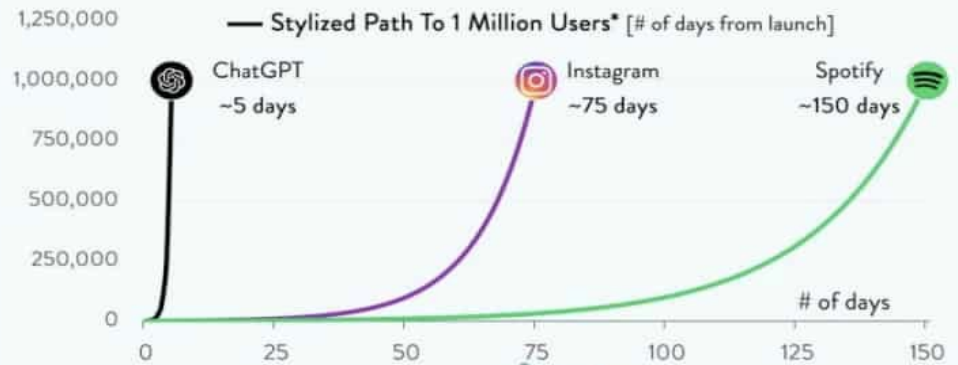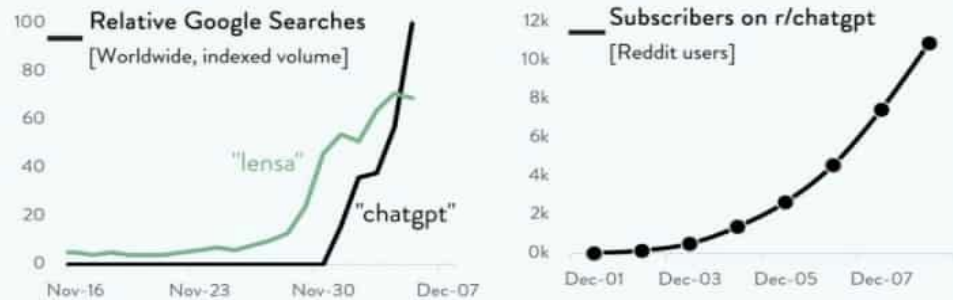**FEAL**

Evolved Reasoning

Setting the scene:
The Economic and
Industry Impacts of
Generative AI

Aug 2023

MICHAEL G.
KOLLO, PHD

ChatGPT From OpenAI Is A Bot Taking The Tech World By Storm

A new kind of AI, one focused on Language, has arrived in the mainstream.

Huge Adoption

ChatGPT has taken the world by storm since it's release in November 2022.

Fastest growing app ever in the world.

Students, and international adoption.

Estimated 40 million Americans, primarily 18-25 year olds are using it for education, entertainment and work.

'The age of AI has begun'

Bill Gates, 2023

'AI is the most profound technology humanity is working on. More profound than fire, electricity, or anything we have done in the past.
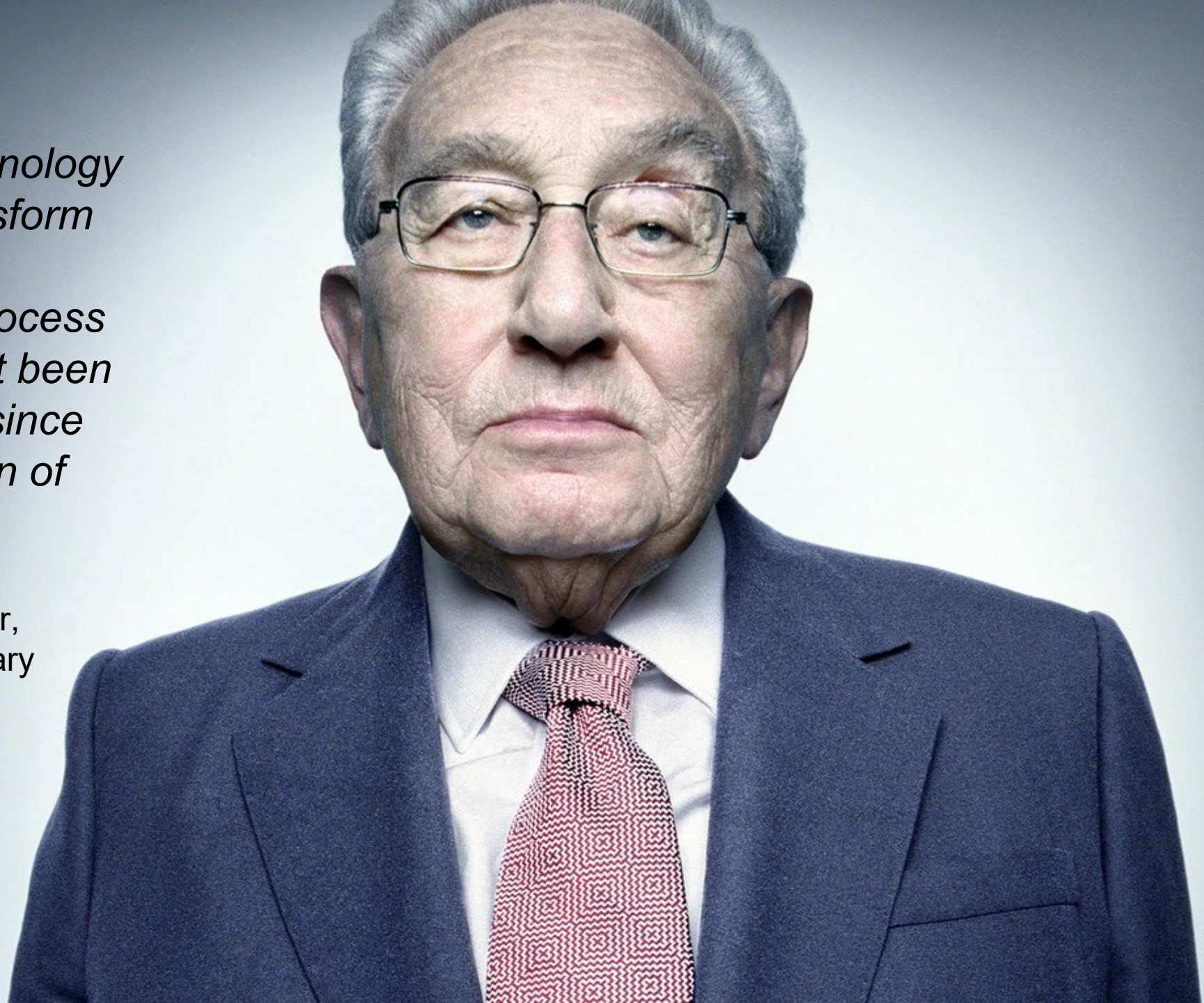
Sundar Pichai, CEO
Google

'ChatGPT is scary
good.
We are not far
from dangerously
strong AI.'

