

2018 SCOR Annual Conference  
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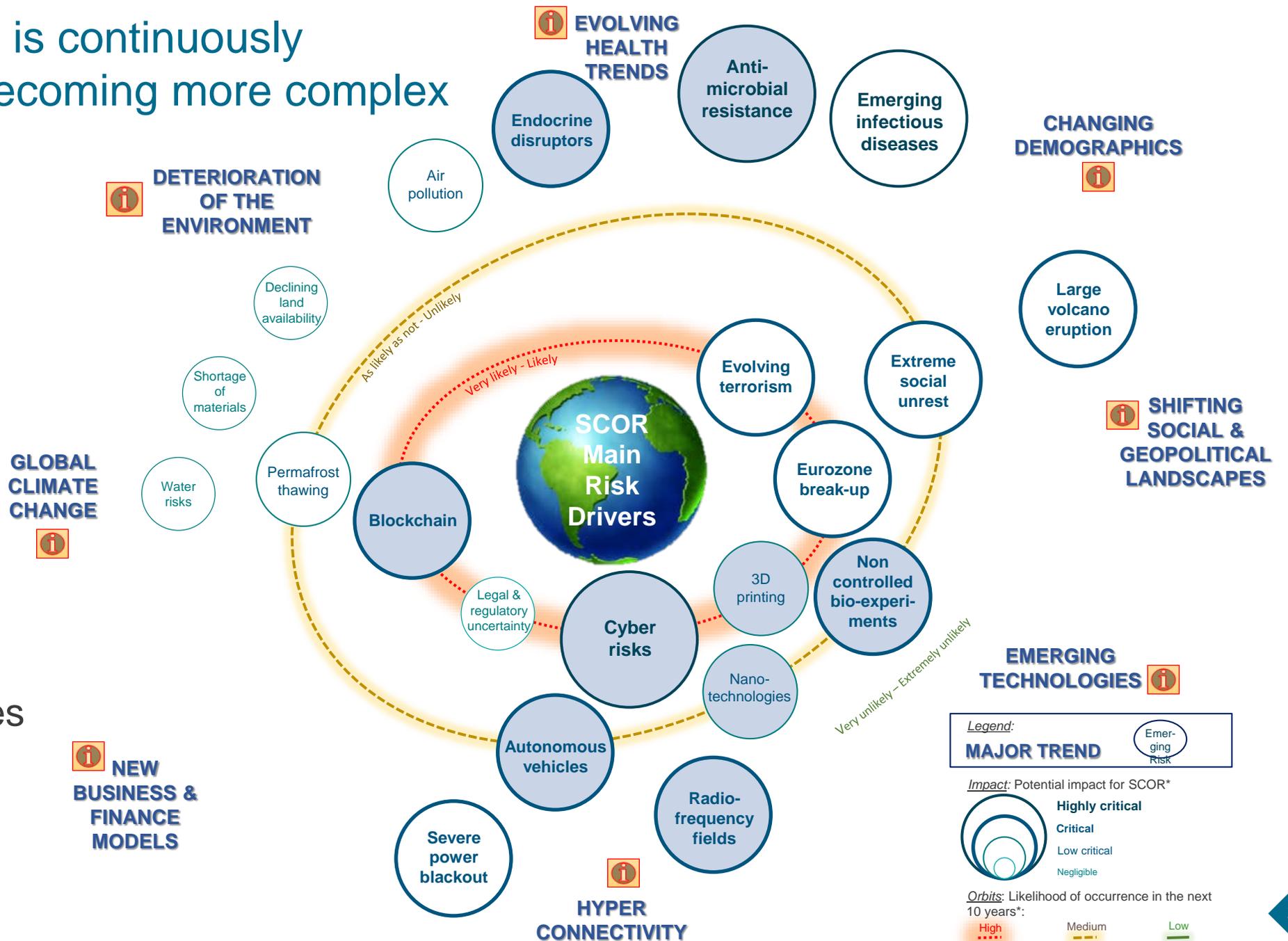
# Technology, insurance and insurability

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- The slide features several decorative diamond shapes (rhombuses) in a light blue color. Some are solid, while others are outlined. They are arranged in a pattern: one in the top right, one in the middle right, one in the middle left, one in the bottom left, and one in the bottom right corner.
1. Science and technology are driving the expansion of the risk universe and require us to increase the “sphere of insurability”

