



Innovation@Work

Monte Carlo, 11 September 2016
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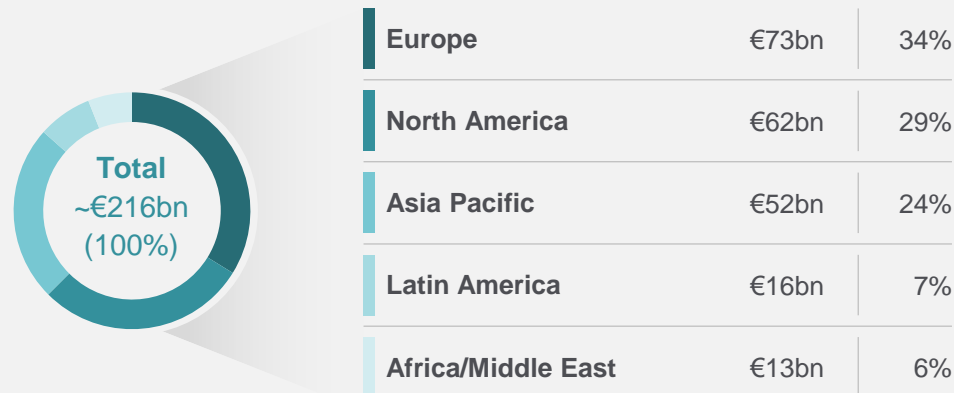
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Moderate reinsurance premium growth, stronger growth in primary insurance

Global premium development from 2009–2015/2016e–2018e

P-C RI: Ceded premiums 2015 €bn



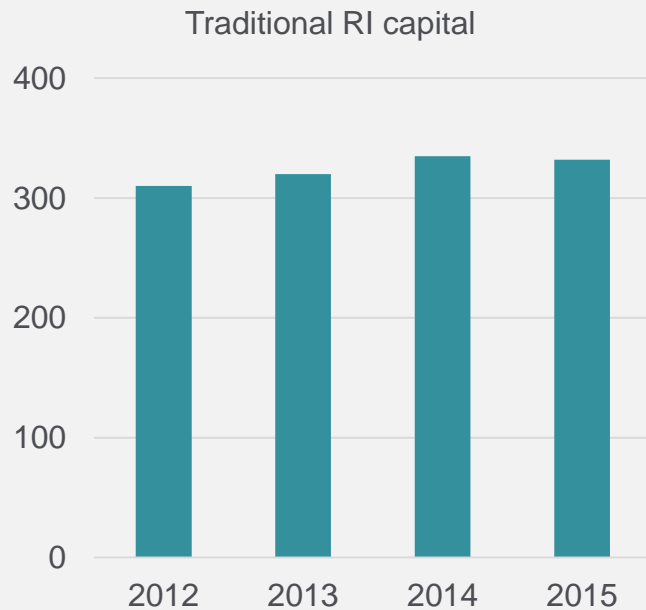
P-C RI and PI real growth rates (CAGR)

	RI		PI	
	09–15	16–18	09–15	16–18
Europe	0%	1%	0%	2%
North America	1%	1%	1%	1%
Asia Pacific ¹	4%	0%	7%	6%
Latin America	5%	1%	6%	2%
Africa/Middle East	5%	3%	4%	5%
Total	2%	1%	2%	3%

¹ RI premium growth influenced by volatile motor solvency-relief deals in China
Source: Munich Re Economic Research

Traditional reinsurance capital rather stable – ART outstanding covers growing

Dedicated reinsurance capital US\$ bn



Trends

Traditional capacity

- Capitalisation of the reinsurance industry stable since 2014
- In 2015 about US\$ 332bn allocated to reinsurance business (US\$ 335bn in 2014)

ART

- Alternative capital grew from US\$ 60bn in 2014 to approx. US\$ 70bn in 2015

Existing tradeable instruments (ILS/ILW)

