



K2's Artificial Intelligence



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Learning Objectives



Differentiate
between the
capabilities of free
and paid AI tools

List the steps for
querying data from
tools such as Gemini
and ChatGPT

Identify the unique
capabilities of
Microsoft's Copilot

Name examples of
risks associated with
AI



LET'S GET STARTED...



So, Really, What Is AI?

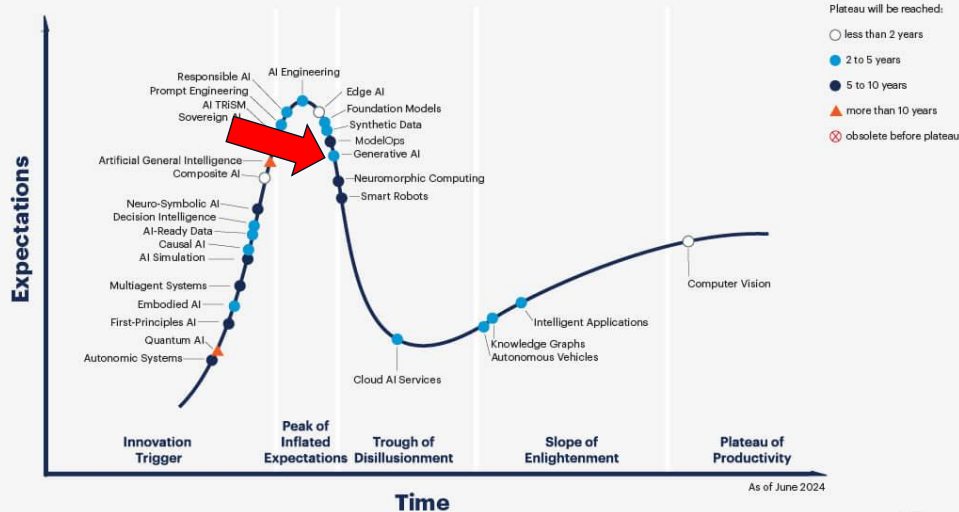
“AI can be defined as the ability to learn and perform suitable techniques to solve problems and achieve goals, appropriate to the context in an uncertain, ever-varying world.”¹

“AI is a machine’s ability to perform the cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with an environment, problem solving, and even exercising creativity.”²

¹Stanford Institute for Human-Centered Artificial Intelligence

²McKinsey.com Featured Insights, McKinsey Explainers, What Is AI

Hype Cycle for Artificial Intelligence, 2024



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What Is Generative AI?



- Conceptually, generative AI is quite simple...it is a form of AI **that allows technology to generate customized responses to your questions and prompts**
- Recent advancements in **Large Language Models (LLMs)** allow generative AI tools such as **ChatGPT** and **Gemini** to create responses to your questions
- It might be fair to think of generative AI tools as turbo-charged search engines

Large Language Models



Why are they important?

- From a practical perspective, **Large Language Models (LLMs)** **serve as the “database”** for today’s AI platforms
- When you issue a prompt to your AI platform, it “asks a question” of the LLM and the LLM puts together a response
- Thus, if your AI platform’s LLM is outdated or incomplete, the quality of your responses will be compromised
- Note Language Models exist in other sizes, too

So, LLMs Must Be Important



- Absolutely, **LLMs are the backbone of generative AI** tools
- When properly trained on large data sets, **LLMs can understand, generate, and even predict human language**
- For example, **Gemini uses a model with 6,144 TB of data and 1.6 trillion parameters**
- By contrast, **GPT-4 Turbo has 7TB and 1,776 billion parameters**
- There is a tradeoff with LLMs...in general, **the bigger the data set, the better the capacity to learn more complex relationships between words**; however, large data sets require more computational capability...*Quantum Computing, anyone?*

Where Do LLMs Get Their Data?



- The short answer is “**anywhere and everywhere**”
- LLMs continually harvest data from many data sources, such as
 - Publicly facing databases
 - Books, newspapers, and magazines
 - Social media posts
 - Programming code repositories
 - Wikipedia
 - IRS, state, and local tax code
 - And perhaps, **YOU!**

LLMs And AI



- As data is harvested, it is *trained* to recognize relationships and contexts relating to use cases for the words ingested
- Of particular importance is training the data to recognize the **context** in which a word or phrase is used
- Absent this training, how would the LLM understand the simple word “live”?
 - Is “live” referring to the adjective, as in “it was her first time to see **living** farm animals”
 - Or is it referring to verb, as in “how he chooses to **live** his life”

An Example Of Context And Training



Without Any Additional Context

- What do most dogs like to do?
 - Run
 - Play with the kids
 - Eat
 - Sleep

With Additional Context

- What do most dogs like to do ***in a thunderstorm?***
 - Stay close to their master
 - Hide
 - Seek cover
 - Pace around the room

You can receive drastically different results when a little context is added!

