

Emerging risk and Sustainability risk insights

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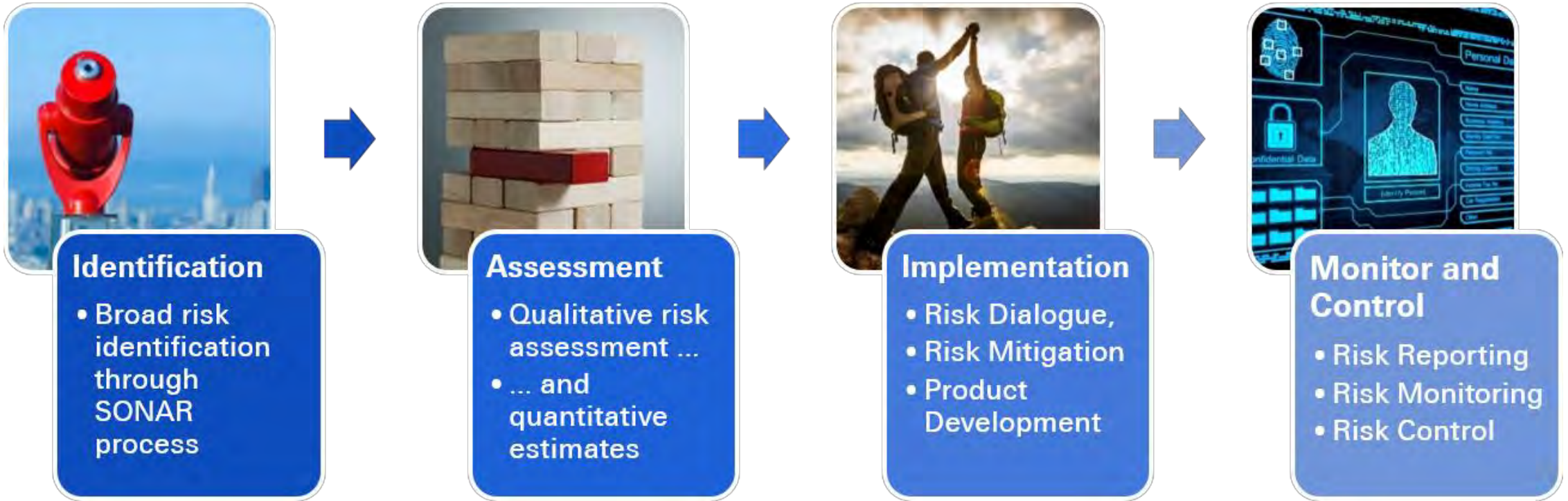


Catching emerging risk is a bit like catching fog.

Some drops will turn into water nurturing new risks while others just evaporate as they won't hit the ground



Swiss Re's Emerging Risk Process



Definition

Emerging Risks are **new or changing risks** which are **difficult to quantify** and **may have a major impact** on society and industry.

