

Deutsche Bank  
Research



# Generative AI: is it all just hype?

How you can start applying it in your business now

Deutsche Bank Wealth Management  
Client Advisory Council  
New York  
Sept 30, 2024

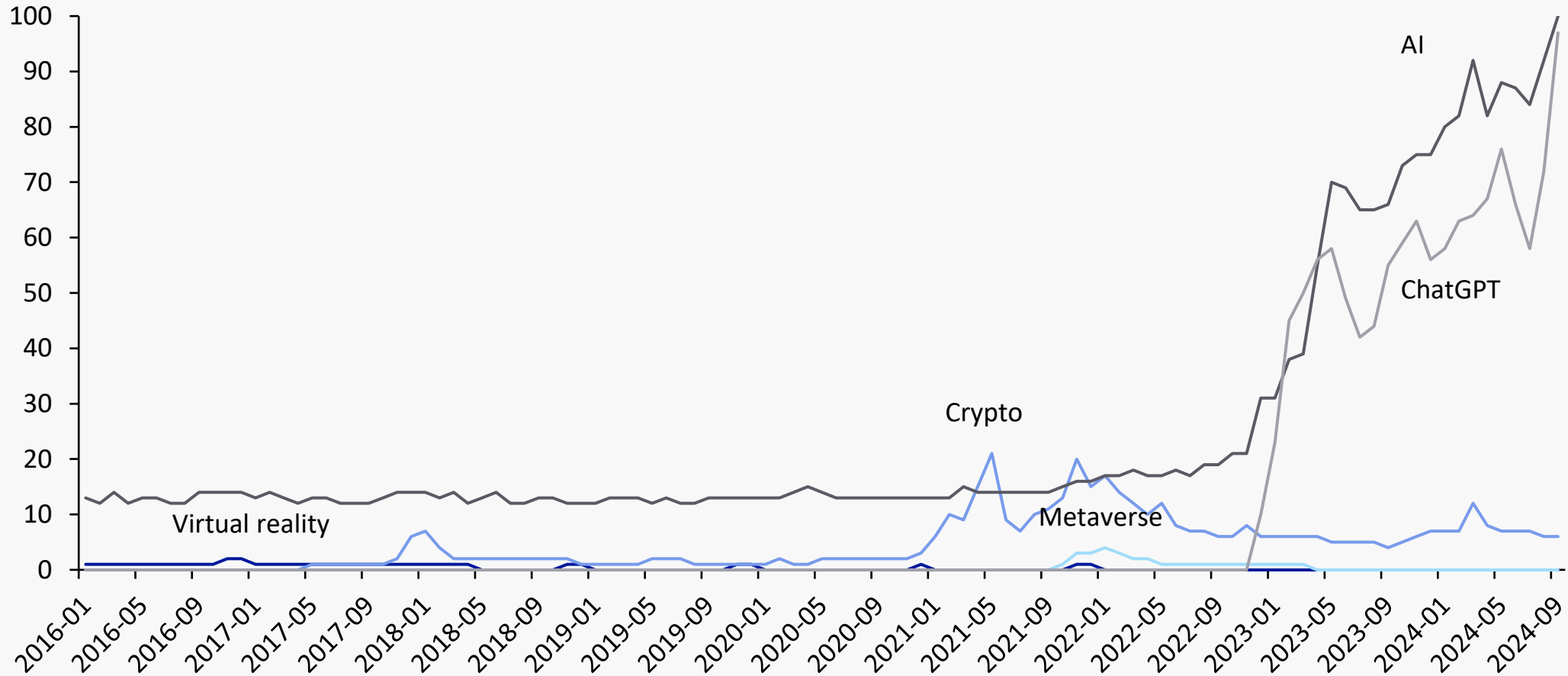
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IMPORTANT RESEARCH DISCLOSURES AND ANALYST CERTIFICATIONS LOCATED IN APPENDIX 1. MCI (P) 041/10/2023. UNTIL 19th MARCH 2021 INCOMPLETE DISCLOSURE INFORMATION MAY HAVE BEEN DISPLAYED, PLEASE SEE APPENDIX 1 FOR FURTHER DETAILS.

