

Image: Deloitte Digital Studios

# Tech Trend Radar 2020

Full report can be requested for Munich Re Clients

Contact **Munich Re:**

Jason Engelbrecht  
Chief Technology Officer  
Tel +44 20 7886 3900  
[jengelbrecht@munichre.com](mailto:jengelbrecht@munichre.com)

Contact **ERGO:**

Roland Braun  
ERGO IT Strategy  
Tel +49 211 477-5246  
[roland.braun@itergo.com](mailto:roland.braun@itergo.com)

**ERGO**

---

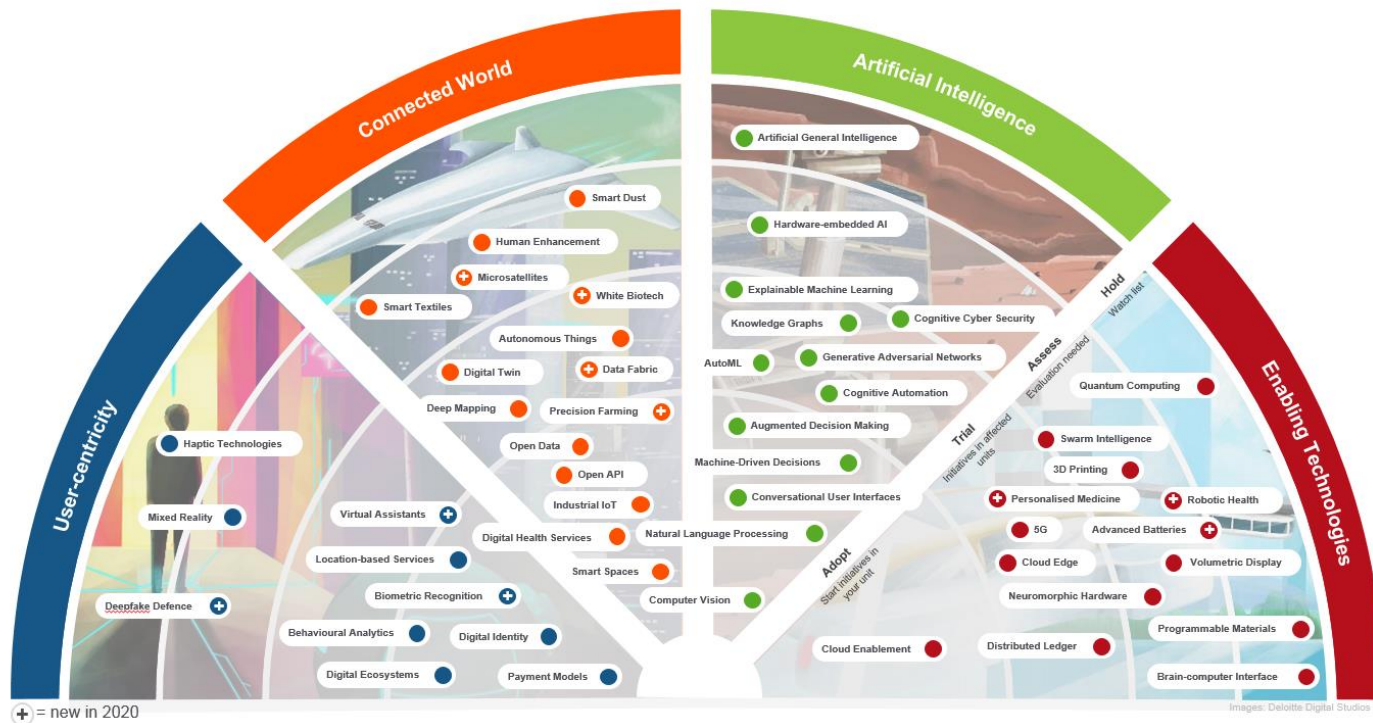
Munich RE 

# Tech Trend Radar 2020 Introduction

The Tech Trend Radar 2020 provides information about technology-driven trends in 2020 that are relevant to Munich Re, ERGO and the global insurance sector. It is a collaborative initiative by Munich Re Business Technology and ERGO IT Strategy.

The Tech Trend Radar 2020 aims to sharpen awareness, provoke discussion and initiate new business opportunities that appeal to all insurance clients and units within the Munich Re Group. Furthermore, there is a strong alignment with Business Units and Strategic Units within the Munich Re Group.

In cooperation with PA Consulting Group and the Institute of Electronic Business, future trends have been gathered, aggregated and rated in order to provide a comprehensive view of technology trends, their maturity and relevance for the Munich Re Group and the insurance industry.



## We're just getting warmed up!

The current pandemic has exposed the need for rapid technical development. The development is being driven by an enormous push to support the global economy. Several tech trends are moving towards the “trial” or even “adopt” Radar phase more rapidly than projected to address the situation. Flexibility and courage are especially essential to take the first step at this uncertain time and now it is time to move from preparation into realisation.

We are all going through a demanding time. The fight against the pandemic is bringing uncertainties to the economy and society that call for global and corporate responsibility. The advance of old technologies and advent of new technologies will help us in this fight. The ability to react and recover has to be built into our new way of doing business.

With our Tech Trend Radar we share this knowledge because we are no longer independent. We depend on each other throughout our value chains and business processes. The advent of Platforms and API exposure will provide opportunities that will make our systems capable of providing more customised solutions that can be easily adjusted for our changing world.

In times of great humanitarian and economic challenges, it is more important than ever: Technology can and must deliver a visible benefit as we evolve together.



Dr. Olaf Frank  
Head of Business Technology  
Munich Re Group

## Be prepared for uncertainty

The last decade made one thing clear: Technology is everywhere and it has an impact on us all. Disruptive technology such as Cloud Edge supports large amounts of data handling for insurance underwriting and claims processes while 5G will lay the foundation for autonomous driving.

In the time of pandemic, technology serves as a safeguard: anonymised data about population movement in high resolution help to forecast the spread of the disease. Via these means or by using wearables, technology offers unprecedented possibilities in the prevention and treatment.

However, the most important criterion for success is and stays being human. Promoting understanding, shining a light on opportunities, addressing fears and offering training is essential. In times of global crisis, which forces us to stay at home and work remotely, “Digital upskilling” of employees should be the key priority. This way we can meet our responsibilities – to our employees, our company and for the global combat against the pandemic.

This year’s Tech Trend Radar is prepared precisely in this spirit. We hope you will get inspiration from it and perhaps even take the first steps to implement some solutions to be better prepared for whatever comes at us next. Enjoy reading!



Tomasz Smaczny  
COO  
ERGO Technology &  
Services Management

## Will the 2020s be the next Roaring 20s?

What started 100 years ago in Berlin and other metropolises is considered a "golden decade" - progressive, open-minded and innovative. Amongst other developments, the decade saw the expansion of mass transportation. Following the pioneering inventions of Henry Ford the automobile became affordable. In 1927, Charles Lindbergh rose to fame with the first solo nonstop transatlantic flight – a kick starter for commercial aviation. The "Golden Twenties" saw new means of communication and entertainment: the telephone, radio, electrification and the boom of cinemas. The 1920s were characterised by social and economic euphoria.

Stepping into a new decade, what awaits us in the 2020s? Comparable to the "Golden Twenties", major technological advancements are now ready to take off and be implemented commercially. Continuous development of technology such as artificial intelligence, quantum computing and robotics is changing how we live and work.

The tech world is constantly adapting to the uncertainties across globe. In 2020, we have all been impacted by the coronavirus pandemic. Advanced technology enables us to maintain our private lives and business routines as much as possible during this challenging time. Schools and training organisations have switched to digital overnight; The capacity and stability of modern IT systems enable

most people to work remotely; people have shifted their shopping habits online drastically. With the expected reorganisation of global supply chains, how technology will develop and evolve is a big question for the global economy.

Opportunities come along with challenges. How do you prepare your business to make the best use of emerging technologies while carefully assessing their risks and challenges? How does the insurance industry react to these threats and uncertainties? This year's Tech Trend Radar will shed light on this.

Carefully assessing the risks and resolutely stepping forward - let's make the 2020s a decade of action. If we get it right, future generations might look back fondly at the "Digital Golden Twenties" of the 21st century.



Jason Engelbrecht  
Chief Technology Officer

Munich Re

Tel +44 (0) 20 7886 3900  
[jengelbrecht@munichre.com](mailto:jengelbrecht@munichre.com)



Roland Braun  
IT Strategist – Innovation

ERGO IT Strategy

Tel +49 (0) 211 477-5246  
[roland.braun@itergo.com](mailto:roland.braun@itergo.com)



New trends 2020

The following 10 new trends have entered the Tech Trend Radar 2020:

1. Deepfake Defence
2. Biometric Recognition
3. Virtual Assistants
4. Data Fabric
5. Microsatellites
6. Precision Farming
7. White Biotech
8. Personalised Medicine
9. Robotic Health
10. Advanced Batteries

Tech Trend Radar 2020

The Tech Trend Radar began in 2015 as a collaborative initiative around trend monitoring between Munich Re and ERGO. Our aim is to promote innovative initiatives around each tech trend with our clients and develop the best solution for the challenges of tomorrow.

This year's report contains 52 trends that have strategic and operative relevance for the insurance industry. The trends are categorised into four trend fields: User-Centricity, Connected World, Artificial Intelligence and Enabling Technologies.

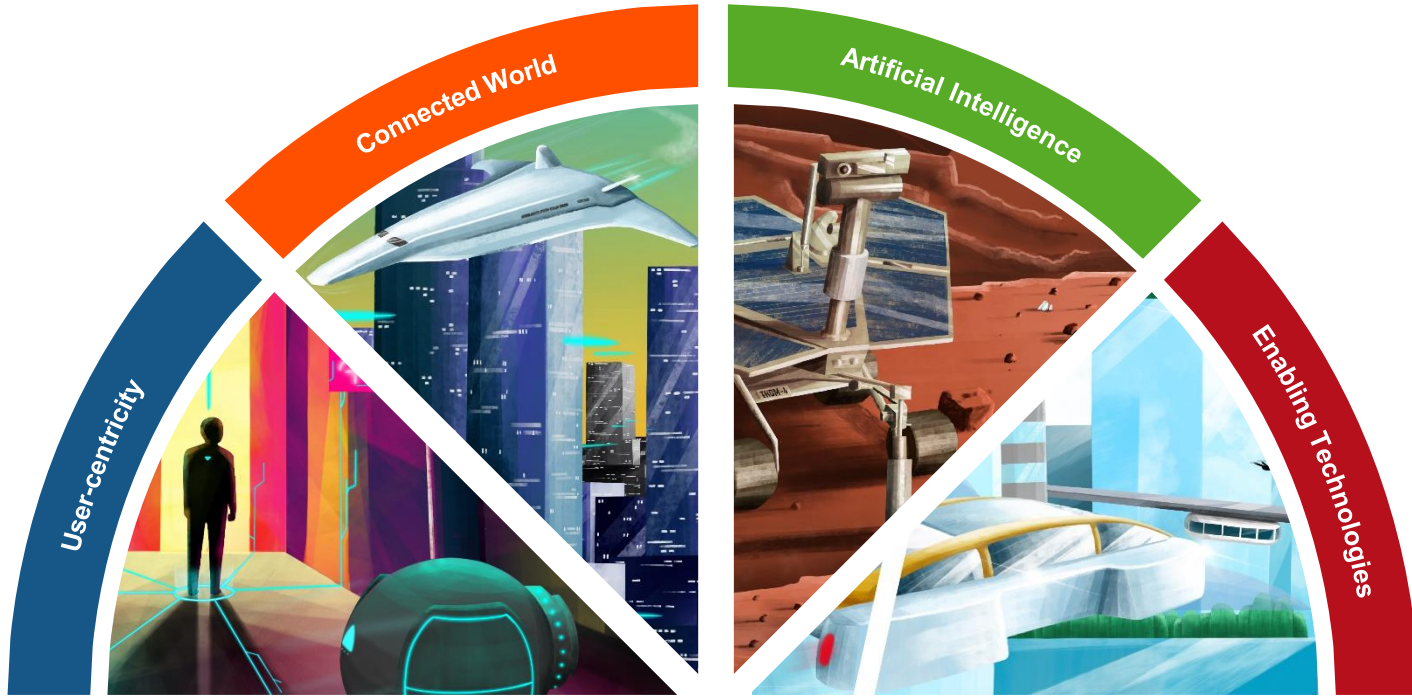
Trend fact sheets and use cases

Each of the 52 trends is introduced with a dedicated fact sheet including its anticipated impact along the insurance value chain and supported by cross-industry use cases.



