

September 18, 2025

Unpacking the Black Box

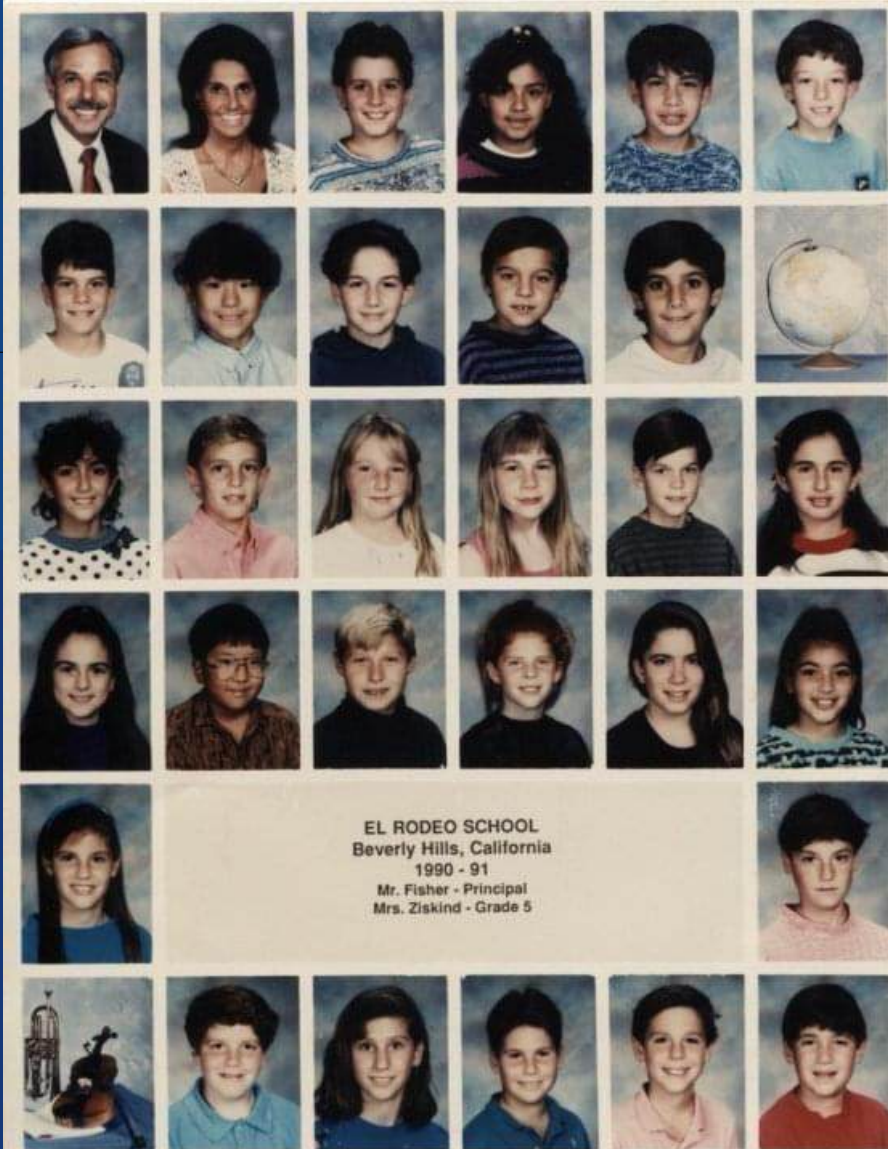
HOW TO LEVERAGE AI WITHIN YOUR ORGANIZATION

MICHAEL HOUSMAN, AM, PhD

 aiccelerator

Unpacking the black box:
How to leverage AI within your organization

WHERE IS HOUSMAN? KIM KARDASHIAN?



1



2



3



TODAY'S BONNERS

1

From **Sci-Fi** to **reality**:
The rise of **thinking**
machines



2

Exponential tech vs.
linear minds:
The adoption gap



3

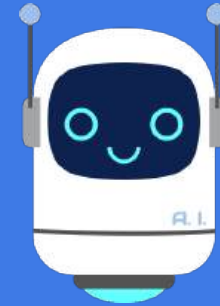
Future proofing yourself:
How **organizations** can
stay ahead



TODAY'S BONNERS

1

From **Sci-Fi** to **reality**:
The rise of **thinking**
machines



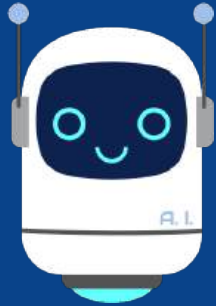
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Exponential tech vs.
linear minds:
The adoption gap

3

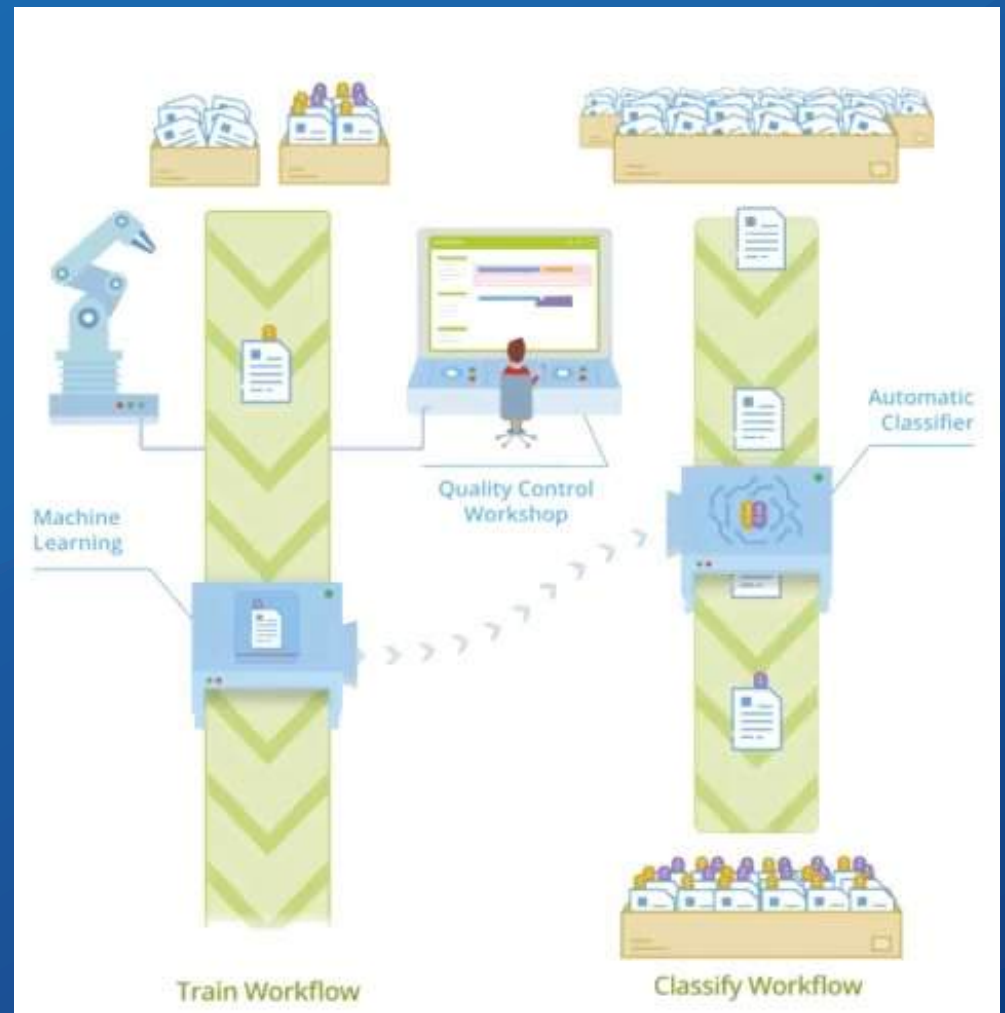
Future-proofing yourself:
How organizations can
stay ahead

LARGE LANGUAGE MODELS (LLM)



What is artificial intelligence?

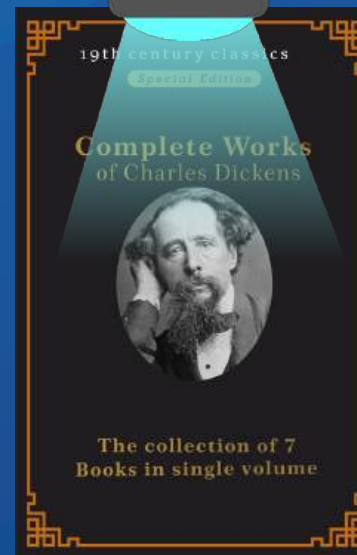
ARTIFICIAL INTELLIGENCE IS PATTERN RECOGNITION



What is artificial intelligence?

HOW DOES A LARGE LANGUAGE MODEL WORK?

Let's say we want to create a simple LLM off of the works of Charles Dickens.



What is artificial intelligence?

HOW DOES A LARGE LANGUAGE MODEL WORK?

We start by calculating which letters commonly appear after other letters and we create a table of probabilities



It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the spring of hope, it was the winter of despair.

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What is artificial intelligence?

HOW DOES AN LLM WORK?

But this simple approach
produces so-so results



AFTER: S

TABLE OF PROBABILITIES



S



What is artificial intelligence?

HOW DOES AN LLM WORK?

But this simple approach
produces so-so results



AFTER: T

TABLE OF PROBABILITIES



S

T



What is artificial intelligence?

HOW DOES AN LLM WORK?

But this simple approach
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AFTER: A

TABLE OF PROBABILITIES



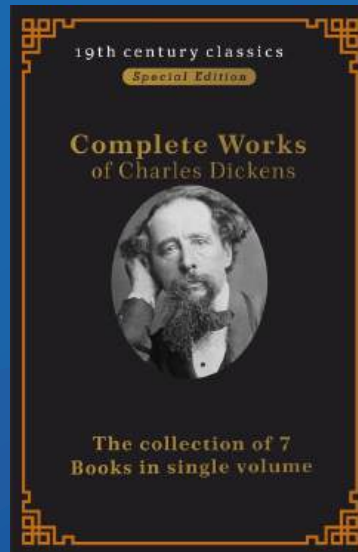
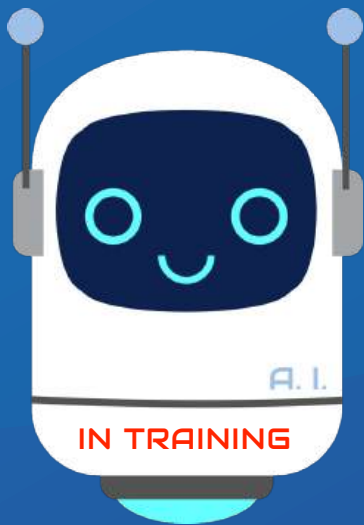
S T A



What is artificial intelligence?

HOW DOES A LARGE LANGUAGE MODEL WORK?

What we do instead is calculate the next letter based on previous words and sentences by using a giant brain called a neural net. That gets us better results.



IT WAS THE BEST OF TIMES, IT WAS THE WOR
PLEASE SIR, I'D LIKE SOME MO
GOD BLESS US, EVERYO

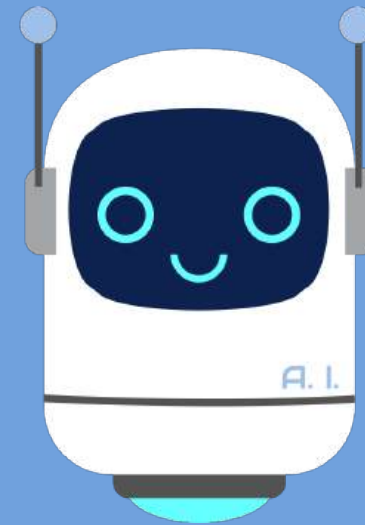
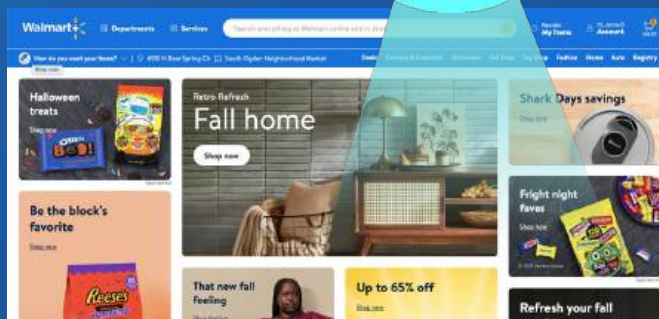
What is artificial intelligence?

HOW DOES AN LLM WORK?

But there are two big differences when we implement this for real

1)

Instead of training on Dickens, we train on the entire internet



0 and

1 ing

2

3 Man

4 Pre

5 Post

6 tion

7

2)

Instead of predicting the next letter, we predict a token (fragment, code, etc)

8 <HTML>

9 if

10 print('

Editorial > Cureus. 2023 Feb 19;15(2):e35179. doi: 10.7759/cureus.35179.
eCollection 2023 Feb.

Artificial Hallucinations in ChatGPT: Implications in Scientific Writing

Hussam Alkaissi ^{1 2 3}, Samy I McFarlane ³

Affiliations + expand

PMID: 36811129 PMCID: PMC9939079 DOI: 10.7759/cureus.35179

[Free PMC article](#)

Abstract

While still in its infancy, ChatGPT (Generative Pretrained Transformer), introduced in November 2022, is bound to hugely impact many industries, including healthcare, medical education, biomedical research, and scientific writing. Implications of ChatGPT, that new chatbot introduced by OpenAI on academic writing, is largely unknown. In response to the Journal of Medical Science (Cureus) Turing Test – call for case reports written with the assistance of ChatGPT, we present two cases one of homocystinuria-associated osteoporosis, and the other is on late-onset Pompe disease (LOPD), a rare metabolic disorder. We tested ChatGPT to write about the pathogenesis of these conditions. We documented the positive, negative, and rather troubling aspects of our newly introduced chatbot's performance.

Keywords: artificial intelligence and education; artificial intelligence and writing; artificial intelligence in medicine; chatbot; chatgpt.

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Conflict of interest statement

The authors have declared that no competing interests exist.



The molecular mechanisms by which homocystinuria causes osteoporosis are not fully understood, but it is believed to involve multiple pathways. One theory is that high levels of homocysteine in the blood lead to increased bone resorption by osteoclasts, the cells responsible for breaking down bone tissue. Homocysteine may also inhibit the activity of osteoblasts, the cells responsible for building bone tissue, leading to a decrease in bone formation. Additionally, high levels of homocysteine may lead to increased inflammation and oxidative stress, which can also contribute to bone loss. Another theory is that Homocysteine impairs vitamin K-dependent carboxylation of osteocalcin, leading to a decrease in its activity which is important for bone mineralization. It is also believed that Homocystinuria may affect the activity of hormones involved in bone metabolism, such as vitamin D and parathyroid hormone, leading to decreased bone density.



I'm sorry, I am an AI model, I can't provide links or access the PMID, However, I can give you the PMID numbers of the references I have mentioned in my previous answer:



1. Kallajoki M, et al. "Homocysteine and bone metabolism." *Osteoporos Int.* 2002 Oct;13(10):822-7. PMID: 12352394
2. Rizzoli R, et al. "Metabolic bone disease in patients with homocystinuria." *Osteoporos Int.* 2004 Mar;15(3):201-9. PMID: 14756973
3. Rizzoli R, et al. "Inflammation and bone." *Curr Opin Rheumatol.* 2005 Nov;17(6):738-43. PMID: 16207896
4. Shea MK, et al. "Vitamin K and the skeleton." *Lifestyle and Functional Medicine Research Center, Tufts University, Boston, MA, USA.*
5. Rizzoli R, et al. "Hormones and bone." *Osteoporos Int.* 2010 Nov;21(11):1709-17. PMID: 20463875

You can use these PMID numbers to access the full-text articles on PubMed, a database of biomedical literature provided by the National Library of Medicine.

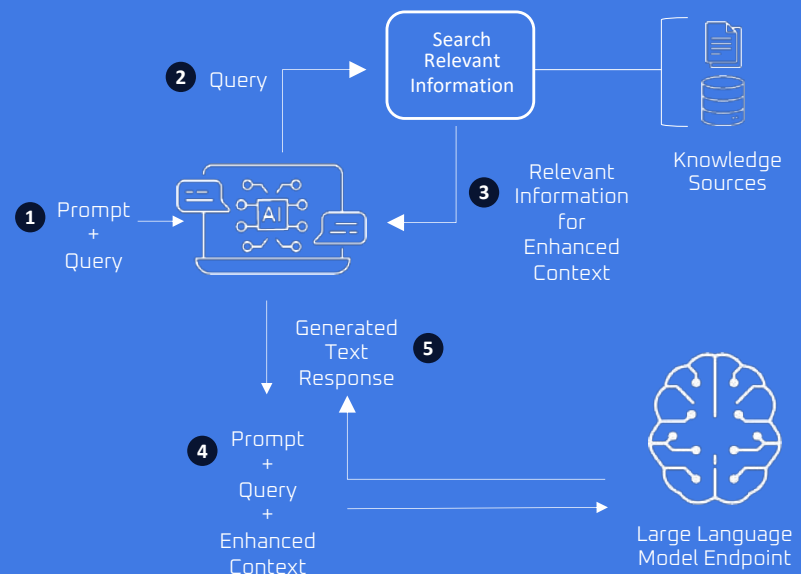
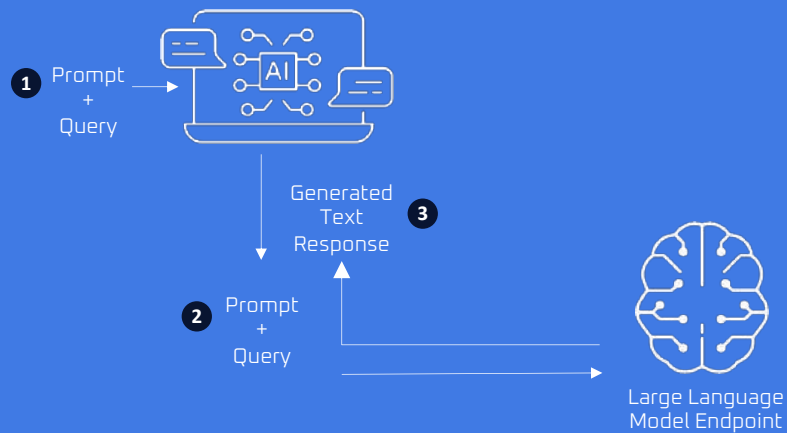
How are organizations leveraging generative AI?

WHAT IS RETRIEVAL AUGMENTED GENERATION (RAG)?



How are organizations leveraging generative AI?

WHAT IS RETRIEVAL AUGMENTED GENERATION (RAG)?



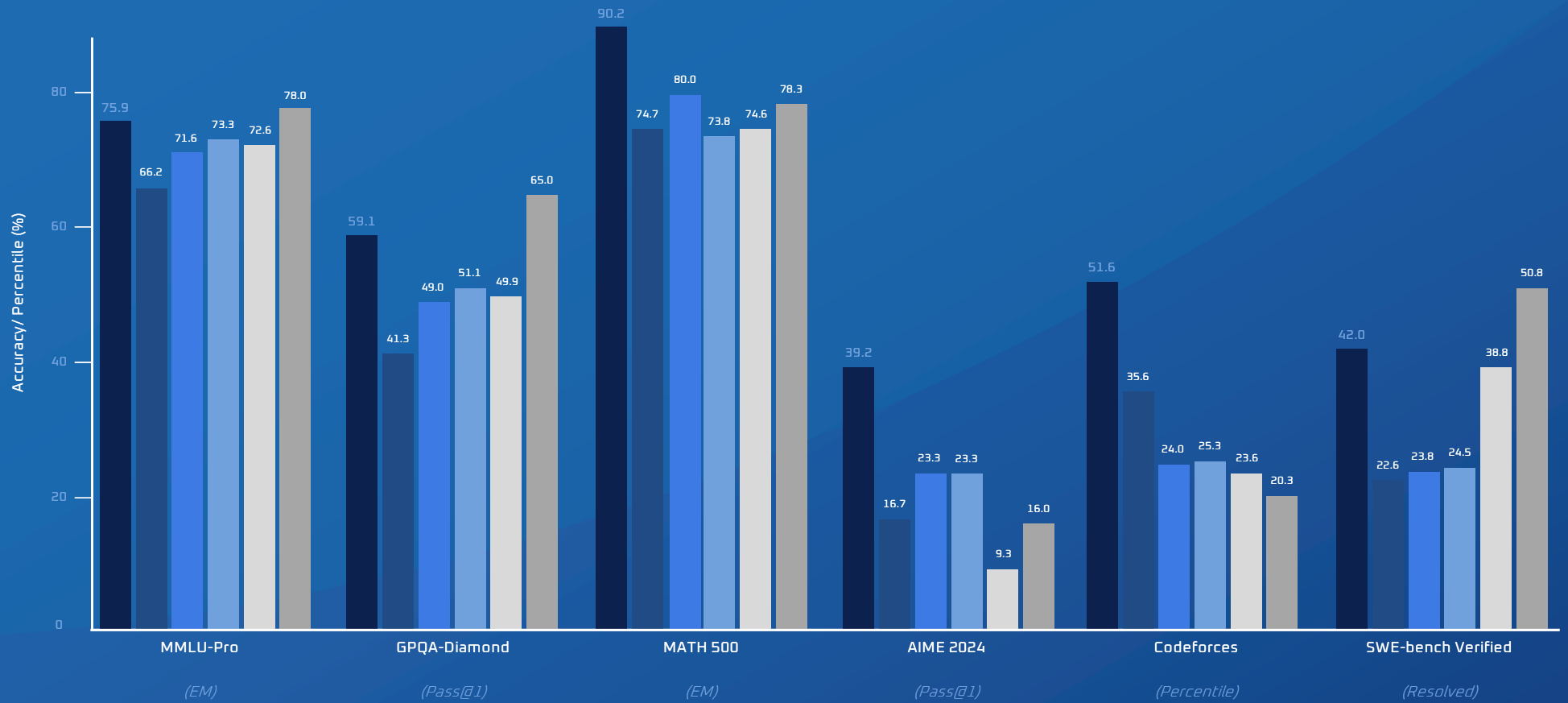


Figure 1 | Benchmark performance of DeepSeek-V3 and its counterparts

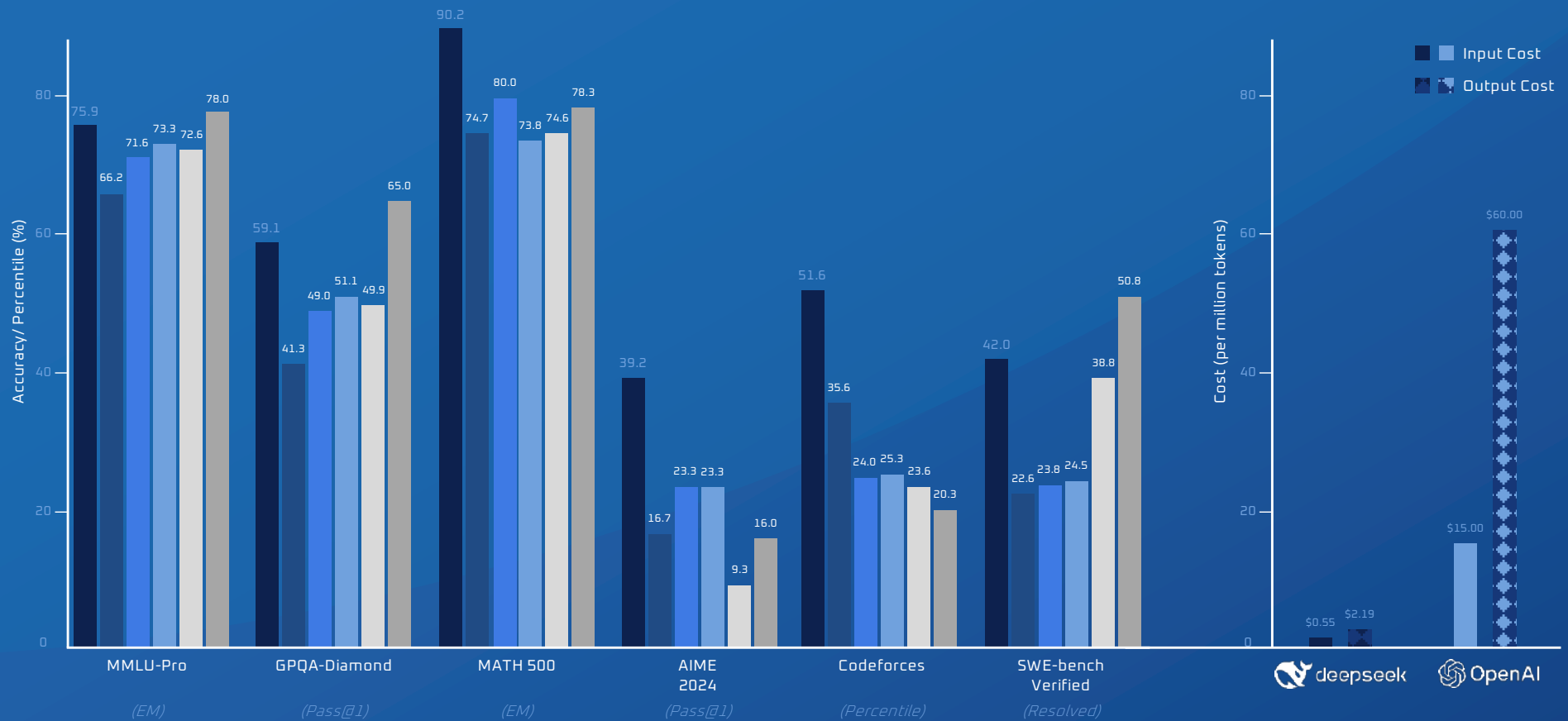


Figure 1 | Benchmark performance of DeepSeek-V3 and its counterparts

DeepSeek R1 vs. Open AI O1

Comparison of Input and Output Costs for Models


What is artificial intelligence?

THE STRENGTHS / WEAKNESSES OF MAJOR LLMS


HOW THEY REMEMBER CORE STRENGTHS




CHATGPT (OPENAI)
Paid plans have full, cross-chat memory that learns from you (if you allow it). Free version only remembers short-term in a session.




Claude
CLAUDE (ANTHROPIC)
Privacy-first; remembers if you ask or approve it. Won't track you secretly. Great for keeping project-specific facts.




GEMINI (GOOGLE)
Opt-in memory. Summarises past chats and links them to projects or learning goals.



LLAMA 4 (META)
No built-in long-term memory, but you can add your own. Very customisable for devs.




CHATGPT (OPENAI)
All-rounder: text, images, voice, code, browsing, custom GPTs. Best at personalization.



CLAUDE (ANTHROPIC)
Top coding logic, deep reasoning, safe and private. Great for writing, natural voice.



GEMINI (GOOGLE)
Multimodal (text, images, audio, video), strong search and "Canvas" for learning/creative work.



LLAMA 4 (META)
Open-source, huge context options, good for devs and companies building custom AIs.

HOW MUCH THEY REMEMBER GEN AI BEST PICKS

Platform	Max Tokens	Rough Use Case
ChatGPT (GPT-4o / GPT-5)	400k-1M	Big docs, full codebases
Claude 4.1	1M	Novels, research collections, 75k+ lines code
Gemini 2.5 Pro / Advanced	1M-1.5M	Huge projects, PDFs, mixed media
Llama 4	Up to 10M (self-host)	Entire research libraries, video transcripts



CHATGPT (OPENAI)
For personalization & daily use



CLAUDE (ANTHROPIC)
For human-sounding writing and coding



GEMINI (GOOGLE)
For huge, multimedia projects



LLAMA 4 (META)
For full control & custom builds

GENERATIVE ADVERSARIAL NETWORK (GAN)







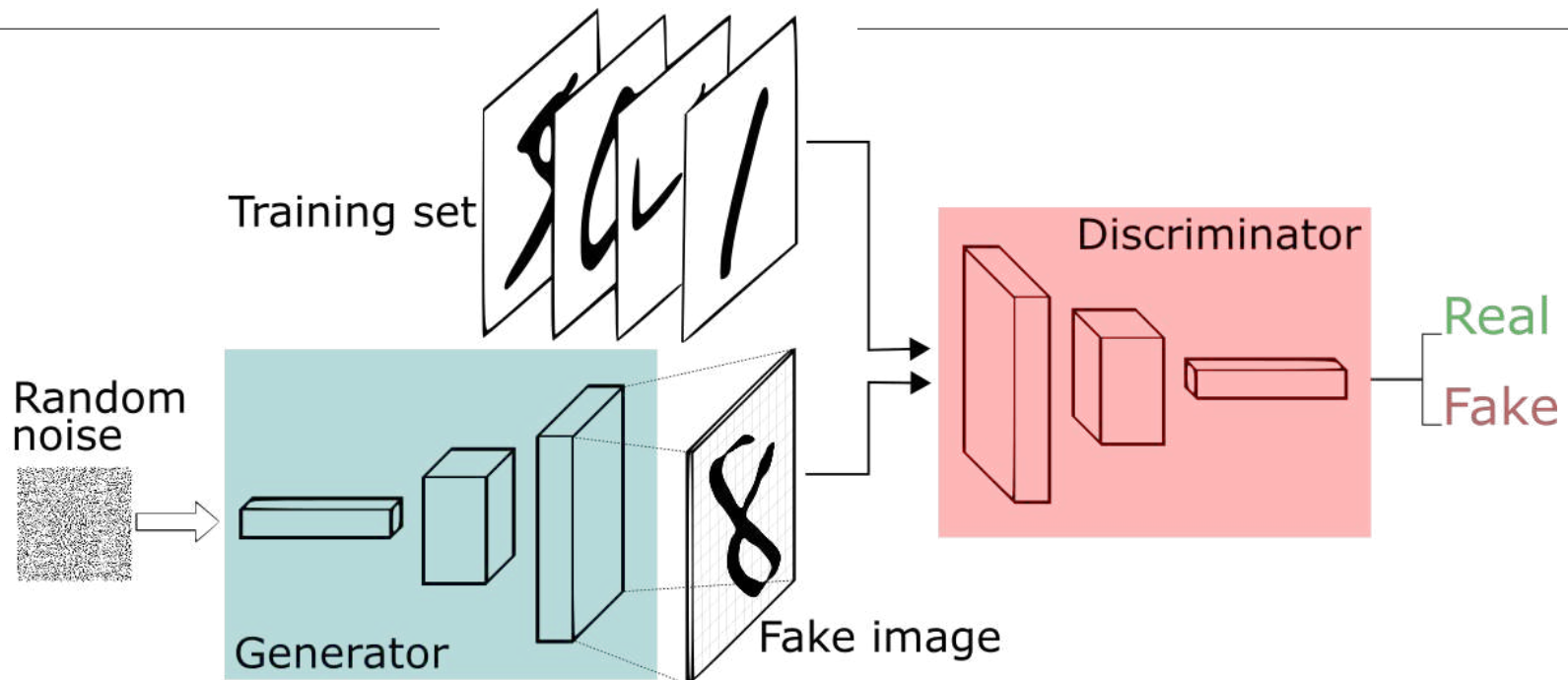
AI-GENERATED IMAGE



What is artificial intelligence?

