

FROM BIG DATA TO ARTIFICIAL INTELLIGENCE: THE COURSE AHEAD

AI Implications for the banking / financial sector

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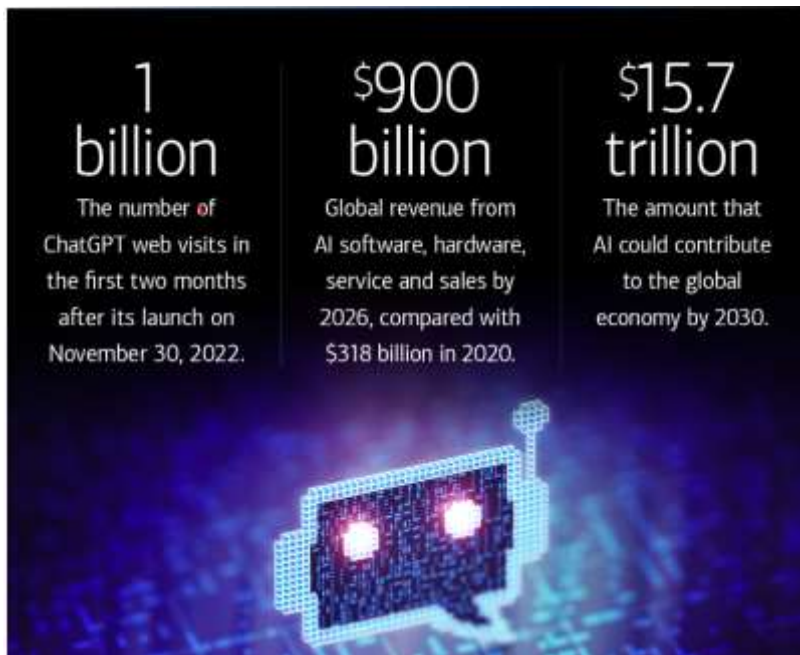
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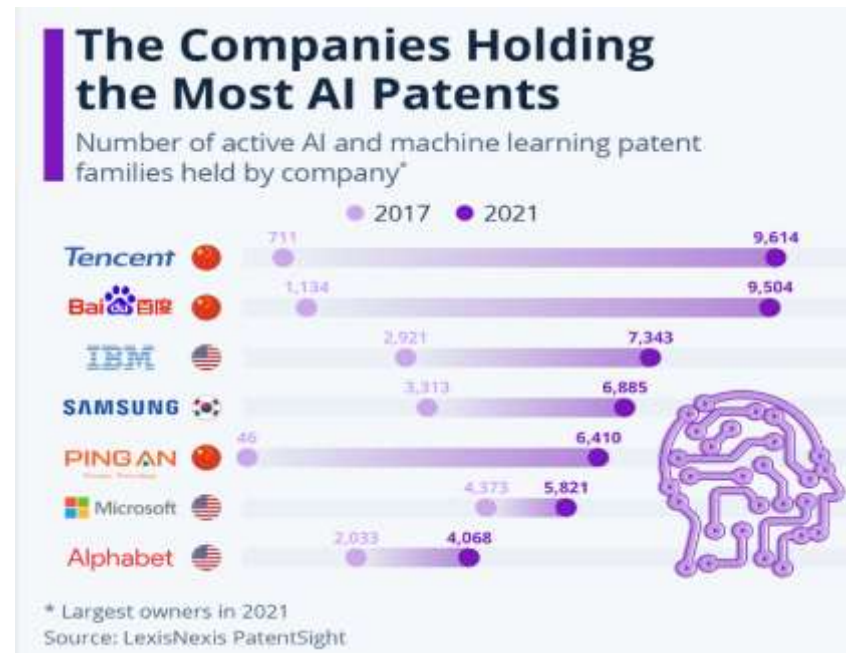