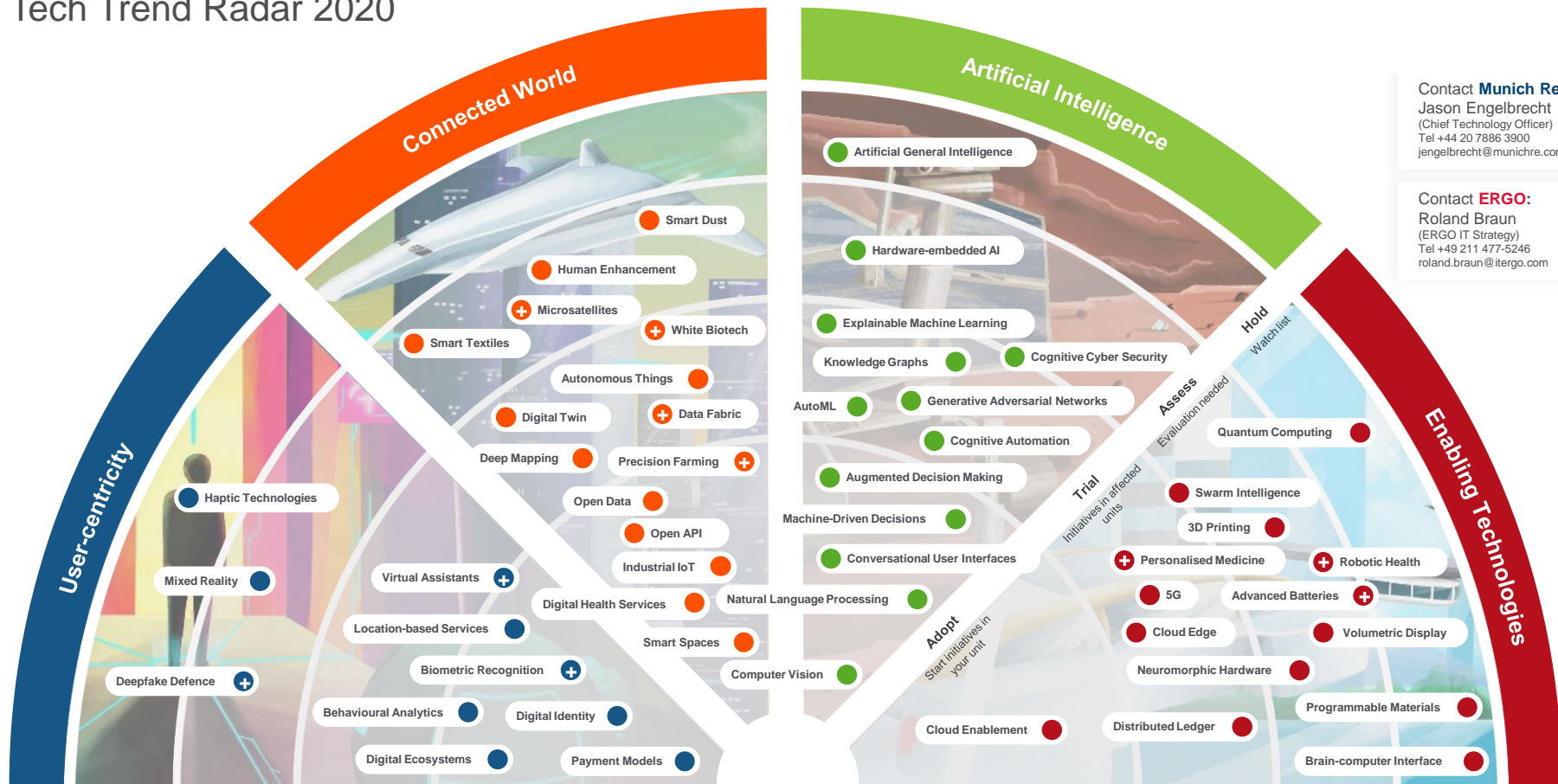
Images: Deloitte Digital Studios





Images: Deloitte Digital Studios

# Tech Trend Radar 2020

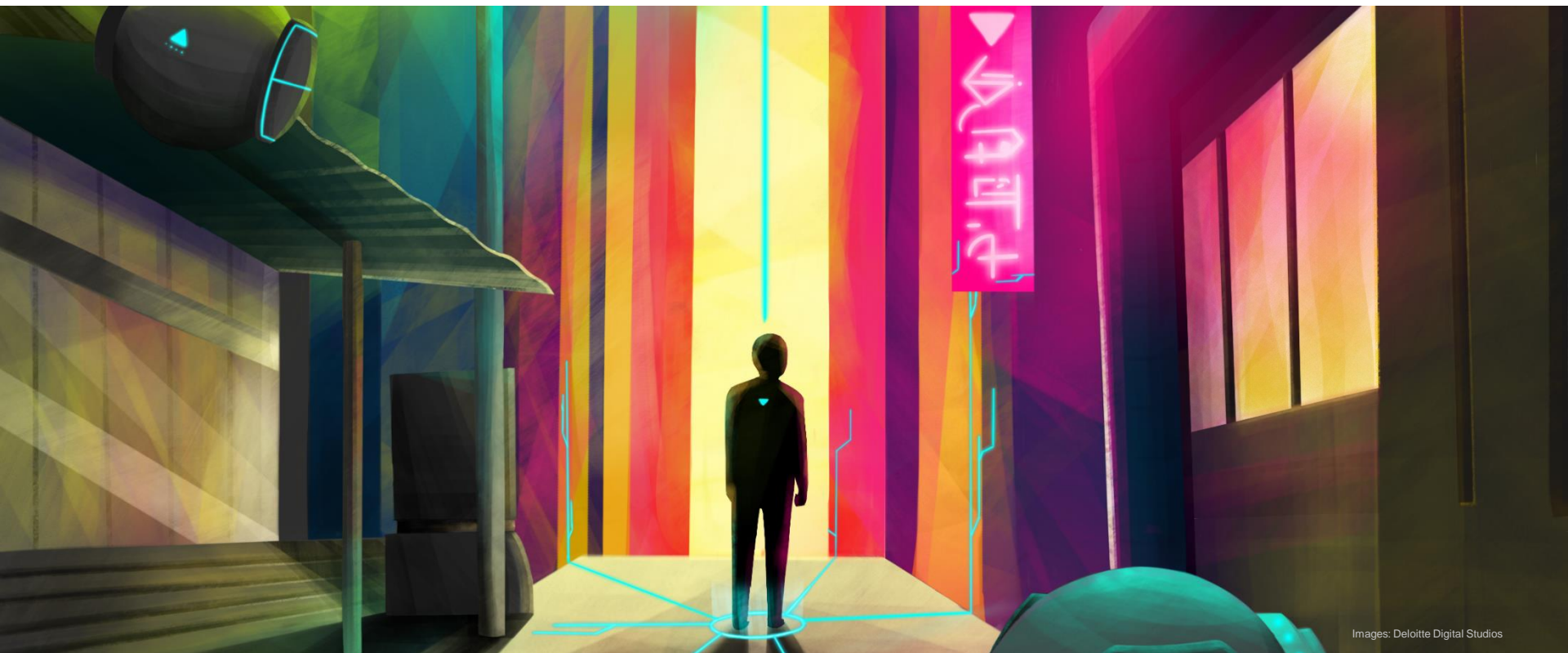


Contact **Munich Re:**  
 Jason Engelbrecht  
 (Chief Technology Officer)  
 Tel +44 20 7886 3900  
 jengelbrecht@munichre.com

Contact **ERGO:**  
 Roland Braun  
 (ERGO IT Strategy)  
 Tel +49 211 477-5246  
 roland.braun@itergo.com

+ = new in 2020

Images: Deloitte Digital Studios



Images: Deloitte Digital Studios





Behavioural analytics monitor, analyse, measure and interpret people's actions, intentions and characteristics from users' digital footprint.

What has started as Social Analytics now transforms to Behavioural Analytics as analytics can process more and more contextual information and cloud-enabled platforms become more integrative data fabrics.

Behavioural data can, for example, show how consumer habits and expectations have changed over time, and so analyse the effectiveness of marketing activities, understand a customer's pains, respond with personalised offers and increase customer retention. Data analytics tool that support a 360 degree customer view are enabling technologies for marketers.

## Insurance Value Chain



### Opportunities

- Risk assessment for insurance products can be more precise, taking the personal profile of an individual into account. E.g. careless behaviour inferred from behavioural analytics may hint at a higher probability of moral hazard issues.
- Fraud prevention in insurance may rely on profiling of the customer, like the discovery of risky sports that were not disclosed by the customer in the risk questionnaire for accident or life insurance.
- Behavioural Analytics can be provided via Open APIs as a service, e.g. assist the insurance sales process by providing brokers and agents with key information about customer's lifestyle and coverage needs. It also offers new distribution channels as any company can integrate insurance coverage in their offerings to match specific customer needs. For example, information on marital status or homeownership indicate a potential need for term life insurance.

### Risks

- Abuse of data for manipulations (e.g., in elections or purchase decisions).
- Discrimination against people based on their preferences.
- Requires companies to protect personal data and privacy.

## Trend Evolution



Social Analytics arrived in the ADOPT area in 2019, after remaining in TRIAL the years before. Now the trend is transforming from Social to Behavioural.

## Related Trends





Atea Sverige

## Cyber Security for Sweden



### User behavior analytics dashboard

With increasing security standards against cyber attacks in the European Union, organisations are forced to adapt their security profiles. In Sweden, IT provider Atea Sverige is helping public sector organisations deploying Security Operations Centers (SOC). The platform Atea built is based on the IBM QRadar suite. One of the cyber security tools provides user behaviour analytics that enables organisations to monitor user activity in IT networks and detect malicious attacks inside organisations, e.g. a user accessing a network from an unknown location or transferring data to external sources. The user behaviour analytics dashboard ranks users based on their risk profile in the organisation.



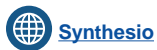
Synthesio

## Social Analytics Tool



### Turning social media data into actions

Synthesio offers an integrated approach that combines raw data from social listening to create audience profiles and pragmatic social media dashboards. With a vast amount of social media data to learn from, Synthesio can adjust its analytics tools to specific locations and personality profiles. A dashboard lets clients track how their social media presence is affecting their business goals.



Zignal labs

## Sensing Potential Stories



### Interpreting the calm before the storm

Zignal Labs is a comparably small player within social analytics. More than traditional social analytics, they combine techniques like social listening with predictive models based on historical pattern analysis, natural language processing and machine learning. This enables the client to sense potentially breaking stories or controversial conversations online before they spread. This can win important time for deploying crisis management measures.





**Biometric recognition systems can identify and verify individuals by detecting physiological and behavioural characteristics.**

In 2020, recognition systems based on machine learning are focusing on facial recognition. Live Facial Recognition (LFR) allows individuals to be recognised and located. Amazon is selling its facial recognition system *Rekognition* to governments. After facing severe criticism by human rights groups, Amazon defined guidelines for policymakers to consider in terms of facial recognition, demanding human review and recommending a 99% confidence score threshold.

Other physiological characteristics for recognition systems are body constitution, fingerprints, handshape, ear shape or retina. Behavioural characteristics that can be detected are vocal imprint, body movement and gait, writing or typing style on keyboards.

## Insurance Value Chain



### Opportunities

- Reduction in fraud through advanced fraud detection and increased efficiency in claims management as facial recognition reduces the amount of time it takes to identify objects and people in images and videos.
- More accurate risk detection, e.g. body scanners used for personal health risk assessment.
- Whereas the opportunities of voice recognition, prominently used as Amazon Alexa Skills, lie in increasing customer convenience, object and face recognition systems offer great opportunities in risk management.
- Reduction of claims caused by machine-related failures. Low-cost sensor solutions originally applied in consumer electronics are making their way into industrial applications where they optimise manual quality-control processes and provide machine-based insights on failure rates.

### Risks

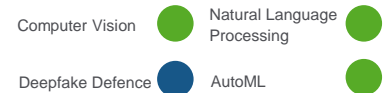
- Severe civil risk of manipulation, ethical abuse and spread of fake identities. Products such as Amazon Rekognition are heavily criticised by civil rights groups for being sold for the purpose of law enforcement, delivering poor accuracy and thus, encouraging discrimination.
- Public concerns about privacy are rising and civil rights movements are legally fighting against the installation of facial recognition systems in public spaces.

## Trend Evolution



Though being new as a dedicated trend in 2020, the evolution of Biometric Recognition has been watched carefully, e.g. in relation to NLP and Speech Recognition

## Related Trends





Metropolitan Police Service

## Facial Recognition in public



### MET Police rolling out facial recognition system in London; Moscow follows

Pilot programmes of facial recognition systems in public places have been started across the globe. The Metropolitan Police Service is planning to roll out facial recognition cameras in London to help catch criminals and find missing persons. Public places such as train stations, shopping malls and pubs are first in line. Ensuring public safety is the primary aim. A pilot programme at King's Cross, London, raised public concern about data privacy.

Recently, Moscow's government contracted NtechLab to roll out FaceFind, a live facial recognition software. For this massive surveillance project, NtechLab reportedly received \$3.2m. It's the biggest live recognition project to date.



Kia

## Emotive Driving



### Real-time Emotion Adaptive Driving System (R.E.A.D.)

Auto manufacturer Kia debuted its Real-time Adaptive Driving System (R.E.A.D.) at CES in 2019 - it's a recognition System that adapts vehicle interiors to passengers' emotional state by using sensors to monitor their facial expressions, heart rate and electrodermal activity.

Megvii Face++

## Faceprint Technology



### Power Humanity with AI

Faceprint Technology is becoming more reliable, capable of recognising people in numerous conditions. Chinese Startup Megvii Face++, supported

heavily with Sovereign Wealth funds from both China and Russia, is pioneering faceprint technologies that are secure enough to be used for

financial transactions. Face++ is also being used by China's Police force for widespread surveillance. Unlike fingerprinting or Iris retinal scanning

which are difficult to do without someone's direct knowledge, faceprints can be taken surreptitiously, even far away.



A group of stakeholders that connect through digital platforms for a shared purpose.

Digital transformation has been a main concern for many organisations in recent years. The next stage is to establish digital ecosystems, which help organisations interact with stakeholders outside the company. These systems are informed by knowledge of natural ecosystems, especially aspects of competition and collaboration among diverse entities. Similarly, digital ecosystems enable a company to interact with customers, partners, other industries and competitors.

At its core, a digital ecosystems typically consists of a platform with core services and a marketplace for additional services. The Danish firm Danske Bank, for example, used a network of partners and businesses to create an online system combining customer data with house market listings, thereby providing potential home buyers with cost estimates for tax, heating and electricity.

