

A tale of fortunate, and unplanned, events

The path that would unfold to deliver both the necessary algorithms and data to bring AI closer to reality would be near inconceivable at that time. Inconceivable, unplanned and, sometimes, unintended.

Alan Turing sat at the centre of the conception of both computation (“Turing Machine” & Bombe) and AI (and “Turing Test”).

We need openly addressable,
accessible information to be easily
published and shared by anyone

We need **people**, and their information **connected** digitally, simply and resiliently

We need many people to have **commonly usable computers** using digital information

Internet happens

Computers happen

....and AI conceived & **digitisation** begins!

We need a vast **indexed and searchable** information base to use

We need information to be understandable by context, importance and relevance, so we can give it the right **attention**

Search happens

....and indexing
provokes
translation
needs

Web happens

...and usability goes wild

Attention happens²

....and “Modern AI”
is born ^{1 2 3}

Indexing
s
on

Digital Transformation

“Attention is a

“Attention is all you need” Paper²

Ashish Vaswani, Llion Jones, Noam Shazeer, Aidan N. Gomez, Niki Parmar, Jakob Uszkoreit, Łukasz Kaiser, Illia Polosukhin μ

es wild

Digitalisation

Digitisation

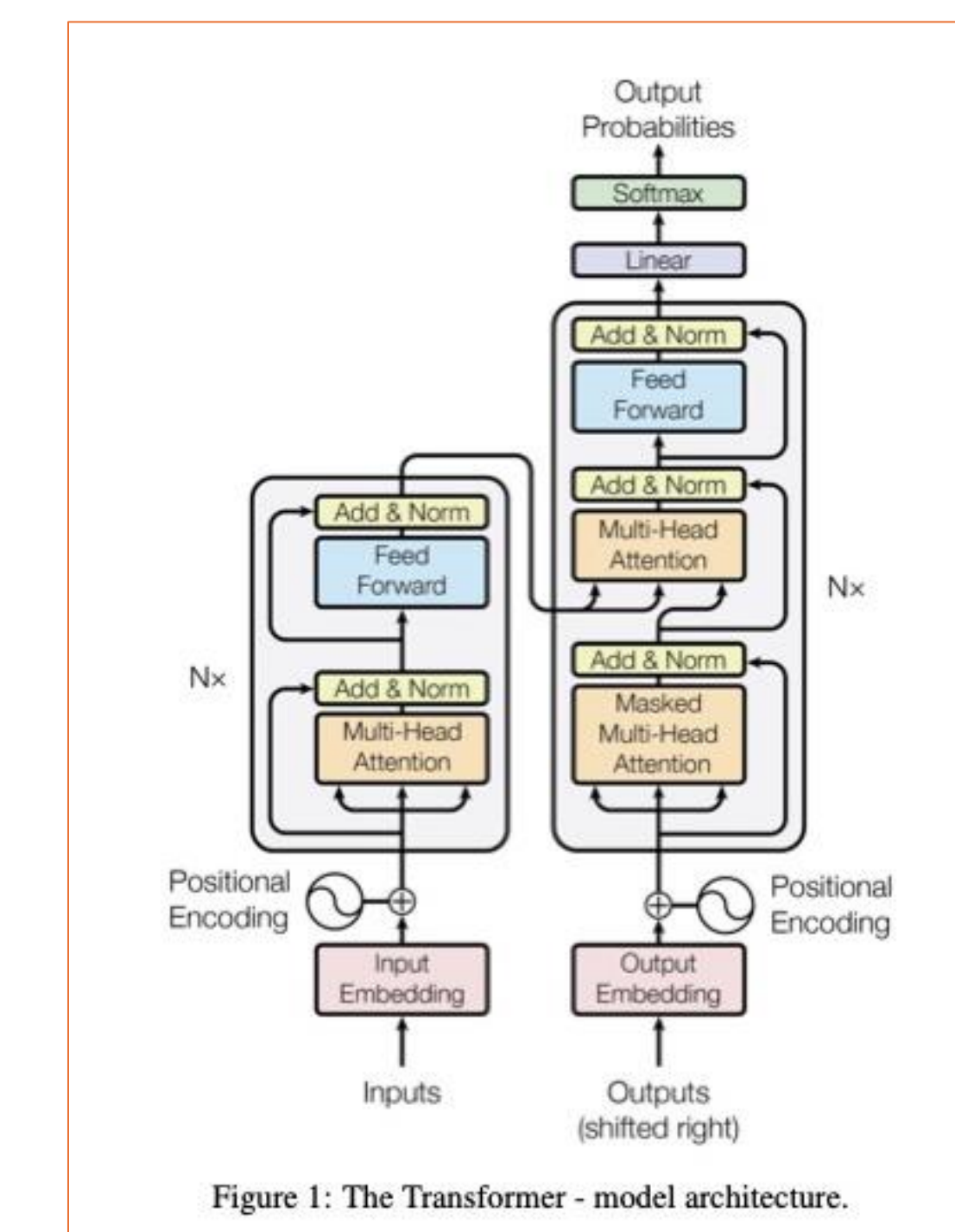
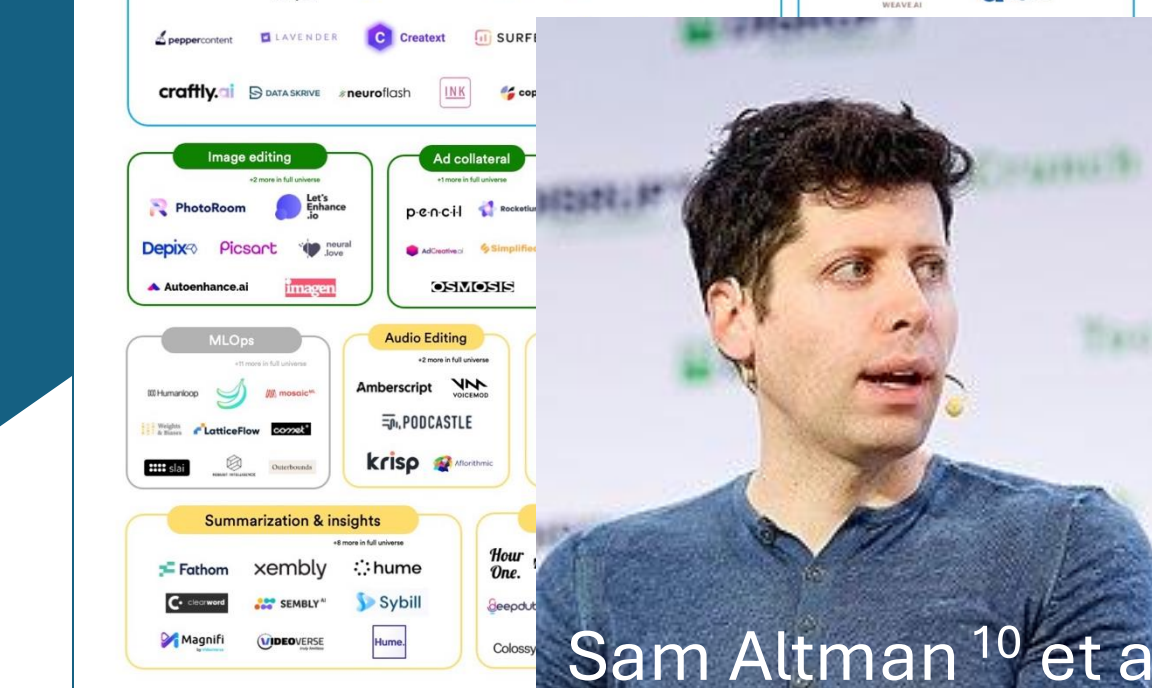
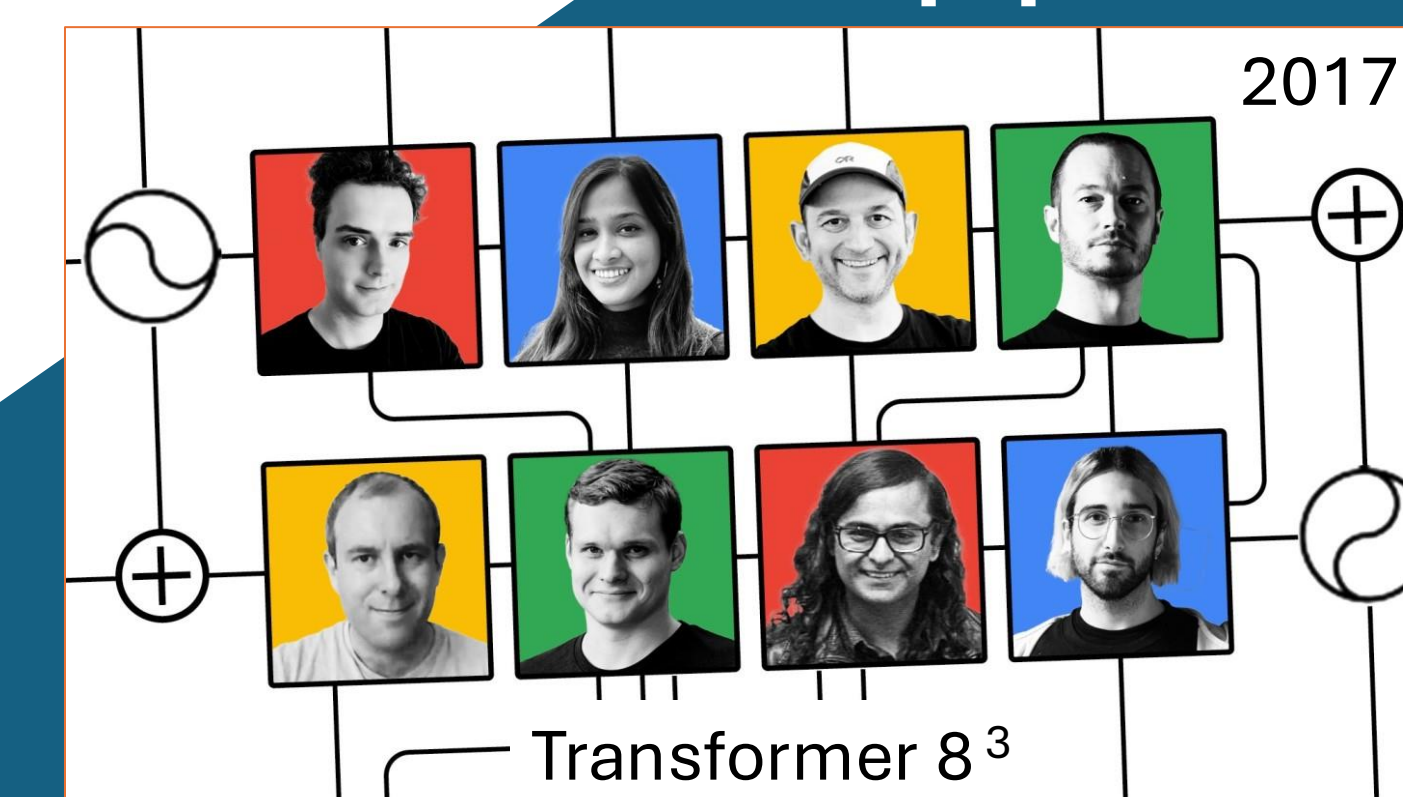
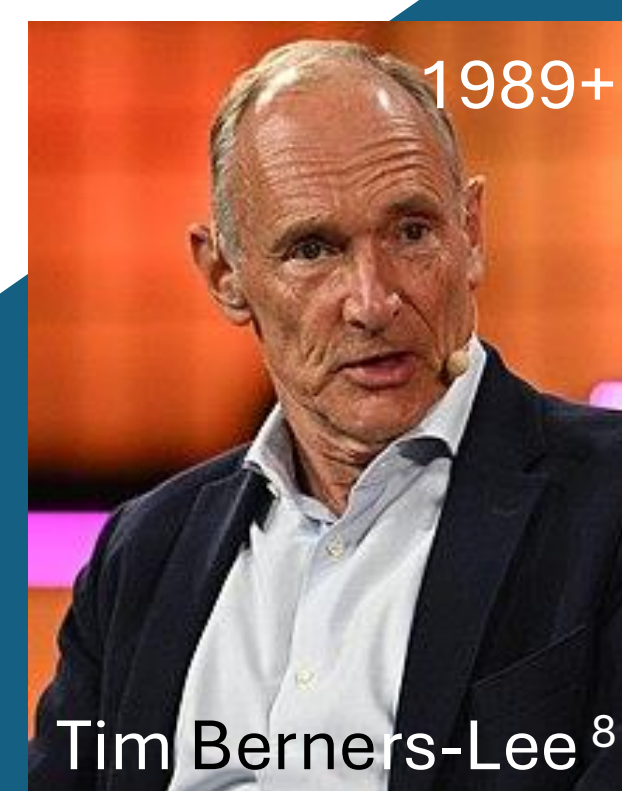
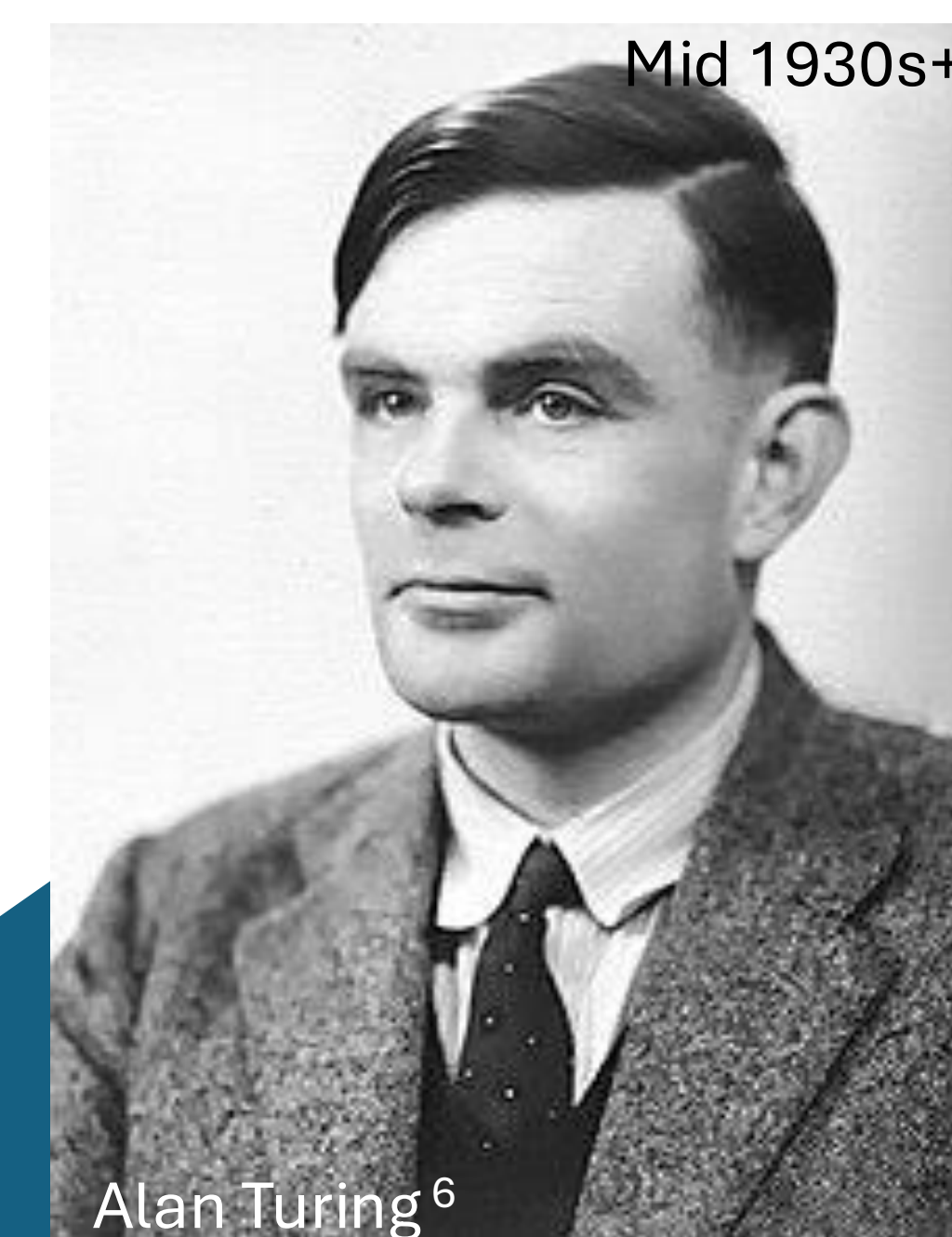
GO!