Image by DALL-E

# The hype is real



Source: Google Trends

# Most AI isn't generative, and some isn't even AI



## Predictive AI

Deterministic, rules-based



Eg: Quantitative analysis  
Algorithm trading  
Fraud detection  
Demand forecasting  
Recommendations

Deep learning  
that simulates  
human brain

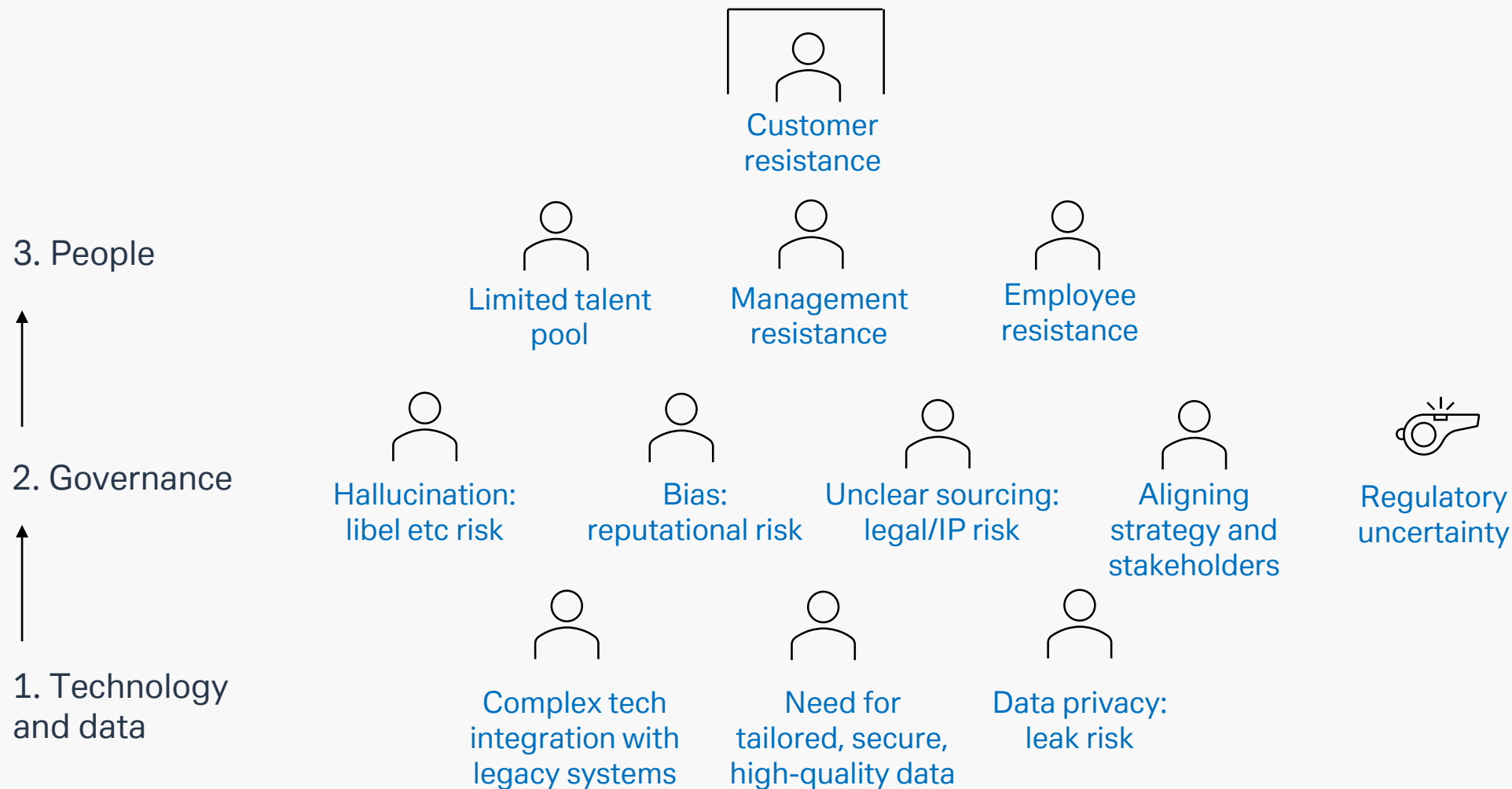
## Generative AI

Probabilistic, creative



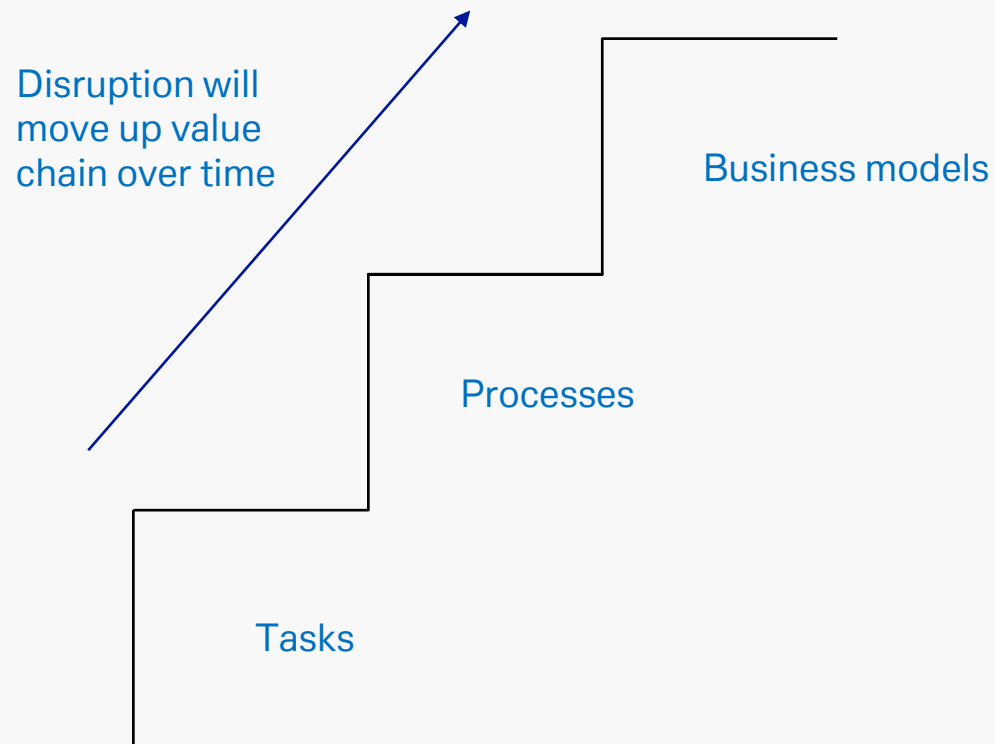
Eg: Image recognition  
Writing and coding  
Summarisation  
Q&A (eg customer service bots)

Source: Bloomberg Finance LP, Deutsche Bank.



Source: Deutsche Bank

# But applications are a process, not a product



Source: Deutsche Bank

## Scope for AI disruption up value chain

### Long term

- Revenue-focused; new entrants

### Medium term

- Cost-focused; opportunity for incumbents

### Short term

- Incremental productivity focus; widespread opportunity to automate or reinvent structured tasks

