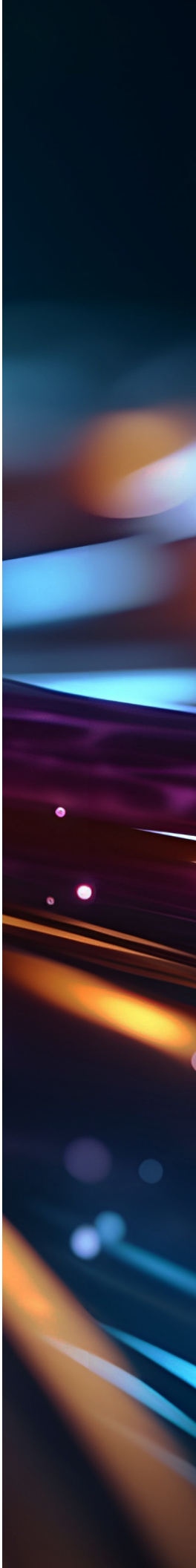
INVISO

Microsoft Copilot in Fabric and Power BI



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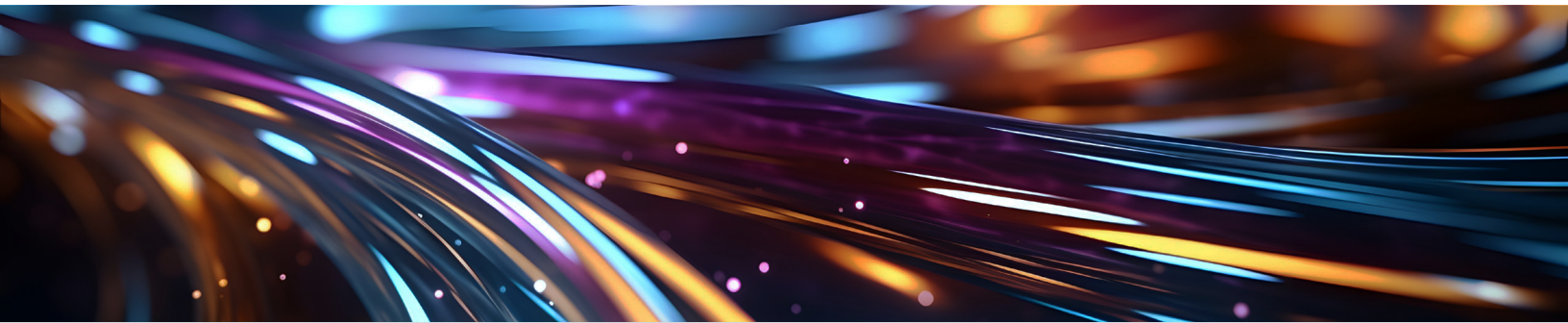
The evolution of data analytics and introduction of AI

Over the past decade, the proliferation of digital services—from social media platforms to ecommerce to healthcare systems—has led to an exponential surge in data generation. As data analytics platforms continued to evolve to process this vast amount of information, the industry implemented the concept of distributed compute and introduced Data Lakes/Lakehouses as an alternative to traditional data warehouses. With these advancements addressing challenges in data processing to a large extent, the development of data platforms such as Microsoft Synapse Analytics integrated with Power BI, capable of processing petabyte-scale data efficiently and building interactive visual reports, signaled a shift towards focusing on the next set of enhancements to the platform.

Microsoft Fabric, which is Microsoft's latest data platform, was made generally available in November 2023, and Inviso worked with Microsoft on Fabric as part of a private preview the year before its release. Our close involvement made clear that Microsoft had established a stable analytical platform focused not only on enhancing usage but also on making it integrated and easier to set up and manage. We also saw a renewed focus on democratizing data access, giving every persona within an organization, from business analysts to domain experts, the ability to explore and derive insights from the data without being hindered by technical complexities. Microsoft leveraged AI and ML technologies to build digital assistants which make it easy to understand data, derive insights, transform data, and generate reports.

We see many opportunities in these enhancements for our customers, as they open up data access to a wider audience within the organization and remove the dependency on technical resources, with the availability of no code and low code options for exploring the data and generating reports.



