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# Adastra Azure OpenAI Capability

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# Adastra is an Azure OpenAI Leader!

- Adastra's is visioning and leading Azure OpenAI transformation and innovation with our customers, right now!
- Adastra has >25 trained Azure OpenAI specialists developing Azure OpenAI innovate solutions, through our Azure OpenAI innovation lab
- Adastra has existing proven OpenAI success stories, demonstrating real organizational outcomes thru OpenAI innovation
- Adastra has four (and growing) Azure OpenAI offers, ready to prove value from Azure OpenAI innovation at your organization



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# Adastra Azure OpenAI Offers



# Implement Private Azure OpenAI

Resource	W1	W2
Azure OpenAI Lead		

- 1 x Azure Architect
- 1 x Azure OpenAI Lead

▪ **Value: \$15k**

**OpenAI / ChatGPT is enabling differentiating innovation, but is a public service. Adding internal / proprietary data to public ChatGPT exposes data for public consumption. This exposure may already be occurring in your organization, without your knowledge! Therefore, to enable the benefits of ChatGPT, while also protecting your organization, it is critical you deploy a private instance of ChatGPT within your tenant. This proposal enables Private Azure OpenAI / ChatGPT.**

- Scope:
  - Perform discovery on current Azure architecture and Azure firewall design
  - Define modified Azure architecture / firewall design for Azure OpenAI
  - Deploy Azure OpenAI instance within your Azure tenant
  - Facilitate Azure / Power Platform / Teams integration with Azure Open AI
  - Validate Azure OpenAI deployment and enable organizational use
  - Provide recommendations re: firewall changes to limit public OpenAI / ChatGPT use
- Deliverables
  - Modified Azure architecture / network design
  - Deployed Azure OpenAI instance
  - Validated Integration and Access to Azure OpenAI
  - Knowledge Transfer and Next Step Recommendations



# Intelligent Data Hub

## Accelerate your path to analytics 10X through our Azure OpenAI powered Intelligent Data Hub!



### PROBLEM

- Traditional analytic projects require significant effort to model, map, and pipeline data to achieve analytic outcomes
- Data is often silo'd and requires heavy manual effort to integrate and achieve analytic value
- Solutions have high technical debt and require large teams to maintain and enhance
- Analysts struggle to find relevant KPI's and deep insights from available data



### AZURE OPENAI ACCELERATION

- Identifies relevant source system entities
- Generates industry aligned curated model
- Maps source system attributes to curated model
- Determines high value measures / queries from model



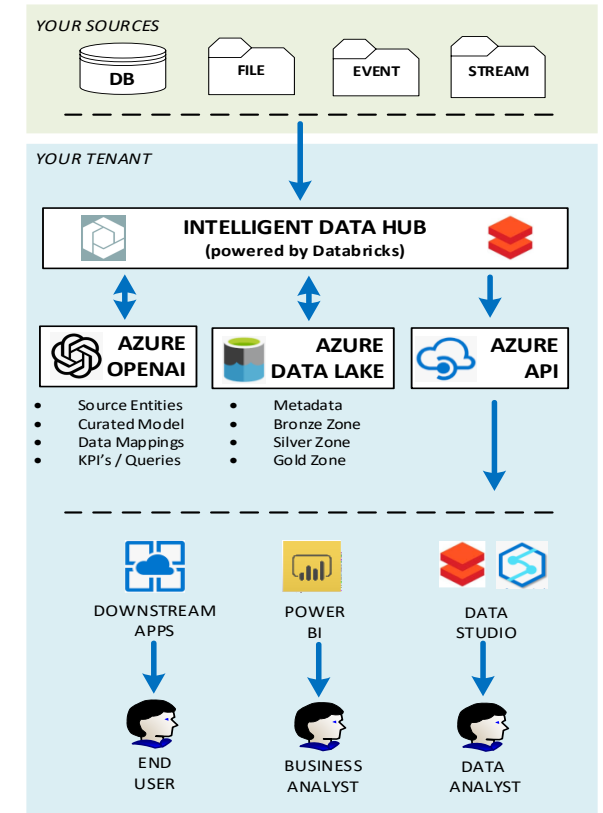
### SOLUTION

- Automate the path to value through our Intelligent Data Hub, powered by Azure OpenAI, via four steps:
  1. Register your industry and data sources
  2. Run the Intelligent Data Hub engine in your tenant and schedule pipeline automation
  3. Realize immediate value from Azure OpenAI driven curated / provisioned data
  4. Customize / enhance outcomes