AI - A real game changer

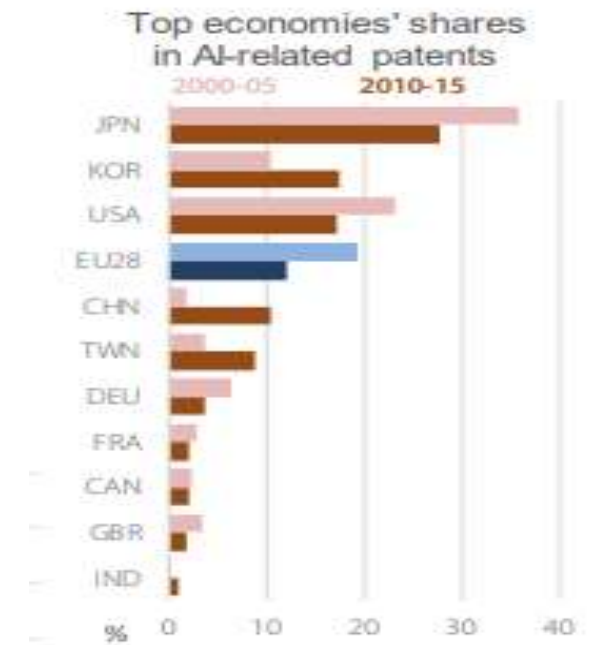
- Technology improvements result in higher productivity – generative AI can create content, develop software, marketing and sales, customer service.... across industries and will benefit consumers as well as companies
- Internationally, China and the United States are granted the highest numbers of Artificial Intelligence patents, with China's AI patents primarily granted in machine learning. Approximately 190,000 Artificial Intelligence patents were granted worldwide between 2000 and 2022 (29 Feb 2024)



Sources, from left to right: BofA Global Research, "Chris Hyzy, Chief Investment Officer, Merrill and Bank of America and AI—Artificial Intelligence Primer," February 28, 2023; BofA Global Research, IDC; and PwC.



Source: Statista



Source: EP Briefing, July 2019

Use of AI in enterprises



NAVIGATION ▾

ONLINE PUBLICATIONS ▾

Use of artificial intelligence in enterprises

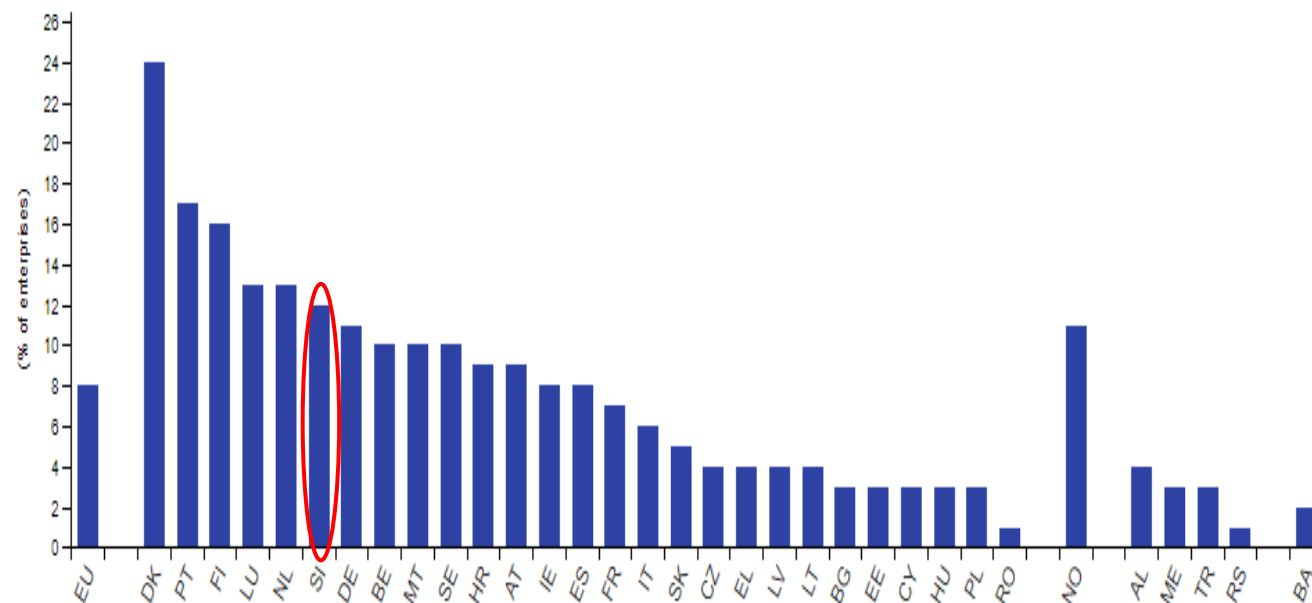
In 2021, 8 % of EU enterprises used artificial intelligence technologies.

