



HARNESSING THE POTENTIAL OF GENERATIVE AI: A PATH FORWARD

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April 17, 2024





OUTLINE

Welcome & Survey Results

Orientation to Generative AI

Markham's Story

York Region's Story

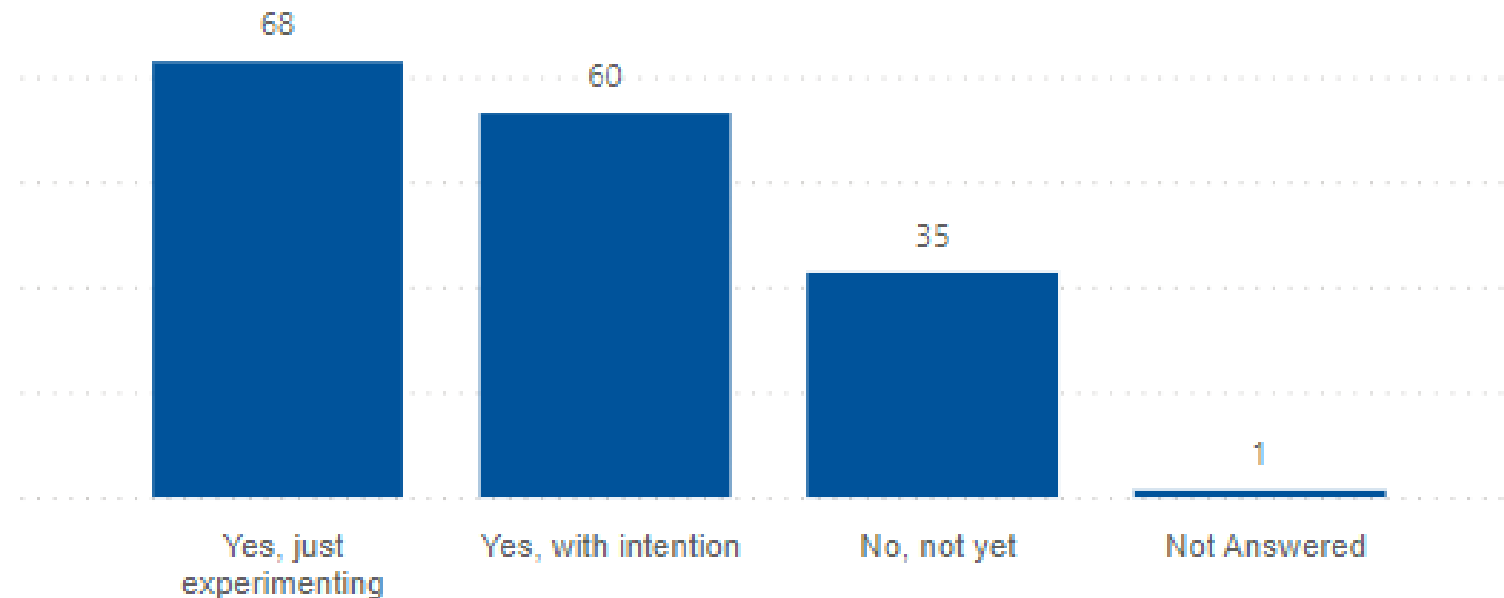
Facilitated Group Work & Discussion

SURVEY RESULTS



PRE-EVENT SURVEY RESULTS

Have you tried using a generative AI tool, perhaps ChatGPT, Copilot, Dall-e, or others?



Findings:

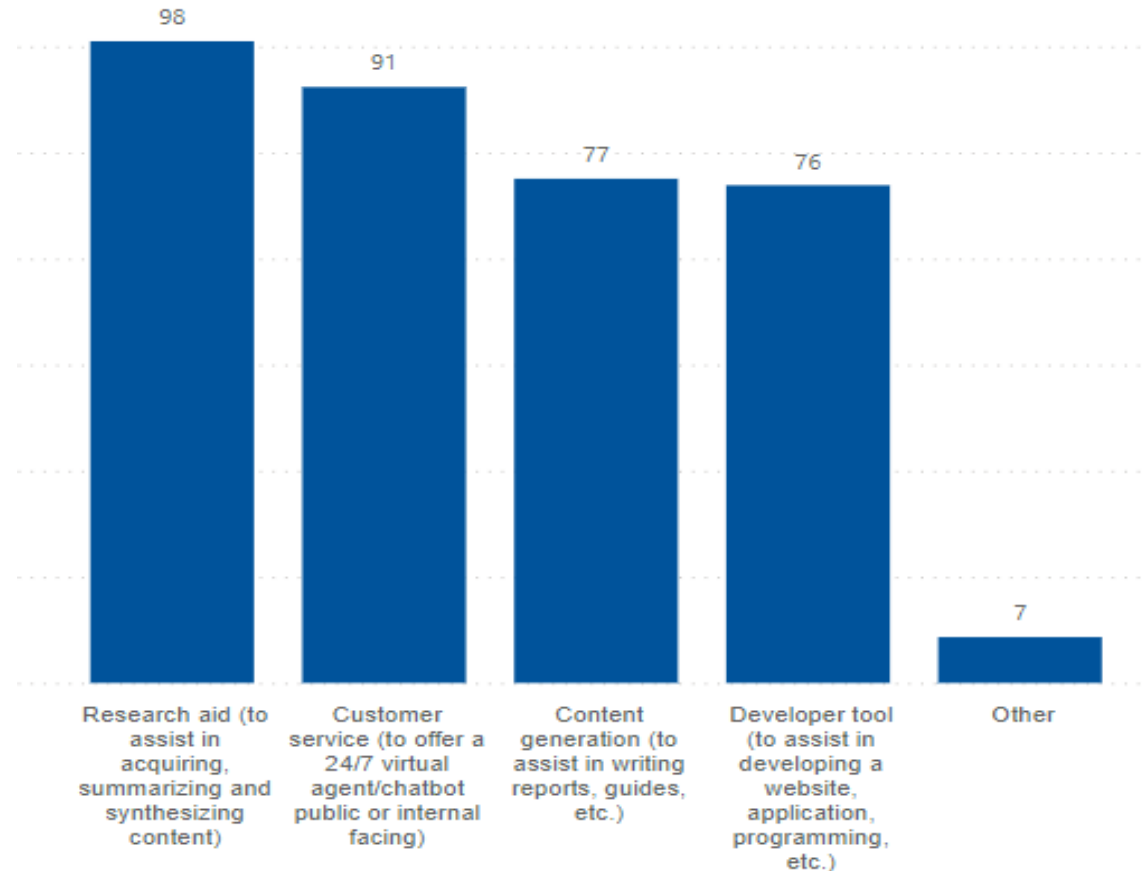
164 responses

3/4 have hands-on experience

Of which, **half** are using GenAI *purposefully* for work or personal reasons

PRE-EVENT SURVEY RESULTS

What are the **top two** opportunities you see for generative AI in the public sector?



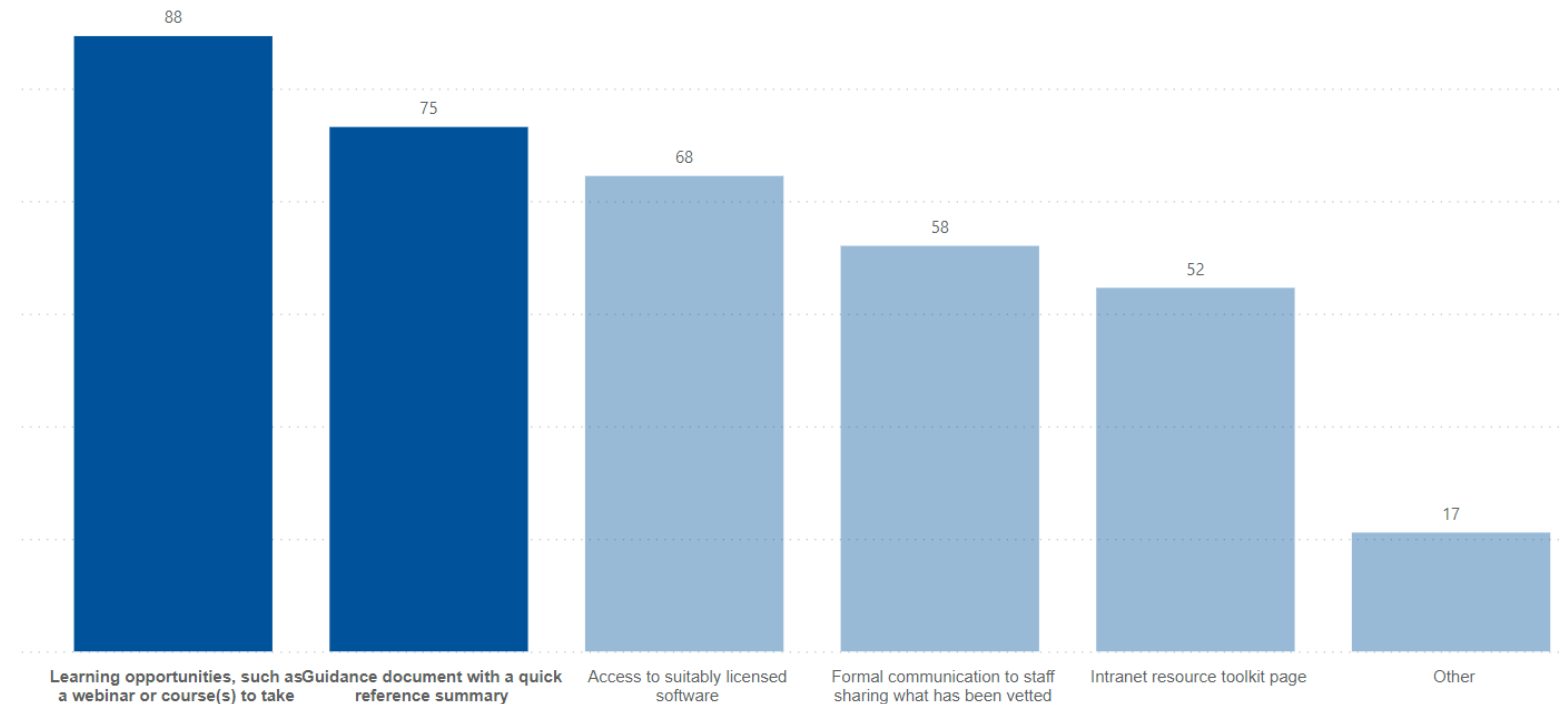
Findings:

164 responses

~50% see GenAI as an opportunity to enhance customer service.

PRE-EVENT SURVEY RESULTS

What **two** supports would help the appropriate use of generative AI in a public sector setting?



