Session 1

Financial Technology

Introduction and Concept

Executive Certificate in Contemporary Financial Planning

The Hang Seng University of Hong Kong

By Dr. Jason Liao

(Associate Professor of Practice)

1

Outline

- Basics of Fintech
- Examples in Fintech Area
- Top 10 Fintech Topics for 2025
- The Future of FinTech in Hong Kong
- AI in Fintech
- Insurtech

2

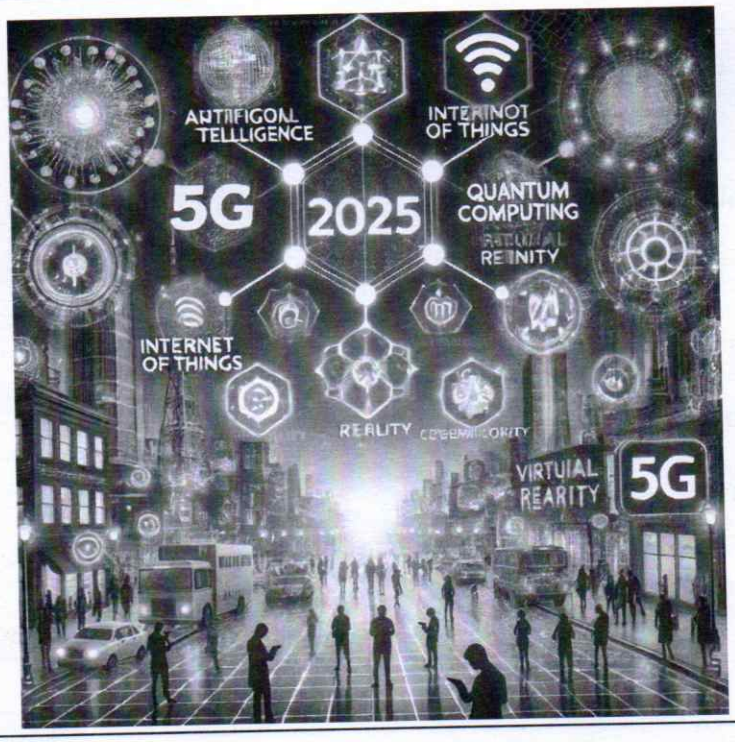
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Outline

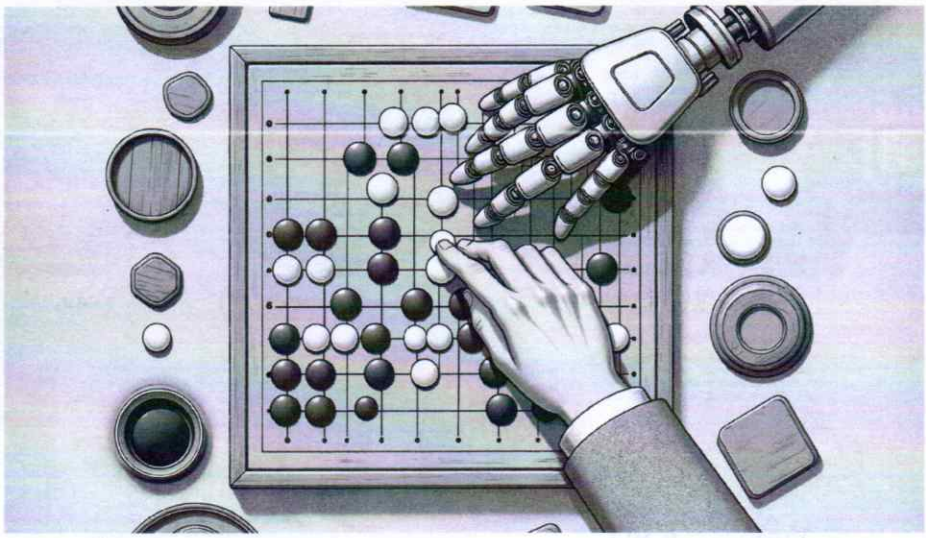
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3



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Human vs Humanoid Robot



5

"Harnessing Technology: The Role of Automation in Reasoning and Thought Processes - A Comparison of Humans and AI."





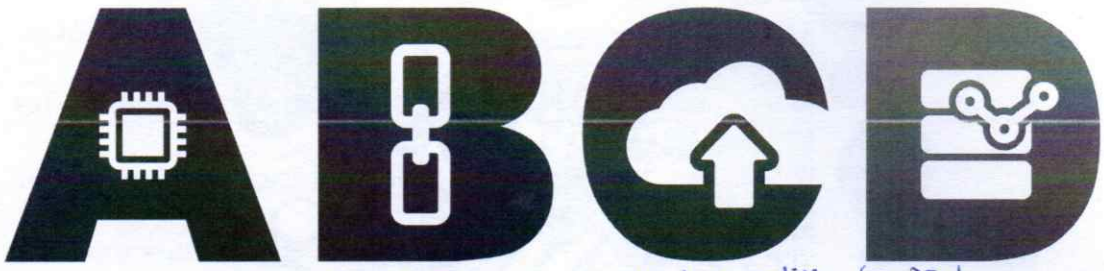
GPT 4o Live Translation Demo



Most capable AI model yet

6

Fintech Characterized by A-B-C-D



AI　Blockchain　Cloud Computing　(Big) Data

OF FINTECH

Fintech 4大技術：A:AI

B: Blockchain

C: Cloud Computing

D: (Big) Data

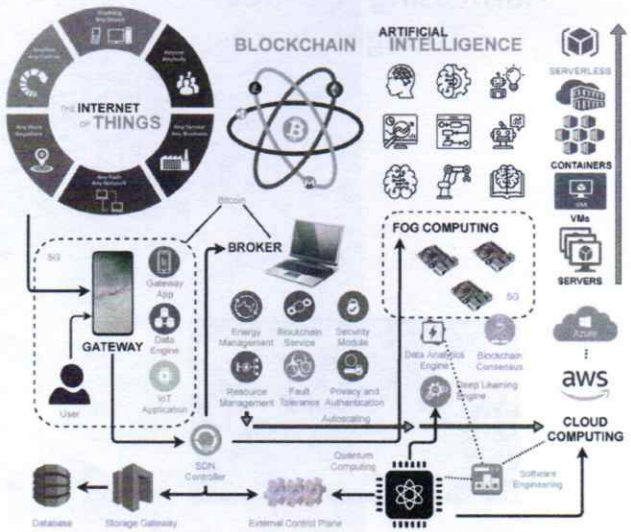
7

ABCDEF……Z

- AI, ANI, AGI, ASI……."API"
- Blockchain
- Cloud Computing, Cyber Security, Crypto Currencies…
- Big Data, Data Analytics, Digital Payments..
- Ecosystem
- Fintech

- Machine Learning
- Metaverse
- NFTs　Non-Fungible Token
- Web 3.0,

- Zero Trust



8

Web3 ~ Smart contract

Web1: www 只看

Web2: 可看/互动，但被控制 e.g. FB/IG

Web3: 数据自己控制 e.g. Blockchain / DeFi

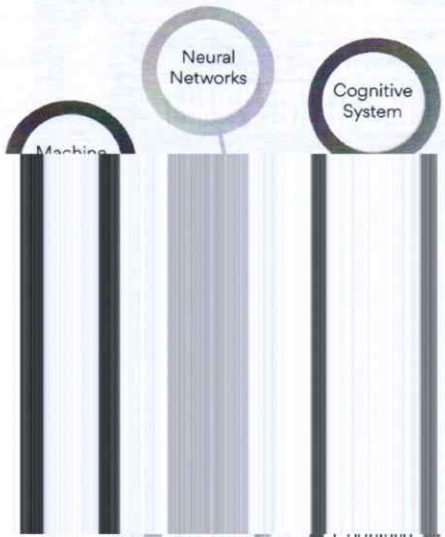
NFT ≅ ETH ~ B: Blockchain

AI Outlook and Landscape

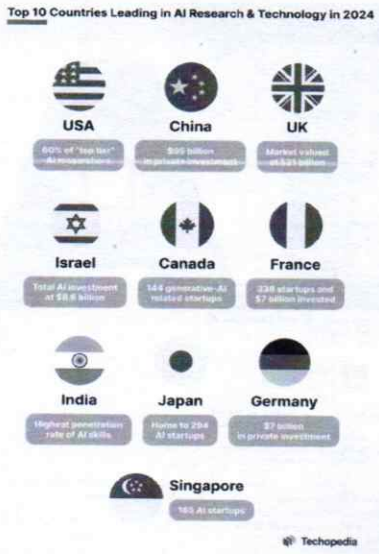


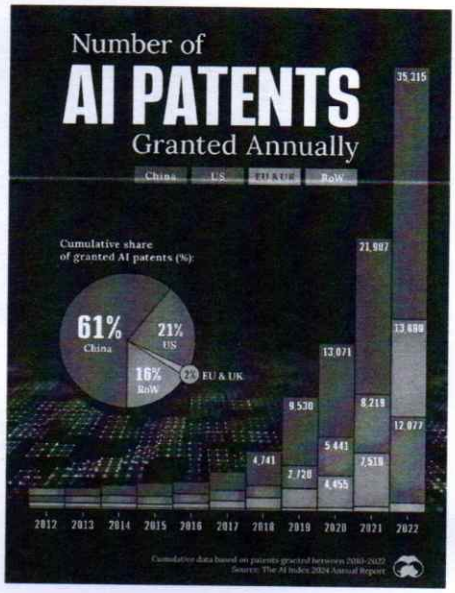
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AI Outlook and Landscape



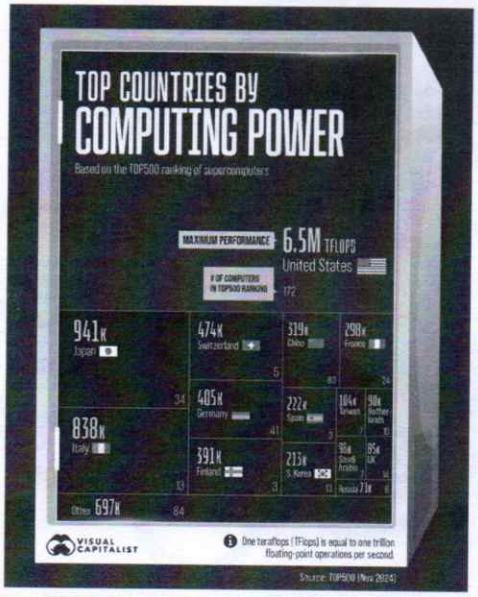
得AI者得天下。得算力者，得天下





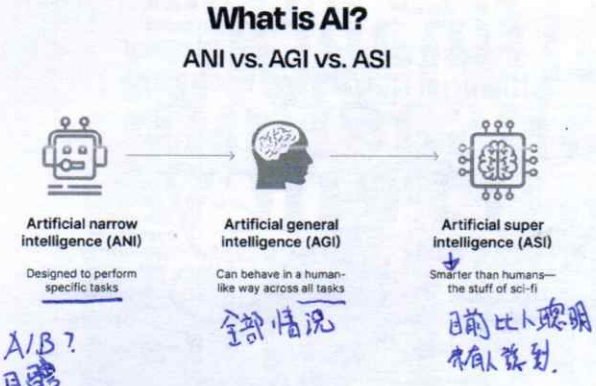
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12

Artificial Intelligence



Eg.: AIB? 具體

全部情況

目前比人聰明 沒有人談到.