### INTELLIGENT DATA HUB

- Handles all interactions with Azure OpenAI
- Interprets Azure OpenAI content into data model, mappings, pipelines, measures, and queries
- Serves curated and provisioned data
- Facilitates access thru API's for Power BI etc.
- **Achieves 5X cost saving for analytic outcomes**



- Supports any industry
- Health / Insurance demo's ready
- 4w pilot implementation



# Intelligent Search Platform

**Achieve >50% improved insights from unstructured data thru our Azure OpenAI powered Intelligent Search Platform!**



## PROBLEM

- Organizations have significant unstructured data footprints which contain valuable insights
- These insights are not being realized due to difficulty searching and locating relevant data
- Traditional search mechanisms require exacting search criteria to locate relevant data, often leading to missed insights
- Traditional search mechanisms lack context, are noisy, and fail to understand relationships



## AZURE OPENAI ACCELERATION

- Leverages ChatGPT knowledge repository
- Enhanced thru Adastra's context repository
- Enables human like conversations leading to targeted, contextual, aligned search results
- All customer specific content is stored and secured within the customer's Azure tenant



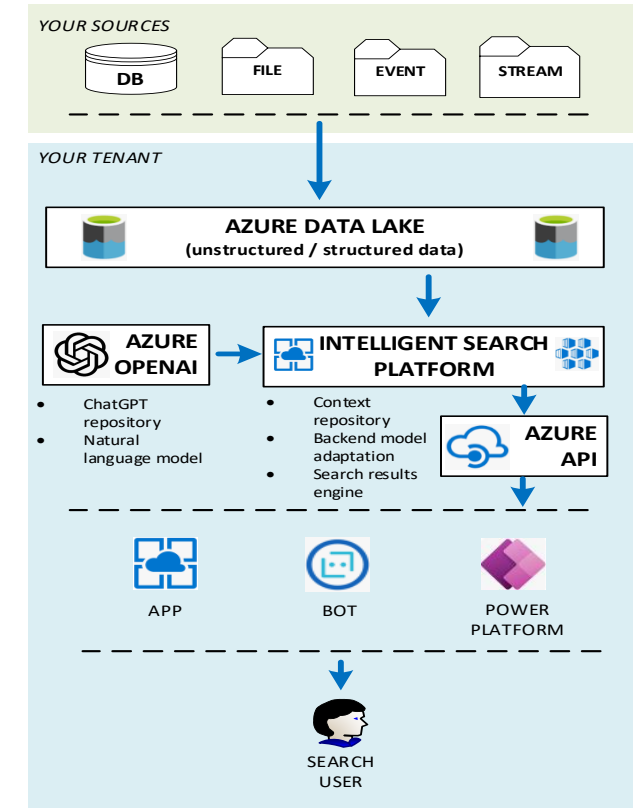
## SOLUTION

- Improve unstructured data search outcomes using our Intelligent Search Platform, powered by Azure OpenAI, thru four simple steps
  1. Consolidate unstructured data in Azure
  2. Deploy Intelligent Search Platform and connect with the Azure OpenAI service
  3. Enhance with contextual content and pretrain search platform from context
  4. Deploy search api / web / app / bot



## USE CASES

- Improve search relevance from document libraries for customers (manuals, standards, ...)
- Leverage EDI event history to drive improved negotiations with suppliers
- Contextual search to locate Bill 64 / C-27 exposure, risk, and mitigation
- Improve user experience thru natural language



- Supports any industry
- Demo solution ready
- 2w pilot implementation



# Intelligent Bot Platform

**Achieve >50% improved bot automation success thru our Azure OpenAI powered Intelligent Bot Platform!**



## PROBLEM

- Traditional chat bots are not natural language and contextual; they force users down paths
- This leads to low bot success rates and requires significant live agent engagement
- The bot user experience is often frustrating, with users feeling less effectively served
- As a result, expected cost reduction and user experience benefits from bot solutions are not being achieved



## AZURE OPENAI ACCELERATION

- Leverages ChatGPT knowledge repository
- Enhanced thru Adastra's context repository
- Enables human like conversations leading to targeted, contextual, aligned bot journeys
- All customer specific content is stored and secured within the customer's Azure tenant