Findings:

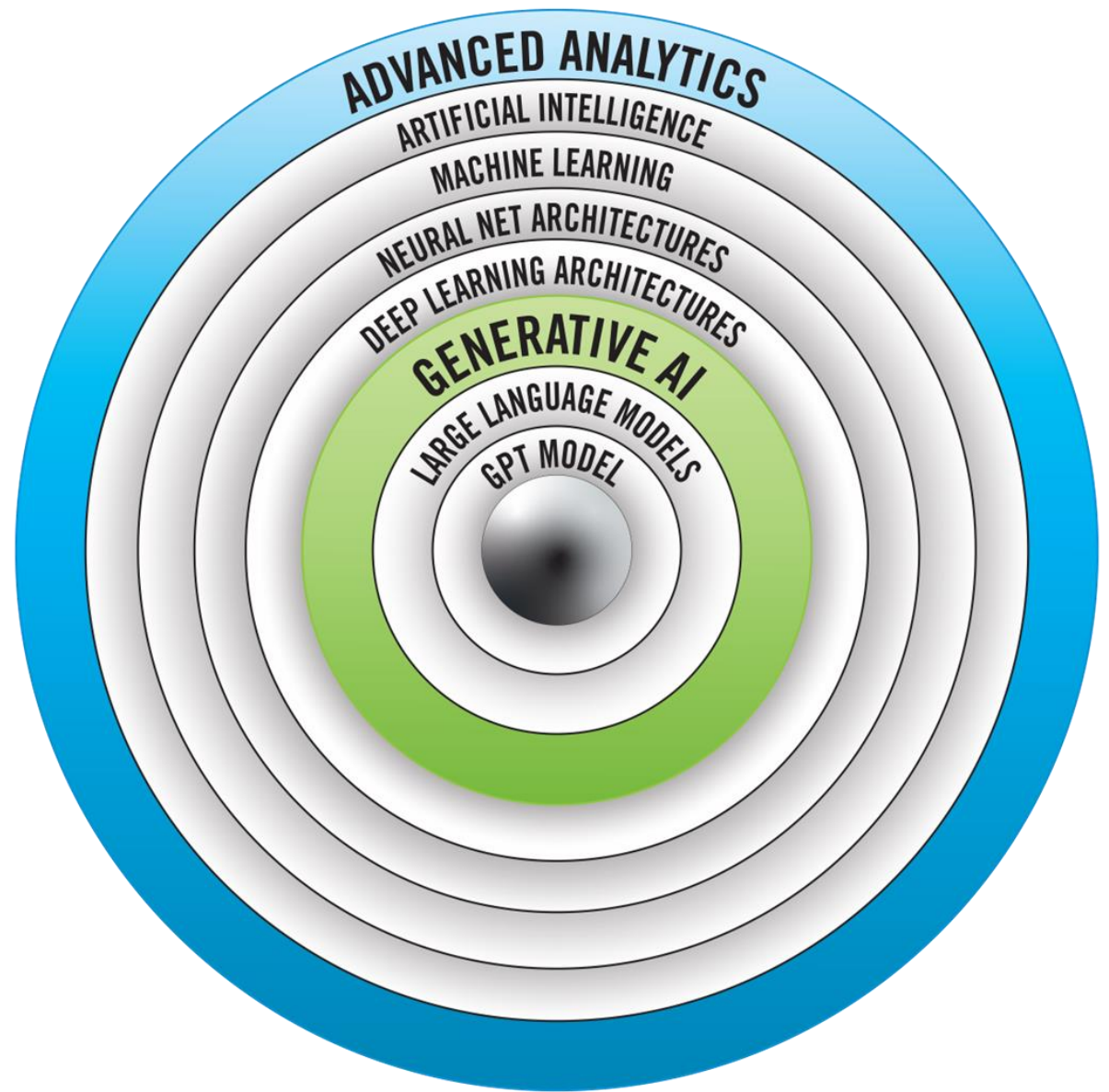
164 responses

1/2 identified access to **learning** and **guidance** to be most helpful

ABOUT GENERATIVE AI (GenAI)



UNDERSTANDING WHERE GENERATIVE AI FITS IN



WHAT TYPES OF CONTENT CAN BE GENERATED?

TEXT

Writing material, explaining complex topics, summarizing documents

CODE

Writing scripts, converting code from one language to another

AUDIO

Call Centre or Help Desk support recordings



GRAPHIC

Image or diagram for concepts, presentations or marketing

VIDEO

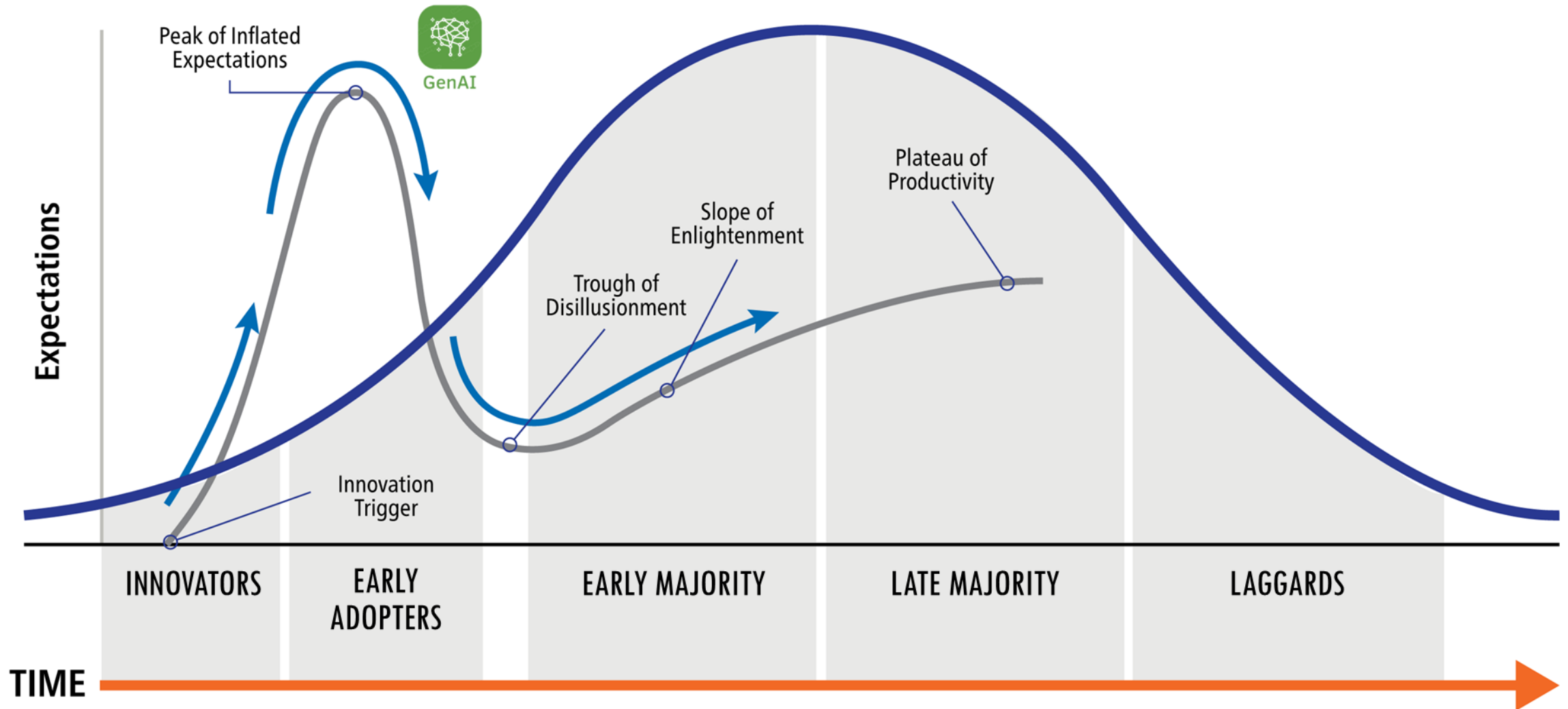
Promotional or training

SPECIALIZED

Office documents, 3D visuals

Generative AI is like a creative wizard that uses math and magic to make all these things!

FAST PATH TO WIDE IMPACT



GENERATIVE AI SPECTRUM OF POSSIBILITIES

PERSONAL USE:
Individual productivity
or personal development

Examples:

- Summarize information
- Draft content
- Automate personal tasks

INTERNAL USE:
Staff-focused or corporate
organizational functions

Examples:

- Corporate data analysis
- Internal chatbot for HR
- Code development / review

EXTERNAL USE:
Client-focused
engagement or services

Examples:

- Client-facing chatbots
- Detecting fraud
- Evaluating submissions

PERSONAL USE

INTERNAL USE

EXTERNAL USE

LOWER RISK SPECTRUM

- Lower level of effort and tech capability
- Smaller risk impact
- Limited external visibility
- Outputs are generally reversible
- Reputational risk is largely individual