- Broadening of perils and further move towards non-standard solutions in ILS area
- Ongoing shift to individual UNL collateralised reinsurance

Illiquid structures

- Growing relevance of illiquid, (partially) collateralised ART structures (collateralised reinsurance, sidecars and retro)
- Reinsurers make use of ART channels

Munich Re is well positioned to manage the current market environment and drive industry innovation

Traditional reinsurance

Munich Re in excellent position to successfully manage the soft cycle due to

- Tailor-made solutions
- Stringent cycle management in P-C
- Preferential client access
- Leading risk know-how
- Superior diversification



Risk Solutions

- Continuous growth in expertise-driven specialty and niche business
- Business largely detached from reinsurance cycle
- Strong top and bottom-line contribution: High profitability



Innovation

- Active development of business opportunities in close collaboration with clients and corporate partners
- Tapping new profit pools by expanding existing market boundaries with innovative products and services



Major innovation trends impact the industry and create opportunities and challenges for (re)insurers

Major innovation trends in (re)insurance

Digitalisation and new technologies with impact on the risk landscape (e.g. sensors); **digital market entrants** in the process of establishing new distribution channels (e.g. large internet players, fintechs); digitalisation and automation of claims and operations management

Large amounts of **previously unavailable data** and **sophisticated analysis methods**

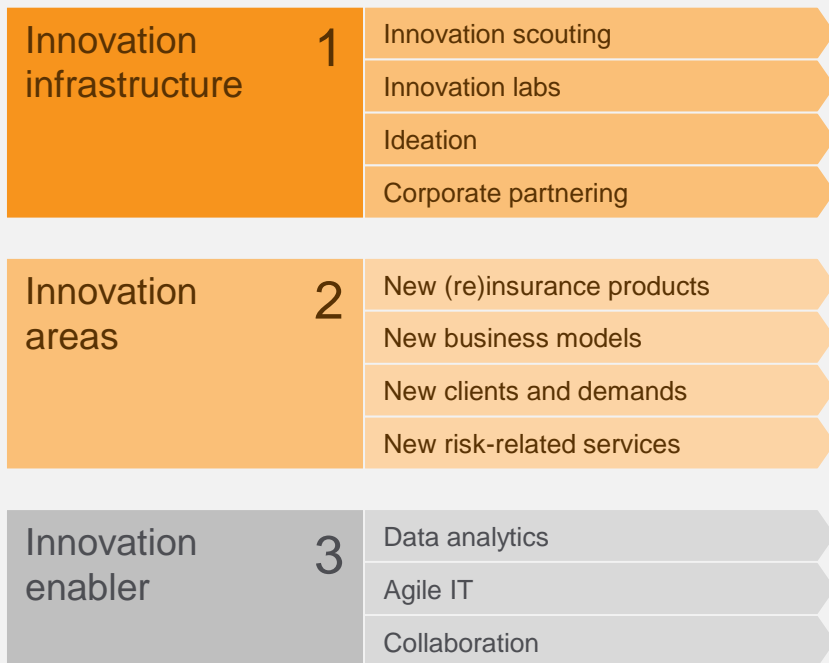
Changing customer expectations and behaviour¹ regarding product design, services and (digital) sales