Elon Musk

'A new technology bids to transform the human cognitive process as it has not been shaken up since the invention of printing.'

Henry Kissinger,
Former Secretary
of State

PricewaterhouseCoopers to Pour $1 Billion Into Generative AI

Multiyear investment in U.S. business includes accessing ChatGPT maker OpenAI's language model, training staff in AI capabilities

Bain & Company inks alliance with ChatGPT creator OpenAI

📅 26 February 2023 | Consultancy.com.au | 3 min. read

Global consultancy Bain & Company has forged an alliance with ChatGPT creator OpenAI, with the goal of enhancing its client's business potential through the groundbreaking AI technology.

META / TECH / ARTIFICIAL INTELLIGENCE

Mark Zuckerberg says Meta wants to 'introduce AI agents to billions of people'

Welcome to BloombergGPT, a large-scale language model built for finance

SUPER FUNDS

Super funds poised to embrace ChatGPT

FORBES > INNOVATION > CLOUD

Adobe Introduces Firefly, A Human–Driven Creative Approach To Generative AI

Salesforce launches Einstein GPT, a world first in AI CRM tech

Disrupted

Apple tests generative AI tools to rival OpenAI's ChatGPT - Bloomberg News

Reuters

July 20, 2023 4:00 AM GMT+10 · Updated 9 hours ago

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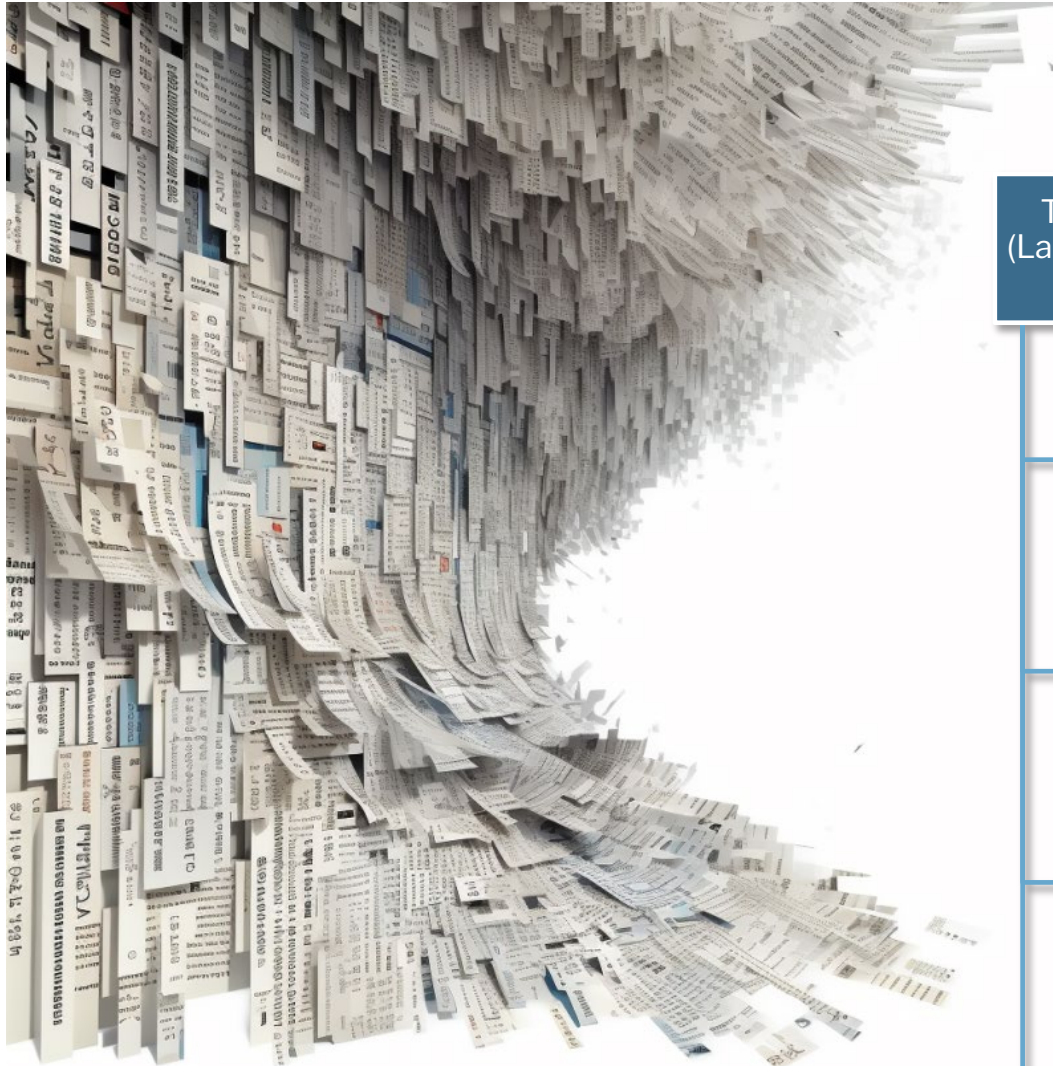Profiling and Behavioural models

Generative AI

Financial forecasting

Dynamic Games (RL)

Imagine recognition

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Generative AI

Text to Text (Large Language Models)
- ChatGPT (OpenAI/MSFT)
- Bard (Google)
- Open Source
- Industry Specialised (eg BloombergGPT)

Text to Image
- MidJourney
- Stable Diffusion
- DallE-2 (ChatGPT)

