

*somewhat  
different*



## Industry 4.0

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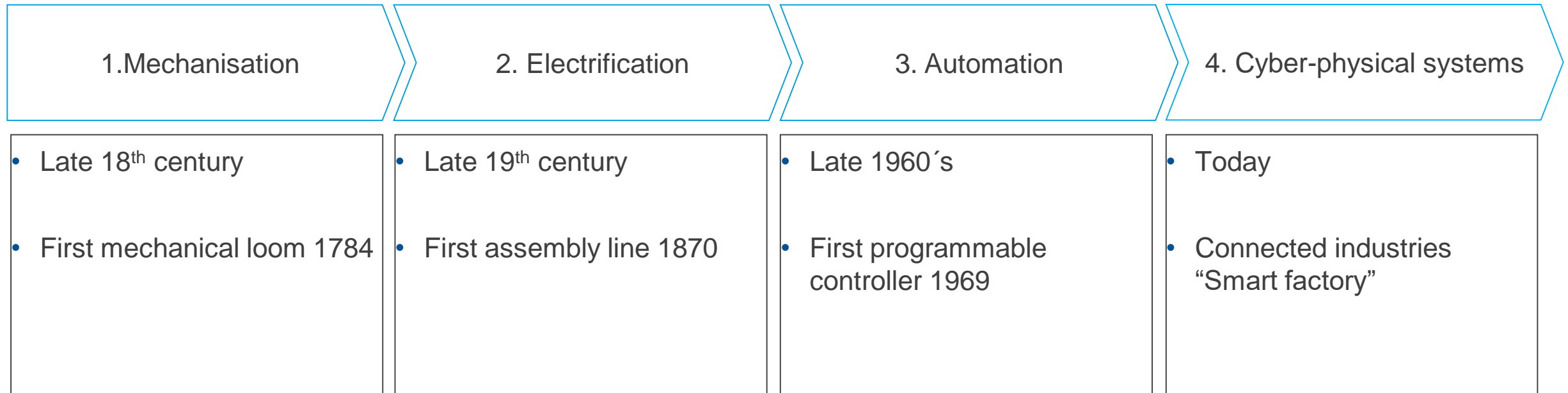
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# Industry 4.0

## The four stages of industrial revolution



# Industry 4.0

## What is a “smart factory”?

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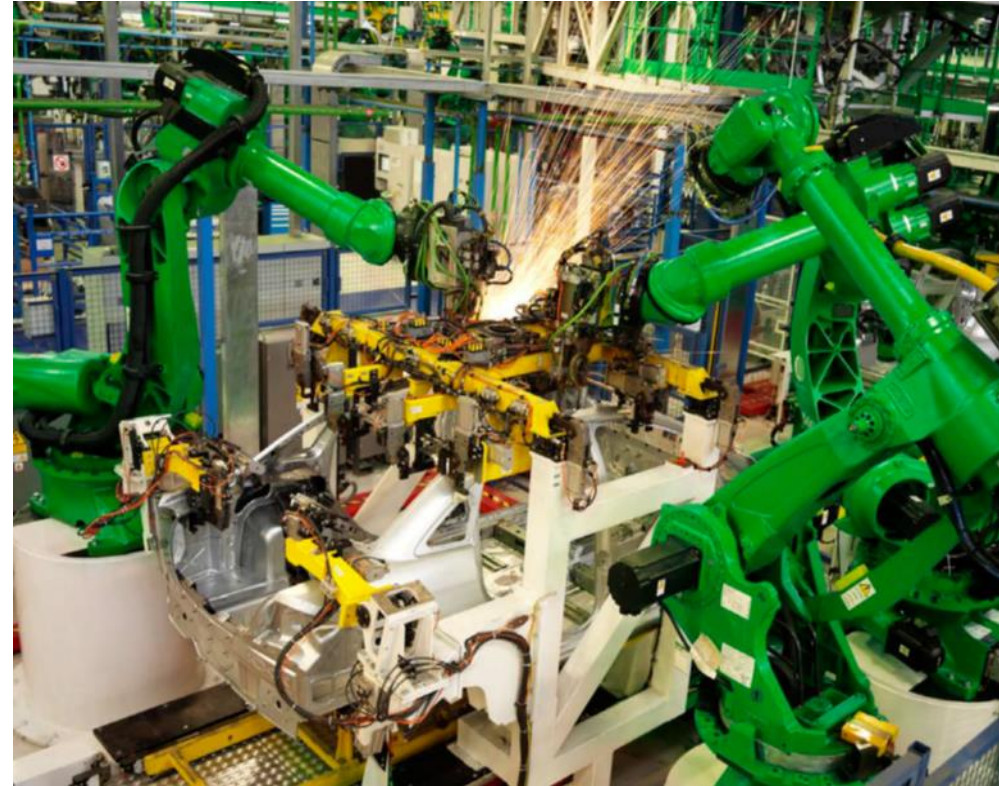
- The “smart factory” concept integrates various evolving technologies into a new business model for the manufacturing industry.
- One of the crucial elements is availability of information in real time in a cross-company value chain.
- The landscape will feature complex and extensive networks linking suppliers, manufacturers and customers.
- Production plants and logistics systems are organised as far as possible autonomously.
- The aim is to achieve an overall optimum in terms of cycle time, quality, utilization and resource requirements.