13

Artificial Intelligence

- **ANI (Artificial Narrow Intelligence): ANI** refers to AI systems that are designed and trained for a specific task or a narrow range of tasks. These systems excel at performing specific tasks but lack the ability to generalize their knowledge to other domains. Examples of ANI include voice assistants like Siri or Alexa, recommendation systems, and image recognition algorithms.
- **AGI (Artificial General Intelligence): AGI** is a hypothetical AI system that possesses the ability to understand, learn, and apply its intelligence across a wide range of tasks similar to human intelligence. Unlike ANI, which is specialized in one area, AGI would be capable of performing any intellectual task that a human being can do. AGI remains largely theoretical and has not been achieved yet.
- **ASI (Artificial Superintelligence): ASI** goes beyond AGI and refers to a hypothetical AI system that surpasses human intelligence in every aspect, including creativity, problem-solving, and social skills. ASI would possess cognitive abilities far beyond that of any human and could potentially lead to significant advancements or pose existential risks to humanity. ASI is often depicted in science fiction but remains speculative in reality.

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P ×0.8 ×0.9 = 324

450
324
150
474

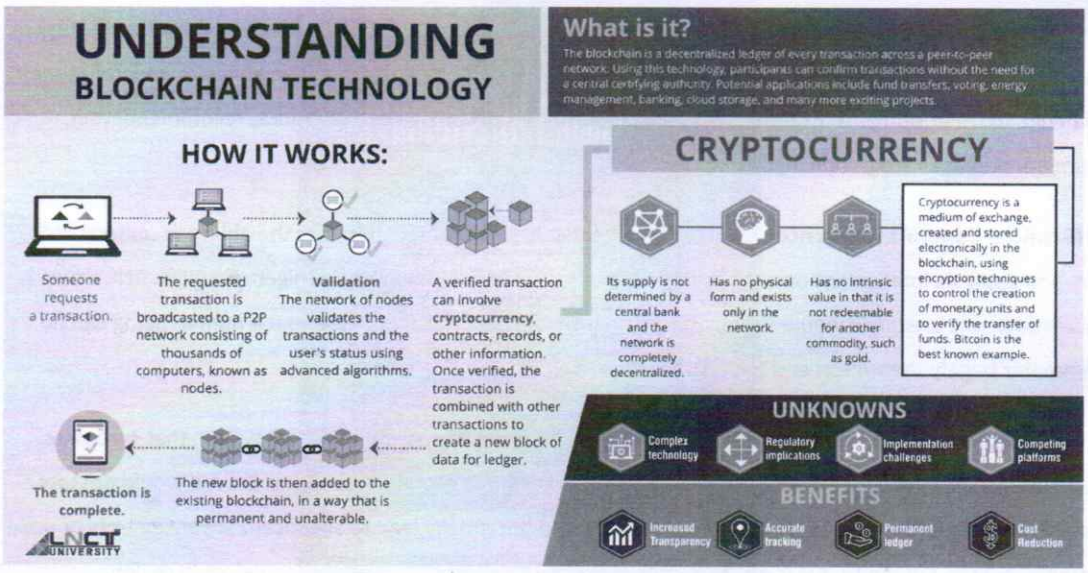
TMP 20 → $153,252

Blockchain



15

Blockchain



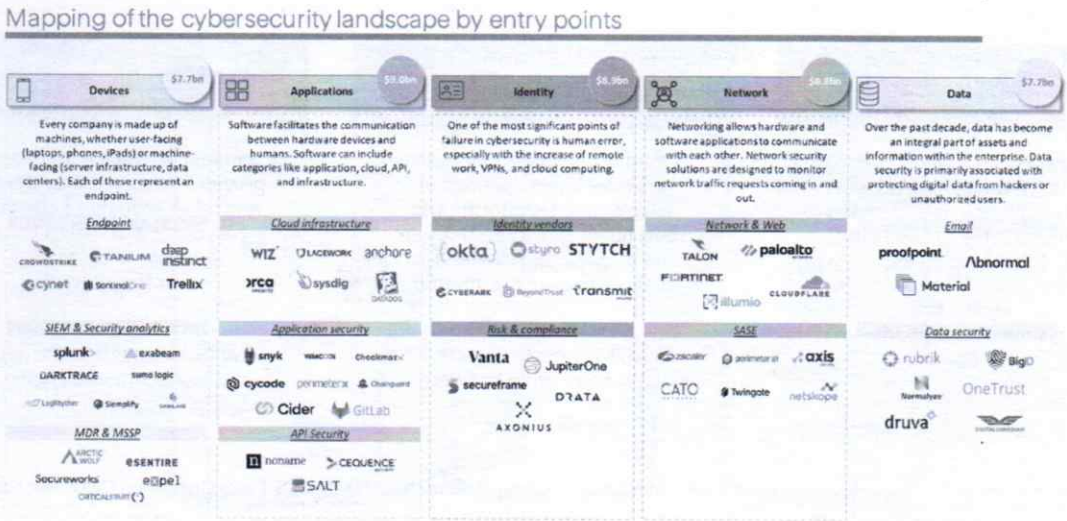
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Blockchain in Financial Services Landscape



17

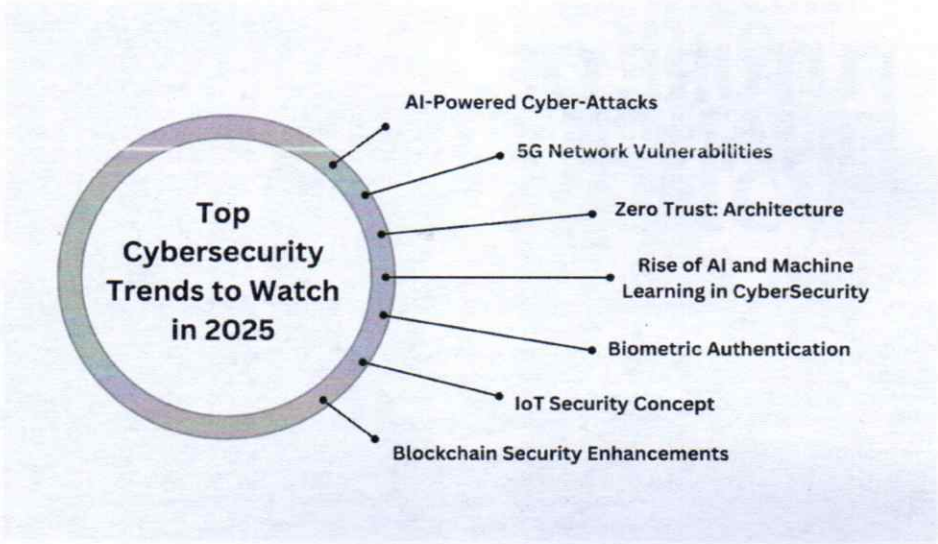
Cyber Security Landscape



Source: Contrary research, Pitchbook

18

Cyber Security



19

Cloud Computing

SaaS
Software as a service

A software distribution model in which a third-party provider hosts applications and makes them available to customers over the internet.

EXAMPLES:
Salesforce, NetSuite and Concur

PaaS
Platform as a service

A model in which a third-party provider hosts application development platforms and tools on its own infrastructure and makes them available to customers over the internet.

EXAMPLES:
AWS Elastic Beanstalk, Google App Engine and Heroku

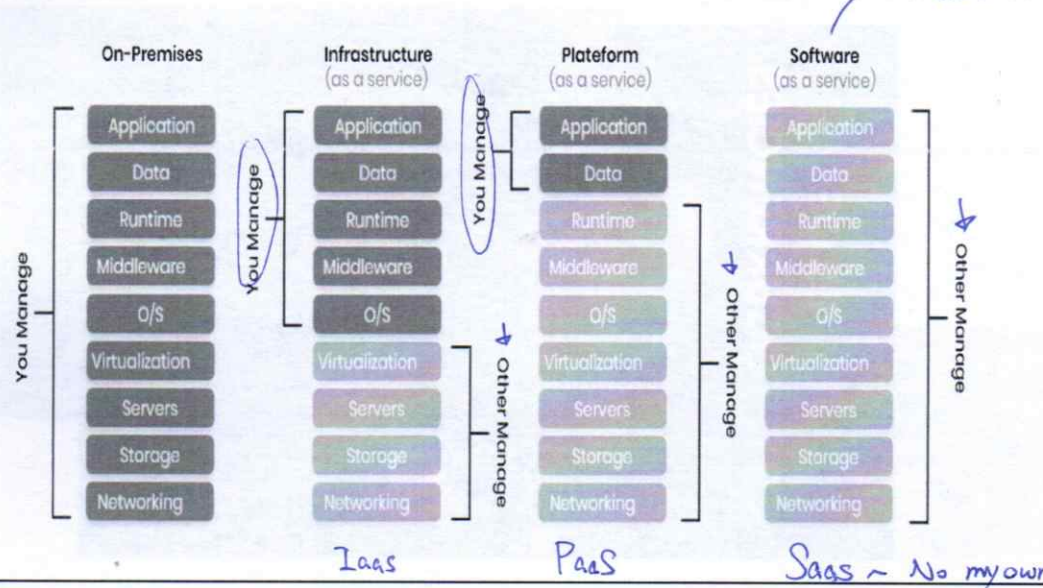
IaaS
Infrastructure as a service

A model in which a third-party provider hosts servers, storage and other virtualized compute resources and makes them available to customers over the internet.