Text to Music
- In Development

Text to Voice
- Voice Emulation

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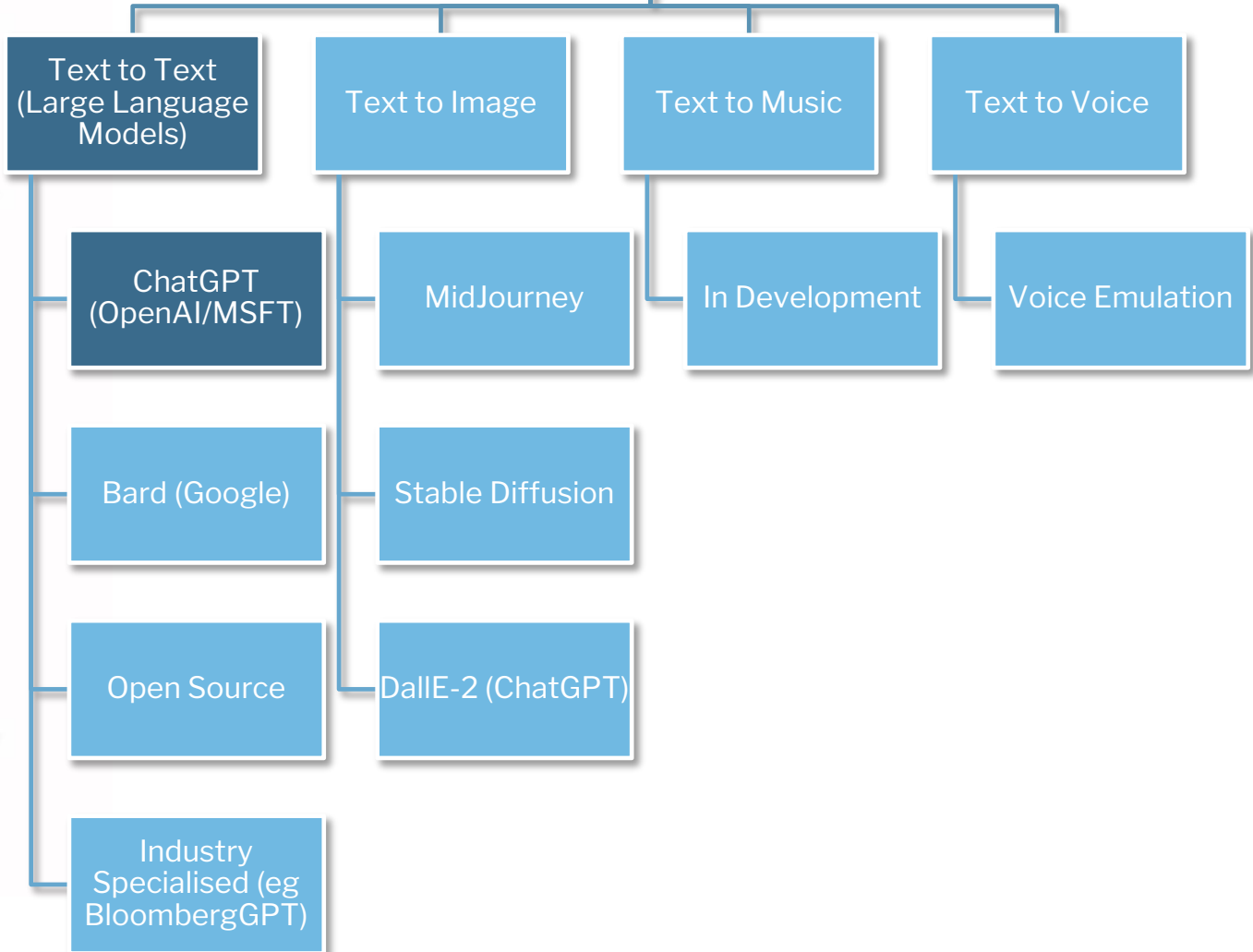
How to think of ChatGPT as a **language transformation agent**:

It transforms written language (human and code) into different formats: longer and shorter, formal and informal, summarised or expanded, funny or serious.. all kinds of different use cases and industries.

A 'Master Linguist' of Verbal IQ of 140

It has learnt from a wide set of online sources, and will be adjustable to your documents, as a 'source of truth' (eg compliance policies).

It is 'safe' and heavily controlled to ensure its suitable for a wide range of audiences for output.

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How to think of ChatGPT as an **engagement agent**:

It is powerful for engagement: context and memory drive continuous engagement.

It can pretend to be in a circumstance, and 'step into' the shoes of the user to provide ideas, outlines and responses.

It can provide comfort, affirmation, and information.

It is a superior education, trainer, and engagement tool to search, with new capabilities to access up-to-date information.

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Limits of Language Models

Language Models are 'infer truth' from semantic relationships.

'Large Language Models' vs 'Large Knowledge Models'. They learn language through reading knowledge, and the relationship of language to the underlying knowledge. But they don't necessarily learn knowledge directly.

They can learn to reason through replication of language, but they are poor at analytical tasks unless assisted by other systems.

They are optimised for engagement not truth. Usefulness as a transformation algorithm is variation in locution.

They are highly flexible in linguistic style, but must be prompted effectively to avoid generic output/outcomes.

User data privacy is a topic today, but is likely to be addressed by the major tech companies going forward.

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The Generative AI picture is also developing fast.

'Draw me a picture of: van life, in the forest, dark and moody, foggy and a campfire.