In 2021, 28 % of large EU enterprises used artificial intelligence technologies.

In 2021, AI was used the most by enterprises in the information and communication sector.

In 2021, 53 % of EU enterprises that used AI purchased ready-to-use commercial artificial intelligence software or systems.

Enterprises using AI technologies, 2021



Note: North Macedonia: data confidential

Source: Eurostat (online data code: isoc_eb_ai)

AI implications for the banking business

- Artificial Intelligence (AI) is revolutionizing the banking sector in various ways, enhancing:
 - Efficiency
 - Security
 - Customer experience
- Three stages:
 - Automation (algorithmic trading, document processing, authentication...)
 - Prediction (scoring, fraud, customer analytics...)
 - Generation (super personalized products...)
- Overall, the integration of AI technologies into banking operations has the potential to further transform the industry by improving efficiency, reducing costs, mitigating risks, and delivering superior customer experiences

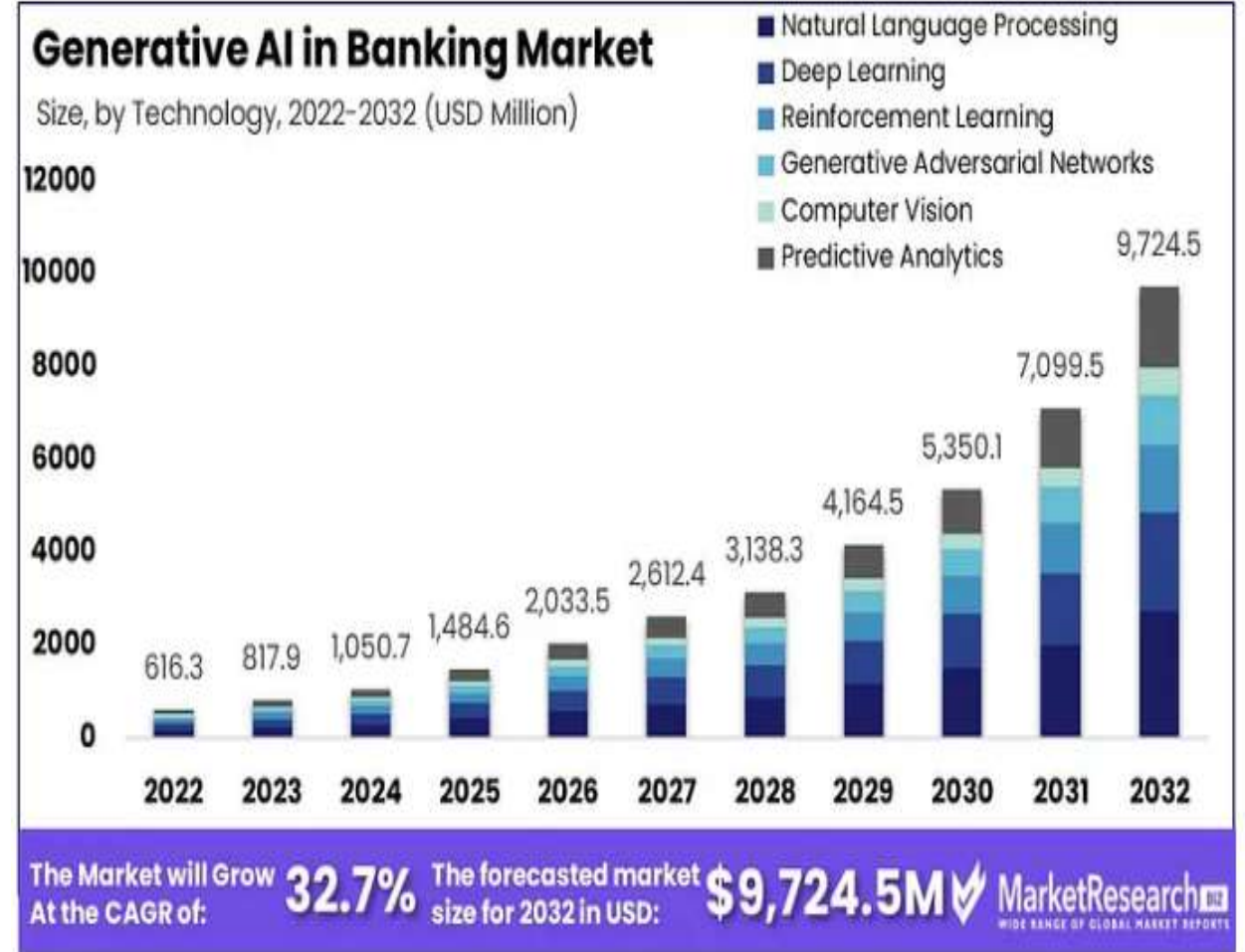
Use and implications of AI on the banking