Risk Considerations

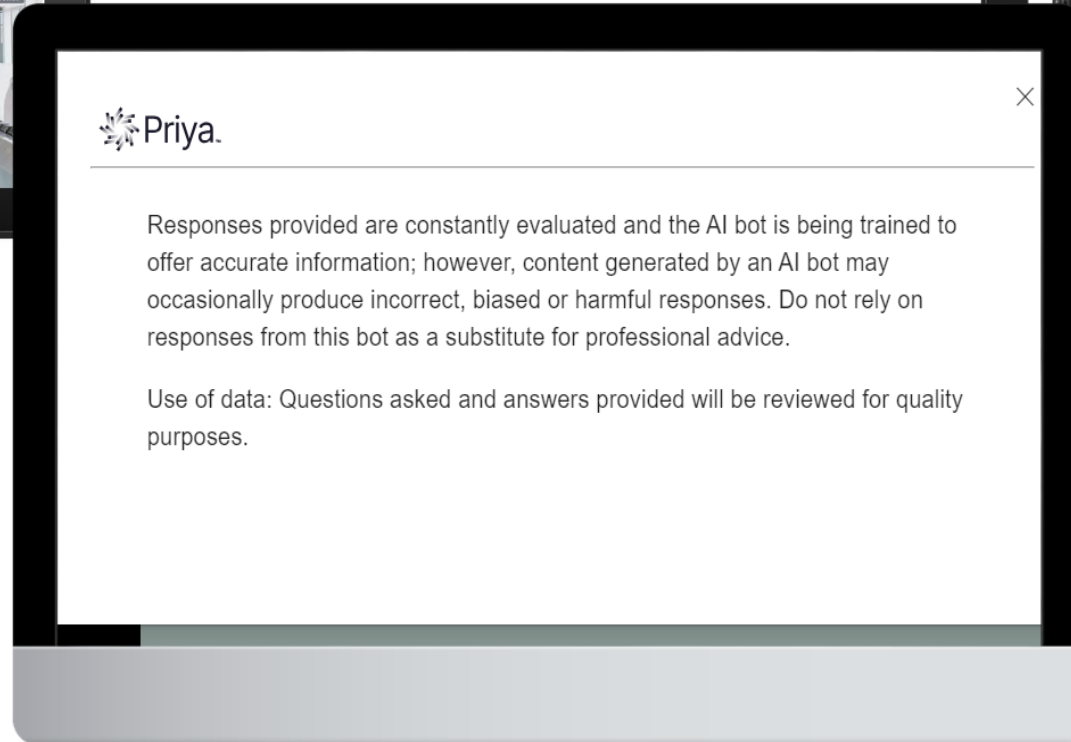
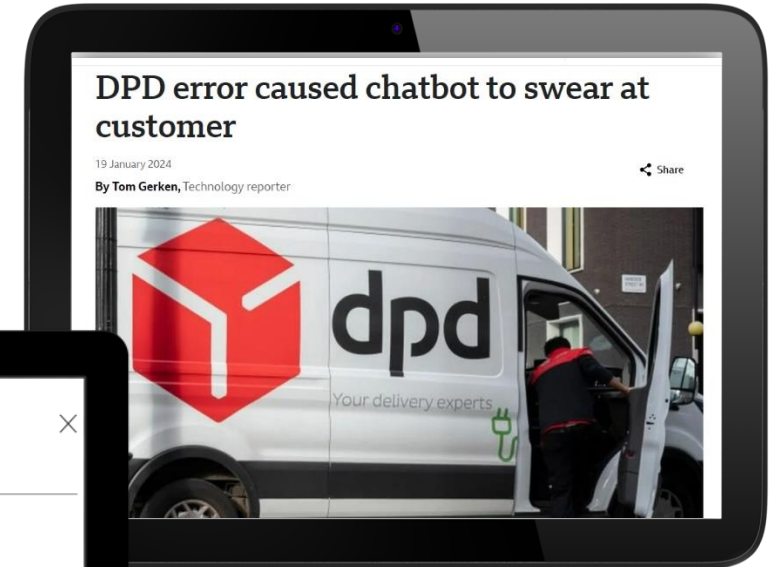
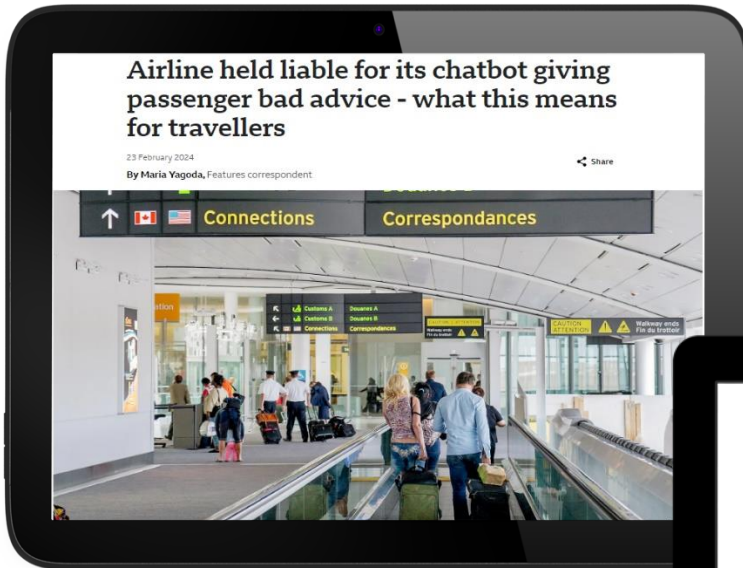
INCREASING RISK LEVEL

HIGHER RISK SPECTRUM

- High tech literacy / custom AI tools
- Larger risk impact
- Greater external visibility
- Outputs may not be reversible
- Reputational risk is largely corporate

REMAIN RESPONSIBLE

We are accountable for user experience and outcomes



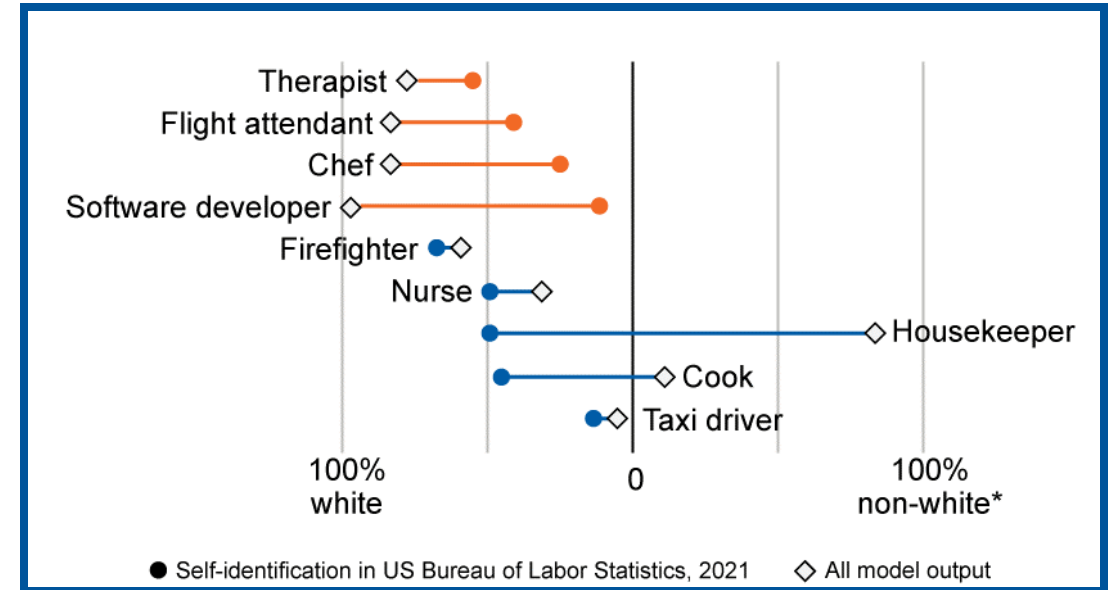
DON'T BELIEVE EVERYTHING YOU SEE

- ✘ **AI:** Most AI-generated images of housekeepers portrayed non-white people
- ✔ **REALITY:** Most US housekeepers identified as white
- ✘ **AI:** All AI-generated images of flight attendants portrayed women
- ✔ **REALITY:** Only 65% of US flight attendants identified as women

This study highlights the need to question AI results:

- Some people believe AI biases represent the biases in reality
- This is true! ... AND AI can also exacerbate bias!

A flood of imbalanced AI generated products can impact the results you get using GenAI and further worsen real-life stereotypes, compounding unbiased decision making.