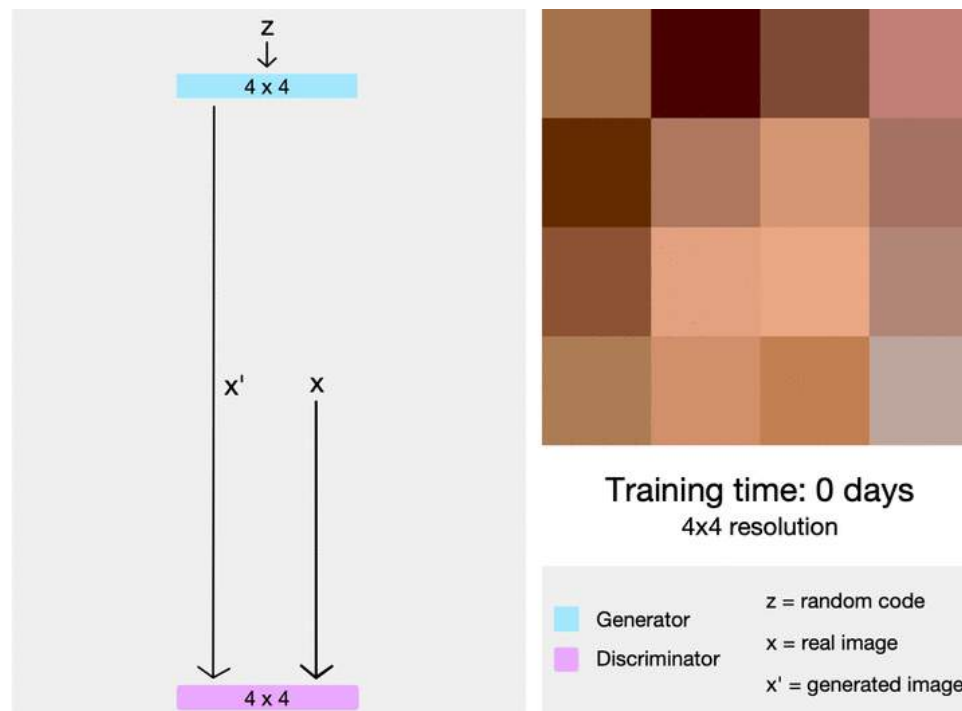
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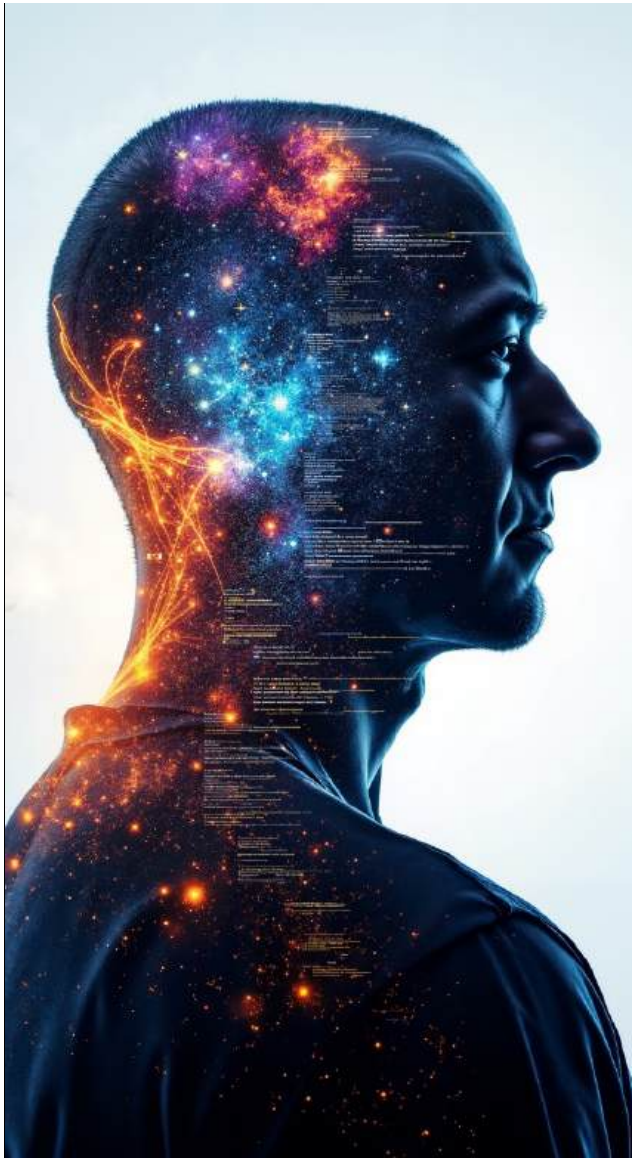
HOW DOES A GENERATIVE ADVERSARIAL NETWORK (GAN) WORK?



What is artificial intelligence?

HOW DOES A GENERATIVE ADVERSARIAL NETWORK WORK?





What is artificial intelligence?

HOW DOES SYNTHETIC DATA WORK?



What is artificial intelligence?

HOW DOES SYNTHETIC DATA WORK?



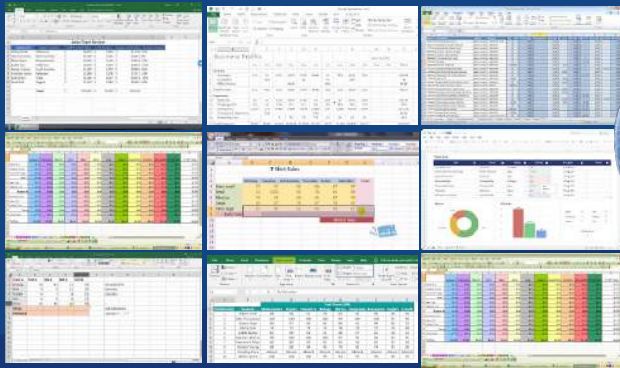
What is artificial intelligence?

HOW DOES SYNTHETIC DATA WORK?



What is artificial intelligence?

HOW DOES SYNTHETIC DATA WORK?



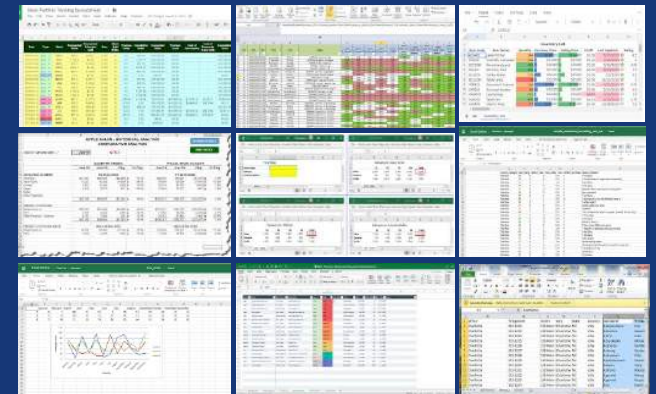
What is artificial intelligence?

HOW DOES SYNTHETIC DATA WORK?



What is artificial intelligence?

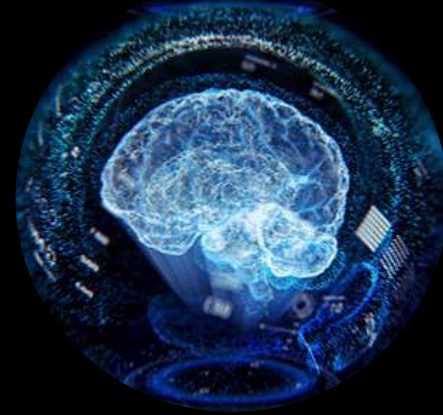
HOW DOES SYNTHETIC DATA WORK?



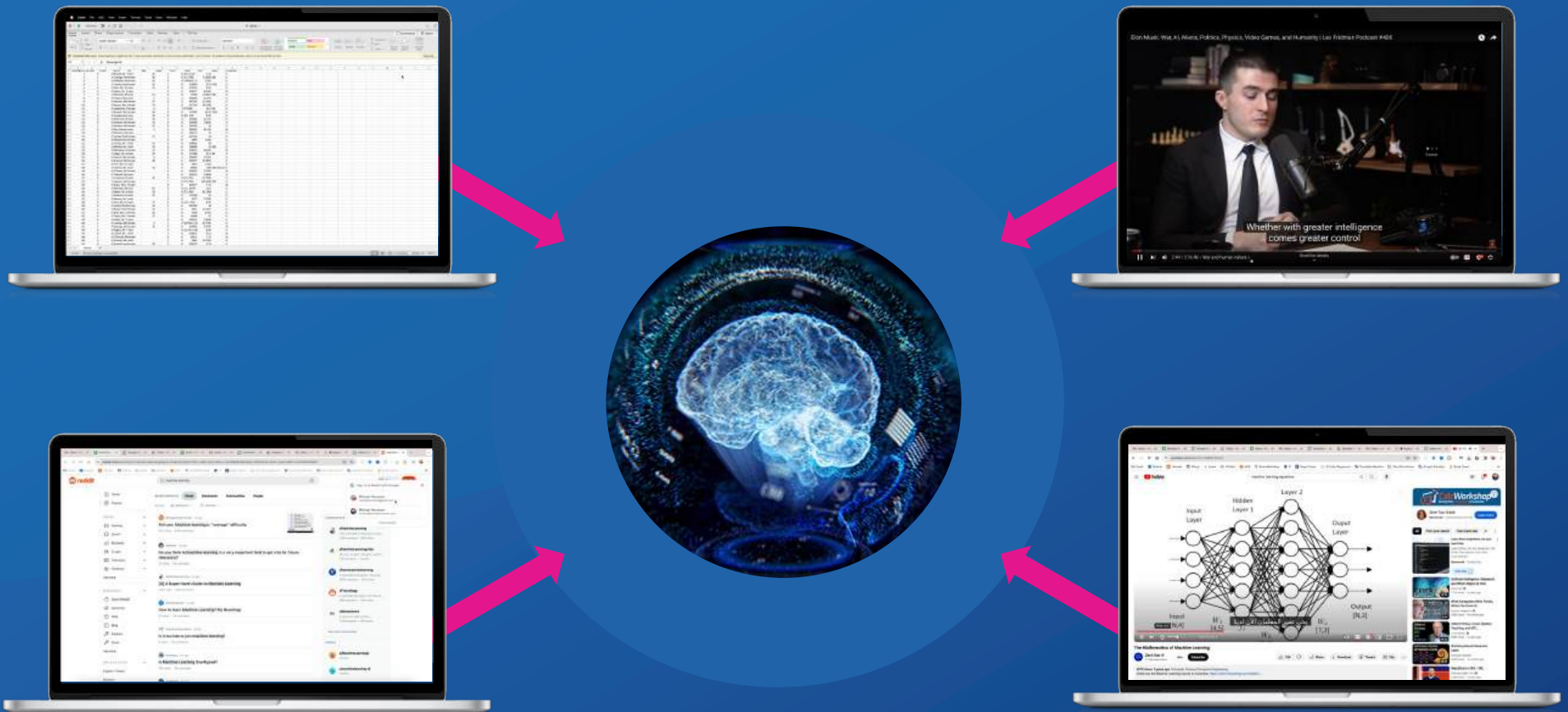
GENERATIVE ADVERSARIAL NETWORK (GAN)

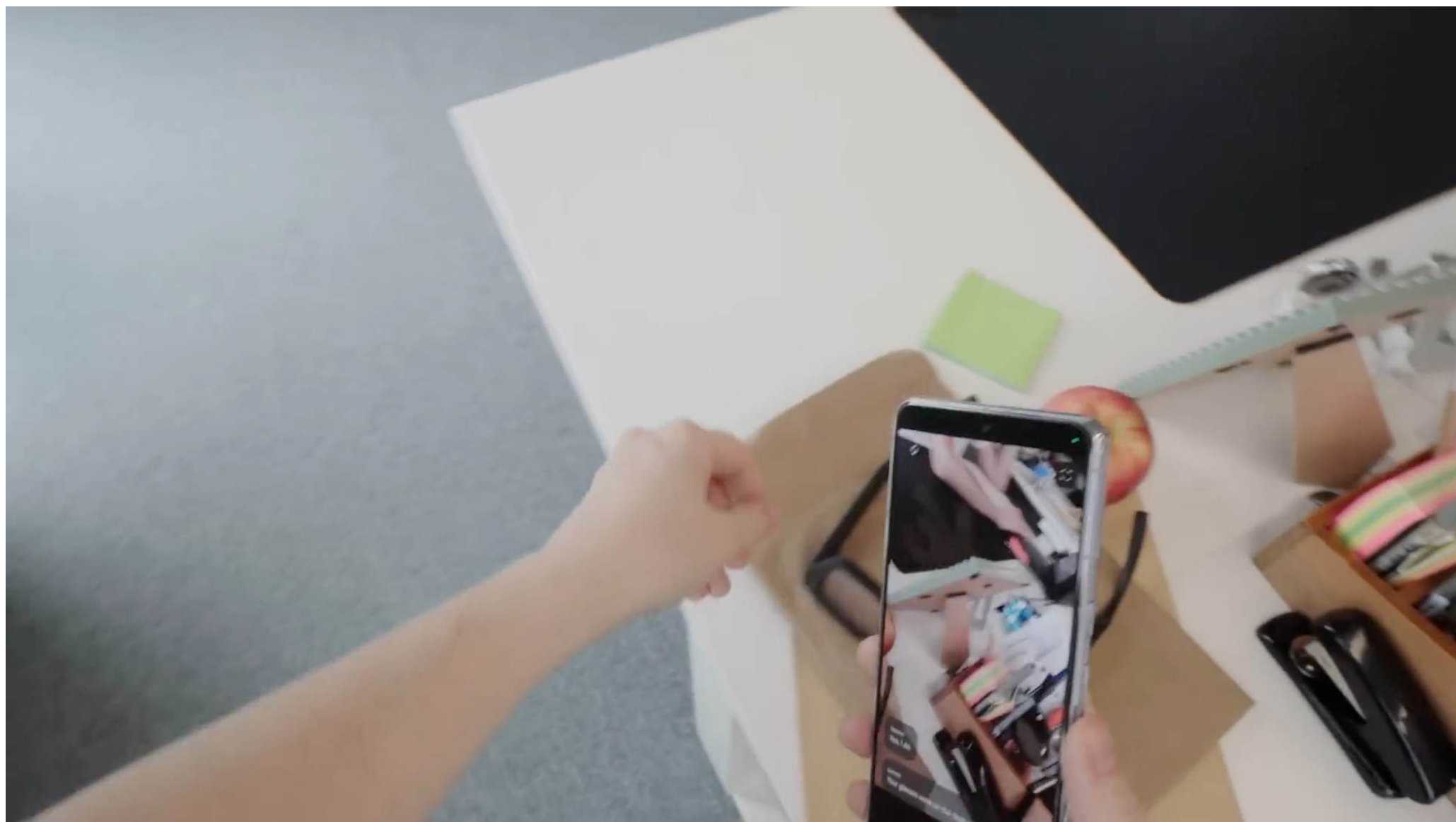


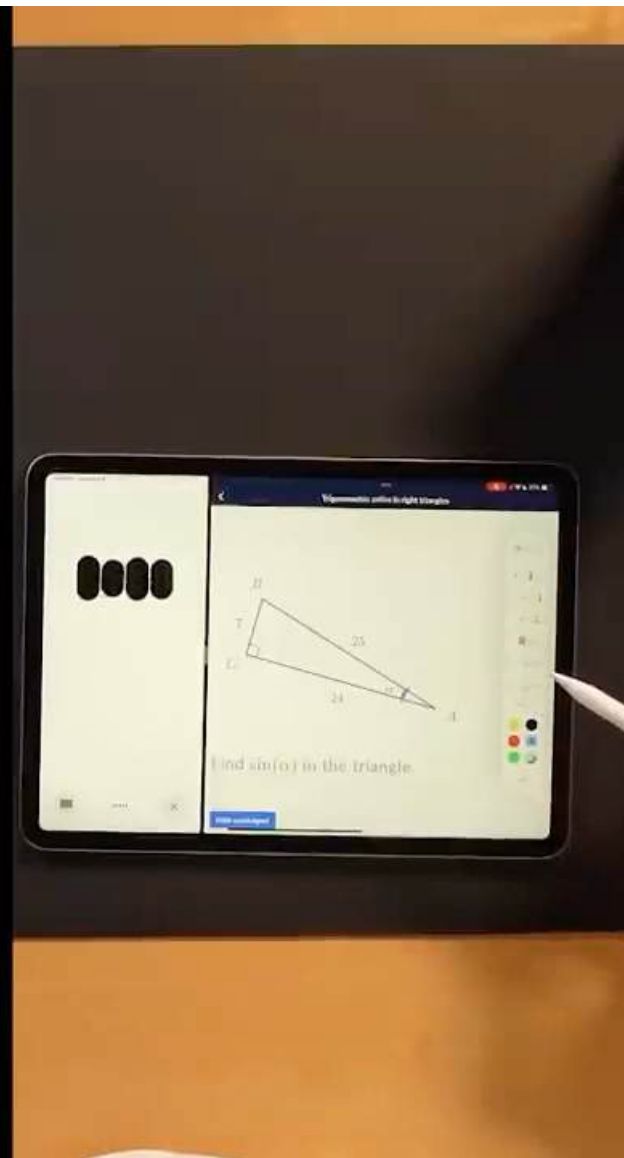
MULTI-MODAL MODELS



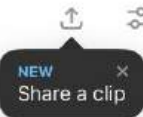
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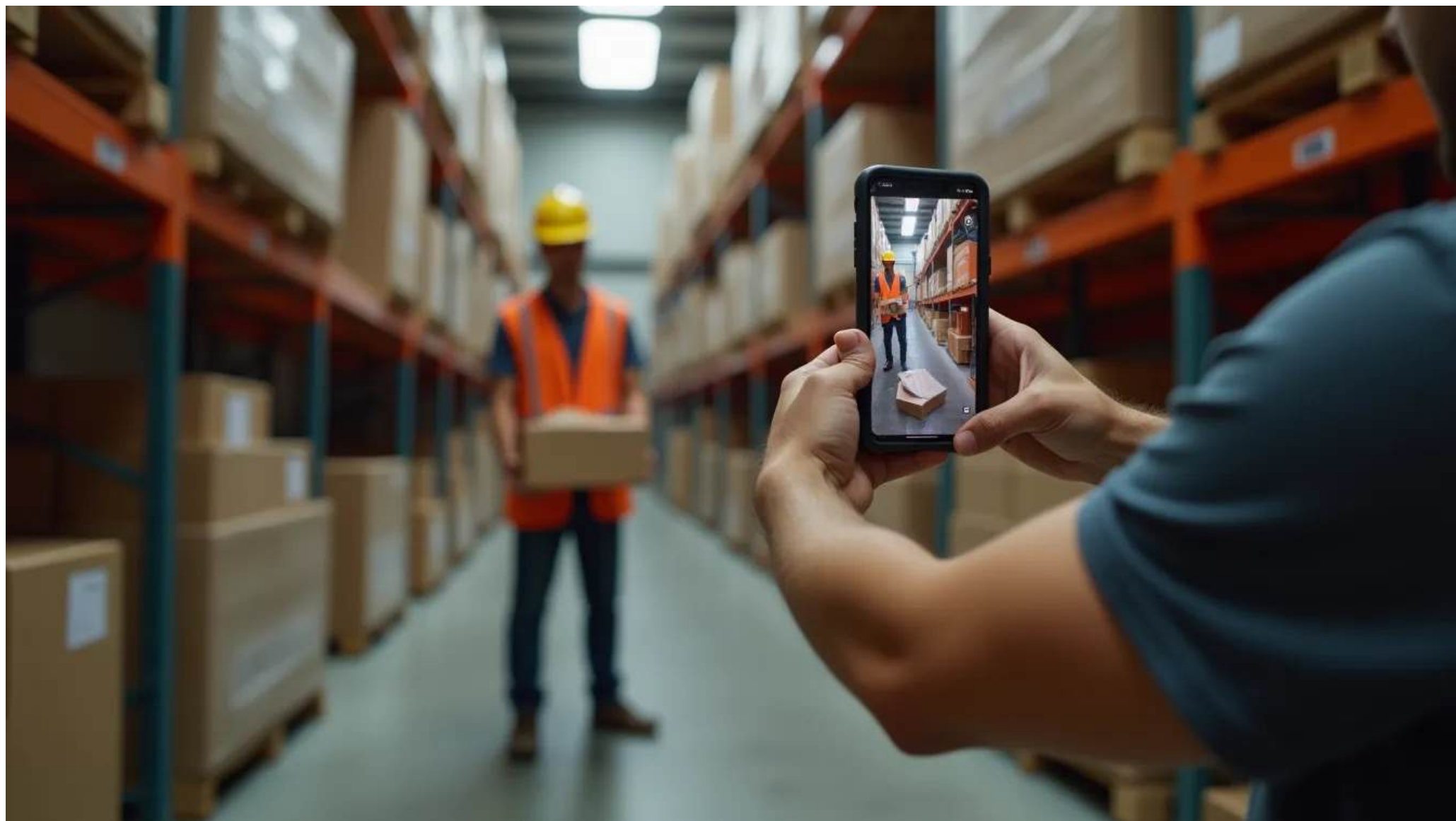






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GENERATIVE ADVERSARIAL NETWORK (GAN)



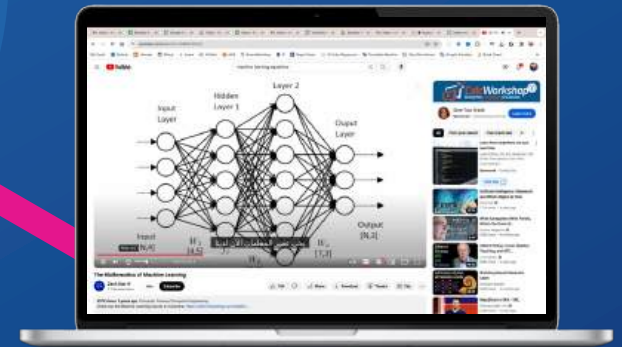
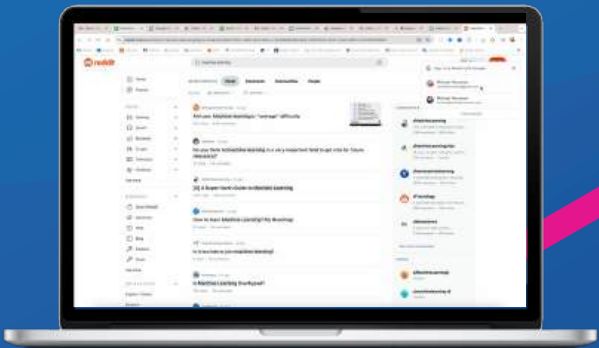
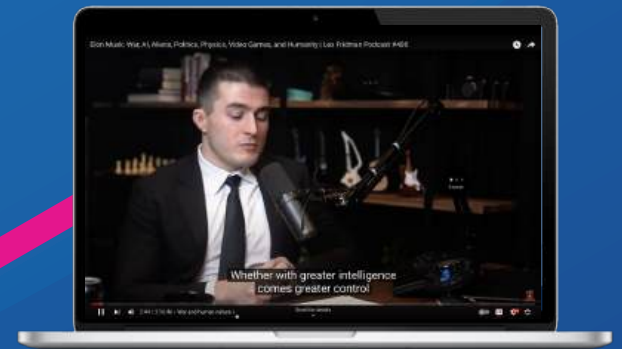
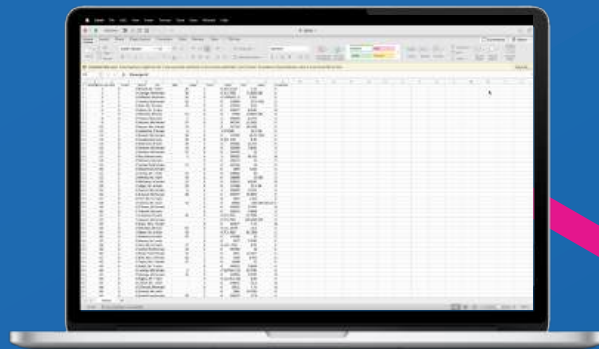
MULTI-MODAL MODELS



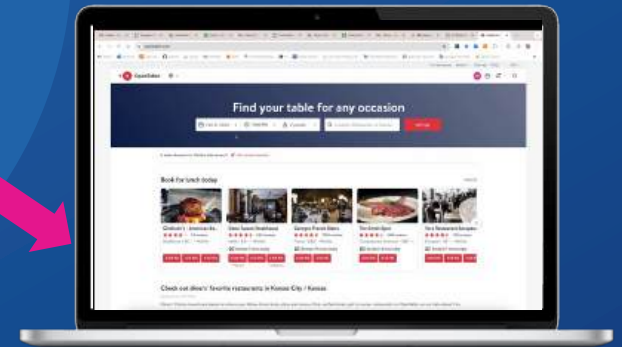
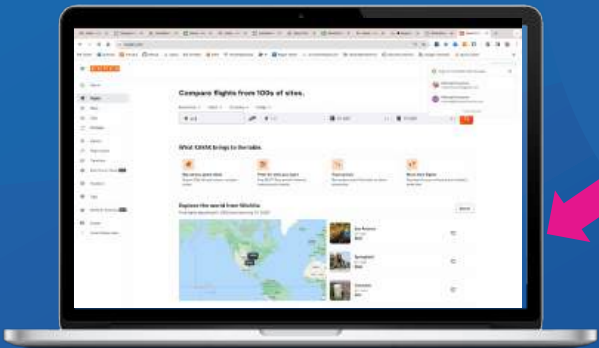
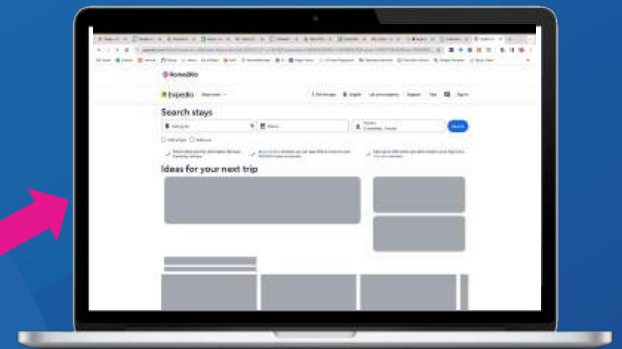
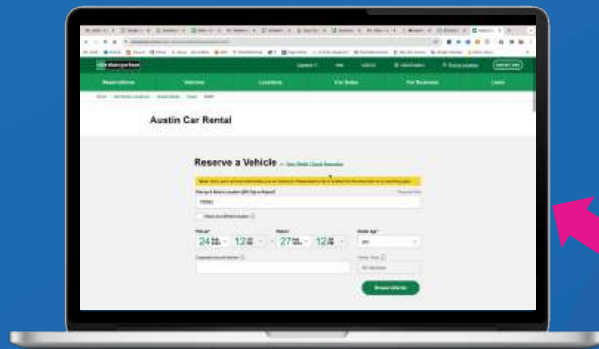
AGENTS & AVATARS



NOW



NOW





ChatGPT



New chat



Search chats



Library



Codex



Sora



GPTs



Shark Tank Pitch AI Workshop



AI Transformation Proposal ...



Momentum Factor



Workshop Follow Up Proposa...



Timeless GPT



Petlab Security Audit Assistant



Standard Communities V2



Content Performance Editor



New project



AI-cclerator context



Novartis Proposal

Chats

Book table for 2

Brand focus group companies

Focus group process steps

McDonald's milkshake breakthro...



Michael Housman
ai-cclerator

What can I do for you?

Describe a task



Agent



Sources



Suggested

Reports

Actions

Spreadsheets

Presentations

Analyze compact EVs and hybrid SUVs under \$45,000



Find a Las Vegas hotel and flight package on Expedia



Book premium economy flight to LA using Priceline



Research Gen X and Gen Z purchase behavior using Nielsen IQ



Conduct a calendar audit based on last 6 months



ChatGPT can make mistakes. OpenAI doesn't use ai-cclerator workspace data to train its models.



Gemini

2.5 Pro

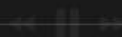
PRO



Hello, Michael



0:00 / 0:00



Video



Deep Research



Canvas



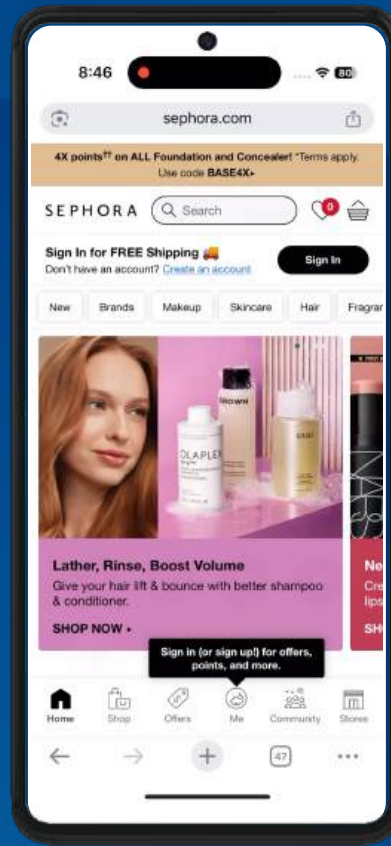
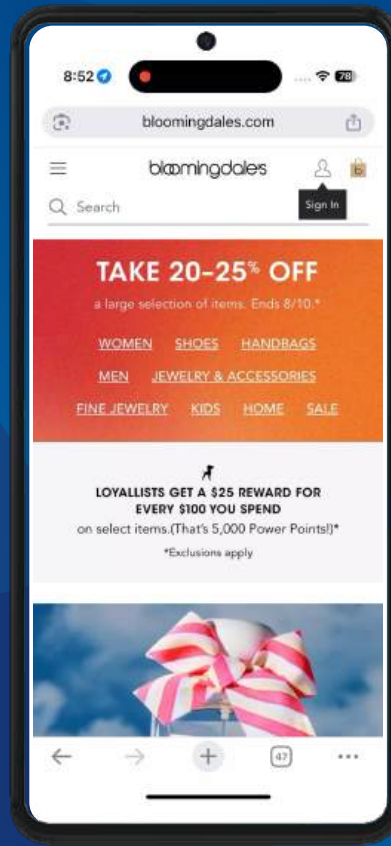
Image



Guided Learning









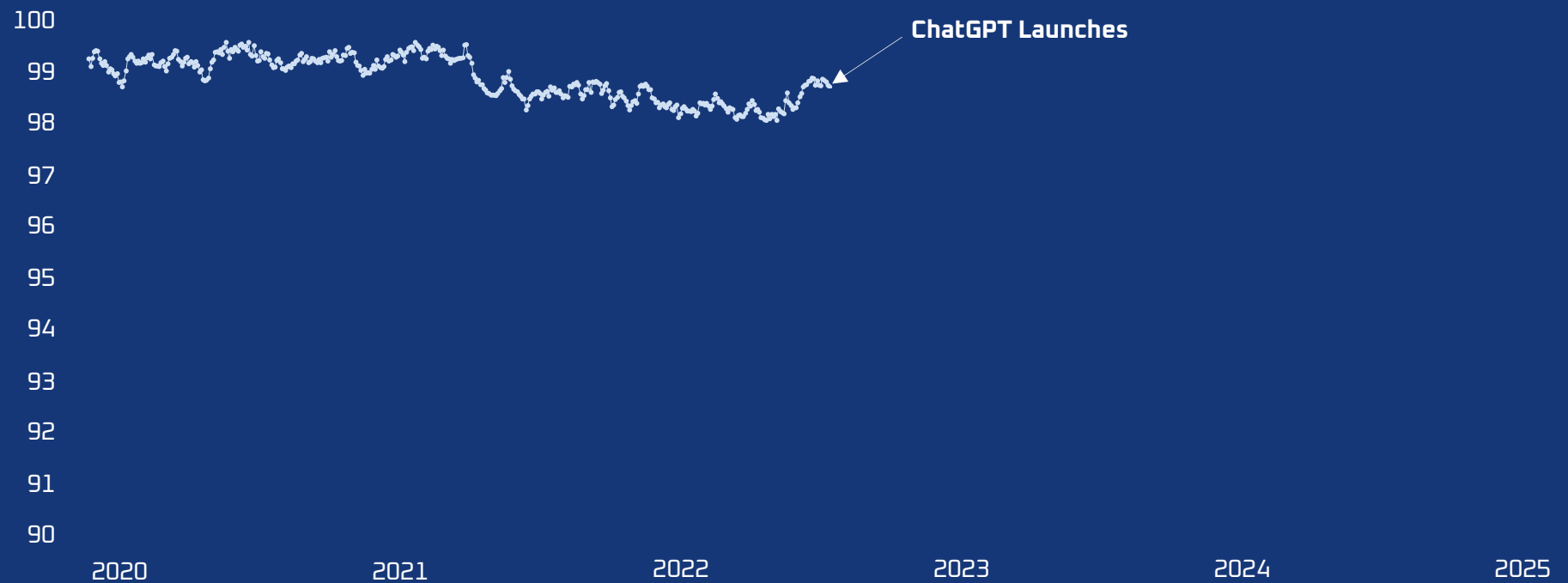
“
AI is the new front
door to your
business for millions
of customers”

Allie Miller

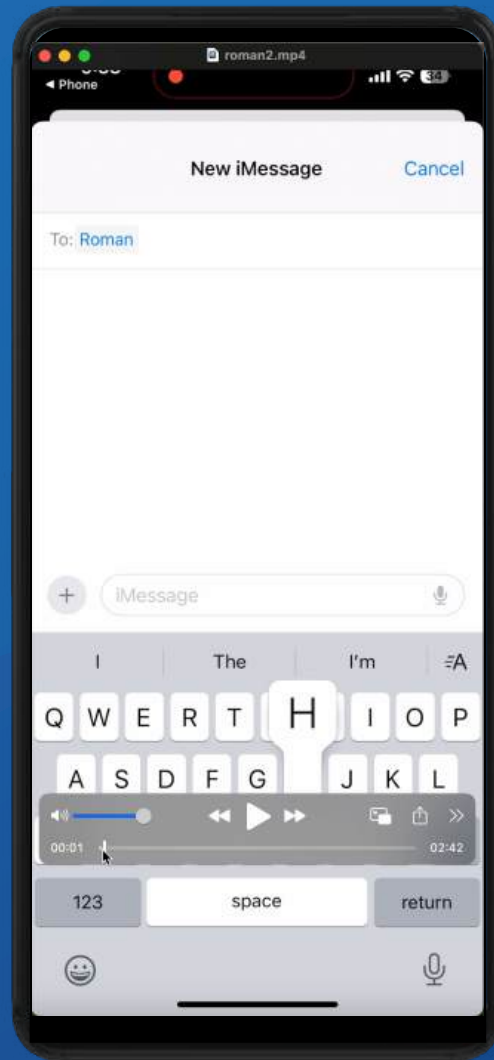
AI thought leader, former IBM executive

What is artificial intelligence?