# The three main uses for generative AI



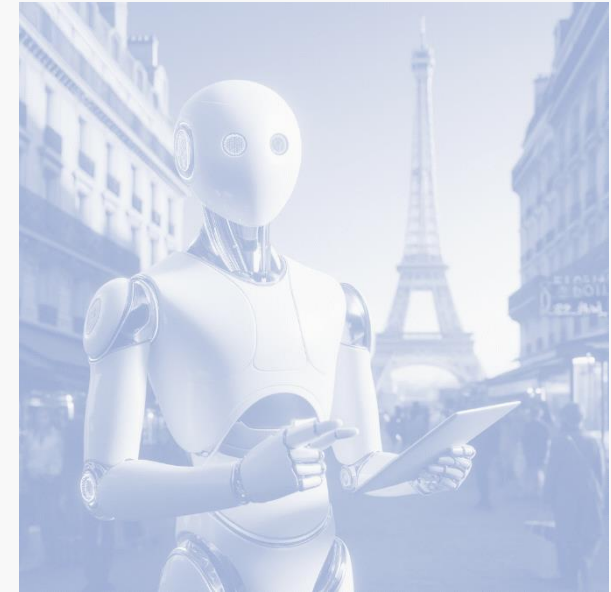
## 1. Data analysis



## 2. Content generation



## 3. Practical tasks



# 1. Data analysis: background research



The screenshot shows the Deutsche Bank Research website interface. At the top, there is a navigation bar with the Deutsche Bank Research logo, user information (User: adrian.cox@db.com), and various menu items like Home, Advanced Search, Economics, Debt, Equity, Quant, Multi-Asset, Insights, and Subscriptions. The main content area displays the article title 'Fed Notes: DB's AI tool: Fed steer not so clear' with a sub-header 'Fed Notes'. Below the title, there are buttons for 'View PDF', 'Subscribe', 'Share', and 'Copy link'. The article text begins with a distribution date and time, followed by a list of authors. A key point from the article is highlighted: 'After a stronger-than-expected CPI report shifted market pricing towards a 25bp outcome at next week's September FOMC meeting, two news articles published yesterday afternoon led to a sharp repricing towards a 50bp cut. In this note, we utilize DB's proprietary AI tool to conduct a sentiment analysis that compares the level of conviction in this week's WSJ article to an article from June 2022. The output matches our own perception that the level of conviction was lower this week.' Below this, there is a section titled 'How clear was the Fed's steer?' which further elaborates on the market's reaction and the Fed's cautious approach. The right sidebar features 'Analysts' with profiles for Matthew Luzzetti and Brett Ryan, and a 'Most read' section with a featured article 'September FOMC preview: How deep is your dove?'.

Source: Deutsche Bank's ChatDBT

We started with the following prompt:

*"Below are two texts discussing potential interest rate changes. Summarise the tone of each and highlight any differences that show one text to have greater conviction than the other"*

Below is the output:

## June 2022 article:

**Tone :** Urgent and decisive. The article highlights persistently high inflation as a major concern pushing the Fed towards a larger-than-expected rate hike. It emphasizes the potential need to deviate from previous guidance to combat inflation.

**In summary :** The June 2022 article conveys a strong sense of urgency and conviction regarding the need for a significant rate hike to combat inflation. The September 2024 article, while discussing the possibility of a rate cut, presents a more balanced and less decisive outlook, reflecting the Fed's cautious approach in navigating economic uncertainty.

# 1. Data analysis: information interpretation



“This image humorously comments on the typical weather in England. It revolves around the stereotype that summer weather in England is often disappointing and not much different from the rest of the year, typically characterised by rain and cloudy skies.”

Source: Unattributed meme;  
OpenAI's ChatGPT



## 2. Content generation: brainstorming



← Chat

Digital Assistant - Chat

I'm giving a presentation on the uses of generative AI in financial services at an event right now with sophisticated financial investors. What practical tips can I give them about how to use generative AI in their roles?

That's exciting! Here are some practical tips on using generative AI in financial services that would resonate with sophisticated investors:

**Focus on Efficiency and Insights, Not Replacing Humans:**

- **Emphasize augmentation, not automation.** Generative AI can handle tedious tasks like data entry, report generation, and summarizing large documents, freeing up analysts for higher-level thinking.
- **Highlight its ability to uncover hidden patterns.** Generative AI can analyze massive datasets to identify trends and anomalies that humans might miss, leading to better investment strategies.

**Provide Concrete Examples:**

- **Portfolio Optimization:** Explain how AI can analyze market data and risk tolerance to suggest optimal asset allocations.
- **Sentiment Analysis:** Show how AI can analyze news articles, social media, and earnings calls to gauge market sentiment towards specific companies or sectors.
- **Fraud Detection:** Describe how AI can learn patterns of fraudulent transactions and flag suspicious activity in real-time.

← Chat

Digital Assistant - Chat

- **Personalized Customer Experiences:** Illustrate how AI can tailor financial advice, product recommendations, and even marketing materials based on individual customer data.