EXAMPLES:
AWS, Microsoft Azure and Google Compute Engine

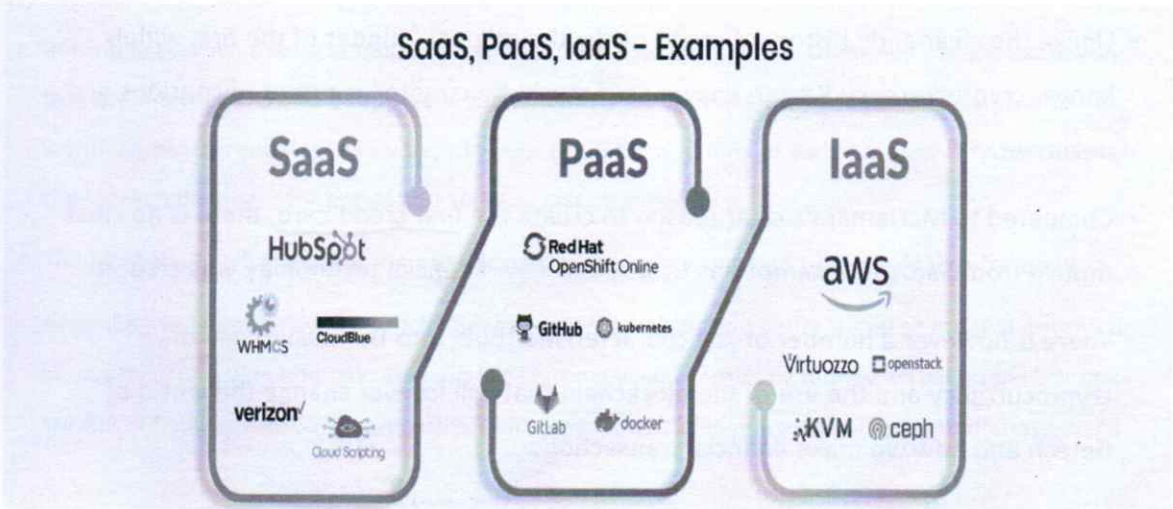
https://www.techtarget.com/whatis/SaaS-IaaS-PaaS-Comparing-Cloud-Service-Models

Cloud Computing



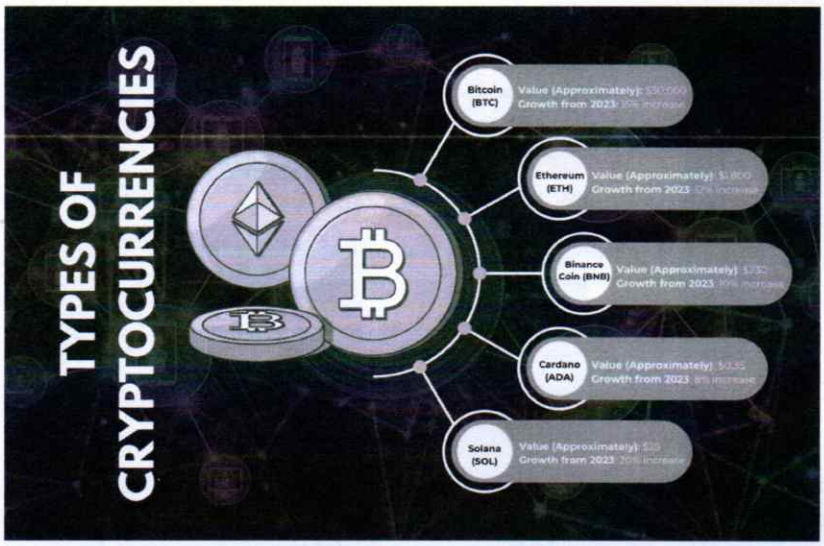
21

Cloud Computing



22

Crypto Currency



23

Crypto Currency

- Unlike the clear early history of credit cards, the original founder of the first widely known cryptocurrency Bitcoin known as "Satoshi Nakamoto" is rather mysterious and unknown.
- Compared to McNamara's clear reason to create the first credit card, there is no clear motive from Satoshi Nakamoto as to why this new financial technology was created.
- There is however a number of key characteristics built into the technology of cryptocurrency and the use of the blockchain that will forever change the world of fintech and how we make financial transactions.

24

Money features:
1. Storage of value.
2. Unit of account.
3. Exchange

Crypto Currency





25

Crypto Currency

- In simplest terms, the technology of crypto currency is the "internet of money". In the same way that the internet allowed people to instantaneously communicate with other people around the world, cryptocurrency will allow peer to peer (P2P) transactions of digital money "crypto" through the blockchain ledger for goods and services instantaneously.
- The blockchain will eliminate the need for an intermediary third-party to verify that transaction.
- According to Fintech Finance article, Seamless cross-border payments is one of the real potentials of cryptocurrency technology. The current systems used for moving money across global borders are full of friction, and some processes utilize many multiples of banks and intermediaries.

26

Cryptocurrency market in 2025, highlighting several key points:



27

Cryptocurrency market in 2025, highlighting several key points:

1. **Bitcoin (BTC)**: Analysts expect Bitcoin to potentially face a correction in January 2025 but remain bullish overall. Predictions suggest BTC could reach up to $178,0001.
2. **Ethereum (ETH)**: Ethereum is projected to reach new all-time highs, driven by its expanding ecosystem and adoption.
3. **Tokenization of Real-World Assets (RWA)**: Blockchain technology is expected to play a pivotal role in tokenizing assets like stocks, bonds, and real estate, enhancing their tradability.
4. **Stablecoins**: Stablecoins are anticipated to continue growing, with innovations in programmable stablecoins and their integration into global payment systems.

28

Cryptocurrency market in 2025, highlighting several key points:

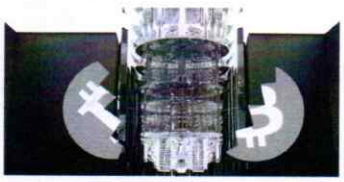
Regulatory Changes: Shifts in regulatory landscapes in the U.S. and Europe could impact the crypto industry, aiming to enhance transparency and compliance.

DeFi Expansion: Decentralized finance (DeFi) is expected to see further growth, with increased adoption and new applications.

Institutional Interest: Institutional players like BlackRock and Fidelity are likely to continue increasing their investments in cryptocurrencies, driving broader market adoption.

29

Are Quantum Computers A Threat To Cryptocurrency?



- With the rise of quantum computers, one of the biggest concerns in the **blockchain** is their alleged ability to break cryptographic encryption algorithms, allowing them to rip apart the security that blockchains were designed to provide.
- Much of the internet is built on cryptographic algorithms that even the world's fastest supercomputers cannot break (fast), but a sufficiently powerful quantum computer could crack all of it in moments.
- Because quantum computers could one day crack the cryptography that provides protection to crypto wallets, they are viewed as a looming existential threat.

30

Are Quantum Computers A Threat To Cryptocurrency?

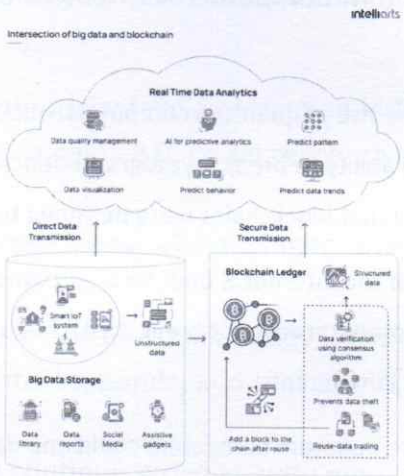


It's uncertain exactly how quantum computing affects cryptocurrency, but quantum computing threats to cryptocurrency shouldn't be underestimated. Right now, quantum computing is still in development, and estimates for when it'll be available vary between 2030 and 2050. So, the technology isn't quite ready yet. This buys crypto the time it needs to adapt to remain secure. Of course, the industry isn't sleeping on this with increased investment in the development of quantum-resistant technology and quantum computing in crypto research. It shouldn't be forgotten that this is a threat to all cybersecurity, even banks and governments that rely on traditional encryption methods.

31

Big Data

Big Data Technology refers to advanced systems, platforms, and techniques designed to process, analyze, and manage enormous datasets that traditional systems cannot handle. It addresses the challenges posed by the "three Vs" of **Big Data, volume, velocity, and variety, by enabling scalable and efficient solutions.**

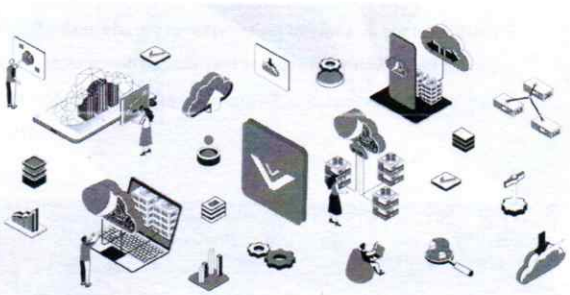


32

Technology Ecosystem

Offering the right product and service to **the right customers in the right market and at the right time** is half part of being in business. The other half is having the right partners, technologies, and strategies to help you reach the market and deliver your products and services.

The most successful **technology ecosystems help you bridge the gap between customers, partners, products, technologies, and markets to help you deal with your responsibilities and innovate at a much higher rate.**



33

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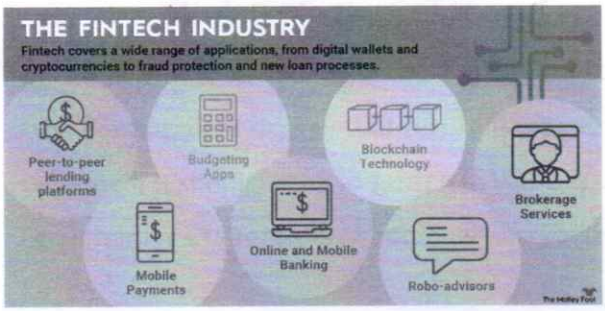
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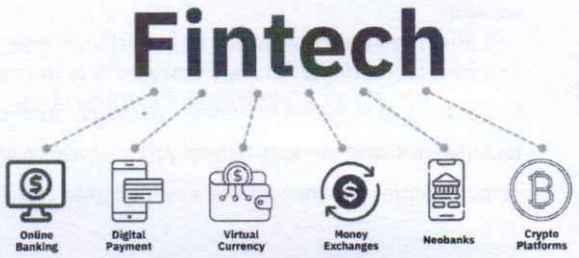
What is FinTech?

https://www.youtube.com/watch?v=ja1w2nbJPNA

FinTech ("financial technology") is usually any system, software, or technology that enables individuals or organizations to digitally access, manage, or get financial information or conduct financial transactions.