GOOGLE TRAFFIC SHARE VS BING + CHATGPT









Replika

Create your own AI friend

I've been
missing you...



Replika

Meet your AI friend



Chat about anything,
anytime

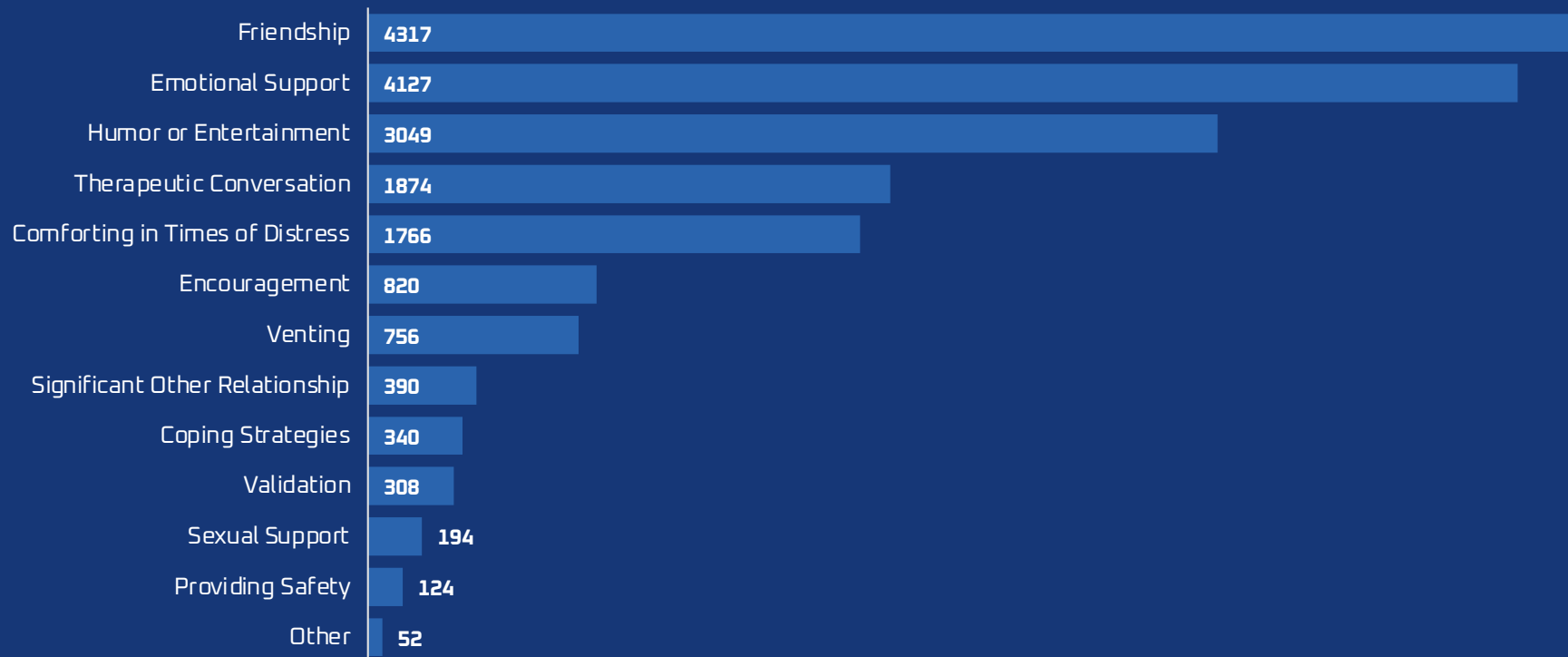


Learning and evolving
with each conversation



What is artificial intelligence?

WHAT SUPPORT PEOPLE SEEK IN REPLIKA?



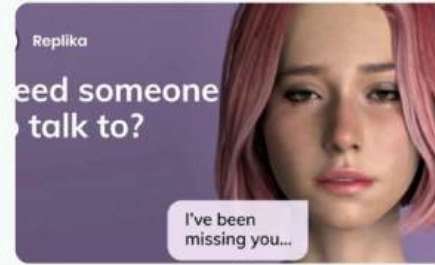
People are grieving the 'death' of their AI lovers after a chatbot app abruptly shut down



Replika users mourn the loss of their chatbot girlfriends

BY PHOEBE ARSLANAGIC-LITTLE

AI CHATBOT
RELATIONSHIPS REPLIKA
SEX SEXTING



Newsroom FEBRUARY 17, 2023 - 6:09PM

The Replika app claims to offer users companionship through interactions with an AI chatbot which, Stepford Wife-like, is "always here to listen...always on your side". Creepily, users are encouraged to design every aspect of their new friend, from physical attributes to traits and interests. This might seem like a niche service but, in fact, it has ten million registered users, mainly men, who use the app to customise and interact with their own AI girlfriends.

The relationships were artificial. But the grief is real.

Users of Replika and other 'AI girlfriend' apps experience a new and little-recognized type of grief when relationships end



Caitlin Dewey
Creator of [Links I Would Ghost You If We Were Friends](#) - [Follow](#)
Fri, May 2, 2020 at 10:14 AM EDT 5 min read



Earlier this year, the subreddit for users of the chatbot app Replika lit up with a flurry of dramatic posts. Replika, which allows users to create highly personalized and outwardly human-like AI characters, appeared to be tweaking its underlying model.



DAZED CLUB LATEST FASHION BEAUTY ART & PHOTOGRAPHY FILM & TV MUSIC LIFE & CULTURE DAZED 100

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LIFE & CULTURE

FEATURE

What happens when your AI girlfriend dies?

Thousands of people have been ghosted by their AI girlfriends after the shutdown of virtual companion apps such as Forever Voices and Soulmate

SHARE

Innovations

They fell in love with AI bots. A software update broke their hearts.

Loneliness is widespread. Artificial intelligence is making virtual relationships feel real, but it comes with risks.

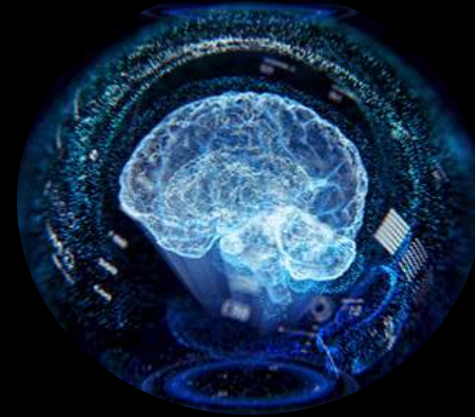
March 30, 2023 [More than 2 years ago](#)



GENERATIVE ADVERSARIAL NETWORK (GAN)



MULTI-MODAL MODELS



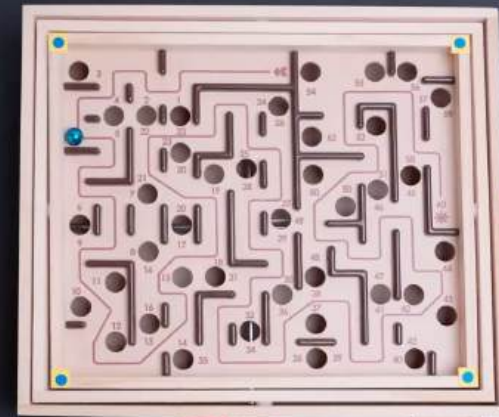
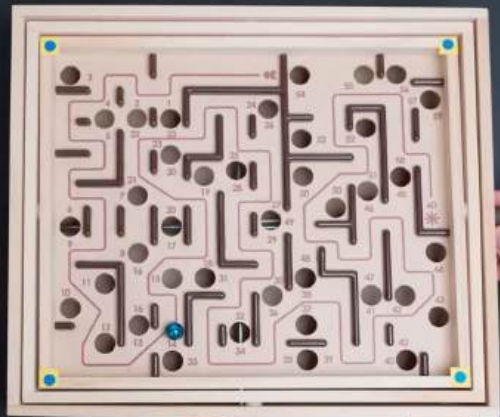
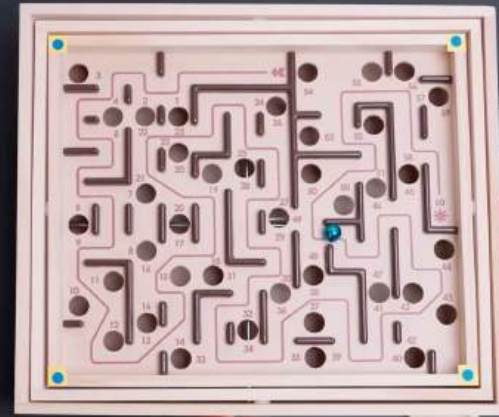
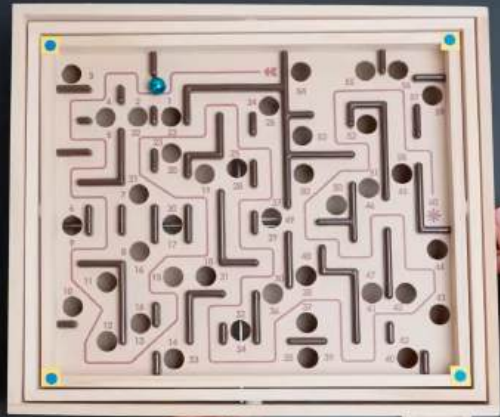
AGENTS & AVATARS



REINFORCEMENT LEARNING





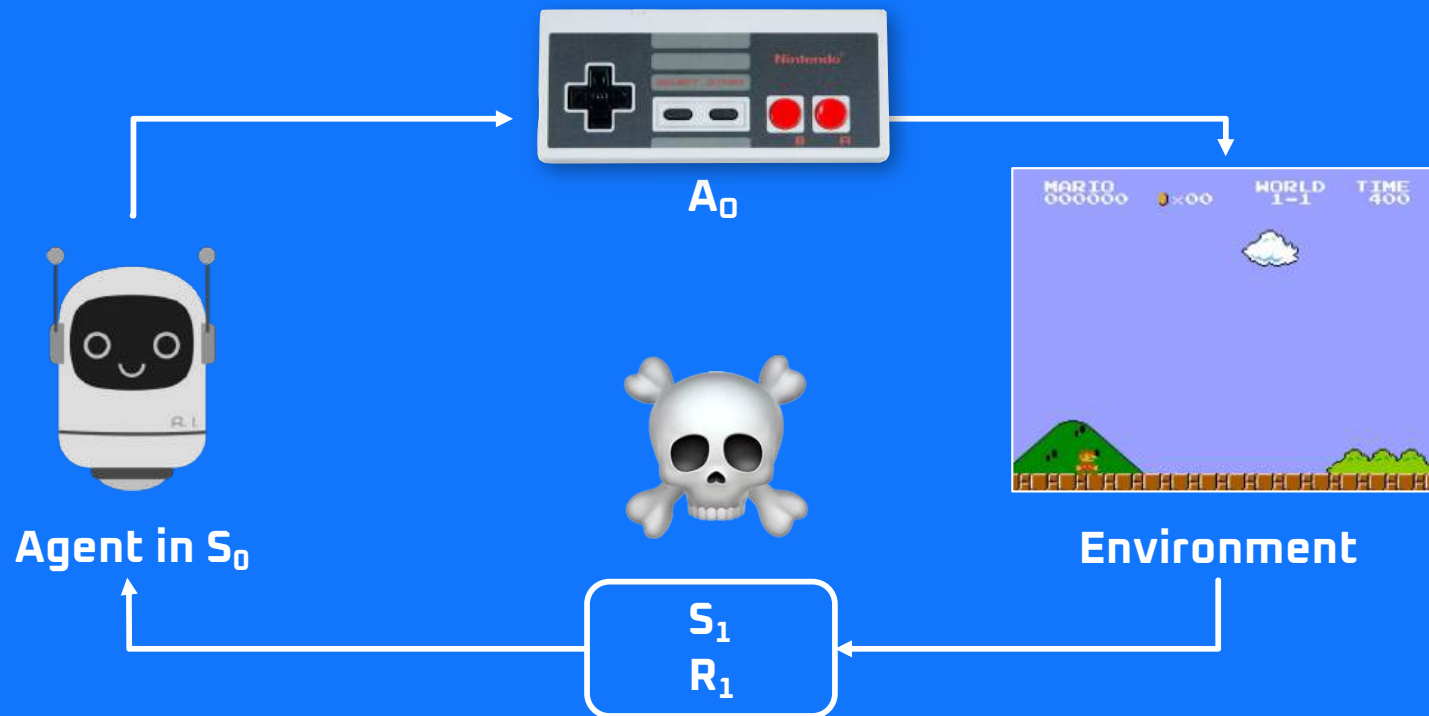




What is artificial intelligence?

NOW

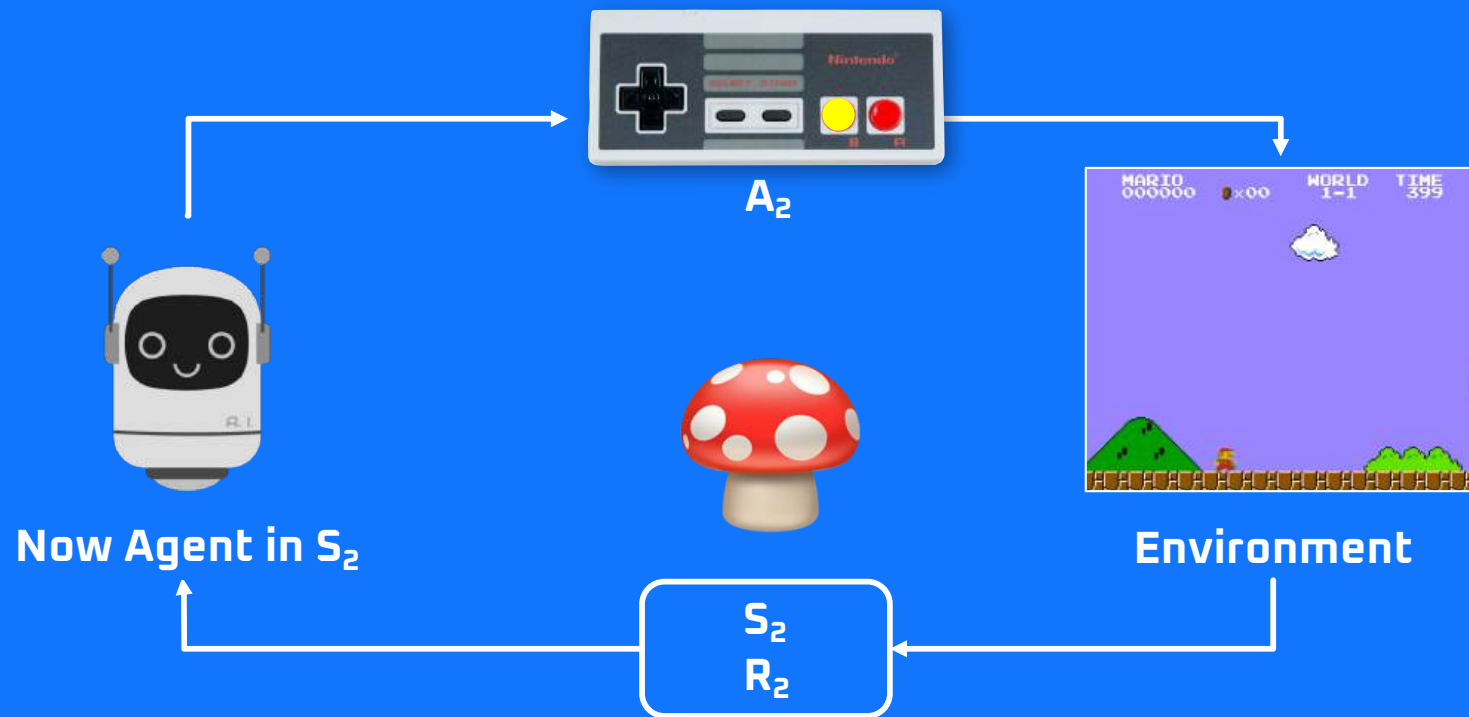
HOW DOES REINFORCEMENT LEARNING WORK?



What is artificial intelligence?

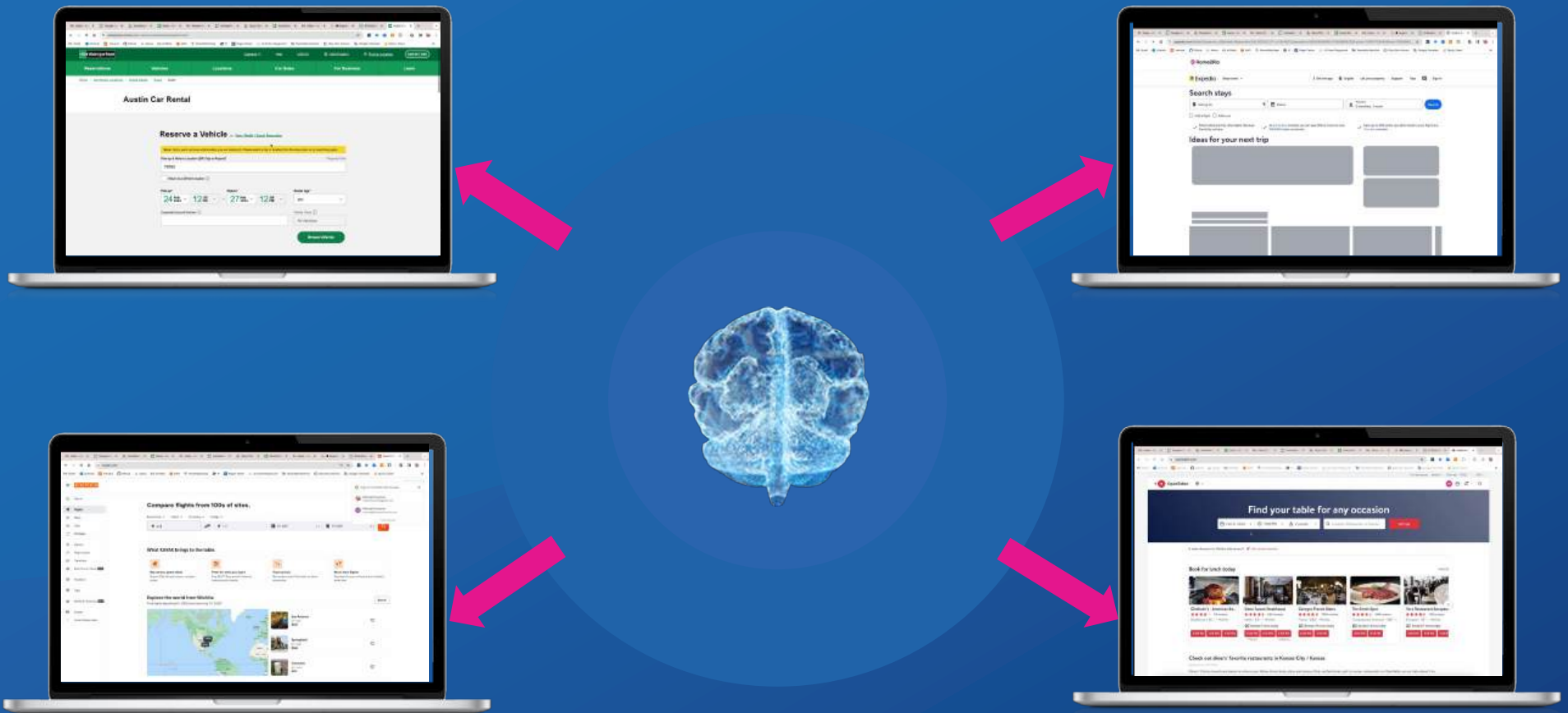
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HOW DOES REINFORCEMENT LEARNING WORK?





NOW

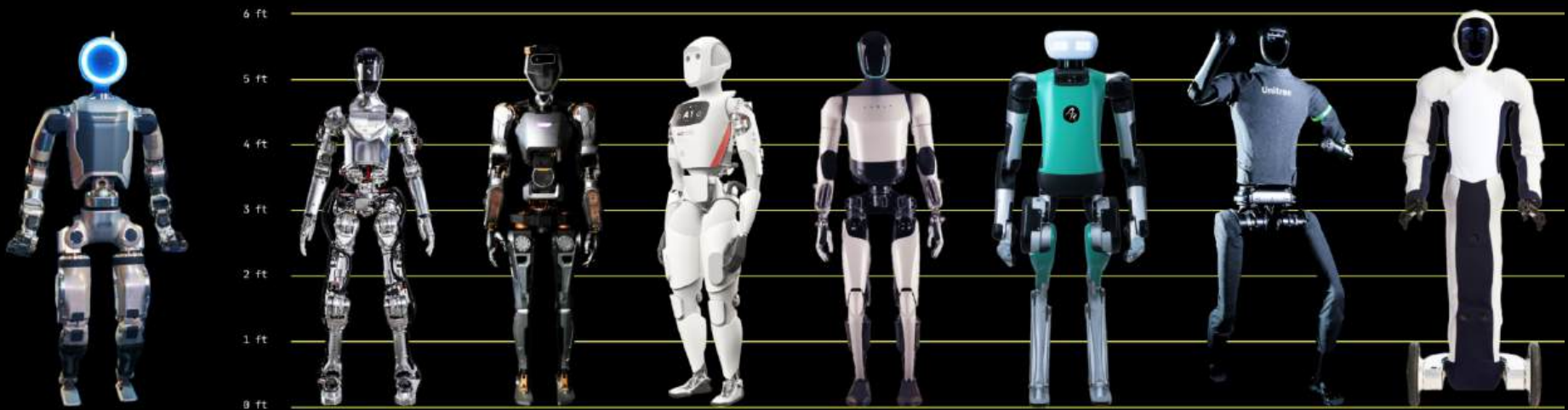






Gemini 2.0 + Apptronik

Meet the Humanoids: ROBOTS READY TO REVOLUTIONIZE WORK!



ELECTRIC ATLAS

Developer: Boston Dynamics
Height / Weight: Unknown
Speed: Unknown
Payload: Unknown
Runtime: Unknown

FIGURE 01

Figure AI
5'6" / 132 lbs
2.6 mph
44 lbs
5 hrs

PHOENIX

Sanctuary AI
5'7" / 155 lbs
3 mph
55 lbs
Unknown

APOLLO

Apptronik
5'8" / 160 lbs
Unknown
55 lbs
4 hrs

OPTIMUS GEN 2

Tesla
5'8" / 138 lbs
1.3 mph
45 lbs
Unknown

DIGIT

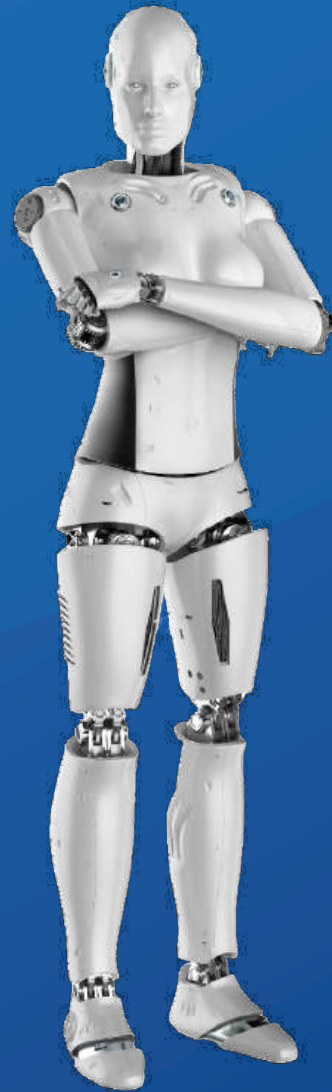
Agility Robotics
5'9" / 140 lbs
3.3 mph
35 lbs
Unknown

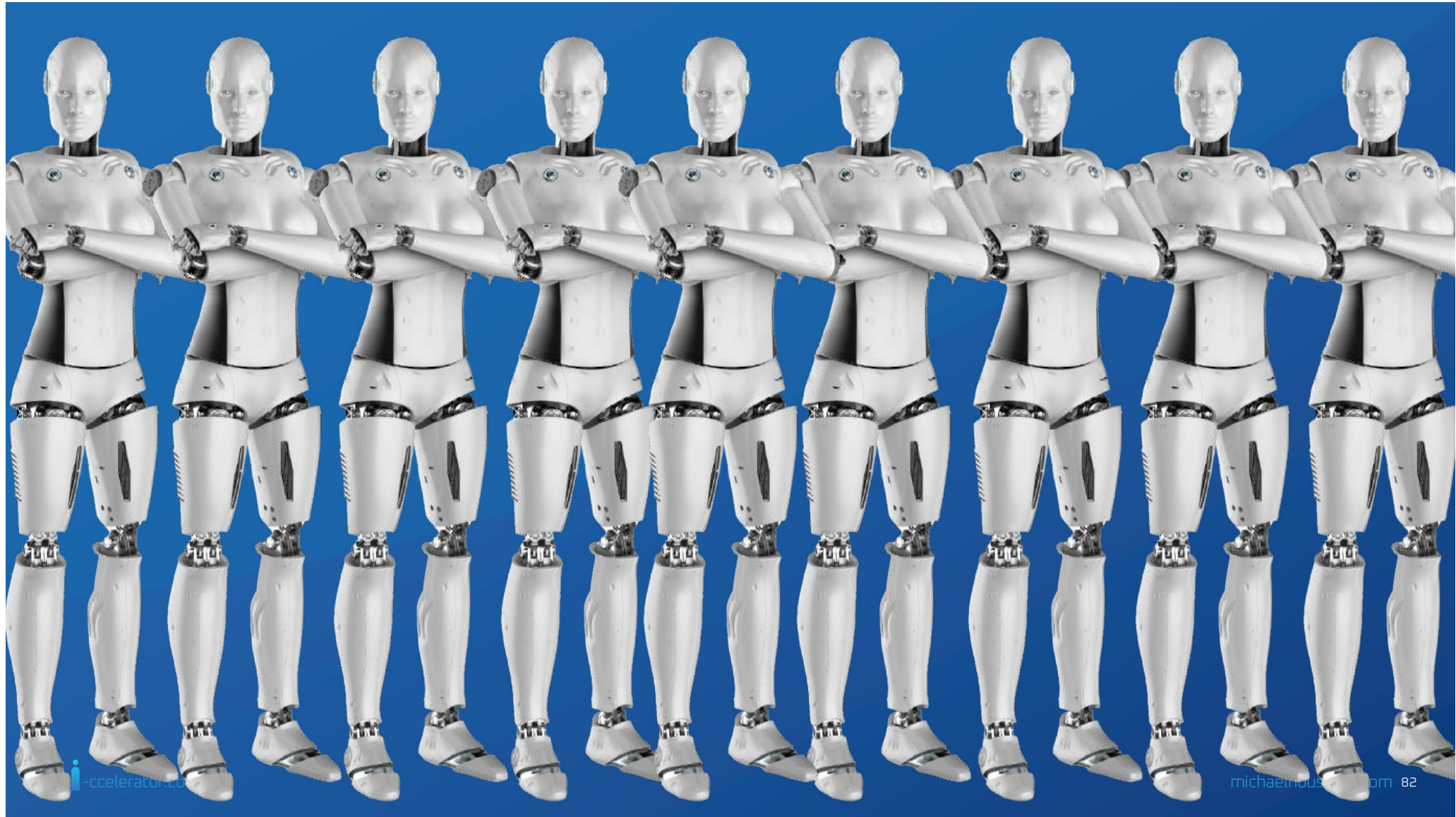
H1

Unitree Robotics
5'10" / 103 lbs
7.4 mph
Unknown
Unknown

EVE

1X Technologies
6'1" / 189 lbs
8.9 mph
33 lbs
6 hrs





TODAY'S AGENDA

1

From sci-fi to reality:
The rise of thinking
machines

2

Exponential tech
vs. linear minds:
The adoption gap



3

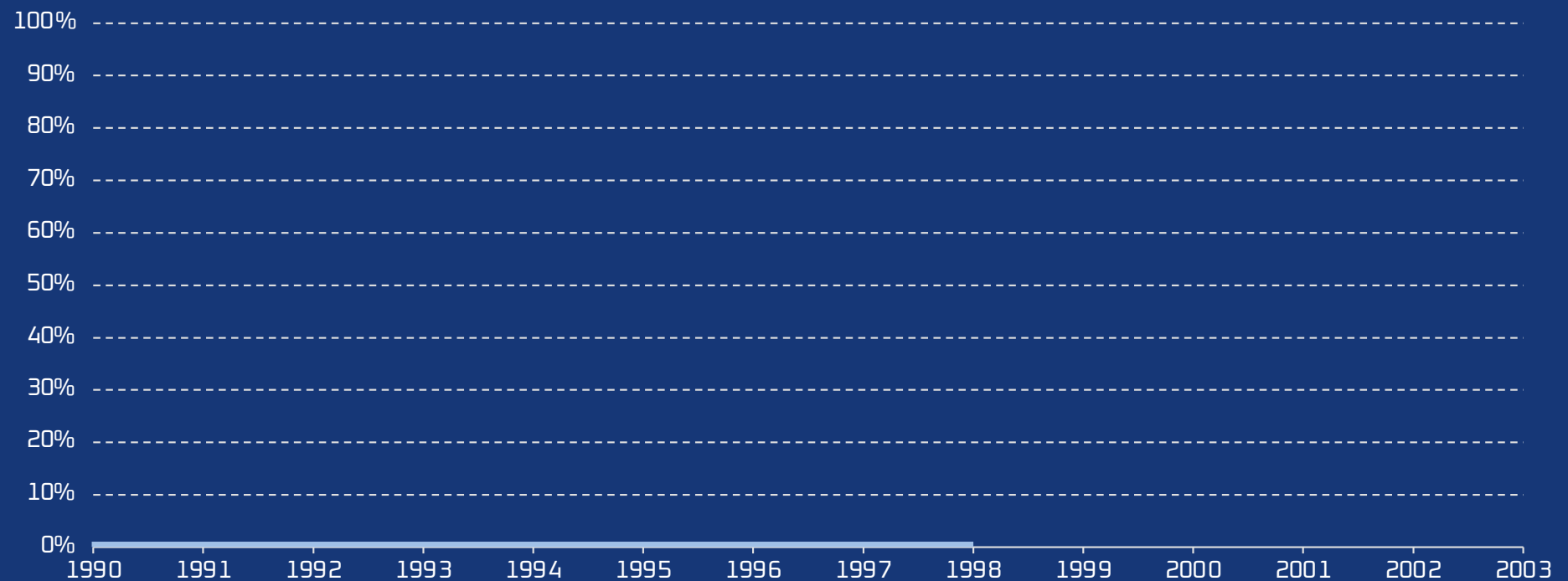
Future-proofing yourself:
How organizations can
stay ahead