The role of AI and machine learning

To address the challenge of enabling all users to access, consume, and derive meaningful insights from the data, organizations are increasingly adopting artificial intelligence (AI) and machine learning (ML) services. These technologies not only enhance data analytics but also simplify data consumption.

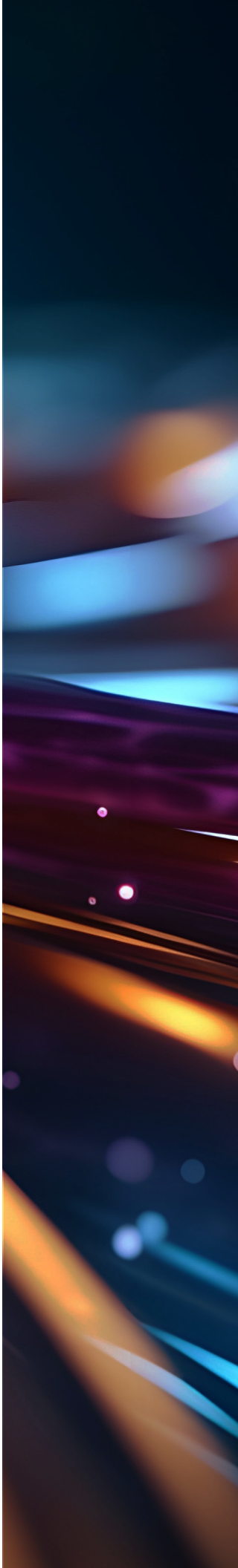
Key areas where AI and ML play a pivotal role include:

1. **Natural language processing (NLP):** AI-driven NLP allows users to interact with data using everyday language. Queries expressed in plain English make data exploration intuitive and accessible.
2. **Understanding data**: AI algorithms extract valuable information from various data sources, interpret it and explain it to us. This capability is essential for comprehensive data analysis.
3. **Automated report generation**: Copilot, Microsoft's AI-powered chatbot, generates insightful reports, summaries, and visualizations, saving time and effort for data professionals.

Microsoft Copilot: An AI-powered assistant

Microsoft has been at the forefront of AI innovation, and its Copilot service exemplifies this commitment. Initially released on February 7, 2023, Copilot is an AI companion built upon a large language model. Originally integrated into Microsoft Bing and Microsoft Edge, Copilot has since evolved into a universal interface that creates a unified experience across Microsoft apps and devices.

At the Microsoft Build 2023 conference, Microsoft announced its vision to integrate Copilot directly into **Windows 11**, allowing users seamless access. Since then, Microsoft has integrated Copilot into many of its services.



Copilot in Fabric

In November 2023, Microsoft unveiled **Copilot in Fabric** as part of a public preview. Fabric integrated with **Power BI** offers new avenues for data transformation, analysis, and visualization.

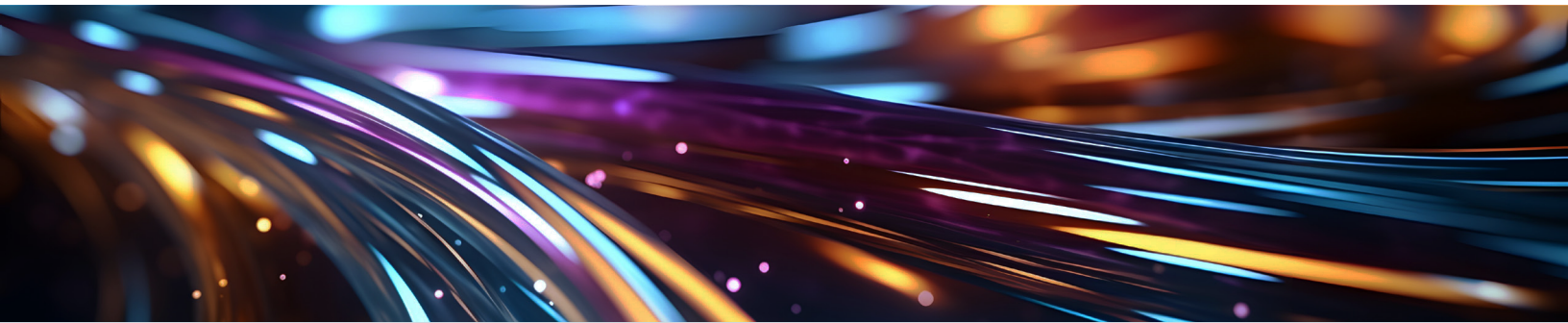
Key features include:

- **Data science and data engineering**: Copilot assists data professionals in complex tasks related to data science and engineering.
- **Visualizations and reports**: Copilot generates insightful visualizations and reports, empowering users to derive actionable insights.

