



EMERGE

The use of AI/ML in banking

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Chief AI Officer, Emerge



AI and its relevance – past, present and future

Past

“AI has been part of our imaginations and simmering in research labs since a handful of computer scientists rallied around the term at the Dartmouth Conferences in 1956 and birthed the field of AI...Over the past few years AI has exploded, and especially since 2015. Much of that has to do with the wide availability of GPUs that make parallel processing ever faster, cheaper, and more powerful.”

Nvidia's website



Present

“ChatGPT is incredibly limited, but good enough at some things to create a misleading impression of greatness. It’s a mistake to be relying on it for anything important right now. it’s a preview of progress; we have lots of work to do on robustness and truthfulness.”

Sam Altman, CEO OpenAI. Twitter 12/10/22.



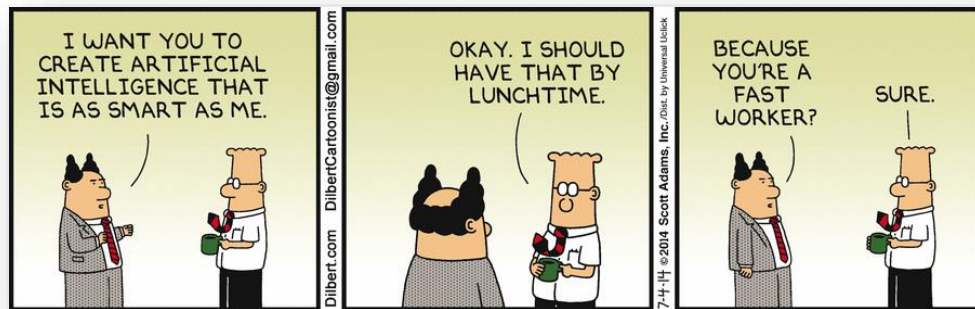
Future

“There will be two kinds of companies at the end of this decade... Those that are fully utilizing AI, and those that are out of business.”

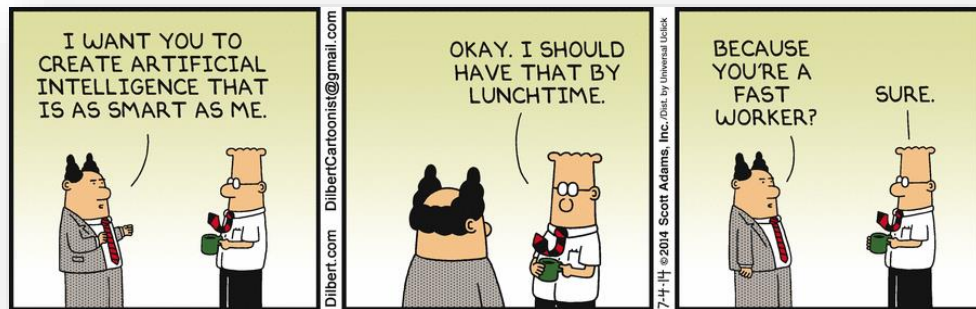
Peter H Diamandis



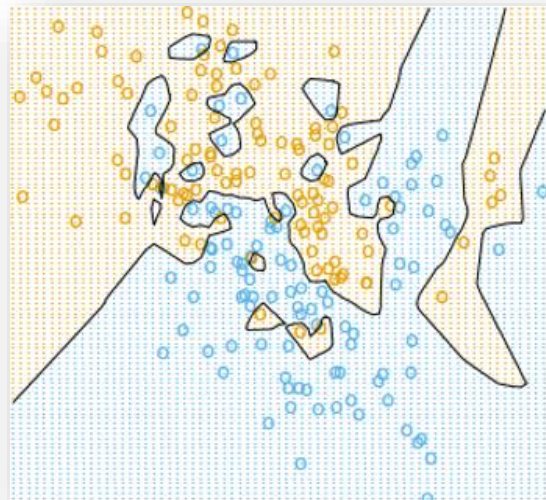
What is AI?



What is AI?



AI is about finding
patterns in data
(often a lot more
accurately than human
beings 😊)



What does AI offer **Banking**?

Let's discuss a few case studies

LLMs

Operations

IFRS9

Investment

ChatGPT and large language models

ChatGPT 3.5



How would you use AI in banking?