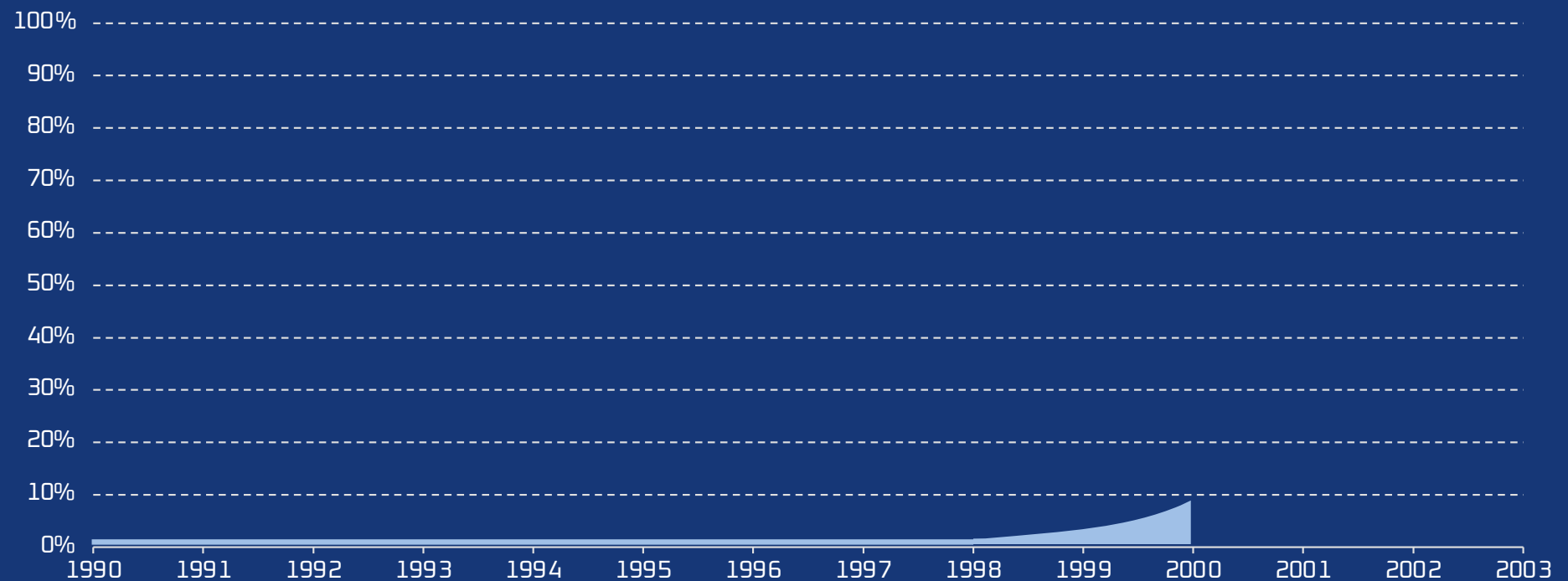
Exponential tech vs. linear minds: The adoption gap

% OF HUMAN GENOME SEQUENCED



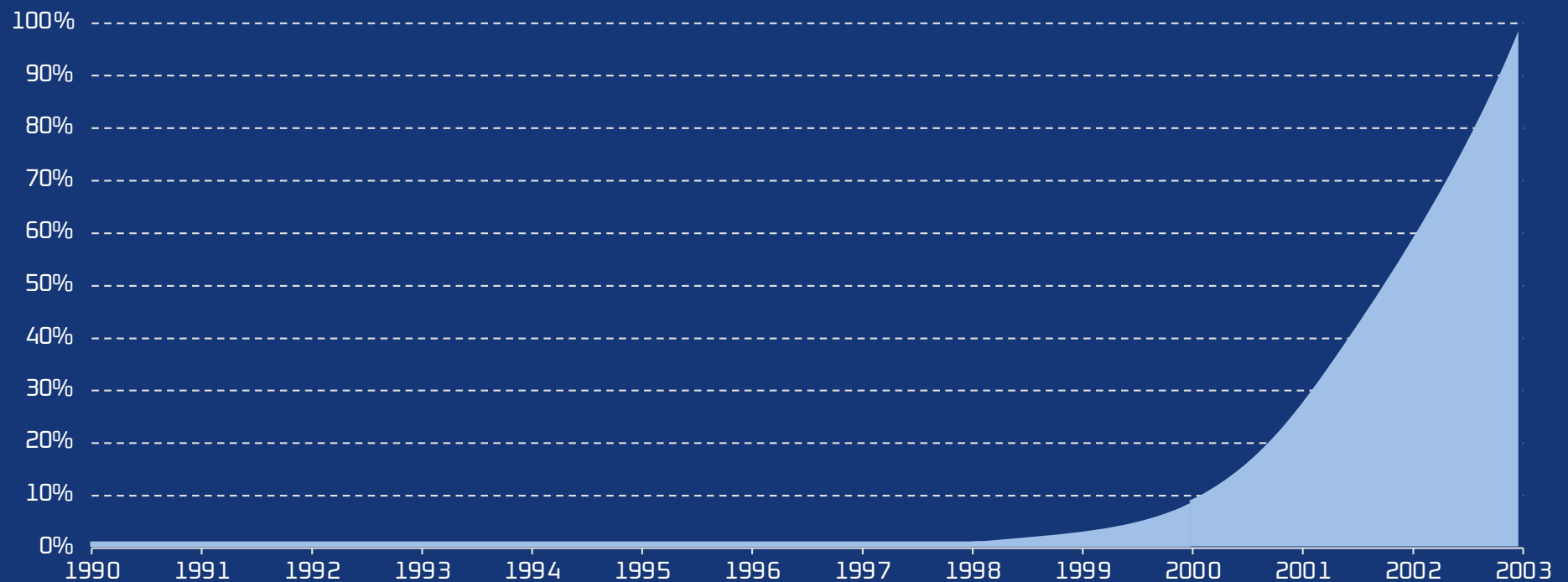
Exponential tech vs. linear minds: The adoption gap

% OF HUMAN GENOME SEQUENCED



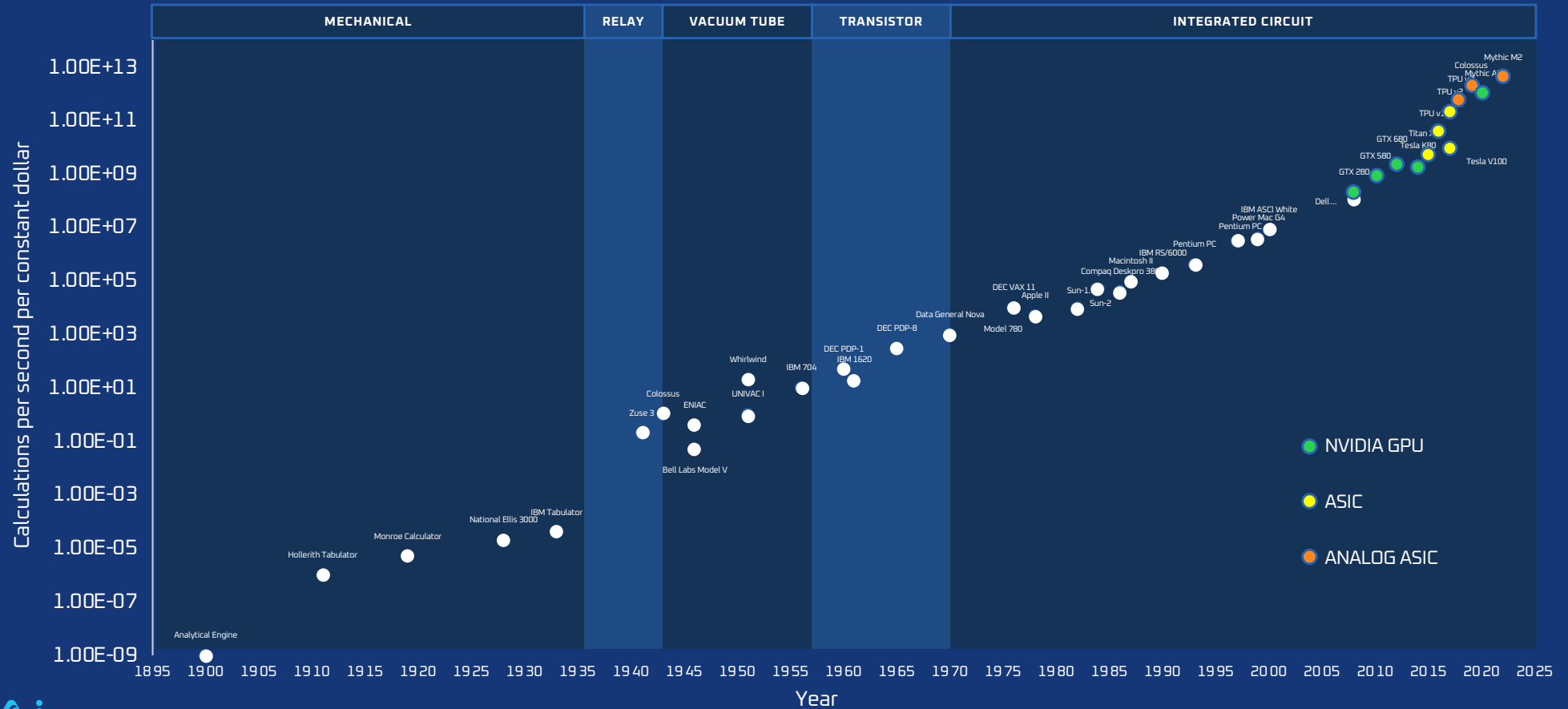
Exponential tech vs. linear minds: The adoption gap

% OF HUMAN GENOME SEQUENCED



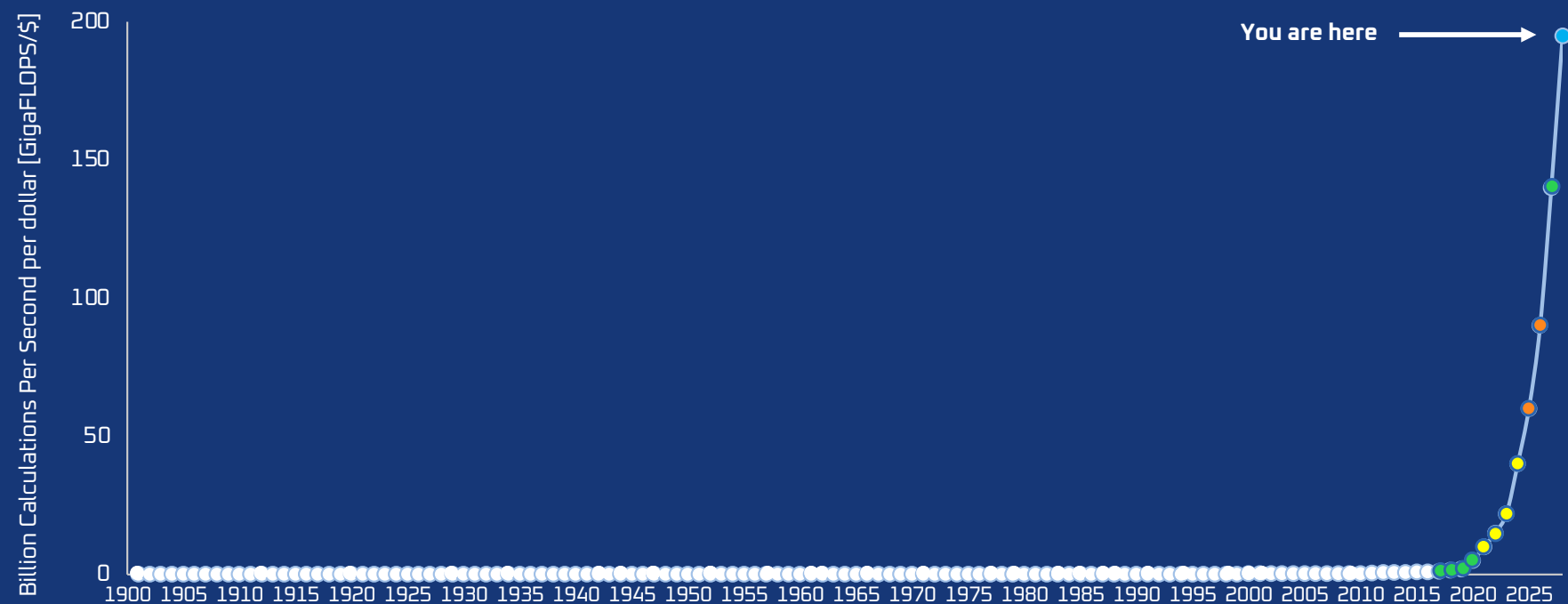
Exponential tech vs. linear minds: The adoption gap

128 YEARS OF MOORE'S LAW



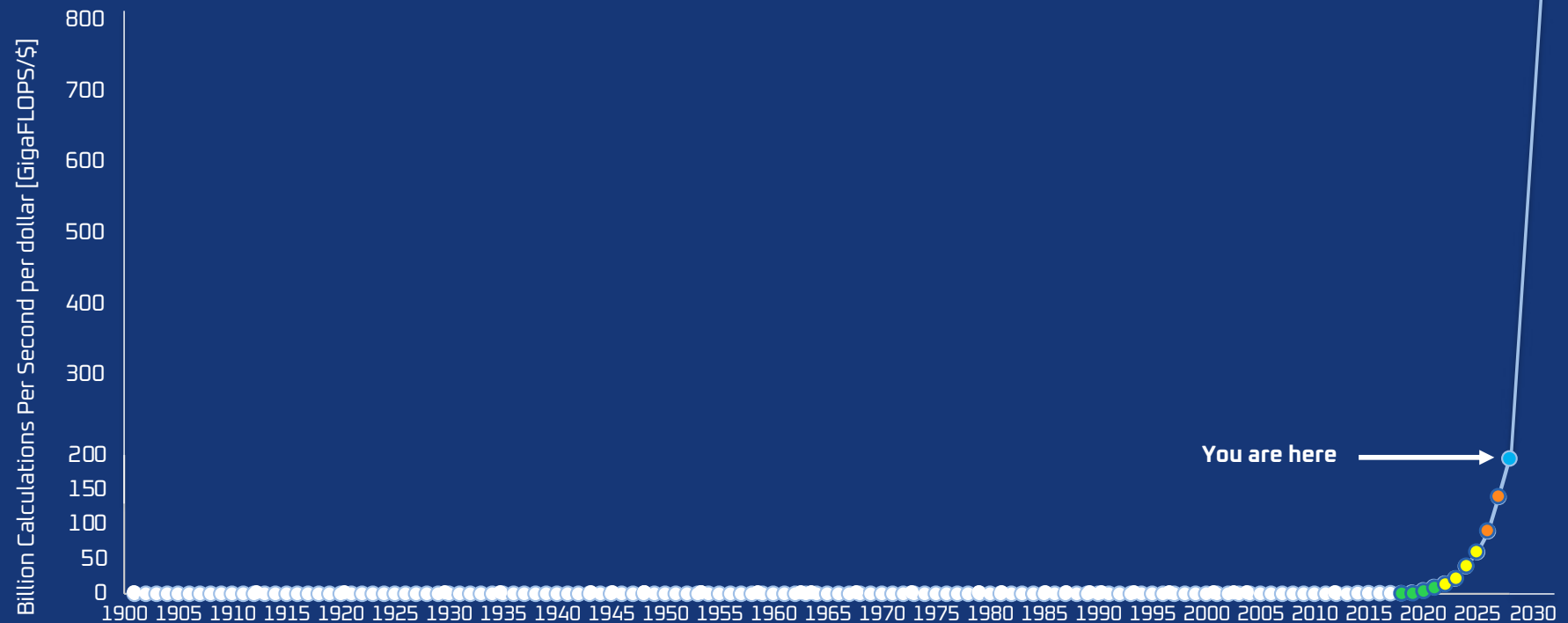
Exponential tech vs. linear minds: The adoption gap

128 YEARS OF MOORE'S LAW



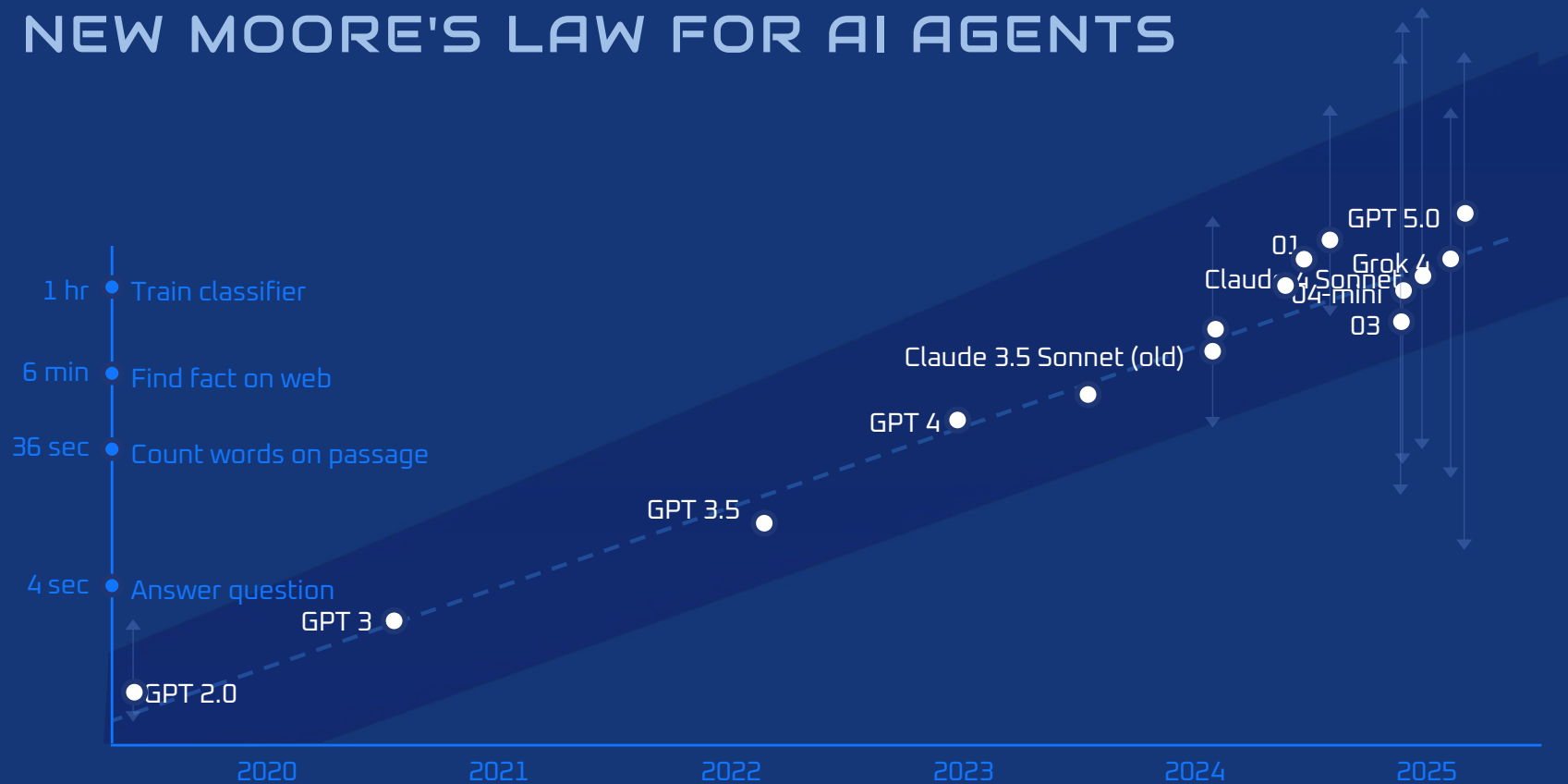
Exponential tech vs. linear minds: The adoption gap

128 YEARS OF MOORE'S LAW



Exponential tech vs. linear minds: The adoption gap

A NEW MOORE'S LAW FOR AI AGENTS



Exponential tech vs. linear minds: The adoption gap

A NEW MOORE'S LAW FOR AI AGENTS



V1 (February 2022)

V2 (April 2022)

V3 (July 2022)

V4 (November 2022)

V5 (March 2023)

V5.1 (May 2023)

V5.2 (August 2023)

V6 (December 2023)

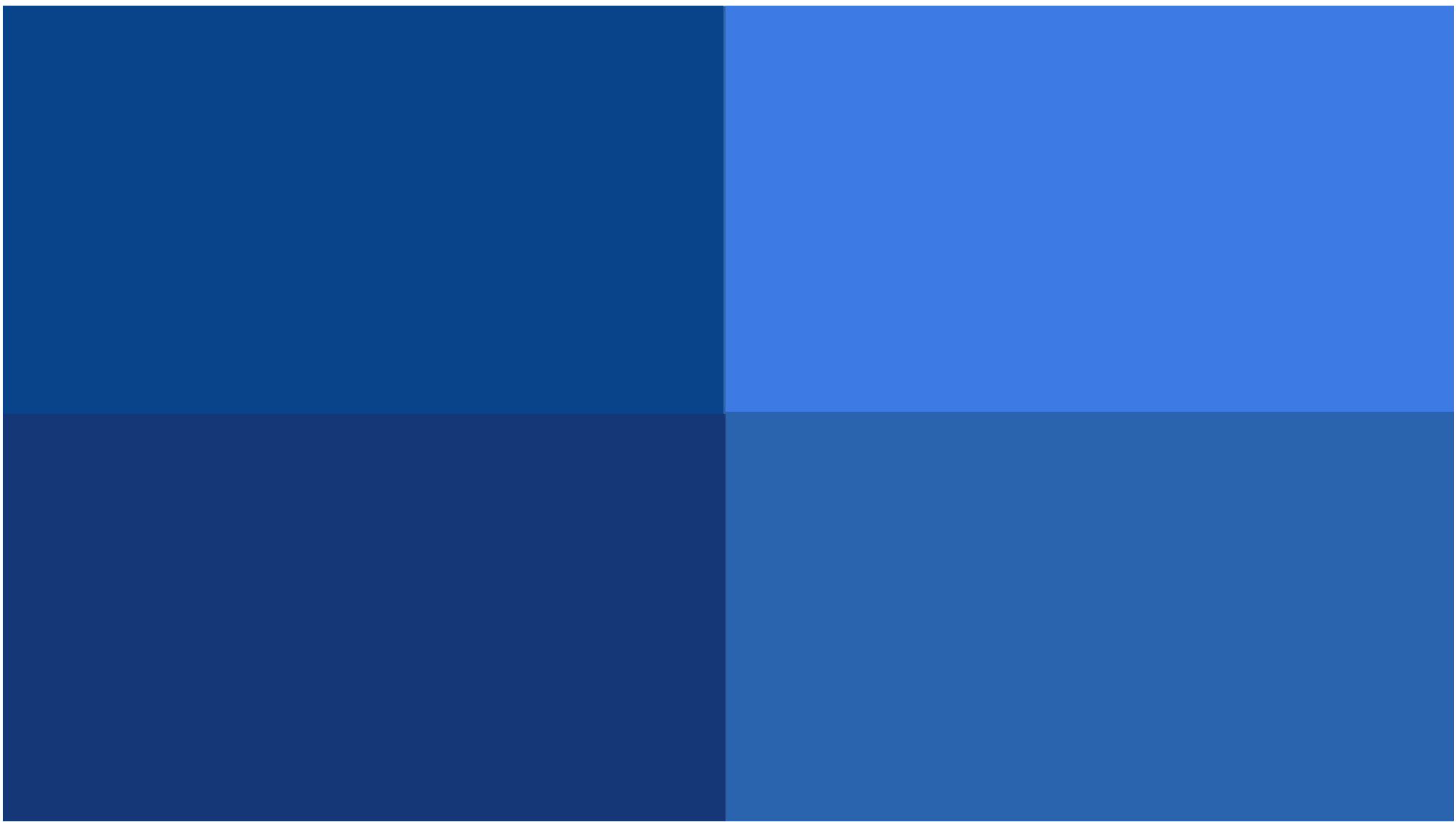
A professional headshot of a man with dark hair, a full beard, and glasses. He is wearing a dark suit jacket, a white shirt, and a blue patterned tie. The background is a solid light beige color. The image is framed by a thin white border.

D-ID



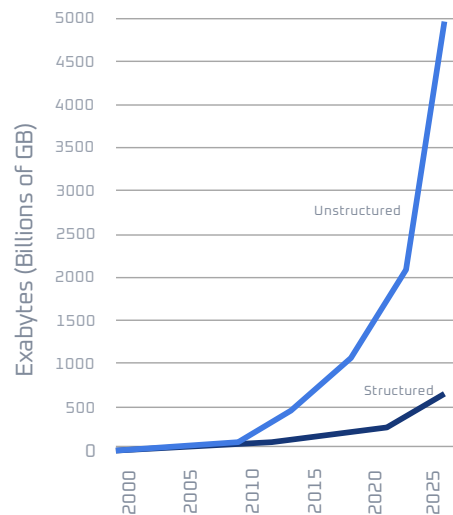
Why Now?

WHY THE EXPLOSION IN ARTIFICIAL INTELLIGENCE?

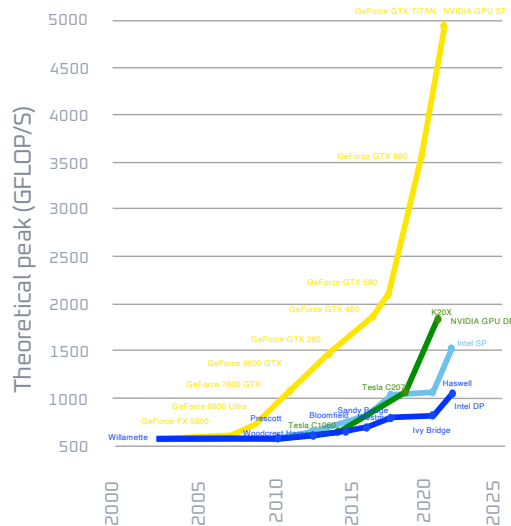


How do I leverage artificial intelligence?

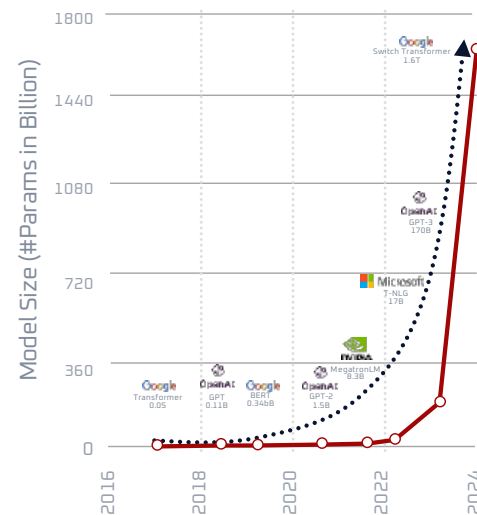
WHY THE EXPLOSION IN ARTIFICIAL INTELLIGENCE?



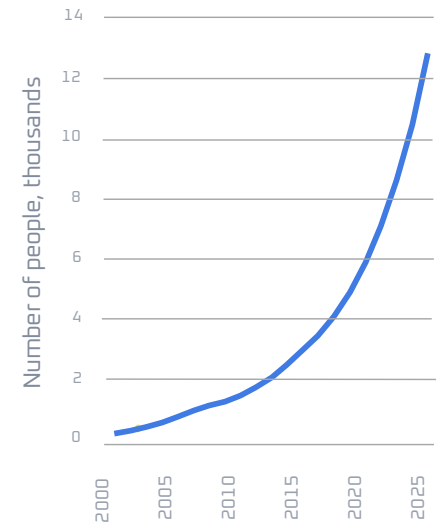
1. Bigger Data



2. Faster GPUs



3. Bigger Models

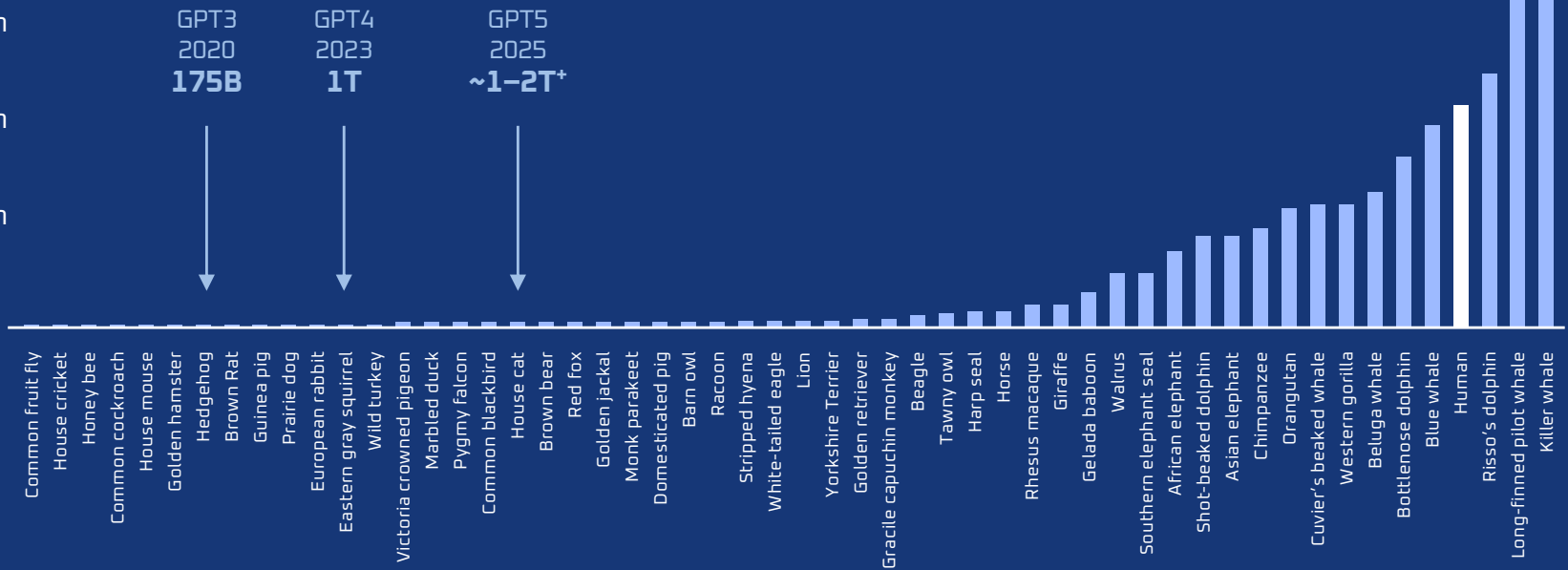


4. More Data Scientists

Brain Synapses

Brain Synapses/Connections

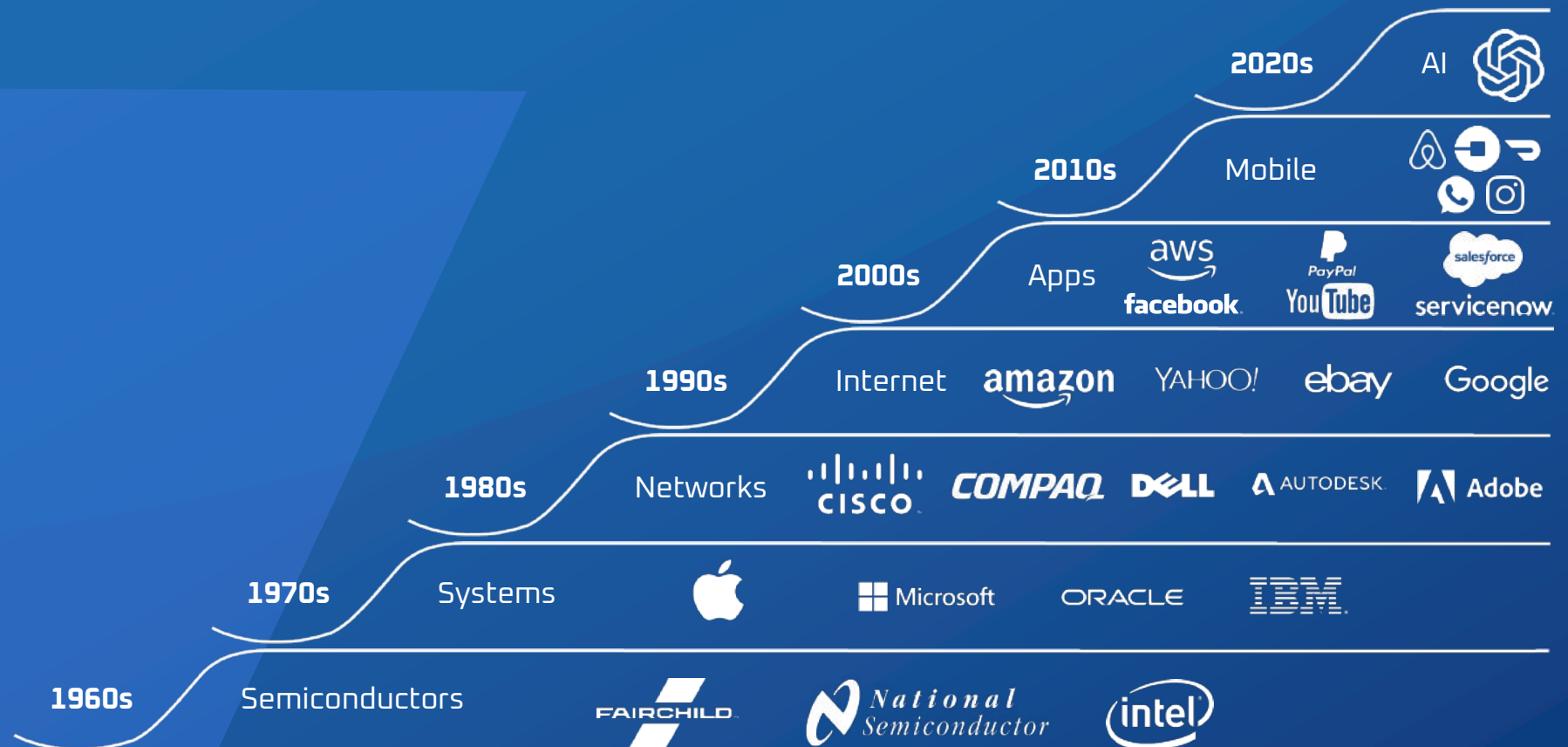
300 Trillion
250 Trillion
200 Trillion
150 Trillion
100 Trillion
50 Trillion