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## Key features

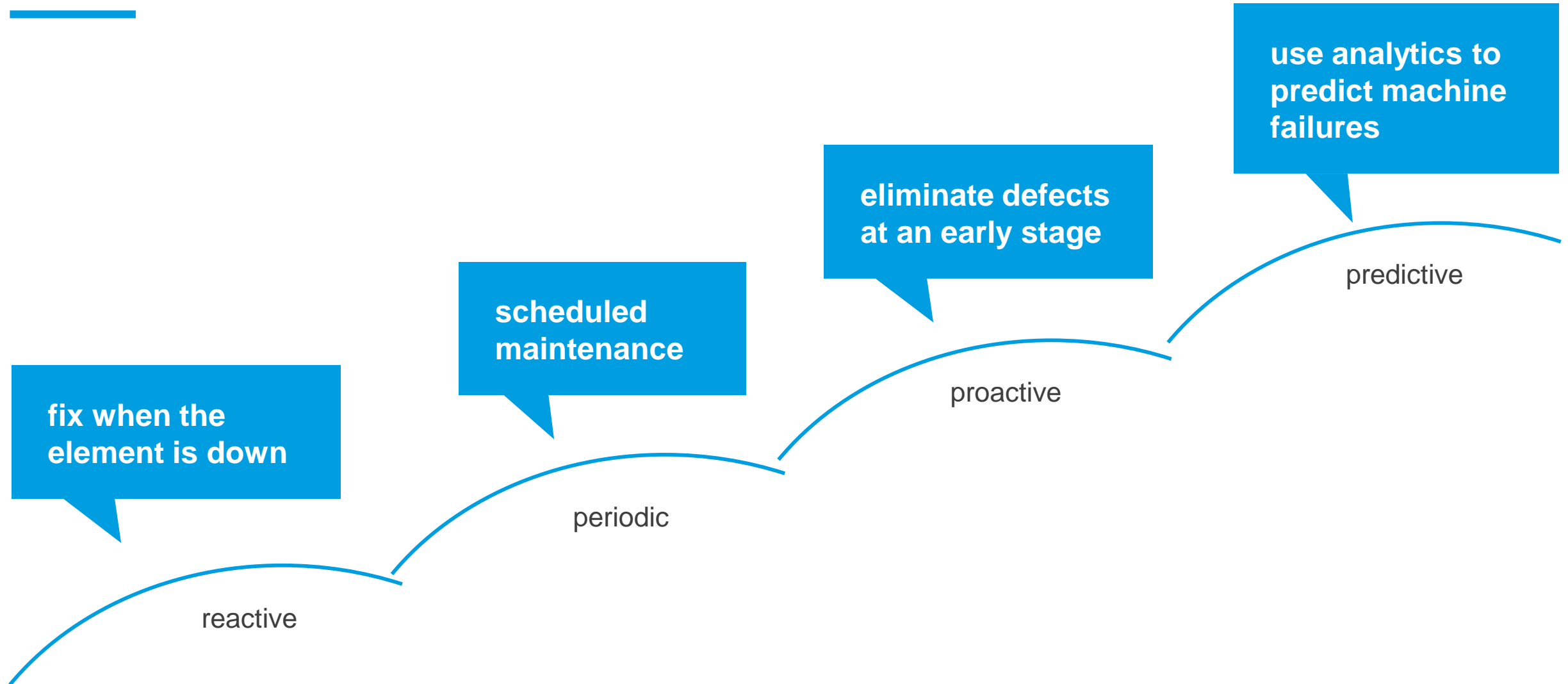
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- Key features of “Industry 4.0” / “Smart Factory”
  - Automation, robotics
  - Machine-to-Machine communication
  - Additive manufacturing
  - Big data
  - Optimising industrial processes
  - Augmented reality