## Insurance Value Chain



### Opportunities

- In combination with other technologies such as Blockchain, digital ecosystems may allow for a complete unbundling of services. The main functions of banks, such as lending, money transfer and safekeeping of assets could be offered by a group of separate providers in a digital ecosystem.
- There's a shift in the business model to a "layer player" pattern. This means that one step in the value chain is offered to a large number of customers. For example, collaboration with specialists for the underwriting of exotic risks or for more efficient claims handling.
- Digital ecosystems offer access to capabilities and resources on a global scale and have the potential to reshape entire markets. On-boarding costs for consumers should be low, since all data can be shared within the ecosystem.

### Risks

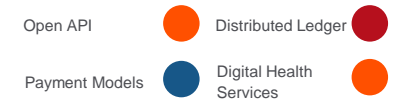
- Since digital ecosystems comprise several partner companies, open communication and clear rules are paramount to prevent misuse and data leakage.
- Insurers have started designing, establishing and running digital ecosystems. They often underestimate the platform complexity of combining an intuitive customer-facing frontend with a legacy-heavy backend, data governance and compliance standards.
- Platforms require an advanced technological basis in order to be cost-effective.
- A digital ecosystem typically follows a two-role concept: The platform owner as gatekeeper and product contributors for its marketplace of services. Certain companies in the ecosystem may play a crucial role and therefore become indispensable or act as a bottleneck.

## Trend Evolution



Boosted by Open Banking and the PSD2 regulations enforced in 2018, Digital Ecosystems is a trend that finds itself on the plate for implementation now.

## Related Trends







Allianz

## IGenius



### Digital ecosystem with virtual advisor

Allianz has come up with an idea on how to develop their digital ecosystem: A new virtual advisor powered by IGenius technology.

The Allianz advisor can process data based on the company's own KPI, and answer any questions from insurance agents posed with voice or typing using natural language. Therefore, they can draw on the advice and examine their business activities anywhere in the world

Ping An Medical Technology

## Health Ecosystem



### Health-tech ecosystem to replace doctor appointments

Ping An Medical Technology is part of the Ping An Group, which is considered to be one of the greatest research and development practices in China. The medical solution subsidiary comprises the possibility to enjoy AI-assisted doctor appointments, simple internet advice or in-house medical treatment. Thus, doctors, hospitals, pharmacies, physiotherapy centers, health check-ups, fitness, beauty care, insurance and e-commerce are all part of the broad digital ecosystem, which enhances the efficiency of medical resources while providing a great user experience

Homelyfe / Yolt

## Shared Platform



### Home insurance in 60 seconds

The digital insurance service (insurtech) Homelyfe partnered with the smart money app Yolt, aiming at empowering customers to seamlessly and securely source a home insurance quote in just 60 seconds. The money app Yolt was developed to provide customers with a single touch point that gives an overview of all (bank) accounts. Thus, the user can analyse his general spending habit within in the app and further receives advises on how to better manage money, including for example also the offer to get better deals. The partnership with Homelyfe now further enables customer to manage their home insurance within the app.



# User-centricity Digital Identity

Adopt



A digital identity is a body of information about an individual or organisation that exists online.

Digital identities arise organically from the use of the web, with the collection of our online behaviours constituting a digital fingerprint. As more online applications become part of our daily lives, digital identities become increasingly more detailed. They reflect behaviours, attitudes and preferred interactions.

At the same time, public institutions are creating digital identities such as national eID programs for their citizens. The legal and social effects of these identities are complex and challenging; key areas of concern are security and privacy.

The World Economic Forum, United Nations, and some Big Tech have been working together to create global digital IDs since 2014, in an effort recognised by the World Bank as important for sustainable development. Now the coronavirus might be pushing this development even further.

## Insurance Value Chain



### Opportunities

- Digital identities reduce fraud risk, since they are much more difficult to copy or fake than paper-based documents.
- Consumers can save time and effort, since customer on-boarding and identity checks (particularly in the financial industry) only need to be done once.
- Consumers may command their own digital identity and decide which elements of it are disclosed to which counterparties. Health insurers e.g. only need access to the health information of the customer, but not his or her overall financial situation.
- Risk assessment for insurance coverages may be completely based on digital identities. In health insurance, a complete health record of the patient would make extensive questionnaires obsolete, for example.

### Risks

- Privacy: although conceptions of privacy differ from culture to culture, countries require a stable framework for data protection that covers the storage, linkage and use of data.
- Digital identities need to be protected from theft and abuse.
- Digital authentication requires high privacy protection by mitigating risks of unauthorised access to individuals' information.
- Digital identities may be faked in order to pretend to be someone else or will be hijacked as a type of security attack to control identity.

## Trend Evolution



Digital Identity has already spilled over to other areas. As a trend, Digital Identity is more than ready for adoption.

## Related Trends





Onegini

## Customer identity and access



### Digital identity management for apps and platforms

Customer Identity and Access Management (CIAM) platform Onegini Connect allows to connect, manage, and engage with customers while providing top-notch security and customer experience. It provides solutions for the banking, insurance and pension industry.

Onegini allows organisations to easily create mobile apps and digital platform for consumers, employees and advisors. There is no need to worry about registration, login or management of digital identity.



Idee

## Digital Identity Software



### Customer-controlled and hacker proved digital identity

IDEE is a software company that creates reusable digital identities in order for users to check out instantly and anonymously verify their age. This user identity is safely tied to a trusted device and can be used when needed, e.g. when there is a need for a new sign up. It can be controlled only by the customer and it is protected with IDEE.



Helix

## Helix



### Digital identities are the DNA of the internet

Identity is the sum of the attributes that describe a human being in a unique way. Neither the sum nor a sole attribute should be controlled by anyone other than the user. Initial approaches to solving digital identities such as electronic ID cards have failed and will continue to do so – unless they use Blockchain technology. Blockchain HELIX is a compliant solution that brings immutability. The combination of cryptography and distributed networks basically changes our understanding of digital security. And also it has created something completely new: an infrastructure that eliminates the need for trust.



Images: Deloitte Digital Studios



Location-based services (LBS) use real-time geodata from mobile devices to provide information, entertainment or security.

With the rise of the mobile internet, LBS offer a huge range of possibilities for mobile commerce, mobile campaigns and contextual services. Companies have found several ways to use a device's location, e.g. location-based advertising, which provides users with specific ads. Another example is Facebook's Safety Check feature, allowing users in a certain area to "check in" as safe after terror attacks or natural disasters and broadcast to their friends that they are in safety.

## Insurance Value Chain



### Opportunities

- Risk-prevention measures based on the location of the customer, such as early hailstorm warnings to avoid damage to cars.
- Automatic insurance protection based on the geolocation of the insured person, such as travel insurance when crossing borders or product insurance when entering high-risk zones (e.g. bike insurance around the central railway station).
- Establish a detailed risk profile of the customer based on geolocation data to offer tailor-made coverage.
- New distribution channels, enabled through loc-based services, offer insurers the possibility to communicate with their customers in specific contexts, with proactive product suggestions.

### Risks

- Measuring privacy may be a major barrier in the success of ubiquitous solutions.
- The consumer cannot know in which way the generated location information is used in other contexts beyond the requested service.
- Things such as location and automated transactions can be traced back to the user.
- Identity theft and abuse. Hackers may use the geolocation profile in combination with other data pertaining to the individual to impersonate others in the digital world.
- When the information generated by permanent tracking ends up in the wrong hands, it allows criminals to time their activity with the absence of individuals. For example, burglars may break into a house, explicitly knowing that the owners are away.

## Trend Evolution



Location-based Services have reached ADOPT stage, as this trend enables related digital services.

## Related Trends





Robert Koch Institut

## Corona data donation app



Providing data on the spread of the corona virus voluntarily

On 07 April 2020, a Corona data donation app of German Robert Koch Institute (RKI) was successfully launched: Within the first week, more than 300,000 people had shared select data with RKI scientists.

The app, the use of which is voluntary, is intended to provide additional information on where and how fast the Corona virus (SARS-CoV-2) is spreading in Germany. The data provided by the users, such as resting pulse, sleep and activity levels, can help identify infection foci and paint a more accurate picture of the effectiveness of measures to combat COVID-19. The Corona data donation app works in combination with fitness wristbands and smartwatches from various manufacturers.



Vismo

## Tracking App



GPS locating for travelers

Vismo is a GPS tracking application designed to locate individuals travelling the world using their smartphone, tablet or personal GPS Trackers. Vismo is available on iPhone, iPad and Android smartphones plus Iridium and other satellite phones.



Indoo.rs

## Real-time Indoor Positioning



Indoor mapping, positioning and analytics

Based on smart algorithms, iBeacons and smartphone sensors, Indoo.rs developed a real-time indoor positioning solution for mobile apps, which can be applied in various industries – ranging from retail and transport, to healthcare or even manufacturing. Included services are indoor mapping (converting a floorplan into an interactive map), indoor positioning to improve orientation and lastly indoor analytics, which helps to gain insights into behavior and motion patterns of customers.



Images: Deloitte Digital Studios





Advances in mobile and computer technologies are creating various digital payment models that will shape the future of monetary transactions.

Markets for new payment models are growing quickly. Smartphones and watches are using wireless technologies to process payments with the “tap and go” method. PayPal allows users to make peer-to-peer payments to friends. Coffee-shops and restaurants are building mobile payment and loyalty systems within their apps.

Countries such as Sweden, the Netherlands and Canada are on their way to becoming cashless societies. In 2020 just one per cent of Sweden’s GDP circulates as cash. Businesses promoted cashless payment methods as a way of minimizing cross contamination during the Covid-19 pandemic. There are still barriers and limitations, such as adoption and closed payment ecosystems, but there is no doubt that digital payment models will shape the future significantly.

## Insurance Value Chain



### Opportunities

- Payment models can reduce response times for claim processes and other insurance-related services. This improves productivity and customer service.
- For example, AXA is now offering insurance using Blockchain technology. It gives direct, automatic compensation to policyholders whose flights are delayed.
- Payment models create the need for new insurance products, e.g. protection of online wallets.
- If transactions can be conducted on a globally recognised payment system with a single token of value, exchange rates and capital transfer restrictions become less of an issue.

### Risks

- The technological infrastructure and regulatory environments are too inconsistent to support electronic payments in developing markets.
- With payment security a key concern in today’s risk-averse environment, and a prime factor in consumer receptiveness to mobile wallets, risk mitigation has been a particular focus for innovation in this area.
- Payments based on cryptocurrencies are currently not very reliable for large-scale applications, since their exchange rates with fiat money are highly volatile.
- Blockchain-based payment systems such as Bitcoin offer anonymity and may therefore be abused for criminal activity.

## Trend Evolution



The large number of business models and partnering ecosystems reflects the maturity of Payment Models. Thus, as already in the years before, this trend is ready to be implemented.

## Related Trends





IDEX

## Biometric payment cards



IDEX provides its customers with a big range of fingerprint sensor products and solutions for use across many different device types, spanning a multitude of use cases, including Payments, Identification, Access Control, Healthcare, and the Internet of Things (IoT)

The idea is to help people make safer, faster payments by using a fingerprint to prove their identity.



Sthaler Fingopay

## Biometric Payment Authentication



Paying with fingerprints and vein patterns

Biometric payment methods not only provide a new level of convenience to the customer but also introduce a whole new level of additional security and identity verification.

While other biometric authentication techniques such as face recognition either suffer from high costs or low accuracy, fingerprints provide high accuracy at low cost. By using advanced VeinID technology and harmless infrared light the British Startup Sthaler in collaboration with Hitachi is now able to verify payments by analysing a customer's unique vein pattern which in contrast to fingerprints leaves no trace and cannot be copied.



Danskebank

## Fast Pay



Paying with a chip integrated in any kind of jewellery

The new payment solution FastPay launched by Danske Bank consists of a simple payment chip with an in-built antenna that can be integrated in any product that is worn; ranging from for example a watch, to wristbands, keyrings or any other kind of jewellery. Thus, the customer is not obliged to purchase a particular watch or other device, but can simply put the chip into those things he already owns and in fact wears every day. The solution is currently being tested by customers all over Scandinavia.





### Munich Re Realytix



Source: iStock

#### Next level automated underwriting solutions

Realytix is a global, scalable technology platform for primary insurers, brokers and MGAs that want to digitalise and automate the underwriting of single-risk business. It opens up whole new opportunities in development and distribution of non-life insurance products. Time-to-market is key: With Realytix, insurers can take product innovations from initial idea to market readiness in just a few weeks. Its unique self-configuration capabilities allow quick implementation and adaptation of products. For reinsurance clients it offers automated reinsurance capacity within minutes.

##### Benefits at a glance:

- Significantly reduced time to market
- Customisable, flexibly implementable platform
- Digital distribution
- Increased (process) efficiency, cost and time savings



### Munich Re Infrastructure Risk Profiler



Source: Munich Re

#### Holistic risk assessment for infrastructure investments

Proper analysis of risks typically associated with infrastructure requires comprehensive expertise drawn from diverse fields. The extensive IRP-analysis covers all risk factors pertinent to infrastructure projects: Macroeconomics, technology, natural hazards, project execution and operation, environmental impact as well as microeconomics. The approach considers and weighs relevant risks individually and holistically.

##### Benefits at a glance:

- Holistic, objective and transparent perspective
- Solid basis for an informed investment decision to better secure the return on their investments
- Thorough analysis within up to 4 weeks
- Comparability of different infrastructure projects that match their individual appetite



### Munich Re NatCatSERVICE



Source: plainpicture/Westend61/Martin Kietzke

#### Complex risk modelling with regard to natural perils

The NatCatSERVICE database enables evaluations, analyses and applications of risk modelling with regard to natural hazards. Munich Re provides comprehensive data on insured, economic and human losses caused by any kind of natural peril. Data are received from own sources as well as from insurance associations and from systematic evaluation of media reports. It is used for developing customized insurance solutions, for political decision-making processes and also by researchers.