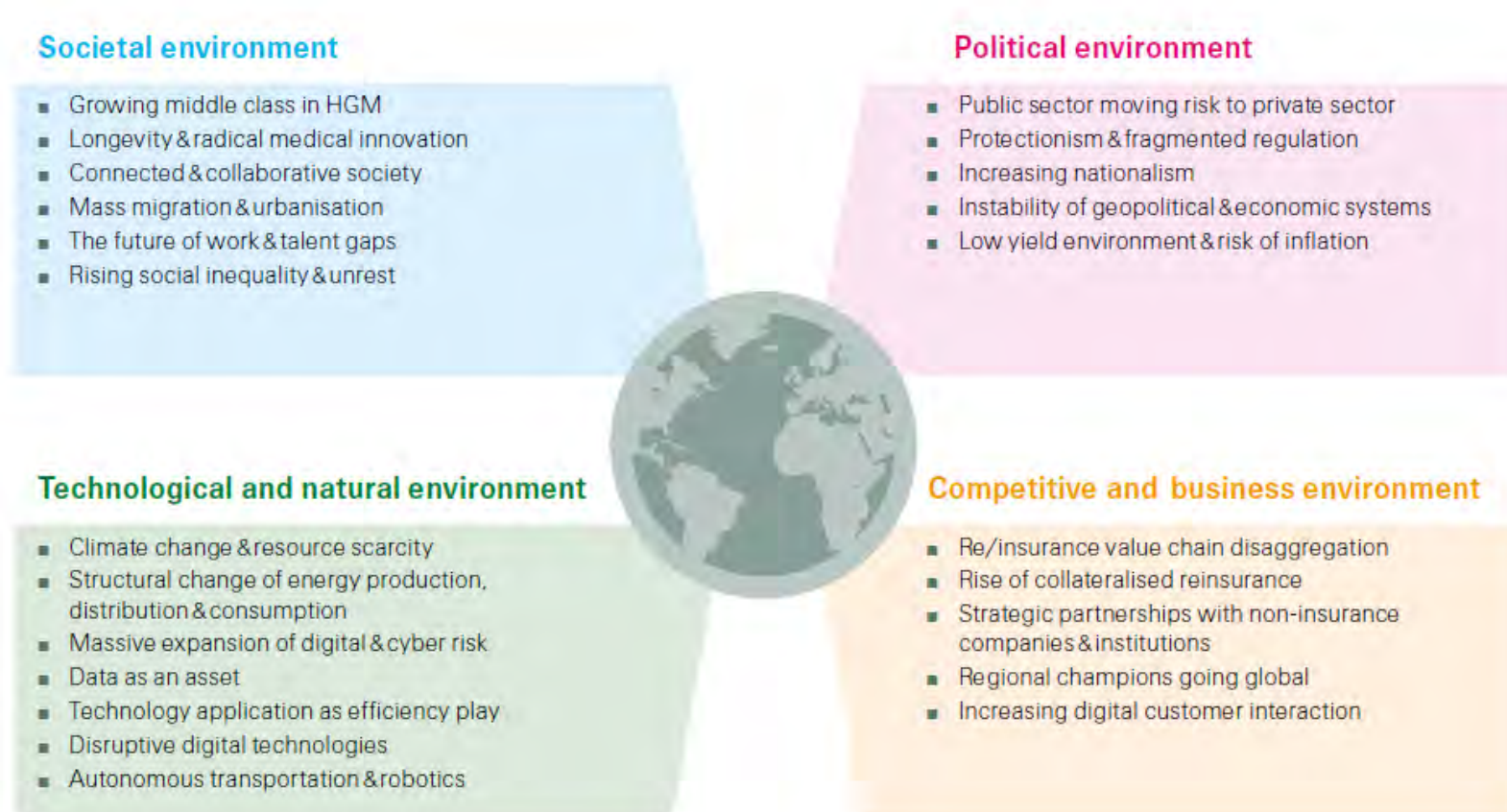
Identifying and assessing emerging risks is key.

It allows us to:

- increase **risk awareness**,
- **protect** the balance sheet, and
- **seize opportunities** and **enable risk taking**.

Global macro trends shape tomorrow's risk landscape

Our Group Strategy Development & Performance Management team has identified 23 global macro trends that are likely to have a high impact over the next 5-10 years.



Emerging risk themes < 3 years

Teaching an old dog new tricks – digital tech meets legacy hardware

Large failures of key infrastructure like power or communications can also impact operations of the insurance industry.

Insurance losses

Industry operations

Unexpected losses

Large infrastructure breakdowns triggered by new software not working with old hardware can lead to property damage, bodily injury and business interruption claims. There may be new forms of cyber risks not priced for.

As technology increases connectivity, insurers face higher risk accumulation and unexpected loss potential from the combination of new software with old hardware.

Don't ask, don't tell? Genetic testing and adverse selection

Insurers will need to develop the know-how of capturing and managing the data, design systems to incorporate the data and implement new underwriting approaches.

Risk pools

Systems and underwriting approaches

Products and services

As genetic tests results become more accurate and use become more widespread, traditional methods of pooling risk to differentiate individual risks may not longer be suitable.

Access to genetic information could improve customer engagement and services to create tailored and value-added products.

Getting the balance right – tech regulation affecting the insurance industry

Legacy regulation and/or regulatory roadblocks limit timely utilisation of new technologies and hinder meaningful strategic partnerships.



