TDI TECHMAP23

Tech trends in insurance

What is TDI TECHMAP23?

TDI TechMap23 looks at tech trends specifically through the lens of the global insurance industry.

Why have we created it?

TDI TechMap23 considers the relative potential for different areas of emerging technology to impact insurance over time. TDI tracks and reports on these trends as part of its purpose to allow companies and individuals to explore, learn and deliver digital across the insurance industry.

Because no one else has done it! What we wanted to do is provide information on key technologies, but more importantly provoke discussion, debate, and thinking about how these technologies might impact the insurance industry. We know the assessments are subjective – and that is what makes it interesting and worthwhile. TDI TechMap23 is included in the curriculum of the TDI Academy's learning programmes on digital insurance.

What does this report contain?

- Tech trends for 17 technologies are on a map with three dimensions: End-State Impact, Adoption Status, and Speed of Adoption
- Drill down on each of the 17 technologies – outlook, strategic value and links for further reading
- The Map is hyperlinked so you can drill down easily – just click the tech area on the map
- We did our first TDI TechMap in 2021 so this 2023 version includes a comparison

Introducing TDI

The platform for exploring, learning and delivering digital across the insurance world

OUR PURPOSE

Helping individuals and companies across the industry explore, learn and deliver digital, for the benefit of insurance professionals, their employers, the broader industry, insurance customers and society as a whole.

HOW WE DO IT

Run by a team of industry specialists.
From the industry, for the industry. Since 2012.

WHAT OUR MEMBERS SAY

"TDI is like a lighthouse for me. Standing firm through life's ups and downs, and providing guidance and insight as my career, and our industry evolves.
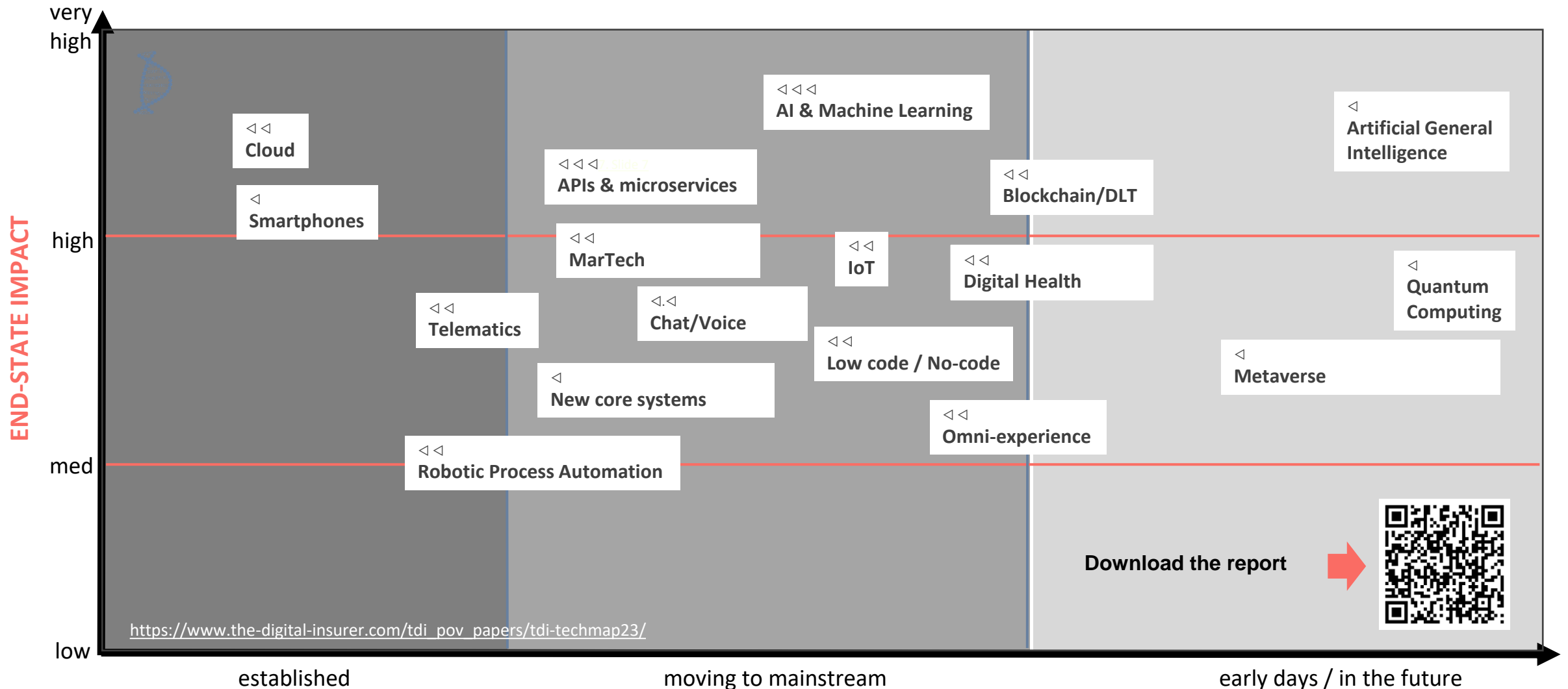
"Its team of industry specialists offer authentic insights, a sense of community, and a helping hand for all, as we journey together into the digital insurance world."
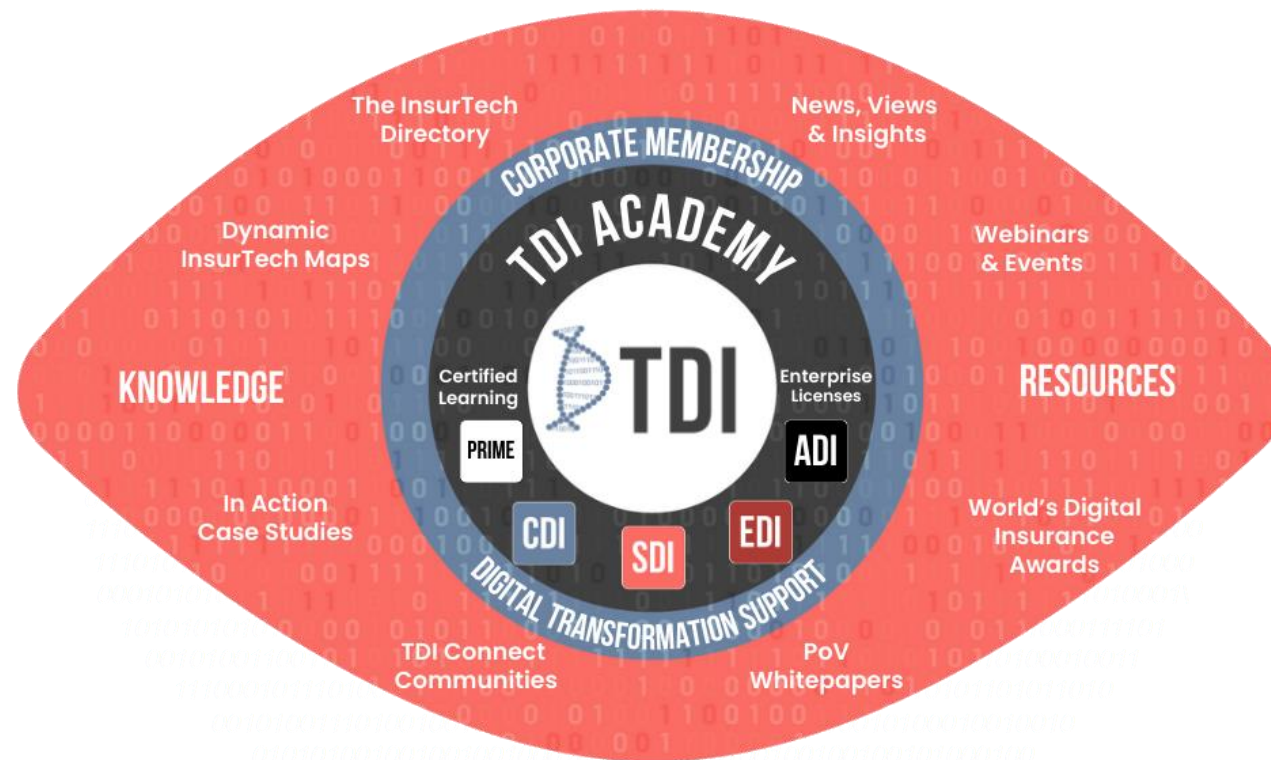
TDI Academy - modern certified learning programmes