##### Benefits at a glance:

- Flexible, easy to use and fast
- Reliable data on natural catastrophes back to year 1980
- Hazard-specific analyses (e.g. tropical cyclones, hurricanes/typhoons, earthquakes)
- Charts can be shared directly (social media channels/download)





## Munich Re Data risk intelligence



Source: Wavebreak Media Ltd / Alamy Stock Photo

Simplify and accelerate the process of data and information protection

This comprehensive and modular SaaS ensures that companies are well prepared for all requirements regarding worldwide data and information protection regulations today and in the future. Not only does the solution classify the data collected during business processes, it also compares it with the legal requirements while documenting the process. Thus it can provide both technical and organisational measures according to the respective needs of the company.

Benefits at a glance:

- Weak legal points regarding data protection are identified and can be resolved in the further course of the process
- A user-friendly, configurable dialogue and workflow system
- Optional modules, for instance for data breach management, can be seamlessly integrated into the solution



## Munich Re Solution for location risk assessment



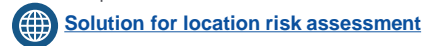
Source: Munich Re

Assessment of risks associated with climate change and natural hazards

This cloud-based analysis tool enables location risk assessments via web browser or in the customers' own applications via API. The solution is two-fold: It can assess risks based on data from past events or on forecasts, while taking climate change models into account. In the second module, which is based on Munich Re's NatCat risk models, the assessment is carried out using a series of map layers with hazard and risk ratings. Users can visualise risk scores for specific locations and save or download them as comprehensive reports.

Benefits at a glance:

- The modular structure of the SaaS allows for an extension of the solution with the other module of the assessment model
- An on-demand version, without any contractual commitment, allows purchase and download of assessments reports



## Munich Re MIRA Digital Suite



Source: Munich Re/Daniel Grizelj

Accelerating life insurers' underwriting and claims handling

MIRA Digital Suite gives life insurers the tools they need to utilise competitive advantages through digitalisation: Cloud-based MIRApply completely digitalises key parts of the risk assessment process, reducing the time required by underwriters by up to 90% – to just five minutes. CLARA halves process duration from claims notification to decision-making. In future, it will serve as the platform for deployment of artificial intelligence.

Benefits at a glance:

- Faster processing times for underwriting and claims handling
- Transparency and insights to improve risk results
- SaaS-based turnkey solutions
- High level of flexibility in which modules to use
- Access to the latest range of insurance solutions, which are continually updated





### ERGO Germany

## Next Best Offer (NBO)



Source: ERGO

### Product relevance instead of advert overload

ERGO develops a predictive analytic tool to ensure “next best interaction” with the customers. Advanced analytics is used to better understand customers and recommend products that they really want based on the calculation. The product suggestions are determined based on numerous customer and market features, such as customer age and gender. The analysis considers external data such as the customer’s living environment.

#### Benefits at a glance:

- Next Best Offer (NBO) shows the sales partners the products for which the customer has an especially high purchase propensity or affinity
- Mentioning the products when arranging or conducting customer talks has significantly increased the chances of purchase in the pilot phase

### ERGO Mobility Solutions

## Integrated SAP IT platform solutions



© PantherMedia Stock Agency / Kheng Ho Toh

### Principles from the automotive industry adopted in the insurance industry

New mobility formats such as car sharing, CaaS or insurance-on-demand call for digital platform approaches in the automobile insurance segment. Taking SAP S/4 Insurance as a technical basis, ERGO Mobility Solutions created the conditions to take the automotive insurance business to a new level in collaboration with the automotive industry, its financial services units and trade organisations and providers of new mobility solutions.

#### Benefits at a glance:

- Consistent simplification of all core processes in the insurance value chain
- High degree of independence from standard release cycles
- Technological aspects such as new driver assistance systems can also be smoothly integrated into the insurance offers and thus help to keep total cost of mobility down



### ERGO Mobility Solutions

## Volvo Car Protection



© Volvo

### An app that provides insurance on the road

A cooperation between ERGO Group and Volvo Car Germany to develop digital services that help secure risks arising from 'New Mobility'. It is an on-demand coverage when driving abroad, for rental cars, luggage or additional drivers in only a few minutes via the app. The “Volvo Car Protection” insurance coverage offers a selection of tailor-made options with coverage for business or private travel and with coverage commencing within minutes. The duration of the insurance cover can be selected individually.

#### Benefits at a glance:

- On-demand protection such as 3<sup>rd</sup> party driver protection, travel & sports luggage protection and much more
- Dealer contact: personal advice & appointments
- Volvo Test Drive Protection to insure the excess for test drives and garage replacement cars







## ERGO China Life Behavioural data tracking & analytics



© Bildagentur PantherMedia / Andrus

Providing insights for agents and customer management

While user behavioural data tracking is important in meeting user demands, ERGO China Life implemented behavioural data tracking in social media and agent management app developed in-house to record every click, time on site, page view of the users, etc. The collected data has built up foundation for more big data applications, provided useful insight for agent and customer management and guaranteed a well-round analysis on customer experience.

Benefit at glance:

- Turn data into real asset
- Behavioural analytics helps to know the users better and give insight on UE improvement

## ERGO China Life Big Data Sales and Service Centre



© Bildagentur PantherMedia / violetkaipa

Business model targeting digital natives

To meet the insurance demands of millennials, ERGO China Life has launched Big Data Sales & Service Center (BDSS) focusing on developing appealing products and reaching them in an innovative way. By leveraging big data analytic and private domain traffic operation, traffic generated from social media is precisely converted into a potential customer list, and is automatically assigned to the most suitable online sales representatives (OSR). From approaching customer to deal closure, the whole process is conducted via WeChat. Up to now, over 100,000 customers have enjoyed the service from BDSS.

Benefit at glance:

- BDSS makes online sales of long-term policies possible.
- Precisely matching of OSR and customers improve service quality and enhance conversion ratio

## HDFC ERGO India DIA - Chatbot for customers



© PantherMedia / everythingposs

More efficient response to customer queries

Digital Insurance Assistance (DIA) is an AI enabled chatbot that tenders 24/7 customer assistance and instant solutions to queries, thereby offering a seamless customer experience. DIA is able to register claims and complaints as well as providing information on products offered by HDFC ERGO and gathering customer feedback. The chatbot is extended onto the Amazon Alexa, Google Assistant and on the HDFC ERGO website.

DIA enables customers to reach out for services related to HDFC ERGO, such as:

- Key insurance and HDFC ERGO product related information
- Handle requests to email customers copy of their policies
- Procedure to register complaint and claims
- Locators for HDFC ERGO branch / hospital network / Workshops and contact details of registered offices



**DIA – Chatbot for customers**



HDFC ERGO India

## NLP based motor claims intimation



© PantherMedia / Illia Urnadnikov

### Cyber security information and guidance via virtual assistants

HDFC ERGO has launched WhatsApp (NLP based) based claim intimation for motor claims, where customer can simply chat and intimate claims. For example, customers can intimate motor claims using Whatsapp. Whatsapp communication has been found to have higher impact on customer experience as compared to regular SMS, which often gets buried or lost underneath the countless marketing spam messages. Moreover, HDFC ERGO communicates the claim registration on Whatsapp, the registration message shared has a claim status tracker link, which all customers need to stay updated on the claim progress.

Benefits at a glance:

- Reduction in turnaround time and less manual dependency in claims intimation process.

DAS UK

## Self-service legal hub



Image: Farillio

### Cooperation with Farillio targeting SMEs and personal lines clients

DAS UK is cooperating with Farillio to offer a comprehensive self-service portal to its small- and medium-sized enterprise clients and to its personal lines clients. The online legal hubs are branded DASBusinessLaw and DASHouseholdLaw respectively. They offer in-depth multi-media guides, smart letters and contract templates, along with e-signature capabilities. The portal covers a wide variety of topics, ranging from late payment and employment matters to compliance with data protection rules.

Benefits at a glance:

- Clients self-serve minor issues, which otherwise could have resulted in a claim
- Increased client engagement and greater range of services
- Improved claims performance through clients' legal risk management



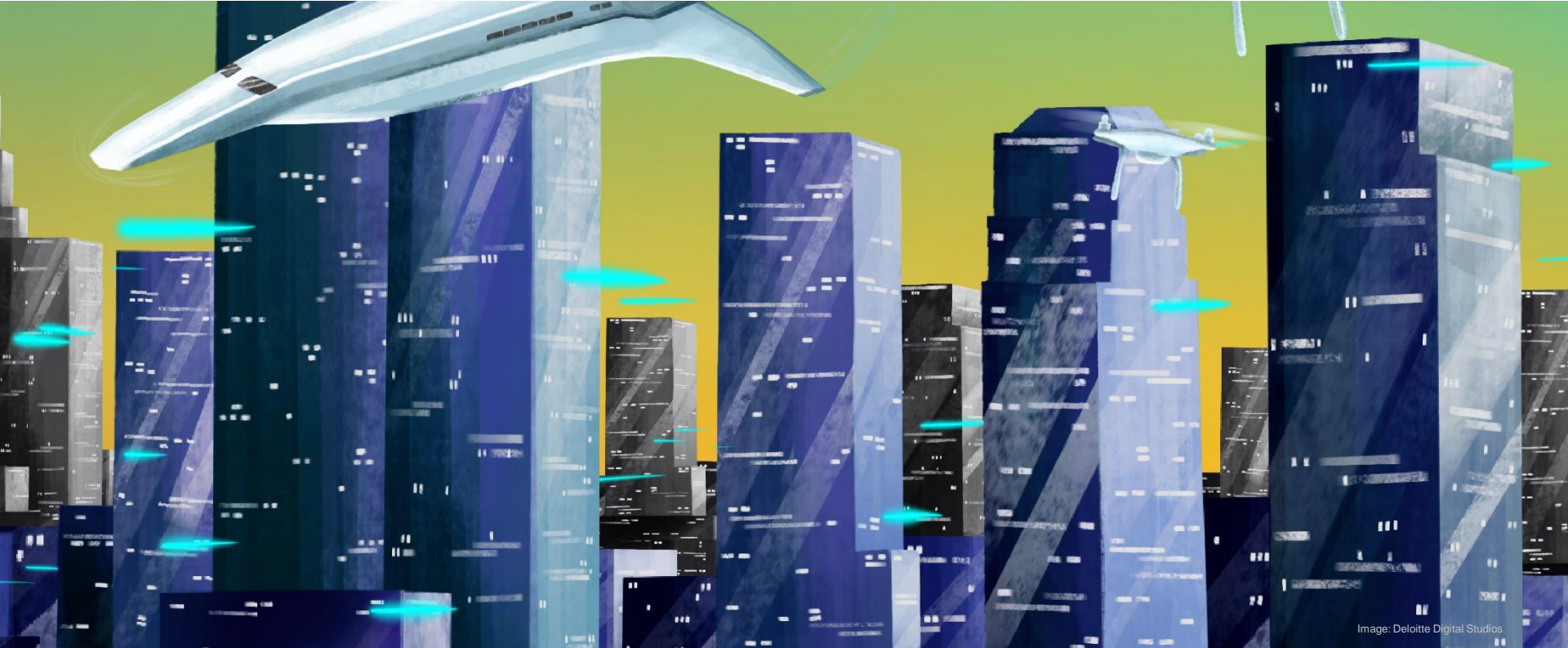


Image: Deloitte Digital Studios



Advanced technologies enable monitoring of health indicators, anamnesis and initial diagnoses.

Game-changing technologies and digital services offer more innovative ways of monitoring health and well-being. Digital platforms will increasingly develop into first port of call for initial health consultation before actually seeing a physical doctor. These digital health managers might restructure the entire health and insurance infrastructure.

Major advancements in home care are being developed which will enable people to continue living relatively independent lives at home in spite of medical need. Soon, new care products will emerge, e.g. care robots or virtual reality devices that enable the experience of 3D/4D body insights and which provide new therapy approaches such as anti-phobia training.

## Insurance Value Chain



### Opportunities

- Digital Health Services enable personalised therapies for critical/complex illnesses and thereby reduce follow-up treatment costs.
- Data can speed up claims handling, since illnesses and the corresponding treatments are detected and reported automatically.
- Insurance premiums can be adjusted to reflect the altered risk situation due to digital health services monitoring.
- Participation in the digital health ecosystem may bolster health insurance sales.

### Risks

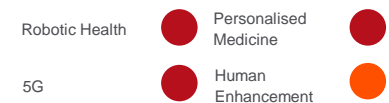
- Digitally shared health data needs high protection against data leakage and hacking attacks.
- Personal information could be used to the disadvantage of the insured.
- Device failure could have dangerous consequences for patients.
- Reduction of contact with human medical experts may have unanticipated mental consequences due to missing empathy.

## Trend Evolution



Digital Health Services was a trend already classified in the ADOPT stage back in 2015 and 2017. Now is definitely the time to start launching initiatives!

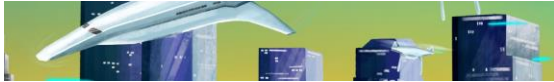
## Related Trends





Amazon

## Amazon Care



### Amazon launches virtual healthcare service for employees

With Amazon Care, Amazon is launching its first digital health service. The pilot app is available for Amazon employees in the Seattle area. Services include a care chat and video care for in-person medical advice, medical prescription delivery and mobile care for an in-person exam, testing and treatment by a nurse dispatched to a patient's home. To provide this, Amazon care partners with independent medical practices. Amazon Care helps in terms of prevention, vaccinations, injuries and infections as well as family planning and medical travel advice.

In support of the technical implementation, Amazon acquired the startup Health Navigator, a developer of APIs for health services that also includes NLP for capturing health complaints and medical advice.