**Address the Challenges:**

- **Data Security and Privacy:** Acknowledge the importance of robust security measures and ethical data handling practices when using sensitive financial information.
- **Explainability and Bias:** Discuss the need for transparency in AI models and strategies to mitigate potential biases in the data.
- **Regulation and Compliance:** Mention the evolving regulatory landscape surrounding AI in finance and the importance of staying informed.

**End with a Call to Action:**

- Encourage your audience to explore pilot projects and partnerships to test the waters of generative AI in their specific areas of expertise.

**Remember:** Your audience is sophisticated, so focus on the strategic implications of generative AI and how it can give them a competitive edge.

📄 🗣️ 🔄

Source: Deutsche Bank ChatDBT

## 2. Content generation: image creation



“Ultra realistic photo of three people diving into a swimming pool on a hot Sunday”



Image by DALL-E 3

## 2. Content generation: image creation



“Ultra realistic photo of three people diving into a swimming pool on a hot Sunday”

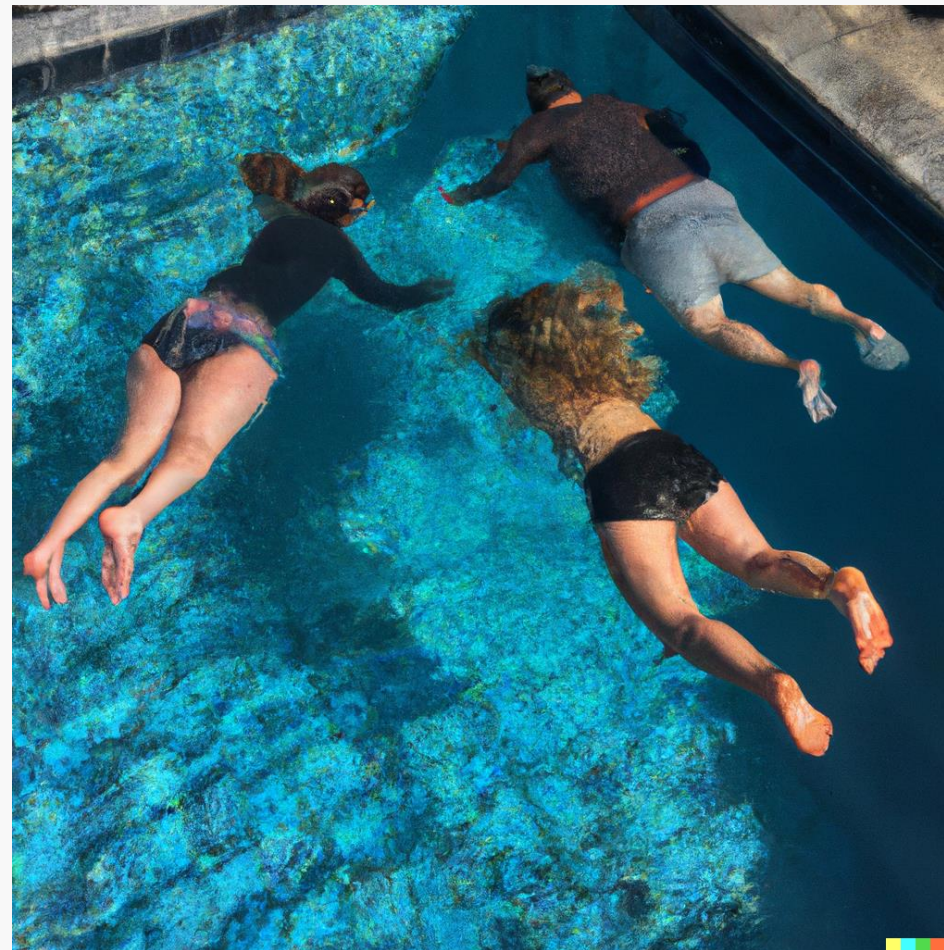


Image by DALL-E 3

### 3. Practical tasks: AI assistants



The screenshot shows the Microsoft Copilot interface. At the top, there is a navigation bar with a grid icon, the Copilot logo, a search icon, a smiley face icon, a three-dot menu icon, and a profile picture. Below this, the Copilot logo and name are displayed, followed by the user's query: "when is the aart event? give...". The response is contained in a white box with a light gray border. It starts with the event name and date, followed by a brief summary and a paragraph of details. At the bottom of the response box, there are two source links, a "Copy" button, a "1 of 30 responses" indicator, a warning "AI-generated content may be incorrect", and thumbs up/down icons.