Digital Transformation Support – Corporate Membership & tailored support

Knowledge & Resources – free for all members across the industry

TDI TECHMAP23

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END-STATE IMPACT

very high

◁◁ **Cloud**

◁ **Smartphones**

◁◁◁ **APIs & microservices**

◁◁◁ **AI & Machine Learning**

◁ **Artificial General Intelligence**

high

◁◁ **Blockchain/DLT**

◁◁ **MarTech**

◁◁ **IoT**

◁◁ **Digital Health**

◁ **Quantum Computing**

◁◁ **Telematics**

◁.◁ **Chat/Voice**

◁◁ **Low code / No-code**

◁ **Metaverse**

◁ **New core systems**

◁◁ **Omni-experience**

med

◁◁ **Robotic Process Automation**

Download the report ➡

low

established

moving to mainstream

early days / in the future

INSURANCE INDUSTRY ADOPTION STATUS

Delivering Digital Together

◁ ◁ ◁ **Speed of Adoption**
(3 is highest, 1 is lowest)

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4

TDI TECHMAP23 – changes from TDI TECHMAP21

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Tech	End State Impact	Adoption Status	Speed of Adoption
AI & Machine Learning	High to very high	Moving to mainstream	◁ ◁◁
APIs & Microservices	High to very high	Moving to mainstream	◁ ◁◁ ↑
Artificial General Intelligence	High to very high	Early days	◁
Blockchain / DLT	High ↑	Early days / Moving to mainstream ↑	◁ ◁
Chat / Voice	Medium to high ↑	Moving to mainstream	◁ ◁
Cloud	High to very high	Established	◁ ◁
Digital Health	Medium to high	Moving to mainstream	◁ ◁ ↓
IoT	High	Moving to mainstream	◁ ◁
Low Code / No Code	Medium to high ↑	Moving to mainstream ↑	◁ ◁
MarTech	High	Moving to mainstream	◁ ◁
Metaverse	Medium to high	Early days ↑	◁
New Core Systems	Medium to high	Moving to mainstream	◁
Omni-Experience	Medium to high	Early days / Moving to mainstream ↑	◁ ◁
Robotic Process Automation	Medium	Moving to mainstream	◁ ◁
Quantum Computing	Medium to high	Early days	◁ ↓
Smartphones	High	Established	◁
Telematics	Medium to high ↑	Established	◁ ◁

Changes compared to TDI TechMap21

↑ Advancing

↓ Declining

What's new?
- MarTech – growing importance

What's renamed?
- AI & Machine Learning – dropped redundant reference to predictive modelling
- Metaverse – from Immersive Tech
- Smartphones – from Mobile Devices

What's gone?
- Data visualisation – now part of AI & ML
- Drones – now included in IoT
- Robo Advisor – too specific

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Outlook in 2023

- Emphasis on execution. Companies with core tools and good data management will be able to move ahead
- Generative AI, such as ChatGPT will be highly disruptive
- Increasing focus on AI for sale, retention, cross-sell and up-sell
- Value of genuine 360 degree view of the customer becoming clearer
- Increasing need for real-time analysis for many areas including pricing, underwriting and claims

Strategic value to insurance

1. Tools for operational improvement across the value chain
2. Operational cost reduction via automation
3. Decision support tools for insurance professionals
4. Insights to improve the business
5. To improve the customer experience (early days)

End State impact on insurance
High to very high

Adoption Status & Speed
Moving to mainstream ◁ ◁ ◁

The tech innovation of 2023

Potential to revolutionise industry esp in area of CX and decision support
https://openai.com/blog/chatgpt

PRIMARY USE CASES OF AI IN INSURANCE

- Application processing
- Responding to customer queries
- Document creation
- Claim fraud detection
- Claims document processing
- Appeals processing
- Automated repair cost estimation
- Insurance pricing
- Personalized services
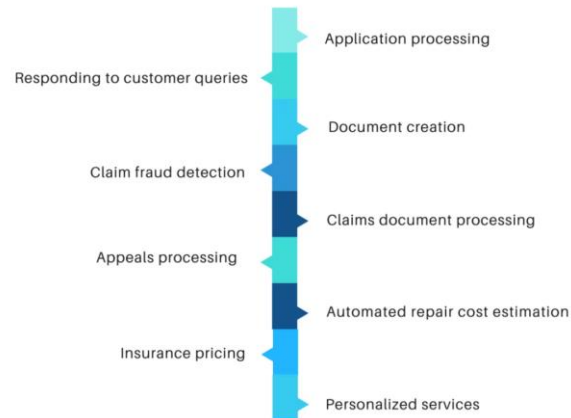
AI Multiple : Top 10 use cases of AI in insurance

Further reading

- https://www.the-digital-insurer.com/insurer-innovation-awards-2022-emea-winner-ergo/

- https://www.mckinsey.com/capabilities/quantumblack/our-insights/generative-ai-is-here-how-tools-like-chatgpt-could-change-your-business

- https://www.forbes.com/sites/garydrenik/2022/09/27/how-ai-is-changing-the-game-in-insurance/?sh=4c0dcd7251bf

- https://www.linkedin.com/pulse/how-can-chatgpt-used-insurance-bcg-on-insurance/

Outlook in 2023

- Increasingly important for embedded insurance (e.g. Big Tech)

