

UNLOCKING VARIED ANALYTICS AVENUE WITH MICROSOFT COPILOT STUDIO INTEGRATION WITH SNOWFLAKE

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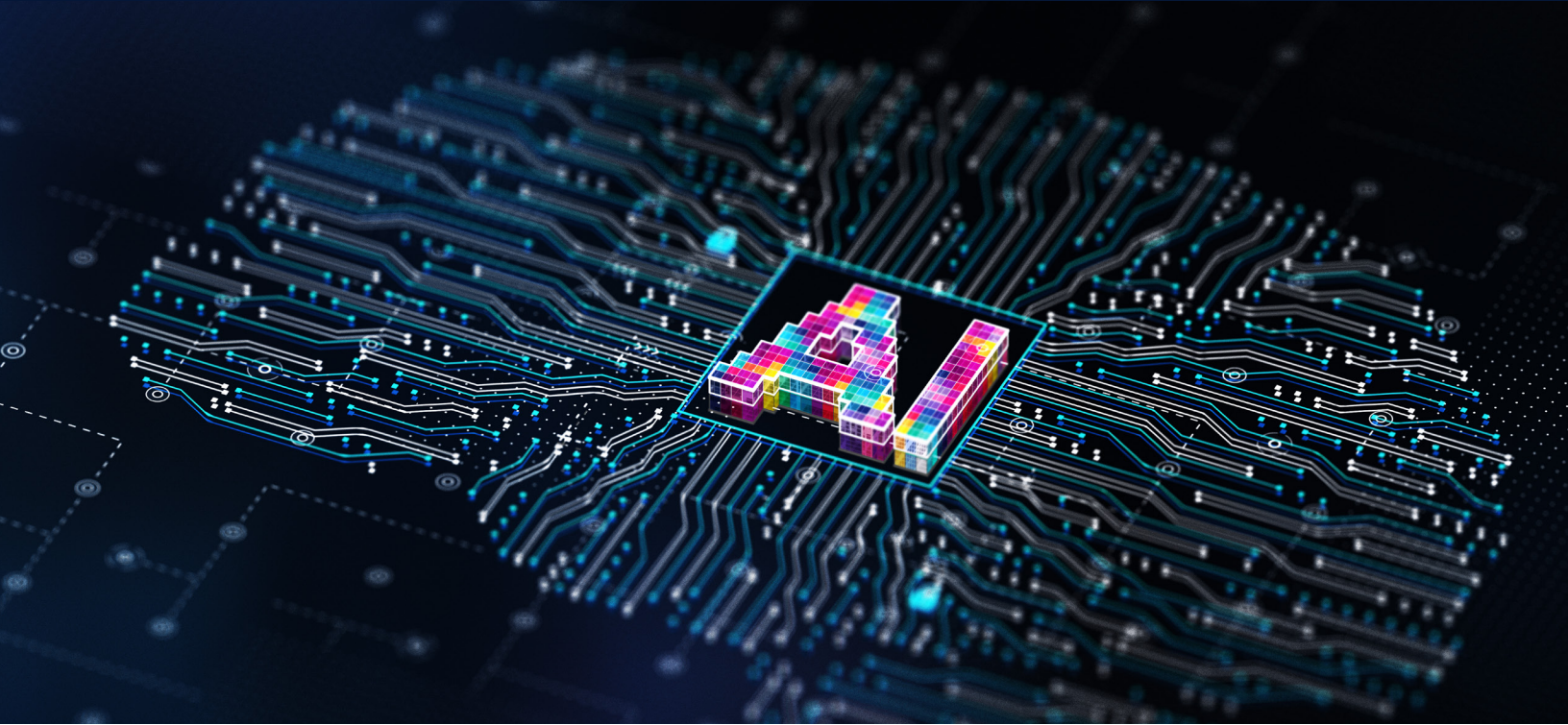


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 Microsoft 365

Introduction

Generative AI is positioned to revolutionize how tasks are accomplished, enhancing productivity and precision significantly. Its implications are becoming increasingly evident, as it has already begun to transform multiple sectors including the energy and utility sector, offering a paradigm shift in problem-solving approaches for the better.