OrCam

## OrCam MyEye 2.0



### Smart cameras for people who are Blind or visually impaired

OrCam MyEye is a tiny device with a smart camera that attaches to virtually any eyeglass frame, enabling you to enjoy the morning paper, read any book, and even catch up on your email. Recognise your loved ones, shop on your own, work more efficiently, and live a more independent life! It does this by conveying visual information audibly, in real-time and offline.



Etectrx

## Smart Pill



### A smart pill tracks opioid use

A group of Japanese scientists developed a hypoallergenic electronic sensor that is applied directly to the skin. It is designed to be worn continuously and monitors the state of health over a long time. The elastic electrode is constructed of breathable nanoscale mesh and is biologically compatible with the body. It is applied by spraying a bit of water so that the PVA nanofibers can stick more easily to the skin. The technology can improve nursing care by monitoring patients' vital signs. Moreover, athletes can benefit by using the device because they can supervise physiological signals and bodily motion over a long period.



Images: Deloitte Digital Studios



The integration of intelligent and connected systems in industrial processes resulting in smarter manufacturing and factories.

AI is driving advances for new intelligent things, such as smart machines and robots, and thereby delivering enhanced capabilities to industrial systems. These intelligent machines are able to process vast amounts of data, communicate with each other and make autonomous decisions.

With the industrial use of IoT (IIoT), also referred to as Industry4.0, global supply chains, production processes and logistics will become more efficient and transportation and communication costs will reach an all-time low, all of which will open up new business opportunities and diminish trade costs. There is no doubt that the industrial use of IoT will redefine competitive landscapes and will have major effects on global economies and foster economic growth.

### Insurance Value Chain



### Opportunities

- In-built sensors can communicate the current condition of a product or machine and help the insurer to optimise the risk/ premium calculation (renewal business), or to handle claims faster.
- Based on information submitted by IoT machines, insurers might also provide risk mitigation, prevention and assistance services to their clients.
- Connected and smart machines that interact with each other could report key risk or safety indicators to the insurer and automatically add coverage if needed.
- IIoT is likely to significantly increase the demand for cyber security and insurance.

### Risks

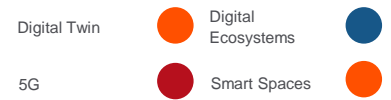
- Industrial IoT requires high investment upfront and an adequate infrastructure (e.g. big data analytics hardware and software) that is able to process the collected data quickly. Speed is critical since it should not take long to automatically shut down a machine once a sensor detects a failure in the system.
- Particularly companies that operate production plants globally face the risk of cyber attacks that could hamper their processes and steal critical data.

### Trend Evolution



Industrial IoT has matured over time and finally arrived in the ADOPT stage. It is therefore recommended to design new business models based on IIoT.

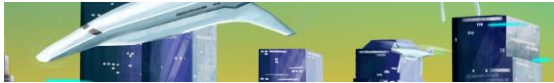
### Related Trends





## Fluidmesh

### Wireless solution



It is designed and engineered to provide a backbone for applications

Cisco Systems acquired Fluidmesh, a technology provider for large-scale IoT projects, e.g. in public mass transit operations, rail or ports. Fluidmesh designs the architectural backbone for IoT applications which is going to help Cisco to strengthen its market position in Industrial IoT by providing widely available and fast-roaming connectivity. It enables projects such as smart cities or connected vehicles to stay connected.



## FogHorn

### Real-Time Edge Intelligence



From streaming data into predictive insights

FogHorn is a company that develops an edge intelligence solution for both industrial and commercial IoT applications. Due to utilisation of machine learning and advanced analytics combined with the on-premise edge environment, FogHorn created a new class of applications for advanced monitoring and diagnostics, asset performance optimization, operational intelligence and predictive maintenance use cases.



## Arundo

### Industrial Analytics



Software development to enable ML and advanced analytics

Arundo develops software that allows for machine learning and advanced analytics applications for industrial companies on an enterprise-wide level. The technology supports companies by transforming their businesses through the usage of predictive analytics, a deeper understanding of physical operations, and data-driven software-as-a-service (SaaS) applications.







A proprietary software or application programming interface that is publicly available to developers.

Basically, an API allows one piece of software to interact with another piece of software, whether in one system or in a network or distributed environment. Open APIs are published on the internet and shared simply. A company might publish the API of their software to encourage external developers to figure out new ways of using it.

Ideally, this creates a win-win situation: The external developer can make money by licensing a new service with advanced functionalities, such as an innovative use of the service in ways the originator hadn't thought of. And the company benefits from more widespread use of their service.

## Insurance Value Chain



## Opportunities

- Open APIs increase competition between providers, since everyone can integrate their systems and contribute to better products and services. Consumers are thus likely to benefit from cost-effective services that are tailored to their demands.
- Open APIs enable the growth of a digital ecosystem, allowing for complete and seamless integration with service providers.
- Open APIs decrease the need for individual development of certain digital solutions, since the software and systems from specialised providers can be integrated into the existing IT architecture. Open APIs can be used to access the large community of freelance developers to create innovative applications.
- Open APIs increase the production of new ideas without investing directly in development activities.

## Risks

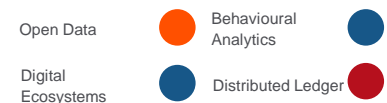
- Individuals may lose control of their data and cannot trace it to see whether it is used for fraudulent activities.
- Third parties providing the actual services related to the open API might push insurers into the background and dismiss them as mere transaction providers.
- Loss of competitive advantages due to lock-in effects.

## Trend Evolution



After remaining in the TRIAL stage from 2015 onwards, Open API is recognised as adoptable since 2019. Accordingly, initiatives in that field should be launched now!

## Related Trends





## Lufthansa

### Lufthansa Open API



#### Access to the Lufthansa data world for startups

Through the Lufthansa Open API, innovative actors in the travel tech scene can dock directly on to the Lufthansa data world. From flight status to the seat map, to availability and fares, the API provides a wide range of data that developers can integrate with their own web and app applications. They are driving the platform together with the IT of the Lufthansa Hub Airlines.



## The Open Insurance Initiative

### Open API for insurers



#### Making insurers' data available

OPIN is aiming to assist Various insurance stakeholders by providing the required capacity to integrate insurers' data into applications through open APIs. Insurers will thus be able to research, collaborate and leverage innovative solutions and business models. A main advantage of the initiative is the development of ever more sophisticated utilities that enable customers to reach out for cheaper and highly accessible products



## Open Legacy

### API Software



#### Extending and transforming core (legacy) systems

Open Legacy enables enterprises to extend and transform core (legacy) systems such as IBM i (aka AS/400) and connects the application to web, mobile, and cloud. The platform-based solution enables developers to solve high impact business problems quickly and in a reliable way, which fosters enterprise-wide agility and favours the implementation of new and innovative solutions at comparably low costs and with a high success rate.





The idea is to share data freely and allow everyone to use them as they wish, without copyright or patent restrictions.

Open data platforms are primarily used by public institutions or by certain political and scientific entities to make information accessible for everybody. The goal of these platforms is to enable users to gain insights and knowledge about activities that are relevant to the public, thus guaranteeing transparency.

However, Open Data is also becoming more and more interesting for businesses. Platforms that are specially maintained by the users themselves also present a promising source of insights and ideas from the public – e.g. to fuel innovation processes. Furthermore, Open Data platforms are a two-way communication and service tool to establish direct contact with target audiences, enabling users to participate, give feedback and express their opinions about services and products.

### Insurance Value Chain



### Opportunities

- Open and accessible public data can benefit individuals, companies, communities and government by unleashing new social, economic, and civic innovations and improving government accountability and transparency.
- In the context of the health care system, Open Data enables recommendations for services for medical institutions and for customer treatment from the insurance side.
- Greater access to data fosters and improves competition.
- Open geo-spatial information is fundamental to planning and decision-making in most situations, including disaster and risk management.

### Risks

- Open data can also pose substantial privacy risks for individuals whose information is collected and shared by the city.
- Open data sources could provide incorrect figures and correlations.
- Open data can be unreliable because of the potential for respondents to self-select. Data quality issues arise and a good understanding is required.

### Trend Evolution



Open Data has reached ADOPT stage. Explore available data sources and integrate this data into your decision processes

### Related Trends





## South Korea

### COVID-19 mask data



#### Mask inventory data of pharmacies open for app developers

At the peak of the first Corona wave in March 2020, the South Korean government provided mask inventory and sales data to the public as an open API. Addressing the issue of distribution and availability of face masks to the public, developers are encouraged to create dedicated apps that show which pharmacies still have stocks of masks. 22,000 of the 23,000 nationwide pharmacies agreed to provide the data.

## Open Data Nation [ODN]

### Crash Prediction



#### Indicates the risk of roads

The company ODN uses geo-spatial mathematics to index the risk of roads using a cloud-hosted API and web application. This makes it possible to predict on which particular roads crashes more likely occur. Based on this knowledge, insurance carriers can add precision, adjust price coverages and simultaneously promote safe driving. In the long run this leads to an increase in profitability of traditional automotive insurance.

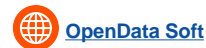
## OpenData Soft

### Data Sharing Platform



#### Sharing data via API

OpenDataSoft created a cloud-based data platform, which allows data to be shared and published. In addition, data can easily be visualised and reused by various stakeholders such as citizens, startups, or teams within city departments or organisations via APIs. Also worth mentioning are the more advanced features (e.g. real-time data processing) which are more relevant for smart city and IoT projects.





**Increasing efficiency and quality of agricultural products by applying IoT and AI-related technologies.**

After crop breeding has reached peak efficiency and there are ethical doubts to overcome with factory farming. Digital technologies in agriculture promise a future with the best of both worlds – high-yield ecological farming.

Technology has been applied to increase production in agriculture since humans first began farming. Nowadays, sensors make it easier to capture relevant data from optical, thermal and biomolecular metrics such as soil and nutrient status, process the data in long-range protocols and deliver more reliable information in comprehensive formats directly to farmers in even the most rural areas thanks to 5G and micro satellites that provide broader connectivity.

The global precision agriculture market is expected to double, reaching \$14.09bn by 2026 (Statistics, "Precision Farming - Global Market Outlook", 2019). Faced with the challenges of overfarming, exploitation and climate change, precision farming is an opportunity to rebalance the economic agriculture system, conserve water resources and fight the global food crisis.

**Insurance Value Chain**



**Opportunities**

- Improved underwriting for agriculture insurances and lower claims rate thanks to improved predictability of natural risks from extreme weather or natural catastrophes and monitoring of natural assets.
- The technological solutions are still expensive for farmers in rural areas facing industry-typical financial pressure. Insurers have the chance to build insurance products that make the technology more affordable.

**Risks**

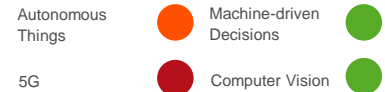
- Slow adoption by farmers, especially in European farming markets where connectivity is still underdeveloped.
- The initial cost of implementation may discourage smaller farmers.

**Trend Evolution**



Previously, Agricultural Biotech has been considered in IoT use cases. In 2020, Precision Farming has made it into the radar as a discrete trend.

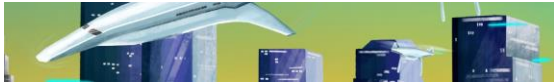
**Related Trends**





## Infarm

### Vertical Farming



Bringing (vertical) farming into grocery stores and restaurants

Infarm provides modular farming equipment to grow herbs, lettuce and even fruits in customer-facing urban selling points such as grocery stores, restaurants or shopping malls. Infarm's sensor-equipped modules and cloud-based control systems monitor the breeding process remotely – "farming-as-a-service".

The Berlin-based start-up was founded in 2013 and raised \$100m in a series B investment in June 2019. The biggest advantage of bringing farming closer to the consumer is that the logistics chain is minimised. The food industry makes up 17% of the total global CO<sup>2</sup> emissions, Infarm states.

## Nesta

### Agribot fleets



Reducing costs for labour, water and fertiliser

Nesta, a tech innovation company based in UK, is developing smart farming technologies such as a series of autonomous robots. These field-robots are capable of applying micro-dosed of fertiliser or water directly to the plant. Fleets of agribots can manage even oddly shaped fields, they do not need hedgerows to navigate and manage their work. They are designed to assist small family farms. The Broccoli Bot is developed for harvesting broccoli with 3D vision to identify which plant is harvest-ready.

## European Union

### Smart Farming Research



Saving resources, raising production and supporting animal welfare

The Péloponnèse region in the South of Greece is known for its traditional olive oil production. As part of a EU-funded research project, drones with multi-spectral cameras now allow farmers to monitor health and growth stages of the trees remotely.

The project also features precision livestock farming. In Sweden, one of strictest countries when it comes to animal welfare in food production, farm pigs have been equipped with sensors measuring their heart rate. Sensors in the pigsty also monitor temperature and air quality. Electronic terminals on the farm building pass the data through to the farmer, who is alerted as soon as a sow starts farrowing or when they are stressed.





A system of sensors, interconnected devices and services ranging from communications to healthcare, security and task automation in private homes, buildings and public spaces.

The market for smart systems is growing and the interaction with building systems and household devices via mobile apps is slowly becoming the norm. Smart devices are becoming household managers, linking different systems (e.g. water, lightning, heating, entertainment) and managing and operating them in accordance with the homeowner's needs and requests. Application of deep learning techniques and other technologies have led to rapid advancements and better integration of these devices in smart systems. Additionally, breakthroughs in speech recognition are leading to the rapid adoption of virtual assistants, such as Amazon Echo and Google Home. Aside from Smart Homes, IoT has made its way into commercial buildings and public spaces. Airports and cities are implementing biometric recognition system for security purposes. Traffic can be optimised in real-time using smart traffic lights.