**Copilot**  
when is the aart event? give...

The [DB AART 24 - 19th Sept // AI panel](#) event is scheduled for tomorrow, 19th September, from 9:30 AM to 10:15 AM <sup>1</sup>.

Here's a brief summary of what to expect:

The event will feature an AI panel discussion with various participants. The panel will include a moderator, data providers, technology users, and experts in AI and investment signals. The discussion will cover topics such as how financial institutions are using AI to improve their practices, the role of AI in investment signals, and insights from IBM's Spot the Dog <sup>2</sup>.

If you have any specific questions or need more details, feel free to ask!

1 [DB AART AI panel confirm...](#) 2 [DB AART 24 - 19th Sept //...](#)

Copy 1 of 30 responses AI-generated content may be incorrect

Source: Microsoft Copilot

### 3. Practical tasks: translation



**A** ▼

translate this statement into english and briefly explain any specific german references: "Im ersten Quartal haben wir unseren Gewinn um 10 Prozent gesteigert und so das beste Ergebnis seit 2013 erzielt. Grundlage dafür war die disziplinierte Umsetzung unserer Strategie als Globale ..."

Show drafts ▼

**English Translation:**

"In the first quarter, we achieved a 10% increase in profit, marking our best first-quarter result since 2013. This was driven by the disciplined execution of our Global Hausbank strategy." - Christian Sewing

**Explanation of Specific German References:**

- **"Globale Hausbank"**: This term refers to the bank's internal business model, in which it positions itself as a universal bank for retail and corporate customers worldwide. It is not a cultural reference but rather a specific business strategy. The term "Hausbank" is a German word that literally means "house bank" and refers to a customer's primary bank for everyday banking transactions. The "Global" prefix indicates that the bank is not just focused on the German market but also on serving customers around the world.

Source: Google Gemini, ChatGPT

give me a simple example of a function that calculates the factorial of a number in python, then translate it into javascript

Certainly! Here's a simple example of a function that calculates the factorial of a number in Python, followed by its translation into JavaScript.

**Python Code:**

```
python Copy code  
  
def factorial(n):  
    if n == 0:  
        return 1  
    else:  
        return n * factorial(n-1)  
  
# Example usage  
print(factorial(5)) # Output: 120
```

**Translated to JavaScript:**

```
javascript Copy code  
  
function factorial(n) {  
    if (n === 0) {
```

# Spotlight: Nascent uses for AI in financial services



## 1. Data analysis

## 2. Content generation

## 3. Customer service, support

Front office

Investment analysis, research

Tailored research, communications, investor relations, sales notes

Automated/augmented support

Operations

Process optimisation

Coding support

Data retrieval

Risk management

Anomaly detection

Compliance reporting

Monitoring

➤ Risks

- Explainability
- Hallucinations

- Bias
- IP ownership

- Misinterpretation
- Over-reliance

# Spotlight: Specific uses for AI in financial services: pros and cons



## 1. Data analysis



## 2. Content generation



## 3. Customer service, support



### Predictive AI

#### Market prediction

- Pros: Analysing invisible trends
- Cons: Uncertain; flash crashes

N/a

#### Credit scoring

- Pros: Able to assess big data
- Cons: Potential bias in training

#### Customer retention

- Pros: Predicts churn, suggests retention strategies
- Cons: Overreliance overlooks individual customer issues

#### Fraud detection

- Pros: Real-time monitoring
- Cons: False positives

### Generative AI

#### Financial modelling

- Pros: Realistic scenarios inc from unstructured data
- Cons: Not suited for black swans