The energy and utility sector heavily relies on data analytics for tasks like predictive maintenance and customer service personalization. However, extracting meaningful insights from structured and unstructured data stored in Snowflake, HANA databases can be cumbersome and require specialized skills. Traditional methods often involve writing complex queries, limiting accessibility for non-technical users. This can lead to:

- Limited access to insights: Valuable data remains untapped due to the technical barrier of complex data retrieval processes.
- Reliance on preconfigured reports: Access to only fixed set of information without flexibility.
- Inefficient customer service: Repetitive tasks and generic responses can hinder customer satisfaction.
- Delayed decision-making: Time-consuming data analysis impedes timely decision-making for executives.

With the advent of Microsoft Copilot Studio, coupled with its seamless integration capabilities with the low-code/no-code Power Platform and the robust infrastructure of Microsoft Azure, a plethora of opportunities arise for implementing generative AI solutions at a reduced cost. This presents a pathway to significant cost savings and exponential enhancements in productivity.

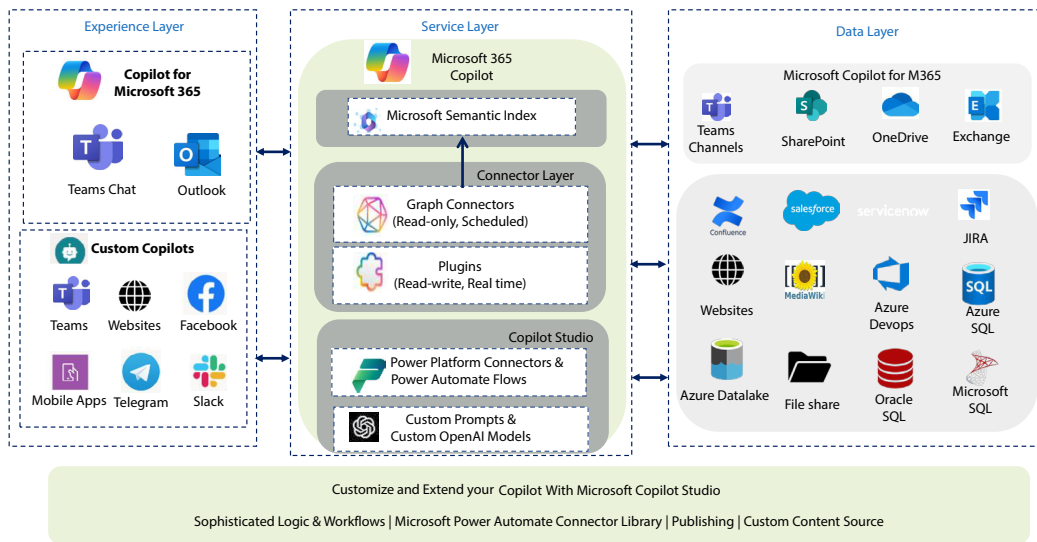
Infosys collaborated with a leading utility company in North America to conceptualize and construct personalized communication and service solutions for customer support. This endeavor harnesses the integration capabilities of Copilot Studio with Snowflake or HANA databases, facilitating comprehensive analysis of relevant customer, billing, and usage data.

This initiative aims to understand customer queries in natural languages and provide convincing reply related to billing details, energy-saving advice, and adept responses to inquiries regarding high billing concerns, ensuring enhanced customer satisfaction. This solution could be expanded to various executives, enabling them to furnish better decision making.



Microsoft Copilot for Microsoft 365 Extensibility Architecture

Organization may have additional data sources outside of Microsoft 365. To enable Copilot for Microsoft 365 to access and utilize data sources outside of Microsoft 365, Microsoft provides multiple options. The first option is the Graph Connectors, which allow developers to create custom connectors that integrate with the Microsoft Graph API and expose the data to Copilot for Microsoft 365 and other Microsoft 365 applications. Another way to extend Copilot for Microsoft 365 is by using Plugins, which can provide additional functionality, such as displaying custom content, performing actions, or interacting with users. Besides extending Copilot for Microsoft 365 with Graph Connectors and Plugins, organizations can also build their own custom copilots using the Microsoft Copilot Studio, which is a low-code/no-code platform that enables users to create and deploy AI-powered assistants using 1200+ Power Platform Connectors and Flows.