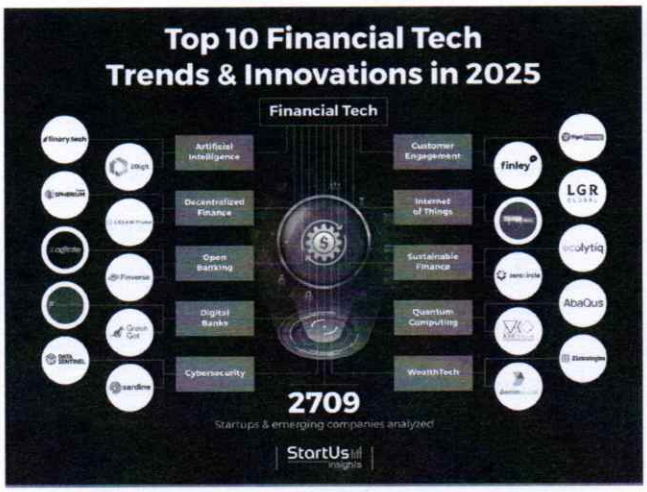
FinTech emerged as a way to assist customers in addressing financial difficulties and moving closer to their financial goals throughout the course of the previous ten years as they utilized digital technologies at an increasing rate. As a result, customers now depend on fintech for a variety of purposes, including financing, investing, and budgeting, in addition to its obvious daily advantages.





35

Fintech and Landscape 2025





36

Examples in Fintech

Modern financial services range from the simple to the complex, including:

- Online and mobile banking platforms
- Person-to-person (P2P) payment apps
- Peer-to-peer and other tech-focused personal lending platforms
- Mobile payments
- Contactless payments, allowing consumers to pay in store without swiping or inserting their payment cards
- Robo-advisors, digital financial advisors that use algorithms and artificial intelligence (AI) with little to no human intervention
- Budgeting apps
- Blockchain technology and cryptocurrencies
- Brokerage services, including stock trading apps
- Software that automates previously laborious and tedious tasks

37

Fintech - Open Banking and API Integration

Open Banking and API Integration

Open banking, a concept that gained significant traction in recent years, continues to evolve and disrupt traditional banking practices.

In 2024, we can expect open banking initiatives to become more widespread, enabling customers to securely share their financial data with authorized third-party providers.

This data sharing fosters the development of innovative financial products and services, such as personalized budgeting apps, investment platforms, and loan marketplaces.

Additionally, Application Programming Interface (API) integration will play a crucial role in facilitating seamless data flow between different financial service providers, creating a more interconnected and efficient financial ecosystem.

38

Fintech - Open Banking and API Integration

What is an API?

between system

Generally, an API, Application Programming Interface, allows communication between two devices. In FinTech terms, APIs allow developers to communicate with a service provider like a bank. However, it is more challenging than it seems. First, the service provider will publish a list of API specifications to which the bank must adhere.

people call it Open API, as any third-party developer can access it under some specific conditions. Open APIs have specifications available to the public, but the stakeholders might limit the available data as per the agreement.

When a company opens an API, other third-party stakeholders can consume the API to provide those services over the Internet.



39

Open Banking

Hong Kong as an example:

Phase	Open API functions	Examples	Delivery time
I	Product information	Deposit rates, credit card offerings, service charges and other public information	By the end of January 2019
II	Customer acquisition	New applications for credit cards, loans and other products	By the end of October 2019
III	Account information	Account balance, credit card outstanding balance, transaction records, credit limit change and others	The initial batch of API functions, covering deposit account information and online merchant payments, are implemented progressively starting from December 2021
IV	Transactions	Payment and transfers	

https://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech/open-application-programming-interface-api-for-the-banking-sector/phase-approach

40

Fintech - Digital Payments and Cryptocurrencies

The adoption of digital payments and cryptocurrencies is expected to witness further growth in 2024. Mobile payment solutions, such as mobile wallets and payment apps, will continue to gain popularity, offering convenient and secure alternatives to traditional payment methods.

≠ stable coin

Moreover, cryptocurrencies and Central Bank Digital Currencies (CBDCs) will continue to gain mainstream acceptance, driven by advancements in blockchain technology, increased institutional adoption, and regulatory clarity. These digital currencies are likely to reshape cross-border transactions, remittances, and the overall concept of money.



41

Fintech - Sustainable Finance and Impact Investing

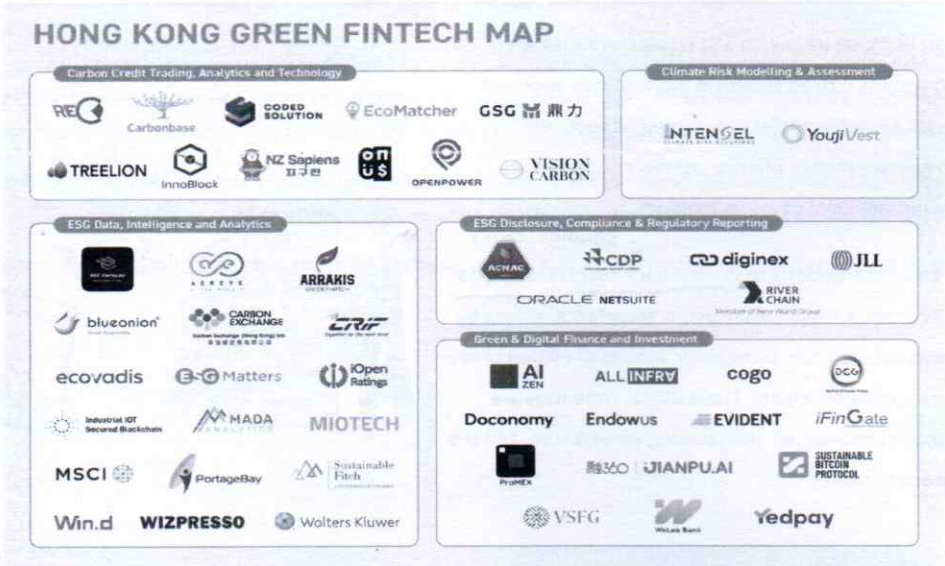
In response to growing concerns about climate change and social responsibility, sustainable finance and impact investing are set to become integral parts of the fintech landscape in 2024.

Fintech platforms will facilitate investments in environmentally sustainable projects, renewable energy initiatives, and companies with a strong commitment to ESG (Environmental, Social, and Governance) principles.

The integration of fintech and sustainable finance aims to align financial goals with positive societal and environmental outcomes, empowering individuals and institutions to make a tangible impact through their financial decisions.

42

Fintech - Sustainable Finance and Impact Investing



43

A Vision for the Future of Open Finance

TradFi, DeFi, CeFi



Feature	DeFi	CeFi	TradFi
Authority	Decentralized	Centralized	Centralized
Transparency	High (blockchain-based)	Moderate (depends on entity)	Low to moderate
Regulation	Minimal	Moderate to high	High
Control	User-controlled	Institution-controlled	Institution-controlled
Trust	Trustless (smart contracts)	Requires trust in institution	Established trust in institutions
Accessibility	Global (internet-based)	Varies by jurisdiction	Varies by jurisdiction
Examples	Uniswap, Aave, Compound	Coinbase, REDFi	JPMorgan Chase, NYSE

44

A Vision for the Future of Open Finance

TradFi, DeFi, CeFi

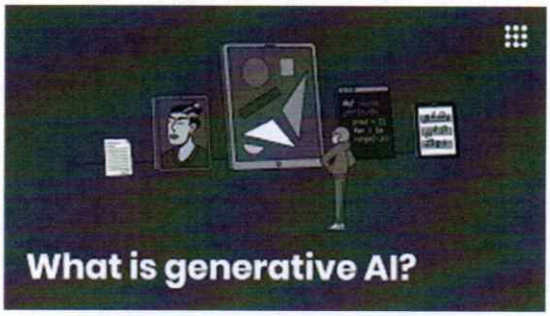
Finance has long been dominated by traditional systems characterized by centralized institutions such as banks, stock exchanges, and insurance companies. However, the advent of blockchain technology has introduced Decentralized Finance (DeFi), which operates without central authorities and offers transparency and accessibility through peer-to-peer networks. In parallel, Centralized Finance (CeFi) represents a bridge between TradFi and DeFi, maintaining central control while incorporating some aspects of blockchain technology.

45

New trends in digital banking: 2025 and beyond

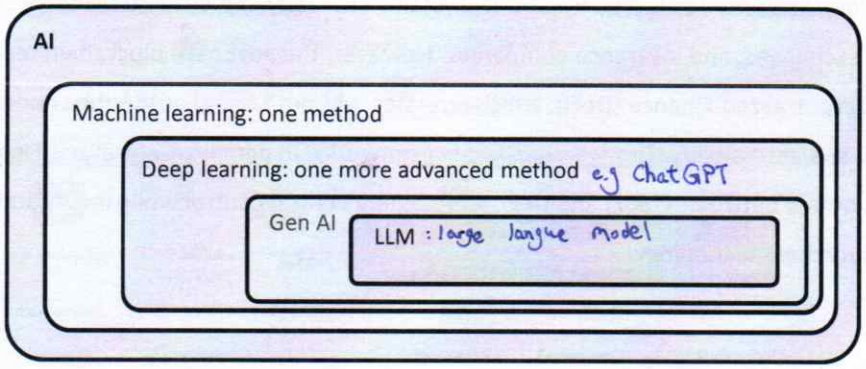
Generative AI

Generative AI's capacity to analyze extensive datasets, detect intricate patterns, and deliver valuable insights can revolutionize decision-making processes. In 2024, its applications in digital banking are wide-ranging and impactful, encompassing algorithmic trading, credit risk assessment, and the development of customer service chatbots.



46

Generative AI



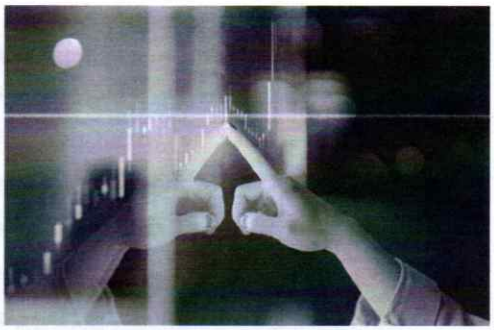
47

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48

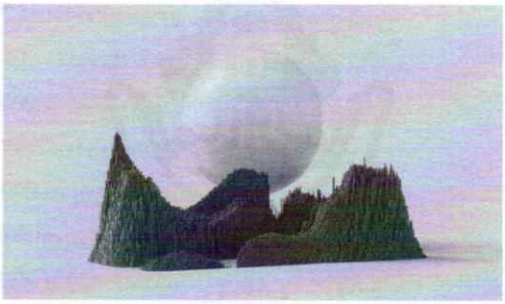
10. WealthTech



The wealthtech sector is poised for significant growth in 2025 as artificial intelligence and personalisation reshape wealth management. Enhanced AI-driven portfolio management and automated tax optimisation will become all the more prominent, while embedded finance solutions will integrate wealth services into everyday apps. Companies like Betterment, with its sophisticated robo-advisory platform, and Addepar, known for its comprehensive wealth data analytics, are leading this transformation. The sector's expansion is fuelled by growing demand from millennials and Gen Z investors seeking digital-first wealth management solutions, alongside increasing adoption of open banking standards.