Laws and regulations relating to technological developments need to be well balanced and internationally coordinated. Otherwise, they could greatly increase multinational insurers' legal, compliance and regulatory risks.

New data protection regulation might make the use of data for insurance purposes more difficult, thus obstructing fair risk assessment and forcing cross subsidization.

Vaccination - a shot worth more than politics and profitability

A large pandemic can have significant impact on the health system and also mortality, with potential for large scale reduction of regional populations.

Morbidity
and
mortality

Pandemic

Productivity
drop

Vaccines shortages and refusals increases the likelihood that infections will spread, increasing morbidity and mortality.

A drop in productivity, due to many factors (eg, closed schools). Trade, travel and tourism will be subdued and economic output will be reduced. This affects financial markets and is therefore directly relevant for re/insurers' balance sheets on both the asset and liability side.

Beggar thy neighbour? Global trade reordered

(Over)-sized projects – partly driven by short-term political interests – increase the risks of unprofitable underwriting of white elephants, for instance railroads without passengers.

Restrictions
to market
access

Short-term
political
interests

Infrastructure
project risks

Regulatory restrictions and capital requirements may reduce market access and threaten business models based on global risk diversification and efficient capital management.

Higher infrastructure project risk resulting from lower standards and less scrutiny due to the absence of respected multilateral agencies.

Wiggle room – artificial intelligence and healthcare

Errors in AI diagnostics may lead to catastrophic personal outcomes.

AI-assisted insights a key feature

Severity in personal outcomes

Diagnostics and treatment strategies

Diagnostics can become more accurate, especially for medical imaging. In most situations, human interpretation of AI-assisted insights will be a key feature.

AI applied to big and combined databases could enhance understanding of health issues, and enhance diagnostics and treatment strategies. However, issues around privacy, compatibility and security need to be overcome first.

Pervasive and toxic – chemicals in our environment and body

Environmental release on a gradual or accidental basis could impact environmental liability policies, including clean-up costs.

Product liability and recall claims

Environment liability policies

Employers' liability and workers comp

Product liability and recall claims are to be expected in case of known or potentially negative side effects on human health from exposure to chemicals.

Employers' liability and workers compensation claims may be triggered where a connection between workplace-related diseases and certain chemicals is established.

Conflicting interests – the widening urban-rural divide

Rapid growth of cities increases economic value concentration. This offers opportunities for the insurance sector, but also accentuates risk accumulation.

Antagonism
increase
uncertainties

Insurance
opportunities
and risk
accumulation

Alienation of
geographies
creates
volatility

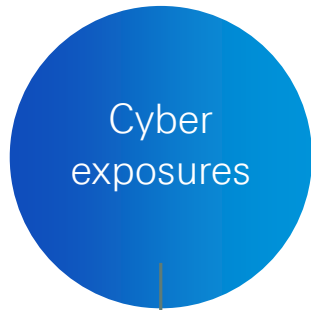
Rural-urban antagonisms could increase market uncertainties, curb investments and endanger functioning supply chains. This may result affect financial markets negatively.

The (perceived) alienation of geographies and specific regions or localities could create resentments that bring more extremist parties into power, making political and regulatory framework conditions more volatile and detrimental for insurance business.

Emerging risk themes > 3 years

Off the leash – 5G mobile networks

Potential uptick in liability claims for potential negative health effects from electromagnetic fields.



Cyber exposure increases significantly with 5G as attacks become faster and higher in volume.



Increased car automation may lead to a shift from motor to more general and product liability insurance.

Limits to tinkering – the fiscal and monetary policy balance

Policy shift could lead to a notable rise in uncertainty, causing higher financial market volatility.

Policy changes stimulation

Volatility and uncertainty

Interest rates effects

Changes to fiscal and monetary policy could stimulate growth and financial stability.

If central banks keep interest rates low, the insurance industry would suffer, in particular life insurers.

Emerging trend spotlights

The surveillance economy

- Social media has allowed us benefit from a network of connections, both for personal and professional purposes.
- Our online activity is being used to analyse patterns and predict behaviours, information very valuable to the highest bidder. Monetising data is key for corporate profit.
- The surveillance economy means we are constantly being observed, analysed, compared and rated. And corporates can manipulate information flows.
- For insurers, this is valuable data. For instance, auto insurers can collect a driver's data with a pay-as-you-go scheme, monitoring their driving behaviour which could result in a premium discount for safe driving.
- But data from music streaming services that point to potential depression may result in higher excess for medical treatments.