AI can revolutionize banking in numerous ways, from enhancing customer experiences to optimizing internal processes. Here are some examples:

1. **Fraud Detection:** AI algorithms can analyze vast amounts of transaction data in real-time to detect suspicious activities and patterns, helping to prevent fraud before it occurs.
2. **Customer Service:** AI-powered chatbots can provide 24/7 customer support, handling routine inquiries, account management, and even assisting with basic financial advice.
3. **Personalized Recommendations:** By analyzing customer data, AI can provide personalized product recommendations, such as tailored loan offers, investment opportunities, or savings plans.
4. **Credit Scoring:** AI algorithms can assess creditworthiness more accurately by analyzing a wider range of data points, including social media activity, online behavior, and transaction history, enabling banks to offer loans to individuals who may not have traditional credit histories.
5. **Risk Management:** AI models can analyze market trends, economic indicators, and other external factors to assess risk more effectively, helping banks make better-informed decisions about lending, investment, and asset management.
6. **Algorithmic Trading:** AI algorithms can analyze market data and execute trades autonomously, leveraging machine learning techniques to identify profitable opportunities and minimize risks.

Message ChatGPT



P

What are the national research ethics guidelines on retaining data?

R

The National Statement on Ethical Conduct in Human Research outlines several guidelines related to retaining and managing data. According to Section 3, Element 7, researchers have ongoing ethical responsibilities after a project is completed, which include proper disposal or retention of data and information. They must adhere to the principle of respect for persons by addressing potential risks associated with data collection, use, and management in their research plan and consent processes. Researchers should also consider privacy guidelines that may apply to the specific study. Additionally, they need to ensure that sharing any research data during or after a project does not create additional risks of re-identification of information or data. These aspects should be clearly addressed in the research plan and consent documentation.

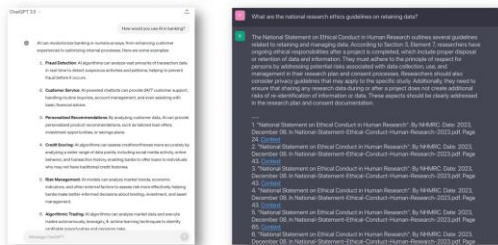
1. "National Statement on Ethical Conduct in Human Research". By NHMRC. Date: 2023, December 08. In National-Statement-Ethical-Conduct-Human-Research-2023.pdf. Page 24. [Context](#)
2. "National Statement on Ethical Conduct in Human Research". By NHMRC. Date: 2023, December 08. In National-Statement-Ethical-Conduct-Human-Research-2023.pdf. Page 43. [Context](#)
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5. "National Statement on Ethical Conduct in Human Research". By NHMRC. Date: 2023, December 08. In National-Statement-Ethical-Conduct-Human-Research-2023.pdf. Page 65. [Context](#)
6. "National Statement on Ethical Conduct in Human Research". By NHMRC. Date: 2023, December 08. In National-Statement-Ethical-Conduct-Human-Research-2023.pdf. Page

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Operational case studies



Cross-sell

250%

Increase in sales conversion rate for an insurance campaign to existing clients



Retention

50%

Reduction in cancellations with very simple email interventions



Credit

42%

Improvement in credit defaults by implementing an AI-based credit application scorecard



Fraud

20

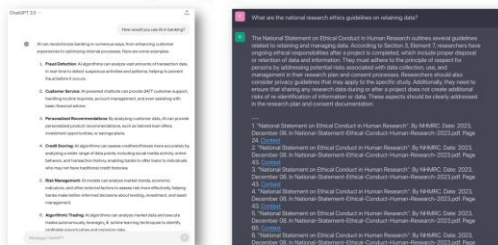
Fraud investigators no longer needed to be hired because fraud was more accurately found