#### Sales process automation

- Pros: Chats into priceable tickets
- Cons: Human required to check

#### Chatbots/virtual assistants

- Pros: 24/7 support, esp routine enquiries
- Cons: Complex cases need human judgment

#### Portfolio optimisation

- Pros: Tailored strategies
- Cons: Too complex to interpret

#### Automated report generation

- Pros: Time-saving summaries
- Cons: Lacks nuanced understanding: errors

# Highlights of Deutsche Bank's generative AI programme



## Initial focus for AI-enabled productivity drivers

<b>A</b>	<b>Inbound content management</b>	<ul style="list-style-type: none"> <li>Reading and interpreting emails, chat, docs etc</li> </ul>
<b>B</b>	<b>Anomaly and pattern detection</b>	<ul style="list-style-type: none"> <li>Gathering data and doing anomaly and pattern detection, false alert remediation</li> </ul>
<b>C</b>	<b>Queue management</b>	<ul style="list-style-type: none"> <li>AI based prioritisation, optimisation, recommendation from email to case</li> </ul>
<b>D</b>	<b>Content generation</b>	<ul style="list-style-type: none"> <li>Search, summarising and interpreting content, eg policies</li> <li>Generation of content</li> </ul>

Lead use cases

## AI shared services

AI on docs (dbTextract)	Turning documents into accurate data
AgentBot	Generative conversations with customers
Entity resolution	Removal of false positive alerts
Intelligent email	Turning emails into case files
Digital assistant (ChatDBT)	Augmenting tasks of junior analysts
Microsoft 365 Copilot	General productivity tool
AI-assisted engineering	Code assistant to generate test scripts etc

Source: Deutsche Bank





“A handshake of a human and robot hand”

