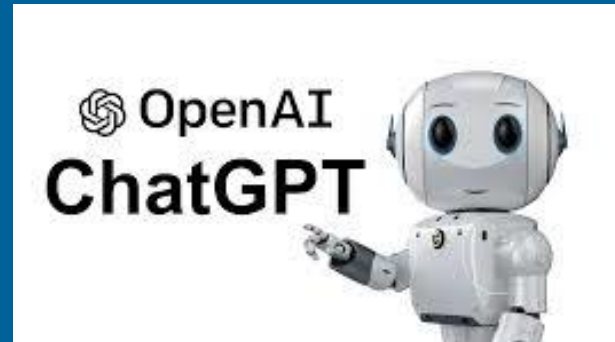


Effective use of ChatGPT *LLM along the internal audit process*



African Federation of
Institutes of Internal Auditors



The Institute of
Internal Auditors
IIA Tanzania



[Linkedin.com/in/ARC-DominikFoerschler](https://www.linkedin.com/in/ARC-DominikFoerschler)

Dr. Dominik Förschler

Managing Director | Senior Equity Partner
ARC Institute | [Audit-Championship.com](https://www.audit-championship.com)

12th October 2024

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3

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5

Joint conclusion and outlook for further implementation



Dr. Dominik Foerschler
Chairman of the Digital
Transformation Board
Audit Research Center | ARC Institute





The ARC Institute is a university spin-off. The ARC Institute focuses on networking between science and practice. The ARC Institute provides thought leadership and innovative methods to support its customers across all industries in digital transformation. The ARC Institute is the innovation and premium holding brand.

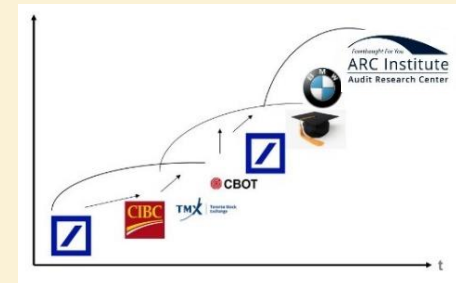
The Audit Research Center as part of the ARC Institute supports audit departments globally and especially national IIA associations with yearly 1.800+ training days and transformation services along an audit knowledge value chain.



Dr. Dominik Foerschler
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Certified Internal Auditor CIA, CRMA, QA
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Chief Editor Risk, Compliance & Audit Journal
Qualified Executive Trainer §33 KWG, SREP
in Banking Supervision for Audit Committee and C-Level





ERICSSON



Bayer



Coca-Cola

Microsoft



DECATHLON



FUJITSU

Dezigual.

Kellogg's



CBRE
CB RICHARD ELLIS



NORTHGATE
Renting Flexible



KYOCERA



IKEA

DIA

citi



ThyssenKrupp

TOYOTA

Unilever



vodafone

adidas

IBERIA

VOLVO

Energizer.

Janssen

NOVARTIS

NIVEA

PHILIPS

P&G

MetLife

OTIS



The Winners are....

Metaverse towards Internal Audit

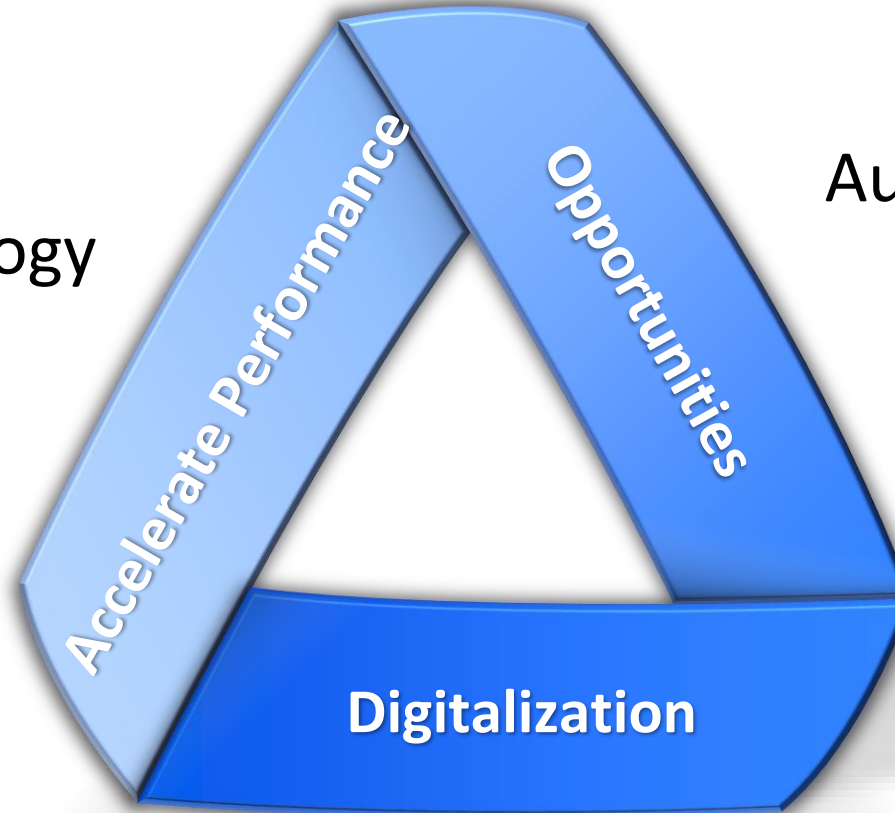
The Winners are....

First name	Last name	Town	Country
Agaba	Dickson	Kampala	Uganda
Asish	Daby	Lusaka	ZAMBIA
Jackson	Msowoya	Morogoro	Tanzania
Sebastian	Chiwanza	Harare	Zimbabwe
Prince	Kusamale	Blantyre	Malawi
Harriet Akua	Karikari	Accra	Ghana
Tina	Mlia	Lilongwe	Malawi
Habib	Bchir	Tunis	Tunisia
Rumbidzai	Musiyiwa	Harare	Zimbabwe

Audit Innovation - More Performance

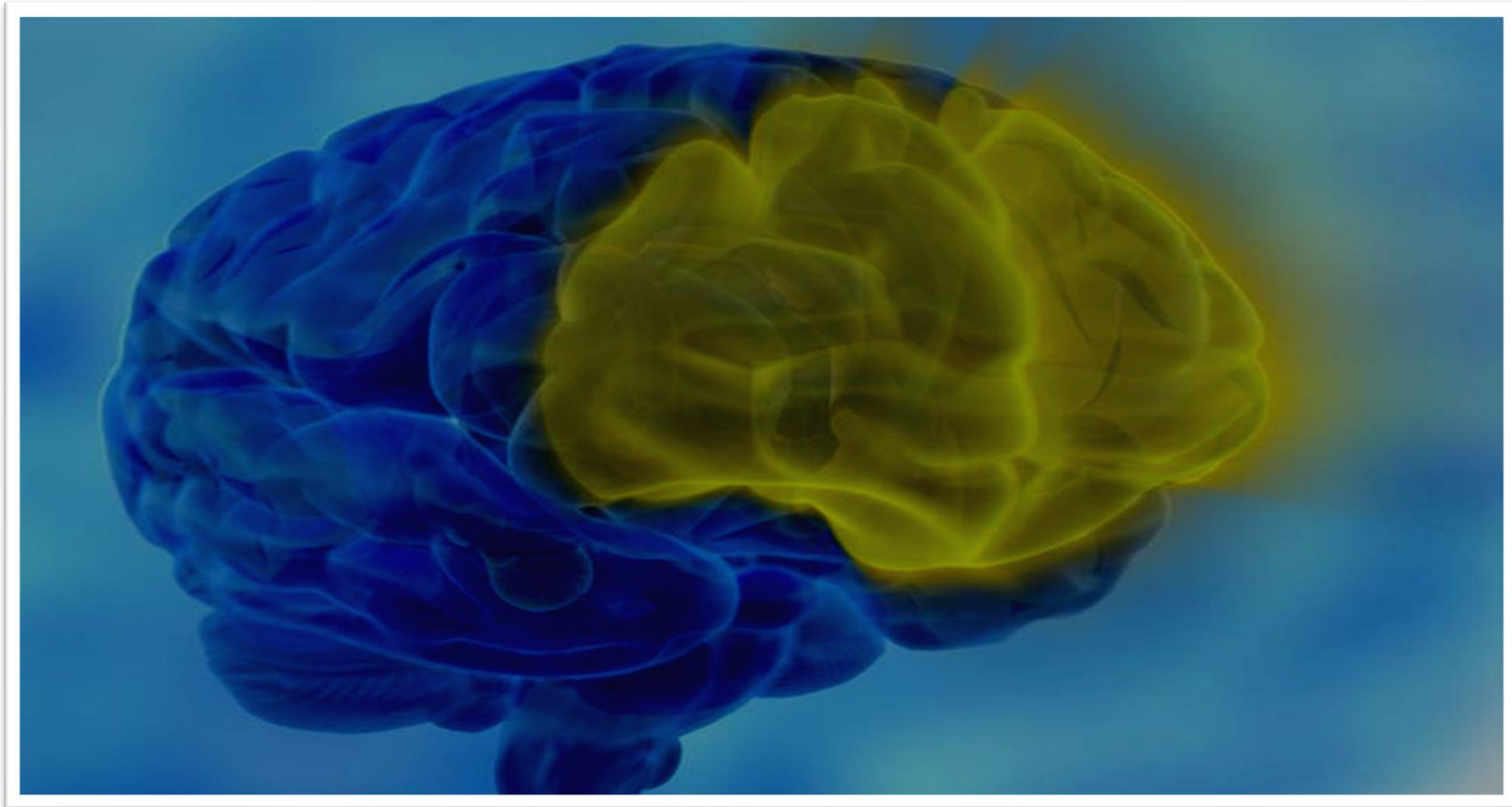
Audit
Methodology

Audit Softskills

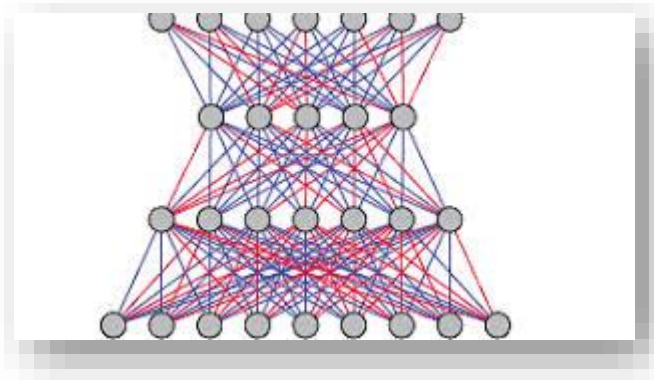
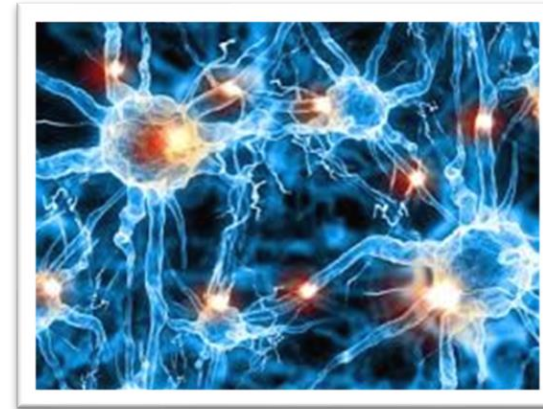


IT Facilitator

Brainwork...



