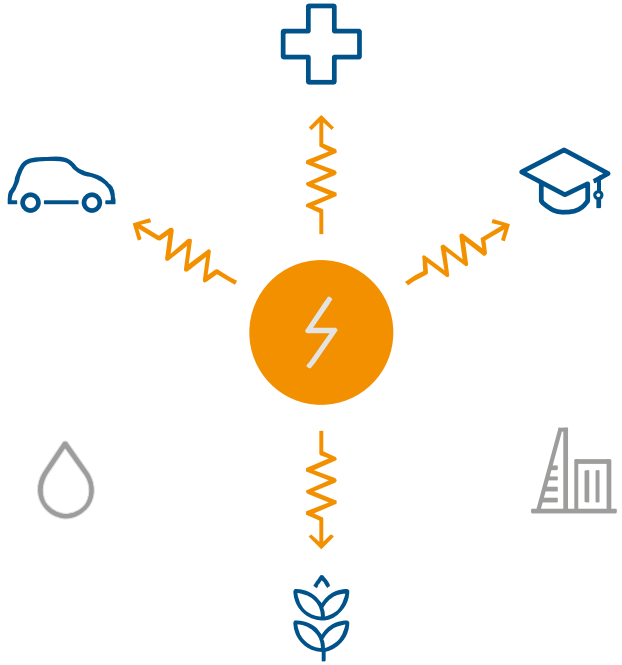
Cyber-attacks, a core threat to business continuity

- Increased **digitisation continues to improve efficiencies** but comes with associated **increased vulnerabilities.**
- Attacks on energy infrastructure have the potential to **cross from the cyber realm to the physical world.**
- Cyber risks today are growing in terms of both their sophistication and the frequency of attacks.
- Companies are increasingly recognising **cyber as a core risk to business continuity.**
- By 2018 the oil and gas industries alone could be **spending US$1.87 billion each year on cyber security**.

US$1.87 billion

Impacts of cyber risks on the energy sector

- The changing energy architecture creates an **increased number of entry points** for cyber intruders.
- Cyber risks include **non-physical and physical damage** from a cyber-attack:
  - Market disruption
  - Physical infrastructure damage
  - National security
  - Human harm
  - Network effects
  - Financial loss, liabilities



Building resilience to cyber threats

Technical measures

- Security measures for software and hardware
- Measures governing physical structures, such as limiting access to data centres, and
- Clear instructions and rules for using external hard drives

Human preparedness

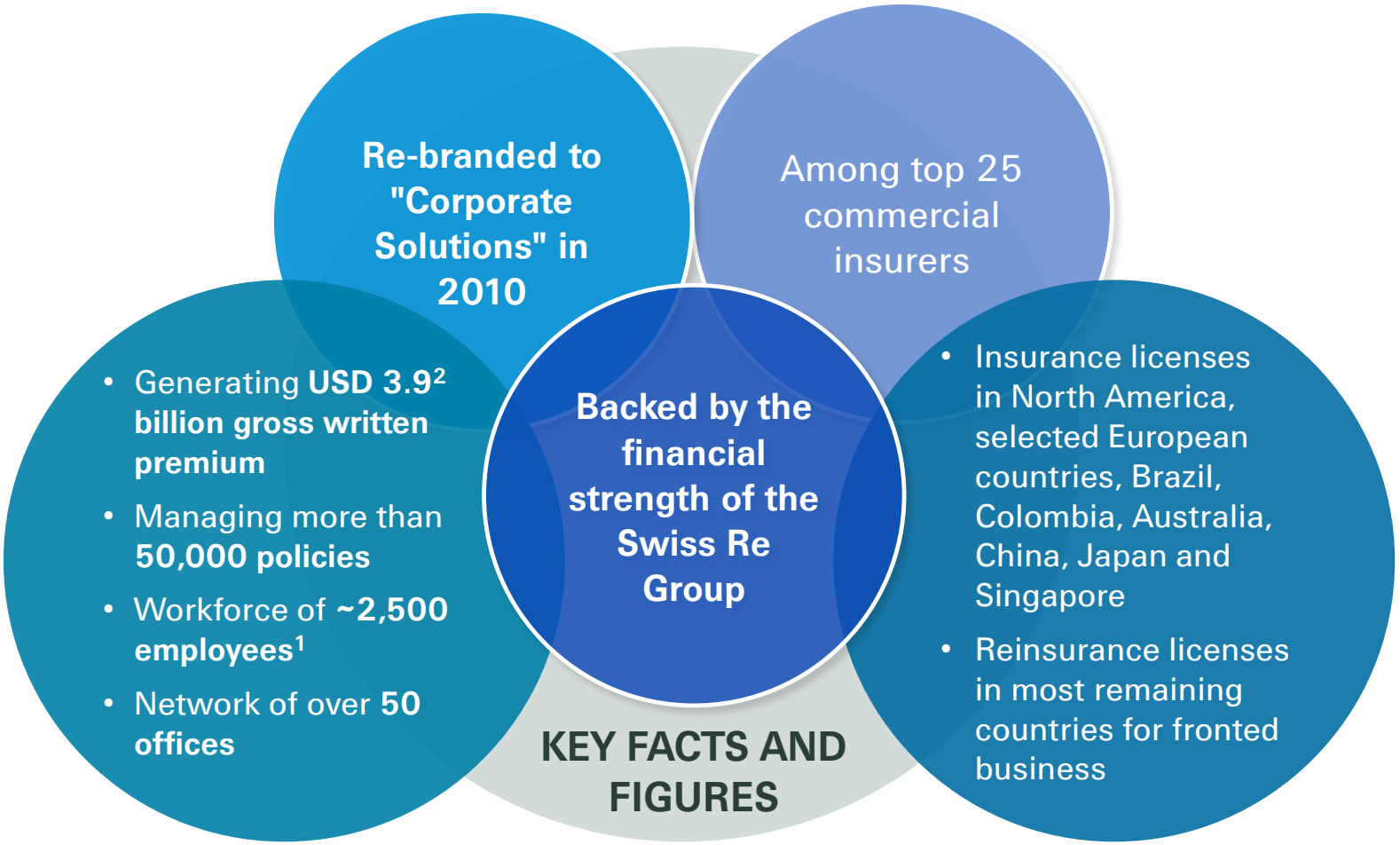
- Developing a robust cyber governance, cyber-awareness culture and cyber-awareness behaviours
- Implement at all levels of an organisation and between organisations
- Raise capabilities to prevent, detect and respond to cyber risks