*Insurance valuation
based on online
activity data*

The warehouse of the future

- Automation and robotics in warehouses are a reality in retail (i.e. pharmacies), where human involvement is limited. The system is able to control stock and re-orders.
- On-the-spot 3D printing will gain prominence for certain trades to accommodate demand for customisation and spare parts.
- With respect to insurance, we see new risks and opportunities emerging from the more complex, automated and interdependent systems.
- With fewer humans and more technology, product liability and professional indemnity losses (for warehouse consultants and engineers), as well as property business interruption losses from flawed hardware and software will gain prominence, while single-loss events from human failure will become more rare.
- The increasing interconnectivity could also mean a trend towards higher impact loss events, with just one (human or technology) failure having greater consequences.

*Automated
warehouses require
rethinking of risks*

Sustainability, Climate change and life & health

Climate change and life & health


— ***we must
act now***

Millions of lives can be saved and the burden on healthcare services reduced if we pay more attention to changing climates.


Without action, mortality rates and healthcare costs could soar, and this would have significant consequences for the health, workers' compensation and life insurance lines of business.

Potential impacts of climate change


Trigger → Potential main outcome


 **Casualty insurance**


 **Property insurance**


 **Supply-chain interruption insurance**

 **Marine insurance**


 **Agriculture insurance**

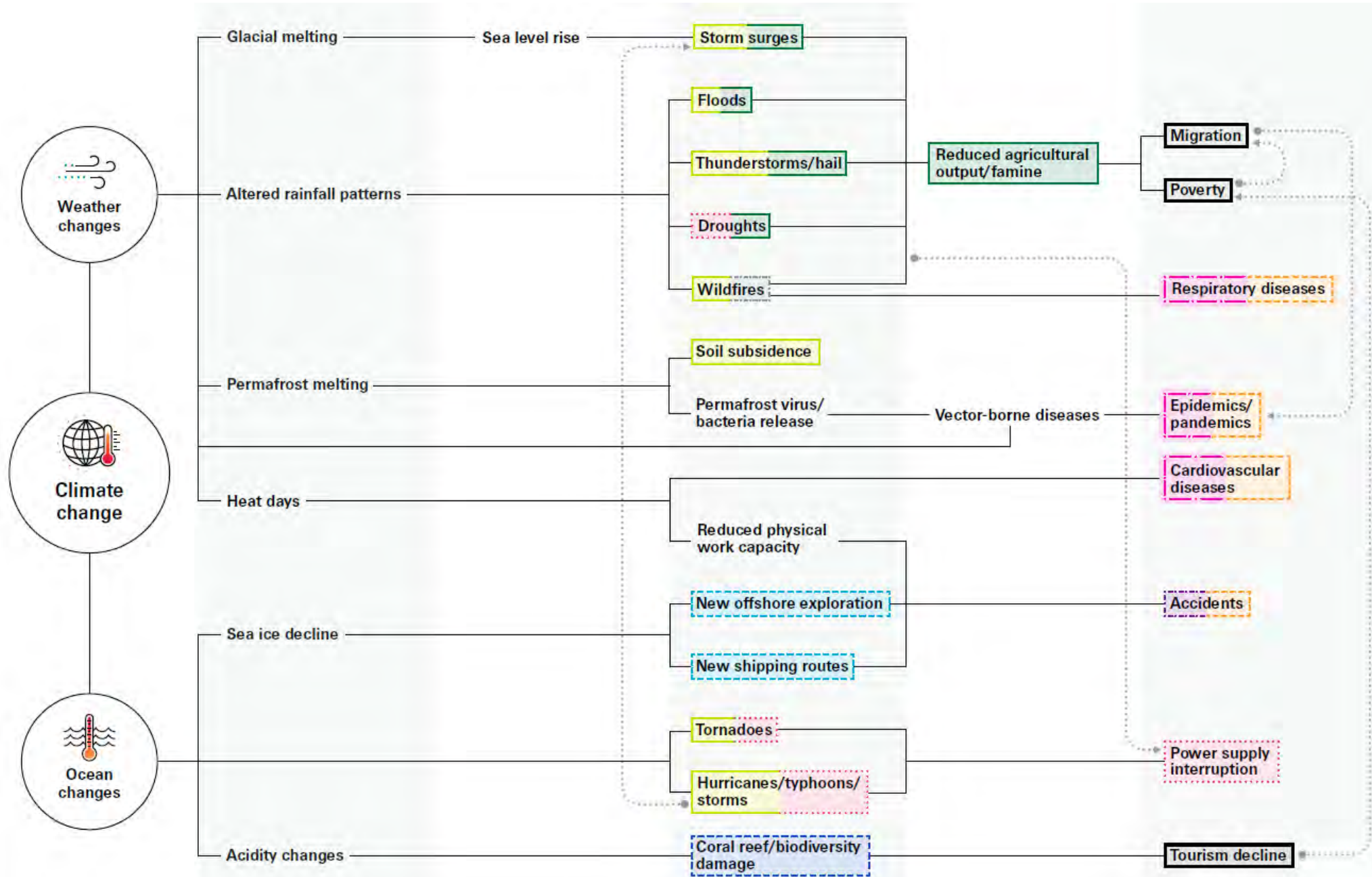
 **Fishery insurance**

 **Workplace accidents insurance**

 **Life insurance**

 **Healthcare cost insurance**

 **Insurance market growth**



Climate change – from emerging risk to real-life danger



Changes in mortality will be driven by several changes occurring simultaneously.

- Increasing temperatures and high humidity due to climate change enable vector-borne diseases to conquer new ground. Climate change will extend the transmission season and geographical range for many infectious diseases.
- In polar and other regions, warmer temperatures could release older bacteria and viruses as ice thaws. The immunity of the world's population to such threats will be low.
- Public health could be further compromised by the expected increase of extreme heat, droughts and floods affecting agriculture. Heat days may trigger more cardiovascular deaths and work-related accidents.

Climate change – becoming climate resilient in public health