Fascination Brain...



The average number of synapses in an adult brain is 100 trillion (10^{14})



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The Institute of
Internal Auditors
IIA Tanzania

<https://audit-championship.com/en/arusha-chatgpt2024>

Don't miss the QUIZ

Become your best version
by playing





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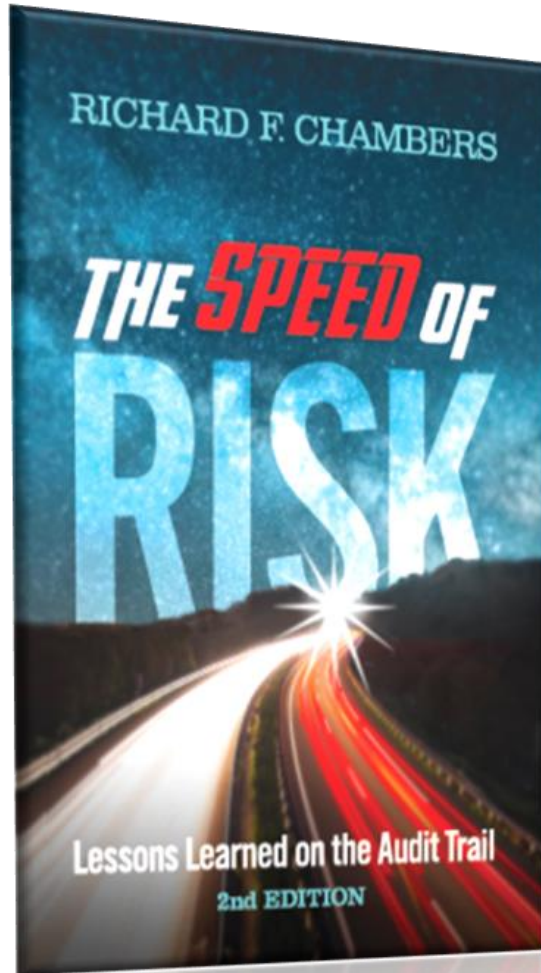
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Auditing at the Speed of Risk



The Institute of Internal Auditors

ChatGPT Sprints to One Million Users

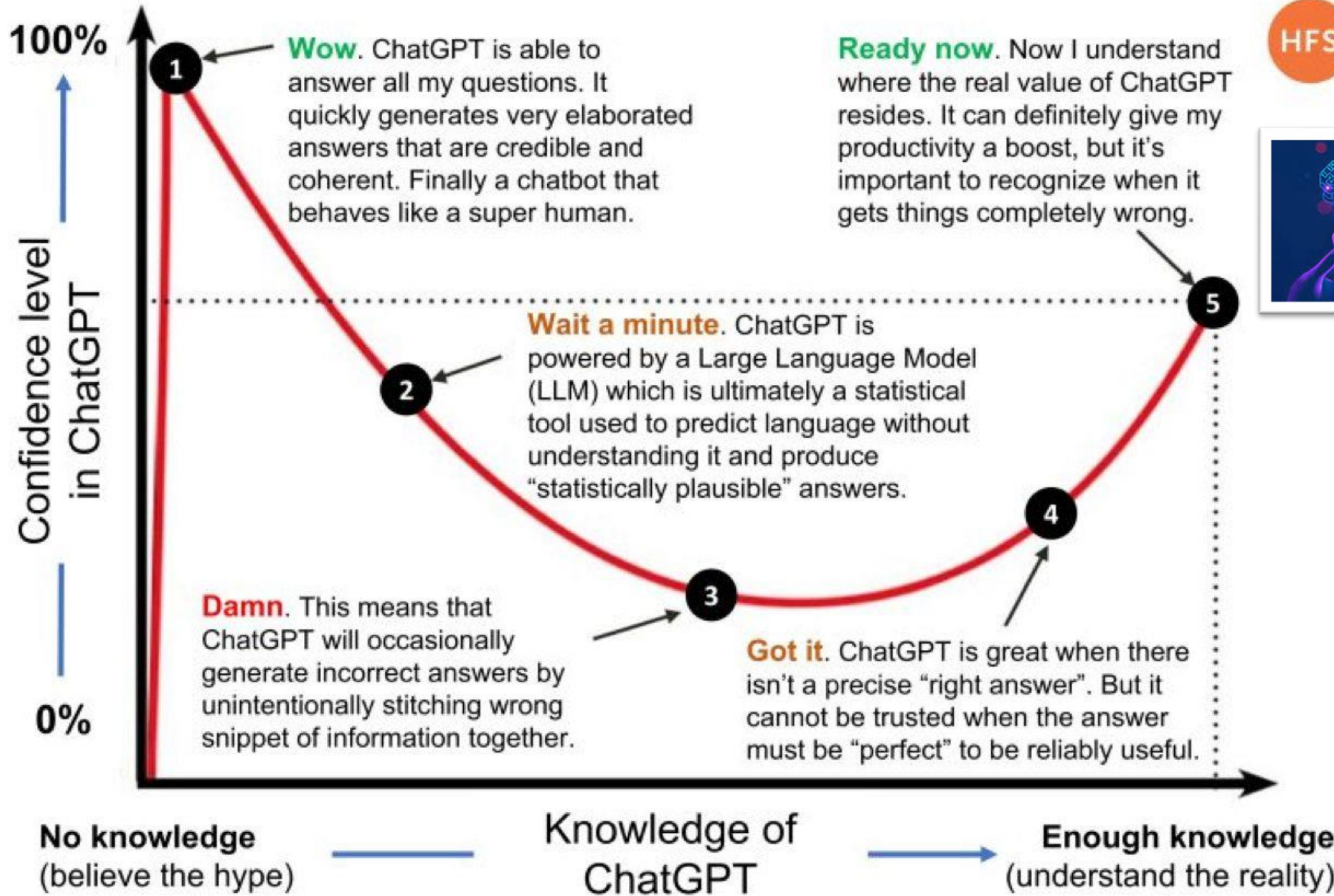
Time it took for selected online services to reach one million users



* one million backers ** one million nights booked *** one million downloads
Source: Company announcements via Business Insider/LinkedIn



<https://www.accountingtoday.com/news/longtime-iaa-ceo-richard-chambers-plans-to-step-down-in-march>



Company Version August 2023

Introducing ChatGPT Enterprise

Get enterprise-grade security & privacy and the most powerful version of ChatGPT yet.



Contact sales

[Learn more](#)

Company Version August 2023

The most powerful version of ChatGPT yet

- Unlimited access to GPT-4 (no usage caps)
- Higher-speed performance for GPT-4 (up to 2x faster)
- Unlimited access to advanced data analysis (formerly known as Code Interpreter)
- 32k token context windows for 4x longer inputs, files, or follow-ups
- Shareable chat templates for your company to collaborate and build common workflows
- Free credits to use our APIs if you need to extend OpenAI into a fully custom solution for your org



ChatGPT Development

TECH

ChatGPT In Trouble: OpenAI may go bankrupt by 2024, AI bot costs company \$700,000 every day

OpenAI spends about \$700,000 a day, just to keep ChatGPT going. The cost does not include other AI products like GPT-4 and DALL-E2. Right now, it is pulling through only because of Microsoft's \$10 billion funding

ChatGPT is computationally and financially intensive

Simplified illustration of the development of an AI model using ChatGPT as an example.

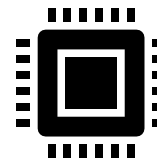
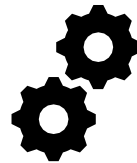
Assumption: Start with a pre-trained model like GPT-3

Collect and process 45 terabytes of text data.

Develop the model, about 175 billion parameters are needed

Minimum compute power = 3.5 months, 24/7, 384x GPUs
Cost: ~\$4,863,600

ChatGPT



45 terabytes = approx. 15 billion A4 pages

1 parameter = 1 link between 2 word syllables

Amazon Web Services:
1 hour, 1 GPU = \$5

Developing custom chat GPT models are computationally and therefore financially intensive.

A(Re)use of existing models is therefore recommended.