- Plays important role in insurer technology modernisation

- API-first leaders outperform the market

Strategic value to insurance

1. Fast(er) way to core system modernisation
2. Ease of development / speed to market
3. Participation in, and access to, ecosystems (embedded insurance)
4. Access to more data
5. Building new service offerings with partners
6. Better customer experience – embed insurance into daily life events
7. Increased flexibility by separation of business functionality

End State impact on insurance
High

Adoption Status & Speed
Moving to mainstream ◁ ◁

What are the main drivers behind the use of APIs in your organization? (*Select all that apply*)

- Platform or system integrations — **49**%
- Development efficiencies and/or standardization — **49**%
- Digital transformation initiatives — **44**%
- Cloud migration — **37**%
- Partner enablement — **29**%
- Monetization of functionality or data — **13**%
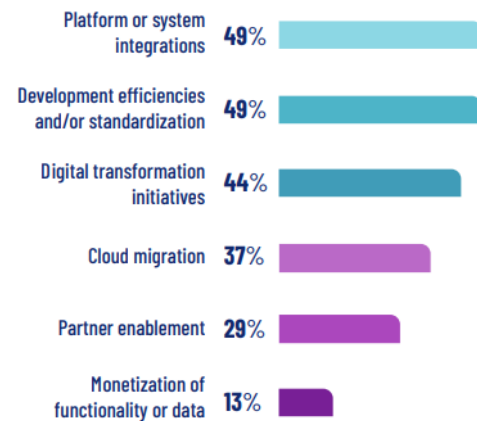
Source: Top +15 API Statistics for Understanding API Landscape in 2023

Top 6 API insurance use cases 2023

1. Mobile & web application integration
2. Chatbots
3. Internet of Things
4. Damage assessment
5. Claim processing
6. Underwriting

Source: AI Multiple

Further reading

- Checkout the TDI Academy lesson: APIs & Microservices
- TDI webinar: Infrastructure for global insurers
- The Newstack: microservices, APIs and innovation – the power of APIs
- IBM: Evolution of the API Economy
- Robosque: The journey to an open API standard
- Postman: 2022 State of API report

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Outlook in 2023

- No consensus on whether Artificial General Intelligence (AGI) will be achievable
- But no doubt that AI is advancing at pace – and already proving to be highly disruptive
- Deep Mind continues to show progress but use cases remain specialised
- Realisation of stable Quantum computing machine could accelerate AGI
- AGI should be on insurers risk maps as one to watch in the years ahead

Strategic value to insurance

1. Will be a game changer – but as this point hard to define both timing and impact

End State impact on insurance
High to very high

Adoption Status & Speed
Early days ◁

Further reading

- Nature: Why General AI will not be realised

- AI Multiple : Research on AGI singularity

- Business Insider: Elon Musk says he's terrified of AI taking over the world and most scared of Google's DeepMind AI project

Source: https://9to5google.com/guides/deepmind/

Click to return to map

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Outlook in 2023

- Despite torrid year for crypto, interest continues to rise (none of the market failures in 2022 were related to the performance of the underlying technology).
- Industry exploring: DLT adding value front to back, Metaverse supporting distribution channels; crypto exchange / cyber risk insurance; crypto assets as a new investment class.
- Insurers gradually moving from PoC to live use case and partnering with / investing / acquiring successful InsurTech blockchain startups

Strategic value to insurance

1. Increase consumer trust in industry e.g. automated claims payments
2. Reduce costs e.g. manual verifications
3. Increase customer satisfaction through:
   - more efficient servicing (e.g. eKYC, claims via smart contracts) and
   - value-added services (e.g. 3rd-party ecosystem collaboration)
4. New sources of revenue e.g. micro / embedded / underserved
5. Enabler of multiple Value Chain Innovations e.g. Claims settlement and New Digital Business Models, Metaverse next gen agency e.g.P2P

End State impact on insurance
High

Adoption Status & Speed
Early days / moving to mainstream ◁ ◁

Reports of interest & further reading
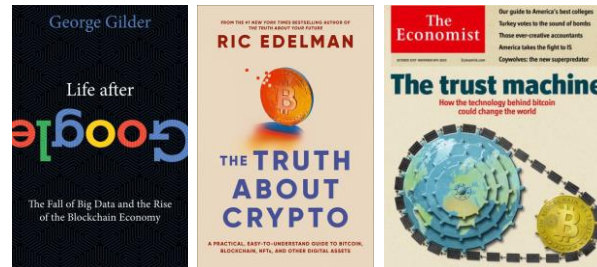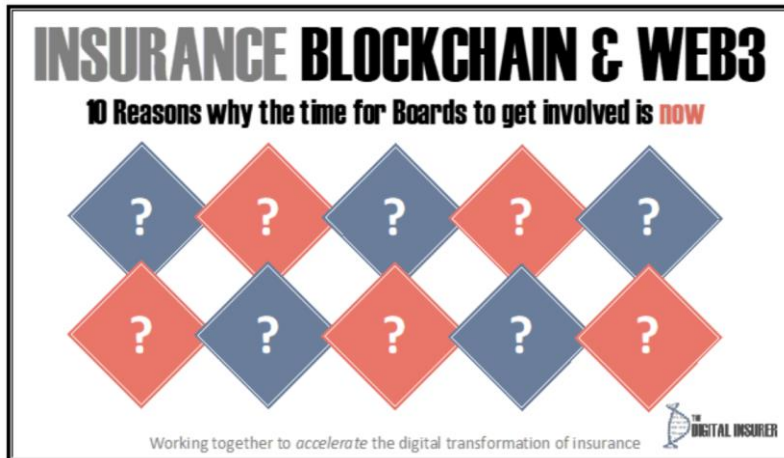
Further reading

- TDI PoV: Blockchain & Web3 – 10 Reasons why the time for Boards to get involved is NOW
- Life after Google – The Fall of Big Data and the Rise of the Blockchain Economy
- The Truth About Crypto
- The Trust Machine
- Wikipedia: Decentralised Finance
- TDI Academy lesson: Blockchain
- Accenture: Ultimate Guide to Blockchain in Insurance
- TDI Smartsearch: Blockchain

Outlook in 2023

- No-code chat builders increased adoption
- Integration with messenger apps such as Facebook messenger and business WhatsApp
- Sophisticated, contextual semantic search from simple lexical search
- Adoption for fraud prevention
- General predictive AI will be a force multiplier (see AI) and could lead to a 'renaissance' of chat engines
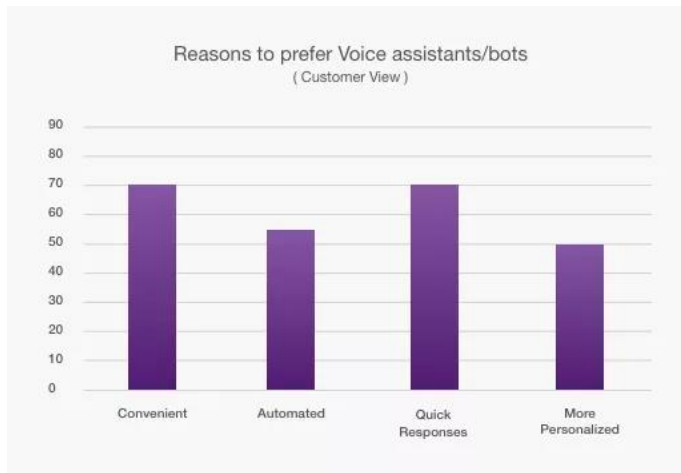
Strategic value to insurance