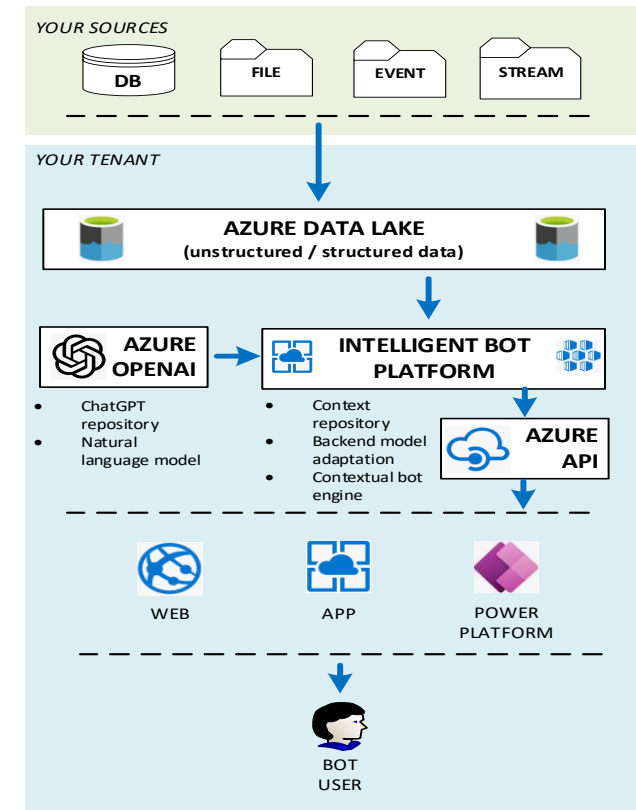
## SOLUTION

- Improve bot automation outcomes using our Intelligent Bot Platform, powered by Azure OpenAI, thru four simple steps:
  1. Consolidate bot training data in Azure
  2. Deploy Intelligent Bot Platform and connect with the Azure OpenAI service
  3. Enhance with contextual content and pretrain bot platform from context
  4. Integrate bot with web / app platform



## USE CASES

- Improved customer support automation
- Improved customer scheduling automation
- Improved customer Q&A experience
- Improved internal help desk support
- ...



- Supports any industry
- Demo solution ready
- 2w pilot implementation



# Intelligent Content Creator

**Reduce content generation effort 5X through our Azure OpenAI powered Intelligent Content Creator!**



## PROBLEM

- Generation of targeted sales and marketing context, for specific customers, requires significant continuous effort
- Content must be continuously altered for new customer context and product capability
- Therefore sales and marketing content tends to be generic rather than highly targeted, or requires significant effort to make targeted



## SOLUTION

- Improve content generation outcomes using our Intelligent Content Generator, powered by Azure OpenAI, thru four simple steps:
  1. Consolidate customer / product data
  2. Deploy Intelligent Content Generator and connect with the Azure OpenAI service
  3. Enhance with contextual content and pretrain content generation models
  4. Integrate results with web / app platforms



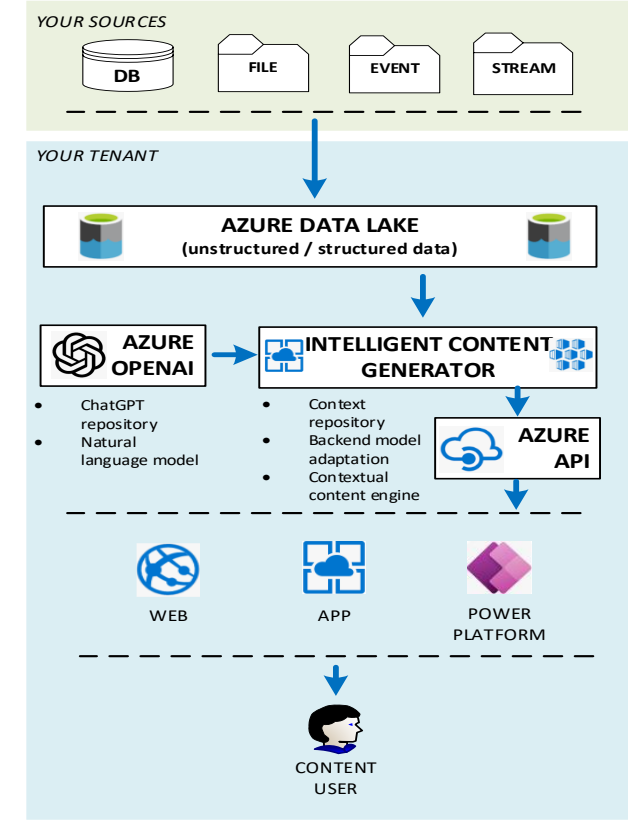
## AZURE OPENAI ACCELERATION

- Leverages ChatGPT knowledge repository
- Enhanced thru Adastra's context repository
- Thru human like conversations, generates contextual and targeted collateral
- All customer specific content is stored and secured within the customer's Azure tenant