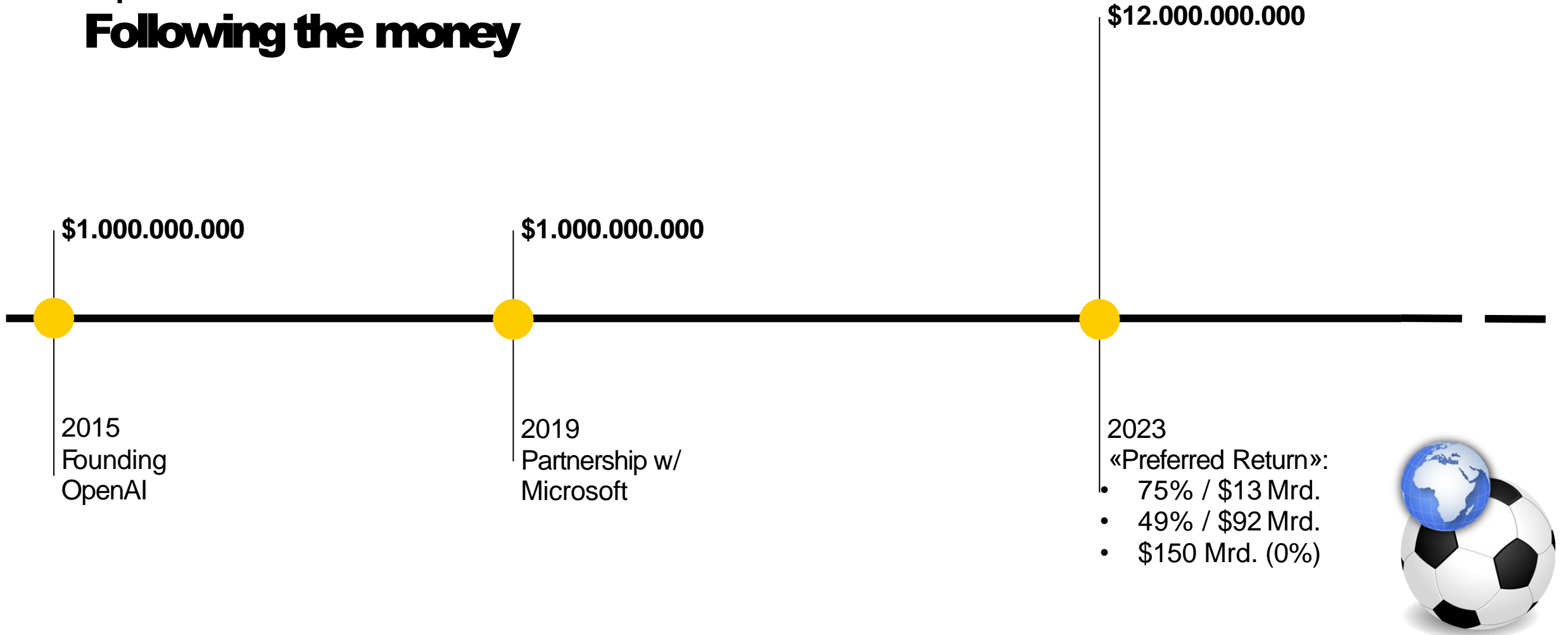
NEWS ChatGPT



Conflict between Sam Altman and OpenAI

OpenAI's shift towards profitability, combined with Sam Altman's recent public statements indicates a number of things. **Although Altman might not prioritize profits, OpenAI does.** While OpenAI is routinely pumping more money to make their GPT LLMs more powerful and more clever, Sam Altman has made several public statements that basically say that AI, if unregulated by the government will prove to be disastrous.

OpenAI & Microsoft **Following the money**





How is that now again
today in internal audit?

... about the speed?



IIA – Definition of Internal Auditing

Providing a Globally Uniform Understanding



The Institute of
Internal Auditors

"Internal auditing is an independent, objective assurance and consulting activity designed to **add value and improve** an organization's operations.

It helps an organization accomplish its objectives by bringing a **systematic, disciplined approach** to evaluate and improve the effectiveness of **risk management, control, and governance processes.**"

Purpose Statement:



Internal auditing strengthens the organization's ability to create, protect, and sustain value by providing the board and management with independent, risk-based, and objective assurance, advice, insight, and foresight.

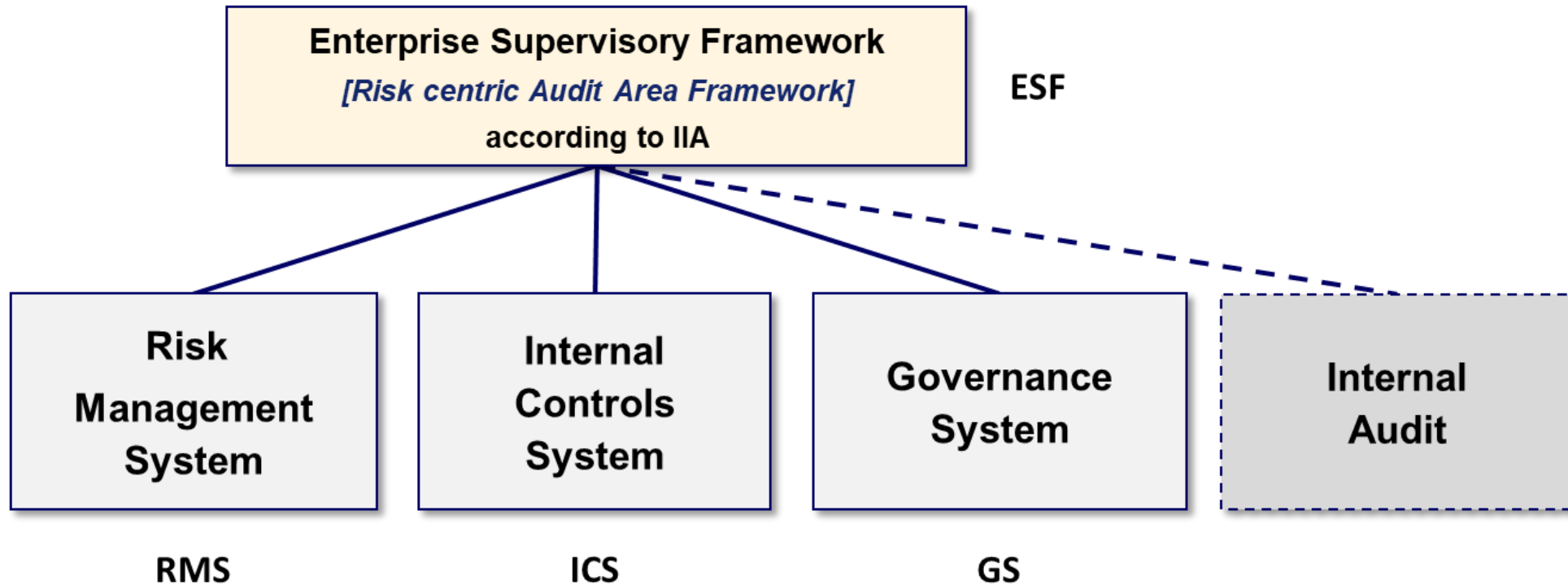
Internal auditing enhances the organization's:

- Successful achievement of its objectives.
- Governance, risk management, and control processes.
- Decision-making and oversight.
- Reputation and credibility with its stakeholders.
- Ability to serve the public interest.

Internal auditing is most effective when:

- It is performed by qualified internal auditors in conformance with the Global Internal Audit Standards, which are set in the public interest.
- The internal audit function is independently positioned with direct accountability to the board.
- Internal auditors are free from undue influence and committed to making objective assessments.

The Enterprise Supervisory Framework



From gross risk to net risk

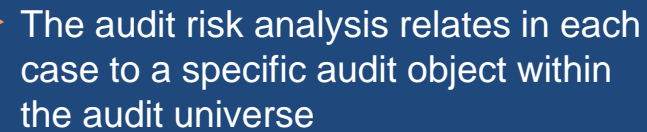
How good is our Enterprise Supervisory System?



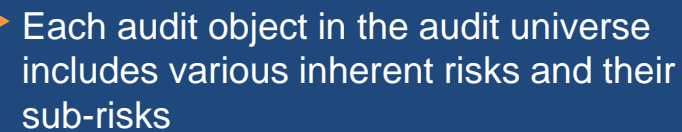
Inherent or Gross Risk

- Internal Control System
- Governance System
- Risk Management System

= Residual- or Net-Risk

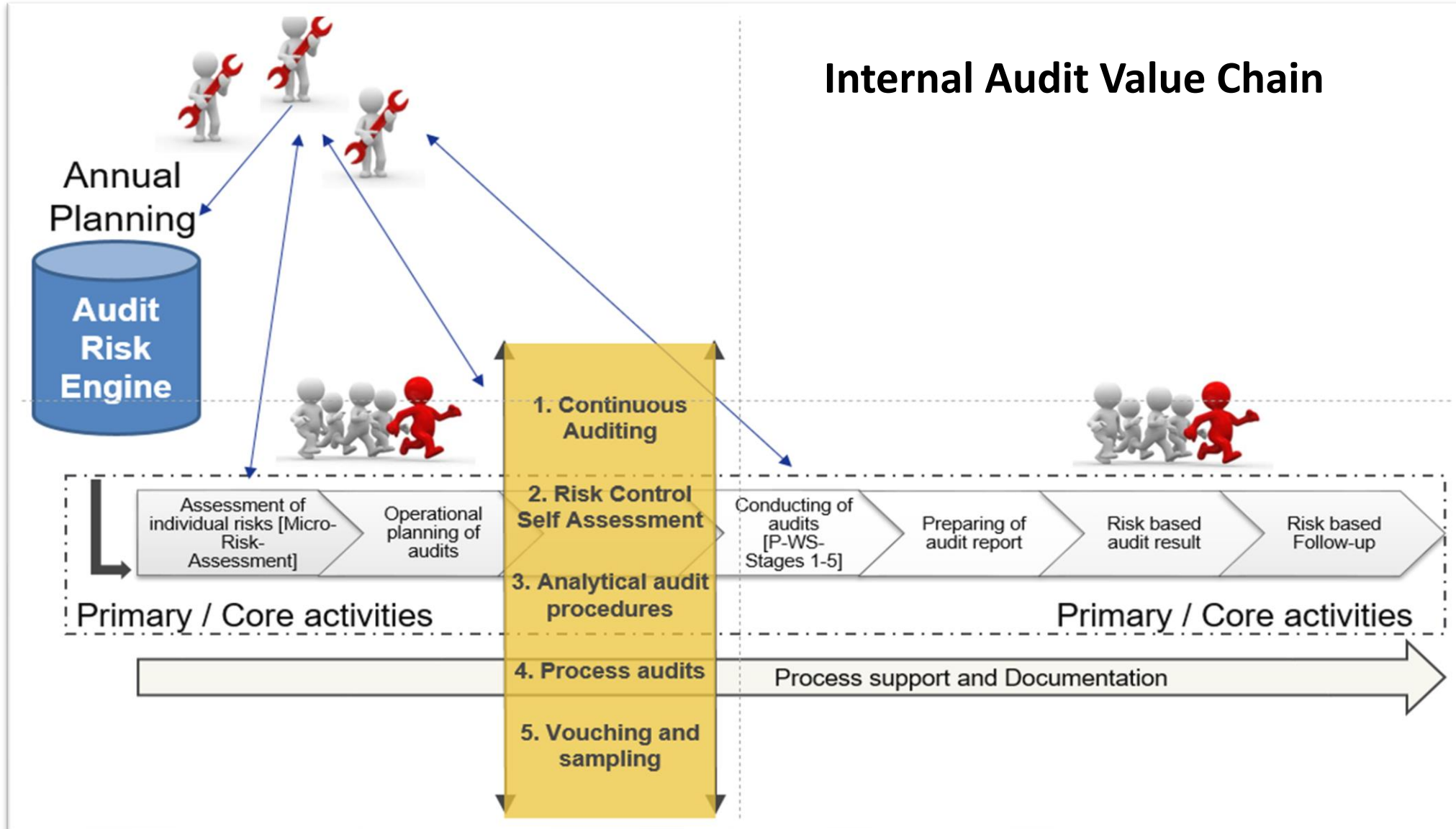


The audit risk analysis relates in each case to a specific audit object within the audit universe



Each audit object in the audit universe includes various inherent risks and their sub-risks





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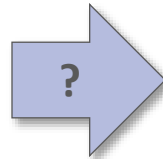
Practical use cases along the audit value chain

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How does the engine of a car work?