# The risk universe is continuously expanding and becoming more complex

- Traditional risks remain
- New risks are emerging, mutating or transforming
- Increasingly complex interdependencies are appearing between risks



**Legend:**

**MAJOR TREND** Emerging Risk

**Impact:** Potential impact for SCOR\*

- Highly critical (Large blue circle)
- Critical (Medium blue circle)
- Low critical (Small blue circle)
- Negligible (Very small blue circle)

**Orbits:** Likelihood of occurrence in the next 10 years\*

- High (Red dotted line)
- Medium (Yellow dashed line)
- Low (Green dashed line)

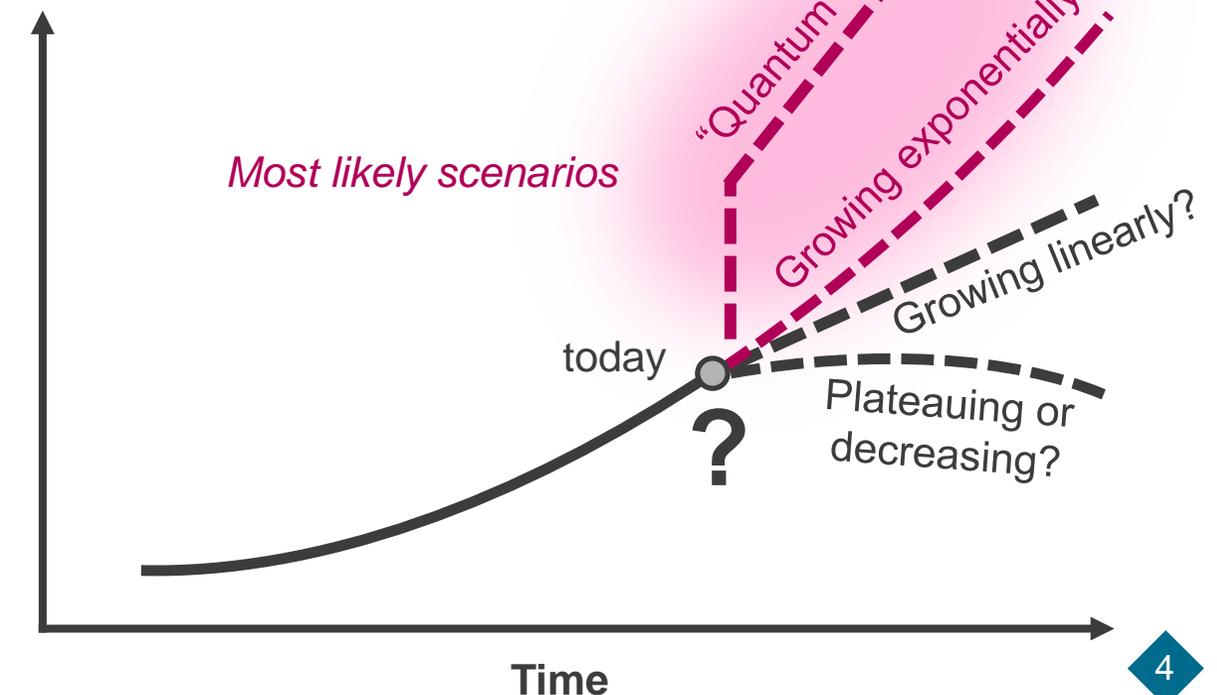
\*Impact and likelihood based on the worst case scenario

# Scientific progress and technological developments lie at the heart of the expansion and transformation of the risk universe

- The development of new technologies and scientific research are the key factors driving the growth and transformation of the risk universe.
- The rate of technological change throughout history is not constant:
  - We are in the middle of a burgeoning and prolific period of technological developments impacting all economic sectors.
  - The perceived acceleration of technological change is not new.