Opportunities and challenges for (re)insurers

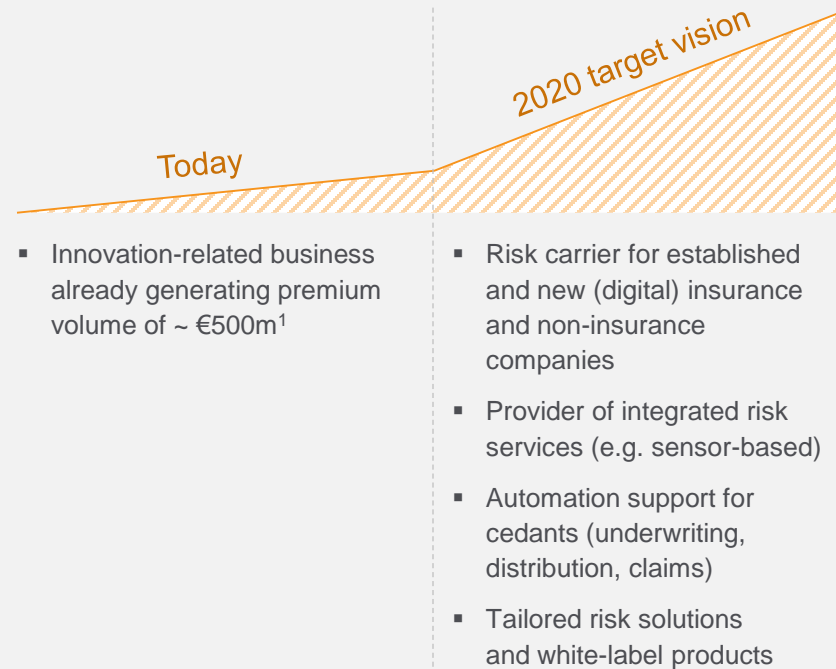
- + New exposures and risks (e.g. cyber, business interruption, reputation, connected cars, sharing of assets)
 - + Bundled products linking insurance with prevention services
 - + Opportunities for corporate partnering
 - + Cost reduction
 - Reduced risks/loss frequency
 - Potential shortening of value chain and risk of disruption/disintermediation
-
- + Improved risk selection and pricing/rating
 - + Long-term competitive advantage for data owners
 - Danger of anti-selection if data/methods not yet mastered
-
- + Efficient customer acquisition and improved retention through new marketing and sales channels
 - New capabilities required to compete with current set-up

Munich Re fosters innovation throughout the global organisation – Strong focus on tangible business impact

Significant focus on innovation ...



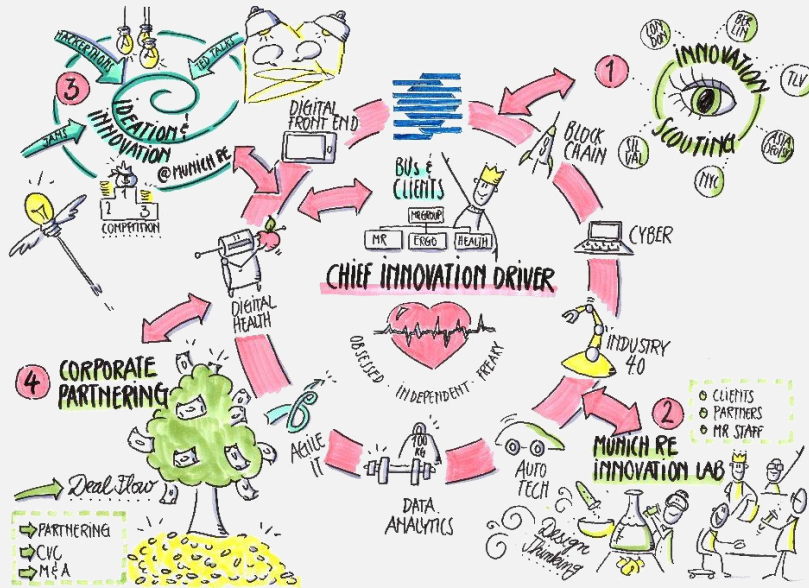
... with significant impact on business already today



¹ Munich Re (Group); indirect effects on traditional business not included.