Architectural Framework: Integrating Microsoft Copilot Studio with Snowflake

The solution is cloud-based that uses Microsoft Copilot Studio, Azure OpenAI and Power Platform accessible through a web browser or capable to be integrated through plugins.

The objective of the solution is to address the following core issues:-

- **Empower Users:** Enable users with minimal technical expertise to explore data using natural language, fostering greater data utilization.
- **Seamless Integration:** Integrate seamlessly with existing data platforms like Snowflake for efficient data access and retrieval.
- **Streamline Workflows:** Automate tasks and data processing workflows using Power Automate to improve efficiency.
- **Reduce Development Costs:** Leverage low-code/no-code development tools like Copilot Studio to minimize reliance on specialized expertise and reduce development time.

The solution is built on top of a robust and scalable architecture that consists of the following components:

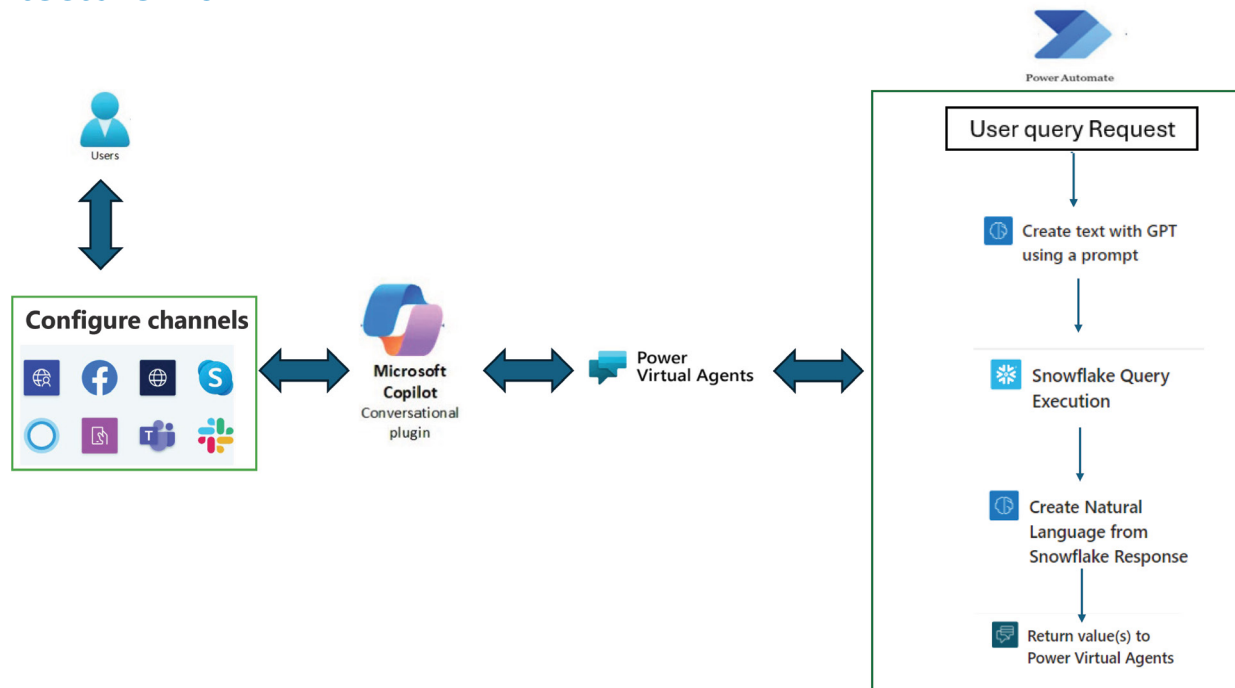
- **Data sources:** These are the various Snowflake databases that store the data that users want to analyze. They can be relational or non-relational and support different dialects of SQL. Users can connect to multiple data sources and switch between them easily.
- **Data catalog:** This is a metadata layer that provides a unified view of the data sources, by extracting and organizing information such as table names, column names, data types,

relationships, and constraints. It also enriches the data with business terms and synonyms, to make it more understandable and searchable for users.