(An unintended consequence!)

“The authors started with a thriving and improving technology—a variety of AI called neural networks—and made it into something else: a digital system so powerful that its output can feel like the product of an alien intelligence. Called transformers, *this architecture is the not-so-secret sauce behind all those mind- blowing AI products, including ChatGPT and graphic generators such as Dall-E and Midjourney.*” ³

“Now, you may ask the question, why wasn’t there ChatGPT by Google back in 2018? Realistically, we could have had GPT-3 or even 3.5 probably in 2019, maybe 2020. The big question isn’t, did they see it? The question is, why didn’t we do anything with the fact that we had seen it? The answer is tricky.” Jason Uszkoreit.

8 Google Employees Invented Modern AI. Here's the Inside Story' Wired Magazine 20th March 2024³

Imperial
TechForesight///

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⁸ Bill Gates https://commons.wikimedia.org/wiki/File:Bill_Gates_-_September_2024.jpg

⁹ Tim Berners Lee [https://commons.wikimedia.org/wiki/File:LS3_4919_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:LS3_4919_(cropped).jpg)

¹⁰ Sergey Brin [https://commons.wikimedia.org/wiki/File:Sergey_Brin_Ted_2010_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:Sergey_Brin_Ted_2010_(cropped).jpg)

¹¹ Sam Altman [https://commons.wikimedia.org/wiki/File:Sam_Altman_TechCrunch_SF_2019_Day_2_Oct.3_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:Sam_Altman_TechCrunch_SF_2019_Day_2_Oct.3_(cropped).jpg)

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¹³ Vint Cerf [https://commons.wikimedia.org/wiki/File:Dr_Vint_Cerf_FoMemRS_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:Dr_Vint_Cerf_FoMemRS_(cropped).jpg)

¹⁴ Robert Kahn https://commons.wikimedia.org/wiki/File:Bob_Kahn.jpg

¹⁵ Larry Page [https://commons.wikimedia.org/wiki/File:Larry_Page_in_the_European_Parliament,_17.06.2009_\(cropped\).jpg](https://commons.wikimedia.org/wiki/File:Larry_Page_in_the_European_Parliament,_17.06.2009_(cropped).jpg)

Sources

¹ Financial Times 23rd July 2023 **'Transformers: the Google scientists who pioneered an AI revolution'**

² **Attention Is All You Need** by Ashish Vaswani, et al. arXiv:1706.03762

³ **8 Google Employees Invented Modern AI. Here's the Inside Story'** Wired Magazine 20th March 2024

⁴ BASE10 TREND MAP: GENERATIVE AI <https://base10.vc/post/generative-ai-mission-critical/>