1. Scale customer service – free humans for more value add tasks
2. Omni-channel development – extension to voice assistants (e.g. Alexa)
3. Claims / service / underwriting optimisation opportunity
4. Customer data insights and product design
5. Customer service level improvement (e.g. 24/7 support)

End State impact on insurance
Medium to high

Adoption Status & Speed
Moving to mainstream ◁◁

Source: https://fulcrumdigital.com/blogs/voice-assistants-chatbots-driving-insurance-to-new-more-personal-frontiers/
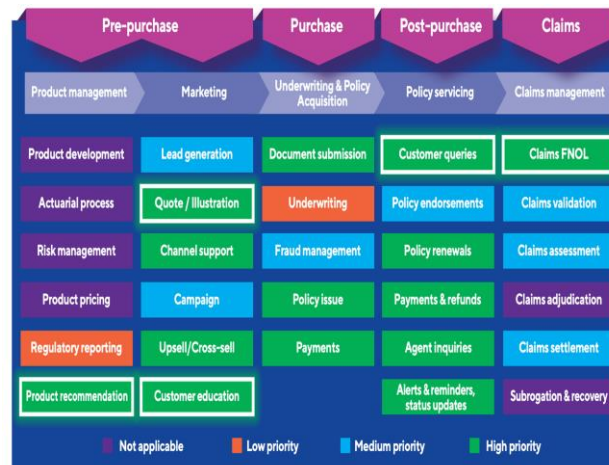
Source: The Future of Chatbots in Insurance

Further reading

- https://yellow.ai/chatbots/use-cases-of-chatbots-in-insurance-sector/

- https://keyreply.com/conversational-ai-for-insurance/

- https://www.linkedin.com/pulse/chatbots-revolutionizing-insurance-industry-bala-p/?trk=pulse-article_more-articles_related-content-card

- https://www.the-digital-insurer.com/library/how-organizations-and-consumers-are-embracing-voice-and-chat-assistants/

TDI TECHMAP23 CLOUD

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Outlook in 2023

- Some FOMO driven migrations being reviewed and optimised
- However, most 'lift & shift' - generated huge expense base
- Focus on efficient running via 'FIN OPS'
- More SAAS
- Much refactoring of in-house apps to 'cloud native'
- Greater focus on value measure and business ROI
- Multi-carrier strategy
- Perhaps slower growth

Strategic value to insurance

1. Foundation for business enablement and innovation
2. Faster time to market, shorter product life cycles
3. Access to advanced capabilities
4. Economies of scale
5. Superior customer service:
   - Enables 'anytime, anywhere' availability
   - Faster prototyping - CX improvement

End State impact on insurance
High - Very high

Adoption Status & Speed
Established ◁ ◁

Further reading

- https://acloudguru.com/blog/engineering/the-cloud-architects-guide-to-cloud-migration. More on cloud architecture
- https://blogs.vmware.com/cloud/2021/07/06/multi-cloud-use-maturity-cloud-services/ more on SAAS
- https://insurtechdigital.com/digital-strategy/cloud-computing-insurance-sector-ultimate-guide more on cloud and insurance
- https://research.aimultiple.com/insurance-cloud-computing/
- https://www.the-digital-insurer.com/cloud-crushes-costs-archive/

In the next five years, most business leaders we surveyed plan to migrate more of their compute environment to public cloud.

Q: What percentage of your environment is in public cloud today?
% of respondents
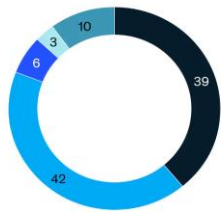
Q: What percentage of your environment are you targeting to move to public cloud in the next five years?
% of respondents

■ <5% ■ 5–25% ■ 26–50% ■ 51–75% ■ >75%

10, 3, 6, 39, 42

12, 33, 27, 27
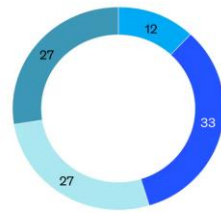
Note: Figures may not sum to 100%, because of rounding.
Source: Based on a webinar poll with ~120 C-suite leaders conducted by McKinsey

McKinsey & Company

Re-Host / Re-Platform / Refactor / Retire / Retain — VMware Tanzu™ / APP

Source: https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/what-every-insurance-leader-should-know-about-cloud

Source: https://blogs.vmware.com/cloud/2022/02/09/build-your-application-modernization-strategy-with-vmware/

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Outlook in 2023

- Improved adoption driven by Covid
- Tight funding environment
- Greater focus on mental health solutions / platforms
- Improvements in data quality leading to better health underwriting
- Continuing advance of wearables and quantified self

Strategic value to insurance

1. Opportunity for alignment to customer need (i.e. longer, healthier lives)
2. Engage with customer – data insights for product design to closer match need
3. Customer acquisition – lead gen, access new (younger) demographic
4. Positive impact to overall branding – higher NPS as VAS
5. Potential reduction in medical fees (e.g. via tele-consult)
6. Data driven underwriting

End State impact on insurance
Medium to high

Adoption Status & Speed
Moving to mainstream ◁ ◁

Fully Digital Journey for insurance members

Symptom → Virtual health assistant → Doctor line → Healthcare Navigation → Hospital/Clinic Visit → Online Booking → After treatment → Share experience Satisfaction tracker → Online Pharma → Direct billing E-Claim

Source: https://appinventiv.com/blog/health-insurance-digitalization-benefits-and-tech-stack/

Further reading

- https://www.the-digital-insurer.com/china-in-focus/cif-an-ageing-world-needs-better-healthcare-more-than-ever/

- https://www.dacadoo.com/2022/06/14/67-of-insurers-offer-digital-health-engagement-platforms/

- https://www.swissre.com/reinsurance/life-and-health/solutions/digital-health-underwriting-new-ground.htm

- https://www.the-digital-insurer.com/dia/insurtech-analysis-ping-an-health-vs-alibaba-health-vs-jd-health/l

Outlook in 2023

- Use of IoT devices predicted to grow, especially in the agriculture, health & wellness sector
- Data privacy & security remain concerns for users and regulators
- Smart cities are an IoT development area, especially in risk prevention/management and claims management
- Edge computing will accelerate use cases for IoT
- Drone tech continues to grow with many use cases

Strategic value to insurance

1. Useful in rating, loss prevention, and claims management
2. Wearables, especially in health & wellness can engage users, making the relationship 'sticky'
3. Can move insurers from payor to partner, reinforcing customer relationship
4. Long way to go in commercial insurance, but could be a strategic game-changer
5. Allows marine insurers to track shipments and link to weather or political risks data

End State impact on insurance
High

Adoption Status & Speed
Established ◁ ◁

"2023 will see a growth of IoT devices by 18% to 14.4 billion, and by 2025, this could increase to 27 billion connected IoT devices."