The ultimate goal of Copilot in Fabric is to provide an improved and user-friendly way to work with data, bridging the gap between technical expertise and data accessibility.

To enable Copilot:

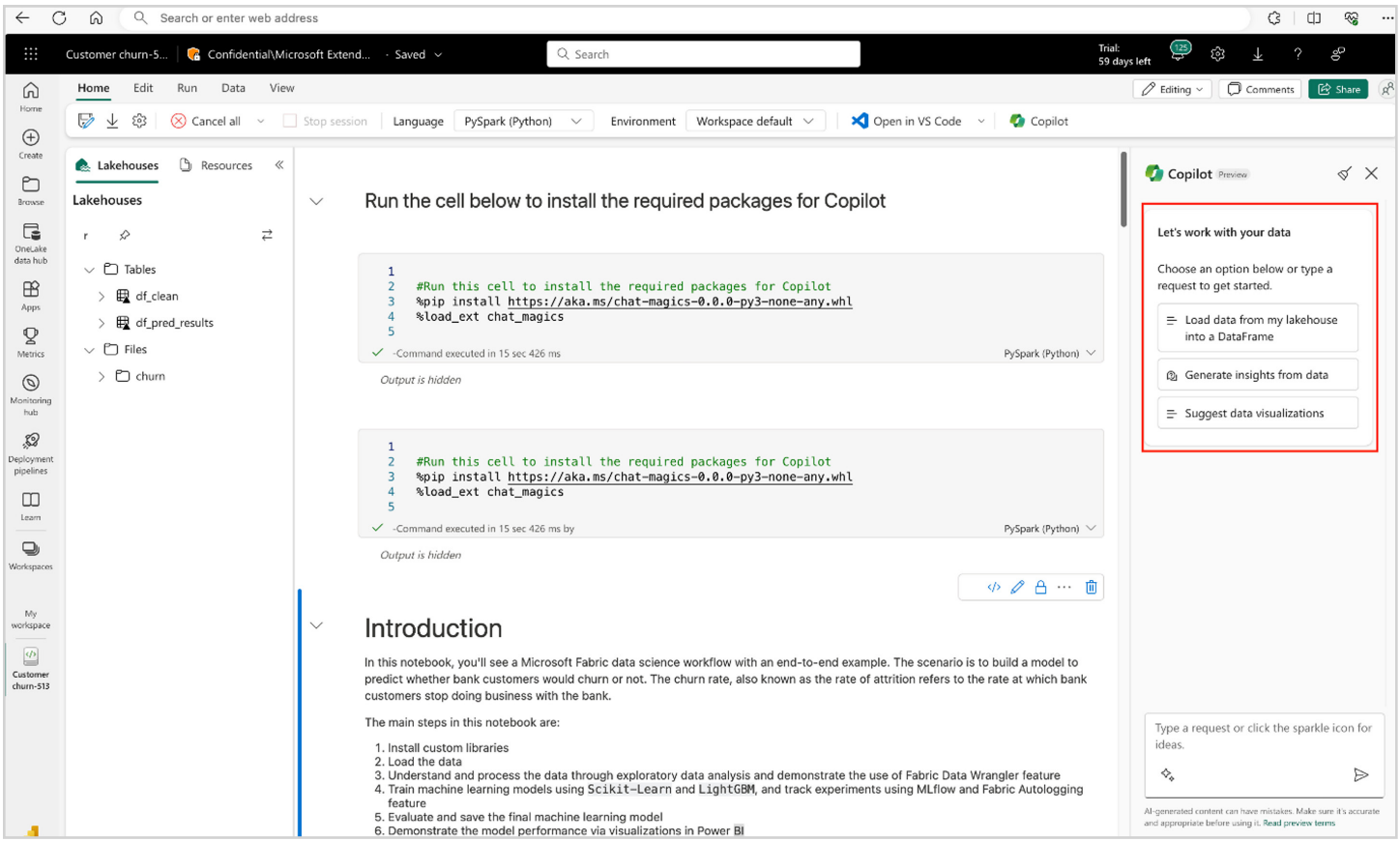
- Your administrator needs to enable the tenant switch in Microsoft Fabric.
- Ensure your F64 or P1 capacity is in one of the specified regions.
- Copilot is disabled by default for tenants or capacities outside the US or France unless explicitly enabled by the Fabric tenant admin.
- Note that Copilot is not supported on trial SKUs; only paid SKUs (F64 or higher, or P1 or higher) are supported.