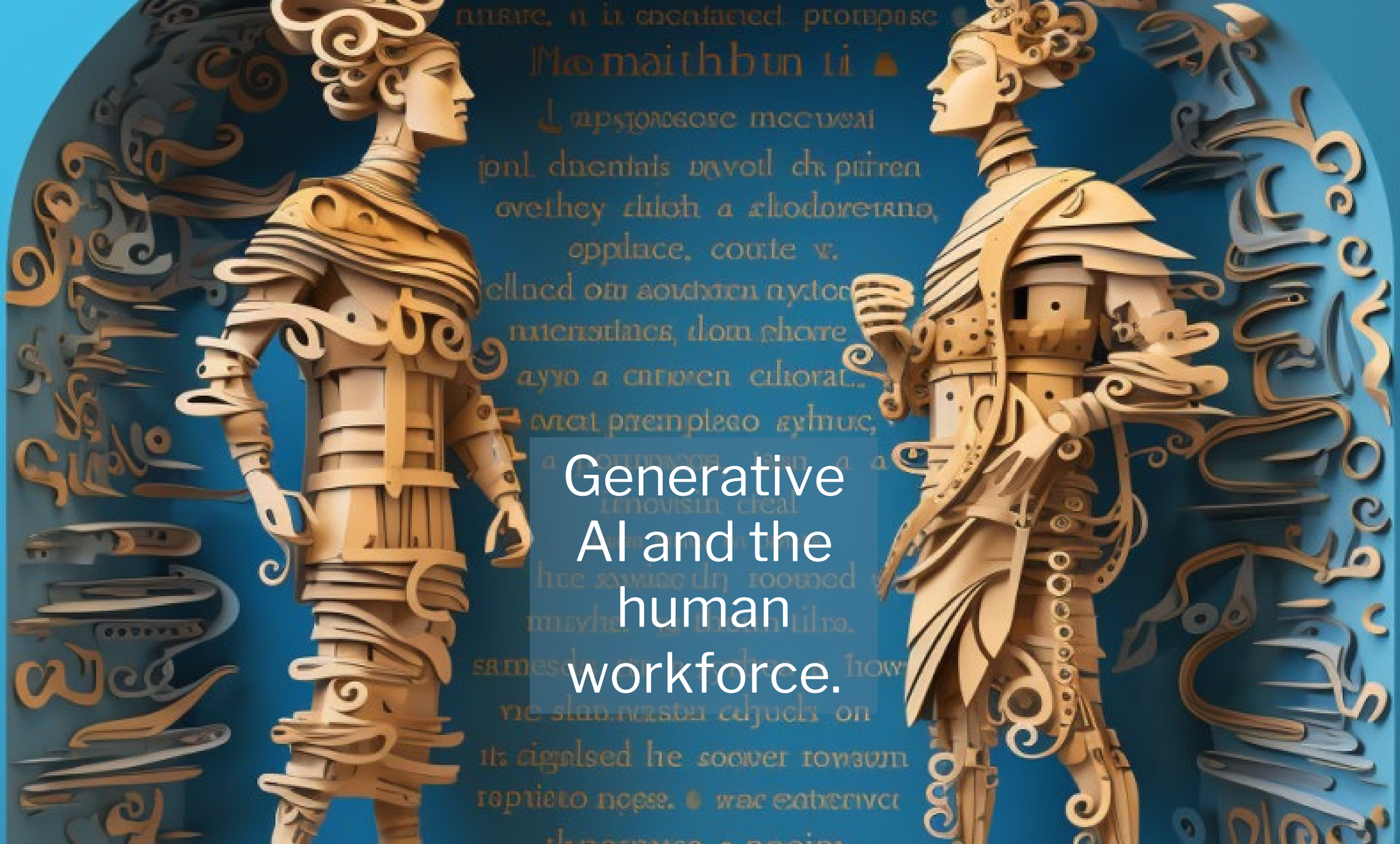*In 4 months*

The rate of change is
very significant.

MIDJOURNEY V1
MARCH 14, 2022

MIDJOURNEY V2
APRIL 2022

MIDJOURNEY V3
JULY 2022

MIDJOURNEY V4
NOVEMBER 2022

MIDJOURNEY V5
MARCH 16, 2023

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Generative
AI and the
human
workforce.

ChatGPT could replace telemarketers, teachers and traders

Here's why that is no bad thing

How ChatGPT Will Destabilize White-Collar Work

No technology in modern memory has caused mass job loss among highly educated workers. Will generative AI be an exception?

A new AI chatbot might do your homework for you. But it's still not an A+ student

AI And Machine Learning

ChatGPT and How AI Disrupts Industries

Insights from an AI author: The geopolitical consequences of ChatGPT

ChatGPT seems set to shake up the technology industry, but its implications for geopolitics are less clear. We asked ChatGPT what these might be

How open AI chatbots are effective marketing companions?

ChatGPT for Ad Tech: Steps to Build an AI Strategy for Brands

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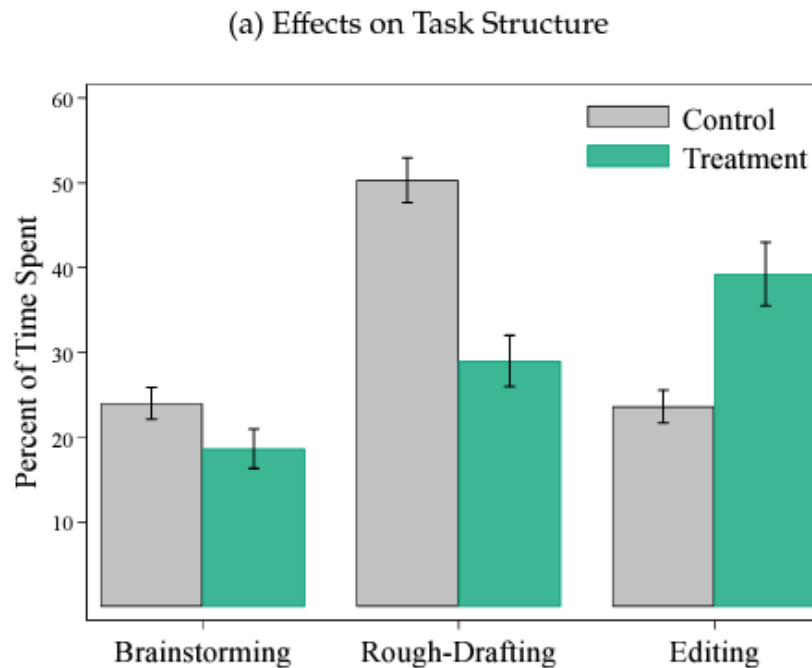
ChatGPT as a **business augmentation tool**.

As an augmentation (writing/drafting tool)

ChatGPT **reduces time spent on writing tasks by 37%**.

Impact is primarily in the drafting stage and brainstorming.

Overall **quality of output** and **job satisfaction** are raised.

Figure 3: Effects on Task Structure and Skill Demand

(a) Effects on Task Structure

Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence

Shakked Noy   Whitney Zhang
MIT   MIT

March 2, 2023
Working Paper (not peer reviewed)

Abstract

We examine the productivity effects of a generative artificial intelligence technology—the assistive chatbot ChatGPT—in the context of mid-level professional writing tasks. In a preregistered online experiment, we assign occupation-specific, incentivized writing tasks to 444 college-educated professionals, and randomly expose half of them to ChatGPT. Our results show that ChatGPT substantially raises average productivity: time taken decreases by 0.8 SDs and output quality rises by 0.4 SDs. Inequality between workers decreases, as ChatGPT compresses the productivity distribution by benefiting low-ability workers more. ChatGPT mostly substitutes for worker effort rather than complementing worker skills, and restructures tasks towards idea-generation and editing and away from rough-drafting. Exposure to ChatGPT increases job satisfaction and self-efficacy and heightens both concern and excitement about automation technologies.