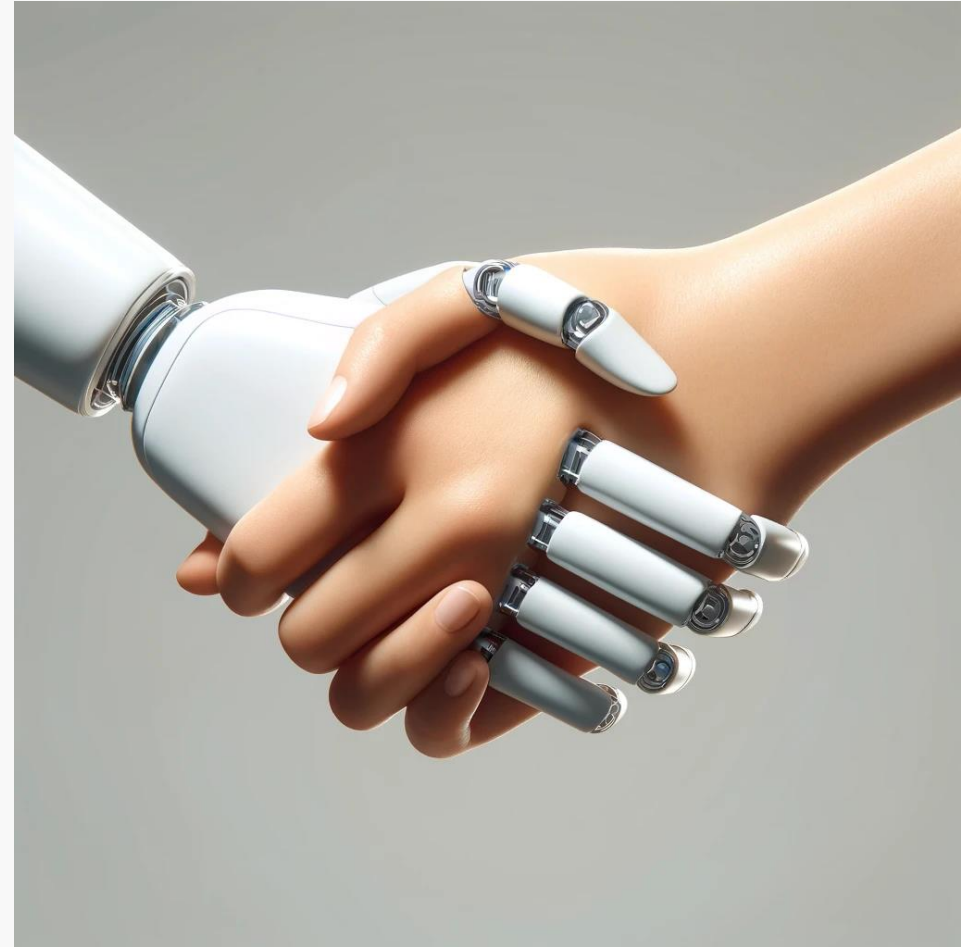


Image by DALL-E 3



DB Research AI microsite: [www.dbresearch.com/ai](http://www.dbresearch.com/ai) : sign up for our “Latest in AI” weekly newsletter

[Latest in AI: Five clues to the future of AI in recent headlines](#) (Sept 11, 2024)

[AI Risk and Regulation 101: Bias, bots and battlegrounds](#) (April 22, 2024)

[Why twin Sora and Gemini launches mark giant leap towards AI future](#) (Feb 29, 2024)

[The AI outlook for 2024](#) (Jan 16, 2024)

[AI of the storm: the companies turning AI into reality](#) (Oct 30, 2023)

[AI update: Six key themes you missed while you were at the beach](#) (Sept 14, 2023)

[AI in action: how first movers are using ChatGPT](#) (June 28, 2023)

[Webinar Replay: Six ways you can use ChatGPT right now: live demo](#) (June 22, 2023)

[AI in action: where is the smart money going?](#) (May 25, 2023)

[Can AI save high-labour firms?](#) (May 24, 2023)

[Generative AI and ChatGPT 101](#) (May 23, 2023)

[Generative AI represents a turning point for humanity – for better and for worse](#) (May 22, 2023)



## Data analysis

### 1. Brainstorming



Give me ideas for raising investment capital with VC companies... Identify 10 ways a finance company can use AI to... and give me a SWOT analysis  
Teach me basic calculus with analogies and a quiz...  
**Top tip: Have a conversation, give as much context as possible and follow up (eg: "What did I/you miss?")**

## Content generation

### 3. Writing content



Act as a financial analyst: write a report on the market opportunities from AI... Help me rewrite this in the style of... Add examples...  
You are a customer service rep. Write an apology for [x]...  
Write a business plan and slogan for...  
**Top tip: Specify goals: act as a "Role", addressing an "Audience", in a "Format"... and change creativity by adding "temperature: [x]" in a range from 0 (conversative) to 1 (most creative)**

## Practical tasks

### 5. Multimodal tasks



Turn this into a five-slide presentation...  
Write code to convert a video file into a smaller format... Debug this snippet...  
Write a song on a fund manager, including guitar chords... Create an Impressionist painting of a robot...  
**Top tip: Specify steps: use chained prompting for complex tasks, ie give me the outline to... Now write three bullets for each of the subsections**

### 2. Data processing



Take this data [paste] and put it into a table with columns [a], [b], [c]  
Act as a financial analyst and identify six themes from this chart...  
Return on [x] is calculated as [y/z]. Calculate it for each of the years shown...  
**Top tip: Give sample answers in your question ("few-shot prompting") \*\*\*Double-check calculations\*\*\***

### 4. Summarising information



Give me a 500-word executive summary of this financial statement...  
Turn this academic report into a conversational 250-word press release...  
Give me 10 potential 280-character tweets based on this article...  
**Top tip: Challenge the chatbot to be better: "use less jargon", "be more concise", "now focus more on [x, y, z]", "in the first person..."**

### 6. Personal assistant



Give me a summary of this document [LINK]  
[X] is available [when]; [Y] can't meet [when]; set a meeting and compose a note  
Write a five-day itinerary in table format for a 30-year-old vegan visiting Berlin... I have this [list]: give me a healthy recipe...  
Translate this into Chinese, Hungarian, etc... Write a humorous poem to welcome my wedding guests...  
**Top tip: Use GPTs to read links, book restaurants, get travel info, order groceries etc**

# Appendix 1

## Important Disclosures

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