Is it necessary to know how it works in order to drive a car? ...

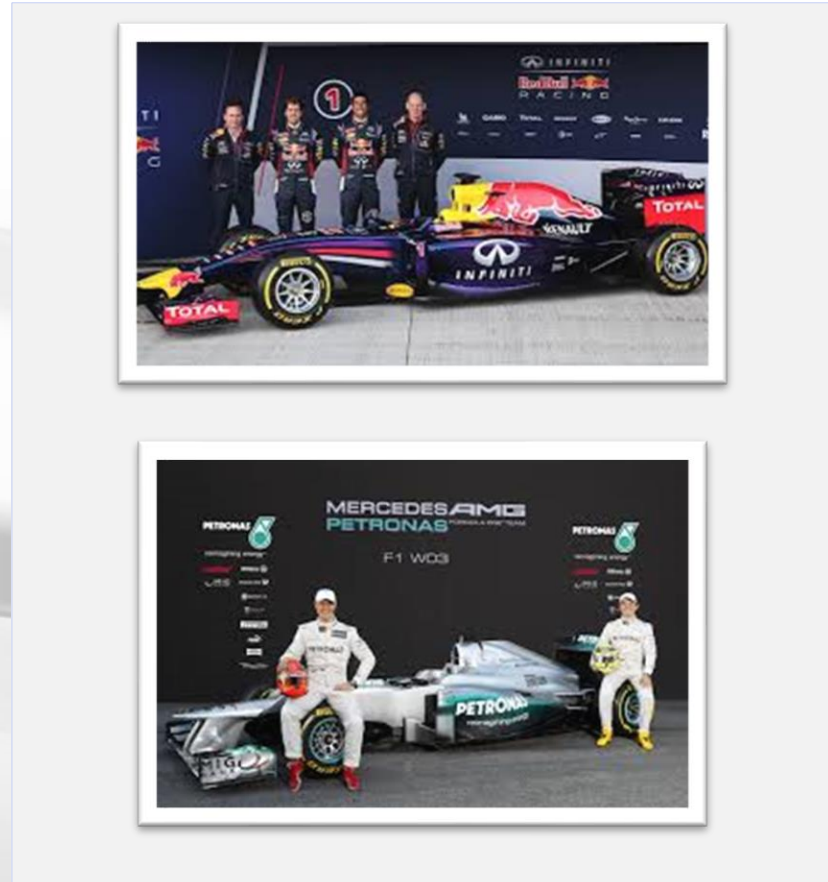
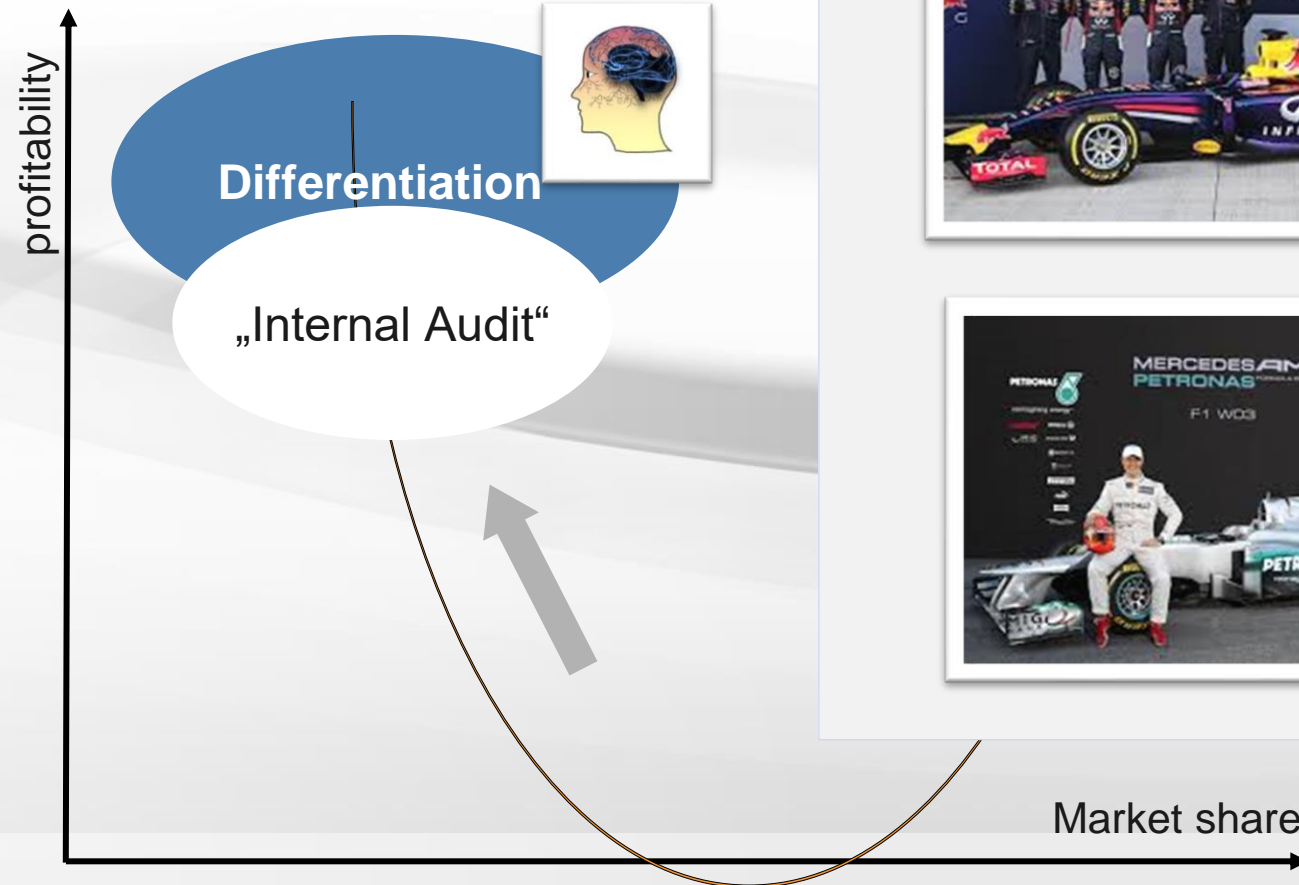