### Insurance Value Chain



#### Opportunities

- The installation of IoT technology may substantially increase property value and provide damage reduction and prevention.
- Smart devices can track and learn individuals' daily routines and therefore allow people to monitor their elderly relatives without invading their privacy.
- Insurers benefit from smart devices since they lower an owner's risk profile, deliver big data for underwriting purposes, and improve the efficiency of claims settlement processes.
- Smart technology will lead to a wide range of new products, e.g. flexible household insurance based on tracked (and shared) application data.

#### Risks

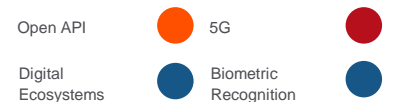
- IoT systems create a back door for hackers to steal data, control important functions such as opening the front door, adjusting the heating system, etc.
- Only a few private technology companies are likely to serve the smart space market in the future and must therefore be strictly controlled to avoid data misuse, such as monitoring behaviour, purchase decisions, etc.
- Smart systems increase the dependency on a provider (lock-in effect). Furthermore, an electricity supply is constantly needed to keep the system "working".
- 360-degree monitoring by sensors may raise privacy issues, especially in public spaces.

### Trend Evolution



Smart Spaces arrived in the ADOPT section in 2016 as "Smart Living". Now extended to "Smart Spaces", it is recommended to design new business models based on the trend.

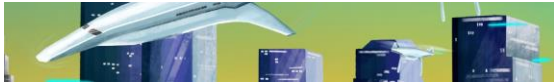
### Related Trends







## CivicSmart Smart City



### Smart Parking Solution

CivicSmart is a technology services and engineering company that specialises in Smart City parking solutions ("Internet of Parking"), making accurate real-time data available to motorists and parking managers. The team has developed an advanced radar-based technology and solved the accuracy and complexity challenge with patented sensors. They are simple to install, highly reliable, support a variety of mounting configurations, all-weather, are immune to dust and roadside debris (no lens or openings needed), they have guaranteed lifetime batteries, and are vandal-resistant. They provide low-latency data for enforcement. They are ideal for city on-street parking, private garages, off-street lots, apartment complexes, and shopping centers.



## Seura Smart Mirrors



### Enjoying content displayed in bathroom mirror

Seura offers bathroom mirrors that are able to transform the bathroom literally into a smart home hub. The display can be controlled via voice manager and allows multi-tasking by connecting calendar, email, weather forecast news and other service with the mirror. The illustrated content can be personalised based on the user's special interests with the help of Google Play. Thus, you can read the news while brushing your teeth in the morning and you can switch out lights and close the garage door in the evening while cleaning your face.



## Kohler Kohler Connect



### Control shower, mirrors and more by giving voice commands

Kohler Connect is a voice-enabled technology that enables devices to perform certain tasks. Using Alexa, you can give voice commands to a shower, a bathtub, toilets, a mirror and a kitchen sink. You can connect the Kohler Connect products with the app in order to set preferences for different users. Users can determine settings such as the ideal post-workout shower or the perfect lighting levels for applying makeup. The "Verdera Voice Lighted Mirror" has Amazon Alexa built in to create the ideal lighting using voice commands.





## Munich Re IMPROVEX



Source: bestbrik / iStock / Getty Images

### Data driven excellence for your portfolio

Munich Re's core client data exchange platform provides valuable insights on pricing and strategy. Our own comprehensive data form the core of these data pools, which are supplemented with data from participating client companies. In return, they receive defined insights from an unrivalled, quality-assured database that they can use to make permanent improvements to their underwriting strategy, portfolio management and pricing.

#### Benefits at a glance:

- Strengthens participants' competitive position and opens up new possibilities to identify attractive business potential
- Interactive heat map helps to identify "white spots" and allows to challenge the underwriting and growth strategy
- Next-level empirical pricing parameters make it possible to optimise excess pricing and attachment point strategy



## Munich Re What the Hack!? Cyber Solutions



Source: Munich Re

### A new kind of cyber insurance – beyond traditional reinsurance

Cyber threats are one of the biggest security risks of the 21st century. Cyber insurance is no small matter and the cyber covers available on the market differ greatly. Munich Re offers insurers holistic solutions that go well beyond pure insurance coverage. The one-stop solutions offer a clear cost advantage and take up significantly fewer of insurers' resources.

#### Co-operation and underwriting services include:

- Legal advice and wording analyses
- Workshops, training and client seminars
- Technical risk assessment support
- White-label concept design for cyber products
- Threat intelligence sharing and cyber-claims information exchange
- Innovative cyber products & co-creation in the cyber network



## Munich Re IoT Solutions



Source: Munich Re

### Integrating tech, risk management & financing

Munich Re helps you to transform your best-selling products and services into smart holistic solutions that put customers first.

Teaming up with Munich Re allows you to safely grow your business and win new customer segments without having to significantly tie up resources or face all of the technology, investment and economic risks yourself.

#### Benefits at a glance:

- Cutting edge technology (hardware, software and retrofitting)
- Use-case development
- Risk management services
- Ecosystem partners
- Tailored financial solutions





## ERGO Germany Safe Home



© PantherMedia / aa-w

### ERGO Safe Home in cooperation with Deutsche Telekom

ERGO is cooperating with Deutsche Telekom in providing a virtual product bundle consisting of insurance, service and smart home technology. In case of emergency (such as water leakage detection, smoke alarm or burglary alert), an automatic alert chain ensures someone is taking care of the customer's home, even when the homeowner is not able to react immediately. This fully automatic process is in place between ERGO's customer service department and Telekom's Magenta SmartHome backend.

#### Benefits at a glance:

- Home emergency are detected as quickly as possible
- Assistance is initiated if necessary
- ERGO Household Insurance provides financial security in case of damages



## ERGO China Life Open API to facilitate deployment



© PantherMedia / putlich

### Shaping an essential role in Package Business Capability

ERGO China Life incorporates open API to facilitate the connection between the ERGO China Life core system and third party sales distribution platform. The system connection time is reduced from 2 weeks to 3 days. Open API shapes an essential role in ERGO China Life's Packaged Business Capability, lays a foundation for effective data interaction between all portals and applications, improves recourse mobility and achieves systemic service standardisation.

#### Benefit at glance:

- Reduce time and manpower cost for system deployment.
- Enhance collaboration efficiency between two parties.

## DKV Spain Digital Doctor



© Bildagentur PantherMedia / apid

### Digital health services manager

The app Quiero cuidarme+ gives fast and reliable answers to medical needs of the user. Easy, safe and confidential. It offers a symptom checker (mediktor algorithm): orientation on diagnostic and urgency level. There are 1516 monthly users and 2.8 e-consultation sessions per user on average. In March 2020, DKV Spain opens up the e-consultation services to the Spanish population for free to stop the expansion of the COVID-19. Since then, more than 10,500 people have received clinical advice through the app during the COVID-19 crisis.

#### Benefits at a glance:

- Digital doctor visits (video call, chat and call me back function)
- Digital health services based on the user's personal health records (e.g. access to health diaries and documents, digital doctor specialists, health indicators and health tips)



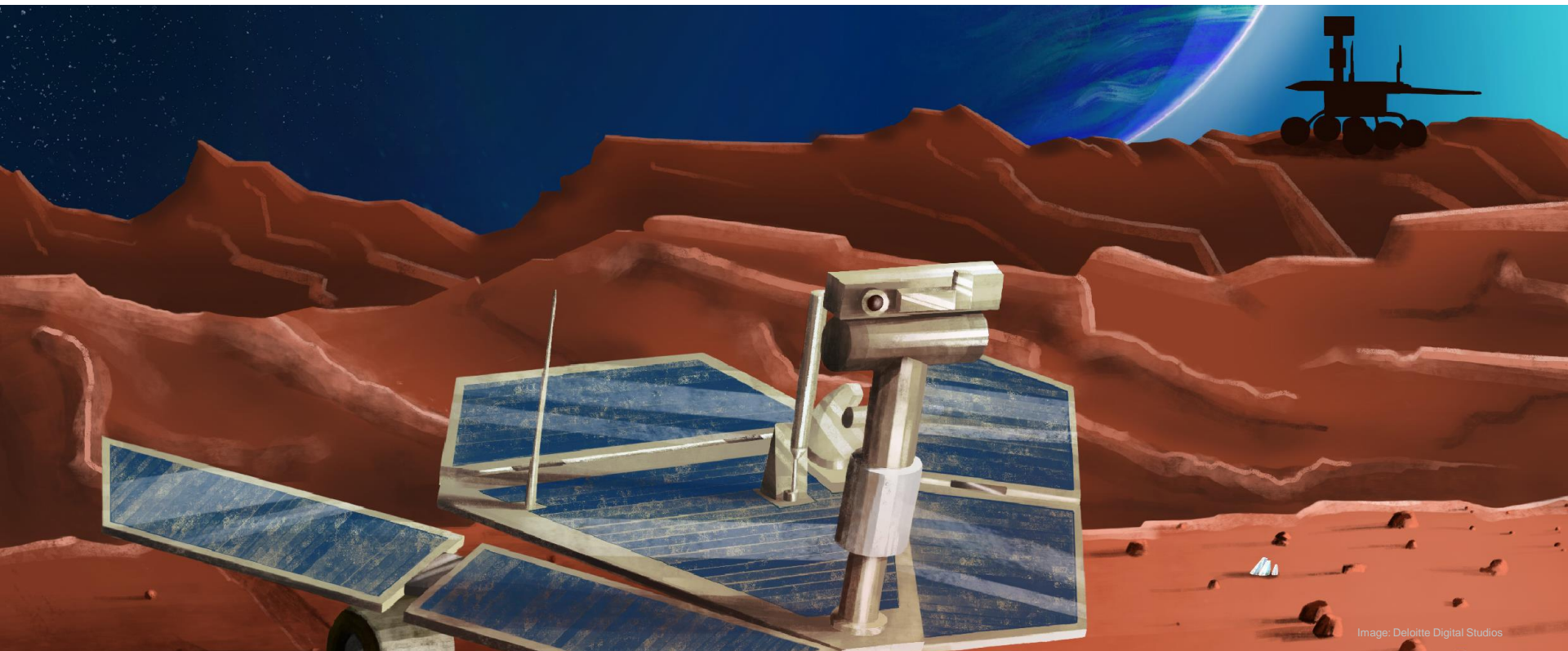


Image: Deloitte Digital Studios



Driving insight-driven decision making, Augmented Decision-Making combine the key technologies of analytics and AI – Natural Language Processing, Machine Learning and (Augmented) Visualisation.

Augmented Decision-Making reaches beyond visual-based analytics platforms. Algorithms prepare data by detecting patterns, profiles and schemas. Formerly, those patterns were created via manual business intelligence. Data analysis results are transformed to autogenerated visualisations.

## Insurance Value Chain



### Opportunities

- Save time and costs when analysing enterprise data and putting it into intelligible formats to aid in decision-making on the executive level.
- Democratise analytics like root-cause-analyses, which were formerly limited to the competencies of data scientists but now open to a broader base of staff members.
- More comprehensive data sources provide more relevant insights.
- Organisational culture shift is required: Leaving behind habits of hiding data and "beautifying" reports towards transparent data management and openness for learning and improving based on past data.

### Risks

- Black box machine learning provides answers that cannot always easily be explained. Back-testing based on historical data serves as one means to prove data correctness and accuracy.
- There is a need for new data governance policies as data sources broaden across business units and subsequently, the decisions taken affect more entities.

## Trend Evolution



Augmented Decision-Making appeared on the Tech Trend Radar in 2019 and reached ADOPT stage immediately.

## Related Trends





IRi

## Automated Business Processes



Users remain in control of the objectives and outcomes

The latest solutions from IRi save time by automating insight generation and providing tailored recommendations, while also making access to these capabilities more personalised and inclusive.

New tools make it possible to carry out augmented decision-making. The new technology analyses a huge amount of data and provides recommendations on the best decisions through emails, texts, opportunity finders or voice. IRi quickly makes all the insights available, thereby speeding up decision-making processes and providing the options for the best course of action.

Zeltros

## AI for Augmented Insurers



Increasing productivity and efficiency

Zeltros' technology supports insurers to better serve their customers through artificial intelligence. Employees are therefore able to make better decisions, based on intelligent recommendations and predictive scores. Particularly useful is the technology in the area of sales and claims management processes, as it connects any past insurer data, and processes it with the aid of machine-learning and natural-language processing. Zeltros claims to be able to increase 40% of obtained productivity, and furthermore states that some tasks can be reduced to 1/12 of the time.

Lengoo

## Specialists Translator



Finding the right translator based on an algorithm

The translators of Lengoo can achieve higher translation quality and consistency, shorter turnaround times and lower effective costs by using algorithms. Based on clients' previous translation data, an algorithm analyzes the documents that need to be translated and automatically identifies the relevant subject area. Then one specific expert from a pool of certified translators is selected, who has the most experience in the industry and subject.

Each domain has its own machine-learning model and the usage of dynamic data sets ensure the quality is constantly increasing.



IRi



Various



Zeltros



Insurance



Lengoo



Various



Computer vision enables computers to gain high-level understanding from digital images or videos.

Computer vision tasks include methods for acquiring, processing, analysing and understanding digital images, as well as the extraction of data from the real-world. For example, computer vision can help an AI system, such as a robot, to navigate through an environment by providing information through vision sensors.

## Insurance Value Chain



### Opportunities

- By identifying objects on smartphone pictures, image recognition may offer cross-selling opportunities for insurers. Computer vision allows insurers to improve their risk underwriting since it extracts and analyses visual information (e.g. images of property).
- This is particularly interesting for small-scale risk coverages such as smartphone or pet insurance, which require an accurate premium. If the premium is too high, low-risk customers are likely to switch provider. If it is too low, loss ratios will explode.
- Computer vision may be used to reconstruct accidents or collisions from a smartphone's camera and accelerometer data.
- Brick-and-mortar stores could use computer vision to provide their customers with product recommendations during their shopping experience, based on the items already added to their shopping trolley.