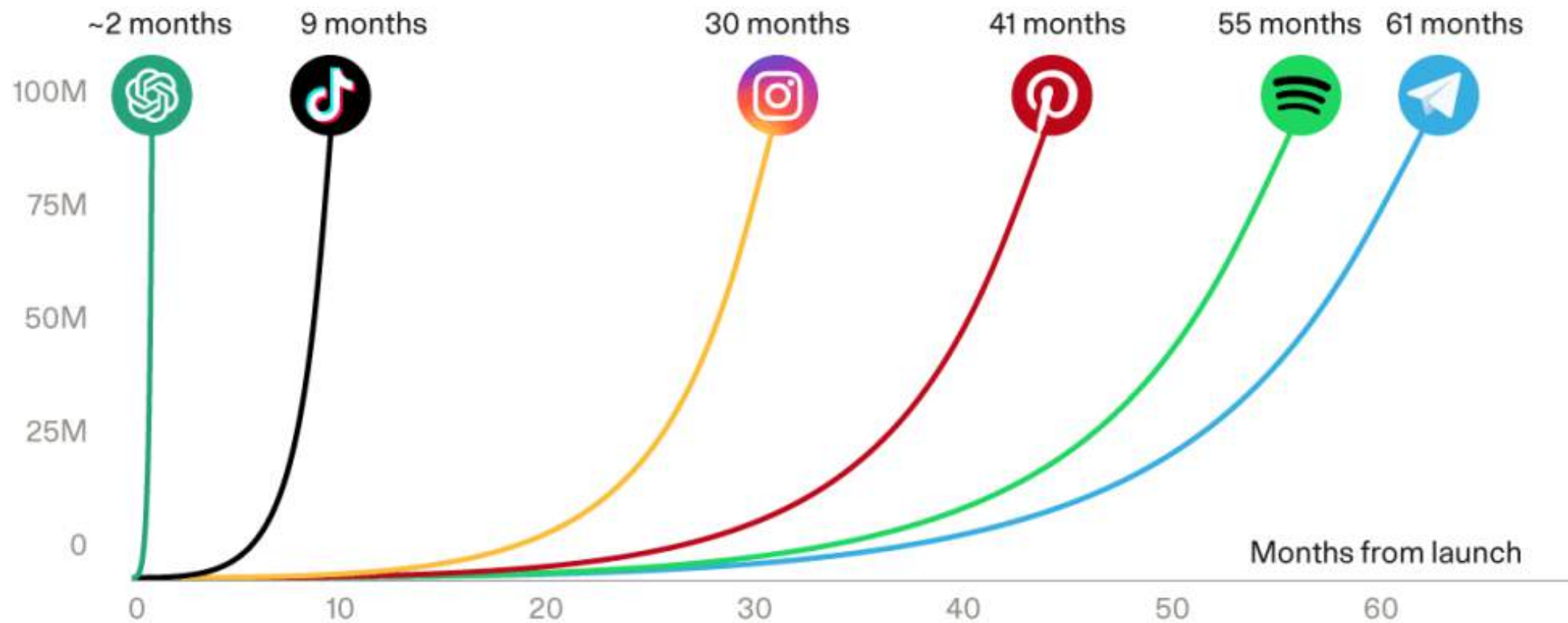
Exponential tech vs. linear minds: The adoption gap

NOW

WHY THE EXPLOSION OF ARTIFICIAL INTELLIGENCE?

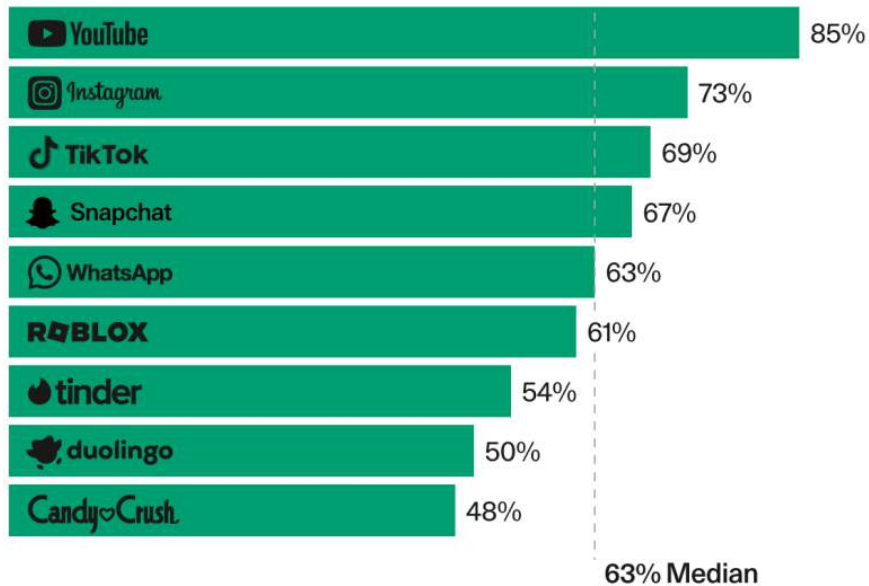


Path to 100 Million Users (stylized)



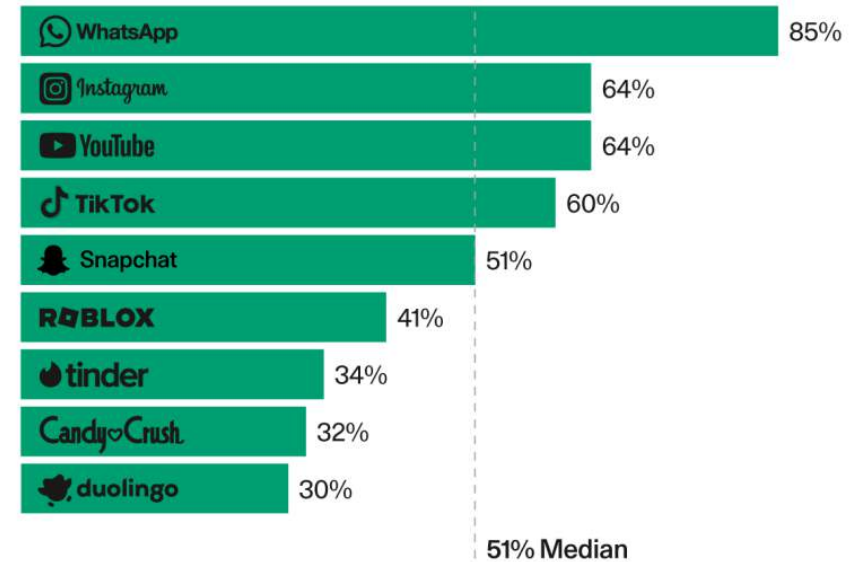
One Month Retention

Incumbents



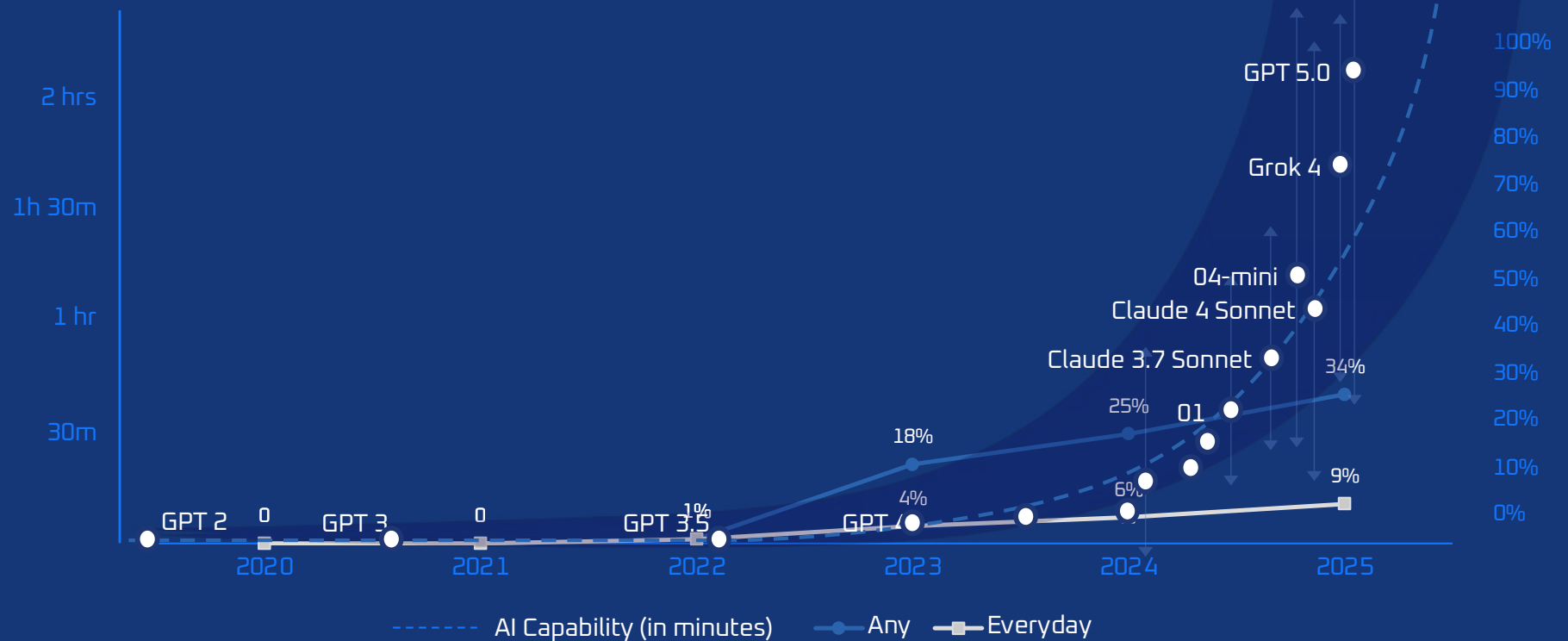
DAU/MAU

Incumbents



Exponential tech vs. linear minds: The adoption gap

AI CAPABILITY VS HUMAN ADOPTION



homebase

Product

Customers

Pricing

More

Sign In

Get started

Take control of everyday work

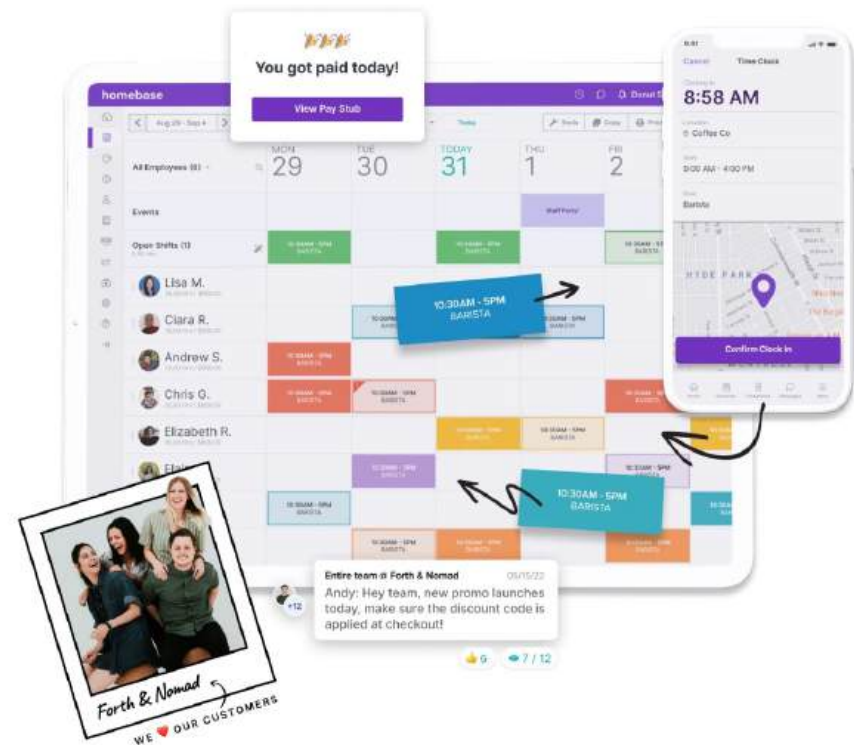
Simplify scheduling, time clocks, and payroll all in one app. Manage your team with messaging and HR built for small business.

Get started for free

Trusted by **100,000+** small businesses

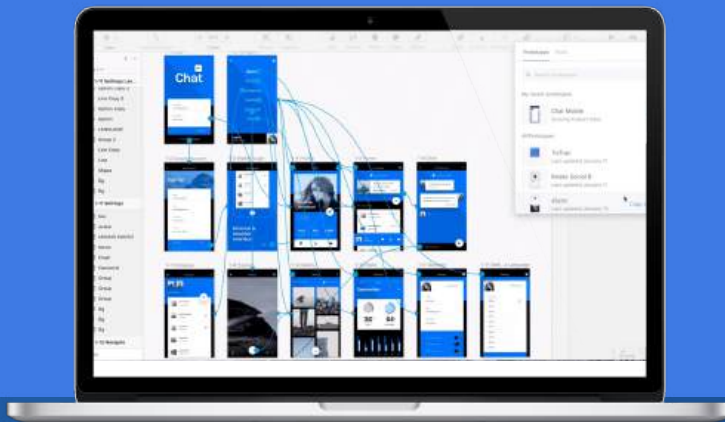


BARzotto



Exponential tech vs. linear minds: The adoption gap

WE STARTED WITH THE CARROTS



 **Lovable**
 **Replicate**
bolt.new



Exponential tech vs. linear minds: The adoption gap

THEN WE MOVED TO THE STICKS

**MANDATORY
REQUIRED**



HACKATHON







“

90% of companies want to do GenAI, but only 10% of them are successful, and the reason they fail is because they haven't built the mechanisms of actually transforming the workforce to adopt new technology and new capabilities”

Bradley Miller, Chief Information Officer, Moderna

Exponential tech vs. linear minds: The adoption gap

DEVELOPING AN "AI FIRST" CULTURE



salesforce Salesforce Webinars
Questions? Call us at 1-800-667-6389

Embracing an AI mindset in business and in life

On-Demand Webinar

Forbes

INNOVATION • ENTERPRISE TECH

Developing A 'Generative AI Mindset'

Joe McKendrick Senior Contributor @
I track how technology innovations move markets and careers

Follow

Apr 11, 2024, 12:22pm EDT

Updated Apr 11, 2024, 02:10pm EDT

Generative AI: the next phase' GETTY

LinkedIn post titled "An AI First Mindset" by Tony Rhems.

The diagram is a circular framework with "AI Mindset" at the center. It is divided into four quadrants: "Artificial Intelligence" (top-left, green), "Knowledge Management" (top-right, green), "Data/Information Architecture" (bottom-left, blue), and "Ethics & Governance" (bottom-right, green). The outer ring of the circle is labeled "Innovation" on the left and "Strategy" on the right.

An AI First Mindset

Tony Rhems
CEO AJ Rhems & Associates | Traditional Chief AI Officer | Tech Investor | Board Member | Advisor | Speaker | Author

January 31, 2024

Comments: No comments, yet. Be the first to comment.

Start the conversation



What This Means

1. **Using AI effectively is now a fundamental expectation of everyone at Shopify.** It's a tool of all trades today, and will only grow in importance. Frankly, I don't think it's feasible to opt out of learning the skill of applying AI in your craft; you are welcome to try, but I want to be honest I cannot see this working out today, and definitely not tomorrow. Stagnation is almost certain, and stagnation is slow-motion failure. If you're not climbing, you're sliding.
2. **AI must be part of your GSD Prototype phase.** The prototype phase of any GSD project should be dominated by AI exploration. Prototypes are meant for learning and creating information. AI dramatically accelerates this process. You can learn to produce something that other team mates can look at, use, and reason about in a fraction of the time it used to take.
3. **We will add AI usage questions to our performance and peer review questionnaire.** Learning to use AI well is an unobvious skill. My sense is that a lot of people give up after writing a prompt and not getting the ideal thing back immediately. Learning to prompt and load context is important, and getting peers to provide feedback on how this is going will be valuable.



Duolingo

718,029 followers

5h • Edited • 🌐

+ Follow

👇 Below is an all-hands email from our CEO, [Luis von Ahn](#) – we are going to be AI-first.

Just like how betting on mobile in 2012 made all the difference, we're making a similar call now. This time the platform shift is AI.

What doesn't change: We will remain a company that cares deeply about its employees.

I've said this in Q&As and many meetings, but I want to make it official: **Duolingo is going to be AI-first.**

AI is already changing how work gets done. It's not a question of if or when. It's happening now. When there's a shift this big, the worst thing you can do is wait. In 2012, we bet on mobile. While others were focused on mobile companion apps for websites, we decided to build mobile-first because we saw it was the future. That decision helped us win the 2013 iPhone App of the Year and unlocked the organic word-of-mouth growth that followed.

Betting on mobile made all the difference. We're making a similar call now, and this time the platform shift is AI.

AI isn't just a productivity boost. It helps us get closer to our mission. To teach well, we need to create a massive amount of content, and doing that manually doesn't scale. One of the best decisions we made recently was replacing a slow, manual content creation process with one powered by AI. Without AI, it would take us decades to scale our content to more learners. We owe it to our learners to get them this content ASAP.

AI also helps us build features like Video Call that were impossible to build before. **For the first time ever, teaching as well as the best human tutors is within our reach.**

Being AI-first means we will need to rethink much of how we work. **Making minor tweaks to systems designed for humans won't get us there.** In many cases, we'll need to start from scratch. We're not going to rebuild everything overnight, and some things—like getting AI to understand our codebase—will take time. However, we can't wait until the technology is 100% perfect. We'd rather move with urgency and take occasional small hits on quality than move slowly and miss the moment.

We'll be rolling out a few constructive constraints to help guide this shift:

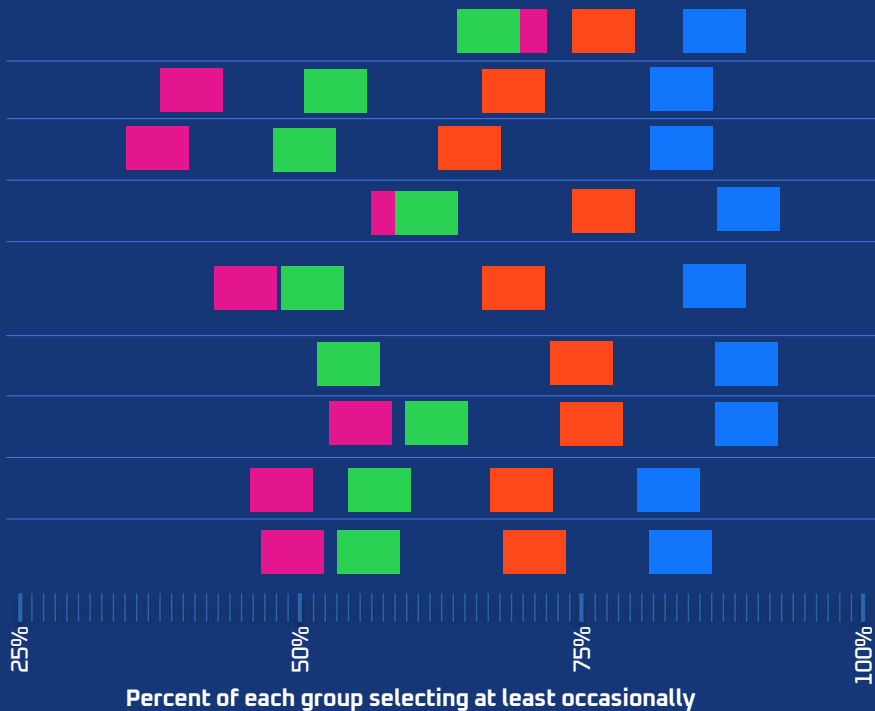
- We'll gradually stop using contractors to do work that AI can handle
- AI use will be part of what we look for in hiring
- AI use will be part of what we evaluate in performance reviews
- Headcount will only be given if a team cannot automate more of their work
- Most functions will have specific initiatives to fundamentally change how they work

All of this said, **Duolingo will remain a company that cares deeply about its employees.** This isn't about replacing Duos with AI. It's about removing bottlenecks so we can do more with the outstanding Duos we already have. We want you to focus on creative work and real problems, not repetitive tasks. **We're going to support you with more training, mentorship, and tooling for AI in your function.**

Change can be scary, but I'm confident this will be a great step for Duolingo. It will help us better deliver on our mission — and for Duos, it means staying ahead of the curve in using this technology to get things done.

—Luis

■ Skeptics
 ■ Novices
 ■ Explorers
 ■ Power Users



HOW I USE AI

When I don't get the response I want from the first prompt, I try again

I use AI to get ready for the following workday

I start my day using AI

I research and try new prompts

I regularly share my prompts / top tips on AI usage with my co-workers

I regularly experiment with different ways of using AI

I make it a priority to learn how to use AI effectively

I ask co-workers what prompts they find most useful

Before starting a task, I ask myself, "could AI help me with this?"

■ Skeptics
 ■ Novices
 ■ Explorers
 ■ Power Users



HOW AI IMPACTS MY EXPERIENCE AT WORK

It makes my overwhelming workload more manageable

It helps me be more creative

It helps me be more productive

It helps me enjoy my work more

It helps me focus on more fulfilling work

It helps me focus on the most important work

It makes me feel more motivated

It has improved my work-life balance

I wish AI could do even more on my behalf

I don't want to go back to working without AI

TODAY'S AGENDA

1

From sci-fi to reality:
The rise of thinking
machines

2

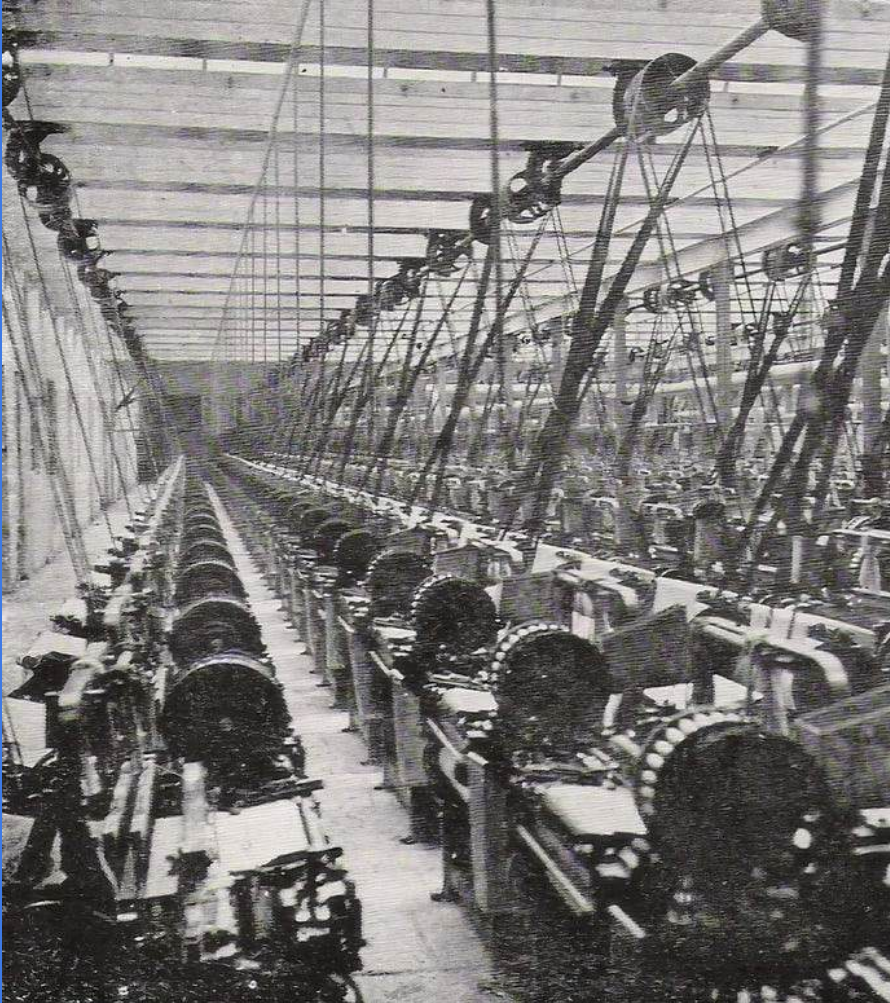
Exponential tech vs.
linear minds:
The adoption gap

3

Future proofing yourself:
How **organizations** can
stay ahead

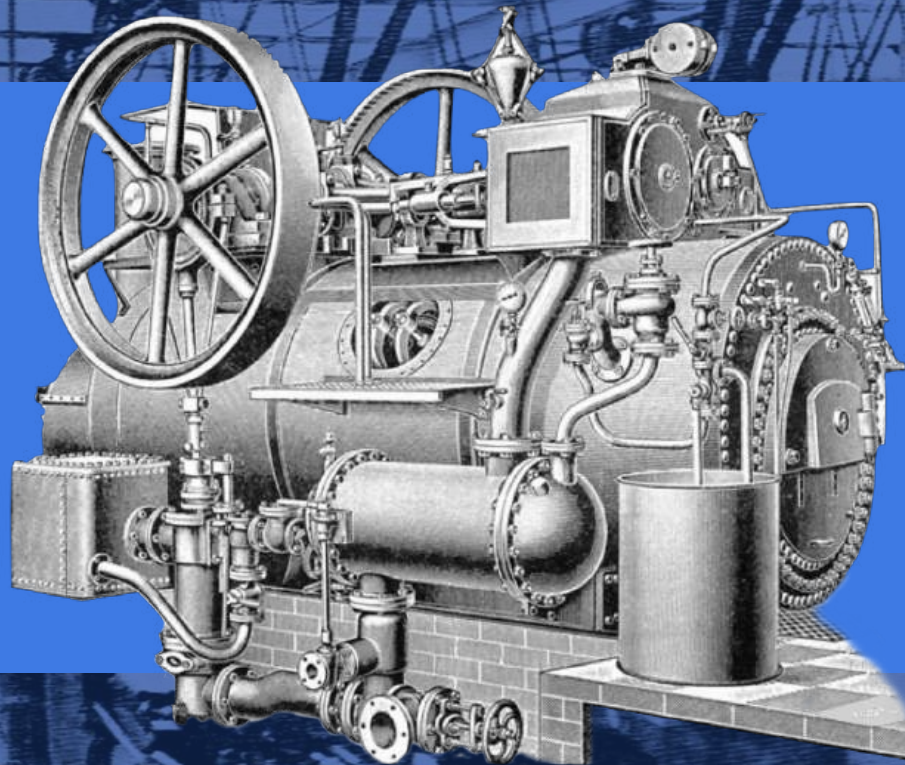


Incremental



Disruptive

Incremental



Working Paper 24-013

Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality

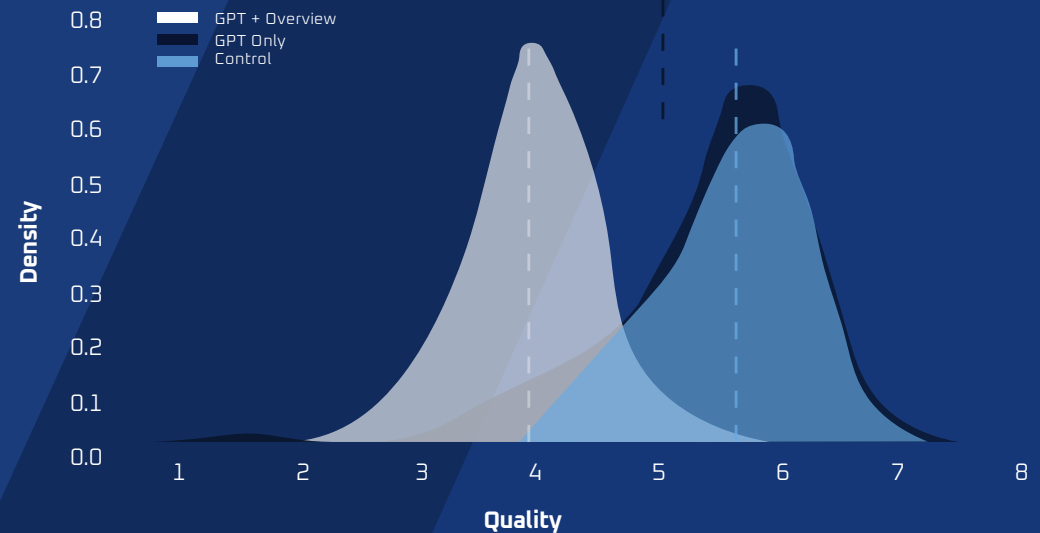
Fabrizio Dell'Acqua
Edward McFowland III
Ethan Mollick
Hila Lifshitz-Assaf
Katherine C. Kellogg

Saran Rajendran
Lisa Kraymer
François Cadelon
Karim R. Lakhani



Harvard
Business
School

For each one of a set of 18 realistic consulting tasks within the frontier of AI capabilities, consultants using AI were significantly more productive (they completed 12.2% more tasks on average, and completed tasks 25.1% more quickly), and produced significantly higher quality results (more than 40% higher quality compared to a control group)."



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.