For an ordinary shopping trip to the supermarket? NO

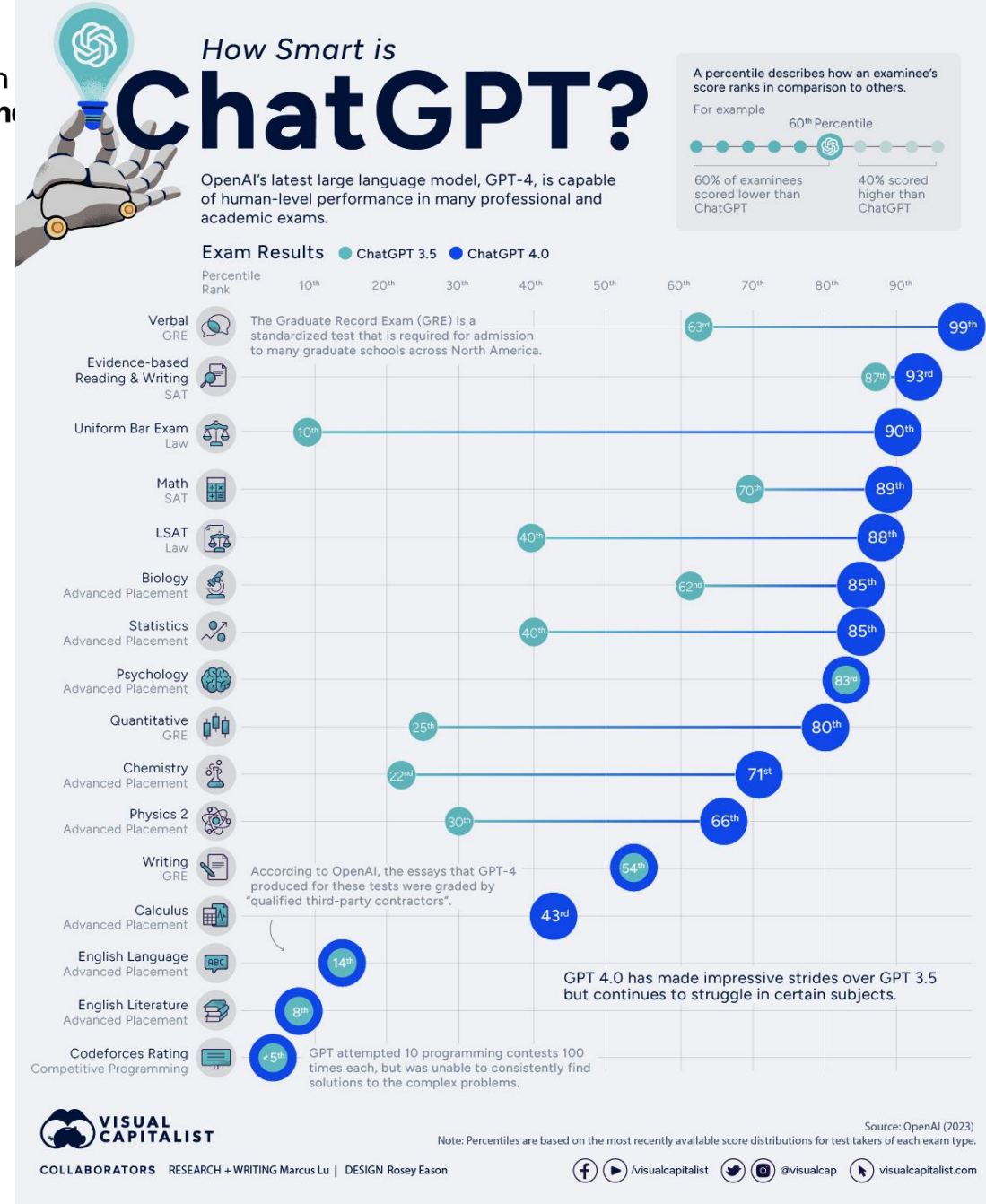


For a Formula 1 race **YES**
Porters U-curve

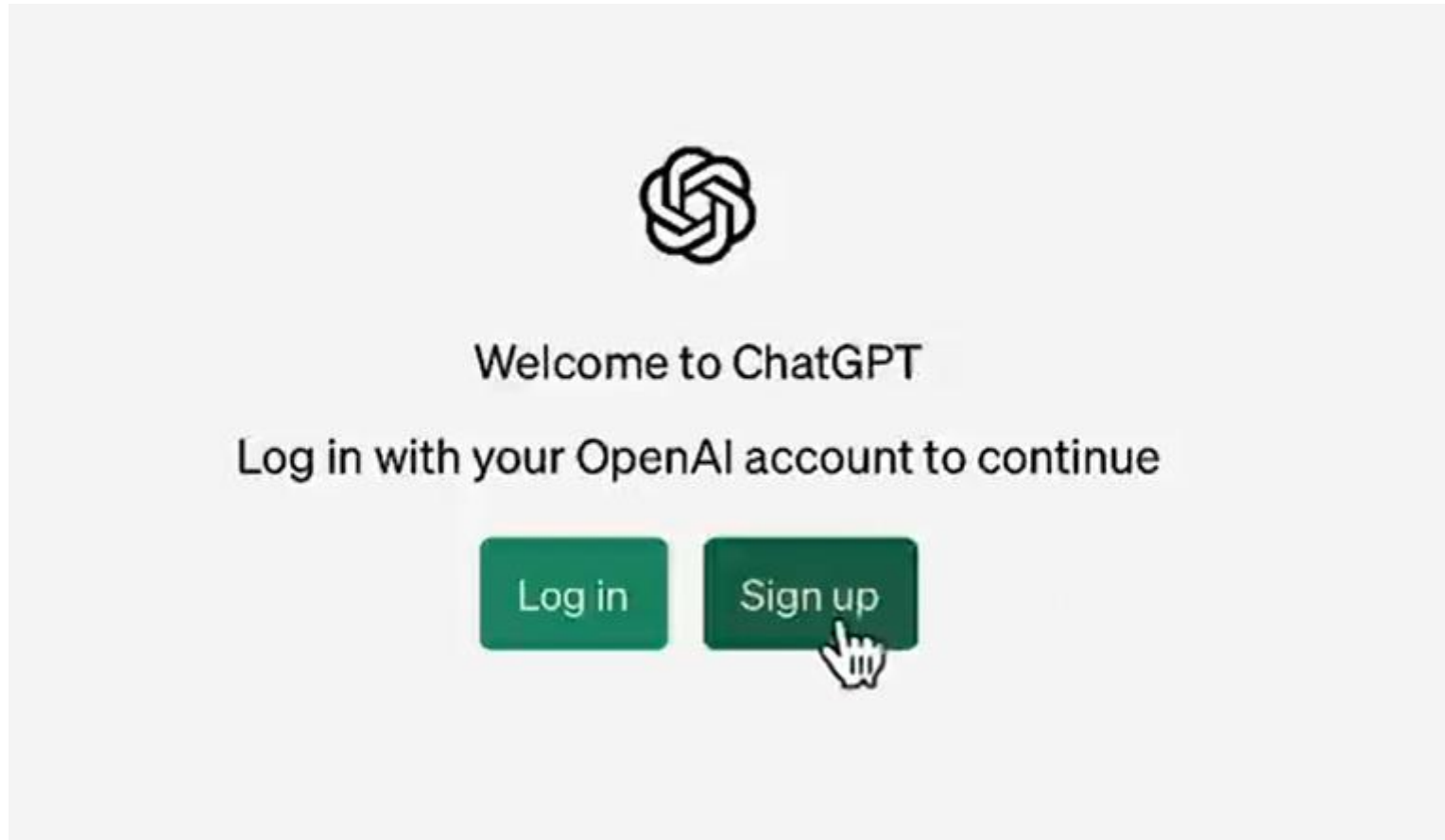
Key to success



ChatGPT Application



Get Started ChatGPT



Get Started ChatGPT

Create your account

Note that phone verification may be required for signup. Your number will only be used to verify your identity for security purposes.

Already have an account? [Log in](#)

OR



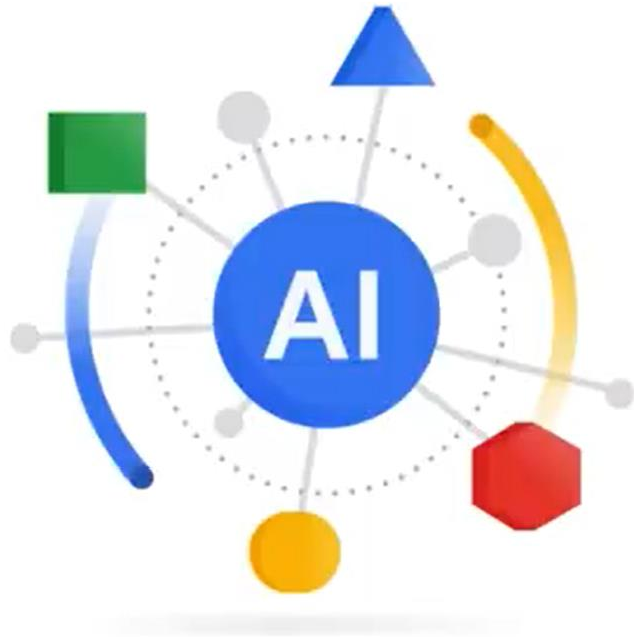
- ✓ Define Generative AI
- ✓ Explain how Generative AI Works
- ✓ Describe Generative AI Model Types
- ✓ Describe Generative Applications



Artificial Intelligence

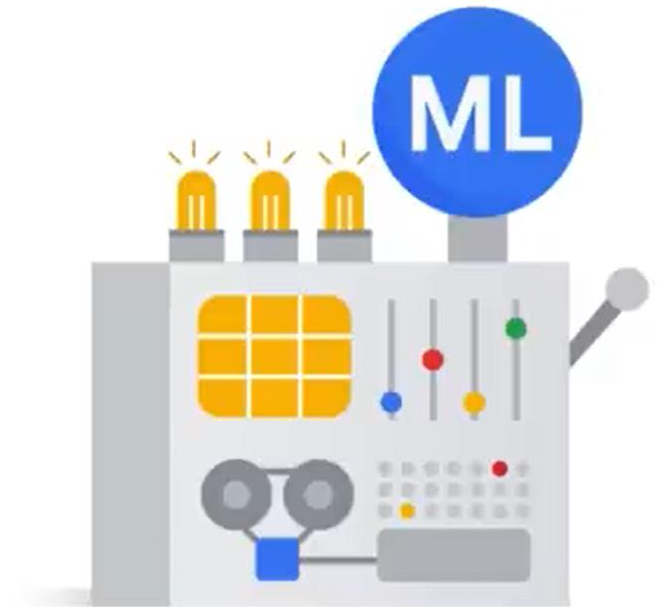
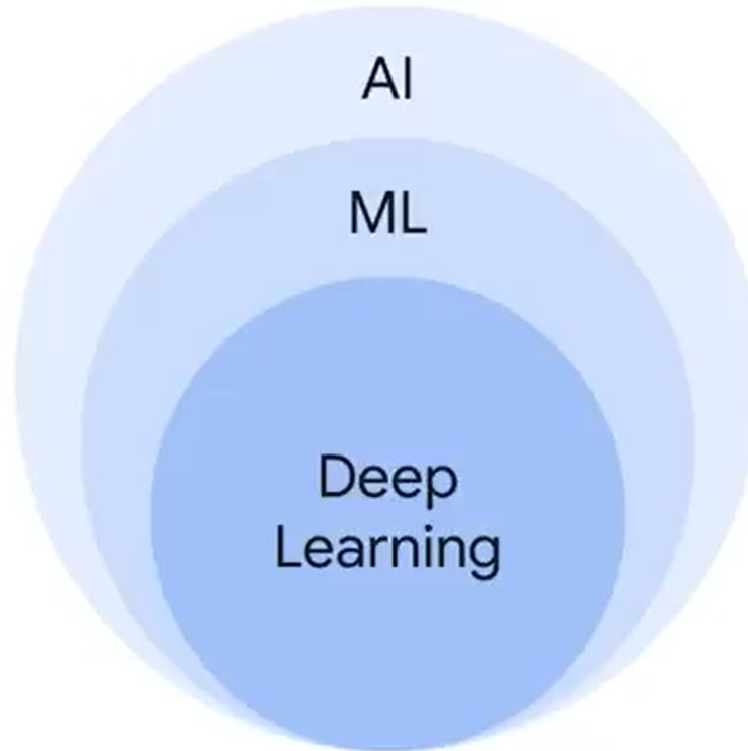