To meet the challenge of climate change, public health must:

- Strengthen the prevention of climate-sensitive health risks.
- Health care facilities worldwide must make standard:
 - Cooling systems during heat days
 - Flood security
 - Emergency power and water supplies

Swiss Re's comprehensive climate change strategy: four pillars

1

Advancing our knowledge and understanding of climate change risks

quantifying and integrating them into our risk management, underwriting and investment frameworks where relevant

2

Developing products and services

to mitigate or adapt to climate risk

3

Raising awareness

about climate change risks through dialogue with clients, employees and the public, and advocating a worldwide policy framework for climate change

4

Tackling our own carbon footprint

and ensuring transparent, annual emissions reporting

FSB TCFD disclosures are firmly embedded in Swiss Re's Financial Report – It has become a key topic in discussions with investors and regulators

Corporate responsibility

Our actions are guided by sustainable, long-term value creation and have a tangible link to our financial performance.

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More information:
[Swiss Re Financial Report 2018](#)

Governance	Strategy	Risk management	Metrics and targets
A) Board oversight	A) Climate-related risks and opportunities	A) Processes for identifying and assessing climate-related risks	A) Metrics to assess climate-related risks and opportunities
B) Management's role	B) Impact of climate-related risks and opportunities	B) Process for managing climate-related risks	B) Scope 1, 2 and 3 greenhouse gas emissions
	C) Potential impact of different scenarios	C) Integration into overall risk management	C) Targets

- Swiss Re is member of the FSB TCFD* and early adopter of its recommendations by integrating the disclosures in its Financial Report since 2016.
- Although the physical risks arising from climate change will have significant economic consequences over time, especially from a wider societal perspective, they represent a limited and manageable risk for Swiss Re.
- Overall, the transition to a low-carbon economy does not present a significant financial risk for Swiss Re as we also manage related risks pro-actively.
- Regulators observe the industry's adoption and some jurisdictions have started to request TCFD related information from their supervised companies.
- Further efforts are needed to work towards a standardized industry disclosure and addressing challenging topics such as scenarios.

*FSB TCFD: Financial Stability Board task force on climate-related financial disclosures



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