## USE CASES

- Combine industry opportunity context with latest product context to generate industry aligned marketing materials
- Combine customer opportunity context with latest product context to generate opportunity aligned sales materials
- Quickly pivot collateral for new product launch



- Supports any industry
- Demo solution ready
- 2w pilot implementation





# Adastra's Azure OpenAI Offers

Offer	Summary	Description	Industry	Examples
Intelligent Data Hub	Enabling analytics from enterprise data usually requires significant effort. Through Adastra's Intelligent Data Hub, powered by Azure Databricks and Azure OpenAI, quick launch Azure analytics in days.	Accelerate analytic outcomes 10X via Azure OpenAI automation and our Intelligent Data Hub, which automatically source, models, maps, and kpi's your data. Reduce TCO for analytics by 5X.	Any	Bank Return on Assets Insurance Exposure Energy Consumption Manufacturing OEE
Intelligent Search Platform	Insights from unstructured data are difficult to achieve. Through Adastra's Intelligent Search Platform, enable immediate insights and strategic value from unstructured data.	Improve insights from unstructured data >75% via Azure OpenAI and Adastra's contextual search, to effectively leverage one of your richest but untapped data sources.	Any	Locating content. Supplier negotiations. Regulatory exposure. Right to be forgotten.
Intelligent Bot Platform	Traditional bot solutions are high effort to implement and create a frustrating user experience. Through Adastra's Intelligent Bot Platform, implement a low effort / high experience bot solution.	Improve user experience and bot success rates >50% via Azure OpenAI and Adastra's contextual augmentation, improving user experience via a natural language bot, and reducing overall support / FTE costs.	Any	Internal support desk. Customer help desk. Customer scheduling agent.
Intelligent Content Creator	Creation of customer specific sales collateral is high effort. Through Adastra's Intelligent Content Creator, automate content creation using your CRM / Product context, to improve opportunity outcomes.	Generate targeted sales and marketing content 5X faster, drive higher sales close rates, and reduce overall content generation costs, using Azure OpenAI and Adastra's contextual content generation.	Any	Marketing motion content. Targeted customer content. Pivot for new products. Pivot for new industry priorities.



# What is Azure OpenAI and ChatGPT?

Rapid ROI Opportunities  
& Potential Use Cases



# ChatGPT Introduction

- 1. State-of-the-art language model:** ChatGPT is a large language model based on the GPT-3.5 architecture, which is considered to be one of the most advanced models for natural language processing.
- 2. Trained by OpenAI:** ChatGPT was developed and trained by OpenAI, a leading research organization in the field of artificial intelligence and machine learning.
- 3. Versatile communication tool:** ChatGPT can be used for a wide range of applications, including chatbots, virtual assistants, and automated customer support systems.
- 4. Constantly learning and evolving:** ChatGPT is a machine learning model that continuously learns and improves over time as it processes more data and receives feedback from users.
- 5. Human-like conversations:** ChatGPT's advanced natural language processing capabilities allow it to engage in human-like conversations and understand the nuances of language.





# Microsoft OpenAI Service



Large, pretrained AI models to unlock new scenarios



Custom AI models fine-tuned with your data and hyperparameters



Built-in features to help ensure you're using AI responsibly



Enterprise-grade security with role-based access control (RBAC) and private networks

- ChatGPT has a great repository of general knowledge and can handle many general QNA requests
- However, to make ChatGPT better, **Microsoft OpenAI Service** provides the flexibility to adapt the backend models that support ChatGPT with *contextually-relevant content*
- In this way, users can receive relevant answers to their prompts without having to provide as much context when phrasing questions
- This **improves efficiency and response effectiveness** as it can provide greater alignment to business strategy / goals



# High-Valued Domains

Rapid ROI Opportunities  
& Potential Use Cases



## Microsoft OpenAI Service

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**Making ChatGPT Better**  
through adapted training  
processes