Machine Learning



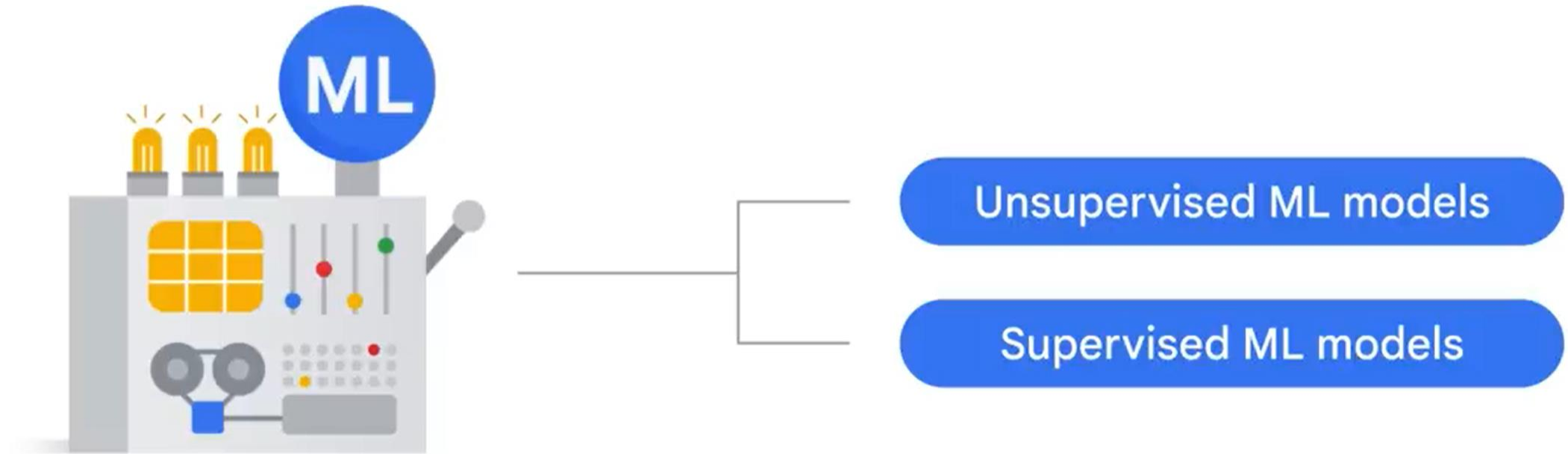
Artificial Intelligence

is a discipline

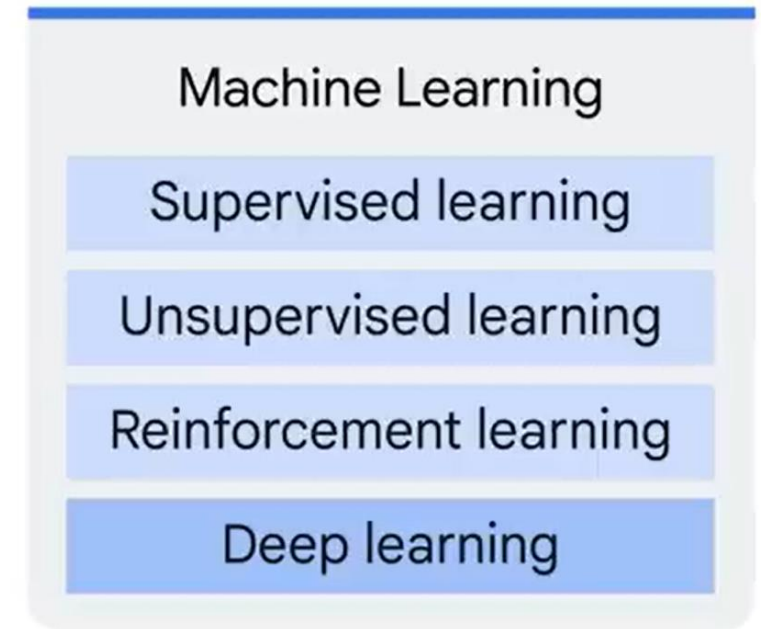
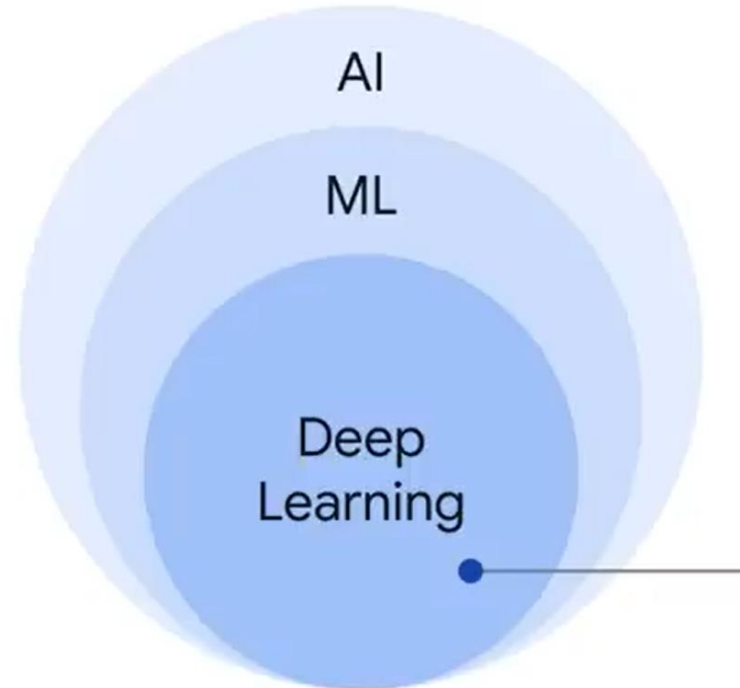


Machine Learning

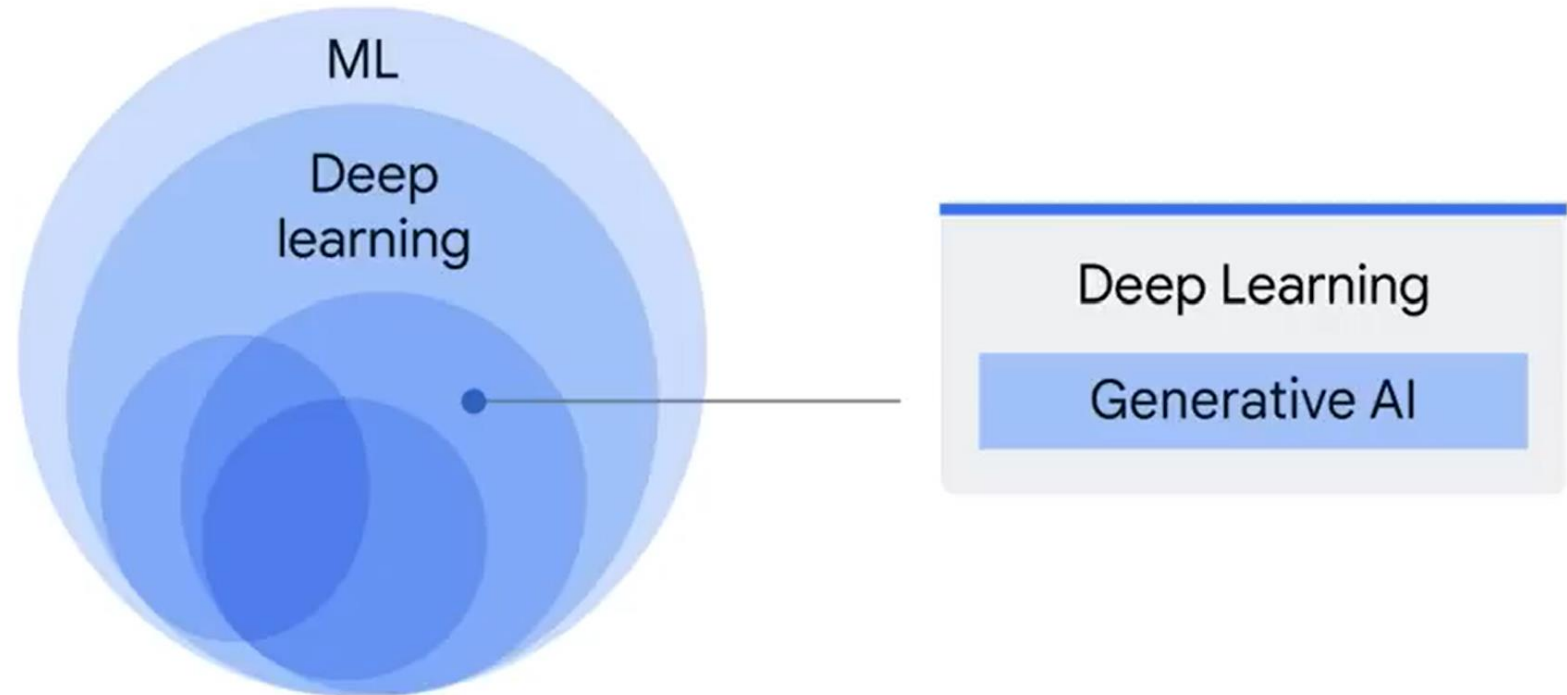
is a subfield



Deep learning is a **subset of ML**



Generative AI is a subset of Deep Learning



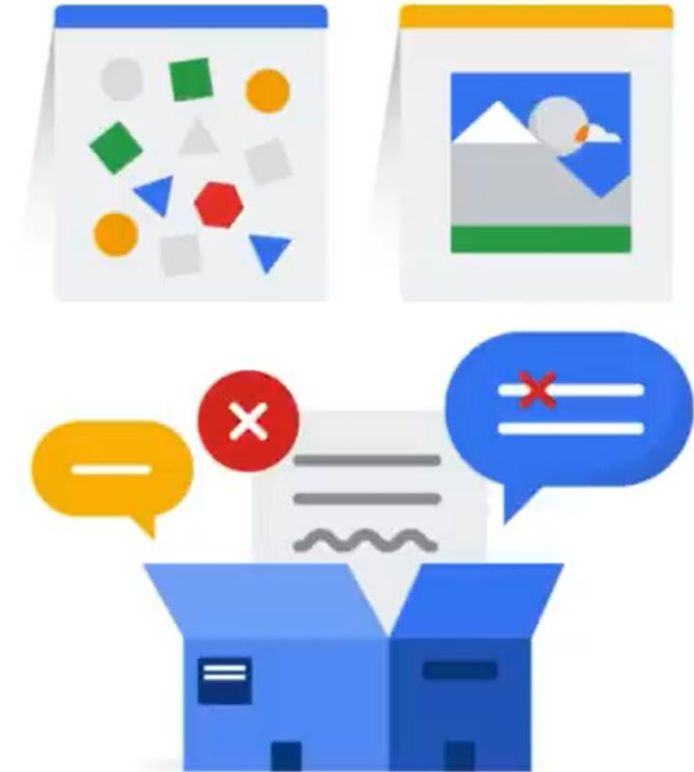


Hallucinations are words or phrases that are generated by the model that **are often nonsensical or grammatically incorrect.**