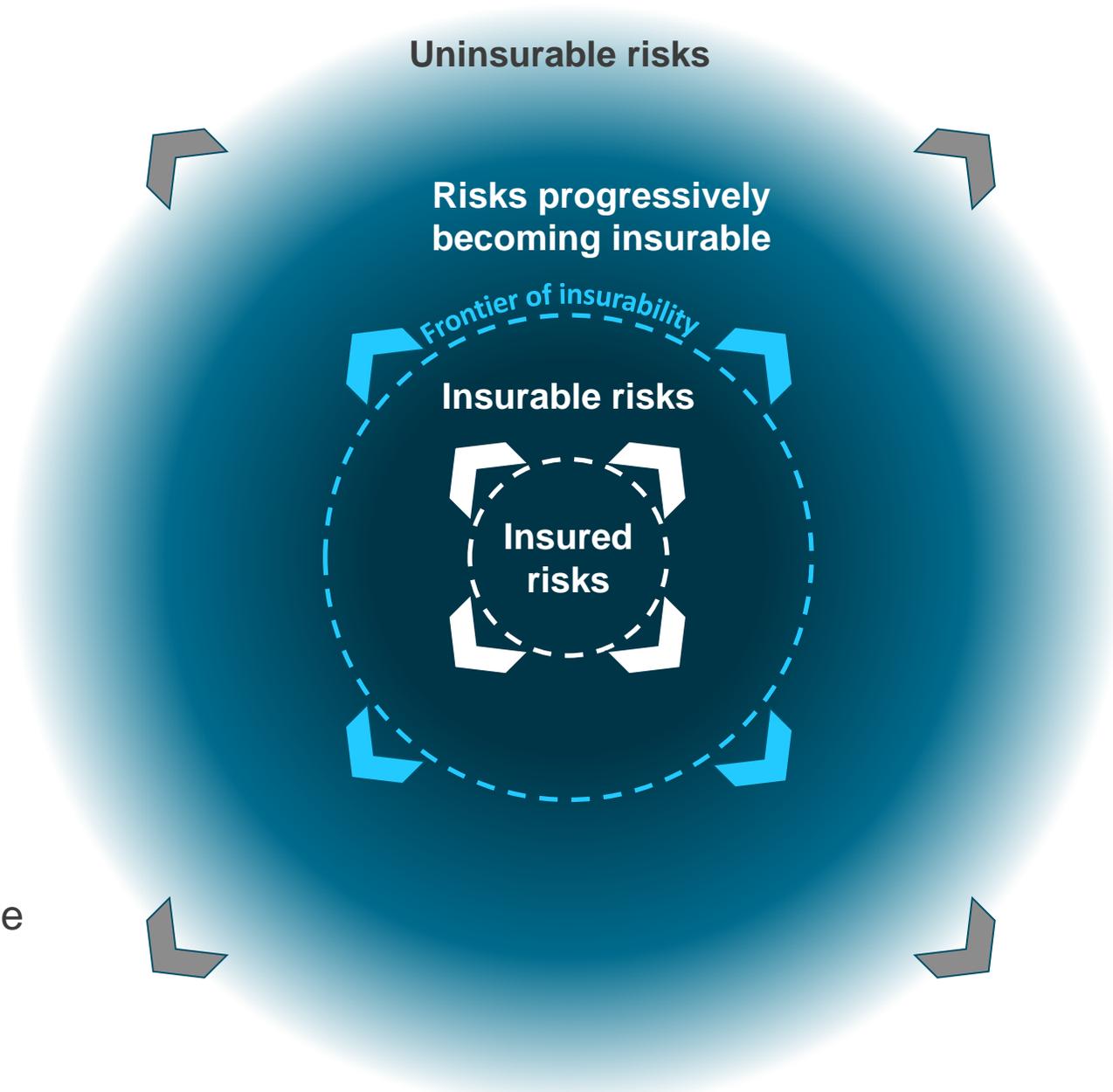
*“the geometric ratio of sophistication, [...] the geometric widening of the sphere of knowledge [...] every year is taking in a larger percentage of people as time goes on [...] a mighty change having come about in fifty years, and our pace of development having immensely accelerated, our sons and grandsons are going to demand and get results that would stagger us”, Daniel Burnham, 1910*

Rate of technological change



# The “sphere of insurability” is growing

- The conditions to ensure optimal insurability of a given risk include:
  - Implementation by the insured of active prevention and precaution measures;
  - Availability and processing of data;
  - Measurement and modelling;
  - Analysis of aggregations.
- If these conditions are not fully met, the situation is suboptimal: insurance is not available, limited and/or too expensive with restrictive conditions.
- History shows that the “sphere of insurable risks” is increasing and that the “sphere of uninsurable risks” is narrowing, resulting in a positive shift of the insurability frontier. In particular, all emerging risks linked to new technologies have progressively become insurable (e.g. aviation, satellites, etc.).