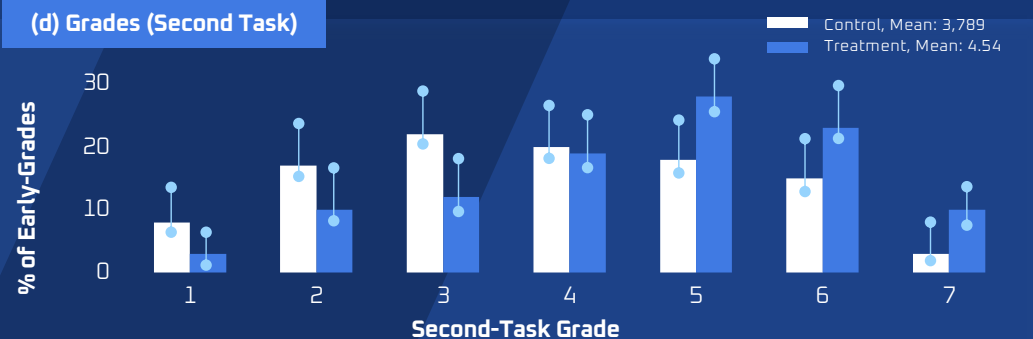
We gratefully acknowledge financial support from an Emergent Ventures grant, the George and Obie Shultz Fund, and the National Science Foundation Graduate Research Fellowship under Grant No. 1745302. The research described in this article was approved by the MIT Committee on the Use of Humans as Experimental Subjects, and was preregistered at the AEA RCT Registry (AECTR-0010882). We thank Daron Acemoglu, Nikhil Agarwal, David Autor, Lucas Barros, Talia Benheim, Amy Finkelstein, John Horton, Simon Jäger, Ailidh Leslie, Jackson Mejia, Ilan Noy, Liora Noy, Emily Partridge, Charlie Rafkin, Aakaash Rao, Nina Roussille, Chris Roth, Frank Schilbach, Benjamin Schoefer, Lexi Schubert, Advik Shree Kumar, Shine Wu, and participants at the MIT Labor Lunch for helpful comments and conversations.

“ Our results show that ChatGPT substantially raises average productivity: time taken decreases by 0.8 SDs and output quality rises by 0.4 SDs.”

(c) Time Distribution (Second Task)



(d) Grades (Second Task)



Future-proofing yourself: How organizations can stay ahead

GENERATIVE AI ARMS RACE

These technologies scale intelligence, especially for knowledge workers

THE WALL STREET JOURNAL

World Business U.S. Politics Economy Tech Finance Opinion Arts & Culture Lifestyle Real Estate Personal Finance Health Style

EXCLUSIVE CIO JOURNAL


PwC Set to Become OpenAI's Largest ChatGPT Enterprise Customer

The Big Four accounting firm signs a new license and sales deal as the maker of ChatGPT ramps up its enterprise sales efforts

By Belle Lin [Follow](#)

May 29, 2024 4:45 am ET

[Share](#) [Listen \(2 min\)](#)



5 Ways to Make the Most of Generative AI

To help unlock the business value of this transformative technology, organizations should focus on a few key areas, according to a new report

Why a Tech Leader Should Be 'the Most Curious Person in the Room'

Katie Graham Shannon, global managing partner, Global Digital & Technology Officers Practices at Heidrick & Struggles, discusses how tech leaders can position themselves for


Reuters World Business Markets Sustainability Legal Breakingviews Technology Investigations More My News

EY rolls out AI-powered platform after \$1.4 billion tech investment

By Reuters

September 13, 2023 10:08 AM EDT · Updated 2 years ago

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The EY company logo is seen at their headquarters in London, Britain, April 16 2023. REUTERS/Peter Nicholls/Photo Purchase Licensing Studio

Blog

What ChatGPT and Generative AI Could Mean for Learning

by Karie Wilverd

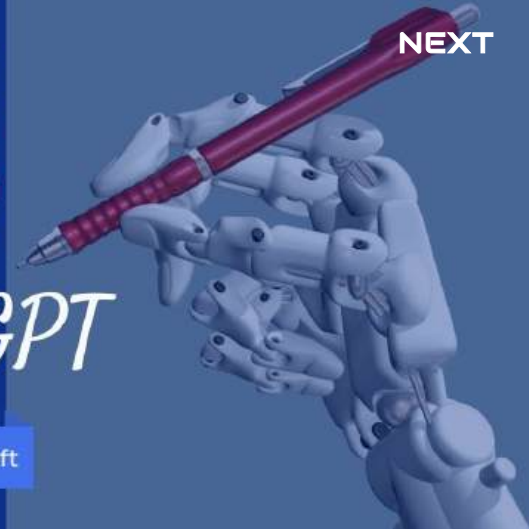


Next Level IC

How you create
content
for **internal
communication**
in seconds with

Chat GPT

Example: Intranet Governance draft



NCONTRACTS BLOG

Can ChatGPT Help Your Compliance Department?

How ChatGPT Works and Whether or Not it's
a Good Fit for Your Compliance Department

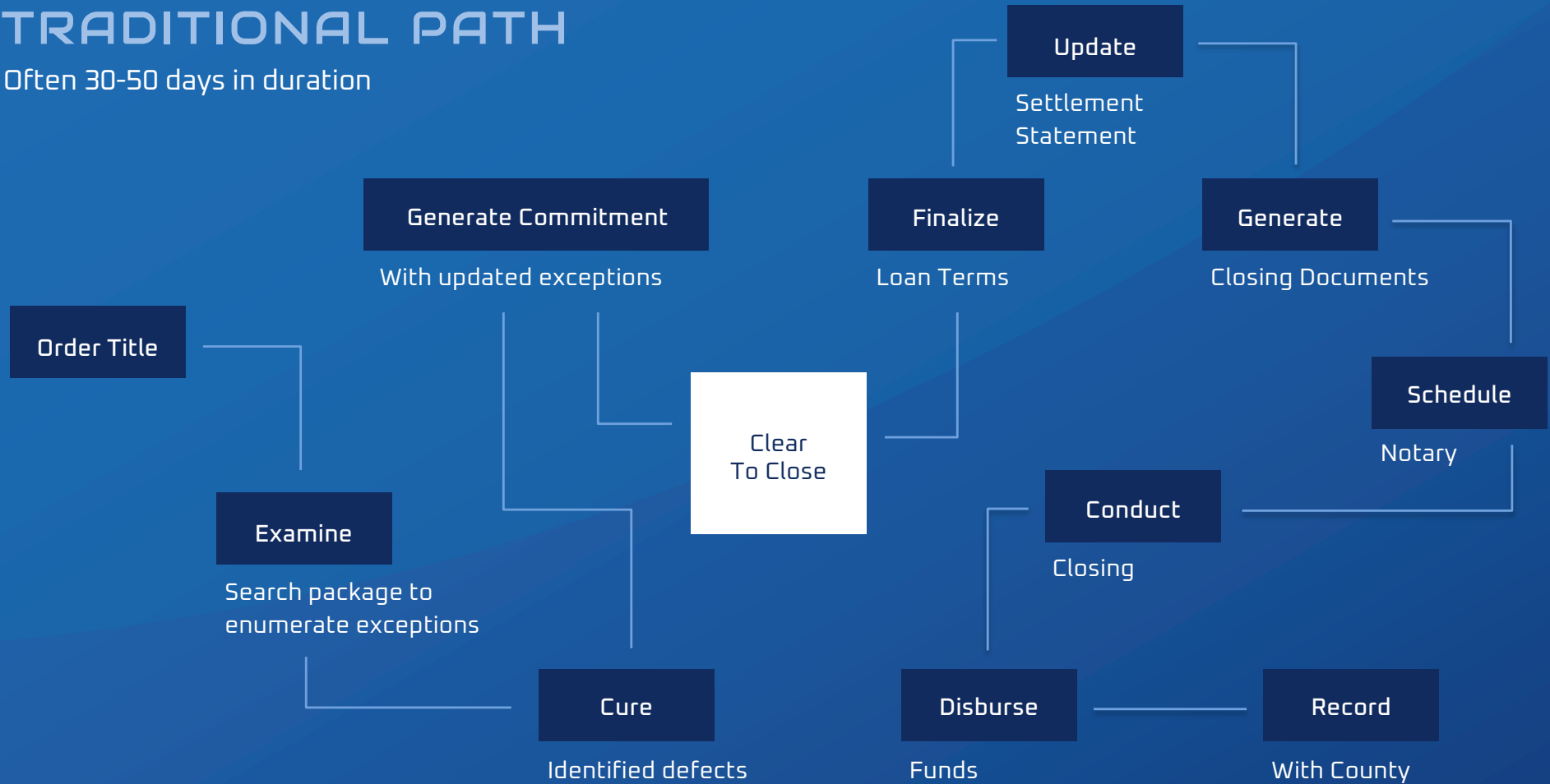


NCONTRACTS



TRADITIONAL PATH

Often 30-50 days in duration



DATA SCIENCE & MACHINE LEARNING CAPABILITIES DRIVE CORE AREAS OF DOMA INTELLIGENCE

DOMA INTELLIGENCE

Platform
Components

UNDERWRITING

COMMUNICATIONS "COMMS"

DOCUMENTS "DOCS"

DATA SCIENCE

Predictive Risk
Model Suite

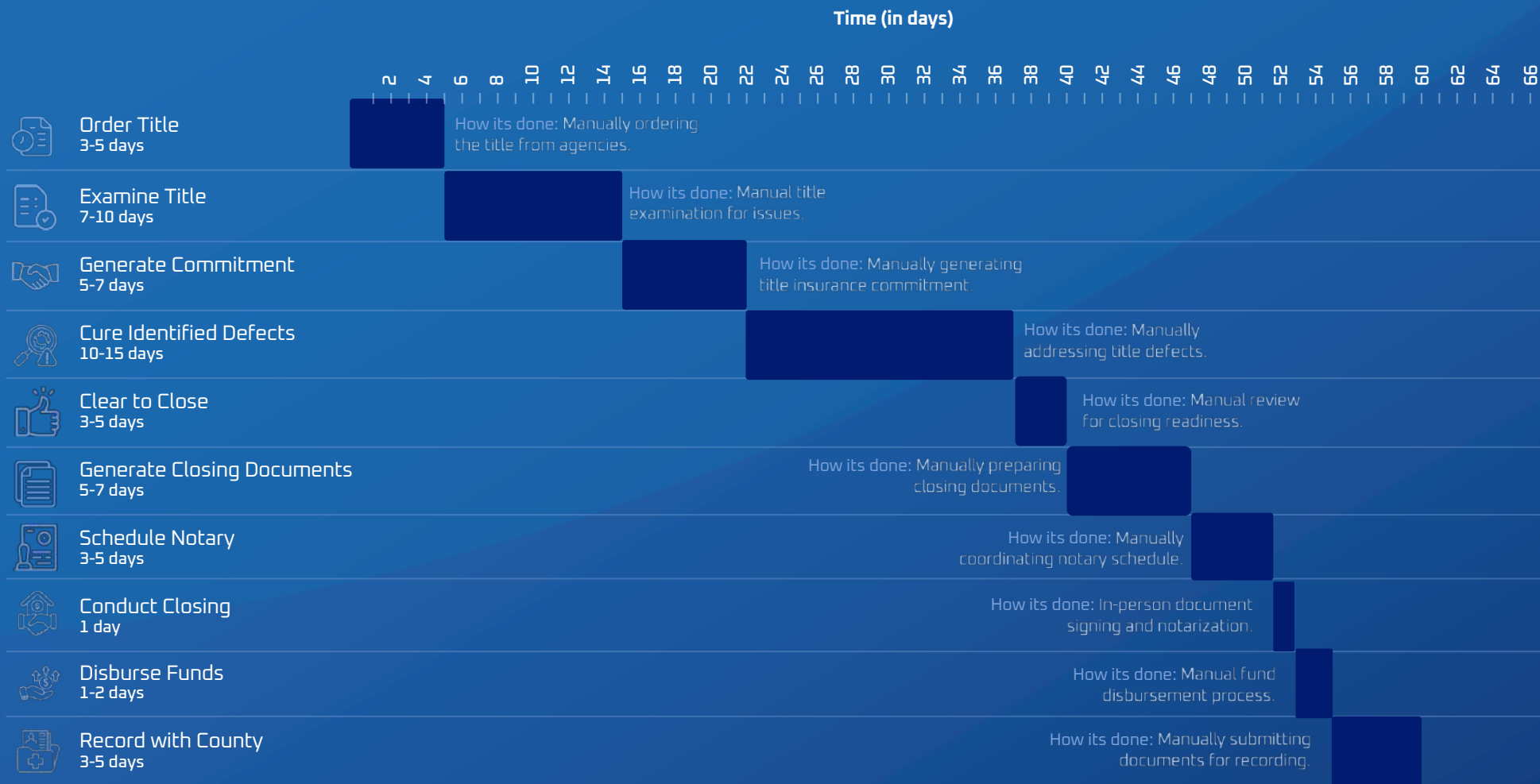
Transformer-based
Natural Language Processing

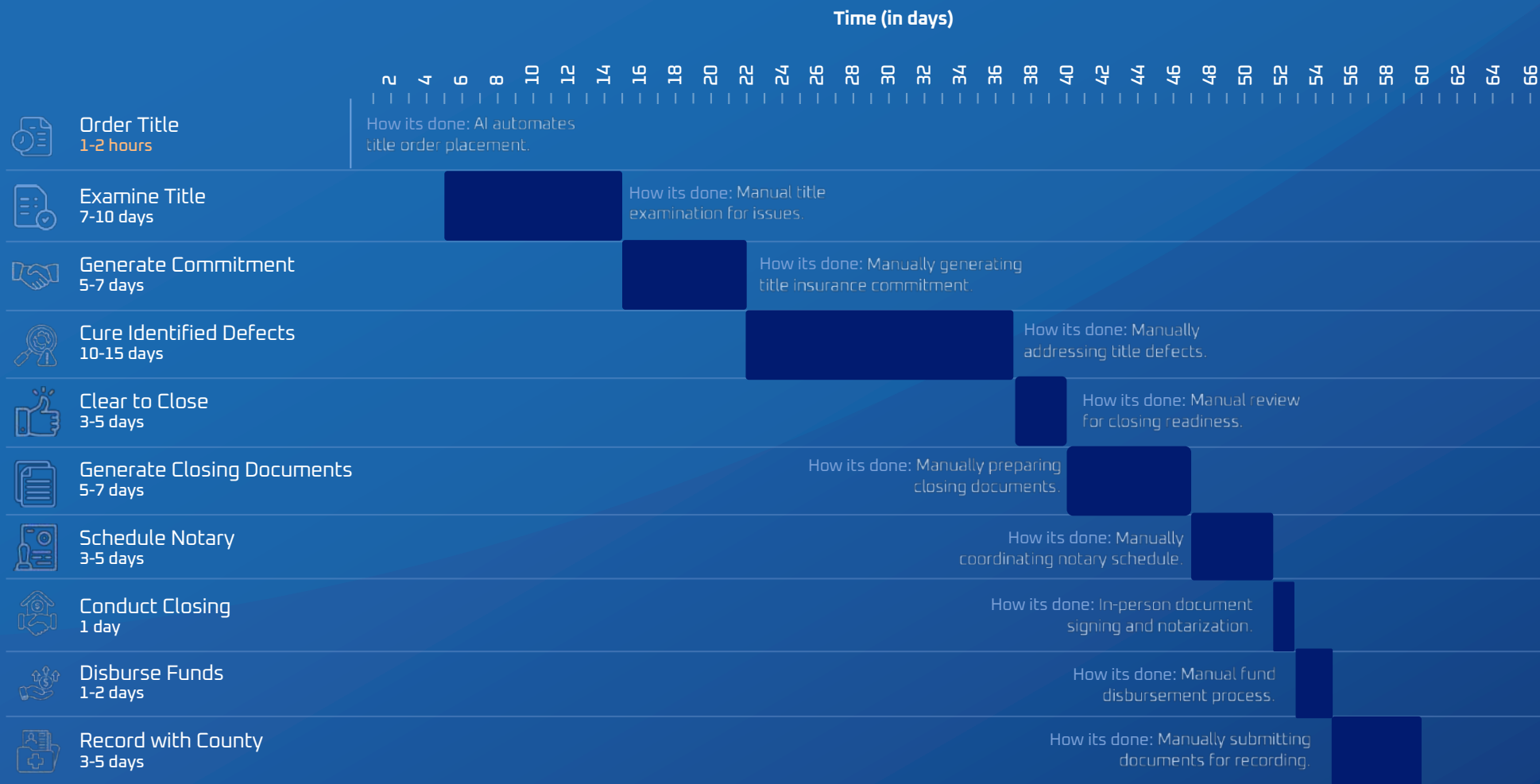
Transformer-based
Computer Vision

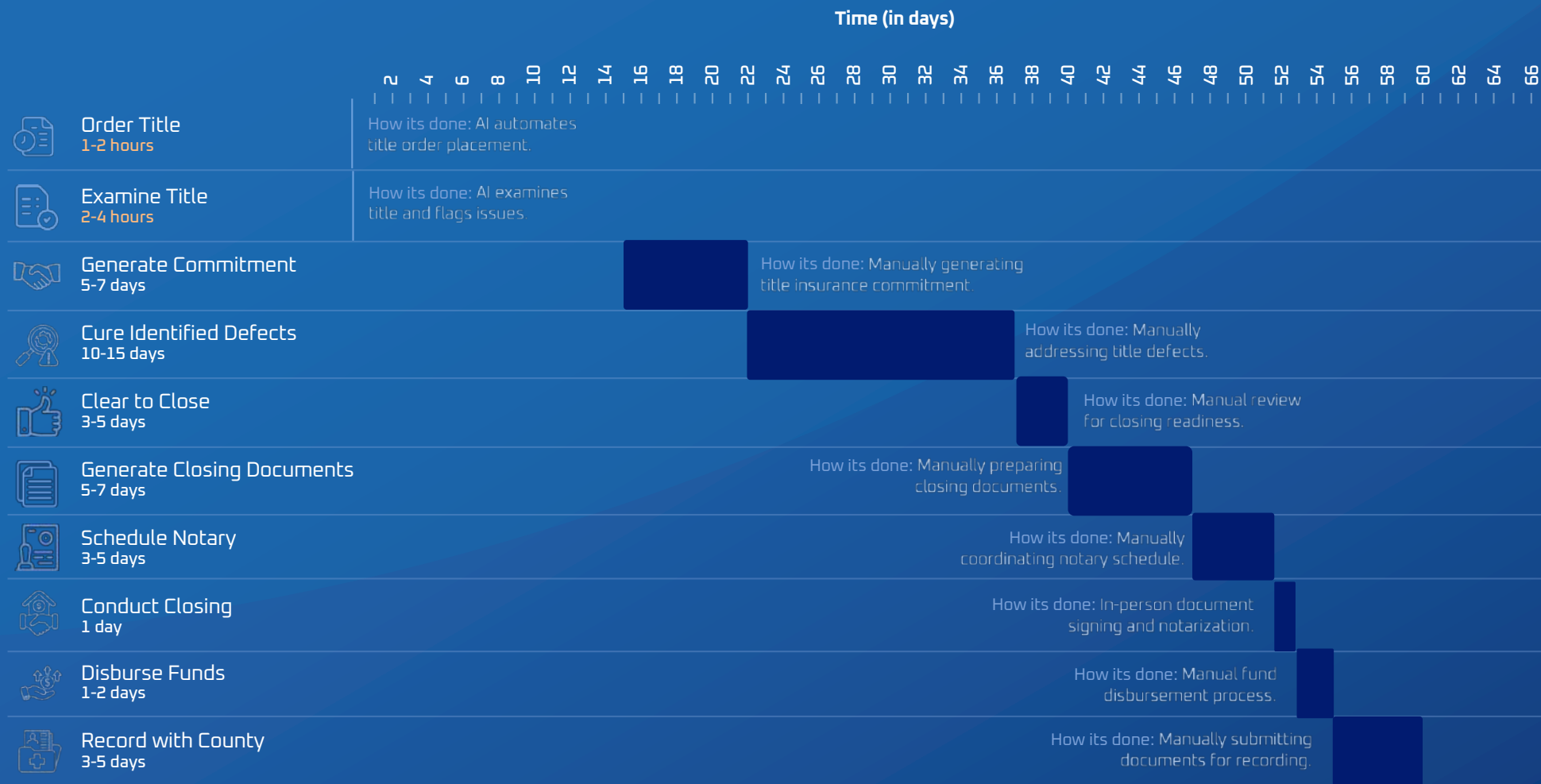
Decision science
and ML algorithms
instantly underwrite
~80% of refi orders using
hundreds of title &
property data points

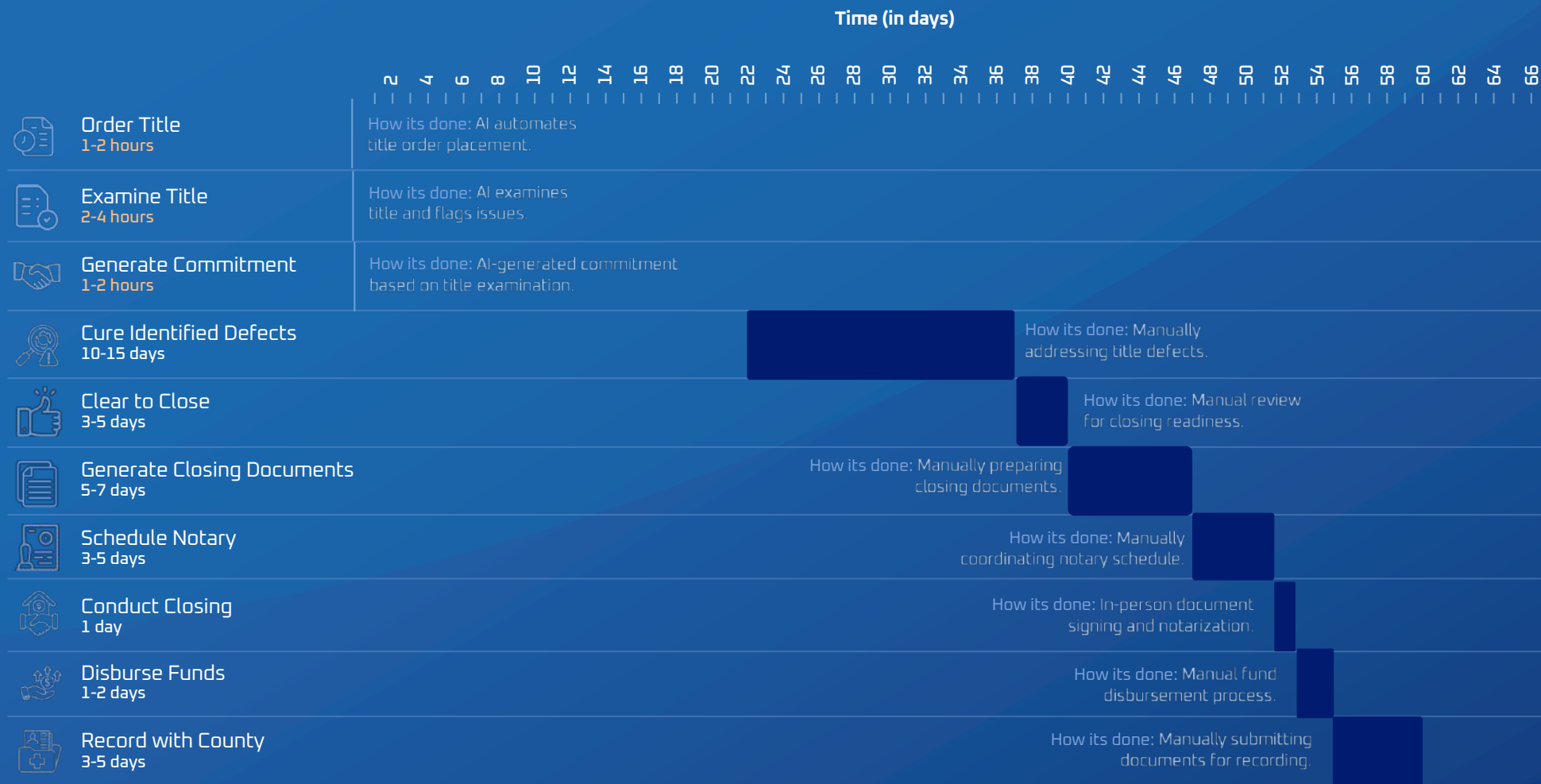
Deep Neural Networks
are trained on
100K+ title and escrow
emails to instantly
comprehend customer
requests

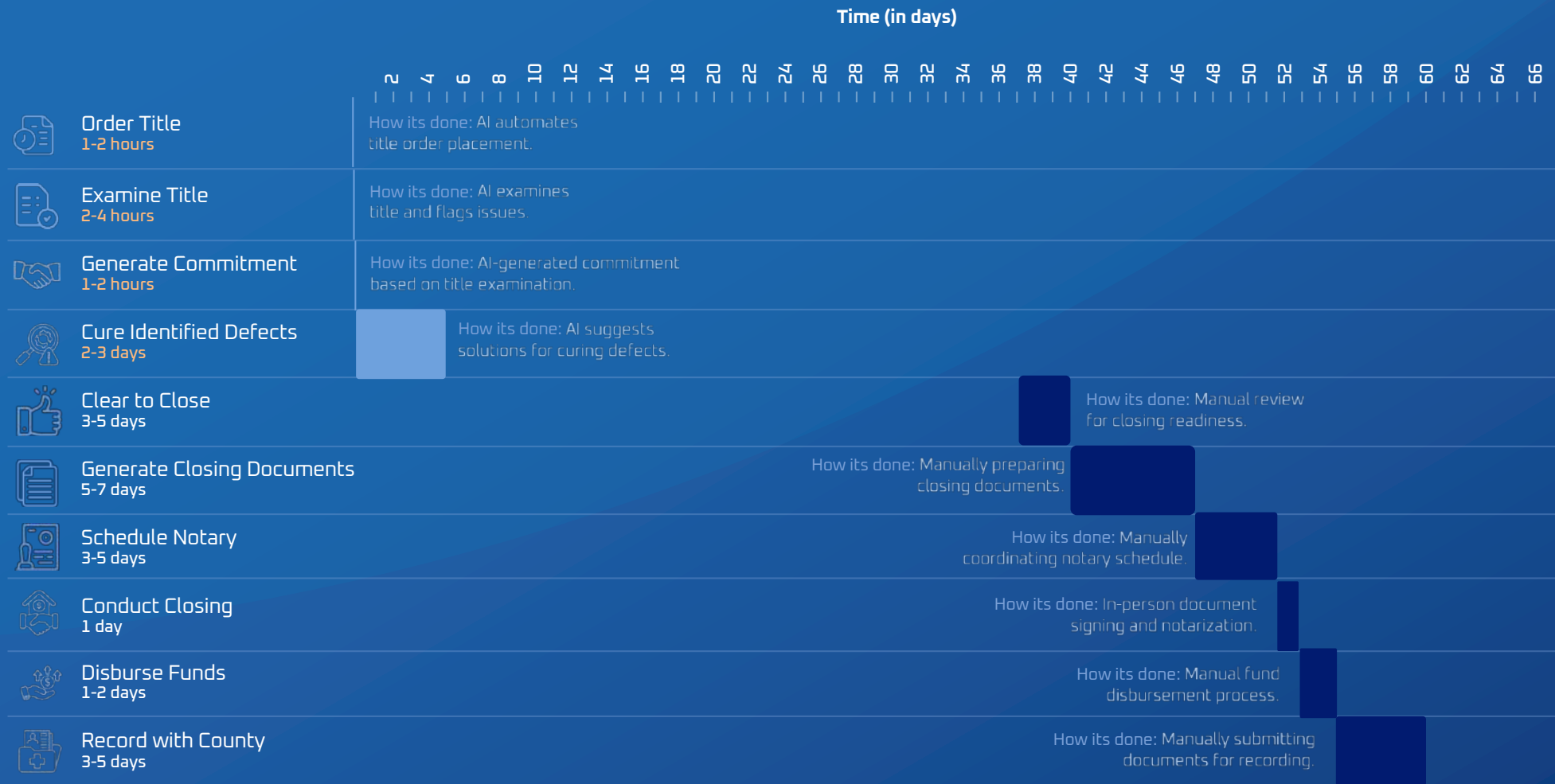
Deep Neural Networks
create specialized Optical
Character Recognition
algorithms to reconcile
fees and certify the
correctness of legal terms

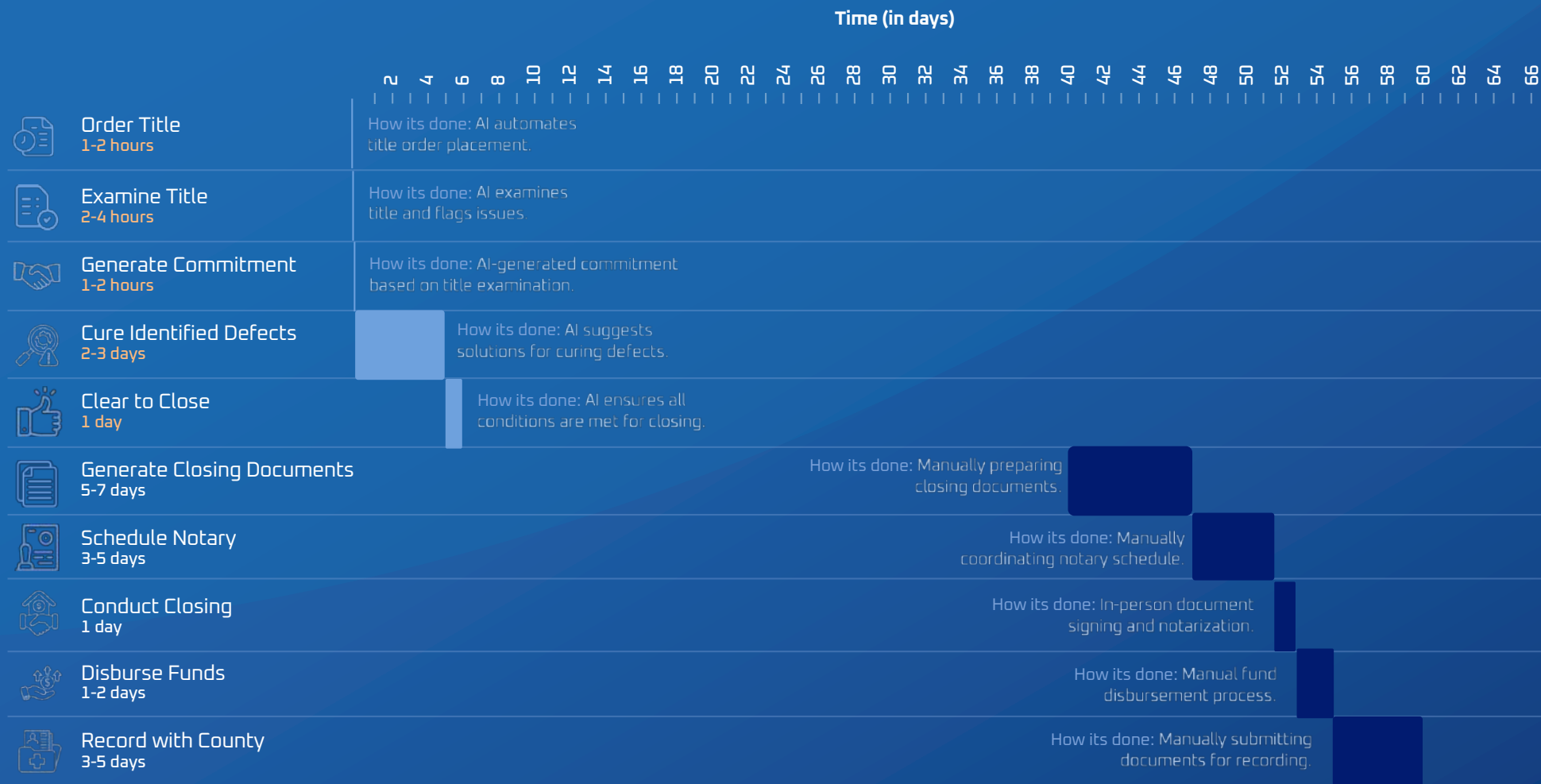




















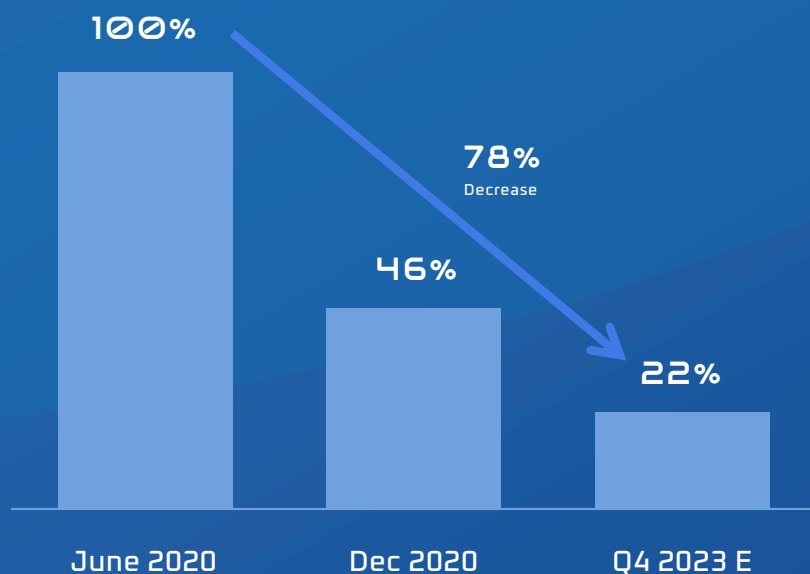


MACHINE INTELLIGENCE + OPERATIONS

Drastically reduces minutes per file across every activity in the process...