**Responsible AI application**  
through content management  
system which identifies misuse  
and harmful content

**Secure Mission Critical  
Workloads** by running on the  
Azure global infrastructure to  
meet your production needs,  
such as critical enterprise  
security, compliance, and  
regional availability



### Content Management

- Generating effective and creative responses to a broad range of topics
- Creating relevant content to specific business domains through custom retraining



### Workforce Training

- Streamlining worker efficiency by creating templated answers for numerous development tasks
- Building contextually-aware search indexes against relevant internal content



### Improving Efficiency

- Microsoft OpenAI service can support generating a lot of templated content
- Provides flexibility to review and assess materials produced



# Content Creation / Management

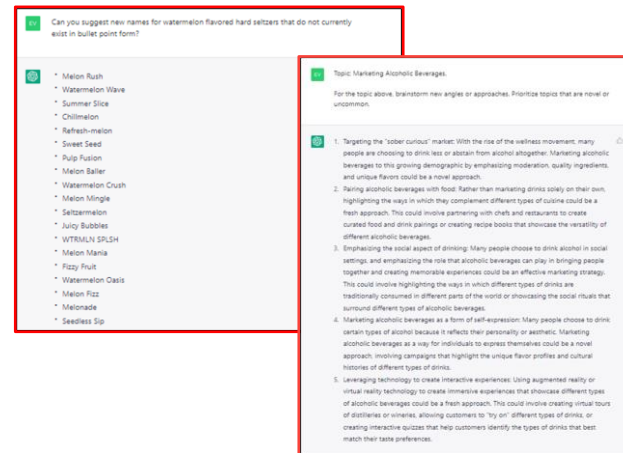
## BACKGROUND

ChatGPT can help with content creation by suggesting new topics, headlines, and outlines. It can also assist with content optimization by providing insights on readability, tone, grammar, and SEO best practices. For content management, ChatGPT can help writers organize their content and plan their editorial calendar, as well as suggest the best times to publish and identify areas for improvement. By analyzing data on content performance and engagement, ChatGPT can also help writers make data-driven decisions about their content strategy. Overall, ChatGPT is a valuable tool for writers looking to improve their content creation and management processes.

## POTENTIAL USE CASES

The following are some of the relevant use cases that Microsoft's OpenAI Service can be used for:

1. **Brainstorming**
2. **FAQ Creation**
3. **Generative Specifications**
4. **Search Engine Optimization**
5. **Email Generation & Campaigns**



## IMPACTS

- Has the ability to assist in brainstorming by providing prompts and inspiration to get the creative process started
- In FAQ creation, ChatGPT can process provided information and rephrase it in a human-friendly way
- Summarization of information in FAQ can provide shorter and more concise answers
- Search Engine Optimization through:
  - Content creation
  - Keywords research and analysis
  - Content strategy development
  - Better understanding of search intention
  - Generation good SEO titles
  - Composing and managing analytics reports through code generation



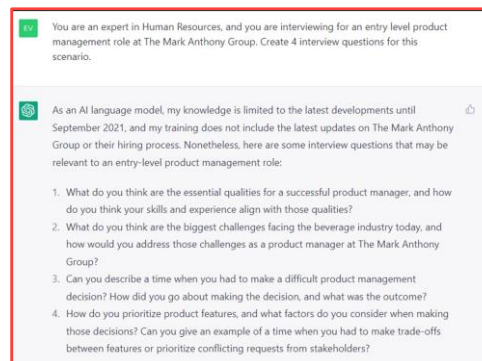
## BACKGROUND

ChatGPT can create personalized learning experiences for individual employees based on their specific needs and learning styles. It can provide relevant content, such as training videos, documents, and interactive exercises, tailored to the employee's role and level of expertise. Employees can ask questions, seek clarification on topics, and receive instant feedback and guidance from ChatGPT. ChatGPT can provide assessments and feedback to employees to track their progress and identify areas for improvement. This can provide insights to managers and trainers about the effectiveness of the training program.

## POTENTIAL USE CASES

The following are some of the relevant use cases that Microsoft's OpenAI Service can be used for:

1. **Internal Knowledge Consolidation**
2. **Detailed Training Program Generation**
3. **Talent Acquisition / Management**
4. **Code Template Creation**
5. **Natural Language to Code**



## IMPACTS

- ChatGPT can help consolidate knowledge from multiple sources into a centralized, easily searchable database. It can extract relevant information from documents, emails, and other sources to create a comprehensive knowledge base.
- ChatGPT can assist in generating detailed training programs by analyzing data on employee performance and identifying skill gaps, then creating customized training plans with specific objectives and milestones to address those gaps.
- ChatGPT can assist with talent acquisition and management by providing insights and recommendations on candidate screening, job matching, and employee development based on an analysis of job descriptions, candidate resumes, and performance data
- ChatGPT can help with code template creation by suggesting code snippets and templates based on the specific programming language and task at hand, saving time and improving coding efficiency..