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## 2. Science and technology may significantly transform the production function of (re)insurance

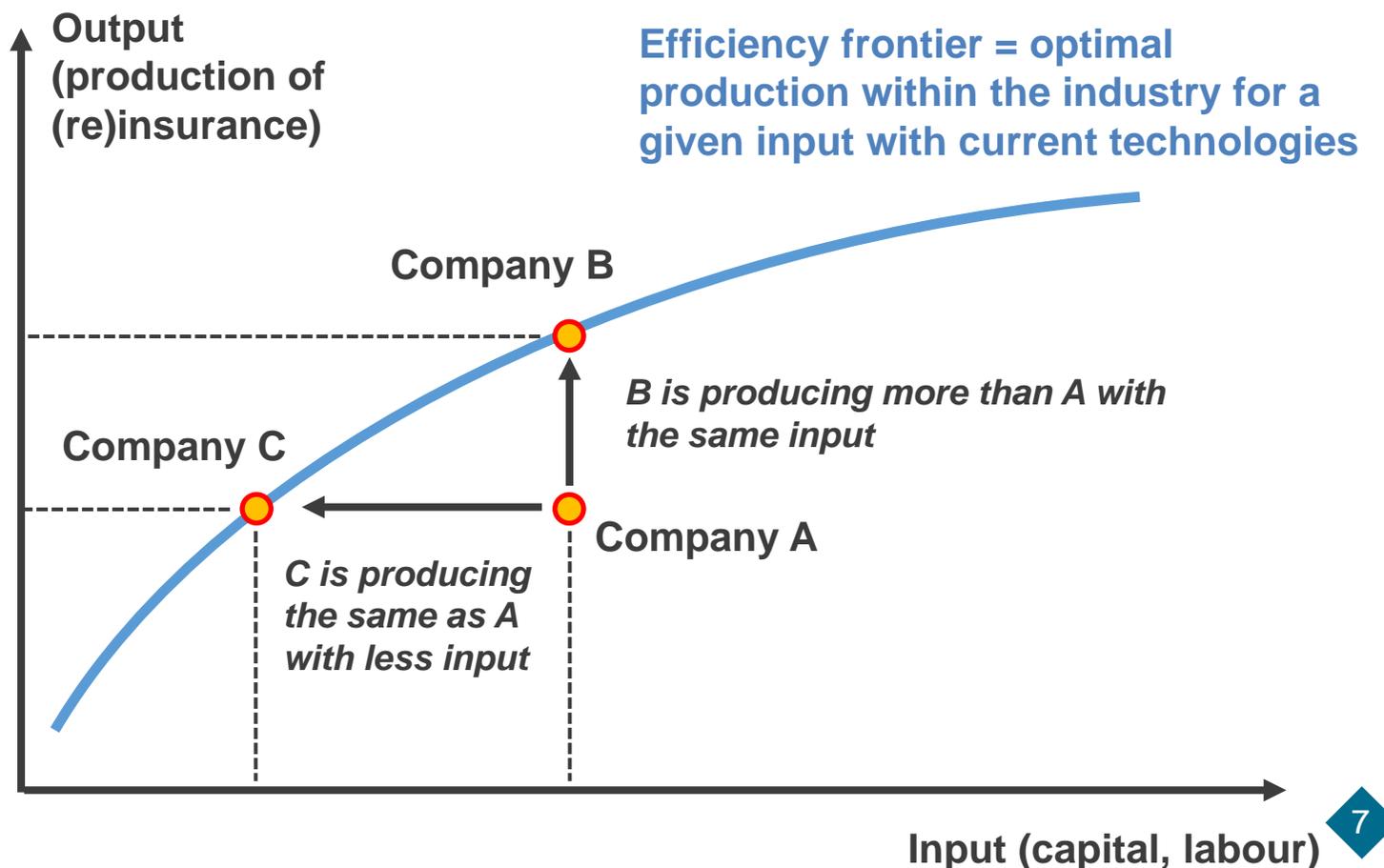
# Scientific progress and technological developments will significantly impact how (re)insurers run business operations and produce services

- New technologies (Artificial Intelligence, Blockchain, Robotic Process Automation, Augmented underwriting etc.) will transform (re)insurers' production function

→ Increased efficiency at each stage of the insurance risk-to-capital chain: risk modelling, product innovation, distribution, customer experience, underwriting, claims processing, etc.