LLMs, Context, And Training



- A **poorly or incompletely trained LLM is of little value** and will compromise your success when working with AI!
- Fortunately, most of the LLMs trained for commercial use today have undergone **VERY ROBUST** training...further, that training is continuous, so that LLMs evolve quickly to match an ever-evolving information landscape
- Interestingly, ***the LLM that Copilot uses is the same as the one for the paid ChatGPT service***



WHAT TASKS AI DOES BEST



Tasks That Are Well-Suited For AI

- AI is very well-suited as an **alternative to search engines**
 - If you need to get an answer to a question, but you want to context to the answer, AI is your go-to tool
- **Data analysis**
 - Generative AI tools can do a great job at helping you to automate data analysis and interpretation
- **Automating routine tasks**, including data entry and customer service interactions
 - Chatbots, **IF** they're designed properly

Tasks That Are Well-Suited For AI



- AI does a good job at creating **accurate predictions**
 - However, like all other predictions, AI's are only as good as the inputs
- **Drafting documents**, such as correspondence, contracts, and reports
 - Note the ability to have AI write in your voice
- **Image recognition**
 - AI can recognize and identify images
- You can use AI to **identify potential instances of fraud**, including automating a Benford's Law test

On The Other Hand...



Tasks such as those below are done better by humans, generally

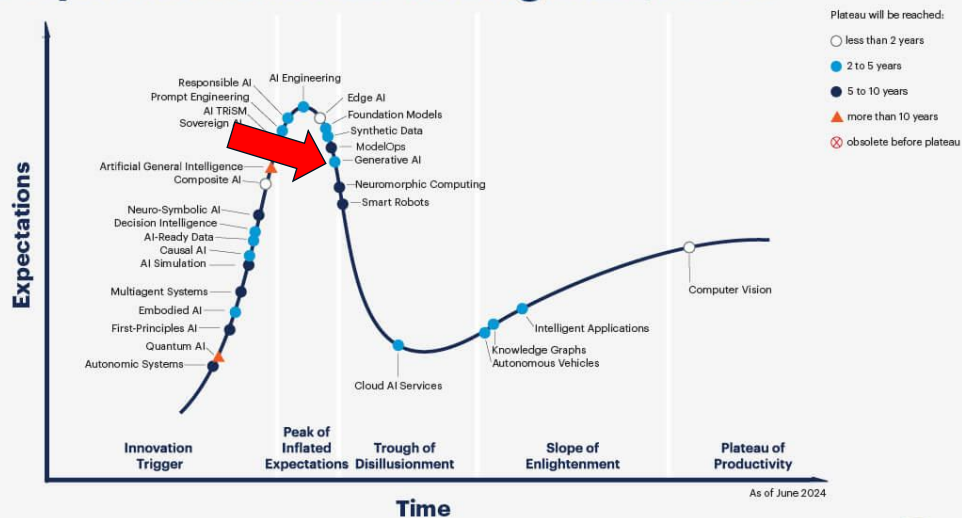
- **Original thought**, imagination, and emotion is best left to us
- AI typically doesn't handle nuance, subtleties, and is often not adaptable to specialized situations
- **Emotional intelligence and empathy** are generally beyond the reach of today's AI tools
- Tasks involving **moral and ethical decision-making** are generally still performed better by humans
- Tasks that **require subjectivity and personal judgment** are done better by humans

So, Why All The Recent Buzz About AI?



Generative AI!