## BACKGROUND

ChatGPT offers several features to improve workplace efficiency, including automating repetitive tasks and providing instant responses to common questions. It can also assist with decision-making by analyzing data and help with workflow management through reminders and notifications. Additionally, it can support collaboration and knowledge-sharing through a centralized platform, improving overall productivity.

## POTENTIAL USE CASES

The following are some of the relevant use cases that Microsoft's OpenAI Service can be used for:

1. Code Documentation
2. Code Translation
3. Developer Template Generation
4. Content Review

With PIL, how can I make an array of images?

To create an array of images using the PIL library, you can use the 'Image' module's 'open()' function to open each image file, and then append the resulting 'Image' objects to a list. Here's an example code snippet:

```
from PIL import Image

# Define a list of image file names
image_files = ['image_001.png', 'image_002.png']

# Create an empty list to store the Image objects
images = []

# Loop over the image file names and open each image file
for filename in image_files:
    # Open the image file using the 'Image.open()' function
    image = Image.open(filename)
    # Append the Image object to the list
    images.append(image)
```

In this example, the 'Image.open()' function is used to open each image file in the list 'image\_files', and the resulting 'Image' object is appended to the list 'images'. After this loop completes, the 'images' list will contain one 'Image' object for each image file in the 'image\_files' list.

You can then use this list of 'Image' objects to perform various operations on the images, such as resizing or combining them.

I'd like to write code with the concurrent.futures module.

You can use the 'concurrent.futures' module in Python to simplify the process of opening multiple image files and processing them concurrently. Here's an example code snippet that uses the 'concurrent.futures' module to create a pool of 'Image' objects from multiple image files:

```
from concurrent.futures import ThreadPoolExecutor
from PIL import Image

# Define a list of image file names
image_files = ['image_001.png', 'image_002.png']

# Define a function to open an image file and return the Image object
def open_image(filename):
    return Image.open(filename)

# Create a ThreadPoolExecutor to process the image files concurrently
with ThreadPoolExecutor() as executor:
    # Submit the image files to the thread pool and store the Image objects in a list
    images = [executor.submit(open_image, filename) for filename in image_files]

# Get the Image objects from the completed future objects
images = [future.result() for future in images]
```

In this example, the 'ThreadPoolExecutor' class is used to create a pool of worker threads that will open the image files concurrently. The 'open\_image()' function is defined to take an image file name as an argument, open the file using the 'Image.open()' function, and return the resulting 'Image' object. The 'submit()' method is used to submit each image file to the thread pool for processing, and the resulting future objects are stored in a list called 'images'. The 'future.result()' method is used to retrieve the 'Image' object from each completed future object, and the resulting 'Image' objects are stored in a list called 'images'.

## IMPACTS

- Develop documentation by passing code to ChatGPT with a prompt which generates a markdown file documenting code
- ChatGPT can assist with code translation by using natural language processing and machine learning algorithms to analyze and translate code from one programming language to another, reducing the need for manual code rewrites and improving development efficiency.
- ChatGPT can help with developer template generation by analyzing code patterns and best practices, and providing pre-built templates for common programming tasks
- ChatGPT can help with content review by analyzing and proofreading documents, providing suggestions for improvement, and ensuring consistency in language and style



# Adastra's Value Proposition

## How We Can Support

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Data is the primary fuel for effective Microsoft OpenAI service implementations - Applying quality data for proper context learning is important.

For over 20 years, Adastra has been driving our customers forward leveraging Data & AI as a business enabler.