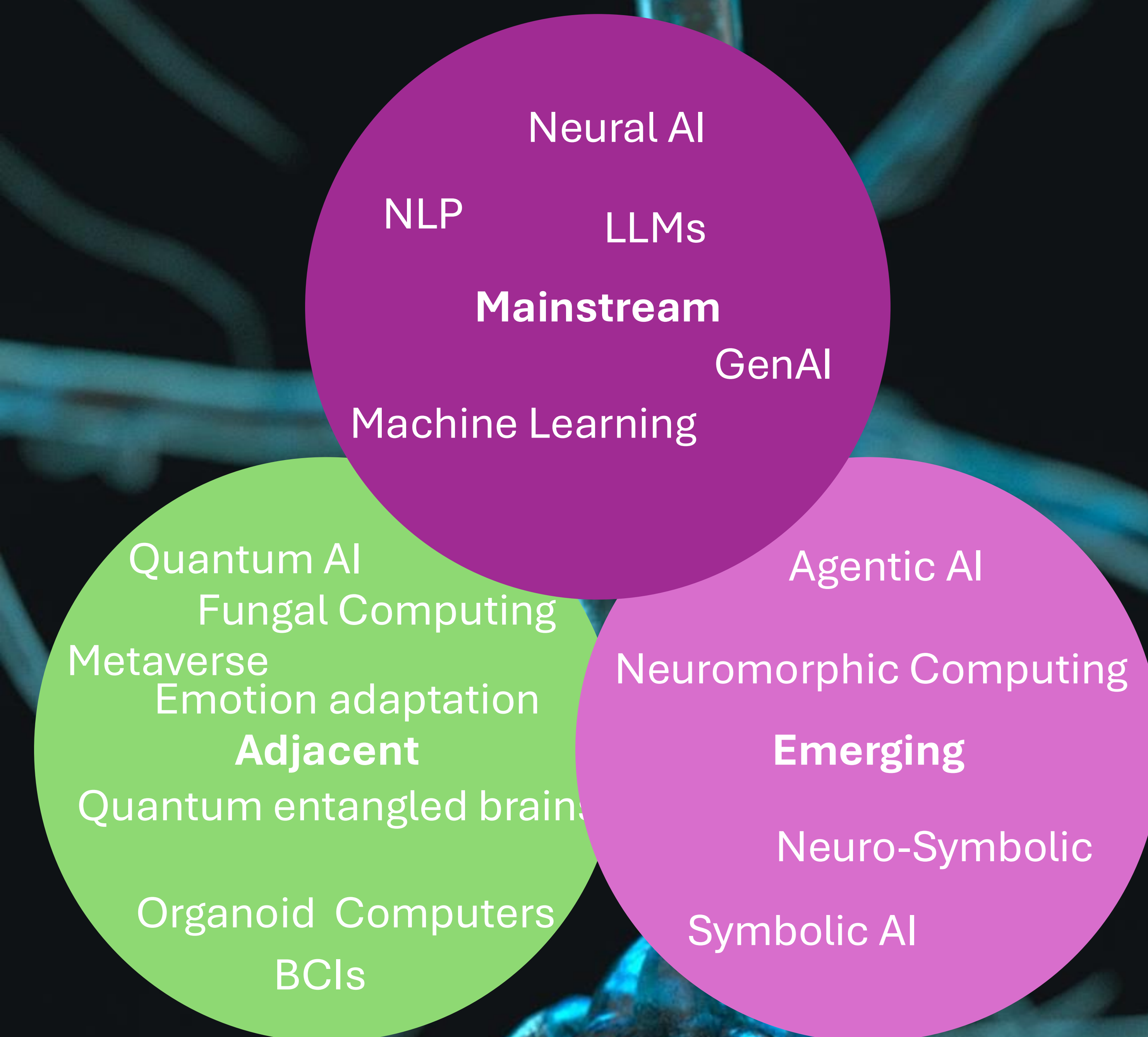
More than technologies – Cognitive transformation

“**Cognitive transformation**” is a combination of cues

We have new tools that more closely emulate the workings of the human mind (Technology)

“We shape our tools, and our tools shape us” (Philosophy)^{1 2}

Transformation of our thinking i.e., cognition, comes from adversity (Psychology)³