ChatGPT has wide ranging expected effect on the workforce.

Goldman Sachs estimates **300mn** full-time jobs in the **US and EU** have some degree of exposure to Generative AI.

Roughly **25% of these jobs** relate to tasks that ChatGPT can impact.

Goldman | Economics
Sachs | Research

26 March 2023 | 9:05PM EDT

Global Economics Analyst

The Potentially Large Effects of Artificial Intelligence on Economic Growth (Briggs/Kodnani)

■ The recent emergence of generative artificial intelligence (AI) raises whether we are on the brink of a rapid acceleration in task automation that will drive labor cost savings and raise productivity. Despite significant uncertainty around the potential of generative AI, its ability to generate content that is indistinguishable from human-created output and to break down communication barriers between humans and machines reflects a major advancement with potentially large macroeconomic effects.

■ If generative AI delivers on its promised capabilities, the labor market could face significant disruption. Using data on occupational tasks in both the US and Europe, we find that roughly two-thirds of current jobs are exposed to some degree of AI automation, and that generative AI could substitute up to one-fourth of current work. Extrapolating our estimates globally suggests that generative AI could expose the equivalent of 300mn full-time jobs to automation.

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* Source: Goldman Sachs, 2023

Jobs impact in developed economies

Exhibit 8: Replacement in Legal and Administrative Fields, Little Effect in Manual and Outdoor Jobs, and Productivity-Enhancement Everywhere Else