Highlights: The Most Important Statistics

- According to Autonomous Next, AI could potentially result in \$1 trillion of cost savings for the banking industry by 2030.
- According to a report by Insider Intelligence, 75% of bank respondents with over \$100 billion in assets are using AI technologies.
- According to a report by Accenture, 83% of banks that have implemented AI said that it is creating new jobs.
- According to Statista, North America is the largest region for AI in banking at approximately 34% market share.
- McKinsey's research suggests that in a decade, AI will be able to handle 10-25% of work across bank functions.
- A survey by PwC shows that 52% of financial services' and products' executives are making substantial investments in AI.
- According to Capgemini, 45% of banks and insurers reported cost savings when utilizing AI for report generation.

Generative AI in Banking Market

Size, by Technology, 2022-2032 (USD Million)



Source: Medium; Generative AI In Banking Industry Share Size, Growth Rate Analysis, Revenue Estimates, and Forecasts 2023 to 2032, September 2023

Current use and implications of AI for the banking

Some key applications of AI in banking:

- **Fraud Detection and Prevention:** AI algorithms can analyse vast amounts of transaction data in real-time to detect unusual patterns or behaviours that may indicate fraudulent activity. By continuously learning from new data, AI systems can improve their accuracy in identifying fraudulent transactions and help banks prevent financial losses.
- **Customer Service and Support:** AI-powered chatbots and virtual assistants enable banks to provide round-the-clock customer support and assistance. These AI systems can answer frequently asked questions, help with account inquiries, provide personalized product recommendations, and even assist with basic banking transactions, thereby enhancing customer satisfaction and reducing operational costs.
- **Credit Scoring and Risk Assessment:** AI algorithms can analyse a wide range of data points to assess the creditworthiness of loan applicants more accurately. By incorporating non-traditional data sources such as social media activity, online behaviour, and transaction history, AI-based credit scoring models can provide more comprehensive evaluations, leading to better lending decisions and reduced default risks.
- **Personalized Banking Services:** AI enables banks to offer personalized financial advice and product recommendations tailored to individual customer needs and preferences. By analysing customer data, spending patterns, and financial goals, AI algorithms can identify opportunities for cross-selling, upselling, and delivering targeted marketing campaigns, thereby improving customer engagement and loyalty.
- **Risk Management:** AI-powered predictive analytics help banks identify and mitigate various types of risks, including credit risk, market risk, and operational risk. By analysing historical data and identifying correlations and trends, AI models can provide insights into potential risk factors and help banks develop more effective risk management strategies.
- **Automated Compliance and Regulatory Reporting:** AI technologies can streamline compliance processes by automating the monitoring of regulatory requirements and analysing vast amounts of data to ensure adherence to relevant laws and regulations. By automating compliance tasks such as Know Your Customer (KYC) verification and Anti-Money Laundering (AML) checks, banks can improve efficiency, reduce compliance costs, and mitigate regulatory risks.
- **Algorithmic Trading:** AI-powered algorithms enable banks to execute trades autonomously based on predefined strategies and market conditions. By analysing market data in real-time and identifying trading opportunities, AI-driven trading systems can optimize trade execution and enhance investment returns while minimizing risks.