Hallucinations





Challenges

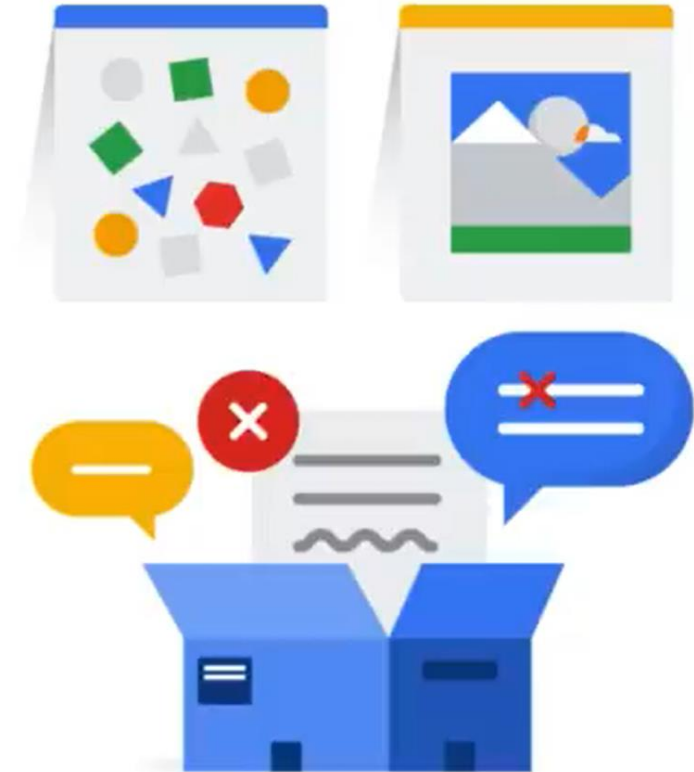
- ❗ The model is not trained on enough data
- ❗ The model is trained on noisy or dirty data
- ❗ The model is not given enough context
- ❗ The model is not given enough constraints



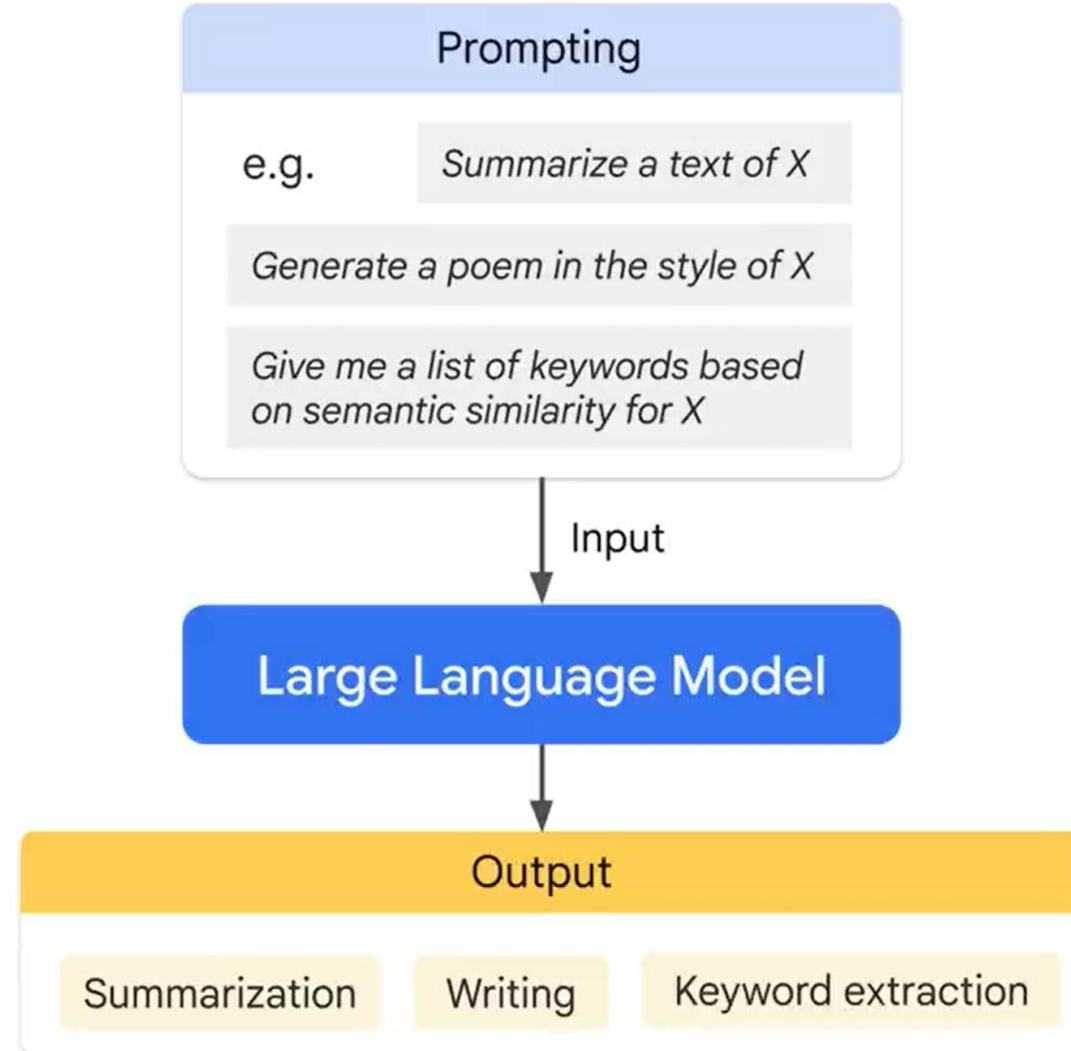
Hallucinations

Challenges

-  The model is not trained on enough data
-  The model is trained on noisy or dirty data
-  The model is not given enough context
-  The model is not given enough constraints

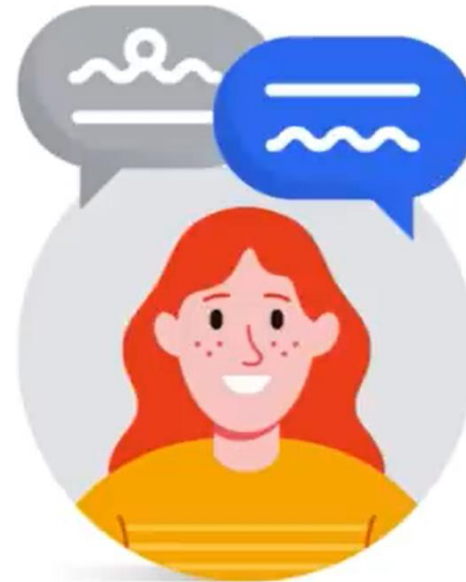


Prompt Design:
the quality of the
input determines the
quality of the output.





Forming a Database



Inputting a Prompt



Generating content

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Get Better Results with ChatGPT

Custom instructions ⓘ

What would you like ChatGPT to know about you to provide better responses?

0/1500

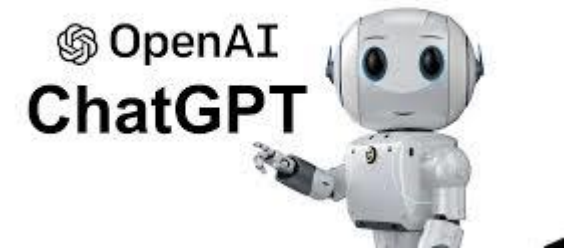
Hide tips 🗕

Thought starters

- Where are you based?
- What do you do for work?
- What are your hobbies and interests?
- What subjects can you talk about for hours?
- What are some goals you have?

How would you like ChatGPT to respond?

Get Better Results with ChatGPT



I am a professional internal auditor for the special area xxx. I often work on risk assessments, process analyses, audit guidelines and compact audit reports. My main focus is to improve the 3 elements of the enterprise supervisory framework: the risk management system, the internal control system and the governance system of the respective business areas to be audited.



Get Better Results with ChatGPT

How would you like ChatGPT to respond?

Language and tone to be friendly and casual

Thought starters


- How formal or casual should ChatGPT be?
- How long or short should responses generally be?
- How do you want to be addressed?
- Should ChatGPT have opinions on topics or remain neutral?

Get Better Results with ChatGPT

How would you like ChatGPT to respond?

When I ask for Excel formulas, just provide the most efficient formula without any explanation.

95/1500

Hide tips 

Thought starters

- How formal or casual should ChatGPT be?
- How long or short should responses generally be?
- How do you want to be addressed?
- Should ChatGPT have opinions on topics or remain neutral?

Get Better Results with ChatGPT

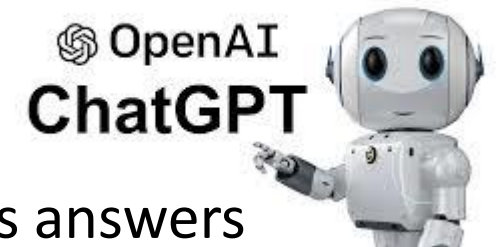
How would you like ChatGPT to respond?

Always add the confidence level of your answer.

Thought starters

- How formal or casual should ChatGPT be?
- How long or short should responses generally be?
- How do you want to be addressed?
- Should ChatGPT have opinions on topics or remain neutral?

Get Better Results with ChatGPT



Please answer in a concise and reader-friendly language. ChatGPT's answers should get to the heart of the matter. All available research sources should be included in the answers so that a high quality result can be achieved.

When I give a topic, please start by listing the 5 most important key points or interesting facts about the topic. After that, write a teaser text of about 300 words that compactly covers all 5 important points mentioned above. This is followed by a suggested structure for an article on the respective topic with headings, subheadings and key points.

The prompt formula: 6 essential ingredients for a good prompt

- **Persona:** Imagine you are a professional "risk manager" - Why?
- **Context:** What do I need the requested information for?
I need the jointly developed information to analyse a payment transaction process in an international technology company with Germany as its home country.
- **Task:** Please create a process chart with a maximum of 8 sub-processes.
- **Format** Explain each sub-process in a maximum of 100 words. Please also note the regulatory requirements for the respective sub-processes.
- **Example:** xxxx
- **Tone:** Please write the results in a objective and precise language.

Chat GPT Challenges and risks

How would you like ChatGPT to respond?



Always add the confidence level of your answer. When your answer includes facts, always provide a valid URL with the source for your answer.



The FIFA World Cup winners of the 1990s were:

1. 1990 - West Germany
2. 1994 - Brazil
3. 1998 - France

Confidence Level: High

Source:

- <https://www.fifa.com/worldcup/archive/italy1990/>
- <https://www.fifa.com/worldcup/archive/usa1994/>
- <https://www.fifa.com/worldcup/archive/france1998/>



Faster, easier ...



🔄 Regenerate

Now say the same thing more concise and briefer using only 60% as many words



Get Better Results with ChatGPT

IIA Practice Advisory 2410 | Communication Criteria

Observations and recommendations are based on the following attributes:

- **Criteria:** The standards, measures, or expectations used in making an evaluation and/or verification (the correct state).
- **Condition:** The factual evidence that the internal auditor found in the course of the examination (the current state).
- **Cause:** The reason for the difference between expected and actual conditions. (*root cause*)
- **Effect (*Risk*):** The risk or exposure the organization and/or others encounter because the condition is not consistent with the criteria (the impact of the difference).