- **Azure OpenAI:** This is a fully managed service allows to integrate with underlying Large Language Models (LLM) for natural language processing (NLP) and translates natural language queries into SQL queries, by leveraging the data catalog and various NLP techniques such as parsing, entity recognition, intent detection, query generation and generate intelligent result insights. These prompts enable the system to generate dynamic Snowflake queries from natural language user input and construct complex queries using few-shot learning, reducing the need for extensive training data.
- **Flow plugins:** Automate the flow of information between different components (like Azure OpenAI and Copilot) and user interactions. It ensures a smooth and efficient conversational experience.
- **Custom Copilot:** Provides user interface and framework to orchestrate between all the components while providing seamless integration with Power Platform. Enable foundation of the conversational interface where users initiate conversations by choosing a specific topic. Conversation nodes define the actions taken within a topic, such as asking clarifying questions, delivering information, or branching the conversation based on user responses.



Architecture Flow

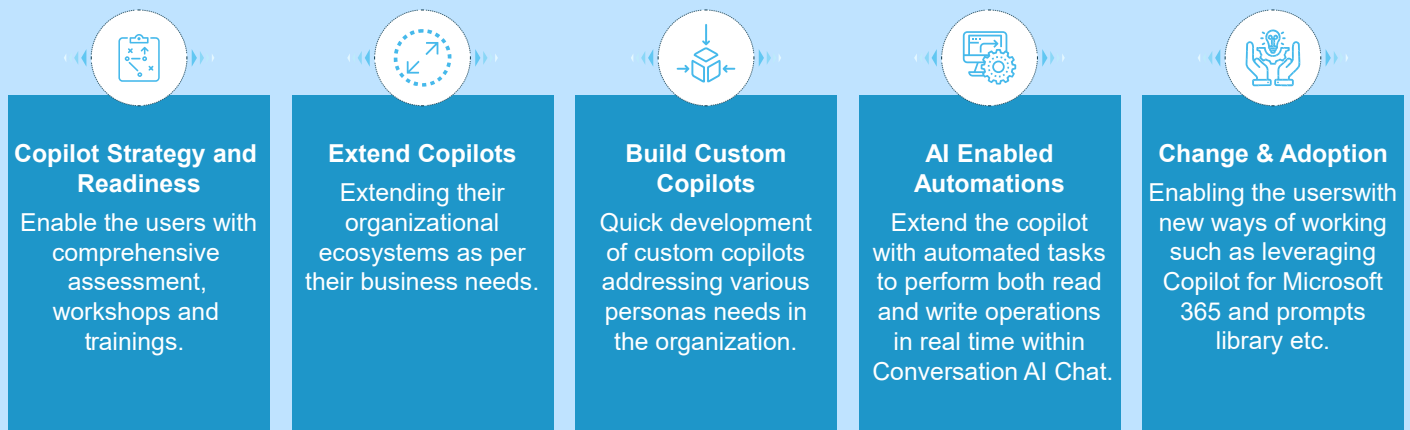


The key challenges faced during the above copilot extensibility solution include successfully identifying the keywords from the user's prompt relevant for retrieving the results from the backend database. The query complexity is based on the number of database tables and relations among the tables. Moreover, the data returned post the query execution also posed challenges with respect to summarization due to the token limit for each Azure OpenAI LLM completions request.

Infosys Offering for Microsoft Copilot

For the digital workplaces of today, harnessing the power of AI with Copilot for Microsoft 365 or Azure OpenAI requires a well-structured journey. Infosys Microsoft Practice helps organizations by offering a tailored journey from assessment to adoption, leveraging our curated Microsoft 365 readiness toolkit to help organizations to seamlessly integrate and scale their AI capabilities to drive innovation and efficiency.