Munich Re builds infrastructure to support innovation in the insurance space and react to new developments

Overview



Strategic rationale and key components

Objectives for innovation infrastructure

- Drive innovation in the insurance space
- Quickly react to new developments

Key components

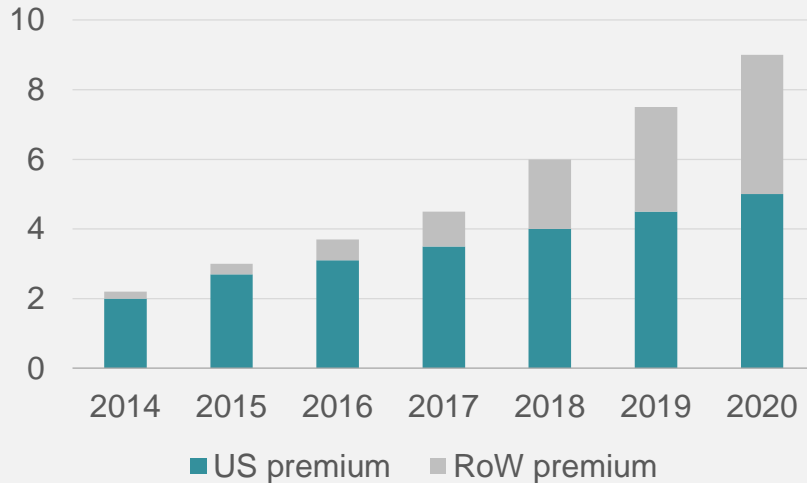
- 1 **Innovation scouts** to establish networks in innovation hubs worldwide
- 2 **Innovation labs** to provide an environment for fast development and testing of ideas
- 3 **Ideation events and training** to develop ideas using new methods
- 4 **Corporate partnering** to establish partnerships with relevant players

Chief innovation driver and central innovation unit to steer activities and manage dedicated innovation budget

Cyber (re)insurance market

Strong and long-term growth to be expected

GWP global cyber insurance market¹ (US\$ bn)



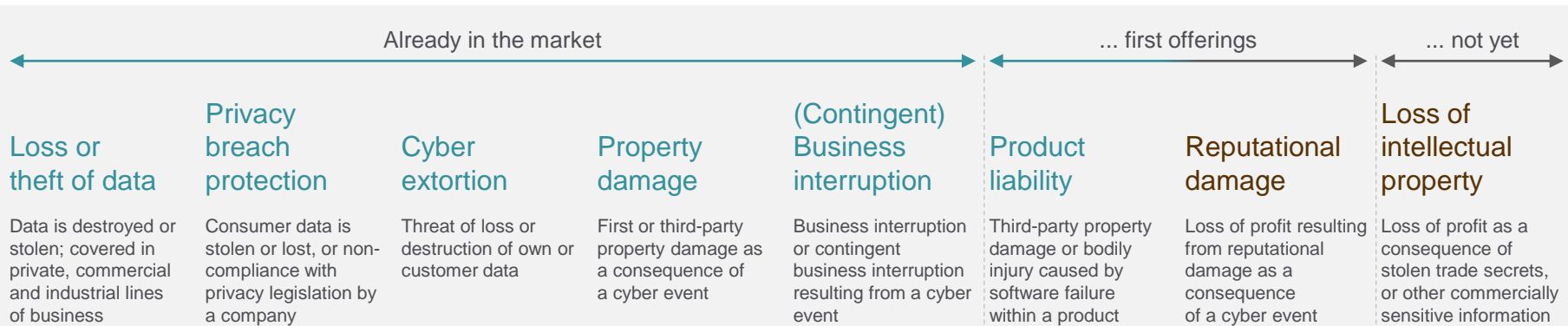
Driving forces/trends:

- Digitalisation
- Global connectivity and interconnectedness; Internet of Things (IoT)
- Growth of virtual business models in many industries
- Rising legislation and internal governance requirements, as well as awareness of claims development
- New cyber products and extension of existing insurance coverages
- Large accumulation potential