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## Predictive maintenance



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## Economic potential

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- Development of new business models and services
- Conservation of resources (sustainability)
- Increase in productivity
- Forecast for Germany (until 2025)
  - Increase in total value added by 30-50%
  - Investment volume of approximately € 250bn
  - Creation of new jobs (?)
- Job market
  - Substitution risk for Germany is 59% - 18.3 million jobs are threatened (ING DiBa 2015)
  - 12% (5 million) of German jobs have profiles with a "relatively high probability of automation" (ZEW 2015)
  - Net 350,000 additional jobs to be created in Germany by 2025 (BCG 2015)
  - Germany will benefit significantly from Industry 4.0 – Up to 390.000 new jobs (Frey/Osborne 2015)



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## Drivers and obstacles

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### Industry 4.0 - Drivers and obstacles

- Drivers

- Higher capacities by cloud computing
- Improved methods of data analysis
- Development of technology standards
- Data protection regulation (EU)

- Obstacles

- Constant increase in cyber crime
- Mounting system complexity
- Globally no protection of intellectual property
- Substantial regional differences in regulation

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## Risk management challenges (1)

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- Difficulties in determining liability for losses if the process or product causes damage or injury
  - Original designer of specifications fed into the manufacturing machines?
  - Operating software governing the factory systems?
  - The machine itself?
  - The operator of the machine (if there is any)?
- Using and securing data flows
  - Significant increase in the volume of data requires improvements in processes and data analysis know-how
  - Protection of sensible data (e.g. customer information, intellectual property)
  - Evolving and uncertain regulatory environment
- Potential for greater disruption from business interruption
  - Deeply integrated nature of production means more severe impact
  - Claims frequency is likely to decrease
  - Claims severity will probably increase

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## Risk management challenges (2)

- Increased vulnerability to cyber risks due to
  - Centrality of information networks within the smart factory
  - Reliance on connected devices (via the IIoT)
- Multiple entries for cyber criminals
- Consequences
  - Production halt
  - Faulty products
  - Supply chain interruption
  - Large losses from the domino effect



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## What else keeps us up at night?

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- Widely unknown and evolving risks need clarification and definitions.
  - How to insure AI?
  - What is the legal nature of robots?
  - What types of cyber attacks are covered?
  - How can “smart” insurance look like?
- There is a substantial accumulation risk in BI and CBI risks.
- Historical claims data are only of limited prognostic value in a digitalized world.
- New technologies may supersede traditional insurance policies.