### Modern Architecture

- Enterprise architecture
- Cloud architecture
- Cloud computing



### Data Management

- DQ/MDM proficiency
- Proficient at generating quality and consistent data assets
- Used to fuel your OpenAI service contextually-relevant conversations



### Technical Proficiency

- Technical professionals that understand the foundational large language models fueling ChatGPT
- Ability to retrain the backend models to support contextually-aware search functionality
- Interface development expertise



### Application Modernization

- Improved scalability
- Enhanced security
- Increased efficiency
- Experience with designing and developing enterprise applications and visualizations



# Select Client Stories

Transformer-Based NLP Applications



# Large Standards Associated

## DOCUMENT SEARCH AND FAQ CHATBOTS

This client required the enablement of OpenAI services to support:

- 1) Intelligent search service for internal systems
- 2) Research engine service to external systems
- 3) Intelligent workflow for creating new documents through external search



### Solution

- The solution leverages Azure services (QNA maker, bot framework) and a retrain OpenAI Davinci model for intelligent context search.
- The chatbots can answer FAQs for common organization-related question, as well as make calls to custom APIs for intelligent search should an answer not be a FAQ.
- The user can specify which chatbot results are relevant to their input query for continuous refinement and updated confidence.
- Logging is implemented to store conversations where a user finds useful search results through the chatbot for use in downstream applications.
- Chatbots are integrated into custom web pages.

### Benefits

- The chatbot can access several sources for information, both general FAQ as well as custom responses through our customer GPT-enabled backend.
- The chatbot can guide the user to provide all relevant information needed to create a new document from their research results.
- The chatbot can prompt the user for a satisfaction rating and log one or multiple responses from the research results shown.
- The solution allows for a more guided search process, allowed users to spend less time finding the content they need from the organization's internal systems.



1 Technical Lead  
2 Data Scientists



2 months



# International Winery & Brewing Company

## SALES TRANSCRIPTION AND CONTENT GENERATION

This client required the use of OpenAI service to create sales and marketing content. The model required retraining for contextual awareness so that the sales transcripts could provide specific product information, as well as align to business strategies.



### Solution

- This solution leveraged OpenAI services to support the identification of sales transcription / phrasing to support sales representatives when approaching new or existing customers.
- By adapting the transformer model to understand the current context, information regarding what products are having effective sales cycles as well as aligning product proposition to business strategies such as “value-over-volume”.
- As a secondary use case, the aim will be to leverage ChatGPT technology to generate new content for promotional campaigns and product infographic sheets based on product descriptions and past infographics.

### Benefits

- This solution will significantly reduce the data collection and consolidation efforts that are required by sales representatives before positioning content to new and existing clients.
- The ability to align to business strategies will be a significant value-added of the custom trained model.



1 Technical Lead  
2 Data Scientists



8 weeks



# Large Pharmaceutical Client

## EVENT SUMMARIZATION AND EFFICACY ASSESSMENT

This client required us to build various NLP models to support the consolidation and summarization of healthcare professional responses to events. The also wanted a way to assess the effectiveness of the events based on the patient care area, date, and geographic region.

### Solution

- This solution leveraged an Azure Databrick instance and leveraged transformer-based models that were adapted and trained to this specific patient care context.
- The models consolidated and combined responses to optimize the summarization of information and deduplicate insights.
- An adapted net promoter score (NPS) approach was used to assess the effectiveness of the events given different patient care areas and geographic locations.
- This information was used to assess the effectiveness of the events and the event coordinators.

### Benefits

- The custom-trained models were able to support relevant insights based on the customer context.
- Transformer-based models was able to derive insights driving **~90% reduction in efforts** to review event feedback.
- The results were embedded in a PowerBI dashboard that offered the ability for the management staff to slice-and-dice the results using various filters.



1 Technical Lead  
1 Data Scientist



6 weeks



# Large Canadian Banking Client

## INTERNAL EMPLOYEE PERSONA IDENTIFICATION

This client required a means of identifying and automating the onboarding of their internal resources (both full-time and contractor staff). Leveraging custom-based transformer models, information was used to consolidate and combine access requirements and toolsets to support indexing and clustering of internal resources/employees.

### Solution

- This solution leveraged transformer-based models to index and transform employee access and toolsets.
- By adapting the training process to internal datasets, links could be generated between relevant similar toolsets that would have not been intuitive otherwise.
- Using unsupervised methods reduced the overhead of having to provision and align to existing personas, as well as overcoming some of the challenges around different workplans.
- The solution was able to automate the assignment of new resources to employee assignment.

### Benefits

- This solution was able to leverage transformer-based models to make contextually-aware choices based on new employee profiles / selected accesses and toolsets.
- Unsupervised cluster-based methods provide flexibility to generate new personas in real-time and assign users automatically to the persona groups.



1 Technical Lead  
1 Data Scientist



3 months