Percent

Share of Industry Employment by Relative Exposure to Automation by AI

- ■ 0-10%: No Automation
- 10-49%: AI Complement
- ■ 50%+: Likely Replacement

Percent
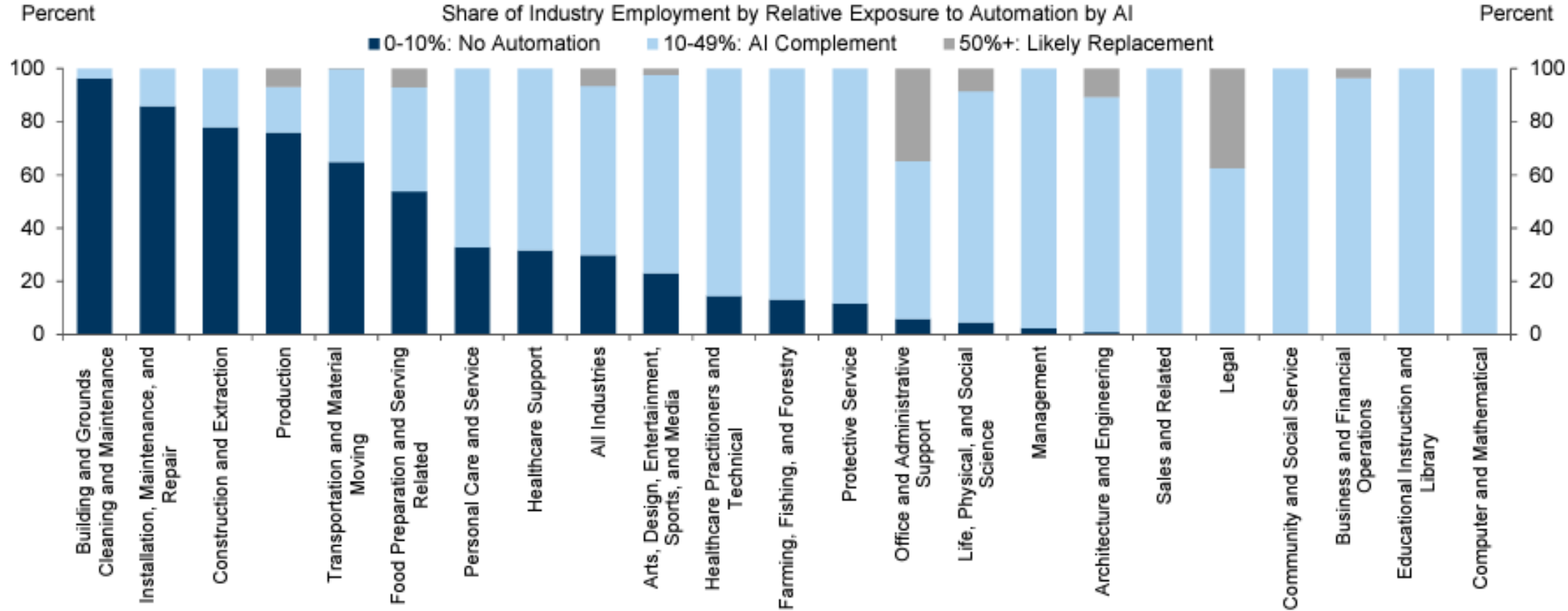
Source: Goldman Sachs, 2023

Generative AI in the modern the organisation
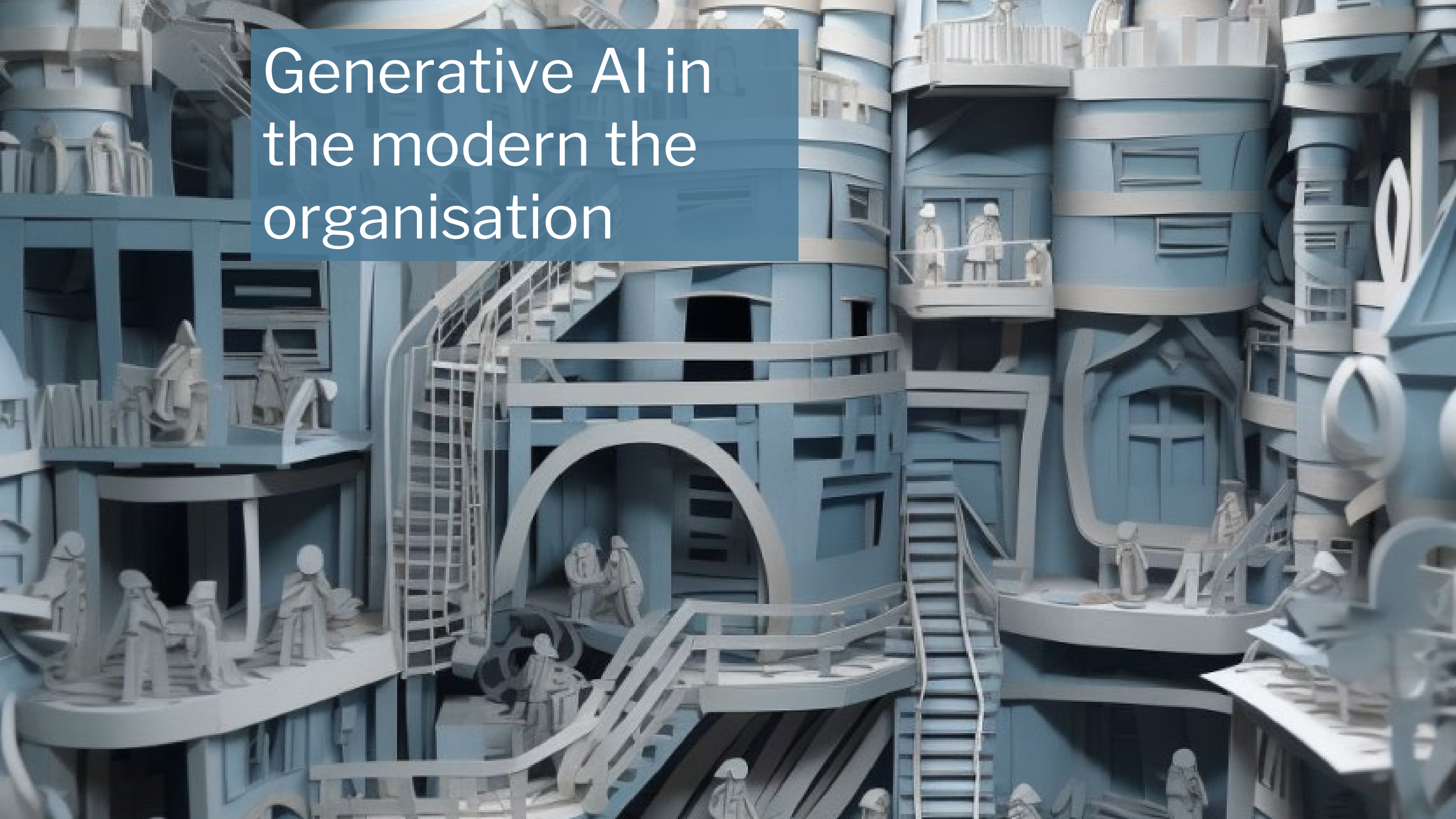
Back Office

- Staff training
- Knowledge Mgt
- Compliance
- HR Policies

Middle Office

- Research
- Financial Literacy
- Investment Strategy

Member Engagement

- Business Development
- Member Engagement
- Q&A and support

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Back Office

- Staff training
- Knowledge Mgt
- Compliance
- HR Policies

1. Staff Training for Technical Competencies: Generative AI can be used as an interactive learning platform for staff training. It can provide instant responses to queries related to financial models, software, risk management, and other technical aspects. In addition, it can provide scenario-based learning experiences by simulating real-world financial scenarios.

2. Policy and Documentation Management: Generative AI can be an effective tool for managing knowledge within the organization. It can be trained on company-specific information and serve as a quick and easy-to-use repository of information. Employees can ask it questions about internal processes, products, client information, or other relevant topics, and receive instant, accurate responses.

3. HR Policies and Training: Similarly, Generative AI can be used to provide information about HR policies and procedures. Employees can ask it about topics like leave policies, benefits, performance review processes, and more. This can reduce the burden on HR departments and ensure that employees have easy access to the information they need.

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Middle Office

- Financial Research
- Financial Product
- Financial Advice

1.Financial Research: Gen AI can provide a wide range of information related to financial markets, economic indicators, company profiles, historical data, and more. It can offer summaries of complex financial reports and papers, reducing the time required for manual reading. Additionally, GPT can be used to track and alert you on the latest news and trends related to specific industries, companies, or market indices.

2.Financial product specialist knowledge. Generative AI can engage with members to provide topical and relevant financial information and even under some conditions, advice based on the characteristics of the conversation. These algorithms can be trained on specific characteristics of funds to ensure that the content is specific for member / employee needs.

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Member Engagement

- B2B Sales
- Member Engagement
- Q&A and support

1.Marketing: Generative AI can aid in content creation for marketing strategies by drafting newsletters, emails, blogs, and social media posts. It can analyse market trends and generate insights for targeted marketing. Also, it can assist in the personalization of marketing content based on the preferences and behaviour of the potential clients, thereby increasing the efficiency of marketing campaigns.

2.B2B Sales: Generative AI can provide insights into the clients' needs and interests, which can help in closing a sale. It can generate personalized pitches and provide instant responses to client inquiries about products and services. It can also be used for training sales personnel, by simulating various sales scenarios.

3.Member Engagement: Generative AI can be used to automate routine communication tasks, like sending appointment reminders, account updates, or responses to common inquiries. This not only frees up time for the advisors but also ensures that the clients receive timely and consistent communication. Furthermore, it can help in creating personalized content for individual clients based on their preferences and past interactions, leading to improved client engagement.

4.Q&A and Support: Generative AI can be used as a first line of customer support, responding to clients' queries around the clock. It can provide instant responses to frequently asked questions, troubleshoot issues, or escalate more complex queries to a human advisor. This can significantly reduce the response time and improve client satisfaction.

5.Client Onboarding: Generative AI can streamline the client onboarding process by automatically filling out forms, explaining terms and conditions, answering common questions, and guiding clients through the process step-by-step.

The Challenges to AI Adoption in Australia:

Risks vs Benefits

KPMG | THE UNIVERSITY OF QUEENSLAND AUSTRALIA
CREATE CHANGE

Trust in Artificial Intelligence

A global study

2023

17
countries

17,193
respondents

https://ai.uq.edu.au/project/trust-artificial-intelligence-global-study

Figure 4. Trust in AI systems across countries
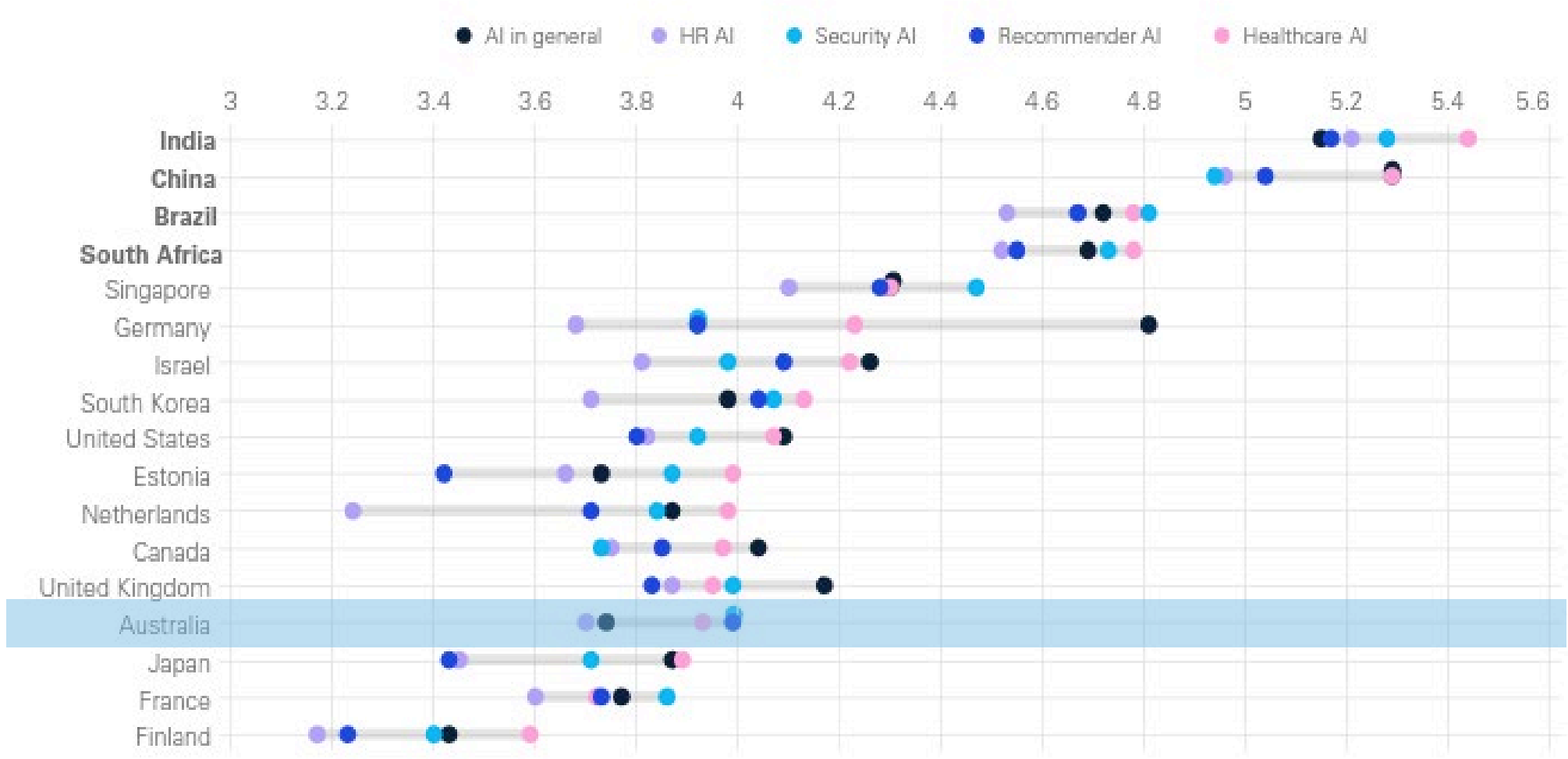
https://ai.uq.edu.au/project/trust-artificial-intelligence-global-study

Figure 6. Perceptions of the trustworthiness of AI systems

'I believe [specific AI application] would: produce output that is accurate (ability) / have a positive impact on most people (humanity) / be safe and secure to use (integrity)' [14 items]

Legend: ● Perceived trustworthiness (% Agree) ● Ability (% agree) ● Humanity (% agree) ● Integrity (% agree)
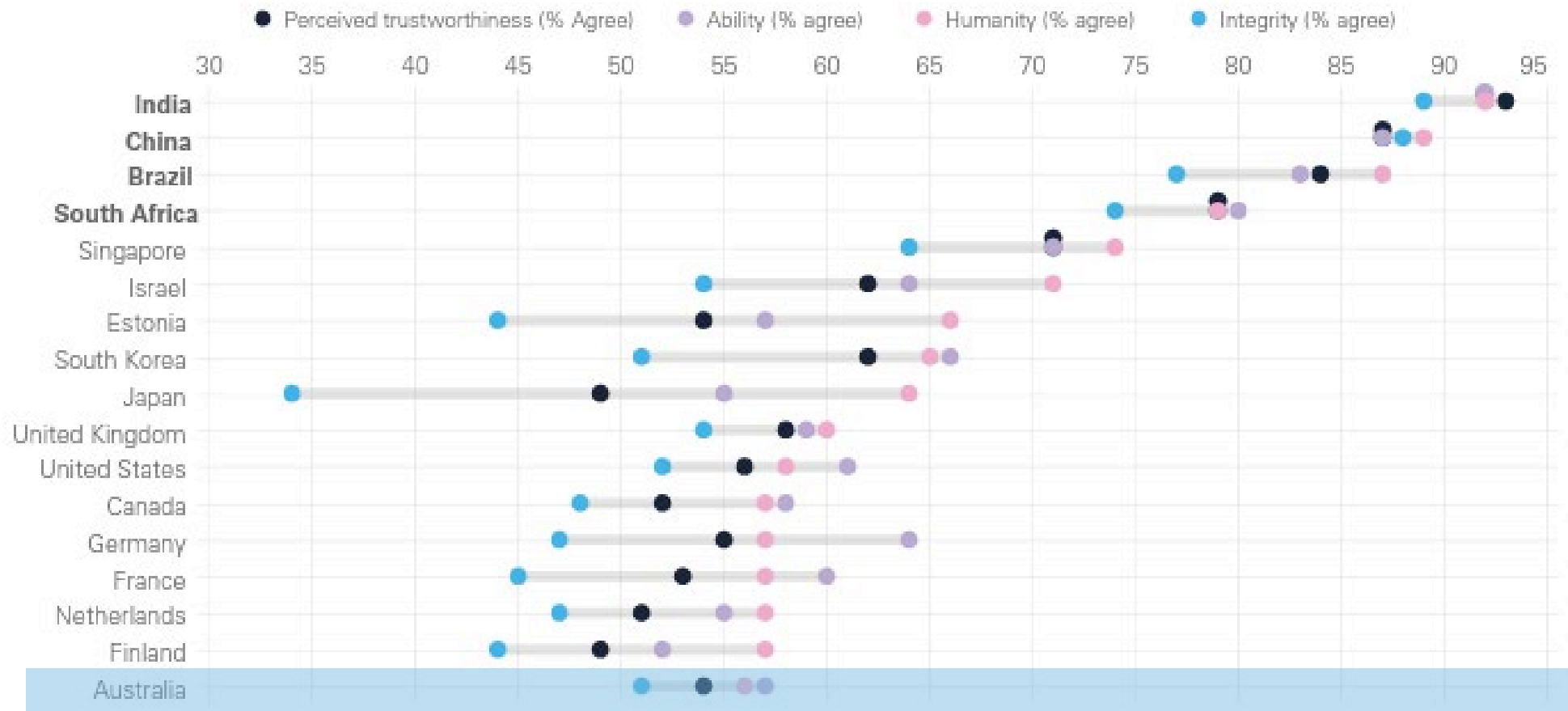
% Agree = 'Somewhat agree', 'Agree', or 'Strongly agree'
[Order of countries sorted by 'Humanity' category]