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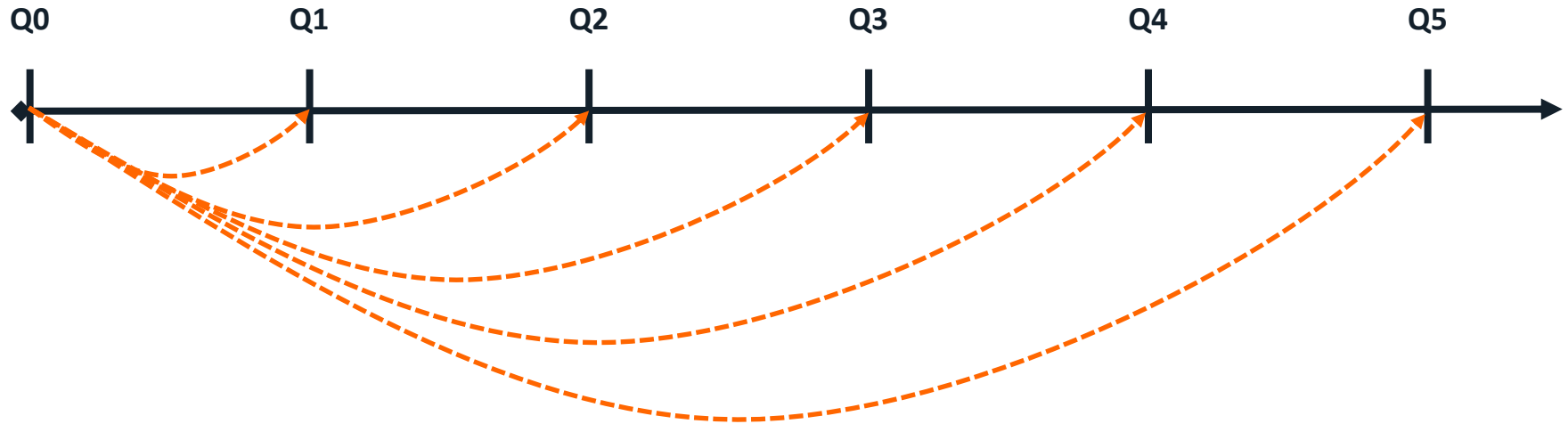
Operations

Operational case studies

 Cross-sell	250% Increase in sales conversion rate for an insurance campaign to existing clients	 Retention	50% Reduction in cancellations with very simple email interventions
 Credit	42% Improvement in credit defaults by implementing an AI-based credit application scorecard	 Fraud	20 Fraud investigators no longer needed to be hired because fraud was more accurately found

Investment

IFRS9 case study



Data input	Accuracy	Usage
Credit bureau data	Ginis of greater than 85%	SICR: PD goes up Curing: PD is equal to or goes down

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ChatGPT 3.5

What are the national research ethics guidelines on relating data?

The National Statement on Ethical Conduct in Human Research outlines several guidelines regarding research and relating data. According to Section 3, Section 5, consent must be freely given, and researchers must ensure that participants are fully informed of the purpose of the research, the risks and benefits, and the procedures for withdrawing from the study. They must also ensure the privacy of research participants by addressing potential risks associated with data collection, use, and management. The research plan and consent process must also consider privacy guidelines that may apply to the specific study. Additionally, they need to ensure that data are stored and used in a secure manner, and that the confidentiality of the identification of information or data. These aspects should be clearly addressed in the research plan and consent documentation.

1. National Statement on Ethical Conduct in Human Research" By NHMRC Date: 2007, December 05. 2. National Statement on Ethical Conduct in Human Research 2023 Last Page 43. 3. National Statement on Ethical Conduct in Human Research" By NHMRC Date: 2023, December 05. 4. National Statement on Ethical Conduct in Human Research 2023 Last Page 43. 5. National Statement on Ethical Conduct in Human Research" By NHMRC Date: 2023, December 05. 6. National Statement on Ethical Conduct in Human Research 2023 Last Page 43. 7. National Statement on Ethical Conduct in Human Research" By NHMRC Date: 2023, December 05. 8. National Statement on Ethical Conduct in Human Research 2023 Last Page 43. 9. National Statement on Ethical Conduct in Human Research" By NHMRC Date: 2023, December 05. 10. National Statement on Ethical Conduct in Human Research 2023 Last Page 43.