49

9. Sustainable and Green Fintech

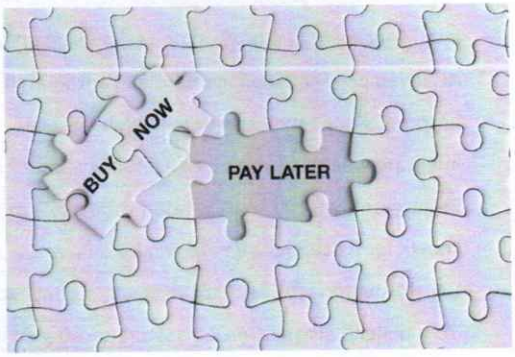


Green fintech is set to revolutionise sustainable finance in 2025, with carbon footprint tracking becoming seamlessly integrated into banking apps and payment systems. Advanced ESG analytics and blockchain-based carbon credit trading platforms will enable more precise measurement of environmental impact. Aspiration, with its climate-conscious banking services, and Clarity AI, leveraging AI for ESG intelligence, are pioneering this transformation. The sector's growth is driven by increasing regulatory pressure and rising consumer demand for transparent, environmentally responsible financial services that align with global sustainability goals.

50

8. Buy Now, Pay Later (BNPL)

Buy Now Pay Later (BNPL) is expected to grow in 2025, with enhanced credit assessment models and increased regulatory oversight reshaping the sector. Open banking integration will enable more accurate affordability checks, while AI-powered risk assessment will help reduce default rates. Industry leader Klarna continues innovating with its shopping super-app approach, while Block (formerly Square) strengthens its position through Afterpay integration. The sector's maturation will be marked by consolidation and a stronger focus on responsible lending practices amid growing scrutiny from financial regulators.



51

7. Regulatory Technology (Regtech)



Regtech

Regtech adoption is set to increase in 2025 as financial institutions seek more efficient ways to manage regulatory burdens. AI and machine learning will improve accuracy in regulatory reporting and risk monitoring, though implementation challenges remain. Natural language processing will help firms process regulatory changes more quickly, while blockchain solutions offer better KYC and transaction tracking capabilities. ComplyAdvantage continues to refine its financial crime detection platform, while Chainalysis strengthens its position in cryptocurrency compliance. Growth is primarily driven by mounting regulatory pressures and the need to reduce compliance costs amid tighter margins.

/AML Anti-Money 反洗黑钱 launder

52

6. Embedded Finance

Non-finance platform 提供 finance product.
E.g. Tesla website provide car insurance product



Embedded finance will gain further momentum in 2025 as non-financial brands integrate banking, payments and lending into their customer journeys. API-first infrastructure providers will make implementation faster and more cost-effective, enabling everything from in-app insurance to contextual lending. Banking-as-a-Service provider Stripe Treasury continues to expand its embedded finance offerings, while Plaid strengthens its position through enhanced data connectivity solutions. The sector's growth reflects shifting consumer expectations for seamless financial services within their preferred digital experiences.

53

5. Central Bank Digital Currencies (CBDCs)



Central Bank Digital Currencies (CBDCs) will continue their progression in 2025 amid ongoing pilot programmes and trials. The Digital Yuan expands its domestic reach in China, while the European Central Bank advances its digital euro project through controlled testing phases. Payment technology provider G+D (Giesecke+Devrient) strengthens its position in CBDC infrastructure development, while R3's Corda platform supports various central bank trials. Progress remains measured as central banks navigate concerns around financial stability, privacy and the impact on traditional banking systems.

54

4. Cybersecurity and Biometrics

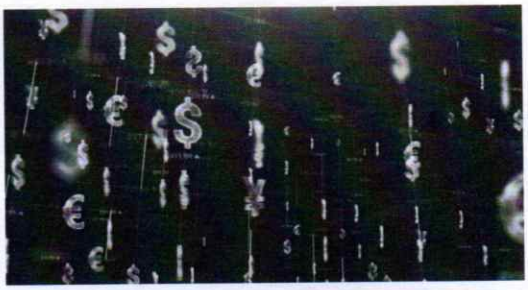
Cybersecurity and biometric authentication will become increasingly critical in 2025 as financial institutions combat sophisticated cyber threats and fraud. Multi-modal biometrics, combining facial recognition with behavioral patterns, will strengthen secure access, while AI-powered threat detection systems identify emerging attack vectors. OneSpan continues to advance its mobile security and authentication solutions, while BioCatch strengthens its position in behavioral biometrics. The sector's urgency is driven by rising cyber threats, regulatory requirements for stronger authentication, and consumer demand for frictionless yet secure banking experiences.



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3. Decentralised Finance (DeFi) and Open Banking

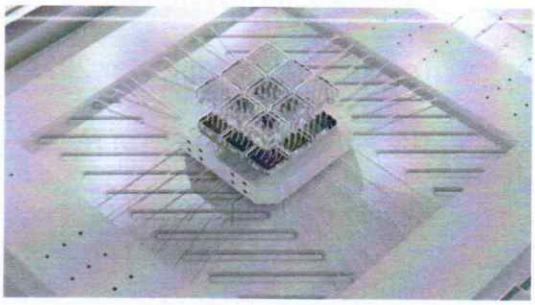
DeFi and Open Banking will navigate a complex landscape in 2025 as traditional finance and decentralised systems find more common ground. Hybrid solutions combining DeFi's programmability with open banking's regulatory compliance will emerge, particularly in lending and asset tokenisation. Aave Protocol continues to bridge traditional and decentralised finance through its institutional offerings, while TrueLayer expands its open banking infrastructure across markets. Growth is tempered by ongoing regulatory scrutiny and the need to balance innovation with consumer protection and stability.



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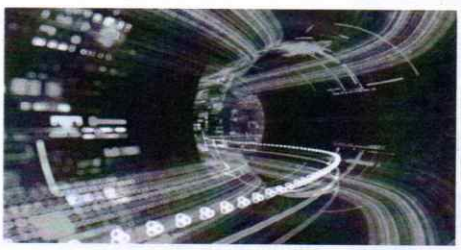
2. Robotic Process Automation (RPA)

Robotic Process Automation (RPA) in financial services will expand beyond basic task automation in 2025, with AI-enhanced bots handling more complex decision-making processes in claims processing and credit assessments. Intelligent document processing will improve accuracy in data extraction and validation from unstructured financial documents. UiPath maintains its position through advanced cognitive automation capabilities, while Blue Prism strengthens its offering in cloud-native intelligent automation. Growth is driven by pressure to reduce operational costs and improve processing speeds amid increasing transaction volumes.



57

1. Artificial Intelligence (AI) and Machine Learning (ML)



AI and Machine Learning will become more deeply embedded in financial services by 2025, with generative AI enhancing customer service interactions and predictive analytics improving risk assessment and fraud detection. Large language models will assist in regulatory compliance and investment research, while computer vision advances documentation processing. H2O.ai continues to provide sophisticated ML solutions for financial institutions, while DataRobot strengthens its automated machine learning platform for risk modeling. Growth is tempered by the need for responsible AI deployment and regulatory alignment with emerging AI governance frameworks.

58

Outline

- Basics of Fintech
- Examples in Fintech Area
- Top 10 Fintech Topics for 2025
- The Future of FinTech in Hong Kong
- AI in Fintech
- Insurtech

59

The Future of FinTech in Hong Kong



Global Rankings: In 2024, Hong Kong was ranked as the world's freest economy and placed third globally in the Global Financial Centres Index (GFCI). Additionally, it rose to seventh in the World Digital Competitiveness Ranking and ninth in the Frontier Technologies Readiness Index, reflecting its strong technological and innovative capabilities

60

About Hong Kong's FinTech landscape:

Market Position and Rankings:

- Ranked 3rd globally in the Global Financial Centres Index
- Ranked 7th globally in World Digital Competitiveness
- The Hong Kong Stock Exchange ranked 6th globally for IPO fundraising

FinTech Ecosystem:

- Home to approximately 1,100 fintech companies
- Over 10 unicorn companies in the FinTech sector
- Top 3 fintech sub-sectors:
  1. Digital assets, cryptocurrency and blockchain
  2. WealthTech
  3. Payment and remittance



61

About Hong Kong's FinTech landscape:

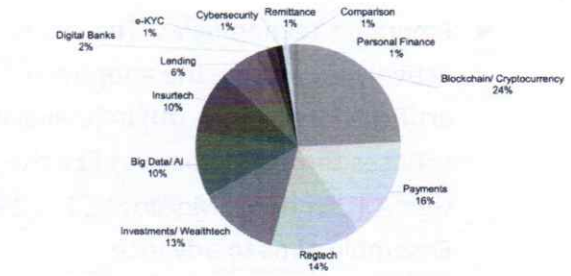
Recent Developments:

- Launched GenA.I. Sandbox in August 2024
- Introduced Project Ensemble Sandbox for tokenization
- Established new stablecoin regulatory framework
- Has 3 SFC-licensed Virtual Asset Trading Platforms with 15 more applications being processed

Funding and Investment:

- Government allocated HK$50 million for Web3 ecosystem development
- Over 2,700 single-family offices operating in Hong Kong
- Private equity capital under management exceeded US$233.9 billion
- Features 75 government grants for enterprises as of October 2024

Investment and IPOs: The Hong Kong Stock Exchange remains a top global IPO market, particularly for tech companies. In 2024, it facilitated investments exceeding US$2.4 billion for fintech firms. The city is also noted for its supportive regulatory environment that encourages capital inflow and startup growth



62

About Hong Kong's FinTech landscape:

Regulatory Environment:

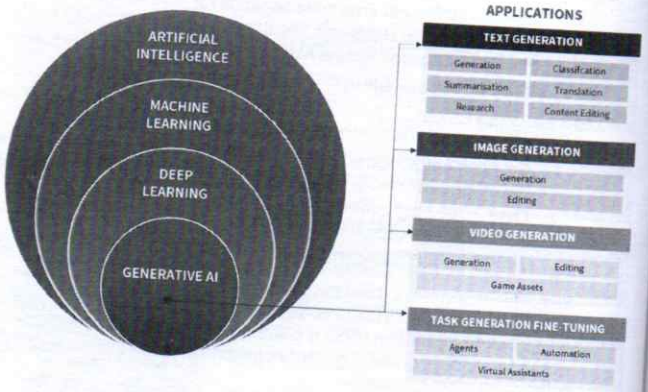
- Implemented new licensing regime for virtual asset trading platforms
- Introduced policy framework for AI in financial markets
- Operates sandboxes for banking, insurance, and securities sectors
- Launched Fintech Connect cross-sectoral sourcing platform

Government Support: The Hong Kong government has implemented various funding initiatives and support schemes for startups. This includes grants for enterprises, a Corporate Venture Fund, and a new policy statement on developing virtual assets to enhance the fintech landscape

63

Other HK Fintech Factsheet 2024

- Emerging Technologies: The city is actively promoting the adoption of artificial intelligence (AI) in financial services through initiatives like the Gen A.I. Sandbox. Moreover, Project Ensemble aims to advance tokenization in finance, indicating a focus on integrating innovative technologies within the sector.