TechTarget: Iot trends 2023
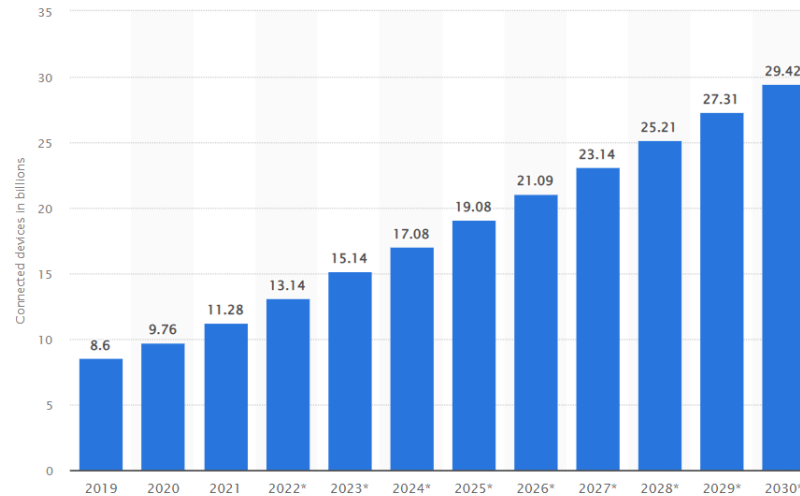
Further reading

- Forbes: Top IoT trends 2023
- Insider Intelligence: IoT & smart cities
- PWC: IoT and data protection & GDPR
- Emnify: IoT challenges for 2023
- Embroker: IoT and commercial insurance

Connected devices in billions:
- 2019: 8.6
- 2020: 9.76
- 2021: 11.28
- 2022*: 13.14
- 2023*: 15.14
- 2024*: 17.08
- 2025*: 19.08
- 2026*: 21.09
- 2027*: 23.14
- 2028*: 25.21
- 2029*: 27.31
- 2030*: 29.42

Statistia: Iot devices 2019-2030

Click to return to map

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Outlook in 2023

- No-code chat builders increased adoption
- Major platform (SFDC/Pega) with no-code capabilities
- Extension to community building (See SFDC)

Strategic value to insurance

1. Lower cost of implementation
2. Faster speed of deployment
3. Greater developer productivity
4. Opportunity for workflow efficiency (e.g. RPA connection)
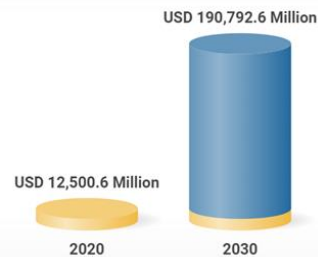5. Digital culture - Empower citizen developers

End State impact on insurance
Medium

Adoption Status & Speed
Moving to mainstream ◁ ◁

Low-Code Development Platform Market
Market forecast to grow at a CAGR of 31.3%
USD 190,792.6 Million
USD 12,500.6 Million
2020   2030
https://www.researchandmarkets.com/reports/5184624
RESEARCH AND MARKETS THE WORLD'S LARGEST MARKET RESEARCH STORE

Reasons For Using Low-Code Platforms

- Accelerate digital innovation and transformation
- Reduce current IT backlog and Increase responsiveness
- Escape legacy debt
- Reduce dependency on hard to hire technical skills
- Protect against technology churn
- Enable citizen developers to improve internal processes
- Others

Further reading

- https://hbr.org/2021/06/when-low-code-no-code-development-works-and-when-it-doesnt
- https://www.the-digital-insurer.com/library/adacta-no-code-and-low-code-platforms-in-insurance-the-future-is-multi-platform/
- https://www.majesco.com/white-papers/insurance-platforms-a-burning-platform-for-market-leadership-in-the-digital-era-of-insurance/
- https://www.cyberium.info/how-insurance-stands-to-gain-from-the-no-code-low-code-revolution/

Source: https://stratoflow.com/is-low-code-no-code-the-future/

Outlook in 2023

- Pressures to integrate omni-channel campaigns, supports real-time
- Requires integration strategy, governance, and talent to create a MarTech ecosystem
- Deprecation of 3rd-party cookies / changing privacy legislation making effective targeting, measurement tougher, puts an increased focus on Customer Data Platforms
- Generative AI, although in its infancy, enormous impact on content creation, chatbots, automation, and ideation

Strategic value to insurance

- Make marketing efforts more effective, efficient and tailored to match the needs of customers and distribution channels
- Creating / delivering differentiating experiences for consumer
- Support key connections between customer, channels, employees, brand, and partners.
- Enable adoption of integrated, channel-agnostic, hybrid approach to marketing activation, including customer acquisition & retention.
- Enabler for an adaptive, agile approach to marketing strategy, budgeting, and planning.

End State impact on insurance
High

Adoption Status & Speed
Moving to mainstream ◁◁

Optimizing digital marketing can unlock significant impact for insurers.

Direct marketing can achieve

↑ 50–100%
Increase in digital-enabled sales

↓ 10–15%
Decrease in marketing investment through attribution-based optimization

Yet many insurers do not have a robust **customer engagement strategy** for digital channels or for required digital-marketing, analytics, and marketing-technology (martech) **capabilities**.

Source: McKinsey analysis

Further reading

- Chiefmartec
- Gartner: The State of Marketing Budget and Strategy 2022
- Gartner raises concerns about martech utilisation: Do you stack up?
- McKinsey: How Asian insurers can use digital marketing to fuel growth
- Delotte: Customer data platforms in action
- Benefits of Marketing Automation Software: Examples of Top Solutions Explained - Financesonline.com
- 15 Creative Ways Marketers Can Use AI To Build Connections With Consumers
- McKinsey: A technology blueprint for personalization at scale