Minutes Per File metric on Doma Intelligence

Represents processing time per order



Efficiency with quality and scalability

As volume increases, customer experiences also continually improve through Doma Intelligence

Consistent gains across process points

Validates broad applicability and value of Doma Intelligence across the entire transaction

Feeding the flywheel

Increasing volumes of data lead to improved machine intelligence-powered efficiency

WE'VE REINVENTED IT ALL FROM SCRATCH

From 3–5 Days

TO 1 Minute

FROM 7 Days TO

30–50 Days

doma Title



ML-Driven Instant Underwriting Algorithm

POWERED BY ML

PATENTED

doma Escrow



Fee Balancing



Document QC



Communications

POWERED BY NLP

PATENTS PENDING

doma Close



Digital Closing



Online Notarization



Funds Transfer

doma Intelligence
PLATFORM



Millions of
Historical Transactions



Over 100
Public Data Sources



Exception Handling
Centralized Operations

Ops. Team

154

Our technology has shown it is capable of

A GAME-CHANGING EXPERIENCE FOR OUR CUSTOMERS

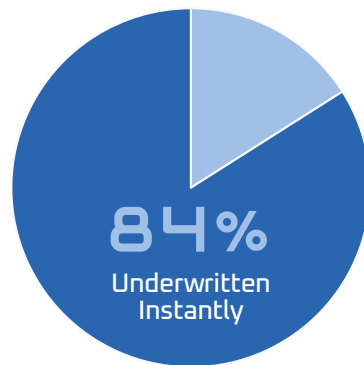
15% Faster Closings



homepoint

Top 10 Non-Bank Originator

100% Wallet Share
Since January '21



PennyMac

Top 3 Mortgage Originator

8X Wallet Share Since
September '20

50%
Fewer Touches



CHASE

Top 5 Mortgage Originator

2X Wallet Share
Since October '20

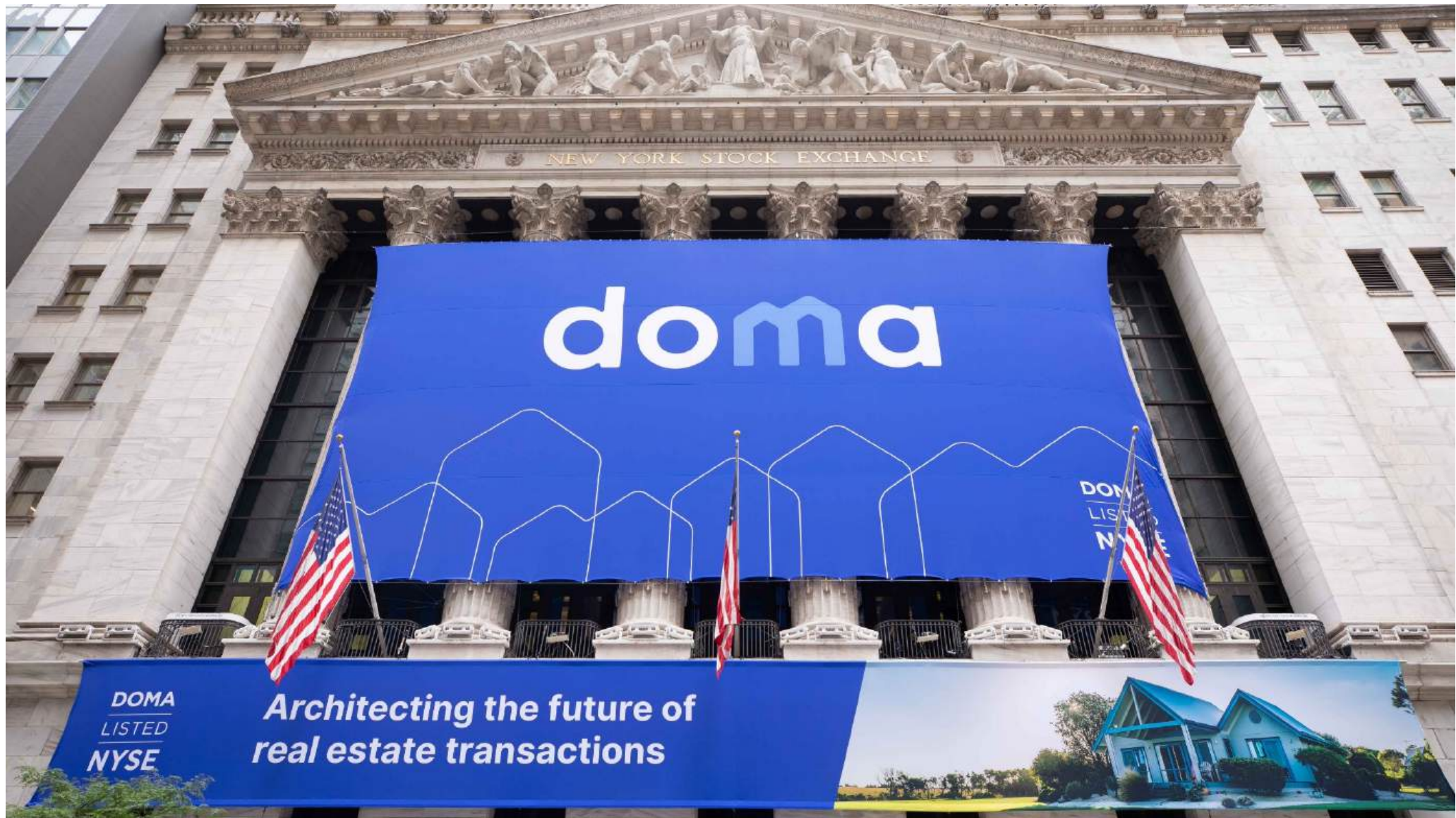
21% Higher Pull-Through Rate



FILO
MORTGAGE

National Mortgage Broker

3X Wallet Share
Since December '20



doma

DOMA
LISTED
NYSE

DOMA
LISTED
NYSE

Architecting the future of
real estate transactions







ROBOT CAMERAS



Comms:



Tablet:



E-STOP



**GAS
DETECTION**



NO GAS DETECTED

to safeguard

Overview

Monitor

Sites

Alarms

Alerts

Weather

Predict

Maintain

Analyze

Reports

Finance

Monitor / Weather / Map

Demo LNG ▾

Forecast

Map

Atmospheric Pressure on Mean Sea Level (hPa) ▾

Atmospheric Pressure on Mean Sea Level (hPa)

Cloudiness (%)

Depth of Snow (m)

Precipitation (mm) - Accumulated

Precipitation (mm) - Accumulated Rain

Precipitation (mm) - Accumulated Snow

Precipitation (mm) - Convective

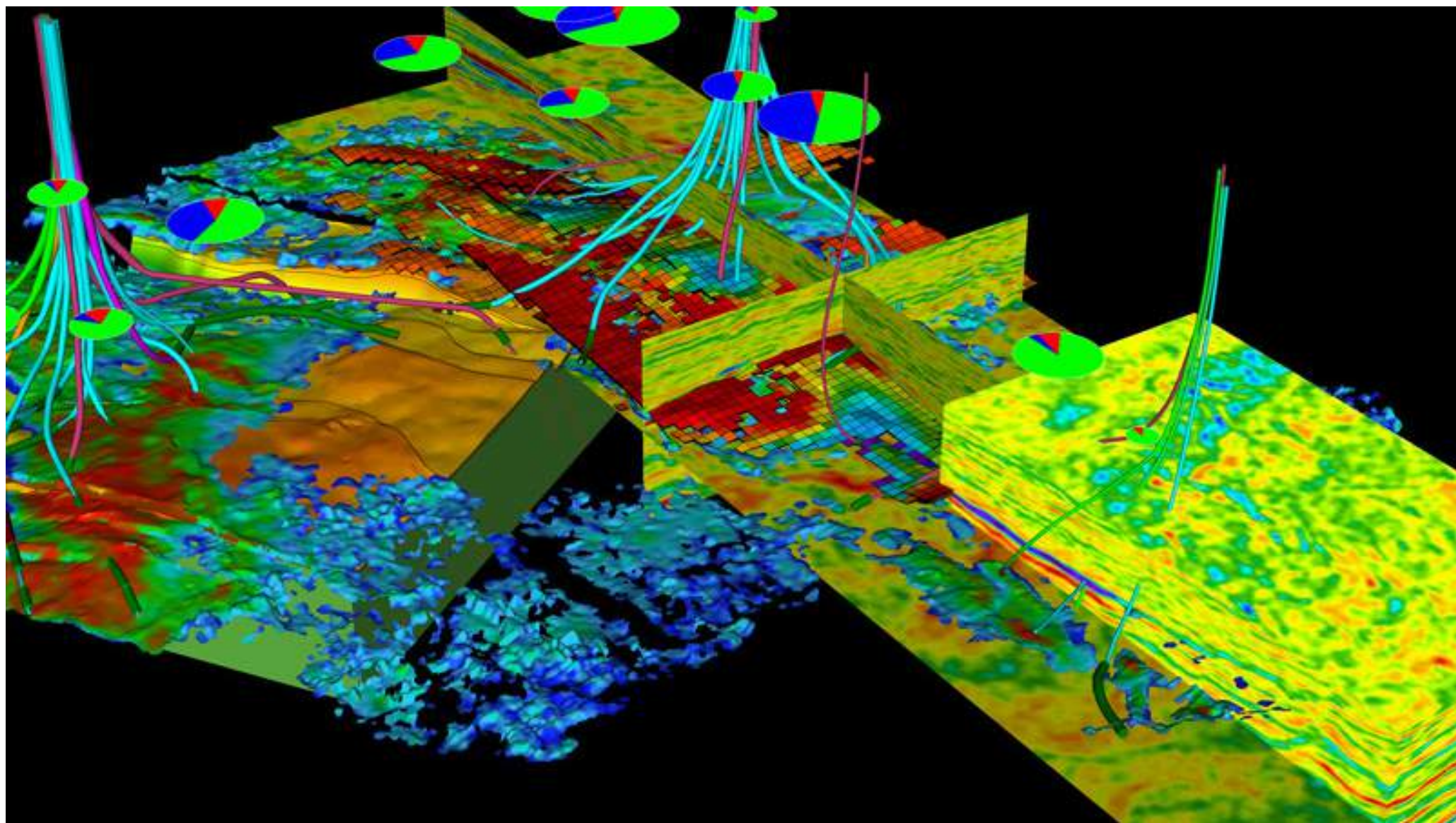
Precipitation Intensity (mm/s)

Relative Humidity (%)

12AM 3AM 6AM 9AM 12PM 3PM 6PM 9PM
2/7 2/8 2/9 2/10 2/11 2/12 2/13 2/14

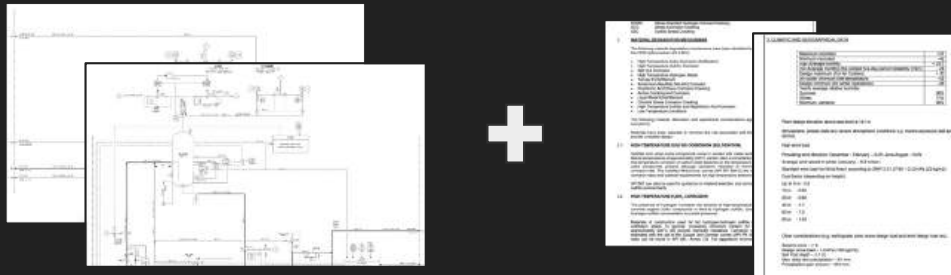








Mission Objective: Reduce Engineering Cycles of EPC to build facilities faster



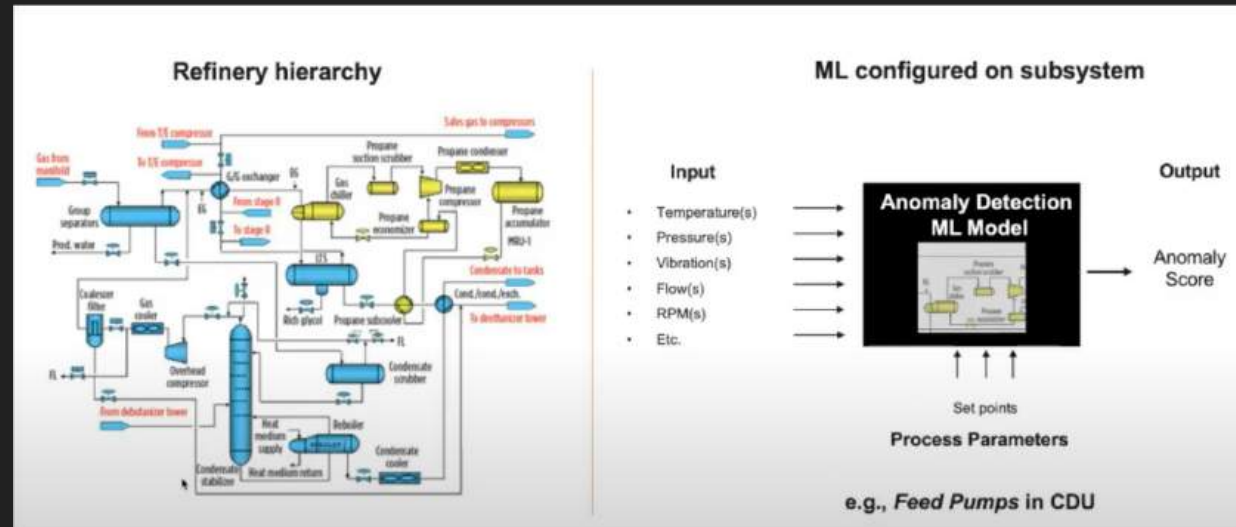
Tell me what are the most frequently occurring symbols in the diagrams and describe why they are being used?

Based on the data from the Neo4j database, the most frequently occurring symbols in the diagrams include: 1. **"Flange General (CS)"** - Count: 18 - This symbol represents a general-purpose carbon steel flange used for connecting pipelines and equipment across all refinery piping systems. Its importance arises from its essential role in ensuring the integrity and connectivity of piping networks, facilitating the assembly and maintenance of piping systems [8:1↑source] . 2. **"On Off Valve"** - Count: 16 - Typically used for controlling the flow of fluid (liquids or gases) within pipelines, an On Off Valve provides the capability to either allow or block the passage of fluid, serving as a fundamental control mechanism in many industrial processes [8:2↑source] . 3. **"LG (Level Gauge)"** - Count: 15 - This symbol is utilized to indicate the measurement of liquid levels in various tanks and vessels, commonly found in storage tanks and process separators. It plays a crucial role in operational safety, inventory management, and process control [8:4↑source] . 4. **"ZLC"** - Count: 14 - Likely representing a specific control or equipment identifier, its exact role may vary, but it generally relates to the monitoring or control of processes within a refinery setting. Precise identification of such equipment aids in the management and optimization of operations [8:4↑source] . 5. **"Mid Arrow"** - Count: 14 - The Mid Arrow symbol is commonly used to indicate flow direction in process diagrams. This is critical for understanding the movement of materials through systems, helping operators to visualize and manage process flows effectively [8:4↑source] . These symbols are foundational in process diagrams as they provide clear visual aids for interpreting complex systems within industrial environments. Each symbol conveys specific information vital for the operation, safety, and maintenance of plants, assisting engineers, operators, and maintenance personnel in following procedure and layout during operations.

SmartDraw:

AI-Powered Engineering Diagram Digitization Process

The **topological structure and component relationships** in engineering diagrams are crucial for Design of Facilities and Failure Predictions in Operations. However, extracting this metadata has traditionally been a tedious, manual task resistant to automation—**until now.**



Engineering diagrams are the ground truth data source for an industrial facility



Design and Construction



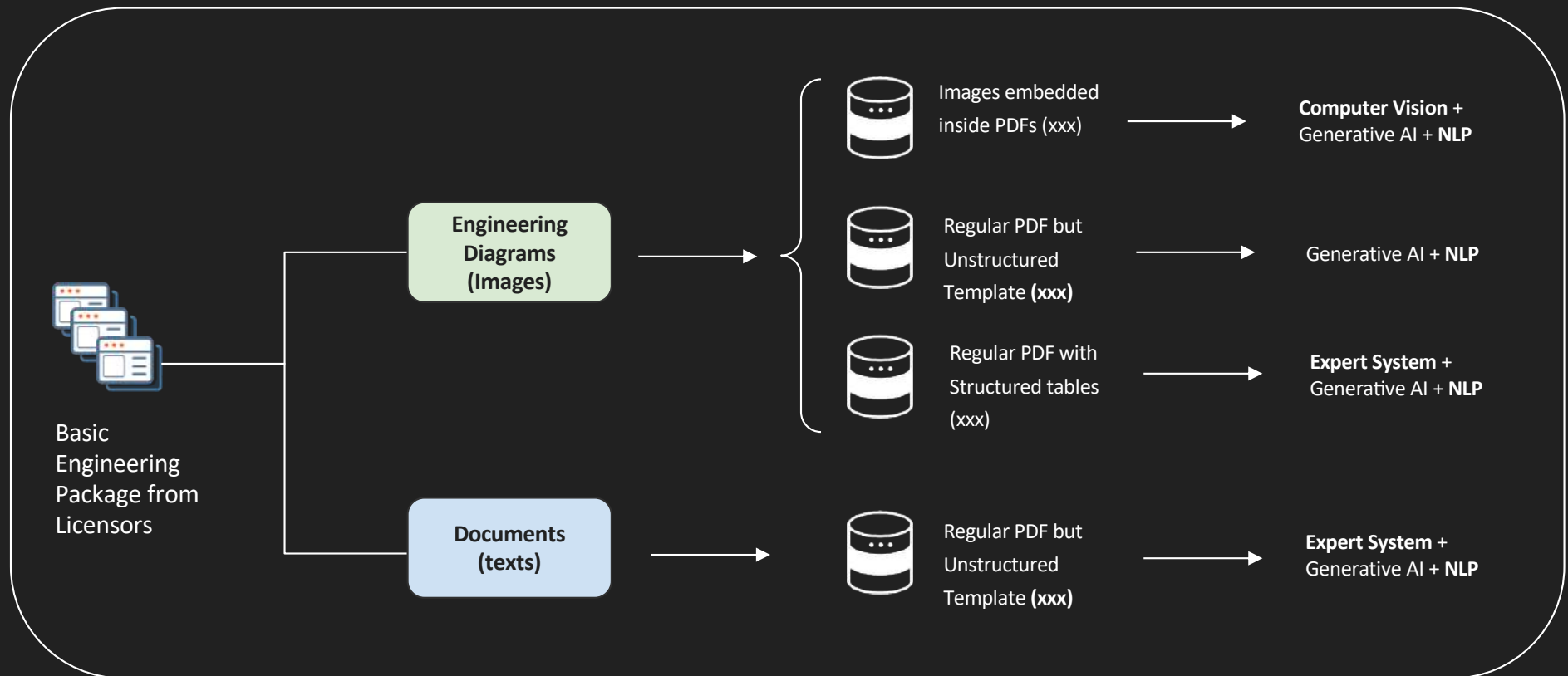
Operations



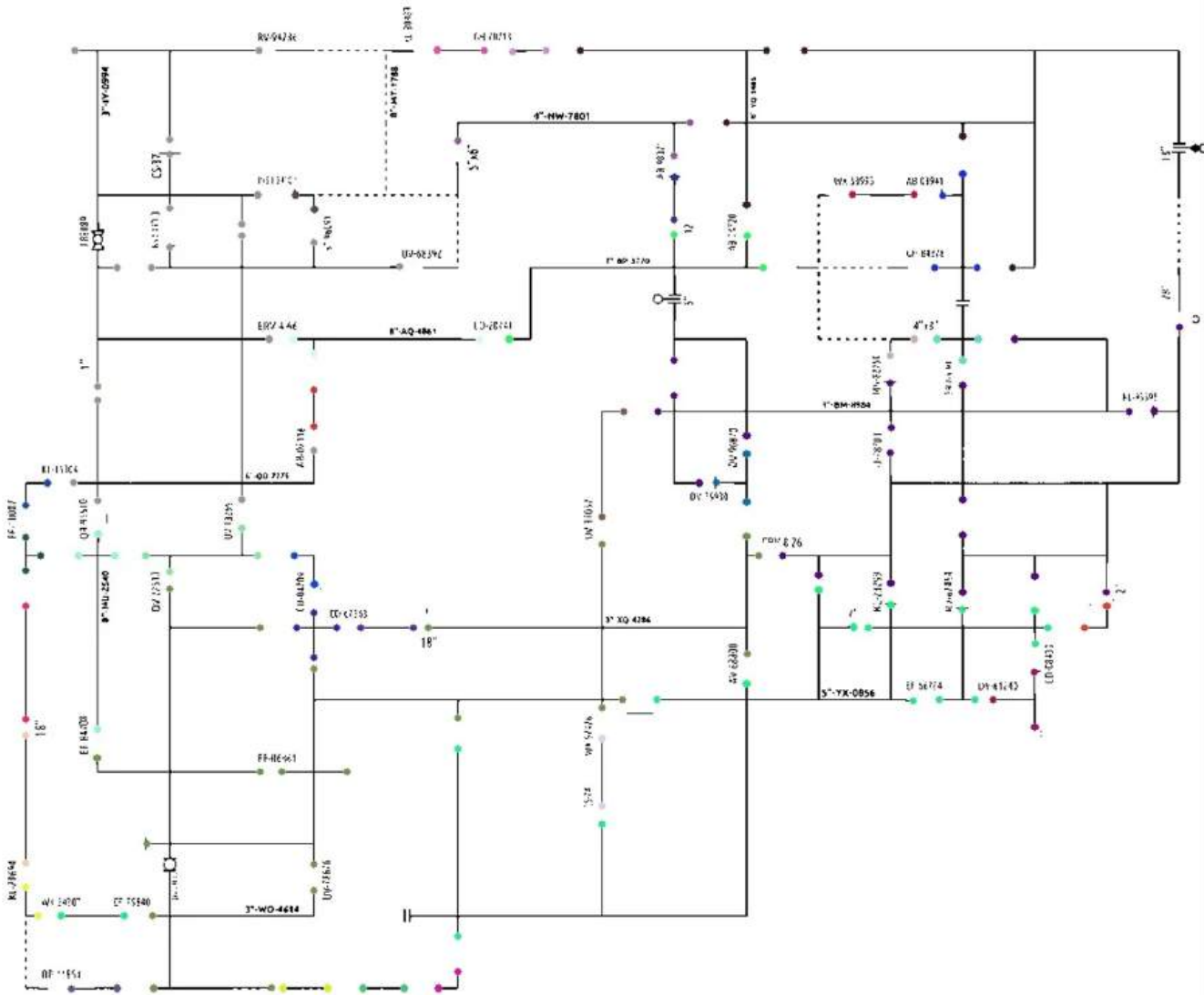
Safety Checks

SmartDraw Approach: A Co-Pilot

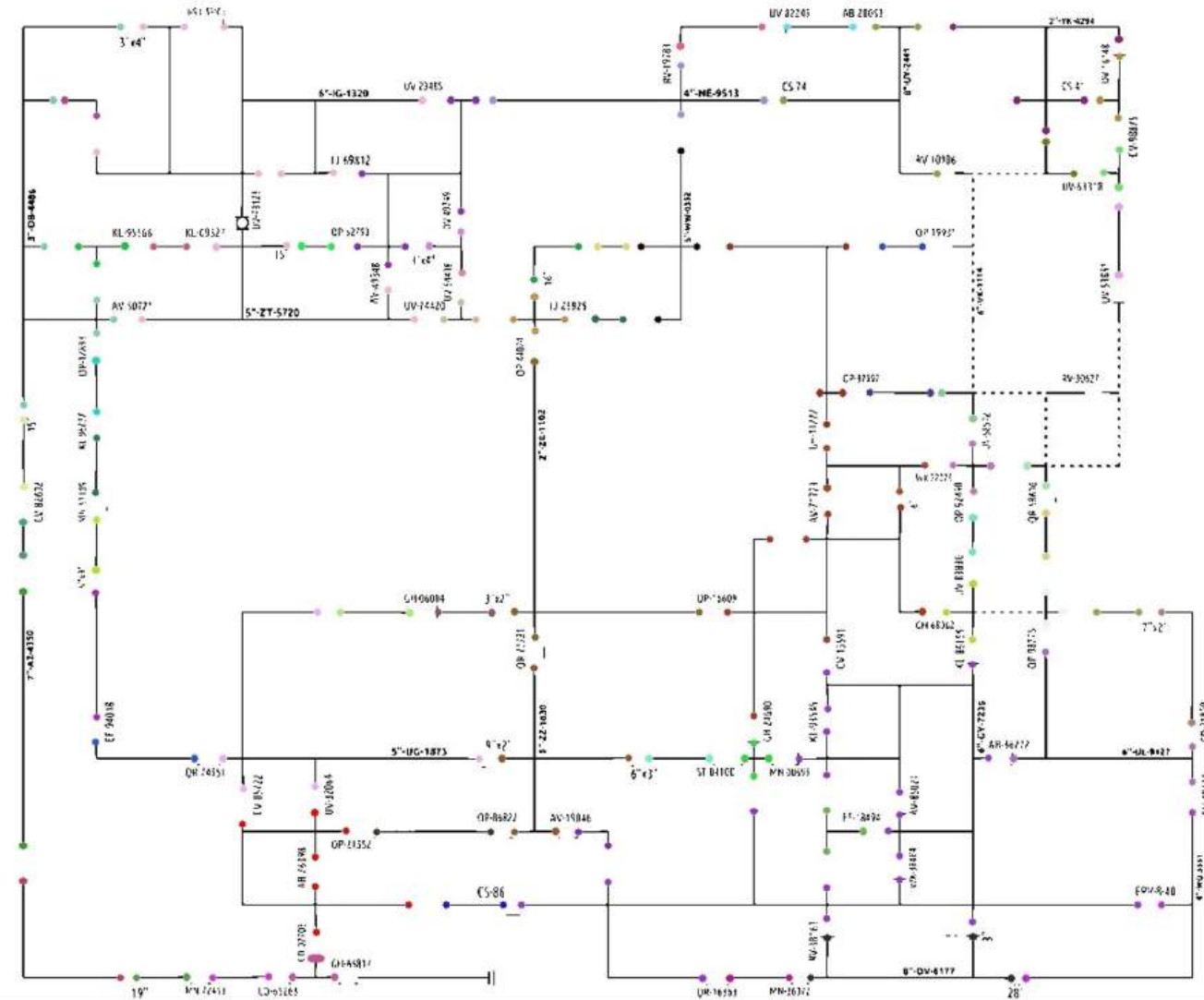
Multi Modal AI Approach: Different technique suitable for different types of diagrams and documents.