Resilience – an evolving approach

- To date, the energy industry has typically relied on **"hard" resilience,** focused on resistance:
  - Single-asset approaches ensuring that individual infrastructures can withstand a sudden event and return to full performance.
  - Marginal improvement is increasingly costly.
- **"Soft" resilience** is more focused on absorption:
  - Allows for partial system failure that tries to control impact.
  - Aims to be prepared to absorb a hazardous event and limit its impact.
  - May reduce the cost of adaptation by shifting from expensive protection solutions to more flexible systems.
- Industry and policymakers should take **an integrated approach** and use a **combination of hard and soft resilience measures.**

Swiss Re Corporate Solutions position on cyber

Corporate Solutions in a nutshell



1) Excluding employees in Shared Service Centers and other Group Functions

2) Gross premiums written and premiums for insurance in derivative form

Corporate Solutions Offering

Includes First Party/ISBI, extortion and privacy coverage

Cyber Insurance			
Product	**First Party / ISBI***	**Extortion**	**Privacy**
	▪ Unauthorized access ▪ Hacking ▪ Virus & Denial of Service	▪ Investigation costs ▪ Extortion of monies due to credible threat e.g., introduction of malicious code	▪ Unintentional disclosure ▪ Breach of confidentiality
Comment	➔ **Business Interruption or loss of data** due to a general malicious attack (e.g., generic virus: love bug virus) ➔ **Contingent Business Interruption** due to lack of internet connectivity caused by IT failure at providers' location ➔ **Costs for reinstatement of data** ➔ **Investigation costs** to determine cause of security failure	➔ **Covers the monies paid by the insured as a result of a credible threat/series of related threats directed at the Insured** ➔ e.g., to corrupt, damage or destroy the Insured's computer system, or to restrict or hinder access to the Insured's computer system ➔ e.g., to release, divulge, disseminate, destroy or use confidential information stored in the Insured's computer system	➔ **Liability:** the defence and settlement costs for the liability of the insured arising out of its failure to adequately protect its private data ➔ **Remediation:** the response costs following a data breach, including investigation, public relations, customer notification and credit monitoring ➔ **Fines and/or penalties:** the costs to defend, settle fines and penalties that may be assessed by the regulator