Outlook in 2023

- **I**mprovement in equipment needed (Apple goggles?)
- Developments in virtual bank branches (see Korean banks)
- Advances in comms tech such as Teams
- Adoption as corporate comms tool for large staff engagement
- Will mass adoption happen? This story is yet to unfold
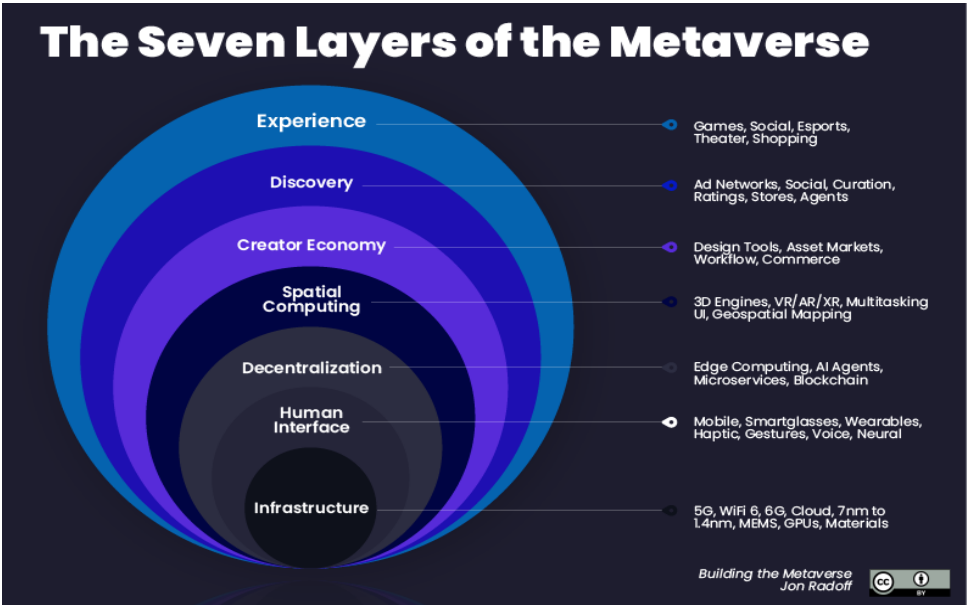
Strategic value to insurance

1. Next gen eco system – support omni channel
2. Customer engagement - sales & servicing – next gen agency
3. New products - insurance for virtual assets
4. Events – customer and agency

End State impact on insurance
Medium to high

Adoption Status & Speed
Early days ◁

Source: https://holonext.com/metaverse-101-understanding-the-seven-layers/

Further reading

- https://www.the-digital-insurer.com/library/fintech-global-why-metaverse-insurance-is-bigger-than-you-think/

- https://www.the-digital-insurer.com/library/abeam-metaverse-and-operation-life-insurance/

- https://www.the-digital-insurer.com/tdi-talks/sigortambir-finalist-global-insurtech-innovation-awards-2022/

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Outlook in 2023

- Insurers feeling increasing need to act on legacy systems, but replacement takes too long and is very costly
- Technical debt is increasing on a daily basis due to rigid legacy systems
- Focus turning towards isolating core systems and working with multi-speed IT to deliver results faster

Strategic value to insurance

1. Increased operational productivity
2. Optimised processes and better user experience
3. Reduced IT costs
4. Increased revenue – new business lines and improved customer retention
5. Improved resilience – more agility to build new capabilities

End State impact on insurance
Medium to high

Adoption Status & Speed
Moving to mainstream ◁

Insurers must carefully evaluate which IT modernization approach works with their operating models.

Potential approaches	Results
① Modernizing the legacy platform	• Ownership of system (at lowest total cost) • Low-risk, mature technology • Functionality can be gradually enhanced
② Building a proprietary platform	• Can be designed and built (with sufficient internal skills) • Differentiating capabilities (in-house or with sufficient scale) • Long-term implantation possible
③ Buying a standard software package	• Sufficient functional coverage and capabilities • Adequately low total cost of ownership • Manageable integration • Relatively short implementation time

Source: McKinsey - IT modernization in insurance: Three paths to transformation

7 Options To modernize Legacy Systems

1. Encapsulate
2. Rehost
3. Replatform
4. Refactor
5. Rearchitect
6. Rebuild
7. Replace

Source: Gartner - https://www.gartner.com/smarterwithgartner/7-options-to-modernize-legacy-systems

Further reading

- https://www.linkedin.com/feed/update/urn:li:activity:7030820280134496256/

- McKinsey: Top ten myths of technology modernization in insurance

- https://www.openlegacy.com/blog/insurance-legacy-system-transformation

- Level: The Price of Tech Debt: Legacy Systems' Impact on Insurers

Outlook in 2023

- Accelerated consumer interest and demand for blended sales and servicing support across all industries
- Other industries will likely lead on what good looks like, and with new sales and service models
- Increasing interest and investment from more forward-looking insurers
- Within insurance, potentially led by new digital-first / embedded insurers looking to enrich propositions having already established differentiated brands and looking to increase value by high-value sales

Strategic value to insurance

1. Increased consumer satisfaction and engagement
2. Improved cross-sell, up-sell and referrals
3. Enhanced customer data / value
4. Strengthened capabilities to participate with ecosystem partners
5. Better awareness of, and focus on, Customer Lifetime Value
6. Improved persistency
7. Stronger alignment between insurers and agents / distributors

End State impact on insurance
Medium to High

Adoption Status & Speed
Moving to mainstream ◁ ◁
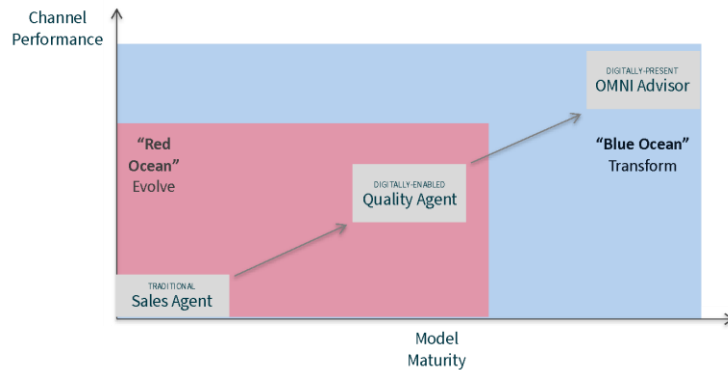
The Digital Insurer - Advisor of the future in a digital world

McKinsey: Moving to a user-first omni channel approach

Further reading

- Axell: Human touch in a digital world

- McKinsey: The multi-access (r)evolution in insurance sales

- AI Multiple : Guide to Omnichannel insurance

TDI ACADEMY

Outlook in 2023

- Core in insurance digital transformation
- Spans across business units and teams and needs a strong cross-functional implementation team
- Implementation of RPAs will increase, but insurers need to remember this is a quick-fix and not permanent optimised solution – RPAs automate existing, non-optimized processes
- OCR and document processing will gain more traction
- Hyper-automation was a Gartner tech trend in 2022, not 2023

Strategic value to insurance

1. Core to digital transformation and future competitiveness
2. RPAs can deliver quick return on investment and can be a bridging strategy to allow time for real process optimisation to be take more of the load
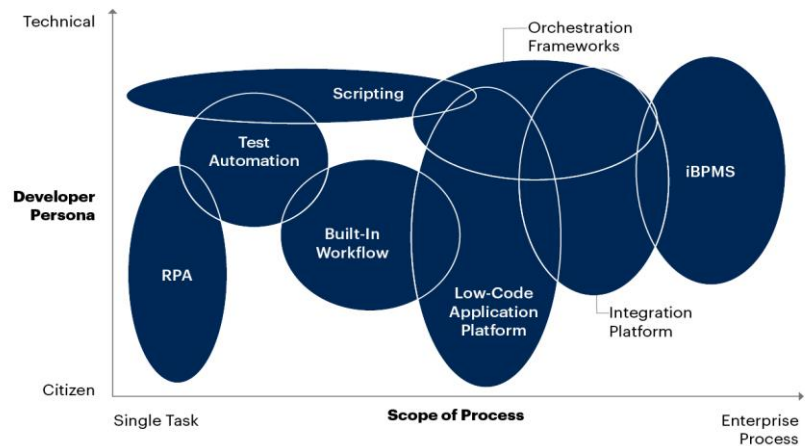3. Automation is key to provide a smooth, fast and seamless customer experience