64

Other HK Fintech Factsheet 2024

- Cross-Border Collaboration: Hong Kong is enhancing its role as a gateway for fintech companies in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). This includes initiatives to facilitate cross-boundary data flow and regulatory cooperation among financial authorities in the region.



65

Other HK Fintech Factsheet 2024

- Support for SMEs: Recent measures have been introduced to support small and medium-sized enterprises (SMEs) in accessing financing, including extended loan guarantees and principal moratorium options to alleviate economic pressures



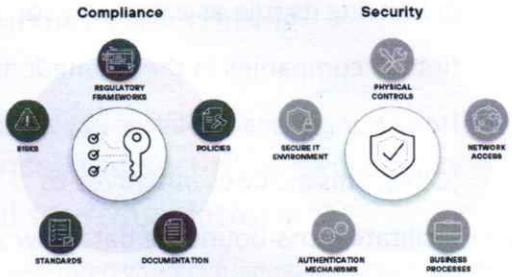
66

Challenges and Future Outlook FinTech in Hong Kong

Although the fintech industry is thriving at a rapid pace in Hong Kong, it has to deal with a few challenges such as **cyber security**, **data privacy** and **regulatory compliance**. It might become difficult for fintech startups to be compliant with the regulatory framework when they scale their business.

They have to invest sums of money in security and data privacy as it is their responsibility to protect the personal data of the customers from data breaches. However, if we talk about the future outlook of the fintech industry in Hong Kong then it has a bright future.

The fintech industry in Hong Kong is thriving very fast in Hong Kong and is expected to grow even faster in the coming years. Emerging technologies and talented individuals could become the main reasons for innovation and development in the fintech industry in the future.



67

Challenges and Future Outlook FinTech in Hong Kong

Hong Kong's thriving fintech industry is offering a multitude of opportunities to small and medium sized businesses.

The primary factors that have contributed to the growth of the fintech industry in Hong Kong include the global financial reputation, support from the government, innovation and technology, skilled workforce, education system, financial inclusion and accessibility and collaborations and partnerships.

All these factors have helped the fintech industry to grow rapidly in Hong Kong and have set a strong foundation for the future of the fintech landscape in Hong Kong.



https://www.hkma.gov.hk/eng/key-functions/international-financial-centre/fintech/

68

The Future of FinTech in Hong Kong

- WealthTech and InsurTech - data analytics, automation and AI. As a major investment management and insurance centre, Hong Kong is already heavily involved in the application of technology in related areas, particularly computerised trading and investment management.
- RegTech. Hong Kong's regulators, already respected, can further show their leadership by carving out an appropriate regulatory regime for FinTech, and by developing the application of technology to regulatory compliance.



69

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70

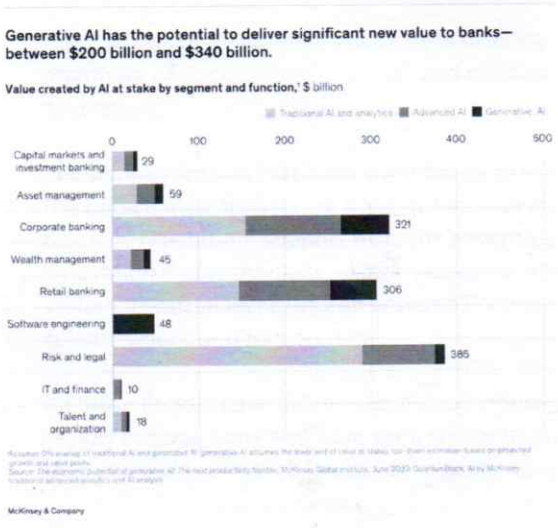
Emerging Technologies that will Revolutionize the Future World of Fintech

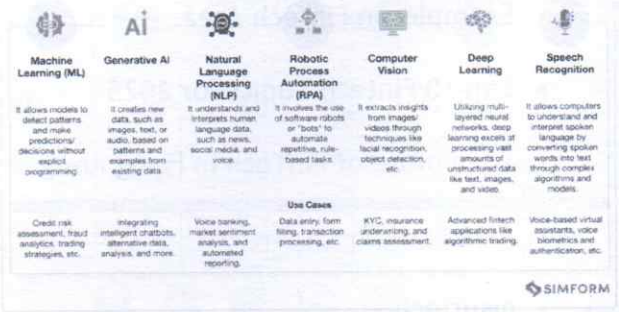
- When it comes to the world of fintech and emerging financial technologies, there is a progression that often comes in waves. The first wave is created by innovators and spotted by early adopters who see opportunities in technology to solve current problems and make life more convenient and efficient.
- The second wave is the early majority adopters who establish that technology as a solid and legitimate use in society.
- The Third wave is followed by a late majority and laggards who aren't as receptive to change and innovation of new technology.



71

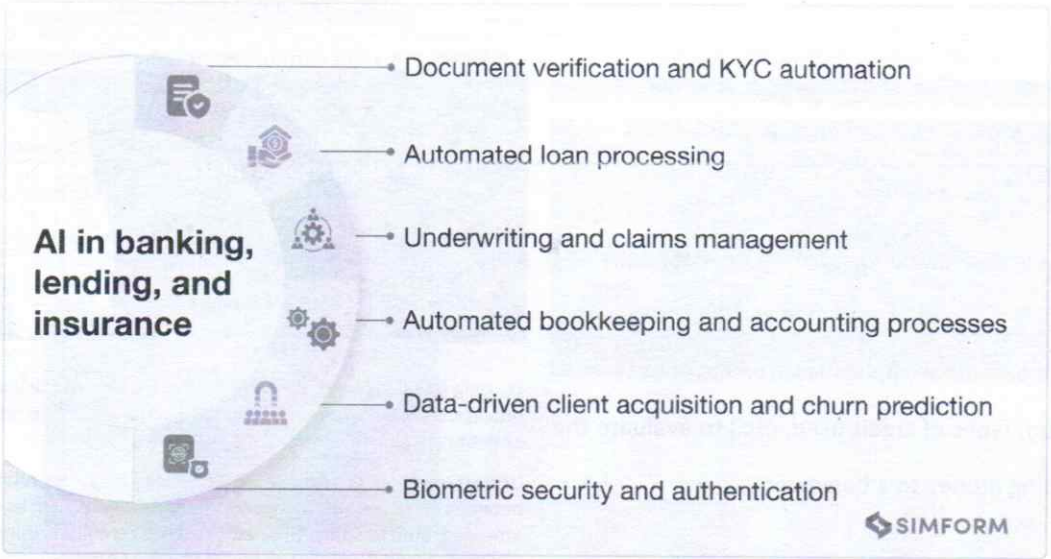
AI in Fintech: Top Use Cases and Applications with Examples





72

Banking, lending, and insurance: Automating operations with AI

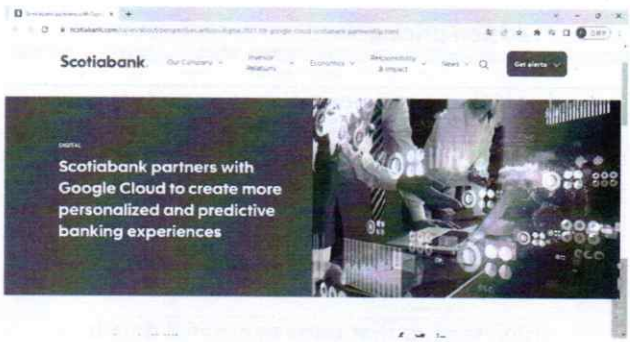


73

Banking, lending, and insurance: Automating operations with AI

By completing KYC in minutes rather than days, AI technologies significantly reduce costs, minimize errors, and improve customer satisfaction.

For example, Scotiabank, one of Canada's Big Five banks, uses Google AI solutions such as NLP, Voice, and Vision capabilities to automate document processes and customer onboarding– thus improving customer interactions.



https://www.scotiabank.com/corporate/en/home/media-centre/media-centre/news-release.html?id=3753&language=en

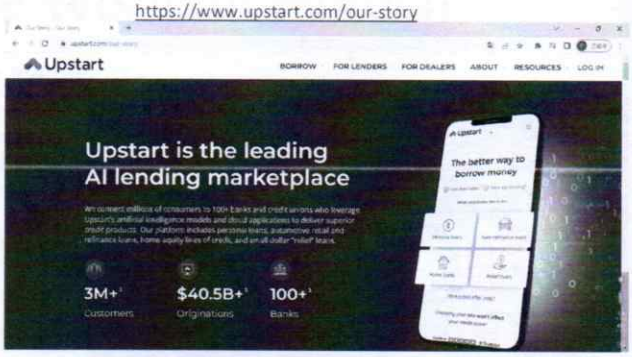
74

Banking, lending, and insurance: Automating operations with AI

AI can fully automate loan processing, eliminating administrative overhead and enabling faster disbursements.

Credit scoring and loan underwriting: ML models, trained on amounts of historical loan data, analyze the credit score and other application details (debt-to-income ratio, types of credit used, etc.) to evaluate the risk of lending money to a borrower.

https://www.upstart.com/our-story



Lending startups like Upstart use AI at every step of the lending process. It allows applying for a fast personal loan, auto refinancing, or debt consolidation– all online.

Upstart uses sophisticated ML algorithms to tease out relationships between variables, including unconventional ones such as colleges attended, area of study, GPA, etc., to assess creditworthiness. This improves credit access for all and at the right price.