*Stand-alone property/extensions to property

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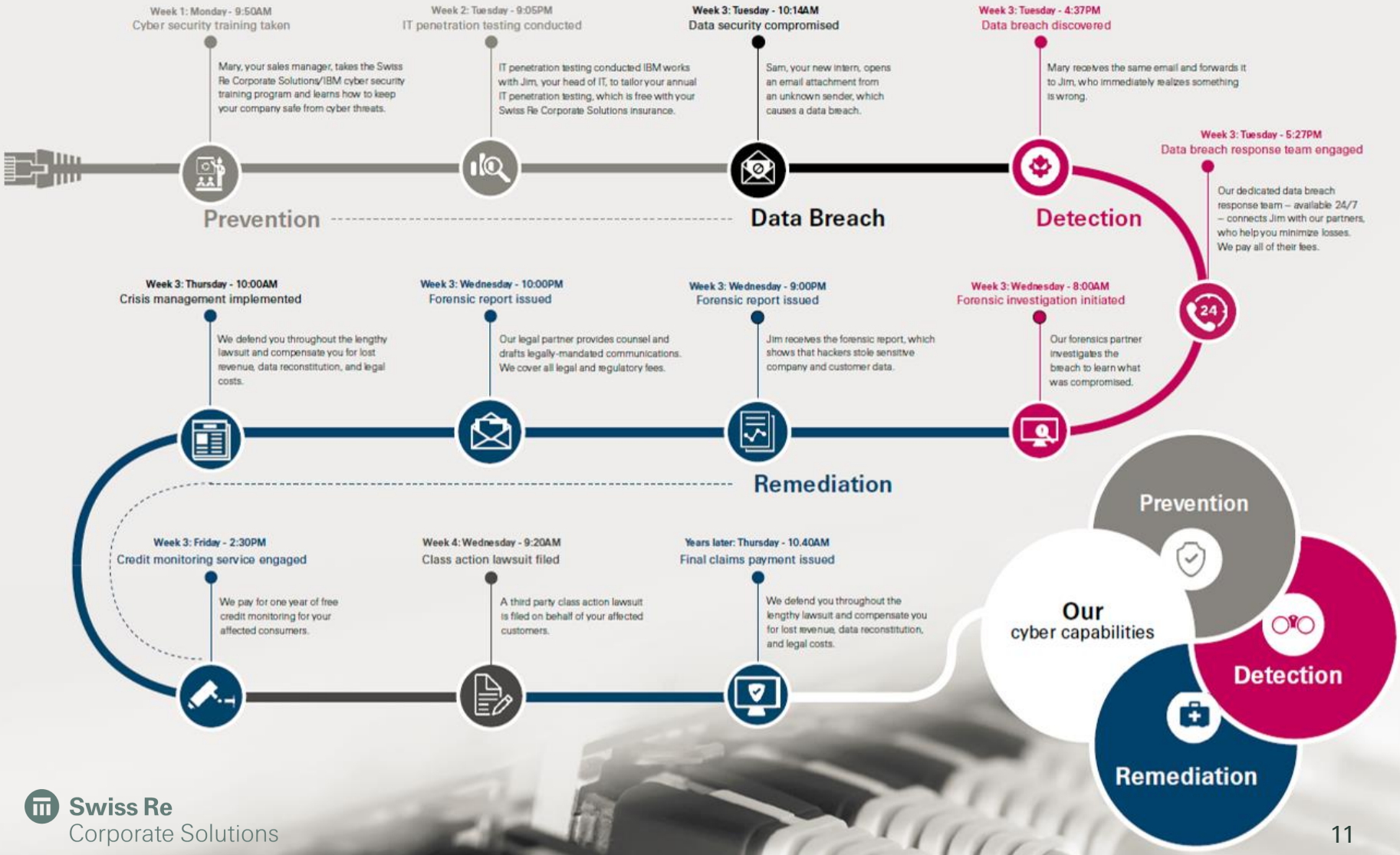
Swiss Re and IBM's cyber security solution



Concluding remarks

World Energy Council

- Cyber risks today are growing in terms of both their sophistication and the frequency of attacks
- Evolution from prevention of cyber risks to development of a comprehensive operational strategy is necessary
- Developing appropriate technical measures and human awareness is key
- Focusing on cyber resilience makes **business and political sense**

Swiss Re Corporate Solutions

- Cyber exposure must be underwritten by specialists with the corresponding underwriting authority
- Cyber must be covered under dedicated cyber liability policies
- Cyber is not an exposure susceptible of being included into a policy as a freebee

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Backup

WEC's Financing Resilient Energy Infrastructure initiative

- *'The road to resilience – managing cyber risks'* is the third risk dimension investigated as part of the Financing Resilient Energy Infrastructure initiative (previously extreme weather and energy-water-food-nexus).
- It is a joined project by WEC, Swiss Re Corporate Solutions and Marsh & McLennan Companies, Inc.
- The current report investigates how cyber risks can best be managed, taking into account the changing nature of the energy industry and energy infrastructure.
- Drawing on insights from a network of energy industry experts, the report assesses the ways in which vulnerabilities in current and new energy infrastructures are changing.
- The report recommends actions that energy decision makers and stakeholders can take – individually and collaboratively – to improve the sector's response to rising cyber threats, as part of a wider move towards resilience.