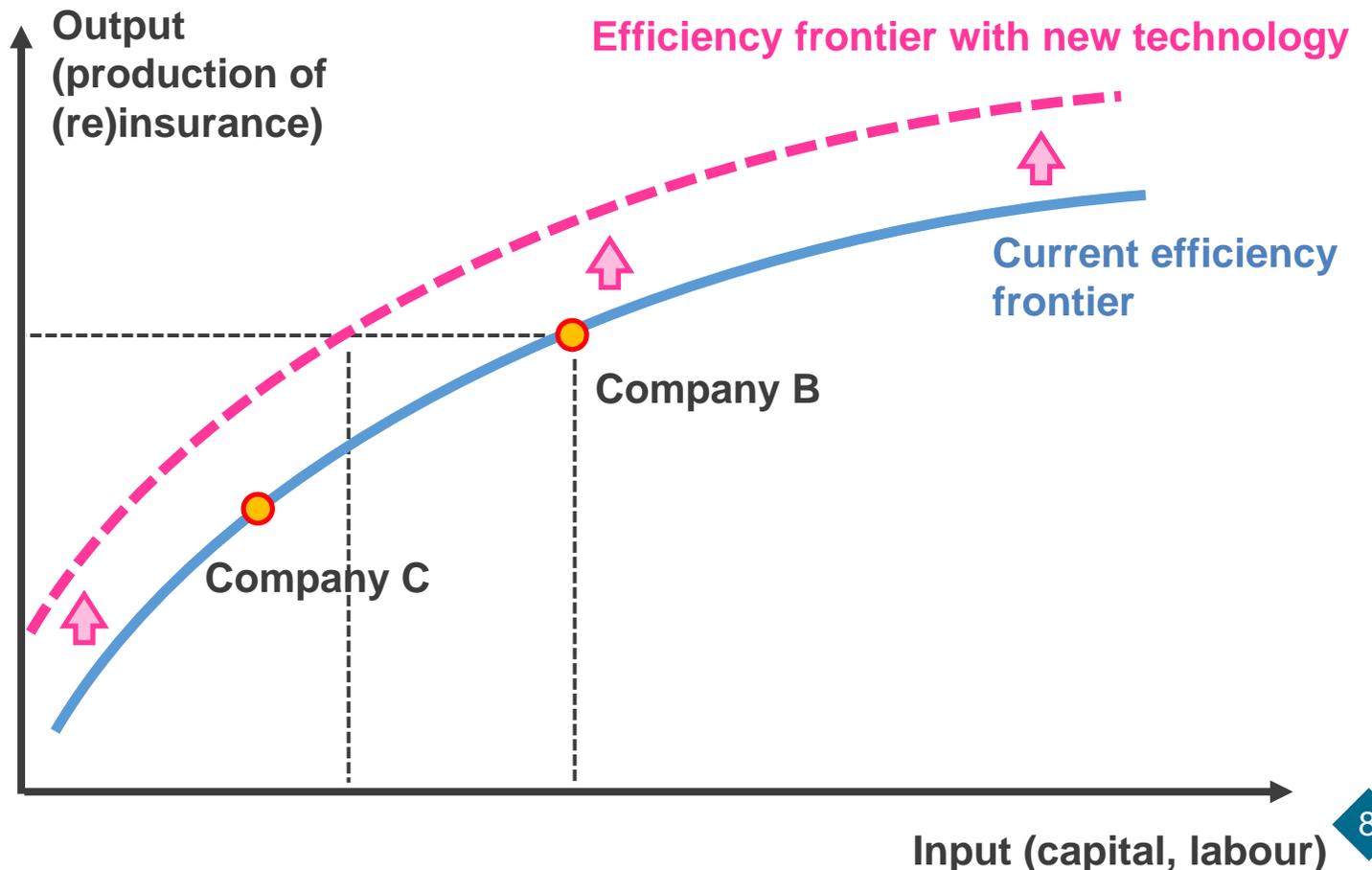
→ Reduction of (re)insurers' running costs, boosting demand and contributing to the increase of (re)insurance penetration.

- They will result, all else being equal, in a positive shift of the (re)insurance industry's efficiency frontier: we will produce more with less.