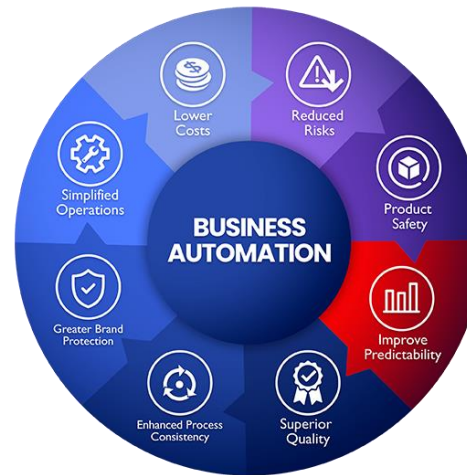**End State impact on insurance**
Medium

Adoption Status & Speed
Moving to mainstream ◁◁

Alignment of Process Scope and Developer Persona
Illustrative

Source: Gartner
762474_C

Gartner.

BUSINESS AUTOMATION

Source: https://www.websfarm.net/the-benefits-of-business-process-automation/

Further reading

- Top use cases for RPA in insurance

- 7 Business Process Automation Trends to Watch for in 2023

- Robotic Process Automation — a driver of digital transformation?

Long-term outlook

- Years away from usable solutions – probably end of this decade
- First models already in the market
- Significantly reduce drug discovery times
- Potential to capture nearly $700 billion in value as early as 2035
- Threats exist – potential to crack security cryptography

Strategic value to insurance

1. Ability to process huge data volumes massive enabler for IoT/edge devices, wearables
2. Enable next generation of data driven underwriting
3. Predictive risk modelling represents significant opportunity especially for catastrophic loss

End State impact on insurance
Medium to High

Adoption Status & Speed
Early days ◁

Qubits are the fundamental units of information processing in quantum computers.

The idea of quantum computing is to switch from classical bits as information processing units to quantum bits or "qubits." Qubits are governed by quantum mechanics—effects like superposition and entanglement play a large role in determining the efficacy of quantum calculations.

There are many different ways to physically realize qubits— from using trapped calcium ions to superconducting structures. In each case, quantum states are being manipulated to perform calculations.

Quantum algorithms can effectively tackle certain problems that cannot be solved with conventional computers in a reasonable amount of time. Managing qubit capabilities (superposition, entanglement) is key to creating business value with quantum computers.

Source: McKinsey

Over the long term, the highest-value quantum computing use cases will likely be in the life sciences and financial services sectors.

Qualitative estimate of expected value unlocked by the application of quantum computing by 2030

Low-value applications[1] — High-value applications[1]

	Industries						
Algorithm archetypes	Life sciences	Financial services	Travel, transport, and logistics	Global energy and minerals	Telecommunications, media, and technology	Advanced industries	Insurance
Simulation							
Linear algebra for AI/machine learning							
Optimization and search							
Factorization							

[1] By 2030.

McKinsey & Company

Further reading

- https://insuranceblog.accenture.com/quantum-computing-insurance

- https://www.linkedin.com/pulse/quantum-computing-insurance-srinivasan-sankar/?trk=pulse-article

- https://www.ideapoke.com/growthleader/the-future-of-quantum-computing-in-insurance

- https://www.swissre.com/institute/research/sonar/sonar2022/quantum-computing.html

Outlook in 2023

- Number of global smartphone users continue to increase albeit at a slower pace. Estimated at 6.8bn in 2023 – represents 4% increase from 2022 and 89% global penetration rate
- Likely to continue to drive innovation in areas such as AI, 5G connectivity, foldable and flexible displays and low-tier purchases in emerging markets
- Global smartphone shipment market to remain challenged in 2023
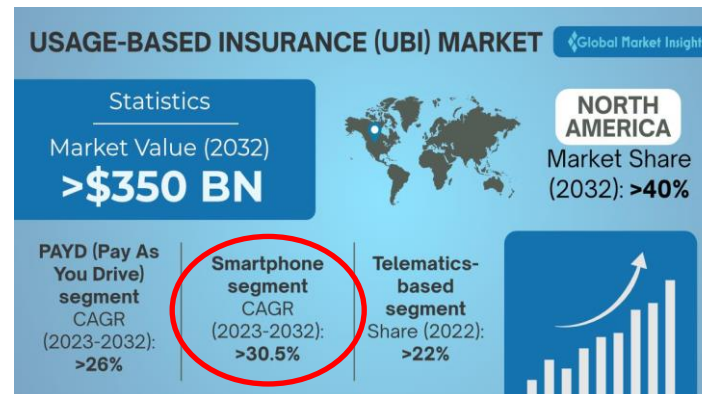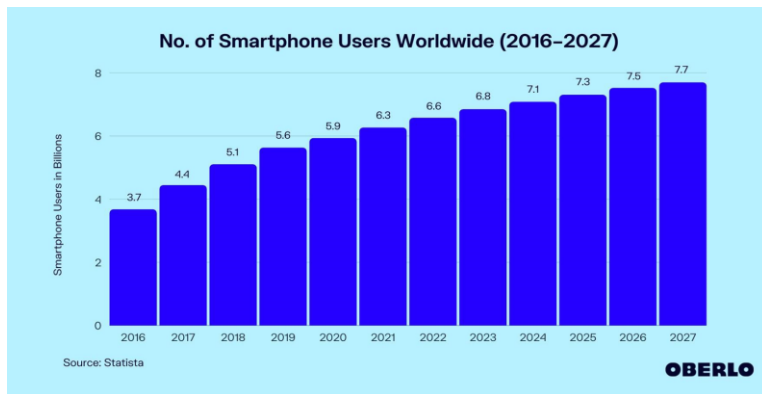
Strategic value to insurance

1. Have become an important tool both for insurers and policyholders as they make processes more convenient and efficient
2. Use cases span value chain, not just limited to being a sales channel
   - Mobile apps – such as digital health
   - Telematics
   - Virtual agents
   - Remote claims inspections
   - Fraud detection

End State impact on insurance
High

Adoption Status & Speed
Established ◁

Source: https://www.oberlo.co.uk/statistics/how-many-people-have-smartphones

Source: https://www.globenewswire.com/news-release/2022/12/06/2568021/0/en/Usage-based-Insurance-Market-to-value-USD-350-Billion-by-2032-Global-Market-Insights-Inc.html

Further reading

- https://www.digitimes.com/news/a20221208VL215/2023-smartphone.html. More on smartphone outlook