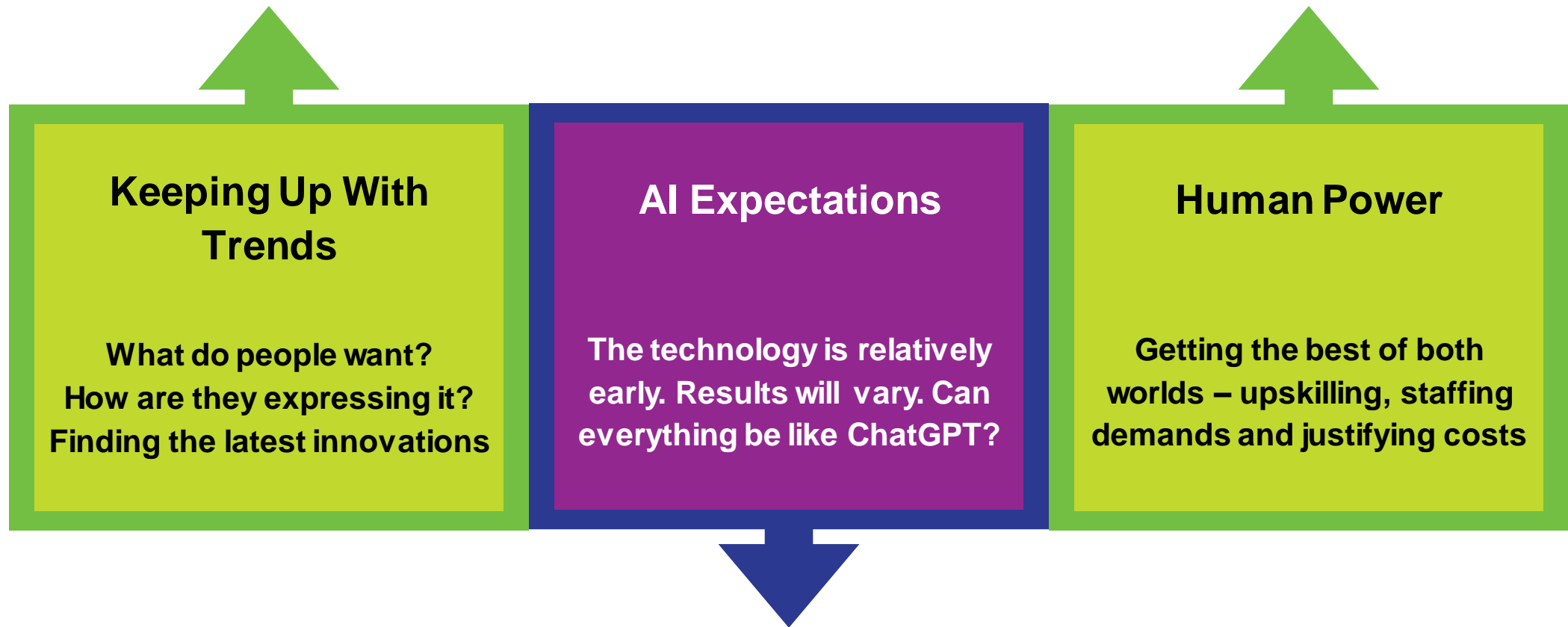


MARKHAM'S STORY

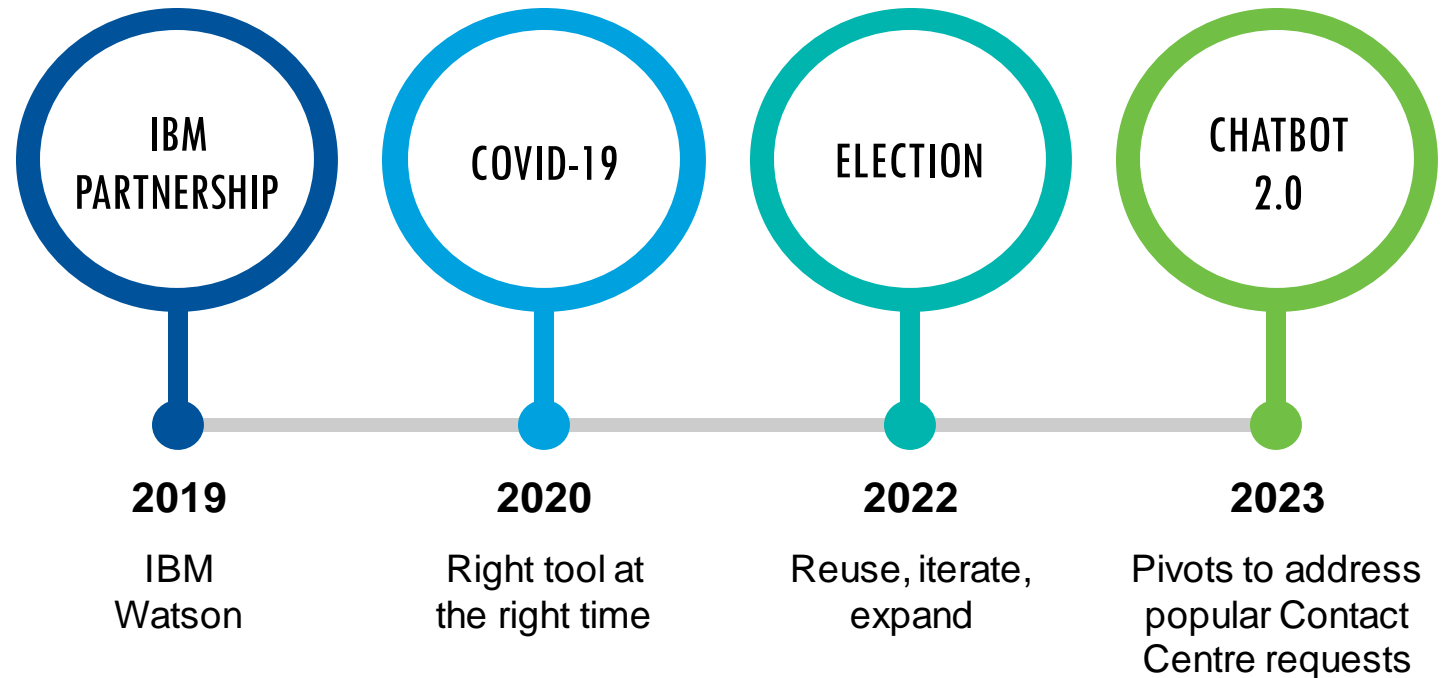
Leveraging AI in our Chatbot



LEVERAGING AI CHALLENGES



MARKHAM'S JOURNEY & IBM PARTNERSHIP



COVID-19: THE BIRTH OF A CHATBOT

- Governments scrambled to get important information to residents
- Markham reached out to IBM to explore the use of a chatbot to disseminate COVID-19 information
- Markham became first Canadian city to leverage IBM Watson Assistant for Citizens chatbot



RESULTS OF THE COVID-19 CHATBOT

External Value

Residents gained 24/7 access to the latest pandemic information

Internal Value

Reduced burden on contact centre and social media teams

KPIs

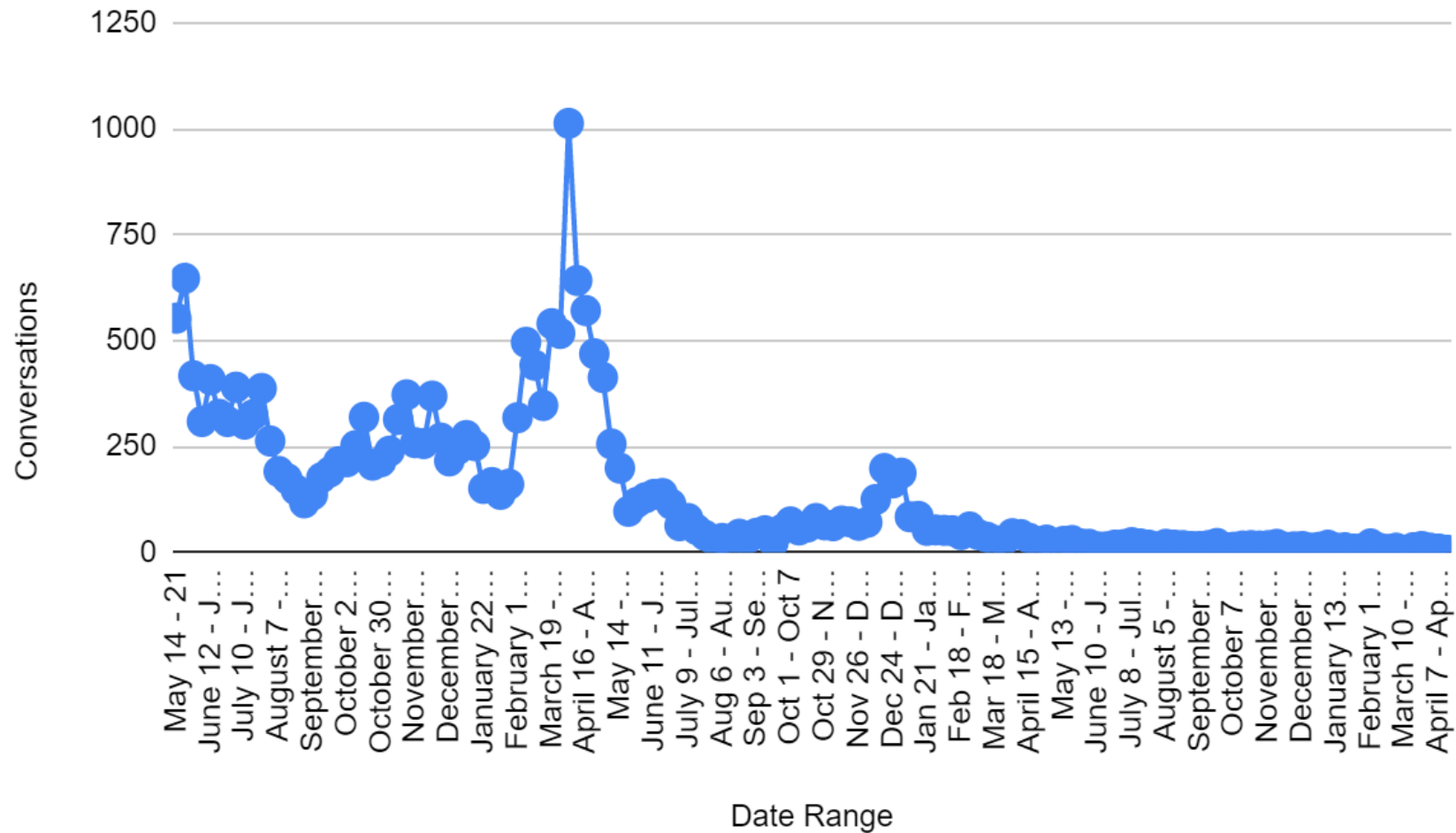
More than 42,000 messages processed

Built Relationships

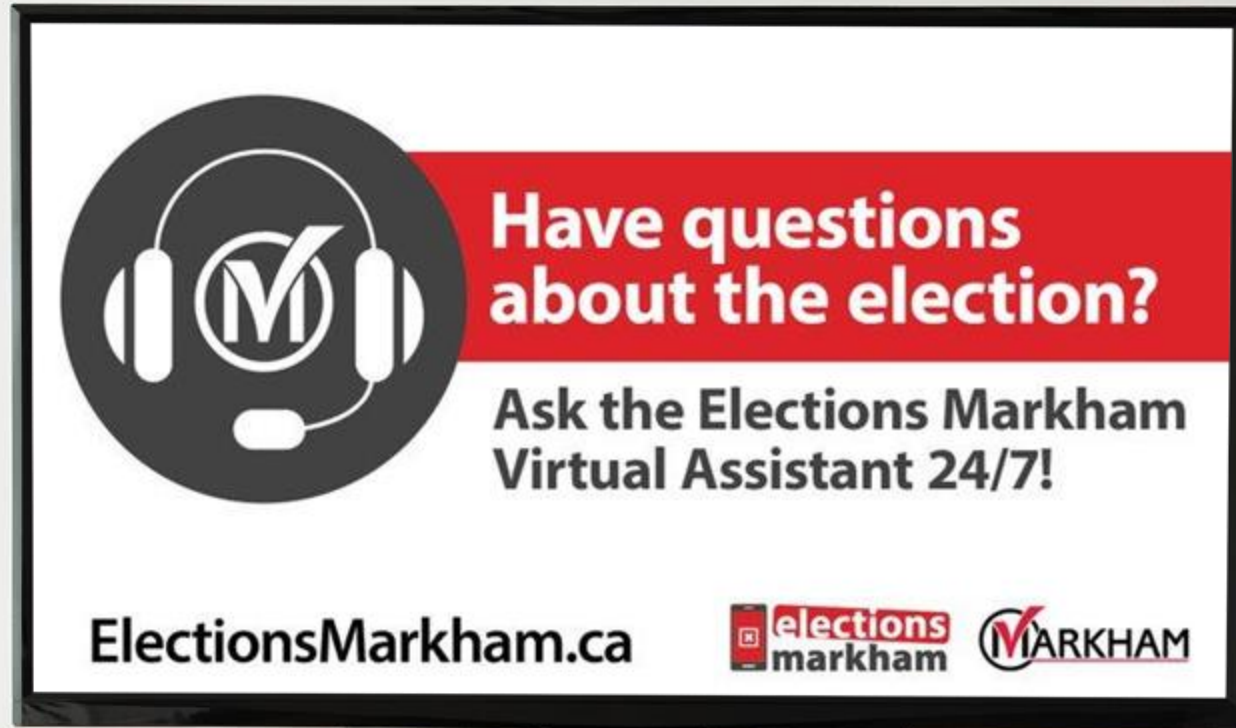
Continue to work with tech. partners to push the envelope and innovate

SHOW US THE DATA

Web Chat Trends





2022 MUNICIPAL ELECTION EXPANSION



**Have questions
about the election?**

**Ask the Elections Markham
Virtual Assistant 24/7!**

ElectionsMarkham.ca  

- Shifted the COVID-19 Virtual Assistant to support the municipal election – making it easier to get reliable and accurate information
- Connected the chatbot to Amazon’s Alexa

LESSONS LEARNED FROM ELECTION EXPANSION



- Ability to control and curate information
- Further AI development and implementation with Watson Virtual Assistant and Amazon Alexa Smartspeaker pilot for 2022 municipal election and subsequent editions
- Takes a team with diverse skills to generate success
- Give yourself time to test things before launch
- Fail fast and adapt