Hype Cycle for Artificial Intelligence, 2024



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ChatGPT Parent company is OpenAI

- Largest in terms of market share
- Excellent all-around AI platform with multiple subscription options, including free

Copilot Microsoft's entrant in the market

- Uses ChatGPT's LLM
- Unique in the way it applies and manages security and interacts with Microsoft 365//free to \$30 per month

Gemini Google's AI platform

- Outstanding platform...after all, who does data better than Google?
- Like the others, free and paid plans



The "Big Three" Players

Other Notable, End-User Offerings



- Anthropic's **Claude**
 - Strong emphasis on data protection and the overall user experience
- IBM **Watson**
 - Generally available only in business environments
- **DeepSeek**
 - A new entry that threatens to disrupt the market...(if you're an NVIDIA investor, sorry!)
 - There are some questions as to whether DeepSeek was really able to produce the reported results...time will tell

Working With ChatGPT



- In general, you will work in ChatGPT much like working with your favorite search engine
- That is, simply type in your request and ChatGPT will attempt to respond
- **Reiterating a previous point, v3.5 uses a 2022 dataset, so it does not reflect the most current data, including tax law and accounting and auditing standards updates...proceed with caution!**



Working With ChatGPT



- Should you decide to upgrade to **ChatGPT Plus**, the monthly subscription fee is \$20
- **With the Plus subscription, you will have access to GPT-4**
- You can also browse, create, and use other GPTs
- **Further, you will have access to DALL-E, browsing, and Advanced Data Analysis**
- Finally, there is also an Enterprise version, known as **ChatGPT Enterprise**



Working With ChatGPT



- One very important option to configure in ChatGPT is **Custom instructions**
- To configure this option, **click the ellipses next to your name**
- Then **click Custom Instructions and tell ChatGPT a little about yourself**

The screenshot shows the 'Custom instructions' configuration window in ChatGPT. At the top, it says 'Custom instructions' with an information icon. Below is a text area for 'What would you like ChatGPT to know about you to provide better responses?'. The text entered is: 'I live in Woodstock, Georgia, a suburb of Atlanta. I am a Certified Public Accountant. I enjoy spectator sports, including Auburn University football. I also enjoy snow skiing, salt-water fishing, and spending time at the beach.' Below this is a character count '229/1500'. Underneath is another text area for 'How would you like ChatGPT to respond?'. The text entered is: 'Call me Tommy. ChatGPT should remain neutral in responses. Responses should contain moderate degrees of detail and should be relatively formal.' Below this is a character count '144/1500'. At the bottom, there is a toggle switch for 'Enable for new chats' which is turned on, and 'Cancel' and 'Save' buttons.

ChatGPT And Custom Instructions



- Consider the response below received from ChatGPT after the Custom Instructions shown in the previous slide were entered into the system



data security issues and artificial intelligence



Certainly, Tommy. The intersection of data security and artificial intelligence (AI) is a topic of considerable importance. As a Certified Public Accountant, you likely appreciate the significance of safeguarding sensitive information, especially in the context of evolving technologies like AI.

Working With Gemini



- In general, **working with Gemini will closely resemble working with ChatGPT**
- Again, **type in your request and Gemini responds**
- Unlike ChatGPT 3.5, **Gemini uses an updated data set, capable of generating responses based on more recent data**

Working With Gemini



- Remember, currently there are no mandatory fees for accessing and using Gemini
 - However, you can elect to pay \$20 per month for priority access and other features
- When working with Gemini, **pay attention to the icons near the upper, right corner of your browser's window**
 - There you can **view a history of your queries, integrate with Google apps, access help and FAQs, view update history, and manage settings**

How To Write Effective Prompts



- **Issuing prompts** is how you ask your generative AI platform to do something for you
- For example, you could issue the following prompt to virtually any generative AI tool

What is the capital of Iowa, what is its population, and what is the median income in the state

How To Write Effective Prompts



Claude's response was:

Des Moines is the capital of Iowa. As of 2020, its population was approximately 214,000 people. The median household income in Iowa was around \$61,800 per year based on 2022 data.

How To Write Effective Prompts



ChatGPT's response was:

The capital of Iowa is Des Moines. As of the latest estimates:

- *The population of Des Moines is approximately 214,000.*
- *The median household income in the state of Iowa is around \$63,000 per year.*

These figures provide a snapshot of the demographic and economic conditions in Iowa's capital and the state overall.

How To Write Effective Prompts



Gemini's response was:

This is essentially a prompt for information about the state of Iowa.

Here's the information requested:

Capital: The capital of Iowa is Des Moines.

Population: The estimated population of Iowa as of July 1, 2022, was 3,200,517 according to the U.S. Census Bureau.

Median Income: The estimated median household income in Iowa for 2022 was \$68,412 according to the U.S. Census Bureau.

Is there anything else I can tell you about Iowa?

How To Write Effective Prompts



Copilot's response was:

The capital of Iowa is Des Moines. As of the 2020 census, the population of Des Moines is 214,133. The overall population of Iowa is approximately 3,214,320 as of 2024. The median household income in Iowa is \$73,147.