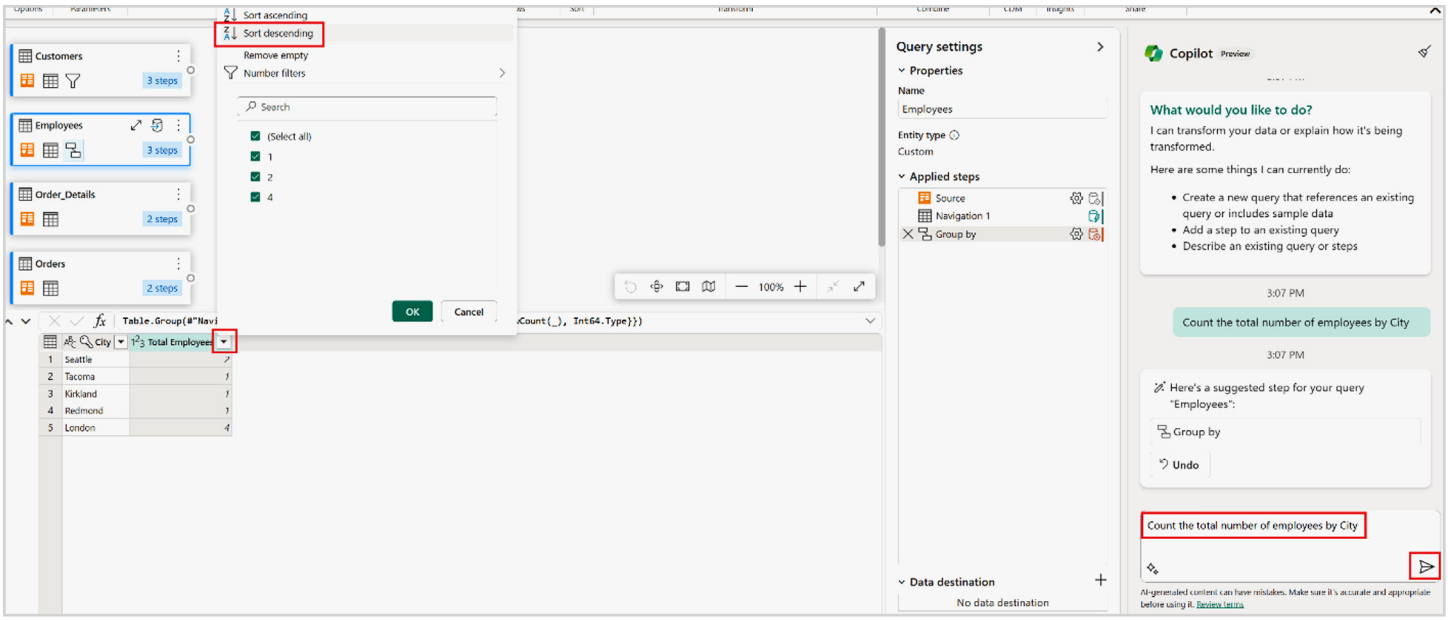
Copilot for Data Science and Data Engineering

Copilot for Data Science and Data Engineering is an AI assistant designed to enhance data professionals' workflows. Key aspects are listed below.