CHATBOT 2.0

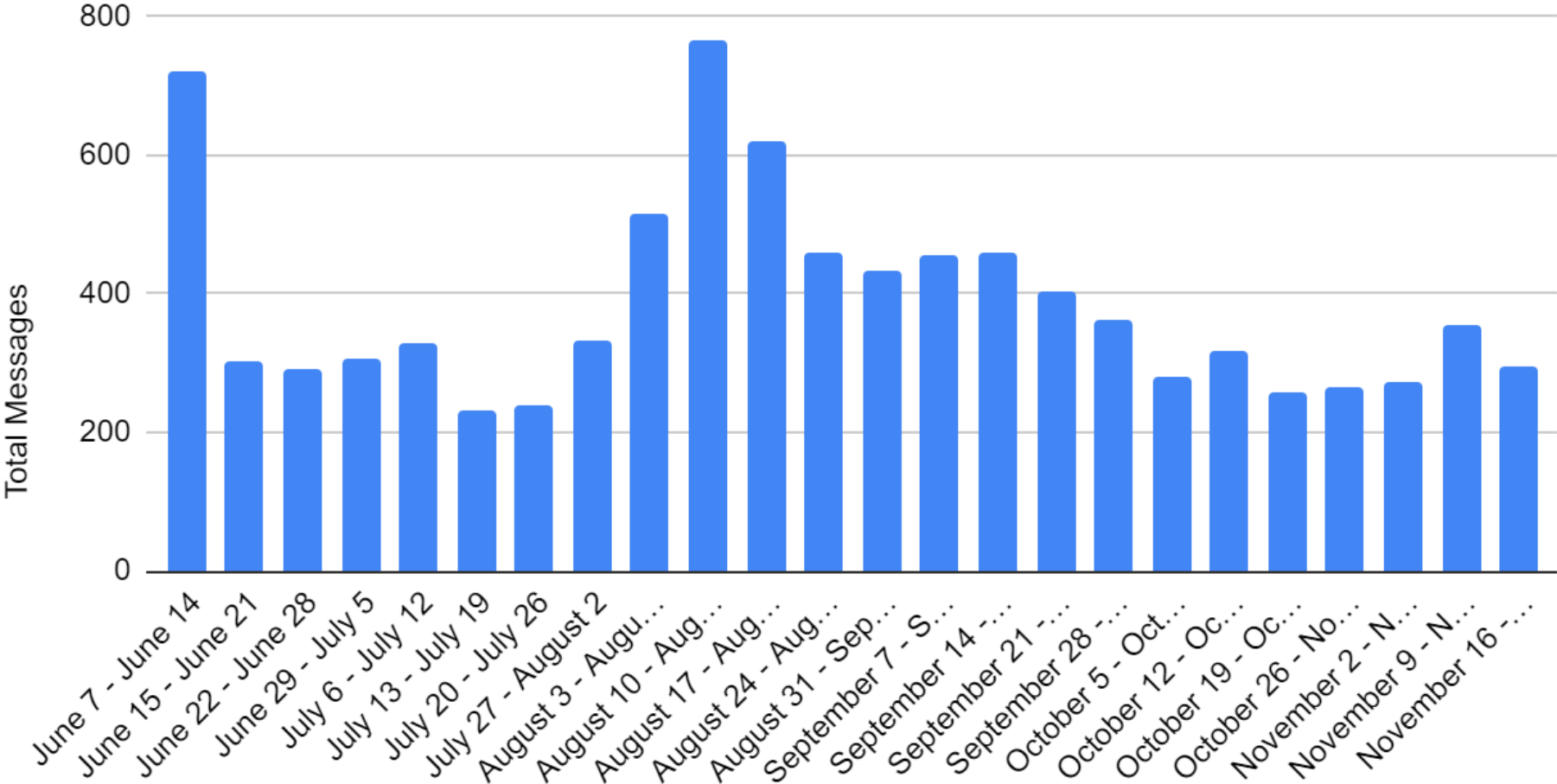
- Launched the revamped Virtual Assistant to offer residents answers to inquiries on 100+ topics
- Deflection rate of roughly 50%



RESULTS FROM CHATBOT 2.0



Total Messages



IN PROGRESS - VERSION 3.0 CHATGPT

Residents often see interacting with government as cold and impersonal. Desire to improve relationship between resident, customer and their local government.

- Integration of Chatbot with Azure Open.AI
- Crawl Markham.ca Website and make data available to Azure Open.AI
- Flow: Chatbot calls IBM Watson Assistant > Watson Looks for intent > looks at Crawled data > looks to Azure Open.AI



SUMMARY



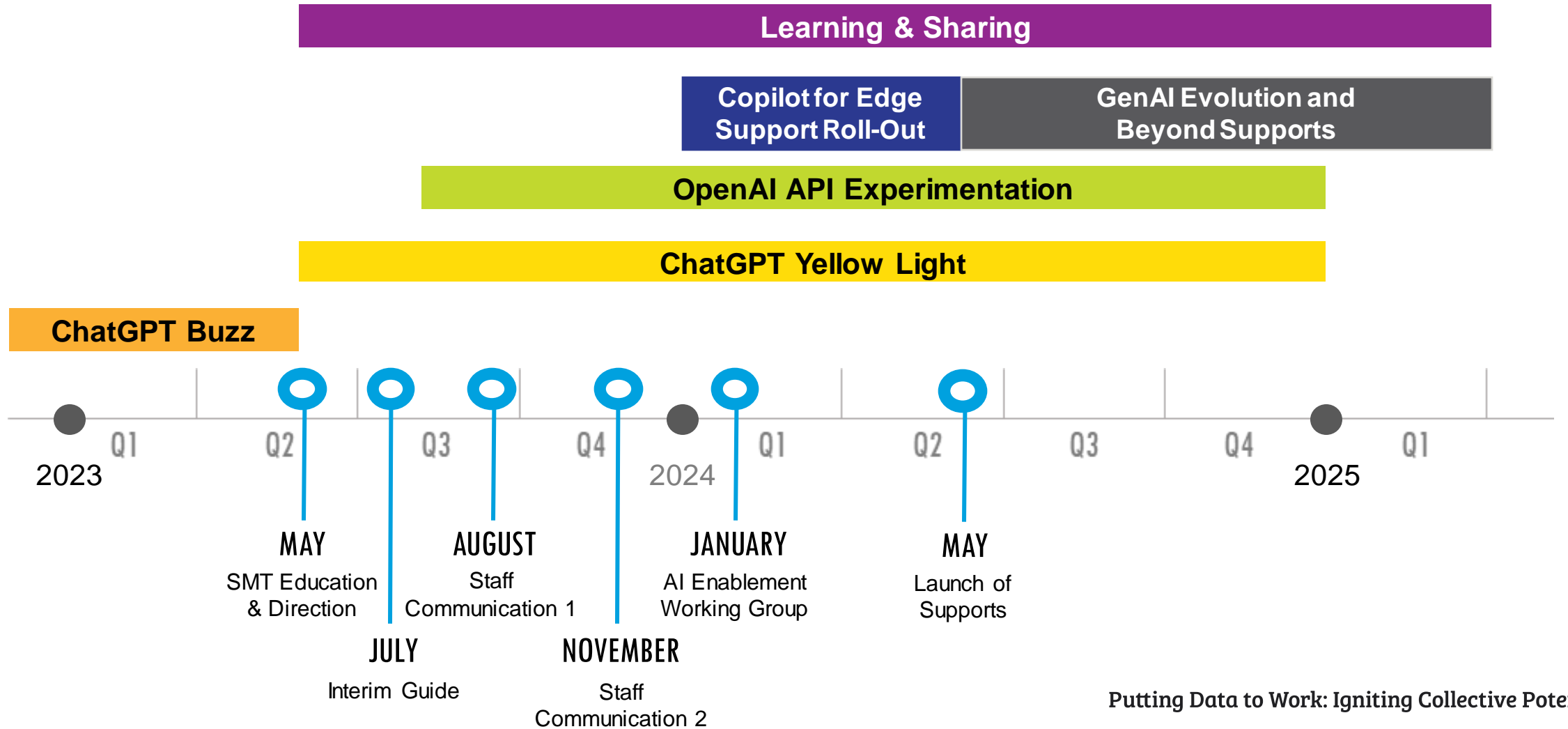
- Start Simple: Identify and prioritize impactful generative AI use cases
- Focus on demonstrating business potential, not on technical feasibility
- Involve business partners and IT team members as key contributors
- Generative AI allows for faster development cycles than traditional AI projects:
 - Requires a lean cycle of innovation
 - Short experiments to test how the technology to mitigate risks
- Success in generative AI pilots requires:
 - Rapid testing
 - Refinement
 - Eliminating use cases that do not have business value
- Understand where your data is going and how it will be used

YORK REGION'S STORY

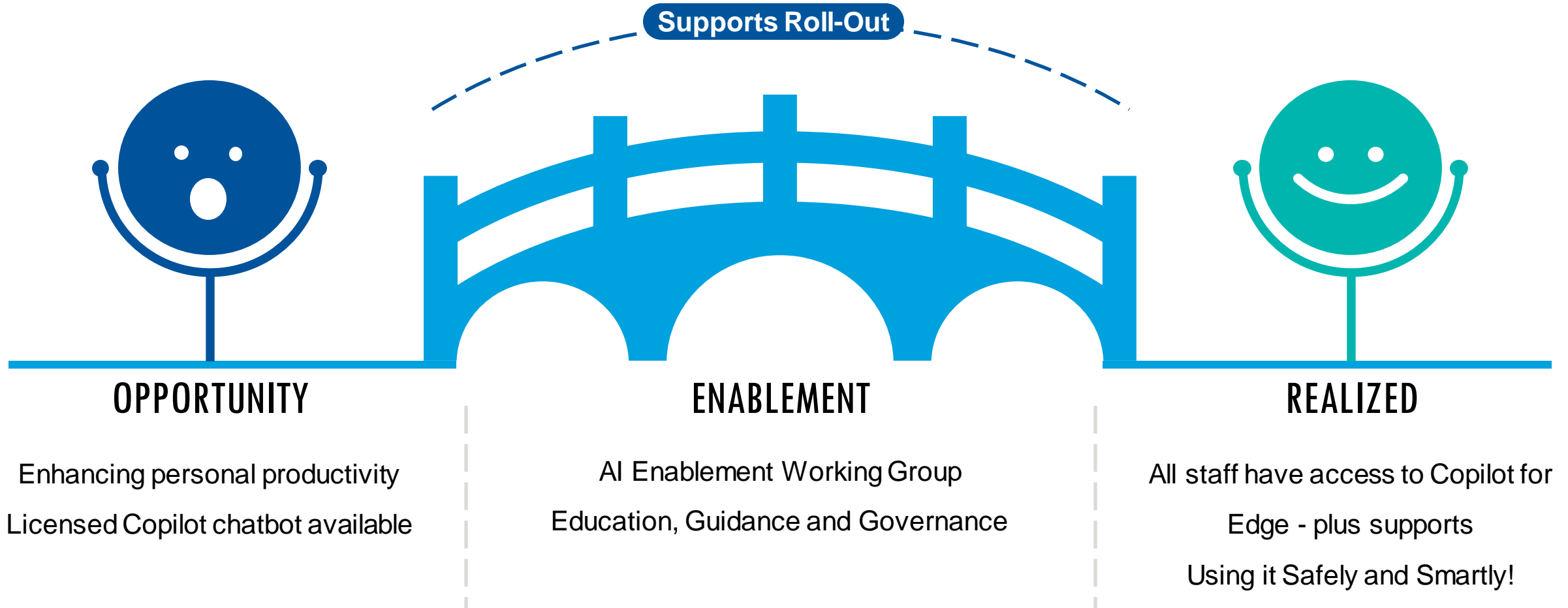
The quest to empower staff with Copilot for Edge