Banking, lending, and insurance: Automating operations with AI

Precision pricing

For higher customer satisfaction and retention, you can offer tailored pricing instead of broad demographic-based pricing. AI aids this with:

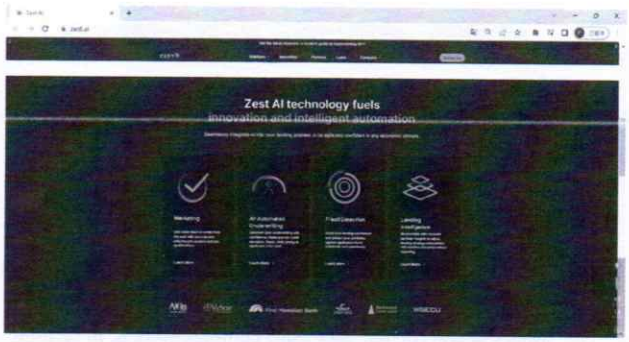
Another example is CAPE Analytics, a computer vision startup that turns geospatial data into actionable insights to optimize the underwriting process for home insurers.



https://blogs.nvidia.com/blog/cape-analytics-computer-vision/

Banking, lending, and insurance: Automating operations with AI

ZestFinance is another fintech startup using AI to process alternative data to assess so-called "thin file borrowers"– who have little or no credit history. It provides companies with tools to build tailored underwriting models that can spot good borrowers overlooked by national credit scores.





77

Banking, lending, and insurance: Automating operations with AI

For instance, American Express runs deep learning-based models as part of its fraud prevention strategy. Their fraud algorithms monitor every transaction around the world in real time (more than $1.2 trillion spent annually) and generate fraud decisions in milliseconds.

Financial fraud can result in billions of dollars in losses annually for financial services companies. However, traditional methods cannot keep pace with rapidly evolving fraud tactics. AI offers a more sophisticated and proactive approach



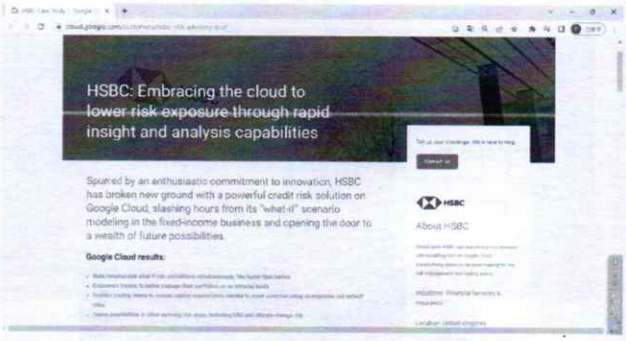
https://blogs.nvidia.com/blog/american-express-nvidia-ai/

78

Banking, lending, and insurance: Automating operations with AI

HSBC developed an innovative tool for its traders and risk management teams. The AI-powered tool can run multiple what-ifs on market scenarios that could impact the trading book so they can take mitigating actions if the numbers are outside their risk appetite. It gives results in minutes!

Financial markets are largely driven by news, events, market sentiments, and multiple economic factors. By analyzing vast historical and current data using complex models, AI systems predict future risks more accurately than conventional methods.



https://cloud.google.com/customers/hsbc-risk-advisory-tool

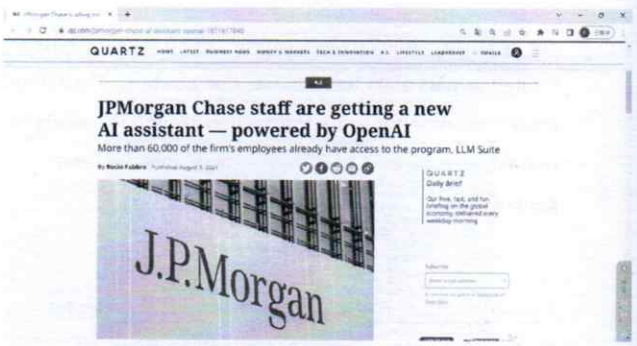
79

Banking, lending, and insurance: Automating operations with AI

JPMorgan Chase rolled out an AI-powered virtual assistant to easily enable its corporate clients to move money around the world, whether for routine payroll or multi-million-dollar mergers and acquisitions.

Generative AI in fintech is becoming increasingly popular with assistant chatbots, particularly in banking. Some noteworthy examples include Bank of America's virtual assistant Erica, Capital One's chatbot named Eno, Wells Fargo's bot Fargo, and Zurich Insurance's Zara.

AI-powered chatbots allow customers to self-serve hassle-free for common queries and transactions, reducing wait times. Meanwhile, human agents can focus on more complex issues requiring empathy.



https://qz.com/jpmorgan-chase-ai-assistant-openai-1851617640

80

Banking, lending, and insurance: Automating operations with AI

Beyond rigid automation, AI's adaptive capabilities enable hyper-personalized, contextualized advice that maximizes financial outcomes while minimizing risks and opportunity costs.

Robo advisors 代替實際 advisors AID AI人的 Data

Robo-advisors, like Betterment, are automated investment platforms that use AI algorithms to manage your money. They analyze data and adapt investment strategies to fit your financial goals, which you provide.



81

Quantum Computing + AI
The Ultimate Tech Power Duo

Combining Quantum Computing and AI

When these two technologies are combined, they can unlock new frontiers:

- **Enhanced Data Processing**: Quantum computing can significantly speed up AI algorithms, allowing for faster data analysis and decision-making.
- **Improved Machine Learning Models**: Quantum-enhanced AI can handle more complex models and larger datasets, leading to more accurate predictions and insights.
- **Advanced Simulations**: Quantum computing can simulate complex systems more efficiently, aiding AI in fields like material science, cryptography, and logistics1.



The synergy between quantum computing and AI is expected to drive innovation across various industries, from healthcare to finance, by solving problems that were previously intractable.

82

Outline

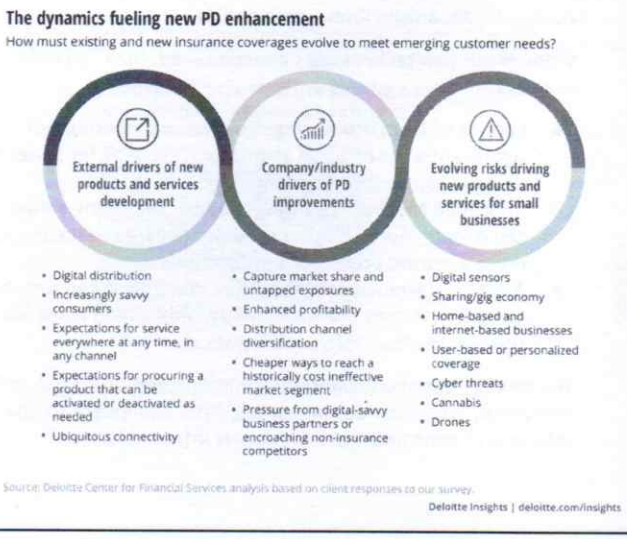
- Basics of Fintech
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- AI in Fintech
- Insurtech Insurance Technology

83

The future of insurance: Key priorities for 2025

The insurance industry is undergoing a rapid transformation driven by changing demographics, evolving customer expectations, and advancements in digital technology and analytics.

Insurers are now tasked with elevating their operational and technological capabilities, innovating product solutions, and expanding their value propositions. With these growing pressures, IntellectAI looks ahead to what trends may dominate the sector in 2025 and beyond.



84

The future of insurance: Key priorities for 2025

Leading insurers stand out by achieving loss ratios six percentage points better than their competitors and by investing significantly in underwriting operations—nearly twice as much as those in the bottom quartile.

Advances in technology, including AI, machine learning, and generative AI, are enabling insurers to reimagine end-to-end processes. By utilising diverse data sources and innovative decision-making frameworks, top-performing insurers are improving efficiency and scalability.

Exhibit 2 - Transforming the Claims Journey Through Generative AI



Source: BCG analysis and experience.
Note: FNOL = first notice of loss.

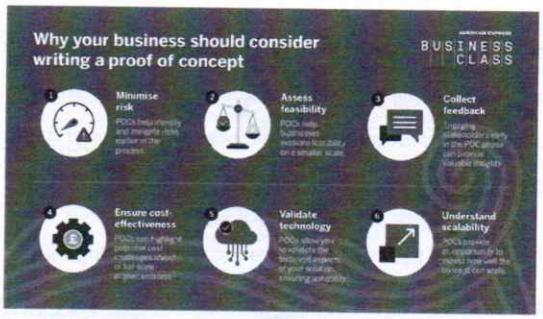
85

Insurtech - The generative AI shift

Insurers have experimented with AI tools for years, but the rise of publicly accessible generative AI has ushered in a transformative moment.

According to a Deloitte survey in June 2024, 76% of U.S. insurance executives reported integrating generative AI into at least one business function.

While many are still in the proof-of-concept stage, applications in claims processing, customer service, and commercial underwriting are gaining traction.

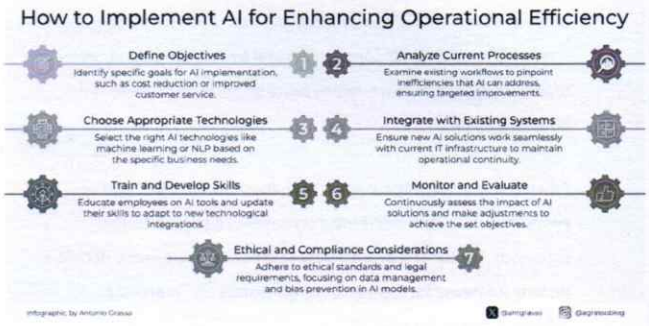


86

Insurtech - leveraging AI for operational efficiency and improving customer and employee experiences

Generative AI is being used to automate underwriting, enhance submission workflows, and streamline market intelligence, creating scalable solutions for insurers.

However, fewer than 5% of insurers are expected to realise direct, tangible gains from AI in the near term. Most will focus on leveraging AI for operational efficiency and improving customer and employee experiences, with longer-term gains likely to unfold gradually.