What should be

What is

Why

Future risk



ChatGPT Excel tables output and use



Recommend activities

for a team-building day with remote employees

Help me pick

a birthday gift for my mom who likes gardening

Come up with concepts

for a retro-style arcade game

Plan a trip

to explore the rock formations in Cappadocia, Turkey

Create a table with the winners of the FIFA world cups between 1990 to 2018. The headings should be year, winner, and runners-up.



ChatGPT Excel tables output and use



 Sure, here's the table with the FIFA World Cup winners from 1990 to 2018:

Year	Winner	Runners-up
1990	West Germany	Argentina
1994	Brazil	Italy
1998	France	Brazil
2002	Brazil	Germany
2006	Italy	France
2010	Spain	Netherlands
2014	Germany	Argentina
2018	France	Croatia

ChatGPT Excel tables output and use



 Sure, here's the table with the FIFA World Cup winners from 1990 to 2018:

Year	Winner	Runners-up
1990	West Germany	Argentina
1994	Brazil	Italy
1998	France	Brazil
2002	Brazil	Germany
2006	Italy	France
2010	Spain	Netherlands
2014	Germany	Argentina
2018	France	Croatia



ChatGPT Excel tables output and use



	A	B	C	D	E
1	Year	Winner	Runners-up		
2	1990	West Germany	Argentina		
3	1994	Brazil	Italy		
4	1998	France	Brazil		
5	2002	Brazil	Germany		
6	2006	Italy	France		
7	2010	Spain	Netherlands		

Ctrl + V

ChatGPT Excel tables output and use



output as csv

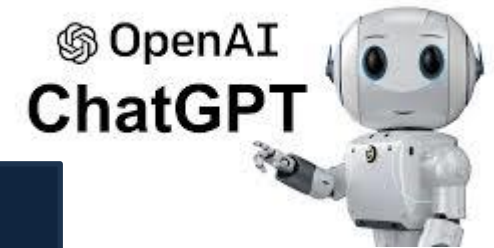


Certainly, here's the same table in CSV format:

csv

```
Year, Winner, Runners - up
1990, West Germany, Argentina
1994, Brazil, Italy
1998, France, Brazil
2002, Brazil, Germany
2006, Italy, France
2010, Spain, Netherlands
2014, Germany, Argentina
2018, France, Croatia
```


Meta Prompt ChatGPT



With this input, we can turn ChatGPT into a wizard that helps us create the best possible prompts for any topic and even iteratively improve them over and over again by answering queries, getting suggestions and more - it's really incredible, but let's look at the prompt directly and get started!"

Meta Prompt ChatGPT



"I would like you to become my Prompt Creator. Your goal is to help me create the best possible prompt for my needs. The prompt will be used by you, ChatGPT. You will follow the following process:

1. first, you ask me what I want the prompt to be about. I will give you my answer, but we need to improve it by continuously repeating it, going through the next steps.
2. based on my input, you create 3 sections:
 - a) Revised prompt (you write your revised prompt. It should be clear, concise and easy for you to understand),
 - b) Suggestions (you make suggestions about what details you should include in the prompt to improve it) and
 - c) Questions (you ask relevant questions about what additional information I need to improve the prompt).
3. the prompt you provide should take the form of a request from me to be executed by ChatGPT.
4. we will continue this iterative process by me providing you with additional information and you updating the prompt in the "Revised prompt" section until it is complete."

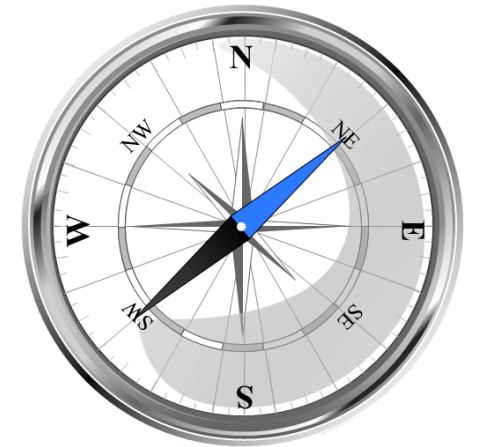


ChatGPT

Scanning the horizon for LLM Models

[Holistic Evaluation of Language Models \(HELM\) \(stanford.edu\)](https://crfm.stanford.edu/helm/lite/latest/#/leaderboard)

<https://crfm.stanford.edu/helm/lite/latest/#/leaderboard>



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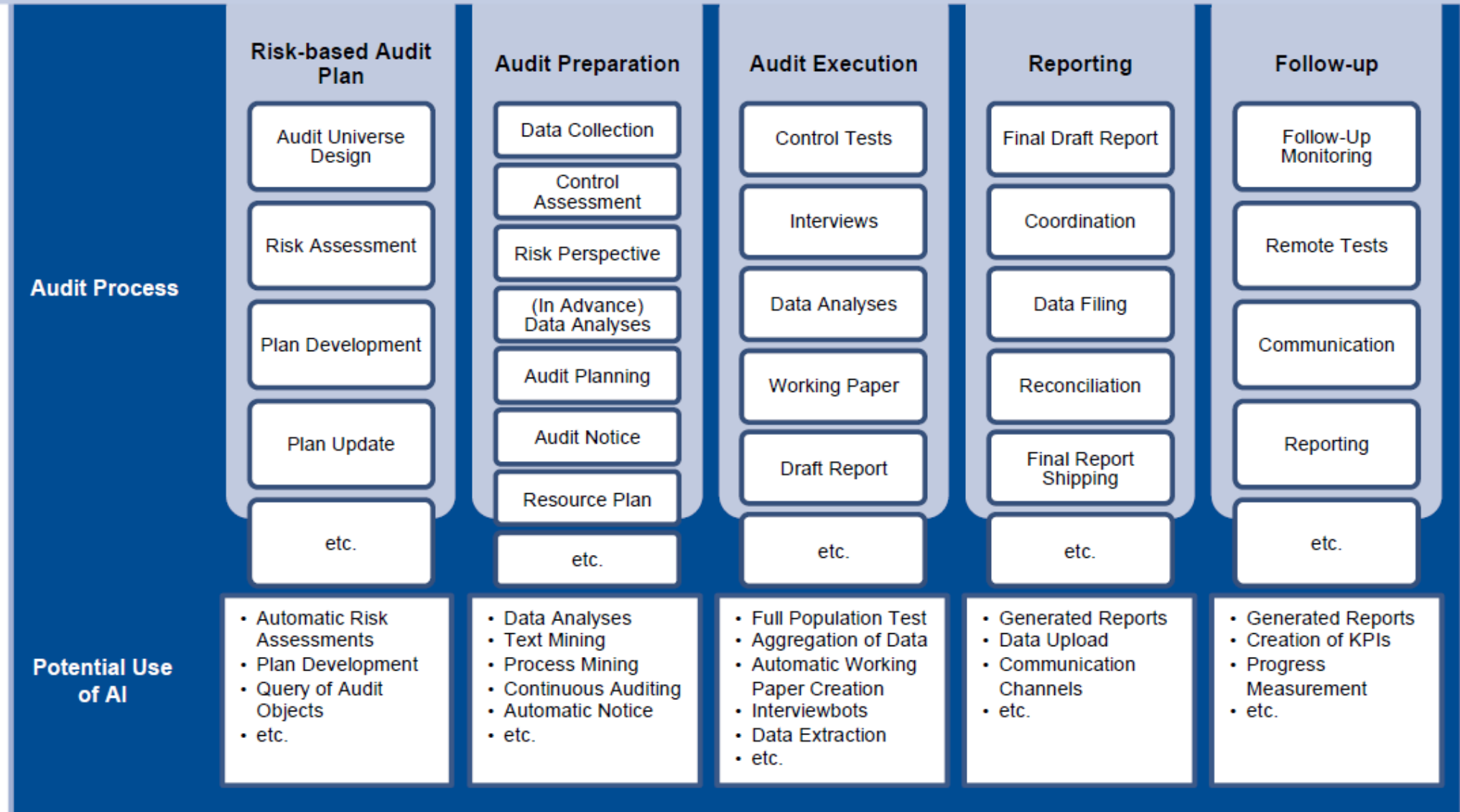
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Internal Audit Process and Use of AI



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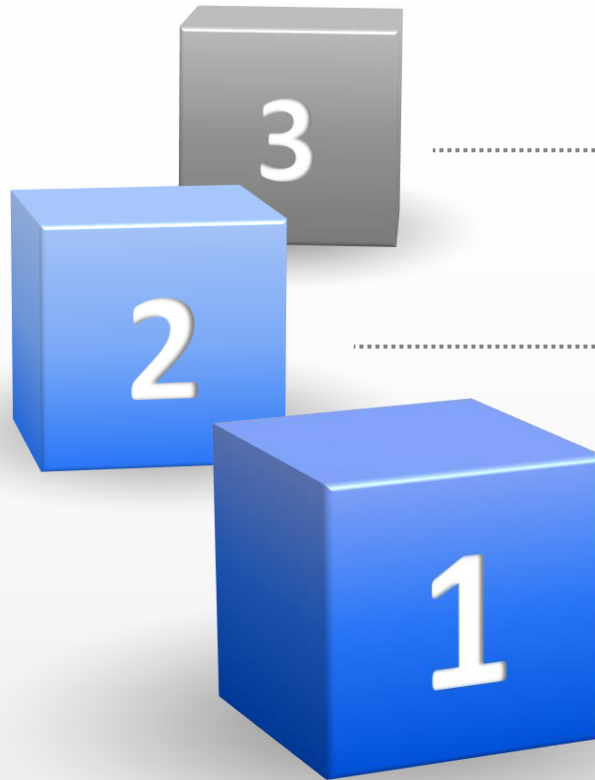
Joint conclusion and outlook for further implementation

Road Map: Leverage ChatGPT

- 1. Employee Training:** Distribute the knowledge to the whole team and get well trained to be able to have full leverage
- 2. Evaluation of the own internal audit process:** Assessing your internal audit process for use cases.
- 3. Consider Enterprise Version:** August 2023 launch of ChatGPT Enterprise Version
- 4. AI Resistant Roadmap:** Developing a Audit AI use strategy.
- 5. AI Internal Audit Culture:** Fostering a AI friendly audit environment incl. Audit Team Culture and Audit IT Infrastructure



Top 3 Learnings of Today



Key Learning Topics

1. Audit Methodology Knowledge First
2. Prompt Engineering, Injections the right way
3. Creative Internal Auditors



„It always seems impossible until it's done.“



Nelson Mandela

Dr. Dominik Foerschler

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Thank you for teamwork!

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