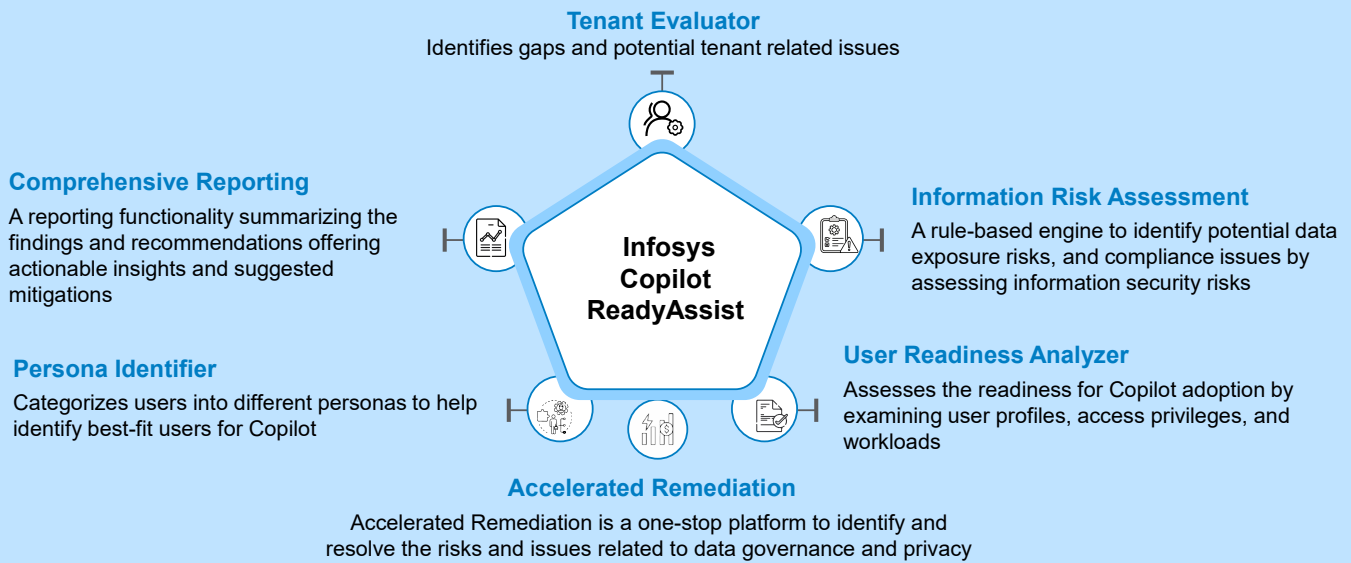
Copilot Extensibility also holds immense potential to revolutionize productivity, but building custom copilots can require technical expertise and an understanding of specific business needs. Infosys Microsoft Practice bridges the technical and business divide, delivering pre-built solutions and expert guidance to fast-track your AI journey.



INFOSYS COPILOT READYASSIST DIFFERENTIATORS

Infosys Copilot ReadyAssist Solution <i>for Enterprise Copilot Security & Readiness</i>	Infosys Copilot RAG Framework <i>for building efficient Retrieval Augmented Generation multi-agent systems through Copilot</i>
Infosys Business Copilot Navigate <i>for Rapid Adoption</i>	Art of Possible POCs <i>for Feasibility & Value Articulation</i>
Reusable plugin Frameworks, Prompt Library, Power Automate Plugins, Platform governance	

Infosys Copilot ReadyAssist has been built specifically to accelerate readiness, creating show and tell environment and enabling our teams to deliver these capabilities successfully.



Conclusion

The integration of Microsoft Copilot Studio with a data warehousing platform like Snowflake presents an array of opportunities to extend the solution across various executive domains, including marketing, sales, finance, manufacturing, and retail. This integration empowers executives across departments to make informed decisions, moving beyond reliance on static reports. It places the power of data analytics directly at the fingertips of executives, enabling them to access real-time insights and drive strategic initiatives with greater agility and precision.



Next steps

Take advantage of the Infosys and Microsoft collaboration to extend Copilot for Microsoft 365 to interact with your organization's line of business applications to boost employee's productivity.

For information on how Infosys can help to create holistic business value through experience-driven, secure, and future-ready solutions contact us at: [Modern Workplace](#)

Infosys Topaz is an AI-first set of services, solutions and platforms using generative AI technologies. It amplifies the potential of humans, enterprises and communities to create value. With 12,000+ AI use cases, 150+ pre-trained AI models, 10+ AI platforms steered by AI-first specialists and data strategists, and a 'responsible by design' approach, Infosys Topaz helps enterprises accelerate growth, unlock efficiencies at scale and build connected ecosystems.

For more information, contact askus@infosys.com



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