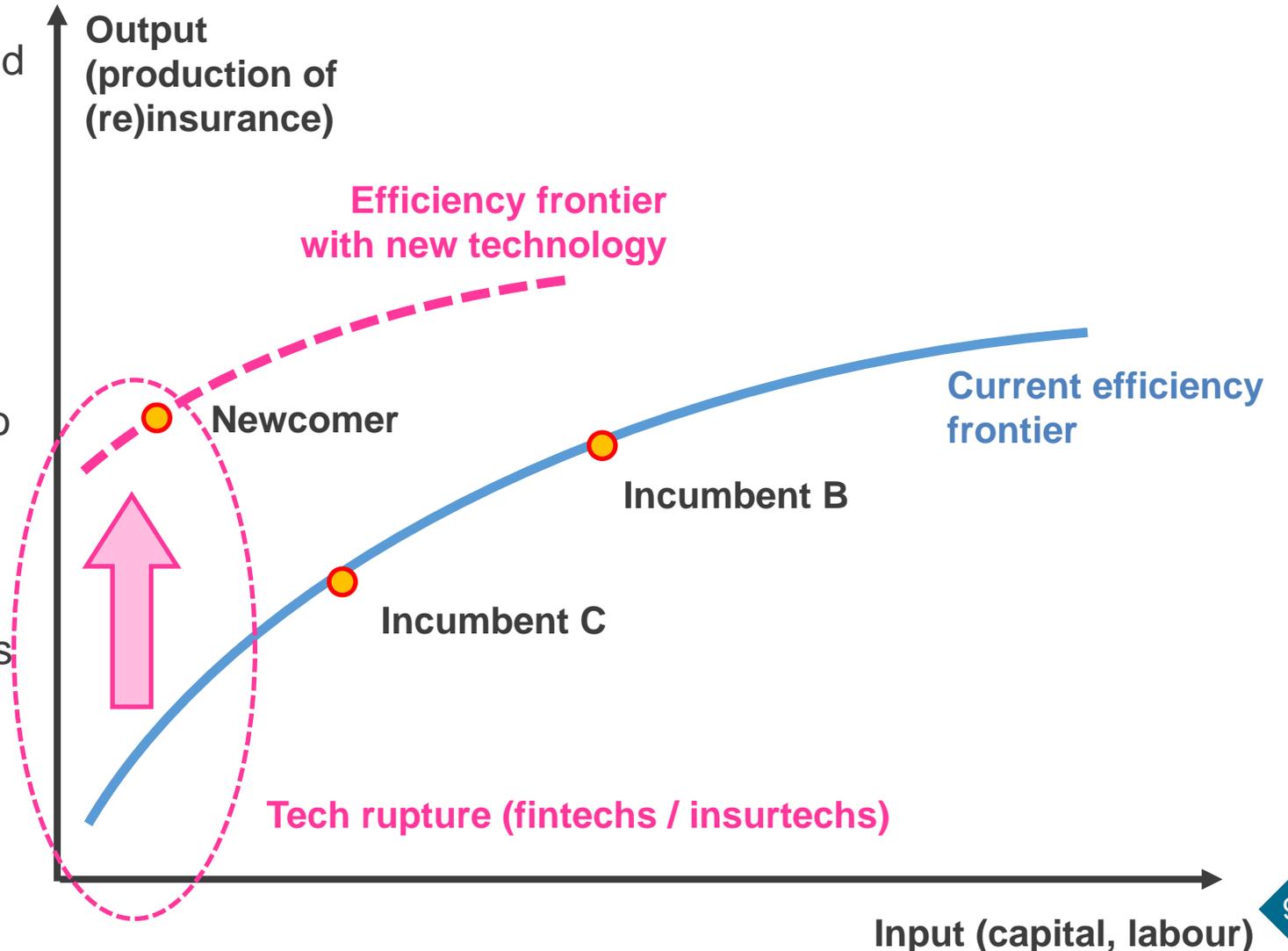
# Scenario 1: technological developments only displace the efficiency frontier (“evolutionary transformation”)