Tools that emulate the working of the human mind

Example of adjacent – Organoid computers

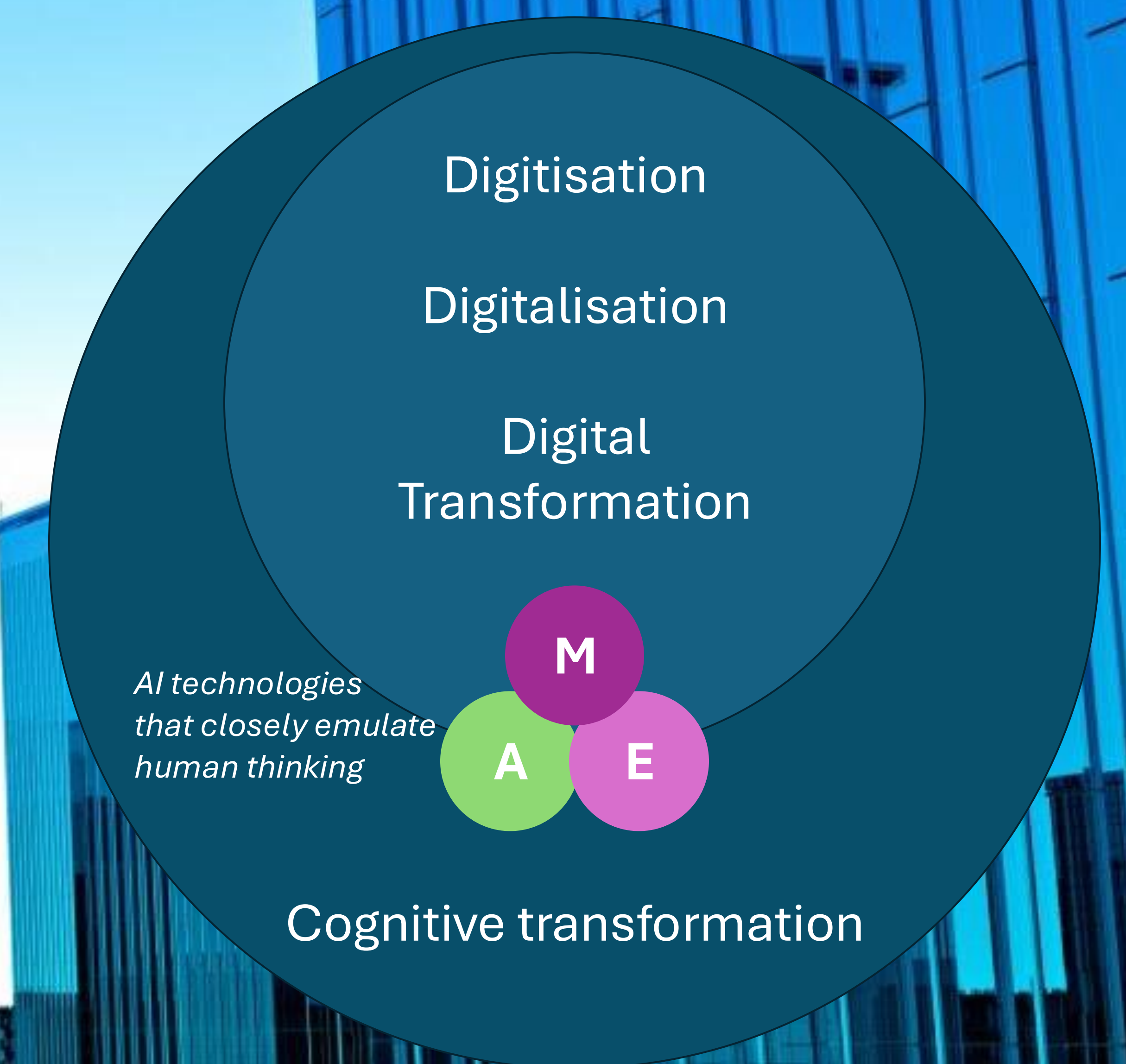
In 2025 Cortical Labs launched for purchase the CL1. The world’s first deployable biological computer using lab grown neurons for processing⁴

“We shape our tools, and our tools shape us” (Philosophy)^{1 2}

And next?

What are new words to replace ‘productivity’ and ‘efficiency’? What alternatives are there to ‘smart’? Will new tools bring in undeniable context, like climate and demographic change, into assisted decision making?

Will our complicated, complex and even chaotic economic environments be more navigable with AI? Will we be even able to think along at the pace of AI controlled economies? What if we can’t understand what they have done or are doing?



Transformation of our thinking i.e., cognition, comes from adversity (Psychology)³

¹ Father John Culkin, SJ, a Professor of Communication at Fordham University in New York and friend of Marshall McLuhan to whom the quote is often mistakenly attributed.

² Additive AI by Professor Mark Kennedy, Imperial College London

³ Cognitive transformation as a marker of resilience – Tebes, Irish, Puglisi Vasquez and Perkins- Pubmed

⁴ Cortical Labs <https://corticallabs.com>

A transformed world – Cognitive transformation

Soon

AI systems are being commonly deployed. In line with the ‘cognitive transformation’ theme, we are interested in how we interact with AIs and how that in turn changes us.

Future of AI interaction

Here we look across the immediate to long-term of AI interactions with a high-level speculation of the transition of **consumer banking**

	Legacy & Challenger Banks (Today)
Channel	<ul style="list-style-type: none">• Website• Mobile App• Telephone phone banking (choice navigation) ⁴• Chat interfaces (Pseudo AI)• Elusive help desks• Impersonal service (Efficiency)
Functional	Legacy back-end systems plus AI

	AI First Consumer Banking (Tomorrow)
Channel	<ul style="list-style-type: none">• Website (flat and conversational)• Device Apps (flat and conversational)• Telephone phone banking (conversation-based navigation)• Chat interfaces (Real AI)• Humanised Help desks (AI + people)• Personal service (experience)• Agents acting on their behalf while customer not online
Functional	AI centric

Cascading change in the medium term

All the small implementations and experiments with AI technologies will aggregate and mature into larger scale change.