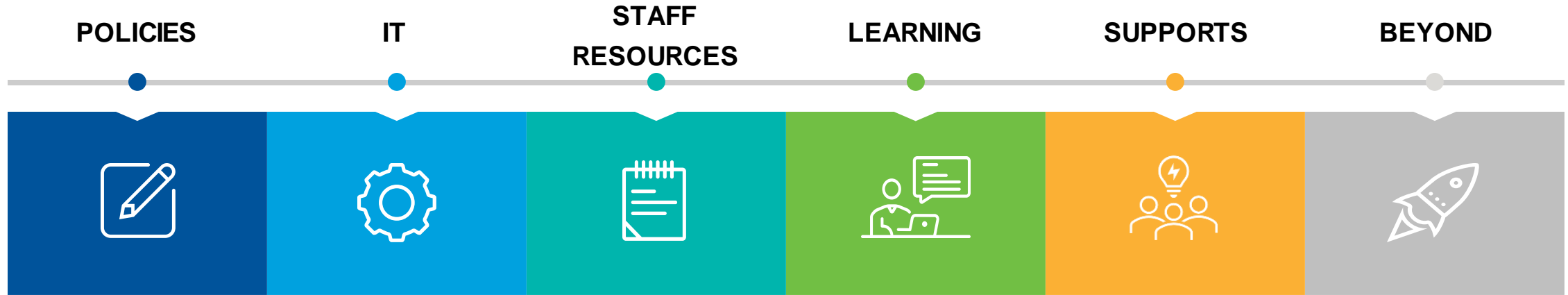
THE YORK REGION JOURNEY



SUPPORTING THE USE OF COPILOT IS NEW WORK



ENSURING A THOUGHTFUL ROLL-OUT OF SUPPORTS



- Code of Conduct
- Information Management Policy
- Acceptable Use and Management of Technology Policy

- Enterprise Architecture Standards

- AI Glossary
- GenAI Cheat Sheets
- Guidance, Governance and Best Practices Documents

- AI Fundamentals
- Generative AI 101
- Using Copilot for Edge: Be Smart, Be Safe

- AI Enablement Working Group
- GenAI Community of Practice

- Central Registry of AI project work
- MS 0365 Copilot Sandbox

AI ENABLEMENT WORKING GROUP

GENAI USE INSPIRATION: USE CASES

TEXT

Simplifying, summarizing,
distilling, steps



IMAGE

Diagram or picture
generation



CODE

Script generation,
documentation, error
handling or modification



AUDIO / VIDEO

Transcribing



TEXT: SIMPLIFYING COMPLEX DOCUMENTS / IDEAS

USE CASE 1-A

Analytics Unleashed

In our data-driven world, analytics fuels innovation and informed decision-making. With Analytics Unleashed, we spotlight cutting-edge projects transforming York Region. From machine learning to natural language processing, each article offers insights into our initiatives' impact and outcomes. Join us as we uncover the stories behind the data and explore how analytics drives value across our organization.

From Manual to Machine – Three Examples of AI/ML in Action

Data automation entails leveraging technology and software to integrate and automate tasks and processes related to data. It uses algorithms, scripts and tools to automatically collect, process, transform and analyze data without requiring human intervention. It enables organizations to automate repetitive and time-consuming tasks, such as data entry, validation, cleansing, integration and analysis, thereby increasing efficiency, accuracy and productivity.

Data automation can be achieved using various techniques, one being machine learning (ML). Machine learning is an application of artificial intelligence (AI) that allows machines to extract knowledge from data and learn from it autonomously.

Data Automation for Better Outcomes

While automation and the use of new technology in our workplace may be exciting for some, others may be skeptical. Each data automation project allows the team to focus on understanding the stories that data tell, and the positive impact this can have on our programs.

Think of data automation as an extra member of the team that offloads repetitive work from you, so you can tend to higher value work. Here's why data automation can be a valuable team player:

- **Reliability.** Data automation can process extensive datasets while avoiding human error. With a human-in-the-loop, assurance is retained. As data quality improves, the model output reliability improves.
- **Scalability.** With data automation, it's easy to scale to a larger dataset by just adding additional computing power. In addition, a process can be repurposed for other similar requirements. With data constantly being collected and backlogs growing, data automation can help make sure no project gets left behind.
- **Speed.** When it comes to insights, time is of the essence — think of the urgency during the COVID-19 pandemic. Having insights quickly accessible supports you in making timely decisions. Computers can process millions of pieces of information per second.

Chat Compose

Protected

You

Rewrite this open document using language that a Grade 6 student can easily understand. Follow the same document's blueprint.

Copilot

Awesome Analytics Adventures!

Hey there, curious minds! Let's dive into the exciting world of analytics. 🌟

What's the Buzz About?

So, what's this "analytics" thing? Well, it's like a super-smart detective that helps people make better decisions. Imagine you're solving a mystery, but instead of clues, you're using data! 🕵️

Meet Our Hero: Machine Learning

One of our heroes in this adventure is **Machine Learning (ML)**. It's like a brainy computer that learns from information. Think of it as your study buddy who remembers everything you've ever learned! ML helps us predict stuff, like whether it'll rain tomorrow or which movie you might like. 🤖🎬

The Magic of Data Automation

Now, let's talk about **data automation**. Imagine having a robot friend who does your chores—like cleaning your room or making your bed. Data automation is like that! It's when computers do repetitive tasks for us. 🤖🧹

Why Do We Love Data Automation?

1. **Reliability:** Computers don't get tired or forget things. They're like super-reliable friends who always show up on time.
2. **Speed:** Data automation is lightning fast! It zooms through tasks quicker than you can say "banana split."
3. **Scalability:** Imagine having a tiny plant that grows into a giant tree. Data automation can handle big tasks without breaking a sweat.

Teamwork Makes the Dream Work

Data automation isn't here to replace us—it's our trusty sidekick! It frees us up to focus on the fun stuff, like solving

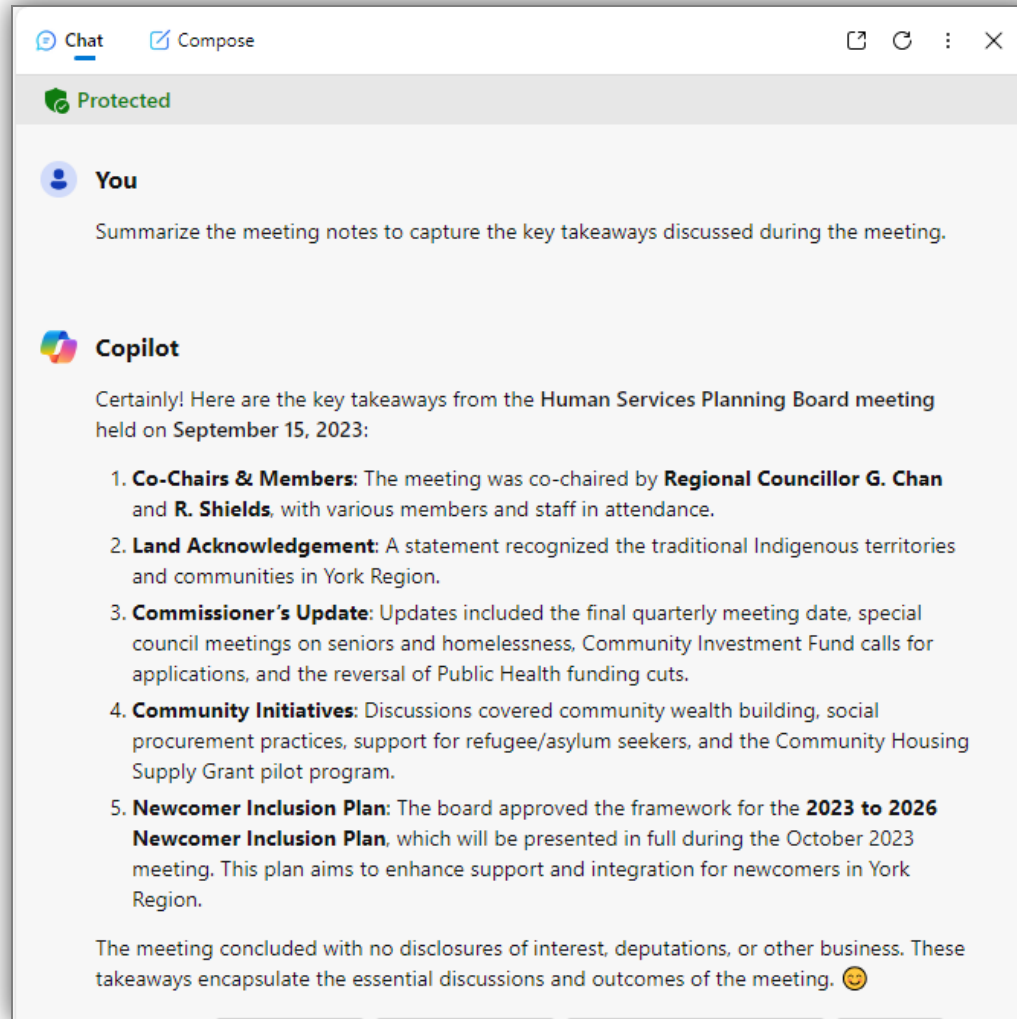
Ask me anything... 0/2000

Prompt: Re-write this five-page document to a grade 6 comprehension level

Time Savings (est.): 1.5 hours

TEXT: SUMMARIZING MEETING NOTES

USE CASE 1-B



Prompt: Summarize the meeting notes for key takeaways

Time Savings (est.): 30 minutes

TEXT: DISTILLING WEB CONTENT

USE CASE 1-C

The screenshot displays the Statistics Canada website's 'The Daily' section for the Consumer Price Index (CPI) in February 2024. The page includes a navigation menu, a search bar, and a table of contents. The main content area features a detailed text analysis of the CPI report, a table showing a 2.8% increase in the 12-month change, and a list of references. A Microsoft Copilot chat window is overlaid on the right side, showing a user prompt and a detailed analysis of the page content.