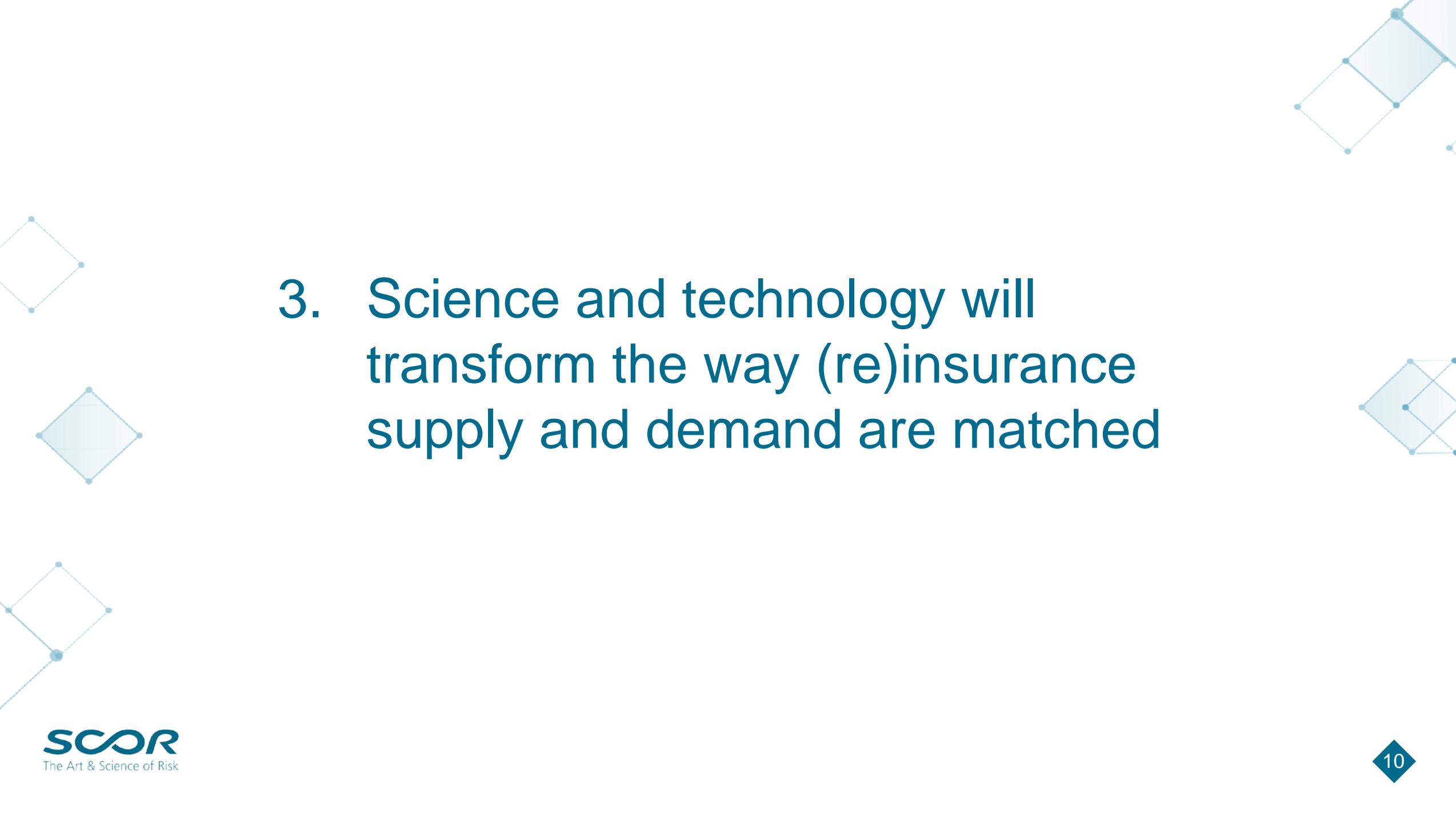
- Technological developments are progressively embedded in the operations of all reinsurers.
- The (re)insurance industry integrates the new technologies.
- The sector as a whole increases its productivity.
- Production of (re)insurance becomes more efficient among all market participants.
- The process is progressive, and the efficiency frontier shifts gradually.
- Adaptability – and therefore timely investment in technology – is a key factor of competitive positioning.



## Scenario 2: technological developments transform the shape of the efficiency frontier (“paradigm shift”)

- The (re)insurance industry is confronted with a technological disruption.
- The sector is shaken by (a) newcomer(s) mastering the new technology.
- The efficiency frontier is transformed profoundly and suddenly (e.g. switch to exponentially increasing marginal productivity).
- Incumbents confronted with this contestability face huge transition costs to reach the (new) efficiency frontier.