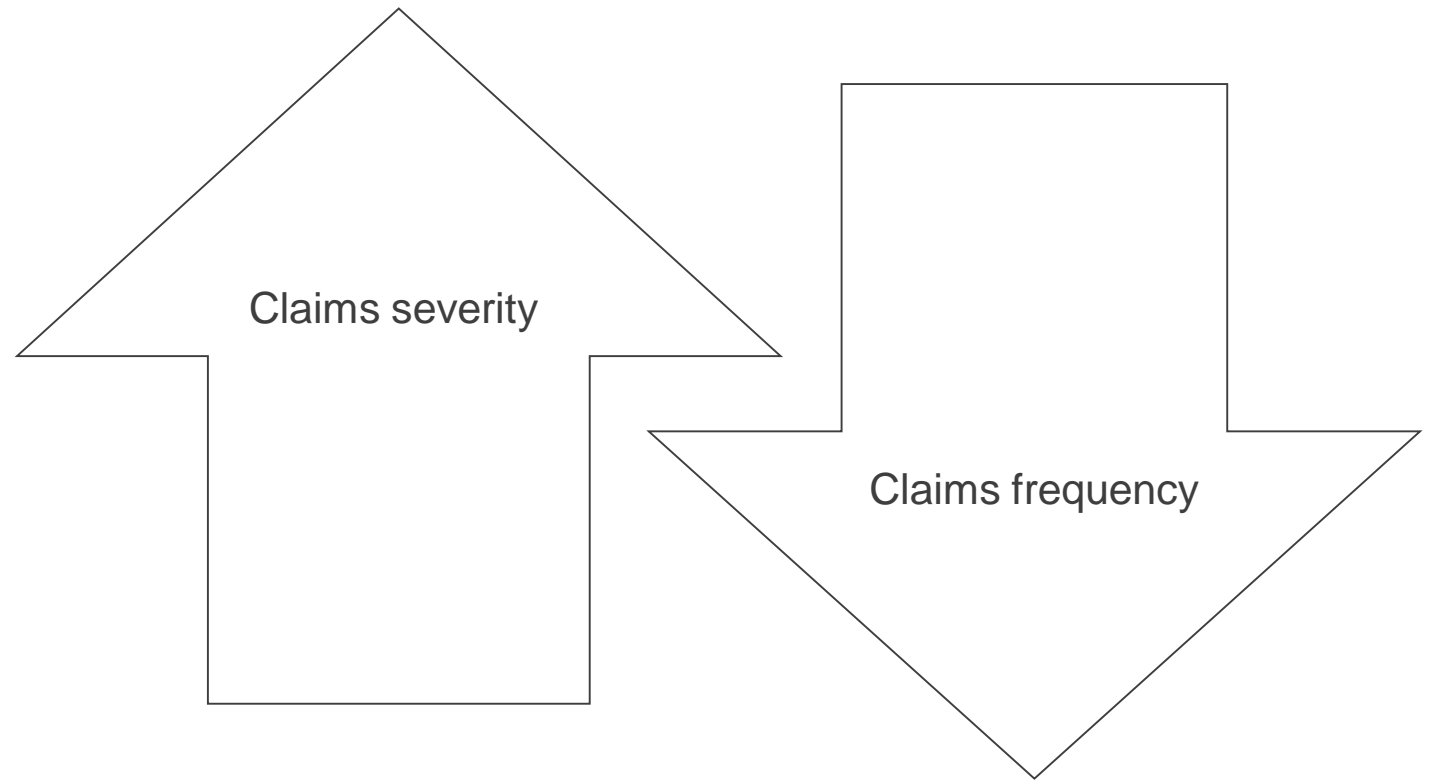


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## Affected lines of business

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- The insurance challenges will be driven by the risks that arise out of the complex, interdependent, networked and information-intensive nature of the Smart Factory.
- Product liability and product recall
- General liability
- Professional liability
- BI, CBI
- Cyber coverage



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## Which policies might respond?

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- Property / BI policy
  - Cyber liability policy
  - CGL / Product liability policy
  - CBI policy
  - Tech E&O policy
  - Outsource Service Provider (OSP) policy
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- Each policy wording has to be checked for definitions and exclusions.
  - Probably all parties involved will point fingers at each other until judicial or legal clarifications are made.

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## How to proceed?

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- Insurance industry has to build up expertise in the area of new technologies.
- Due to their specific risk profile more clients need tailor made insurance solutions.
- Risk management and claims prevention have to be re-adjusted. Insurers have to play a more active role.
- Client relations have to be intensified. Instead of periodic contacts we need continuous exchange.
- We need to develop strategies to cope with accumulation scenarios by Industry 4.0 events.
- We need better data and improved data analysis to compete in a more and more data driven insurance environment.

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