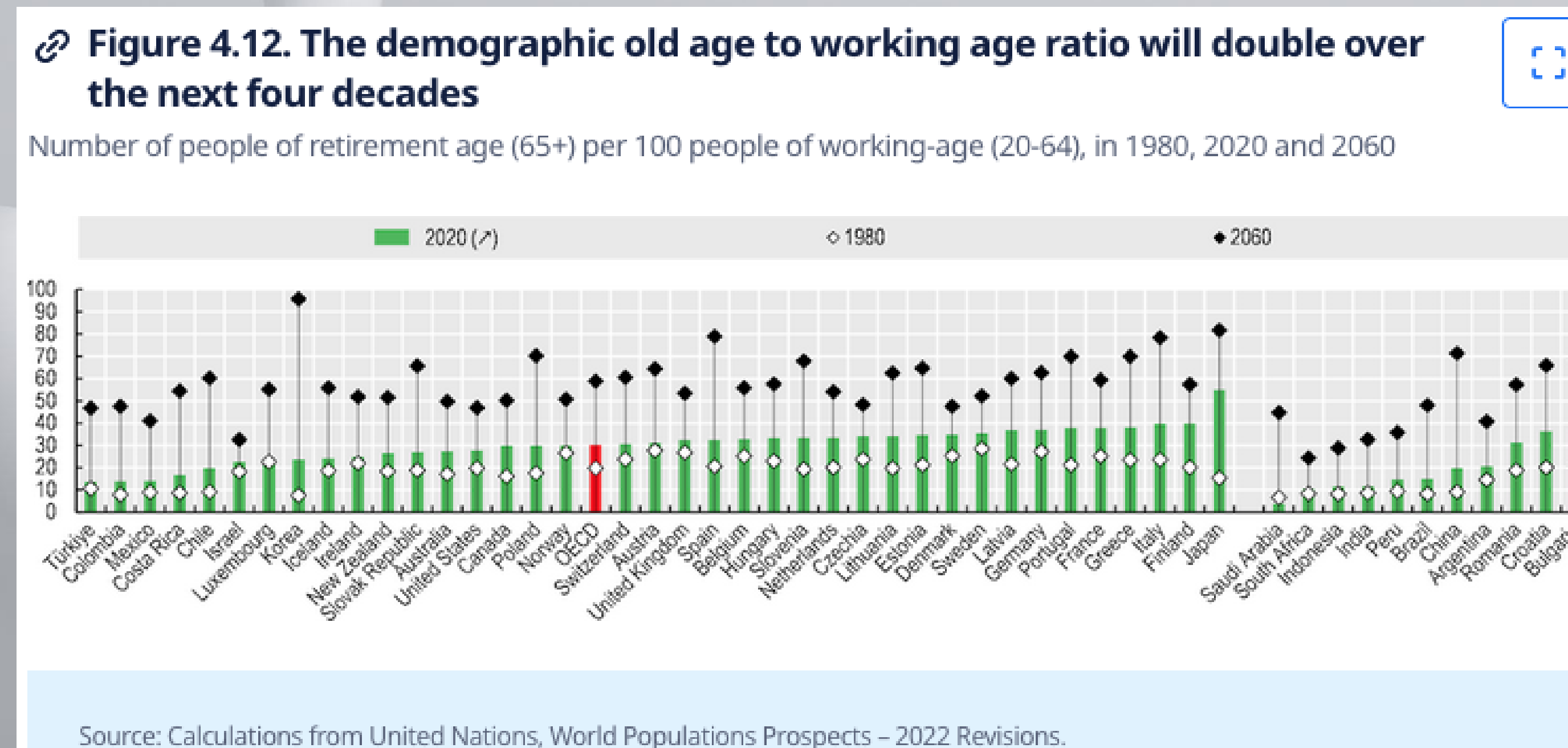
Future of work

Ex Google CEO Eric Schmidt has speculated on the social impact and industry adoption of AI ^{5 6} Three of Schmidt’s ideas on the future of work are:

Demography – In affluent countries, Job losses through automation will be part offset by a reduction in people entering working age due to declining birth rates

Job Types – As some work is automated new jobs will emerge in, for example, the health and care industries