Future implications of AI on banking business

- **Predictive Analytics:** AI-driven predictive analytics will enable banks to anticipate customer needs, market trends, and potential risks more accurately. By analysing historical data and identifying patterns, AI algorithms will provide insights into future market conditions, customer behaviours, and emerging risks, empowering banks to make proactive decisions and seize opportunities.
- **Autonomous Banking:** AI technologies will enable the automation of various banking processes, leading to the emergence of autonomous banking services. From account management and transaction processing to customer service and investment advisory, AI-powered systems will handle routine tasks autonomously, freeing up human resources for more complex activities and strategic decision-making.
- **Voice and Natural Language Interfaces:** AI-driven voice assistants and natural language processing (NLP) technologies will become increasingly prevalent in banking, allowing customers to interact with banking systems using voice commands and natural language queries. Voice-enabled banking services will offer seamless and intuitive user experiences, facilitating faster transactions, account inquiries, and customer support.
- **Ethical and Responsible AI:** As AI becomes more pervasive in banking, there will be a growing emphasis on ethical and responsible AI practices. Banks will need to prioritize transparency, fairness, and accountability in AI-driven decision-making processes, ensuring that AI algorithms do not perpetuate bias or discrimination and align with ethical standards and regulatory guidelines.

Legal issues and consumer protection

- AI systems should be controlled by humans, not algorithms, to prevent harmful outcomes
- Legal issues:
 - Data privacy
 - Discrimination
 - Liability for damages
 - Intellectual property
- EU's new consumer agenda - a vision of EU consumer policy from 2020 to 2025 covers five key priority areas, including digital transformation
- Regulations are drawn up in various areas: accessibility, data protection, understanding...
- Questions:
 - Artificial intelligence as a consumer protection tool?
 - Where is the line between necessary and excessive consumer protection?
- Questions of ethics of great importance