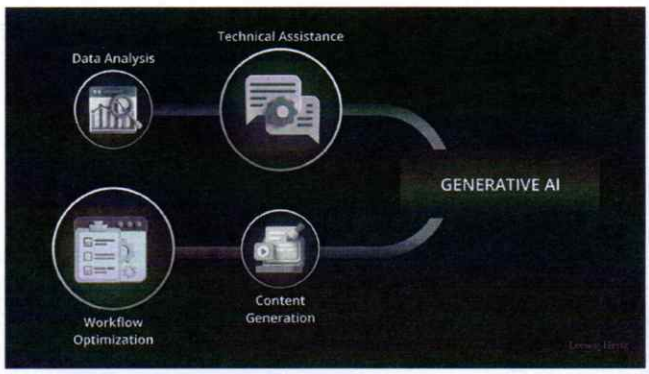


87

Laying the foundation for AI success

For insurers to capitalise on AI's potential, it is vital to establish a strong operational foundation. This involves creating scalable, automated end-to-end operating models and building robust data ecosystems to support AI at scale.

Many insurers have spent the past decade prioritising data foundations for analytics and digital capabilities. **The focus now is on leveraging these digital investments for differentiation through innovative products, partnerships, and engagement models.**



88

Laying the foundation for AI success

Success with AI also requires a cultural shift. Insurers must adopt agile processes, promote experimentation, and reward data-driven decision-making.



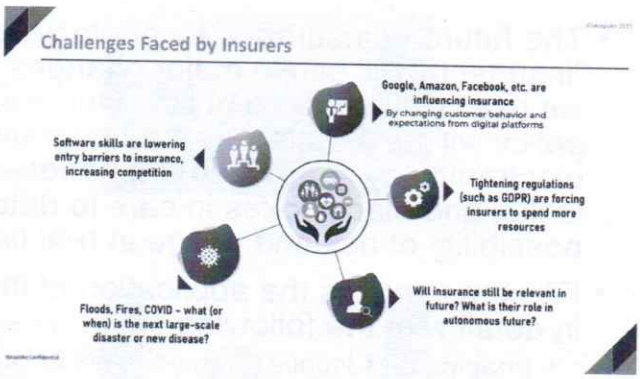
The goal is not to replace human expertise but to capture and replicate it, particularly in underwriting and claims management. Clear, standardised procedures and streamlined processes are essential to maximising the benefits of generative AI.

89

Insurtech - The future

To remain leading players in the insurance industry, insurers must focus on distinct capabilities, targeted strategies, and modernised operations. **Investing in underwriting innovation, streamlining business processes, and aligning AI capabilities with organisational goals will help insurers capture profitable growth and separate from competitors.**

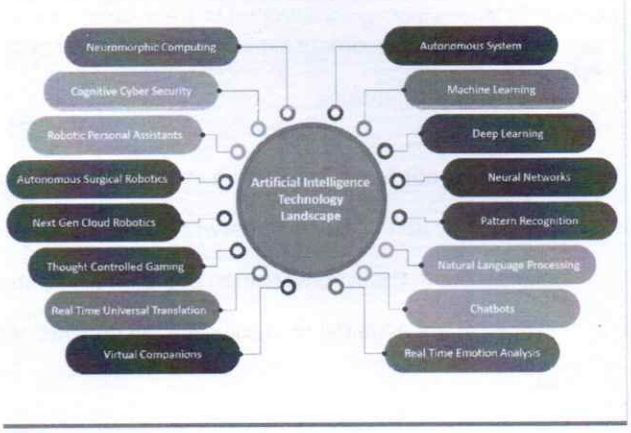
While the promise of AI is undeniable, success requires patience, persistence, and a commitment to building a strong foundation.



90

Insurtech - The future

By 2025, insurers must prioritise proven AI solutions, strengthen their data infrastructure, and implement strategies to integrate AI meaningfully across their operations.



91

Insurtech - Insurance Policy

- The future of insurance technology or "insurtech" will cause major changes in how we use our insurance policy. Our insurance policy will be affected by the integration of electronic devices like smartphones, smart locks, and black boxes in cars to detect the possibility of risk and usage in real time.
- FT.com explains the application of insurtech in detail with the following story:
  - Imagine that mobile phone signals or other sensors detect that a person is about to walk down a road where several people have recently fallen on ice.



92

Insurtech - Policy Claim

- The insurer will react by either sending a message warning the person to walk more carefully or else automatically increase the premium and cover while the policyholder is walking down that road. In the shorter term, more precision is likely to mean that insurance will be broken down into easier to digest chunks.
- The days of the annual policy may be numbered. This possibility of insurtech being used to analyze the physical environment with real-time data will save consumers from overpaying for an annual policy, or something that they don't need, and places more personal responsibility on the consumer to make good decisions.



93

UBI : Usage Based Insurance
~ a device can measure usage

Insurtech - Car insurance

- Insurtech can also be used to reduce the cost of car insurance based on how many miles or hours the car is driven per month. As a result of the black box, your car's insurance could be partially turned off if parked and not in use.

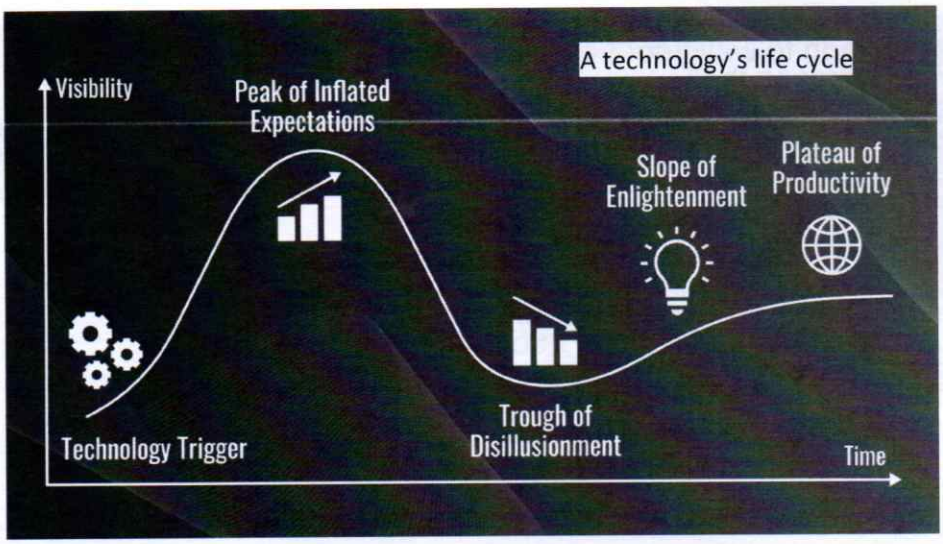


- Insurtech integrated into your vehicles devices and data sent to the insurance company consumers could save money based on the actual usage of the vehicle rather than having a costlier blanket policy based on estimates.



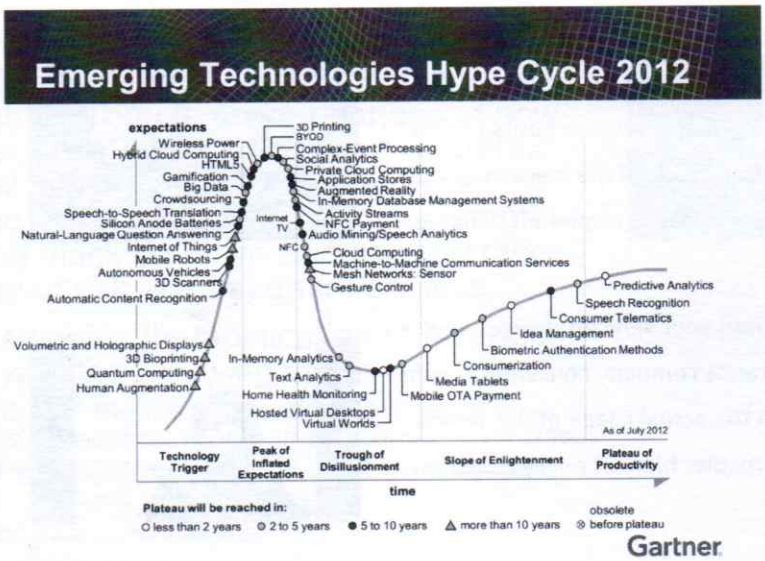
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It will be a year to focus on practical applications for new technologies to get through the "hype cycle."



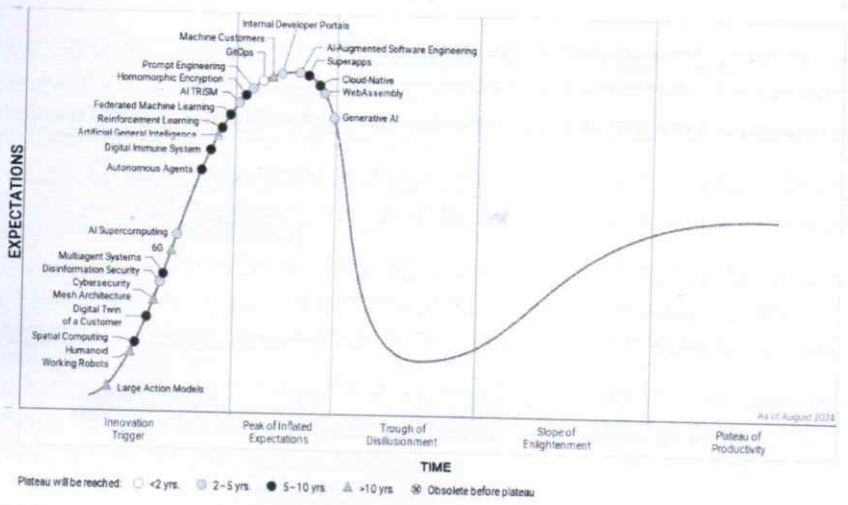
95

Hype Cycle for Emerging Technologies, 2012 (Gartner)



96

Hype Cycle for Emerging Technologies, 2024 (Gartner)



97

Appendix :

How do Hype Cycles work?

Each Hype Cycle drills down into the five key phases of a technology's life cycle.

- **Innovation Trigger:** A potential technology breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven.
- **Peak of Inflated Expectations:** Early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action; many do not.
- **Trough of Disillusionment:** Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the surviving providers improve their products to the satisfaction of early adopters.
- **Slope of Enlightenment:** More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious.
- **Plateau of Productivity:** Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology's broad market applicability and relevance are clearly paying off.

98

Appendix :

Hype Cycles help you:

- Separate hype from the real drivers of a technology's commercial promise
- Reduce the risk of your technology investment decisions
- Compare your understanding of a technology's business value with the objectivity of experienced IT analysts

99

Reference

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https://www.ftassociation.org/how-fintech-supports-small-business/
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https://www.startus-insights.com/innovators-guide/fintech-innovation-map-reveals-emerging-technologies/
https://www.linkedin.com/pulse/ani-vs-agi-asi-shikhar-pandey-qwcif/
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104