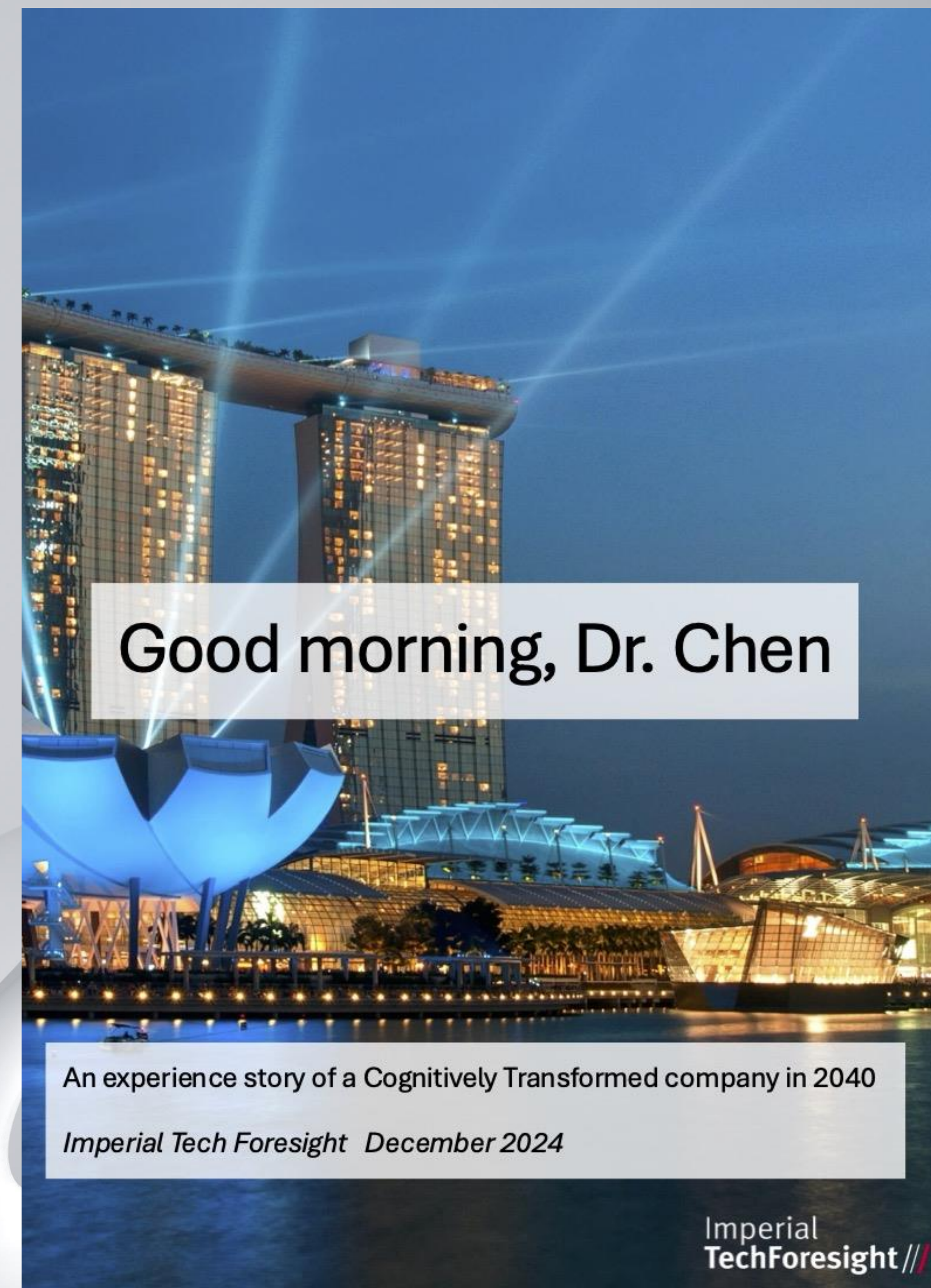
Industry adoption – Industries will adopt AI technologies at different rates due to the different proportion of roles that can be automated in them.



Society at a Glance 2024: OECD Social Indicators ⁸

Far Future

Imperial Tech Foresight has created a story about the experience of being in a cognitively transformed company in the future.



¹ Design breakthroughs defining AIs future - Patrick Morgan Feb 2 2025 - <https://uxdesign.cc/8-design-breakthroughs-defining-ais-future-21f7941ed160>

² For example, ‘Elon Musk: Neuralink and the Future of Humanity’ Lex Fridman Podcast #438 2nd August 2024

³ ‘Understanding Gibberlink Mode’ The Rise of AI’s Hidden Language’ Mike Boese March 5th 2025. <https://www.apexon.com/blog/understanding-gibberlink-mode-ais-next-leap-how-do-we-ensure-it-stays-in-check/>

⁴ Your call is important to us...Please hold’ 1.52bn hours lost to inefficient call systems Financial Times 5th April 2025

⁵ Genesis: Artificial Intelligence, Hope and the Human Spirit (2024) Eric Schmidt, Henry Kissinger and Craig Mundie ISBN 1399819100

⁶ ‘AI Can Create Deadly Viruses! If We See This, We Must Turn Off AI!’ Diary of a CEO (interview) 14th November 2024 <https://www.youtube.com/watch?v=2Zg--ouGI7c>

⁷ Generative Artificial Intelligence and the Workforce The Burning Glass Institute

⁸ Society at a Glance 2024: OECD Social Indicators https://www.oecd.org/en/publications/society-at-a-glance-2024_918d8db3-en/full-report/demographic-trends_06973ace.html

⁹ What is embodied AI? How it powers autonomous systems <https://www.techtarget.com/searchenterpriseai/definition/embodyed-AI>