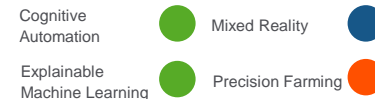
### Risks

- The computer vision algorithm must be trained to become reliable.
- In insurance claims handling, the application of computer vision additionally needs to be fraud-proof.
- Implementation on a larger scale may require an investment in computing power.
- Training data should be validated.

### Trend Evolution



### Related Trends



Computer vision reached the ADOPT stage in 2018, where it remains in 2020. Thus, initiatives are required!





Alibaba

## AI system to detect coronavirus



**New AI system can detect coronavirus in seconds with 96% accuracy**

Alibaba has developed a new AI solution to fight the Coronavirus. The system can be used in the medical sector to detect the virus in patients. This new solution is based on CT scans that can detect information on COVID-19 in seconds that humans could potentially miss. According to an Alibaba post, it is accurate 96% of the time. This enables doctors to combat the virus more efficiently.

Cainthus

## Predictive imaging



**The digital revolution in agriculture is here**

Animal facial recognition is one feature that Dublin-based Cainthus claims to offer. Cainthus uses predictive imaging analysis to monitor the health and well-being of crops and livestock. Cainthus uses predictive imaging analysis to monitor the health and well-being of crops and livestock.

Research

## Computer Vision in Medicine



**Deep learning cardiac motion analysis**

Motion analysis helps to understand the behavior of moving objects in sequences of images. Image sequences of the heart are used and acquired via cardiac magnetic resonance imaging. Time-resolved three-dimensional segmentations are created using a fully convolutional network trained on anatomical shape priors. The dense-motion model forms the input to a supervised denoising autoencoder, which is a hybrid network consisting of an autoencoder that learns a task-specific latent code representation trained on observed outcome data, yielding a latent representation optimised for survival prediction.





**Conversational User Interfaces (CUI), such as chatbots or personal assistants bring a paradigm shift in how humans interact with the digital world.**

In CUIs, users and machines interact primarily in the user's spoken or written natural language. These interactions range from simple utterances to highly complex interactions. CUIs have experienced explosive growth with chatbots, messaging platforms and virtual assistants, especially home speakers such as Amazon Echo and Nest Home.

Machine learning technologies have progressed to the point where computer systems understand enough natural human language to respond accordingly. Siri, Google Now, Alexa, and Slackbots are a few high-profile design examples of voice or message-driven experiences that have gained the mass market. Indeed, these and other AI systems are now open enough to allow to interact with customers through natural language. The result is the beginning of a new era in customer relationships. For companies, conversational user interfaces provide several concrete benefits allowing a smart and "app-free" assistant service for their customers.

## Insurance Value Chain



## Opportunities

- In terms of privacy, CUIs threads are transparent and accessible for the consumer, whereas this does not hold true for apps/websites. The customer can therefore access any information at any time.
- If embedded in a company's website, consumers do not need to install a software or an app in order to use the services. Thus, on-boarding is much quicker and more efficient.
- Since all digitally connected user generations are used to chatting on WhatsApp and WeChat, they may prefer a CUI as a means of interaction with their insurance company as well. The customer files a claim using the chat window by simply sending a picture of the damage, together with a short description of the incident.

## Risks

- CUIs are subject to cyber security issues; for example hacking of a conversation might result in loss of sensitive data.
- Voice-based interfaces such as Amazon Echo are usually installed in the consumer's home and therefore raise privacy concerns, since the providers could theoretically overhear each and every conversation.
- Certain issues may be hard to describe and clarify using Conversational Interfaces in the chat form. This could be mitigated by voice-based interfaces.

## Trend Evolution



CUIs gain prominence, as they are being integrated in broader AI solutions. After years in ASSESS stage, it is now time to ADOPT broadly in your units.

## Related Trends





## Samsung Star "Neons"



### More lively chatbots with virtual human-like appearance

Samsung has created a variety of simulated humans with distinct characters and appearances that act like advanced animated chatbots. Neons are supposed to respond to users in a more lively manner, e.g. as customer service support.

Samsung plans to launch Neon with business partners for B2B and B2C services on a licence and subscription base later in 2020.

## NASA ROV-E the robot that talks



### Conversational interface powered by the same deep learning technologies as Alexa

Amazon Lex and NASA have created a mini-robot-rover called ROV-E that discovers all the answers about Mars. Its design is similar to the NASA rover currently exploring Mars, but uses Alexa to engage with people on Earth. It aims to inform people about all of NASA's Mars missions and other general facts about Mars. It also aims to learn about what people on Earth are curious to know about Mars. The purpose of this robot is to generate interest in Mars. Alexa is already experienced in how to handle different questions, which is why it was used in ROV-E. For example, people might ask: "Alexa, ask NASA Mars: Why is Mars red?"

## Boost.AI Virtual Assistant for Insurance



### AI-powered conversational insurance

The insurance module offered by Boost.AI includes the majority of user intents, which are necessary to process customer claims. Besides, pre-made content for both customer service and sales are available. Thus, the claims handling process becomes easier and more accessible and efficient, while being able to increase the accuracy of the incoming data. As the module additionally offers pre-made coverage for a great amount of claims, employees are able to spend more time on other, more advanced features.





**Business decisions that are derived and backed by verifiable, quantitative data analysis.**

A tremendous increase in data has contributed to the rise of a “data-driven” era, where big data analytics are used in every sector of the world economy. The growing expansion of available data is a recognised trend worldwide, while valuable knowledge arising from the information comes from data analysis processes.

Today, algorithms scan every bit and piece of data that has been collected on a specific issue – e.g. the field of interests of a certain client – and extract all relevant information. Conclusions are derived and logical decisions are made based on this rich set of information. However, the success of the data-driven decisions relies on the quality of the data gathered and the effectiveness of its analysis and interpretation.

## Insurance Value Chain



### Opportunities

- Data on an individual's driving behaviour has been shown to be the most accurate predictor of claims costs; machine-driven decisions therefore allow motor insurance providers to flexibly adjust their premiums if risky driving behaviour is observed.
- High-quality statistical predictions through machine-driven decisions could free employees from repetitive tasks.
- In contrast to individuals, machine-driven decisions stick to clearly defined decision criteria and are not influenced by personal moods that might negatively affect decision-making.
- In combination with smart contracts, machine-driven decisions can automate claims payments in insurance. The machine may measure temperature and decide to execute a smart insurance contract based on a given set of trigger conditions.

### Risks

- In order to implement machine-driven decisions, some decision criteria need to be implemented at the beginning and on-the-fly adjustments are hardly feasible. So wrong decisions at the outset are likely to become expensive in the course of the project.
- Distortions or changes in the informational content of the data underlying the decision algorithm might result in unintentional and, in some cases, even systematic errors.
- In contrast to artificial general intelligence, machine-driven decisions may still be inferior to the judgement of human experts.

## Trend Evolution



Machine-driven Decisions have reached ADOPT stage. Start implementing initiatives.

## Related Trends





GE Research

## GE's "humble" AI



### Making AI more human by making its question "Why?"

Wind farms are one example of AI optimisation. AI is already controlling turbine rotation, yet its range of responses to natural wind are limited. GE research has now developed an AI technology that recognises its own limitations and capabilities and is able to reflect upon them by asking "why?". For example, when the AI detects a wind that it cannot handle, it automatically switches to a safe mode. Once in that mode, the AI then asks "why" by seeking more data from its environment, e.g. temperature decrease during heavy snow, to provide developers with information on how to improve the AI model.



DeepVariant

## Genomes



### Making sense of Genomes

DeepVariant aims to leverage information from genetic sequencing for devising novel therapies. Since the first sequencing of a genome around 15 years ago, sequencing large genomes has become almost common practice and incredibly fast. Still, genome sequencing as a method has its drawbacks, as much is based on educated guesses by researchers. Google's DeepVariant might provide an answer. It uses artificial intelligence and machine learning to build a picture of a person's genome from sequenced data more accurately than a human researcher could.



Symrise&IBM

## AI based Perfume



### Perfume from Artificial Intelligence

IBM Research and Symrise – a global producer of fragrances introduced the industry's first AI created perfume for sale, after a development phase of about one year.

The AI tool Philyra uses a machine-learning algorithms to explore Symrise's database of 1.7 million formulas and can identify "holes" before suggesting formulas that consumers may enjoy and combinations that perfumers may have been unaware of previously.





Natural language processing (NLP) can ease human-computer interaction and leads to machines understanding and acting on text.

The quality of NLP has improved significantly; visible accomplishments include technologies such as Microsoft's Skype Translator, which translates in real time from one spoken language to another, or Google's information cards that offer answers instead of a list of page links. For most enterprises, the simplest and most immediate use cases for NLP are typically related to improved customer service, employee support, and processing claims and policy information.

## Insurance Value Chain



### Opportunities

- Insurers can use this technology to develop services that help customers understand their insurance contracts, i.e. explain wordings, technical terms, etc.
- NLP can be used by insurers to process claims and policy information, transforming them into structured information.
- Data collected through speech recognition could potentially be applied for other business purposes.
- NLP is likely to significantly accelerate claims handling since documentation can be done much quicker, leading to higher efficiency.
- There are many high quality 3rd party or open source algorithms / approaches which can assist with early gains.

### Risks

- The results of NLP are statistical in nature which can lead to errors. There needs to be a retraining process if the type of content being processed significantly changes.
- Unauthorised usage of NLP-enabled applications could lead to the conclusion of contracts or products/services purchases without the necessary legal prerequisites being fulfilled. For example, children or people who are not contractually capable might be able to conduct transactions.
- The provider must ensure that user commands are not misinterpreted and therefore result in erroneous transactions.

## Trend Evolution



Similar to last years, Natural Language Processing is classified as an ADOPT trend, implying the need to integrate it in your business!

## Related Trends





Voysis

## artificial intelligence startup



Voysis developed a platform for digital voice assistants to better understand people's natural language.

Apple Inc. acquired Voysis, an artificial intelligence startup. Voysis is working with a platform for digital voice assistants to understand people's natural language.

Voysis initially focused on improving digital assistants on online shopping apps. Apple can use the experience from Voysis to improve its own application, Siri, making the voice assistant more responsive.



Planck Re

## AI & Open-Web Data Mining



### Automating the underwriting process

The system invented by Planck Re is able to fill in an ACORD form with information such as the sewage conditions, flood zone information, and crime rate, based on just the name of a business and its physical address. The system further processes data about the construction date, as well as any details concerning remodelling done on the building and permits associated with it.

This happens based on deep learning capabilities, pattern classification, NLP and named-entity recognition and data mining on big data that was gathered beforehand.



Open AI

## Natural-Language Generation



### Completing texts based on prompts

The machine-learning computer model of Open AI was trained on about 8 million web pages and is subsequently able to generate synthetic text-based on written prompts. Due to the long sequence of training, the technology is able to predict the most probable next word based on how the words on the website are read. The underlying algorithm is hence able to produce full paragraphs of texts – so, it could write a chapter of a book, based on the previous chapter.



Images: Deloitte Digital Studios





## Munich Re Epidemic Risk Solutions



© Tom Merton / Getty Images

### Holistic solutions saving lives, protecting economies

The coronavirus outbreak and its unparalleled consequences have served as a wake-up call for risk managers not to underestimate the potential impact of epidemics or pandemics on the balance sheets of their companies. Based on Munich Re's own proprietary models for the purpose of modelling pandemic and epidemic exposure, supplemented with data sets provided by external providers, Munich Re has created a range of innovative tailor-made risk transfer solutions for all lines of business covering epidemic risks.

Benefits at a glance:

- Revenue stability
- Balance sheet protection
- Indemnification of lost revenues or profits



## Munich Re FIVE



Source: Munich Re

### Rules-based investment strategies

Using modern technologies, FIVE develops rules-based investment strategies for insurance companies and institutional investors globally. Insurance clients value the convenience of a one-stop-shop that combines investment strategies, guarantees and insurance covers into a single product solution – lean and tailored to individual needs. Moreover, they can access a suite of highly diversifying return sources, benefit from cost-efficiencies, and aim to improve their balance sheet utilisation.

Benefits at a glance:

- Access to a selection of quantitative investment strategies
- Better risk transfer by sourcing complete investment solutions directly from Munich Re
- Attractive payouts of guarantees and insurance covers



## Munich Re Data analytics for life insurers



© Science Photo Library · KTSDESIGN / Getty Images

### Innovative approaches to data analysis

Your company's data, which often remains largely untapped, is a key factor for the development of your business. Munich Re provides you with market-wide benchmark analyses, concentrated expertise, powerful infrastructure and individual services, executing data analytics projects of any size along the entire value chain that are tailored to your needs.

Benefits at a glance:

- High-performance infrastructure meets all the requirements for extremely efficient and fast analyses on a grand scale
- Analytical capability from a large pool of experts in all relevant disciplines
- Unparalleled international data bases (e.g. covering up to 80% of the entire portfolio in the German life insurance sector)





HDFC ERGO India

## Robotics Process Automation



© PantherMedia / tampatra@hotmail.com

Automation of manual journeys with accurate and efficient results

RAMBO, HDFC ERGO's very own Robotics Automation Management BOT has the ability to carry out heavy duty tasks of others. It handles high-volume, repetitive tasks that used to be a part of agents' workload. RAMBO currently handles processes from policy issuance to claims to improve process efficiencies.

Benefits at a glance:

- To minimise process time and improve accuracy with automation of repetitive processes across all departments.

HDFC ERGO India

## ERA the email bot



© Bildagentur PantherMedia / Gajus-Images

Customer satisfaction with correct responses

The HDFC ERGO Email Bot reads, understands, categorises and responds to queries. Leveraging on NLP capabilities, the bot interprets queries and requirements and provides swift solutions in real time.