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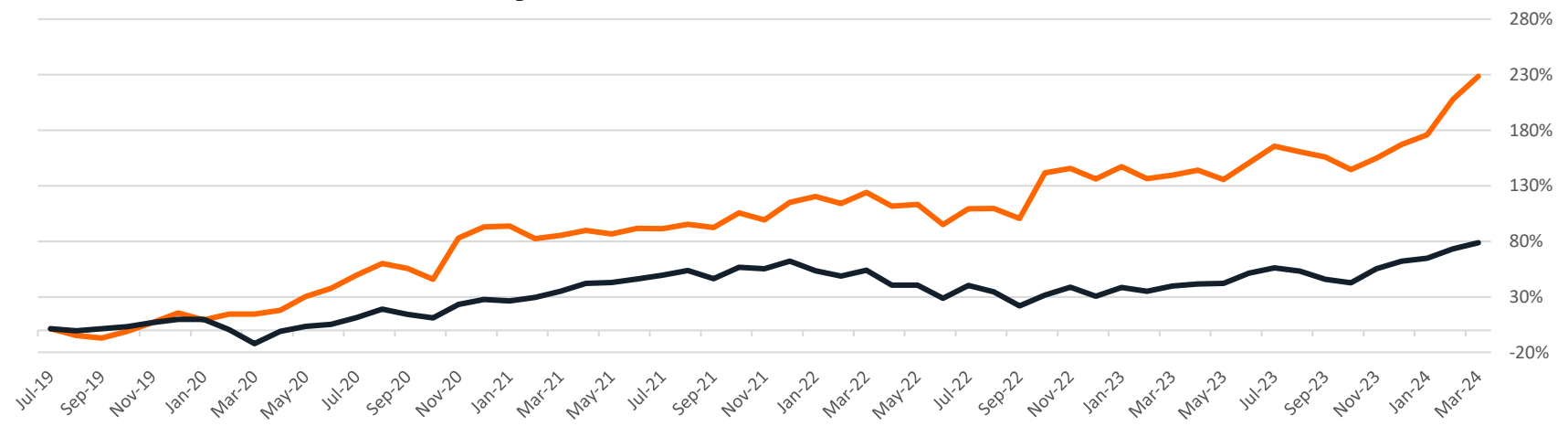
IFRS9

IFRS9 case study



Investment

Investment case study



Total returns since July 2019	
S&P gross return	AI strategy gross return
78.6%	228.6%

Risk metric	S&P 500	AI strategy
Max drawdown	24.77%	10.52%
Sharpe ratio	0.44	1.00
Sortino ratio	0.65	2.16
Standard deviation	5.20%	6.25%
Downside deviation	3.56%	2.91%

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ChatGPT 3.5

How would you handle a customer inquiry about a loan application? Please provide a detailed response, including the steps you would take to process the application and the factors you would consider.

- 1. Greeting and Information Gathering:** The first step would be to greet the customer and ask for their name and contact information. I would also ask for the purpose of the loan and the amount they are requesting.
- 2. Document Collection:** I would ask the customer to provide the necessary documentation, such as a recent pay stub, bank statements, and a credit report. I would also ask for their Social Security number to check their credit history.
- 3. Review and Evaluation:** I would review the customer's information and documents to determine their creditworthiness. I would consider factors such as their income, debt-to-income ratio, and credit score.
- 4. Decision Making:** Based on my review, I would make a decision on whether to approve the loan. If I approve the loan, I would provide the customer with the loan terms and conditions.
- 5. Follow-up:** I would follow up with the customer to ensure they are satisfied with the loan process and to provide any additional assistance they may need.

What are the national research ethics guidelines on relating data?

The National Statement on Ethical Conduct in Human Research outlines several guidelines relating to research involving human participants. According to Section 3, Section 5, and Section 6, researchers must ensure that their research is necessary, justified, and that the benefits outweigh the risks. They must also ensure that the research is conducted in a way that respects the autonomy and dignity of the participants. Key guidelines include:

- 1. National Statement on Ethical Conduct in Human Research:** By NHMRC Date: 2007, December 10. In National Statement: Ethical Conduct Human Research 2007.pdf Page 43.
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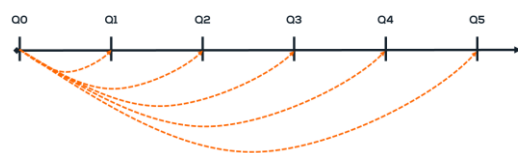
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IFRS9 case study



Q0 Q1 Q2 Q3 Q4 Q5

Data input

Credit Bureau data

Accuracy

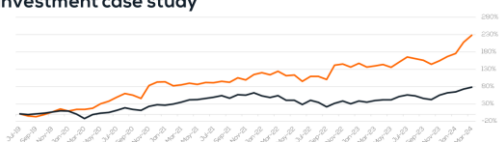
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What are the benefits and potential risks?

Benefits

- Increased **revenue**
- Reduced **expenses**
- Better **compliance**
- Increased **efficiency and scalability**
- Improved **customer experience**
- Creating a **competitive advantage**

Risks

- **Privacy** issues
- Skills **scarcity**
- Job **losses**
- Model **bias** and fairness
- Lack of **explainability**
- **Ethical** challenges and market risks

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