Consumer Price Index, February 2024

Released: 2024-03-19

The Consumer Price Index (CPI) rose 2.8% on a year-over-year basis in February, down from a 2.9% gain in January. Notable contributors to the deceleration included the indexes for cellular services, food purchased from stores, and Internet access services. Offsetting the deceleration was a year-over-year increase in gasoline prices, which rose 0.8% in February, following a 4.0% decline in January.

Excluding gasoline, the headline CPI slowed to a 2.9% year-over-year increase in February, down from 3.2% in January. Prices for rent and the mortgage interest cost index continued to apply upward pressure on the headline CPI.

On a monthly basis, the CPI rose 0.3% in February, up from 0.0% in January.

Item	1 of 4
Consumer Price Index	February 2024
2.8%	↑
(12-month change)	

References: www150.statcan.gc.ca 1 2

1 of 30 responses

Answer from the web instead What factors contribute to inflation? How does the CPI impact everyday life? Are there any measures being taken to control inflation in Canada?

Ask me anything... 0/2000

Prompt: Provide a detailed analysis of the current webpage

Time Savings (est.): 20 minutes

TEXT: ADVICE OR STEP SUGGESTIONS

USE CASE 1-D

The screenshot shows a Microsoft Copilot chat window within a notebook application. The user's prompt is: "assume the role of a contract negotiator. How would you advocate for viewer licenses to be included at no cost with the purchase of creator licenses?". Copilot's response is structured as follows:

Copilot

Certainly! As a contract negotiator, I would advocate for the inclusion of viewer licenses at no additional cost when purchasing creator licenses. Here are my key points:

- 1. Synergy and Ecosystem Growth:**
 - By bundling viewer licenses with creator licenses, we create a symbiotic relationship. Viewers are essential for creators to showcase their content, and vice versa.
 - A larger viewer base benefits creators by increasing exposure and potential monetization opportunities.
- 2. Market Differentiation:**
 - Offering free viewer licenses sets us apart from competitors.
 - It demonstrates our commitment to fostering a thriving community of creators and viewers.
 - This unique proposition can attract new customers and retain existing ones.
- 3. Network Effect:**
 - The more viewers we have, the more attractive our platform becomes to creators.
 - Creators benefit from a larger audience, leading to increased engagement and revenue.
- 4. Monetization Potential:**
 - While viewer licenses are free, we can explore revenue streams such as ads, premium features, or merchandise.
 - A larger viewer base provides more opportunities for monetization.

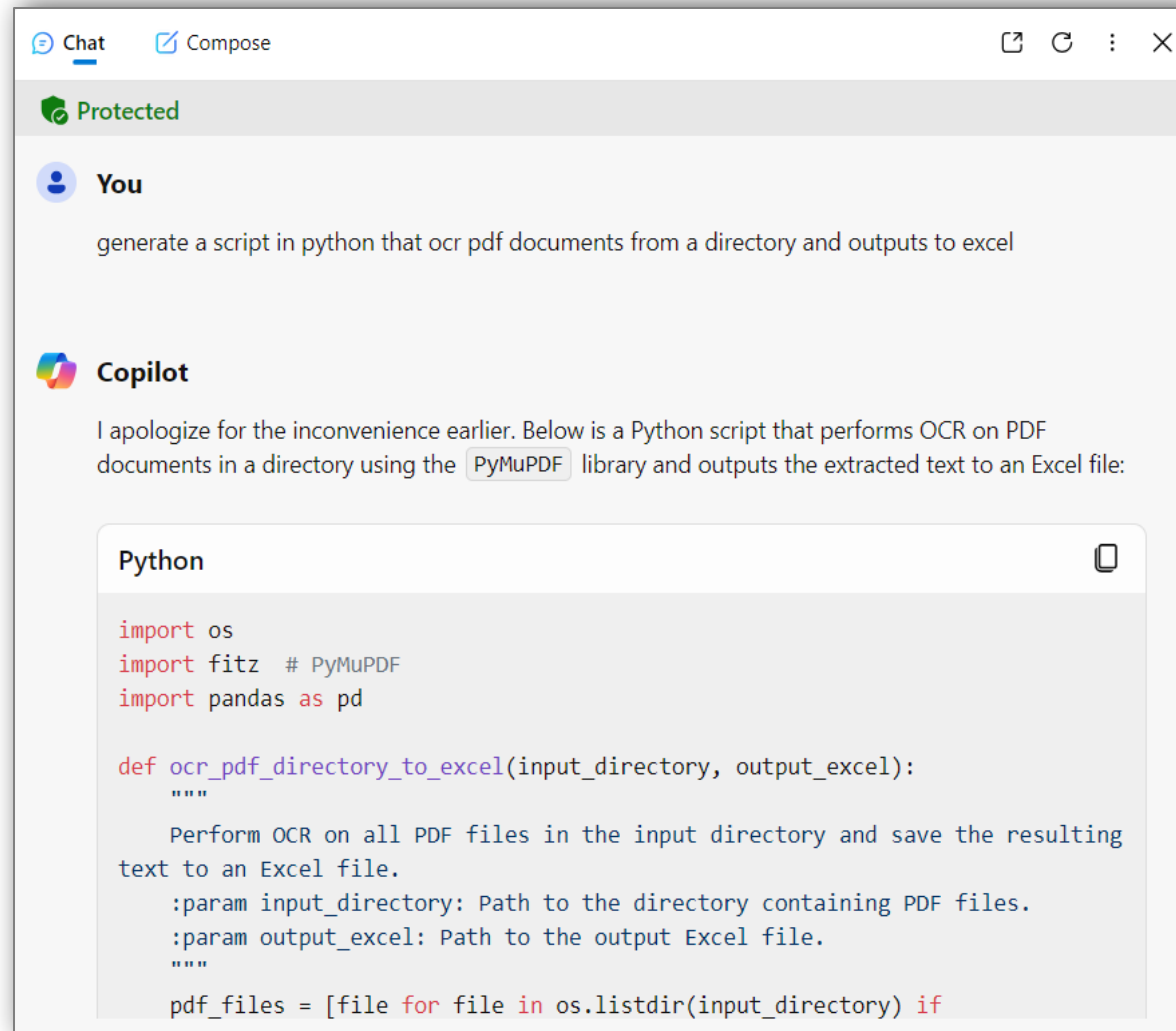
At the bottom of the chat, there is a text input field with the placeholder "Ask me anything...", a microphone icon, a paperclip icon, and a character count "0/4000".

Prompt: Assume the role of a contract negotiator — how would you negotiate X...

Time Savings (est.): 60 minutes

CODE: GENERATE A SCRIPT

USE CASE 2-A

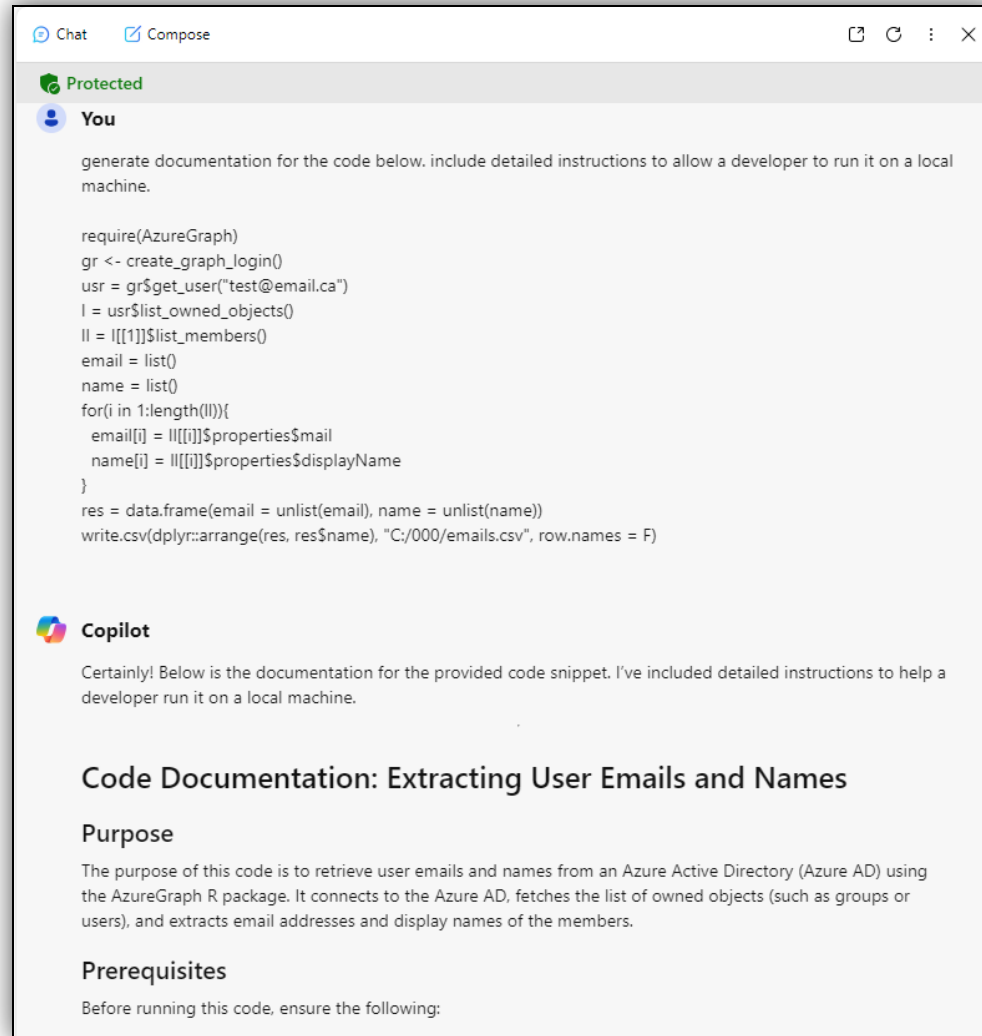


Prompt: Generate a script in python that does...