▶ Munich Re will cautiously participate in the growth of this market segment

Cyber (re)insurance market

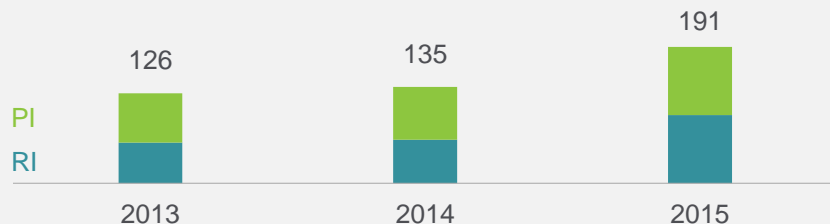
Significant expansion of coverage types possible



Increasing exposure and complexity of coverages

Munich Re's cyber business strategy

Premium development Munich Re cyber portfolio (US\$ m)



- High investment into build-up of underwriting and risk management capabilities (e.g. technology knowledge, gathering of loss and exposure data, pricing, accumulation control, “dynamic” risk assessment)
- Collaboration with external partners in specific areas (e.g. risk assessment, data and modelling, claims management)
- Cautious deployment of single-risk and accumulation capacity, in line with growing expertise

Munich Re business units

Reinsurance

- Partnership with selected cedents
- Sharing of knowledge, methodologies and data

Hartford Steam Boiler (HSB)

- Cyber primary insurance covers for SME and individuals

Corporate Insurance Partner (CIP)

- Traditional and non-traditional cyber solutions for commercial and corporate enterprises

Munich Re's value proposition

- Joint product development: bespoke offering developed in accordance with market, legal and cedants' needs
- Modelling: Pricing, PML calculations, accumulation control methodologies
- Risk assessment framework supported by Munich Re or strategic IT technology partners
- Claims management services, supported by external service providers
- Development of risk prevention and mitigation services



Epidemics can happen all over the world and occur regularly

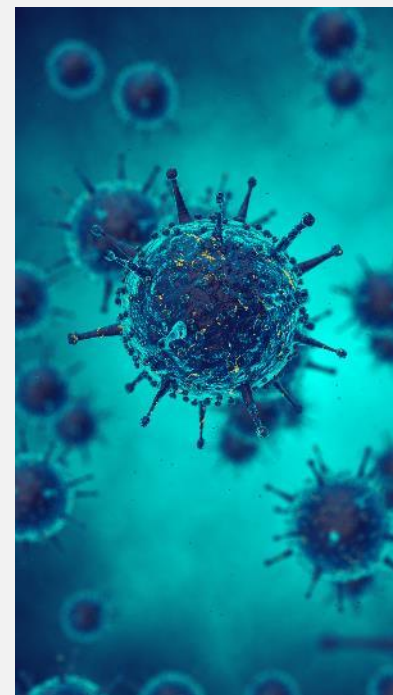
Global epidemic hotspots



- Epidemics
 - happen relatively frequently
 - only affect a certain region
- Pandemics are global

Source: World Health Organization
Image: used under license from shutterstock.com