https://ai.uq.edu.au/project/trust-artificial-intelligence-global-study

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Figure 11: The perceived benefits of AI across countries

'To what extent do you expect these potential benefits from the use of AI [specific application]?'
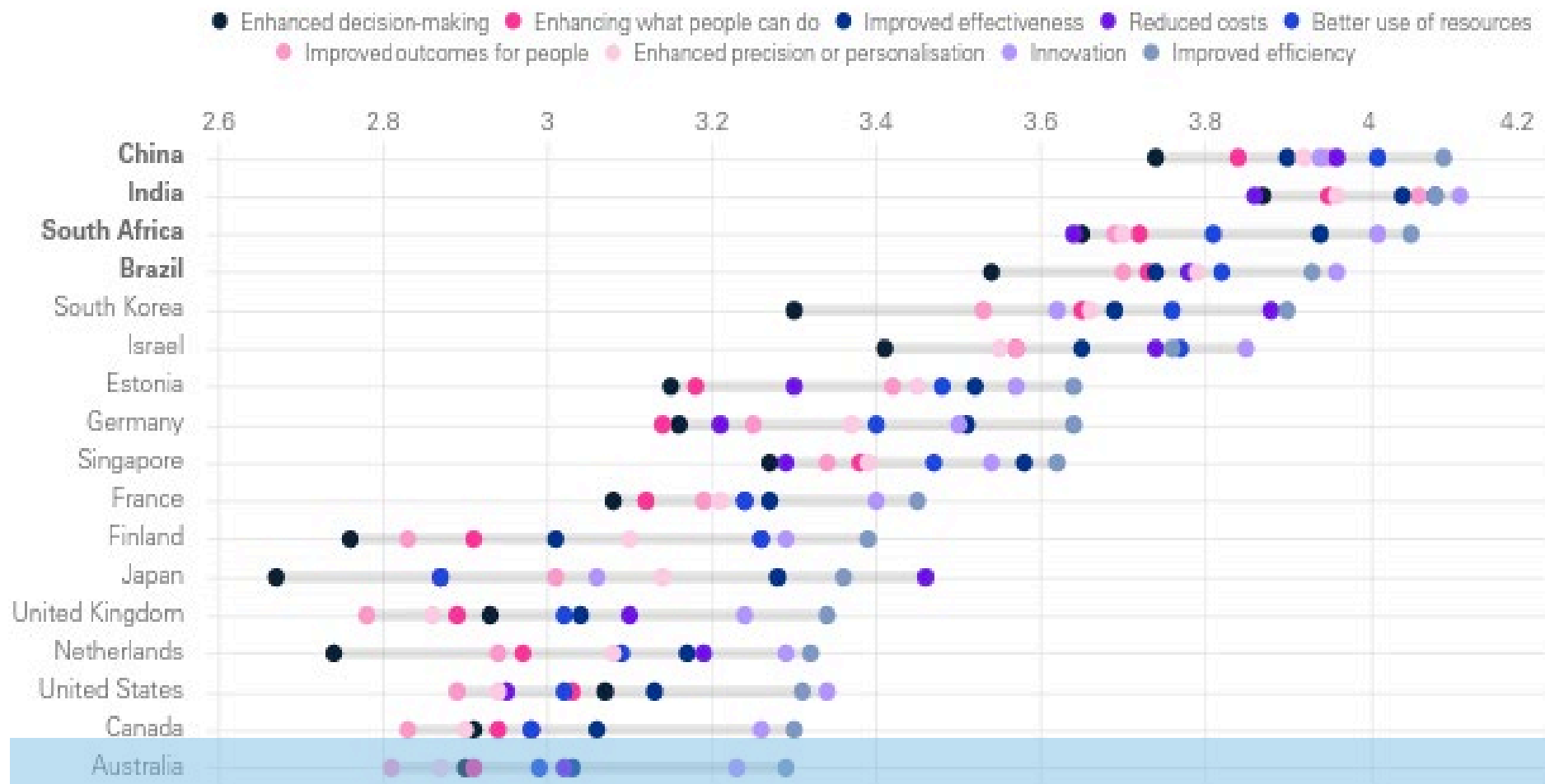
https://ai.uq.edu.au/project/trust-artificial-intelligence-global-study

Top 3 challenges to AI/ML adoption
Sum of 1 to 3 rank

Enterprise maturity

Skills of staff	56%
Data scope or quality	34%
Governance issues or concerns	13%

Fear of unknown

Understanding AI benefits and uses	42%
Security or privacy concerns	20%
Measuring the value	17%
Risk or liabilities	6%

Finding a starting point

Finding use cases	26%
Defining the strategy	25%
Finding funding	12%

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https://www.gartner.com/smarterwithgartner/3-barriers-to-ai-adoption

The Path Forward

A new age of digital agents is unfolding in front of our eyes.

ChatGPT is the first of its kind, in terms of industry impact. This technology will improve and is here to stay.

The impact on the workforce will be much more widespread and potentially more significant than any AI technology before.

The native industries could also be much more significant.

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Consider the relationship between your business strategy and the continued advancement of AI. Does it impact the company direction? Competition? Services and customers?

Develop an AI adoption strategy within the company. Empower and train your staff in its effective use. It is here to stay.

Actively monitor technology adoption trends, and new technologies. Treat it as a continuous source of growth.

Stay curious and interested in the world of AI.

Thank you!

www.evolvedreasoning.ai
De-Risking AI Adoption