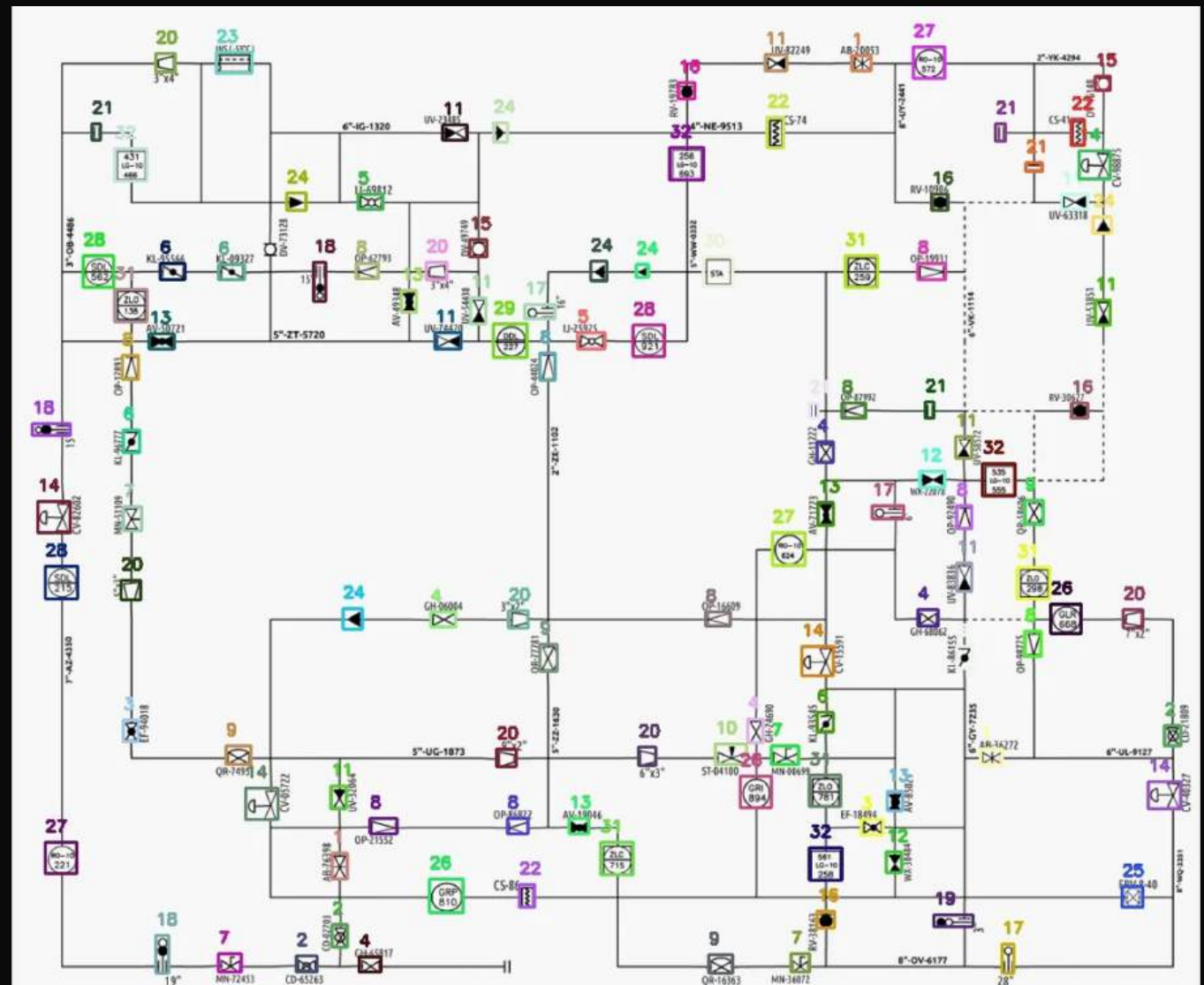
Topology Extract



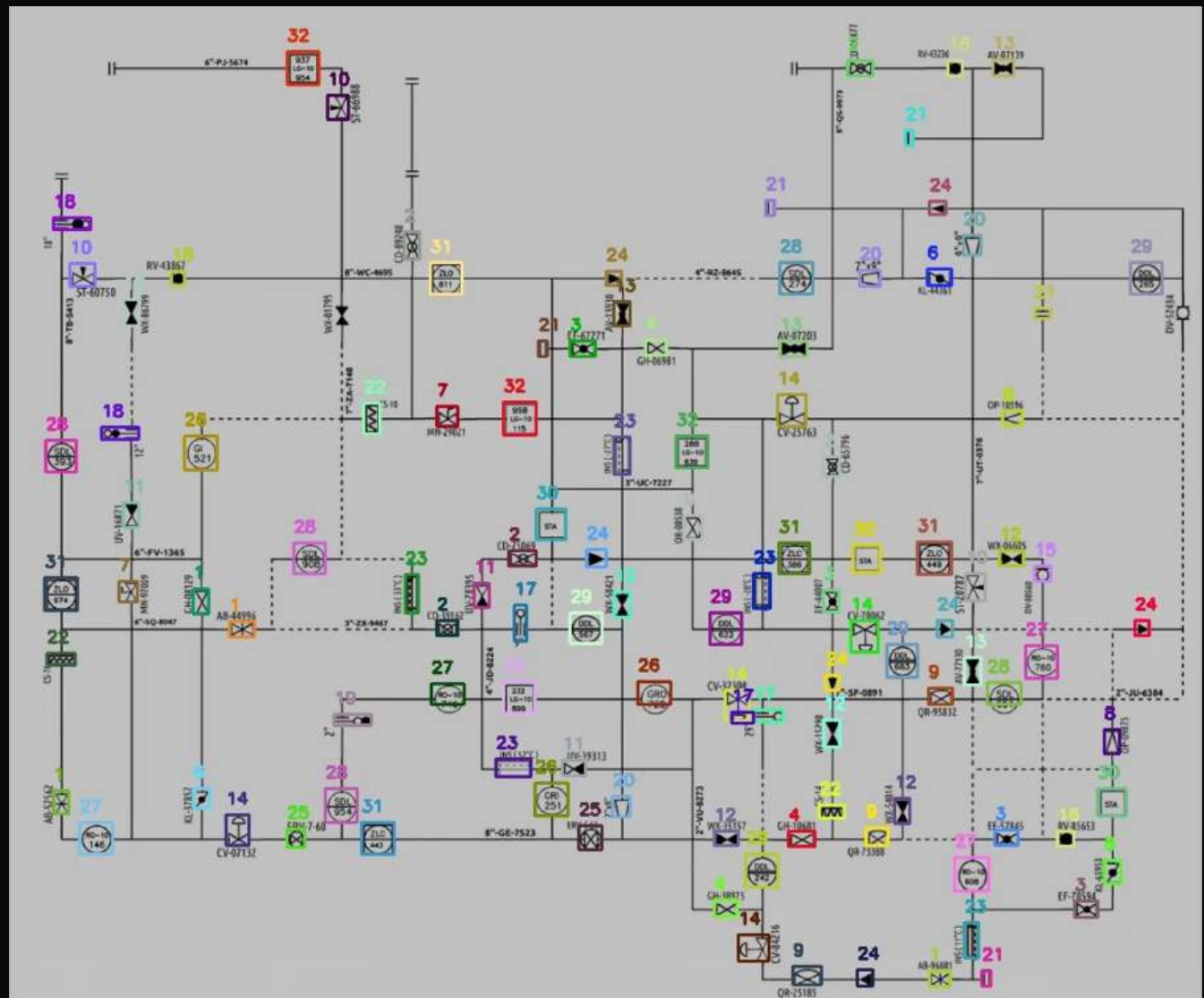
Lines Extract



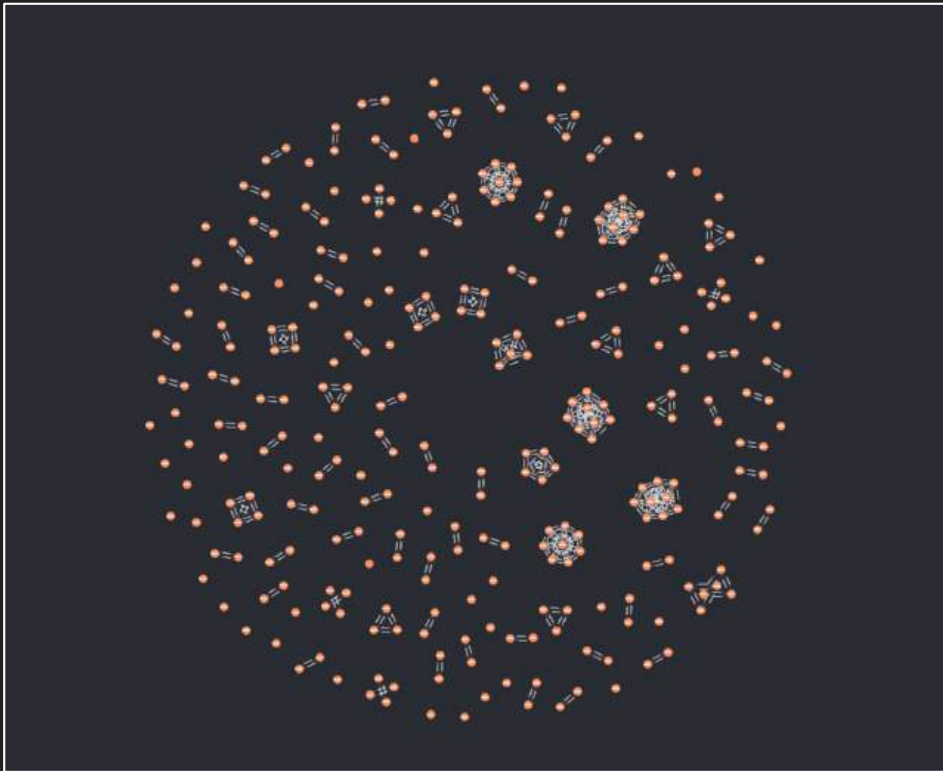
Symbols Extract



Symbols with Text Extract

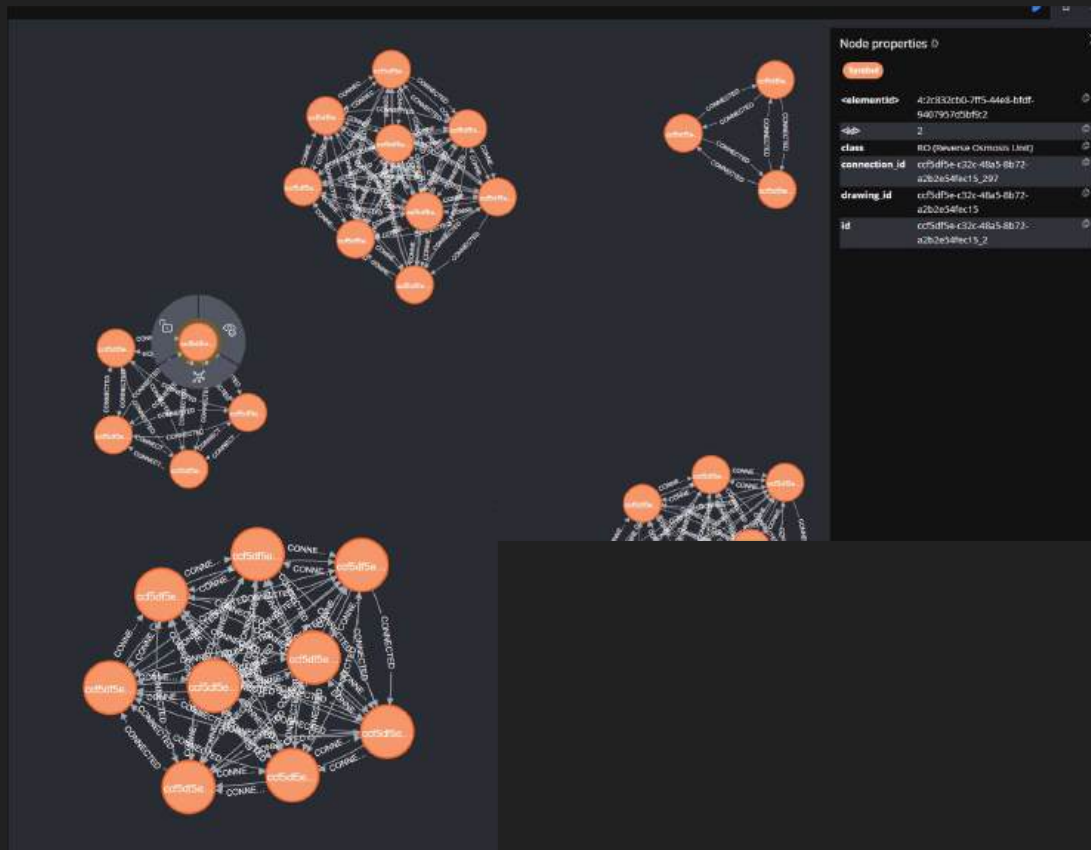


The Problem: Engineering Data is Complex & Disconnected



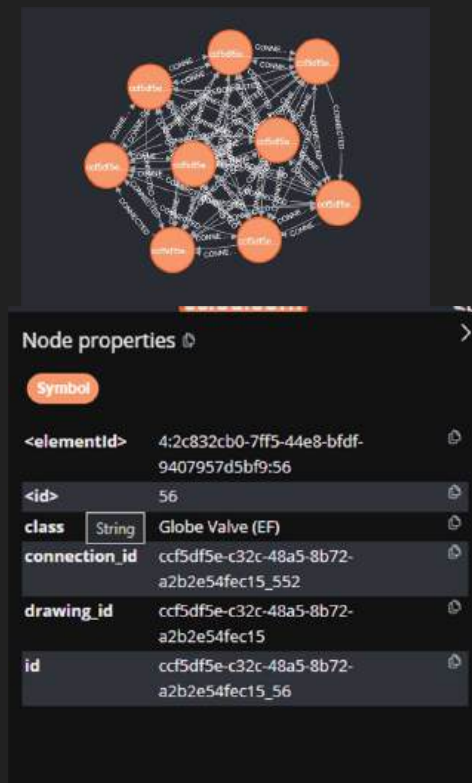
- Engineering diagrams (P&IDs) hold critical design & connectivity information.
- Traditionally, extracting relationships between components has been a tedious manual task.
- Lack of structured data leads to inefficiencies, design errors, and maintenance challenges.
- We solved this by transforming static P&IDs into an AI-powered knowledge graph.

Knowledge Graph from P&IDs



- Our AI extracts symbols, component IDs, and connections from raw engineering diagrams.
- Each element (e.g., valves, pumps, control systems) is automatically classified and linked.
- The knowledge graph represents real-world relationships between assets, creating a live digital twin.
- This structure enables instant analysis, process validation, and predictive maintenance insights.

The Power of AI: Interactive, Searchable & Actionable Engineering Data

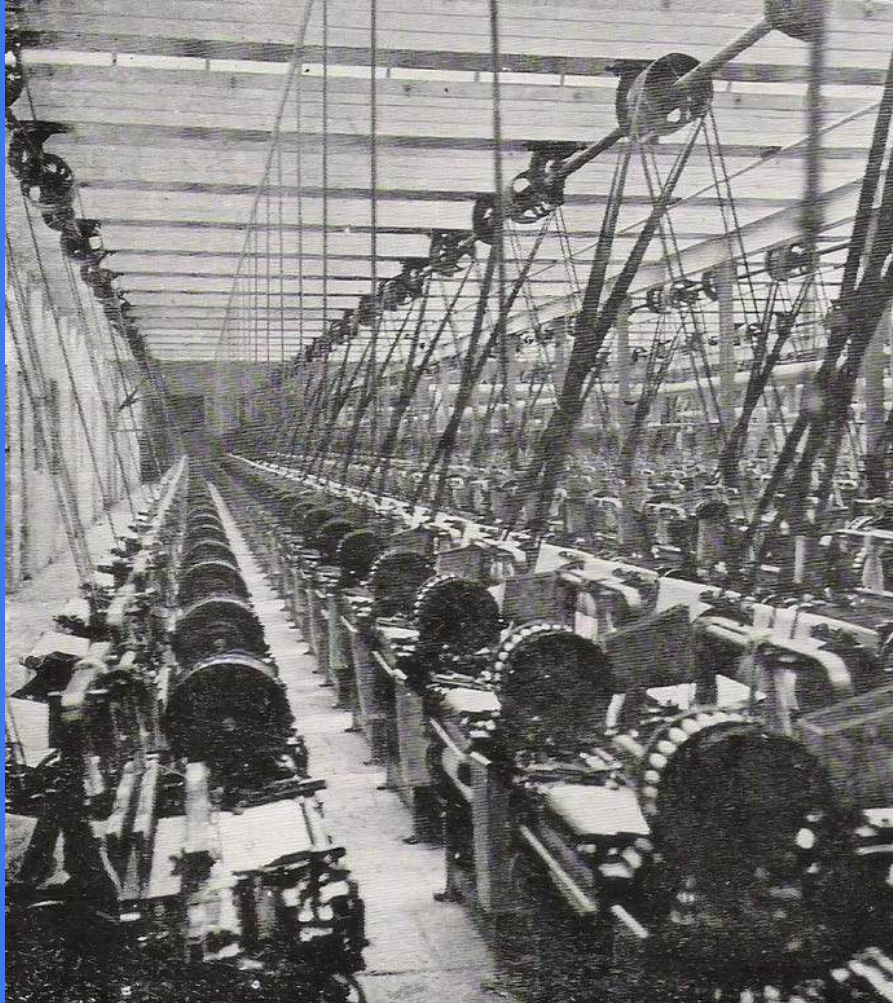


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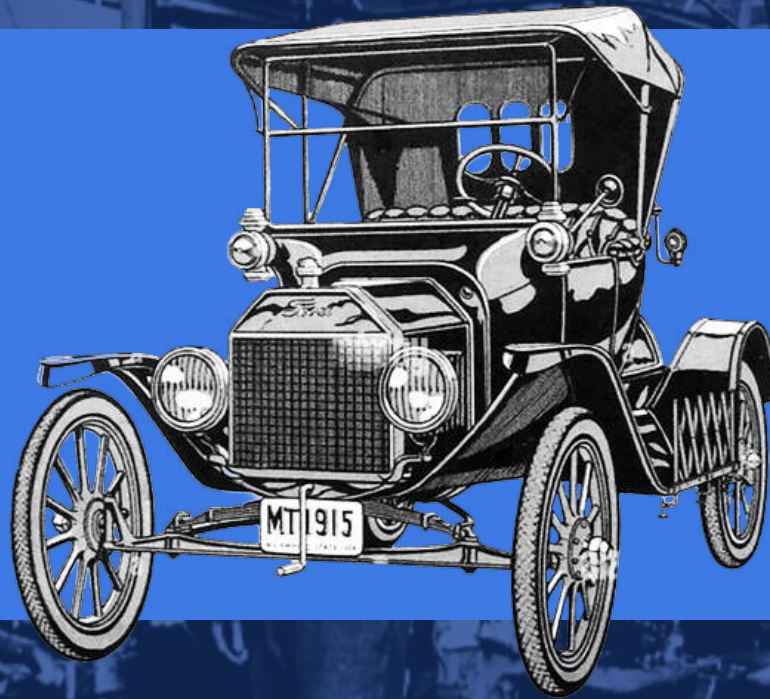
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Incremental



Disruptive

Disruptive



1



BARNES & NOBLE

2

Rocky Mountain News

WORLD COM



Virgin
RECORDS

3



LATHAM &
WATKINS LLP

Tele
perform
mance

Google
Images

JOBS TO BE DONE THEORY



JOBS TO BE DONE THEORY



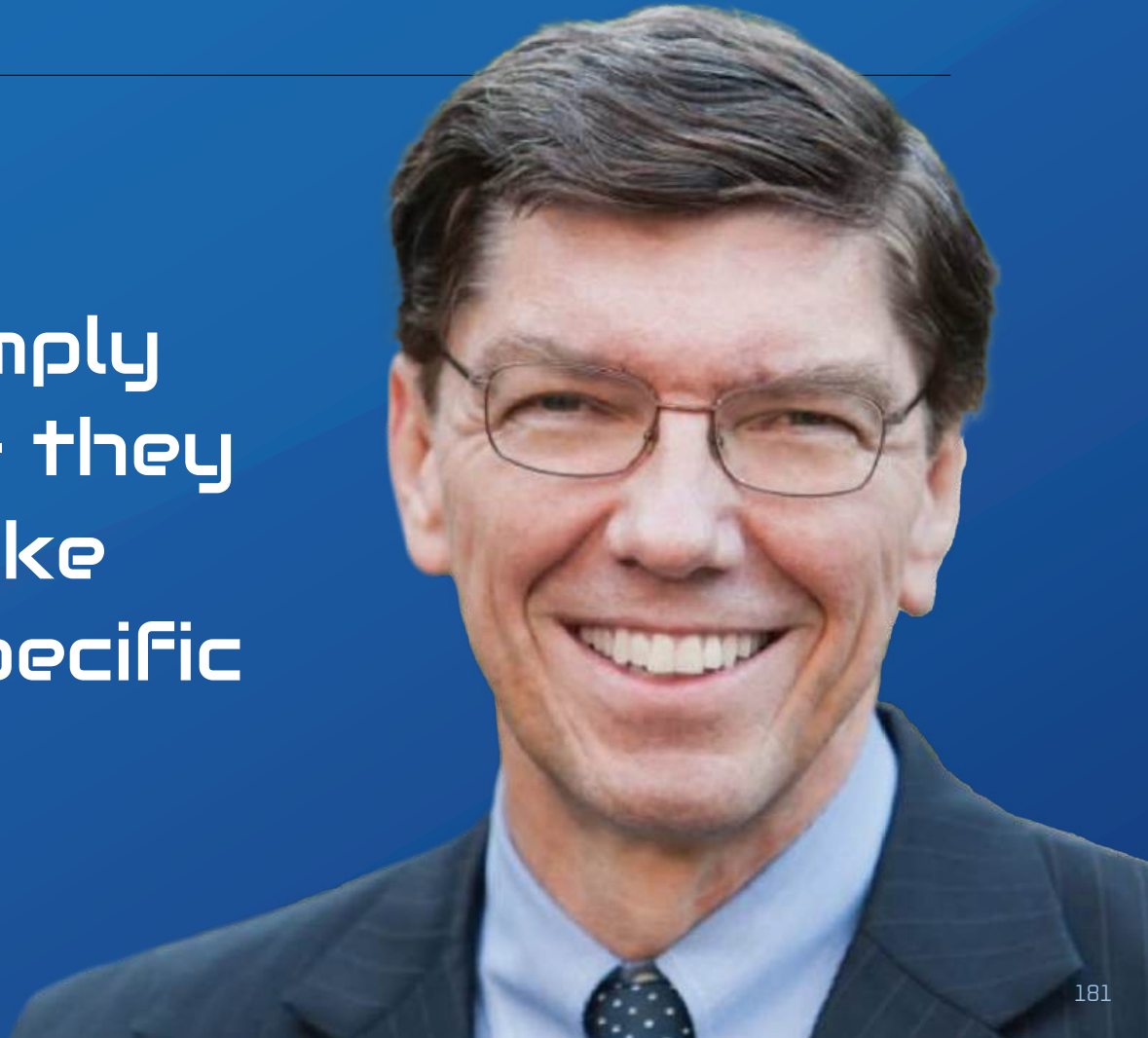
JOBS TO BE DONE THEORY



JOBS TO BE DONE THEORY

//
People don't simply
buy products — they
hire them to make
progress in a specific
circumstance."

Clayton Christensen











//

We didn't do
anything wrong,
but somehow
we lost."

- NOKIA







Time (in days)

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66



Define Objectives
1-2 days

How its done: Clarify research goals and objectives



Develop Initial Messages
3-5 days

How its done: Creative team drafts several initial messaging concepts



Recruit Participants
7-10 days

How its done: Find and recruit suitable focus group participants



Schedule Sessions
5-7 days

How its done: Organize logistics, timing, and locations for groups.



Conduct Focus Groups
5-7 days

How its done: Run multiple focus groups for feedback



Analyze Feedback
7-10 days

How its done: Review and interpret qualitative data



Revise Messages
5-7 days

How its done: Refine messaging based on feedback



Secondary Testing
5-7 days

How its done: Repeat testing with refined messages



Final Analysis & Report
3-5 days

How its done: Summarize results and finalize recommendations

Time (in days)

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How its done: AI tool assists in clarifying research goals



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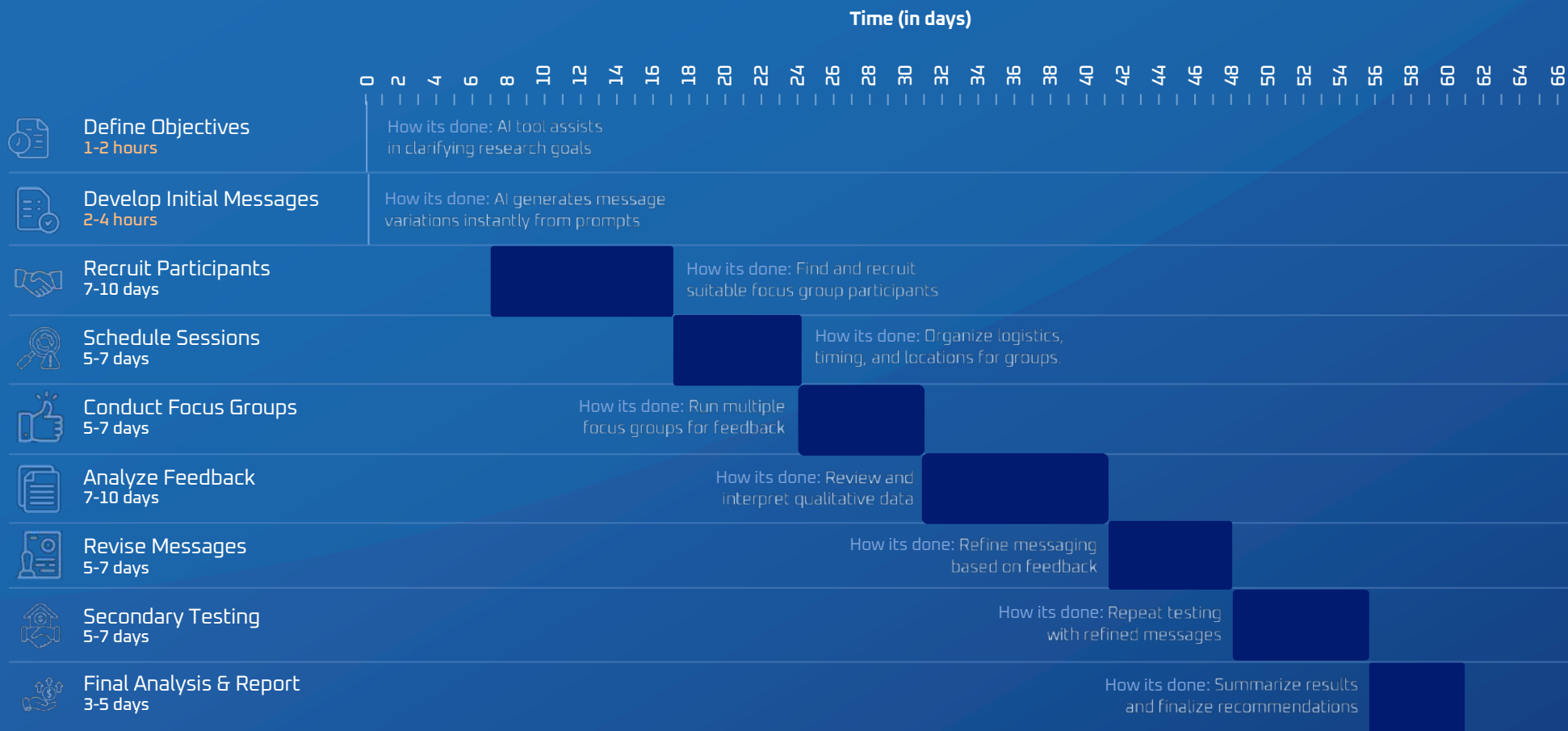
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How its done: AI tool assists in clarifying research goals



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How its done: AI generates message variations instantly from prompts



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How its done: AI rapidly categorizes and summarizes qualitative data



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Secondary Testing
1 day

How its done: Immediate secondary tests through rapid A/B AI analysis



Final Analysis & Report
3-5 days

How its done: Summarize results and finalize recommendations

Time (in days)

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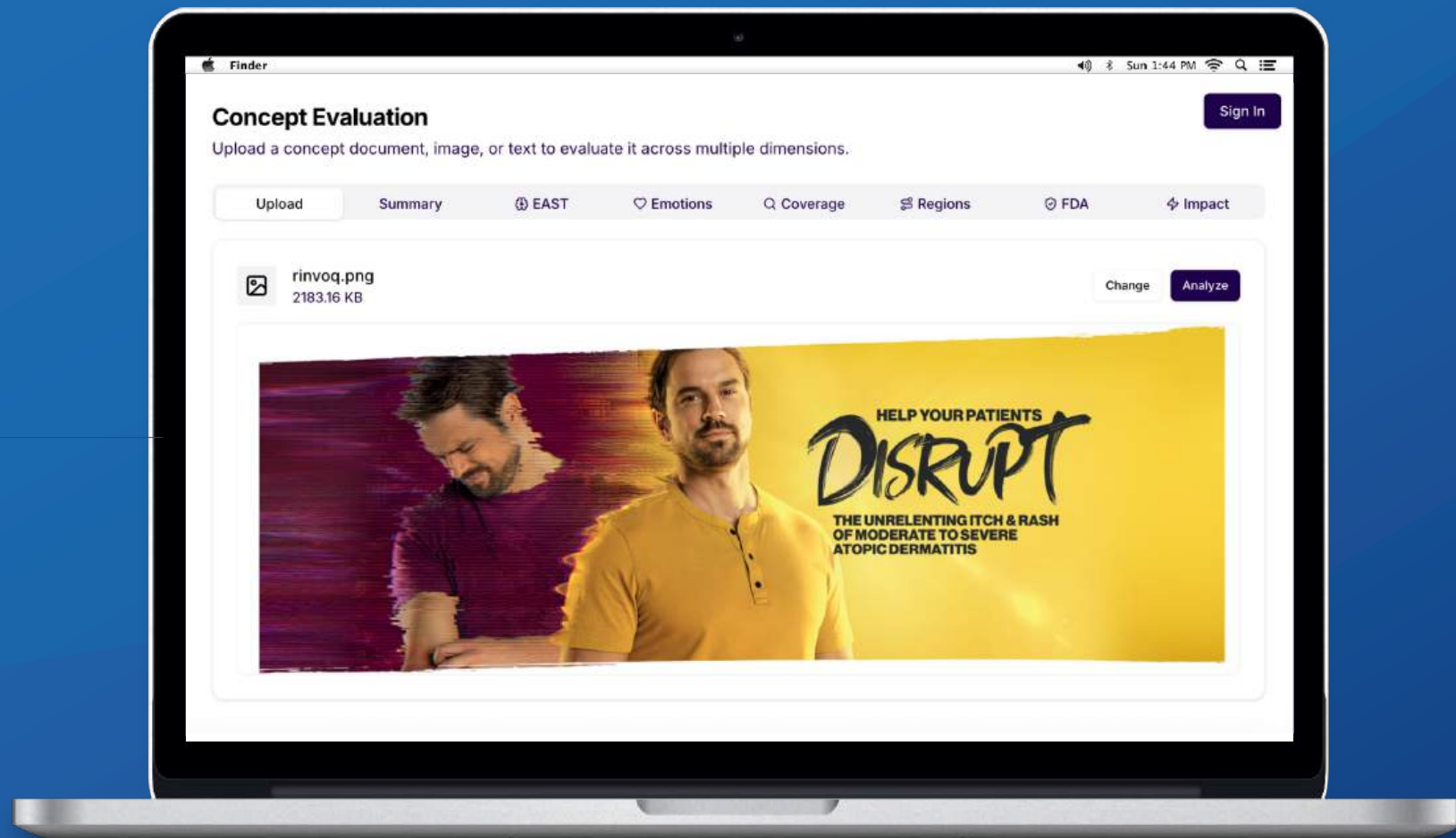
Secondary Testing
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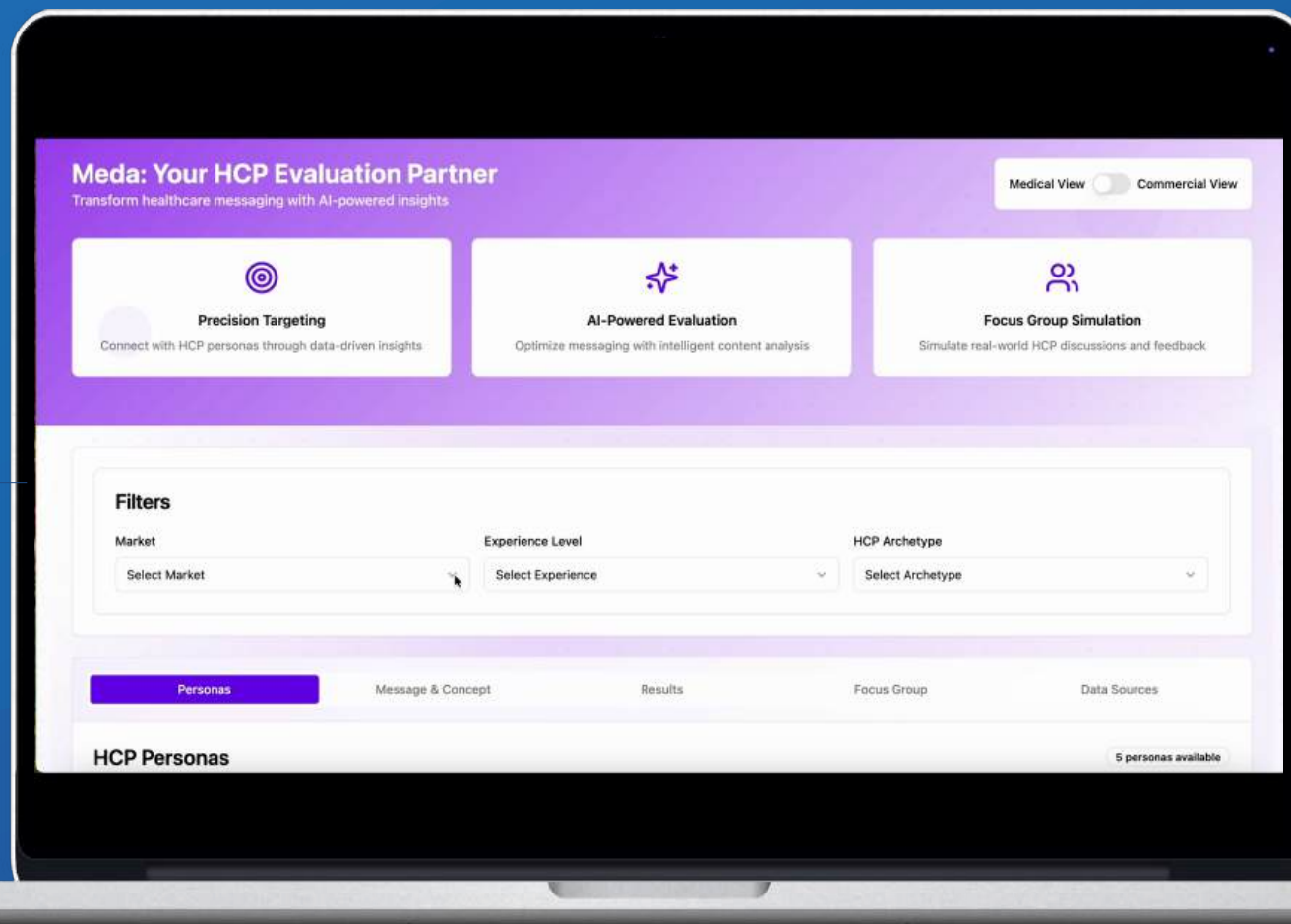
How its done: Immediate secondary tests through rapid A/B AI analysis



Final Analysis & Report
1-2 hours

How its done: AI compiles and visualizes insights into actionable recommendations





Future proofing yourself: How organizations can stay ahead

THE DEATH OF THE AGENCY





FUTURE PROOF

LEVERAGING AI TO TRANSFORM
YOUR BUSINESS TODAY

**DR. MICHAEL
HOUSMAN**

CEO & FOUNDER OF AI-CCELERATOR



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michaelhousman.com



THANK YOU.



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