Time Savings (est.): 30 minutes

CODE: DOCUMENTATION

USE CASE 2-B



Chat Compose

Protected

You

generate documentation for the code below. include detailed instructions to allow a developer to run it on a local machine.

```
require(AzureGraph)
gr <- create_graph_login()
usr = gr$get_user("test@email.ca")
l = usr$list_owned_objects()
ll = l[[1]]$list_members()
email = list()
name = list()
for(i in 1:length(ll)){
  email[i] = ll[[i]]$properties$email
  name[i] = ll[[i]]$properties$displayName
}
res = data.frame(email = unlist(email), name = unlist(name))
write.csv(dplyr::arrange(res, res$name), "C:/000/emails.csv", row.names = F)
```

Copilot

Certainly! Below is the documentation for the provided code snippet. I've included detailed instructions to help a developer run it on a local machine.

Code Documentation: Extracting User Emails and Names

Purpose

The purpose of this code is to retrieve user emails and names from an Azure Active Directory (Azure AD) using the AzureGraph R package. It connects to the Azure AD, fetches the list of owned objects (such as groups or users), and extracts email addresses and display names of the members.

Prerequisites

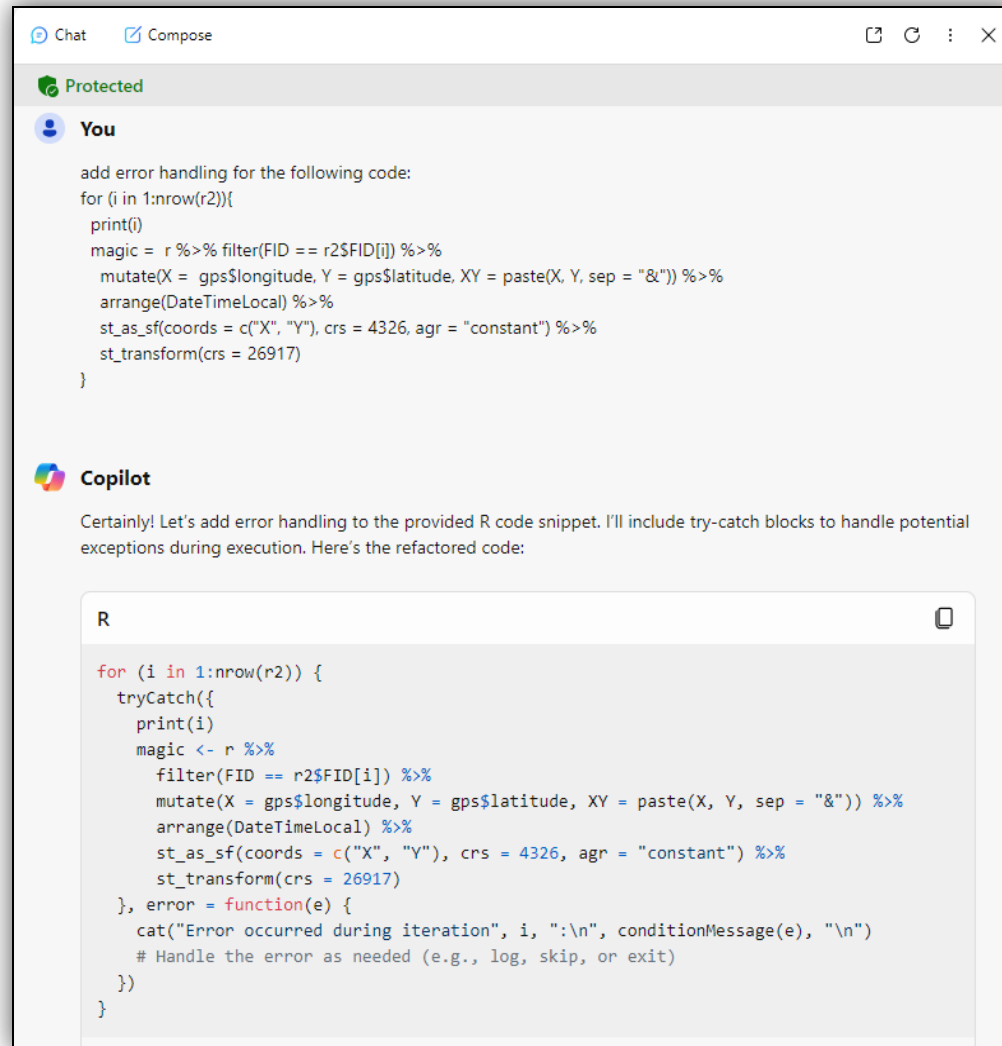
Before running this code, ensure the following:

Prompt: Generate documentation for the code below, including instructions

Time Savings (est.): 60 minutes

CODE: ERROR HANDLING / TROUBLESHOOTING

USE CASE 2- C



Chat Compose

Protected

You

```
add error handling for the following code:  
for (i in 1:nrow(r2)){  
  print(i)  
  magic = r %>% filter(FID == r2$FID[i]) %>%  
  mutate(X = gps$longitude, Y = gps$latitude, XY = paste(X, Y, sep = "&")) %>%  
  arrange(DateTimeLocal) %>%  
  st_as_sf(coords = c("X", "Y"), crs = 4326, agr = "constant") %>%  
  st_transform(crs = 26917)  
}
```

Copilot

Certainly! Let's add error handling to the provided R code snippet. I'll include try-catch blocks to handle potential exceptions during execution. Here's the refactored code:

```
R  
for (i in 1:nrow(r2)) {  
  tryCatch({  
    print(i)  
    magic <- r %>%  
      filter(FID == r2$FID[i]) %>%  
      mutate(X = gps$longitude, Y = gps$latitude, XY = paste(X, Y, sep = "&")) %>%  
      arrange(DateTimeLocal) %>%  
      st_as_sf(coords = c("X", "Y"), crs = 4326, agr = "constant") %>%  
      st_transform(crs = 26917)  
  }, error = function(e) {  
    cat("Error occurred during iteration", i, ":\n", conditionMessage(e), "\n")  
    # Handle the error as needed (e.g., log, skip, or exit)  
  })  
}
```

Prompt: Add error handling to this piece of code

Time Savings (est.): 20 minutes

IMAGE: DIAGRAM

USE CASE 3 - A

York Region

HOME > ABOUT YORK REGION > CAREERS

APPLICATION PROCESS

York Region hires people for a wide variety of career opportunities. Please check [Current Opportunities](#) to browse the most up-to-date list of job openings. See details below on the application and recruitment process to help you in your job search.

How to Apply Online

To apply to a posting, you must have a York Region online candidate profile. If you already have a candidate profile, log in and make sure all your information is up-to-date before you apply to an opening.

To create a job profile:

1. Follow the "Apply to this job" link at the bottom of the job posting.
2. For returning user, enter your email address and password. If you

- ACCESSIBILITY +
- BYLAWS +
- CAREERS -
- A CAREER WITH YORK REGION
- APPLICATION PROCESS
- INTERNATIONALLY TRAINED PROFESSIONALS
- PARAMEDIC RECRUITMENT

Chat Compose

Protected

You

based on the text on this page, create a flow diagram on how to apply online

Copilot

Certainly! Here's a flow diagram that outlines the process of applying online for a job at York Region:

```
graph TD
    Start --> V1[ ]
    V1 --> Check[Check Current Opportunities]
    Check --> V2[ ]
    V2 --> Question{Have a York Region online candidate profile?}
    Question -- Yes --> Log[Log in and update profile]
    Question -- No --> Create[Create a job profile]
    Log --> V3[ ]
    Create --> V3
    V3 --> Apply[Apply to an opening]
    V3 --> Refer[Refer to Job Applicants Quick Reference guide]
```

Prompt: Based on the text on this webpage, create a process flow diagram

Time Savings (est.): 40 minutes


IMAGE: PICTURE

USE CASE 3 - B

You
Create an image of a falcon being untethered and starting to fly, and make the falcon very digital composed of binry "1"s and "0"s

Copilot
I'll try to create that.

👍 🗑️ 📄 ⬇️ 🔊 1 of 30 responses



"A falcon being untethered and starting to fly, and make the falco..."
Designer Powered by DALL·E 3

The image shows a chat interface where a user asks for a digital falcon. The AI provides four image options in a 2x2 grid. The main image is a large, detailed digital falcon with wings made of binary code, flying against a dark background with glowing particles.

Prompt: Eggplant



Credit to Midjourney users for generating this

Prompt: Create an image of a falcon being untethered and learning to fly

Time Savings (est.): 3 hours

AUDIO / VIDEO: TRANSCRIBING

USE CASE 4

The screenshot displays a YouTube video player interface. The video title is "Introduction to York Region's 2023 to 2027 Strategic Plan" by YorkRegionGovt, with 2.97K subscribers. The video content features a graphic with four colored sections: purple for "ECONOMIC VITALITY", orange for "HEALTHY COMMUNITIES", green for "SUSTAINABLE ENVIRONMENT", and blue for "GOOD GOVERNMENT". The main text on the video is "2023 TO 2027 STRATEGIC PLAN". A subtitle overlay reads: "York Region has released its 2023 to 2027 Strategic Plan. From Vision to Results." The video player shows a progress bar at 0:05 / 2:32. On the right, a chat window is open, showing a user asking for a transcript and Copilot providing a detailed response.

Chat:

You: based on the video on this page, write me the transcript

Copilot: Certainly! Here's the transcript of the video you're watching:

York Region has released its 2023 to 2027 Strategic Plan, titled "From Vision to Results." The plan is designed to align with York Region's vision of "Strong, Caring, Safe Communities," its mission of "Working together to serve our thriving communities- today and tomorrow," and its values of "Integrity, Commitment, Accountability, Respect, and Excellence" – collectively known as ICARE. The Multi-Year Budget supports the Strategic Plan, Departmental Plans, and Individual Performance Plans to ensure proper allocation of funds for delivering Regional Council's commitments.

The Strategic Plan serves as a roadmap, outlining the Region's priorities in four-year increments to coincide with the four-year term of Regional Council. It is anchored by 4 priorities, 10 objectives, and 48 performance measures to ensure contributions to community well-being are aligned with the Vision's Four Areas of Focus: "Economic Vitality," "Healthy Communities," "Sustainable Environment," and "Good Government."

The plan emphasizes the importance of economic growth, livability, health, safety, social well-being, environmental protection, and good governance. Annual progress reports will be presented to Regional Council to maintain course and make a positive difference in the lives of residents, businesses, and visitors. For more information, the video directs viewers to visit york.ca/stratplan.

Prompt: Based on this three-minute video, write me the transcript

Time Savings (est.): 20 minutes

THANK YOU

Questions?

Duncan Rowe: Duncan.Rowe@york.ca

Sumon Acharjee: sacharjee@markham.ca

Andrée Gates: Andree.Gates@york.ca



Putting Data to Work: Igniting Collective Potential

FACILITATED ACTIVITY



FACILITATED DISCUSSION



Where do you think the most significant opportunities are to advance the use of GenAI in our organizations?

How might we work together to advance the use of GenAI in our organizations? What actions can we collectively take?