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3. Science and technology will transform the way (re)insurance supply and demand are matched

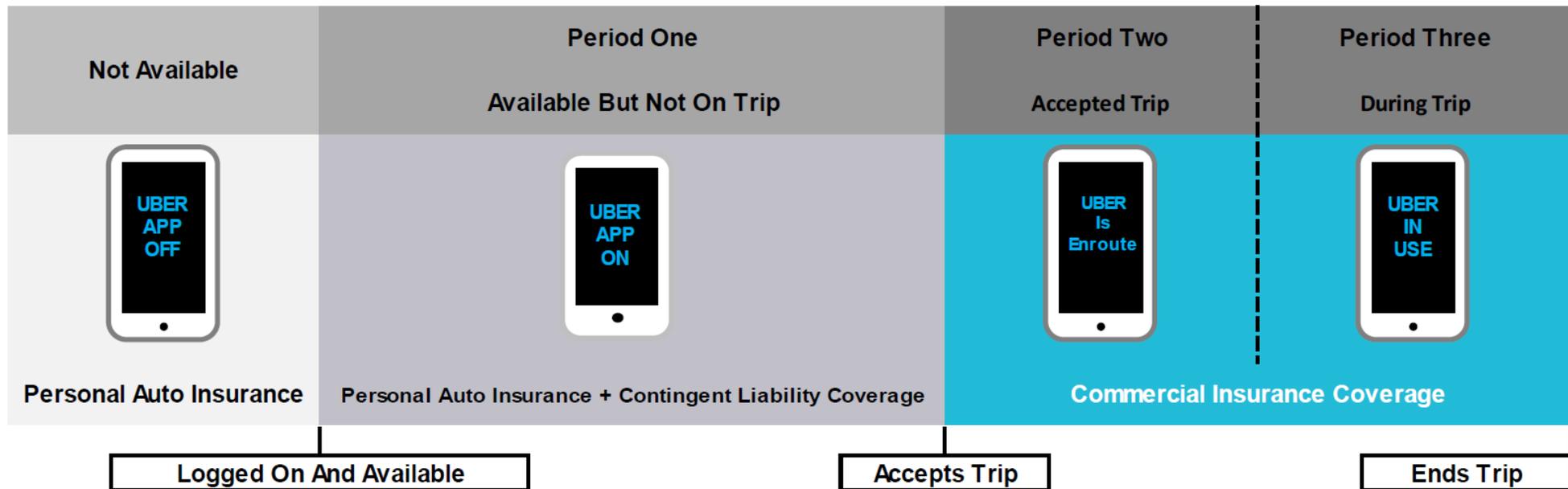
# Scientific progress and technological developments will completely redefine how data is accessed and processed

<b><u>Information yesterday</u></b> <b>Incomplete and static observability</b>	<b><u>Information tomorrow (era of sensors)</u></b> <b>Full and dynamic observability</b>
Limited and incomplete	Comprehensive from multiple sources
Low granularity	High granularity
Static	Dynamic and ranked in quality
Time lags	Real-time
Costly to obtain	Cheap to obtain
Costly to process	Cheap to process (AI)

- These fundamental changes in data collection and processing capabilities will
  - significantly reduce information asymmetry between insurers and insureds;
  - allow comprehensive and dynamic observability and monitoring;
  - facilitate access to (re)insurance from multiple platforms;
  - provide another level of possible analytics and enhance risk knowledge...
  - ... as well as improving comparability, resulting in sharper competition.

# This will profoundly change how (re)insurance supply and demand are matched, both quantitatively and qualitatively

- As a result, new technologies will lead to greater congruence between supply and demand in both space and time, through:
  - A more granular match between risk and the price of risk ;
  - A dynamic adjustment over time between risk and the price of risk (example of rideshare insurance for transportation network companies in the US).



Source: Dowling & Partners

# Conclusion

# Scientific progress and technological developments are very positive for (re)insurance

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- Technology will be a key success factor in the (re)insurance industry in the years to come.
  - Technology is the Trojan horse of contestability in all economic sectors, and even more so in an information-driven industry like (re)insurance.
  - Technological developments will have far-reaching impacts across the full risk-transfer ecosystem.
  - Coping with these changes requires timely innovation, investment and adaptation.
  - Promoting a corporate culture of new technology adoption and a “trial and error” approach is essential.
  - Management of the technological transition is key to remaining on the industry’s rapidly changing efficiency frontier.
- Scientific progress and technological developments will help to push back the frontiers of insurability and bridge the protection gap by
  - Improving our understanding and modelling of the risk universe ;
  - Fostering prevention and precaution, reducing fraud and reducing the running costs of (re)insurance, hence making coverage more affordable.