- https://www.bankmycell.com/blog/how-many-phones-are-in-the-world. More on smartphone penetration

- https://agentsync.io/blog/insurtech/connectivity-advancements-in-the-insurance-industry more on smartphone insurance use cases

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Outlook in 2023

- Note: we are applying the term telematics here from an auto / car insurance perspective
- Telematics continues to grow. Movement to mobile apps or OEM solutions well established – the black box provider is a legacy model
- Potential to use telematics to facilitate usage-based insurance (UBI) and embedded insurance

Strategic value to insurance

1. Personalises risk and provides for risk reduction in a number of different ways (behaviour modification, intervention to manage accidents)
2. Enhances ability to manage large vehicle fleets and leverage rich data
3. Allows insurers to strengthen customer partnerships and move from payer to protection model and a more accurate / fair risk rating basis
4. Encourages better habits, hence moving towards prevention rather than protection
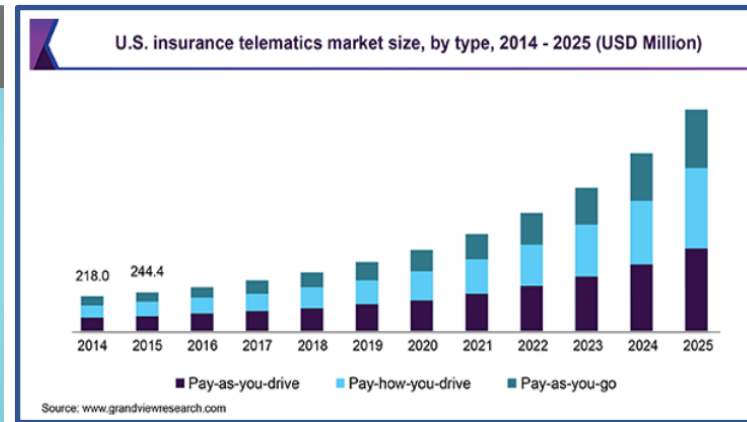
End State impact on insurance
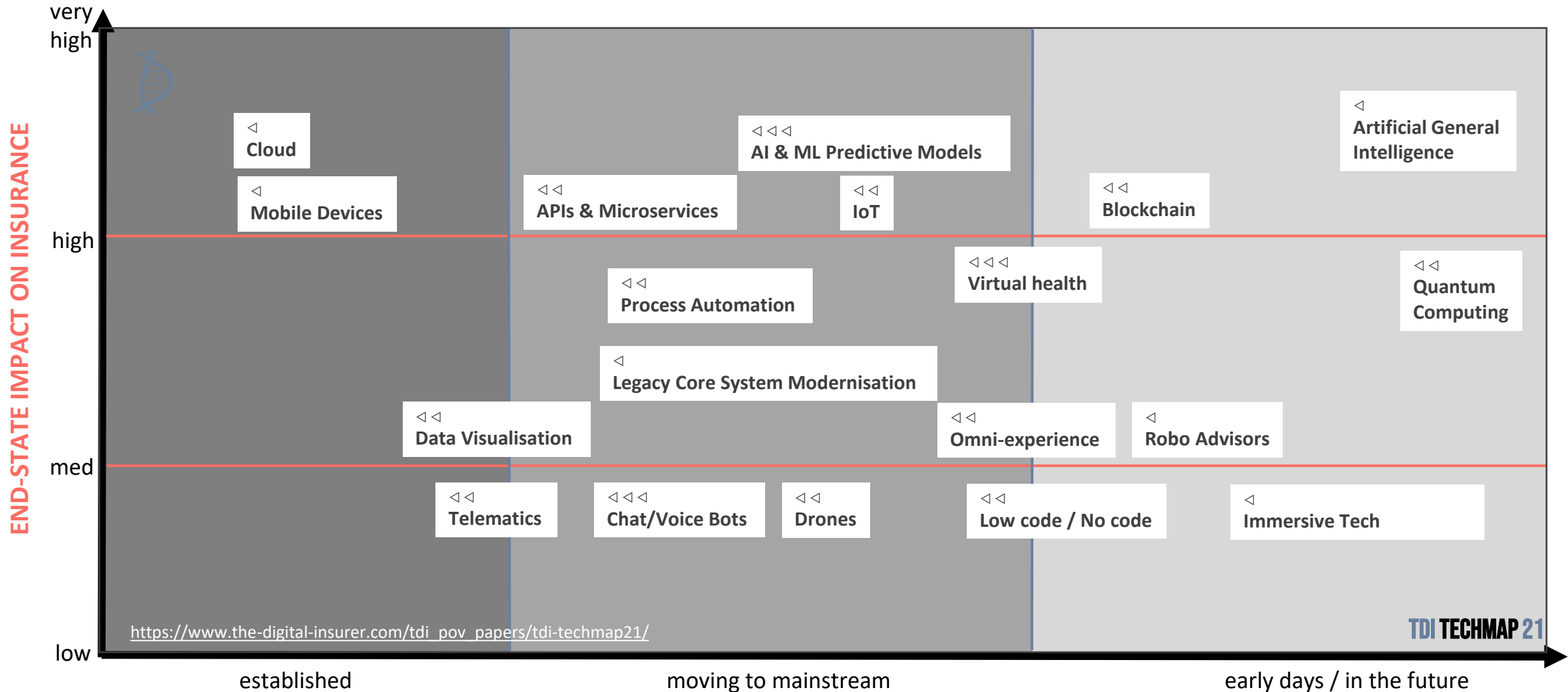Medium to high

Adoption Status & Speed
Established ◁ ◁
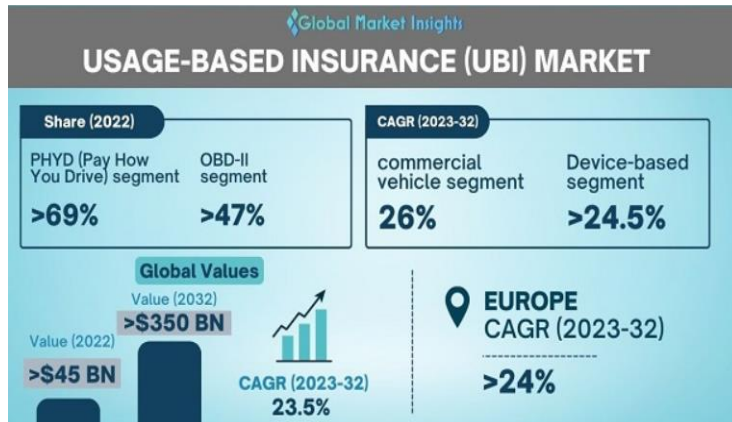
Global Market Insight: UBI Growth

Grand View Research: Telematics Market Size

Further reading

- Insurance Business America: 2023 auto risk

- Appinventic: A primer on telematics

- Yahoo News: Global telematics market outlook - 2030

- Deloitte: 3-minute guide on telematics