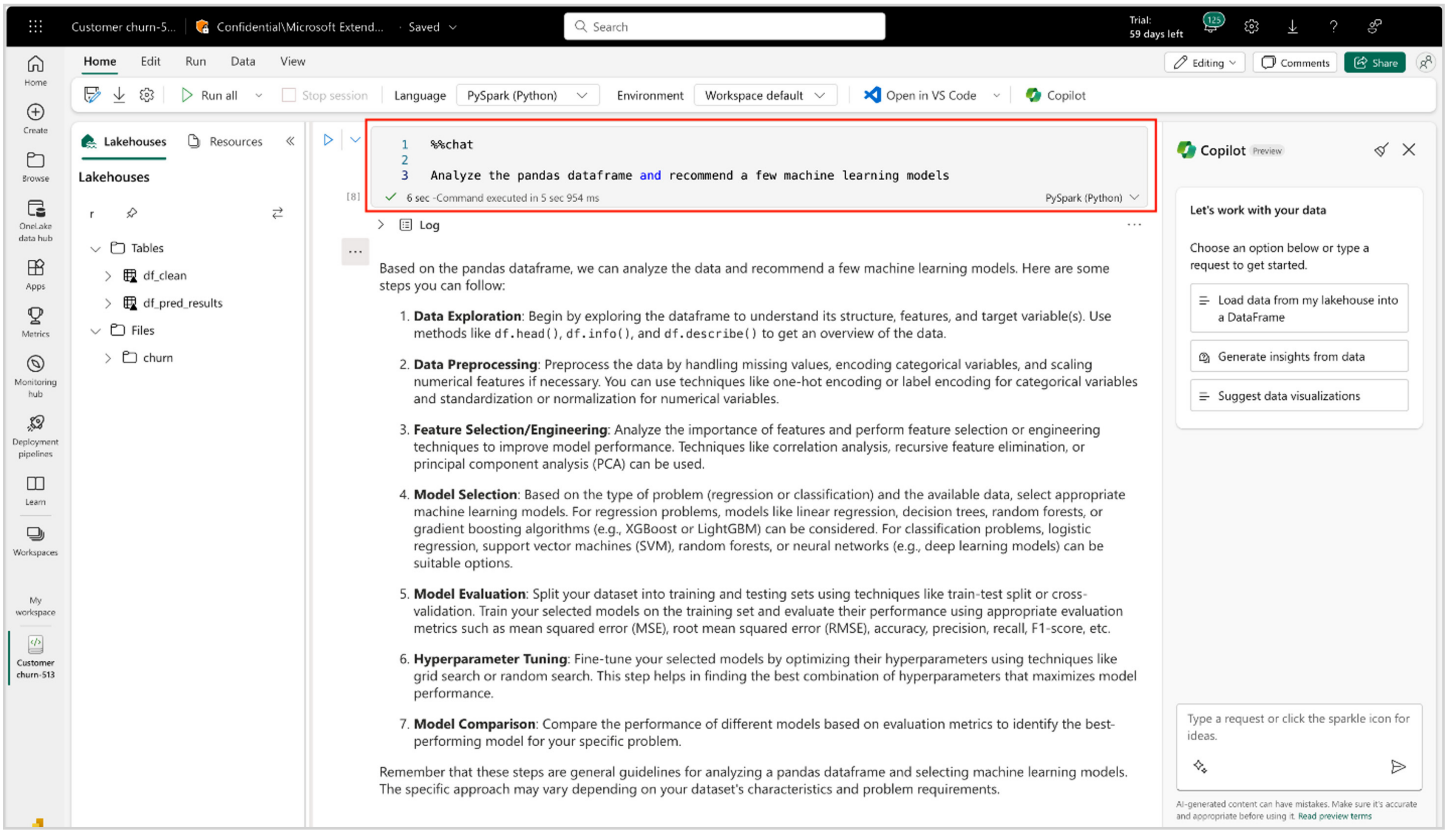
Versatility: Copilot within Data Engineering notebooks works seamlessly with various data sources, including Lakehouse tables, Power BI datasets, and Python/Spark dataframes.
It provides answers and code snippets directly within your notebook. You can easily add your data as a dataframe and use Copilot to gain insights from it.



Natural interaction: Copilot in Data Factory empowers customers to use natural language to articulate their requirements for creating data integration solutions using Dataflow Gen2.
You can then engage in a chat with Copilot, asking questions or seeking assistance.
The AI responds in natural language and/or provides relevant code snippets.