Benefits at a glance:

- Enhancing customer satisfaction with accurate and swift responses

ERGO China Life

## AI Customer Service Assistant



© Bildagentur PantherMedia / kbuntu

AI quality control of 100% inbound calls

By leveraging NLP & speech recognition, ERGO China Life's AI customer service assistant is able to identify the customer intention and provide real time suggestions to the customer service representative. All inbound calls in the call centre are covered by the AI assistant. The bot analyses the conversations during recording and an alert is activated once a risky interaction is being spotted. The interaction is analysed by big data afterwards to identify potential similar cases and improve customer service quality.

Benefit at glance:

- 100% AI assistance coverage of all inbound calls and AI quality control coverage on recorded call
- Improve service quality and efficiency
- Reduce labour cost



DAS Spain

## Automated risk pricing models



© PantherMedia/Andrew Ostrovsky

### AutoML increases the accuracy and speed of pricing models development

---

By drawing on an autoML tool and combining both tenant-specific information and external data sources, DAS Spain is working on changing its pricing model to a model based on the “actual risk”. The software automatically tests a huge number of mathematical models, allowing to perform risk modelling in a fraction of the time. While DAS Spain is currently implementing the solution for evaluating tenants' non-payment risk, the tool is also under consideration for other areas, such as reserving or increasing customer value (retention and cross-selling) amongst others.

Benefits at a glance:

- More competitive prices & better underwriting
- Allowing non-data-scientists to perform modelling
- Analytical learnings can be leveraged for other products and use cases

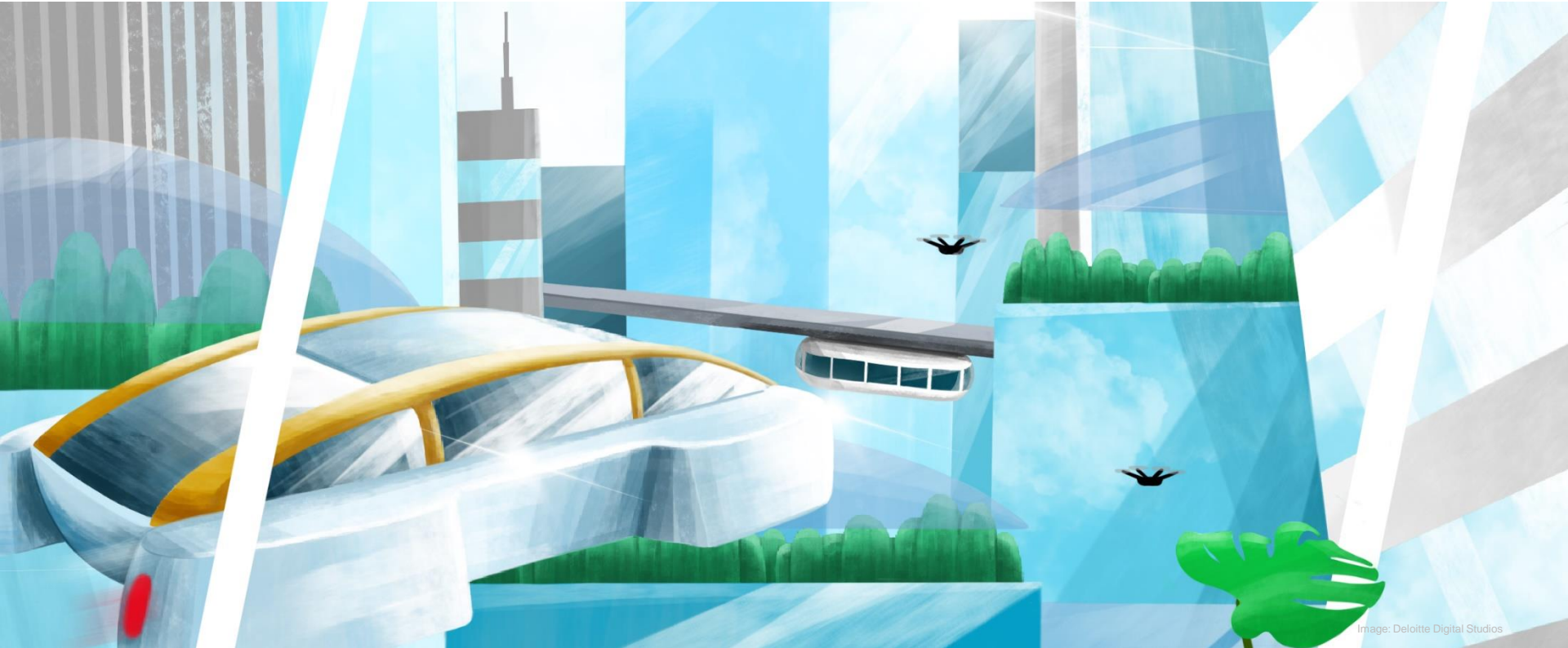


Image: Deloitte Digital Studios



The future of enterprise IT is cloud computing, which is in fact an elementary enabler for digital transformation.

Digitalisation in the financial sector will shift its focus from customer to organisational operations. Enterprise IT infrastructure, platforms and applications are on the plate to be disrupted by the cloud. This further strengthens the future role of IT as a business co-creator, rather than a “builder”.

Digital projects reducing costs and improving efficiency are highly welcome at the board level. Multi-cloud strategies are finding their way into organisations. Multiple cloud platforms allow elasticity on distributing workloads and data on multiple different clouds, mitigate risks and reduce recovery time.

## Insurance Value Chain



### Opportunities

- Better integration of business units through sharing data, driving integrated decisions, and moving more quickly to solve customer problems.
- Use the implementation of cloud technology as an opportunity to update and enhance IT security standards and systems.
- Capture cost efficiencies in dynamic cloud pricing by increasing or decreasing computing capacity as needed, which can facilitate granular spending control.
- Tech capabilities and solutions attract new talents and provide access to ecosystems with skills in Data Science, DevOps, Agile, etc.
- This means a move from company data centres to gain the ability to replicate data and app services across more than a single data centre or region.

### Risks

- Finding and managing the right balance of deployment between being in the cloud and not being in the cloud is now a question of mix and match: deploy on private and scale on public when needed.
- Vendor lock-in: Options to adapt to changes in the marketplace, without reworking the whole cloud architecture to suit one vendor may be limited.
- Security and privacy regulations: Meet legal, compliance and security requirements by enabling data brokering placement capabilities based on data criticality and CSPs certifications.
- Moving to the cloud means a massive organisational shift, e.g. cultural transformation, fostering openness and building up capabilities suited for the change.

### Trend Evolution



Although having just appeared on the radar in 2019, Cloud Enablement is already in the ADOPT stage. Evaluate insurance use cases and smart contract solutions!

### Related Trends





Instanda

## Insurtech in MS Azure



Tools for building insurance products in MS Azure's cloud

Insurtech company Instanda is building non-code business platforms for insurers to support e.g. underwriting capabilities, product configuration online in just a few days for all classes of insurance. The company was founded in 2012 and received a \$19.5m Series A investment in March 2020. Being now available on Microsoft's cloud service Azure Marketplace, Instanda provides insurers with business tools ready at hand in Microsoft's cloud platform.



Istio

## Service Mesh



Eliminating deployment complexity

Based on an alliance of Google, IBM and Lyft, Istio was established as a service mesh in order to address the issue of deployment complexity. While developers of DevOps-teams use microservices to architect, operators are managing large hybrid and multi-cloud deployments. Thus, Istio provides a unique way to secure, connect, and monitor microservices.

Snowflake

## Multi-cluster Architecture

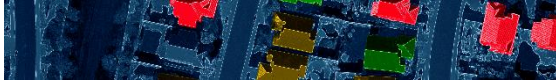


Significantly accelerating the process of monthly reports

Snowflake has a unique multi-cluster, shared data architecture, allowing multiple compute clusters to operate on the same data set in parallel while maintaining speed and performance. As it's a zero-management data warehouse-as-a-service, companies are able to concentrate on primarily solving occurring business-related problems, instead of managing the data warehouse. The automated tuning furthermore eliminates the otherwise required manual work in terms of soft- or hardware deployment or configuration. Snowflake automatically scales to support the desired amount of data and concurrency.



## Munich Re Remote Industries



Source: Mark Downey / Radius Images

### Remote claims settling in real-time

During a natural disaster, insurers struggle to manage a large influx of claims and need to triage these claims to focus on complex losses. Policyholders can easily become frustrated because of long waiting times for an appointment with an on-site adjuster. The Remote Inspection video tool offers the possibility to settle claims via a smartphone. An app lets the policyholder record in real-time the damage, enabling a claims adjuster to view the video, photo(s), and geocoordinates – as well as capture inspection report notes – and even fully settle a claim the same day in many cases.

Benefits at a glance:

- Improved claims management
- Cost, time, and resource savings for insurers
- Enhanced experience for policyholders



## Munich Re One Cat



Source: millionhope / Getty Images

### Comprehensive and rapid response to natural catastrophes

When a devastating natural catastrophe strikes, companies and organisations need their insurance claims to be settled quickly in order to avoid cash flow problems. Traditional covers often only respond after lengthy claims adjustments, and leave gaps in costs associated with restoring to the pre-event level. To close these gaps, Munich Re has designed “One Cat”, a tailor-made solution concept with an unprecedented level of transparency and a very simple payout process.

Benefits at a glance:

- Parametric triggers ensure rapid recovery
- Covers previously uninsurable risks from natural catastrophes
- Unprecedented level of transparency
- No deductibles
- Reduced claims-related expenses







ERGO China Life

## Cloud-based core system



© PantherMedia / Wavebreakmedia (YAYMicro)

### Processing fluctuating workload and guarantee stability of transactions 24/7

---

As e-commerce business increases rapidly, over 4.7m policies are issued per year which creates a large workload for the traditional core system. In order to guarantee smooth business processes, ERGO China Life has moved the core system of e-commerce business onto the financial cloud. Compared with traditional core system, the new cloud-based core system is able to process fluctuating workload and guarantee stability of transactions 24/7. Duration of basic computing resources deployment and expansion has reduced from 3 days to several seconds. Traditional operation and maintenance cost has been saved.

Benefit at glance:

- Elastic enough to process high concurrent traffic
- Providing services 24/7
- Minimise duration of basic computing resources deployment and expansion



Images: Deloitte Digital Studios

## In charge

Munich Re Business Technology  
ERGO IT Strategy

## In association



PA Consulting Group



Institute of Electronic Business (IEB)

The Institute of Electronic Business (IEB) is an affiliated institute of the Berlin University of the Arts and has been supporting the development of the Tech Trend Radar since 2013. With the help of its scientific network of renowned institutions, such as the Alexander von Humboldt Institute for Internet and Society, it attempts to identify market-related trends at an early stage and thus develops innovative ideas and solutions for its partners.



# Our approach

## STEP 1: SCREENING

### Analysis of trend developments

Compiling developments and new trends for 2020 with external analysts' reports, internal market know-how following **4 Golden Rules**:

1. Technologies that potentially disrupt the insurance industry.
2. Technologies that potentially change the business model.
3. Technologies that improve RUN trends and support GROW and TRANSFORM trends.
4. Technologies that potentially have a influence on RUN, GROW and TRANSFORM.

## STEP 2: AGGREGATION

### Definition of trends

Aggregating data from screening processes and defining the most relevant trends categorised in four primary fields – and screen for “outdated” trends

Further drill-down and validation with market data and identification of corresponding use cases

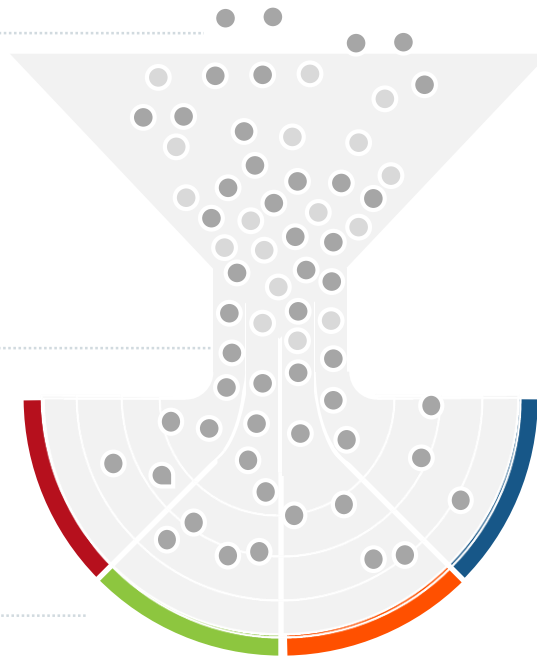
**Disclaimer: References to companies do not constitute or imply endorsement of any company or organisation.**

## STEP 3: EVALUATION

### Assessment of impact and relevance

Classifying trends according to their level of relevance for ERGO and Munich Re

Analysing trend impact along the insurance value chain and derive opportunities and risks



**Result:**  
Total Trends

**Result:**  
Aggregated Trends

**Result:**  
4 Trend Fields with  
52 Trends  
(10 new trends)  
(5 outdated trends)

# Imprint

## Tech Trend Radar 2020



Contact **Munich Re:**  
Jason Engelbrecht  
(Chief Technology Officer)  
Tel +44 20 7886 3900  
jengelbrecht@munichre.com

Contact **ERGO:**  
Roland Braun  
(ERGO IT Strategy)  
Tel +49 211 477-5246  
roland.braun@itergo.com



© 2020 Münchener Rückversicherungs-Gesellschaft  
© 2020 Munich Reinsurance Company

The companies and products mentioned throughout this report are for exemplary purposes only. Use of them does not necessarily imply any affiliation or endorsement with Munich Re (Group).

Images: Deloitte Digital Studios