Is there anything else you would like to know?

Ten Tips For Effective AI Prompts



Be specific and clear

Define your desired output format

Establish the desired tone and style

Provide enough detail for the AI tool to understand your request

Use keywords and industry phrases

Ten Tips For Effective AI Prompts



Break complex tasks into segments

Remember, this is an iterative process

Don't be afraid to experiment

Offer examples

AI has limitations and may not understand elements, such as sarcasm or nuance

Generative AI In Business

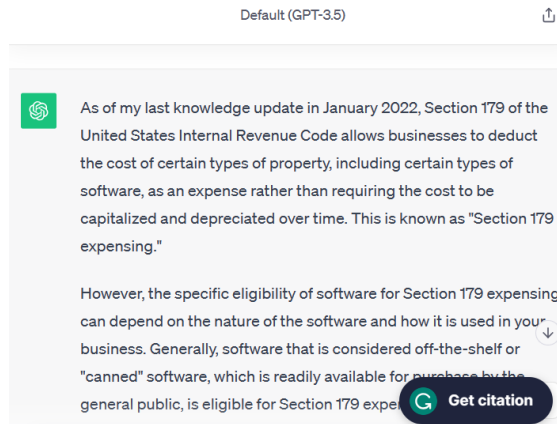


- So far, the examples presented have centered around “generic” searches, similar in some regards to those that could have been performed using search engines
- Now, let's move forward into **using generative AI in everyday business scenarios**

AI In Research



Like the previous example, you could enter the phrase “does computer software qualify for Section 179 expensing” into ChatGPT (3.5) and receive the response indicated to the right



AI In Research



- **What if you need more details** in the responses you receive from your query?
 - **Tell your AI tool to provide that level of detail to you!**
- For example, consider the following prompt entered into Gemini
 - *I'm researching the impact the Secure Act 2.0 has on 401(k) plans. In a bullet point list, provide the most relevant verbatim excerpts from the document, with a citation at the end of each quote to the exact section to find the excerpt in the results*



COPILOT'S UNIQUE APPROACH



Microsoft Copilot

- **Copilot** is an AI-based platform that works much like a personal assistant and is powered by **ChatGPT-4**
- Copilot is **available in Windows 11** and you can enable it by going to **Settings, Personalization, Taskbar, and toggling the Copilot toggle switch "ON"**
- You can also access Copilot in the Edge browser using a feature known as **Bing Chat**
 - Open the Edge Browser and enter a search phrase
 - Edge populates a pane on the right side of the Window with the search response

Microsoft Copilot



- Once you enable Copilot, you can use it to access GPT-4 by clicking the Copilot icon in the Taskbar and typing your topic of interest, such as *“compare the advantages and disadvantages of operating as an S corporation from an income tax perspective”*

More On Copilot



- Copilot also integrates with Microsoft 365, where you can use it to do things such as:
 - Automatically respond to emails
 - Create PowerPoint presentations from Word documents
 - Summarize threads of email messages
 - Summarize Chat content from a thread of messages
 - Create transcripts of meetings
- Copilot became generally available as a subscription tool on 11/1/2023 and the former limitation on 300 Microsoft 365 subscribers no longer exists

Microsoft Copilot Cost



- **\$30 per user, per month for Microsoft 365 E3, E5, Business Standard, and Business premium customers**
 - Note that Microsoft has **removed the previous requirement of 300 or more Microsoft 365/Office 365 seats within an organization**
- Additionally, less expensive plans are available for individuals with personal Microsoft 365 subscriptions



LET'S GO INTO DEMO MODE FOR COPILOT...

Other AI Tools You Should Consider



- **Grammarly**, for improved writing
- **Excel's Analyze Data and Insights in Power BI**, to identify "items of interest" in data sets
- **FORECAST.ETS** and **Forecast Sheets** in Excel
- **Optical Character Recognition**, often used to import data into tax returns
- **MindBridge** for fraud detection

Are There Dangers With AI? ***Absolutely!***



Biased
Outputs

Copyright
infringement

Data privacy

Data security

Deepfakes

Hallucinations

Summary



- **AI is real, it is here to stay, and it can help us all become much more efficient and effective workers**
- **To be fair, AI does make mistakes – but don't humans do too?**
- **However, the tools available today – Gemini, ChatGPT, Grammarly, Copilot, and many others – are all working exceptionally well, and they are affordable, easy to use, and incredibly accurate**
- **Given these positive attributes, what's holding you back from reaping the benefits of AI?**