Infectious disease outbreaks of the 21st century



2014 – 2016
Chikungunya & Zika

2014 – 2015
Plague

2013 – 2015
MERS

2014
Ebola

2011
EHEC

2009
Swine flu

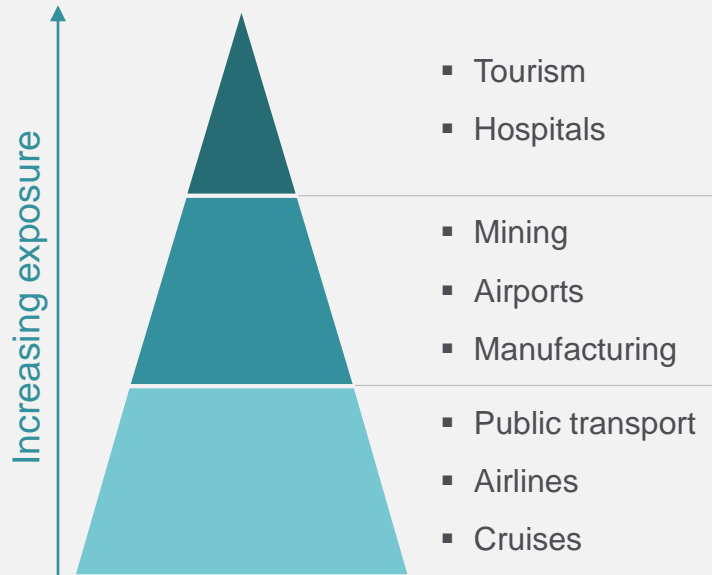
2005
Marburg virus

2003
Avian flu

2002
SARS

Epidemic outbreaks can affect a broad variety of industries and cause different loss scenarios

Classification of industry exposure, e.g.



Loss scenarios

Impact on industry

Loss of attraction
(partial BI)

Business interruption
(full BI)



Potential loss scenarios

Loss of
revenue or profit

Extra expenses

- Contract workers
- Safety measures
- Health measures
- Disinfection
- Evacuation
- Marketing

Past events have shown that local outbreaks can cause large losses for specific businesses

2015

Tourism: South Korea & MERS¹

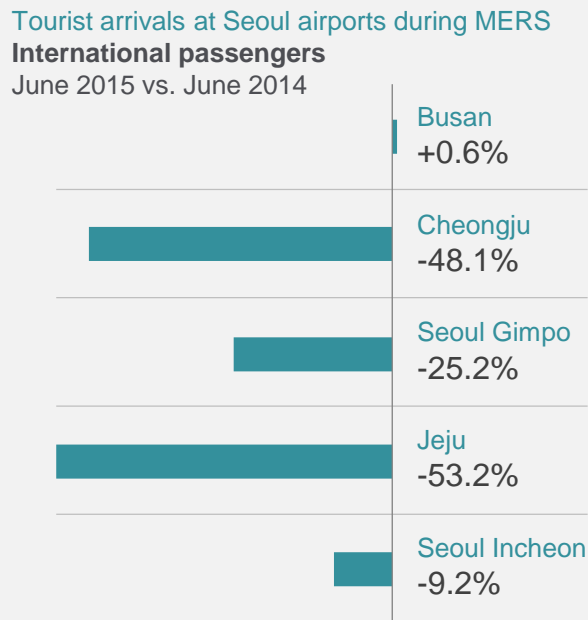
Over 180 infections and 36 fatalities

Result

Inbound tourism revenues down by up to 80% over a period of three months²

Solution

Loss of revenue cover, e.g. for the tourism sector



2014

Mining: West Africa & Ebola

A lot of highly profitable mines in West Africa were affected

Result

Financial losses for mining companies, including some bankruptcies

Solution

Non-damage business interruption cover



¹ Middle East Respiratory Syndrome
² Source: Korean Association of Travel Agents

Munich Re develops bespoke solutions for specific industries covering losses from epidemic events

Required capabilities

- 1 Focus on epidemics with inherent diversification

- 2 Improved historical data and risk assessment on regional level

- 3 Analysis of vulnerability of specific industries and companies

- 4 Bespoke coverage design and management of accumulation risk

- 5 Tail risk as investment format allows managing own risk appetite

Value proposition: Strong client and regional focus supported by partnerships facilitates new product offering

- Partnerships: close cooperation along the value chain with epidemic experts (e.g. Metabiota), brokers, corporates of different industries and public sector
- Product framework for cedants: trigger definition, wording, pricing, modelling
- Support risk assessment capabilities of cedants
- Significant capacities
- Market-building experience for new risk coverages



1

Global reinsurance landscape

Market environment remains challenging;
reinsurance pricing is stabilising

2

Munich Re strategy

Munich Re perfectly positioned to manage the
current market environment and adapt its
business model to market changes

3

Munich Re innovation

Munich Re drives industry innovation

4

Munich Re expertise

Munich Re's risk and data expertise and its
ecosystems help push back limits of insurability
and develop new insurance models

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