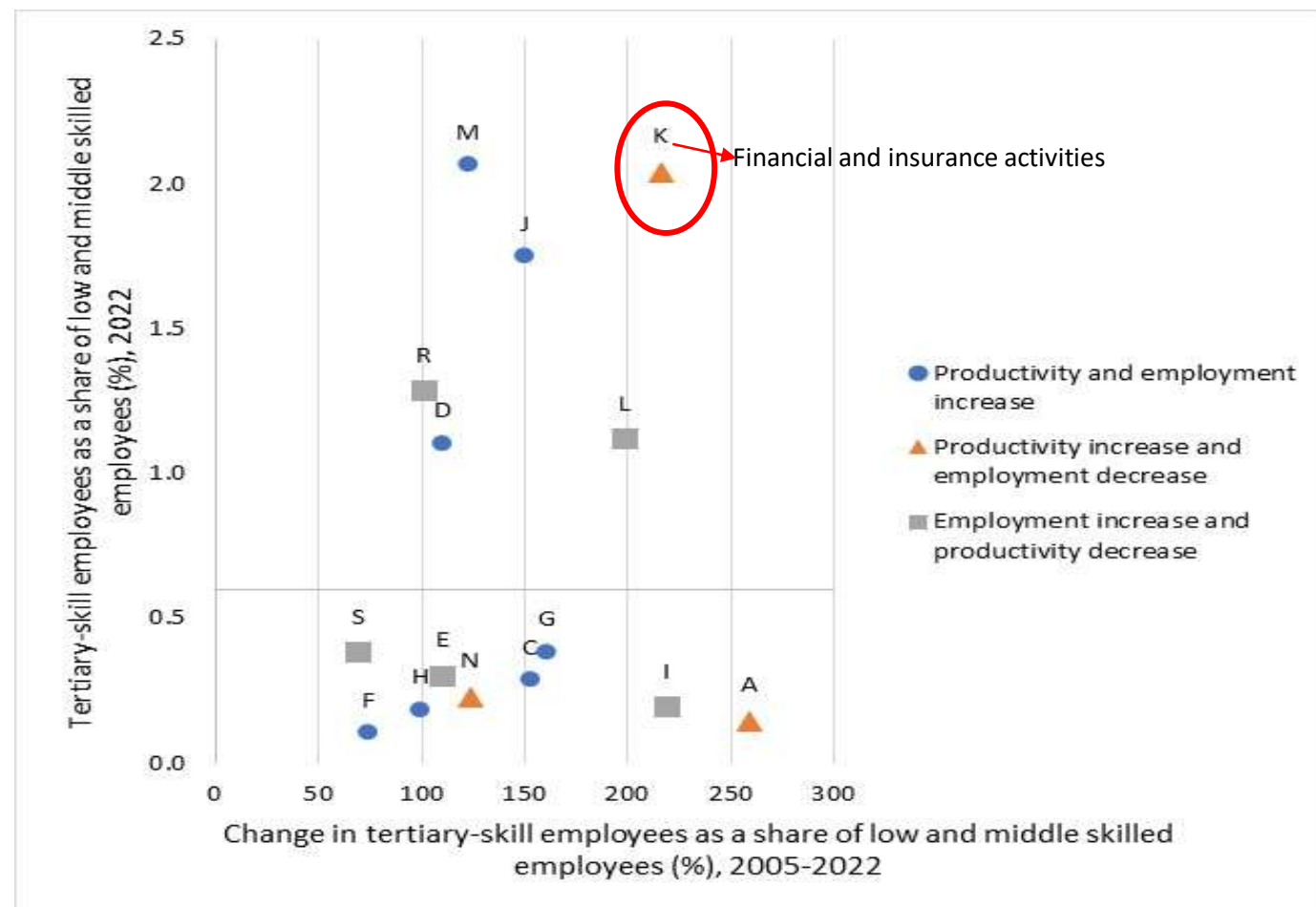
This illustration of artificial intelligence has in fact been generated by AI



Impact of AI on the jobs in Banking

- “AI will affect almost 40 percent of jobs around the world, replacing some and complementing others. We need a careful balance of policies to tap its potential (IMF; January 14,2024)
- Human capital also in digital age remains capital
- In the future, the role and importance will be marked mainly by the following trends:
 - Technological development
 - Globalisation
 - Environmental and social focus and
 - Ageing population
- In the future, both employees and users of financial services will need:
 - Greater efficiency
 - Different knowledge related to technology development
 - Different competencies and skills
 - Mobility
- In banking future shift of human resources towards more complex activities and strategic decision making

The effect of digitalization on productivity and employment - Slovenia



Source: G. Capriolo; The impact of automation and artificial intelligence on the Slovenia's labour market: a look at the recent past and foreseeable future, April 2024

Summary

- Overall, the future implications of AI on the banking business are:
 - Profound
 - Promising greater efficiency
 - Innovation
 - Customer-centricity
- But implications are also raising important ethical and regulatory considerations that must be addressed to realize the full potential of AI in banking