Data-specific insights: Copilot understands your data's schema and metadata. When data is loaded into a dataframe, it gains awareness of the data within the frame. You can ask Copilot to provide insights, create code for visualizations, assist with data transformations, or recommend machine learning models. As you use Copilot, you can also invoke the magic commands inside of a notebook cell to obtain output directly in the notebook. For example, for natural language answers to responses, you can ask questions using the "%%chat" or "%%code" command:



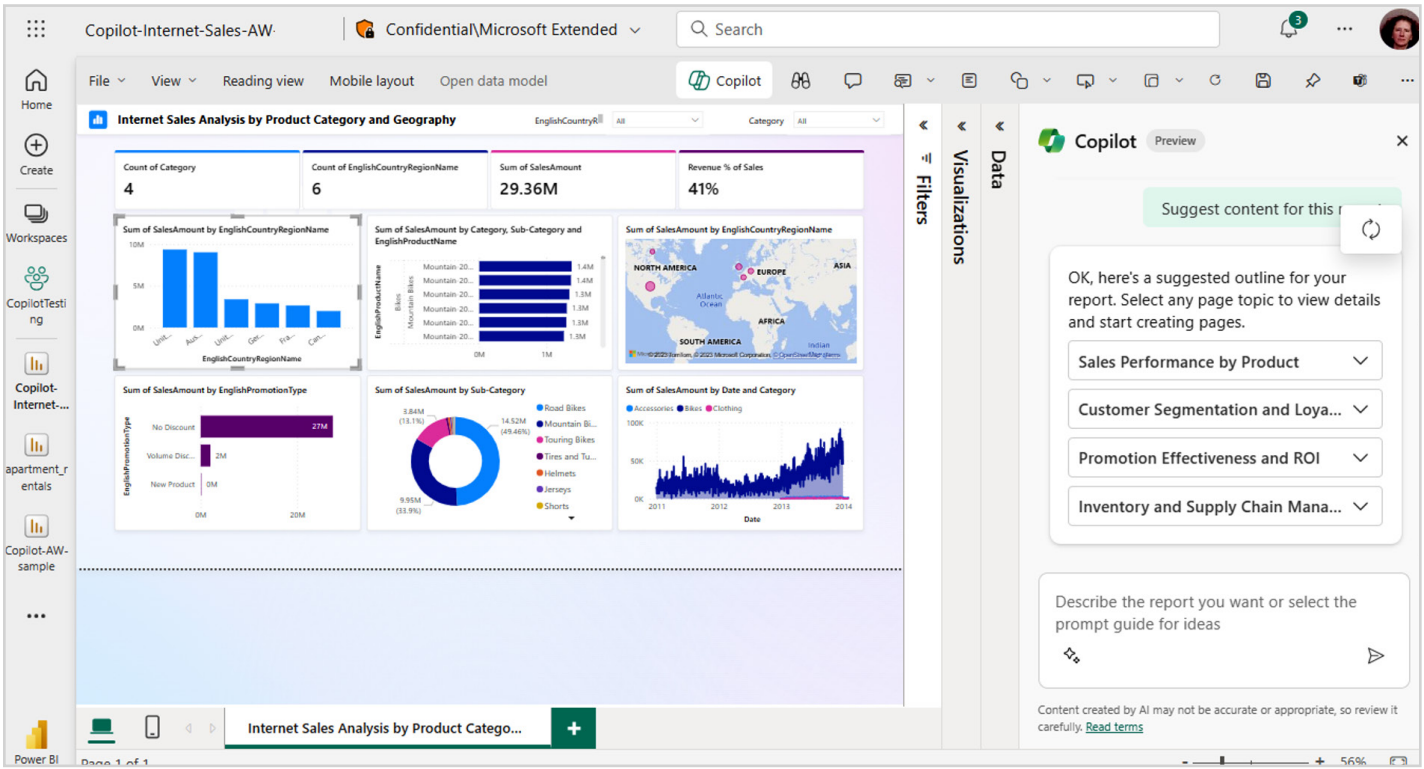
Thus, Copilot eliminates the need for complex coding, making data analysis more accessible and efficient.

Copilot in Power BI

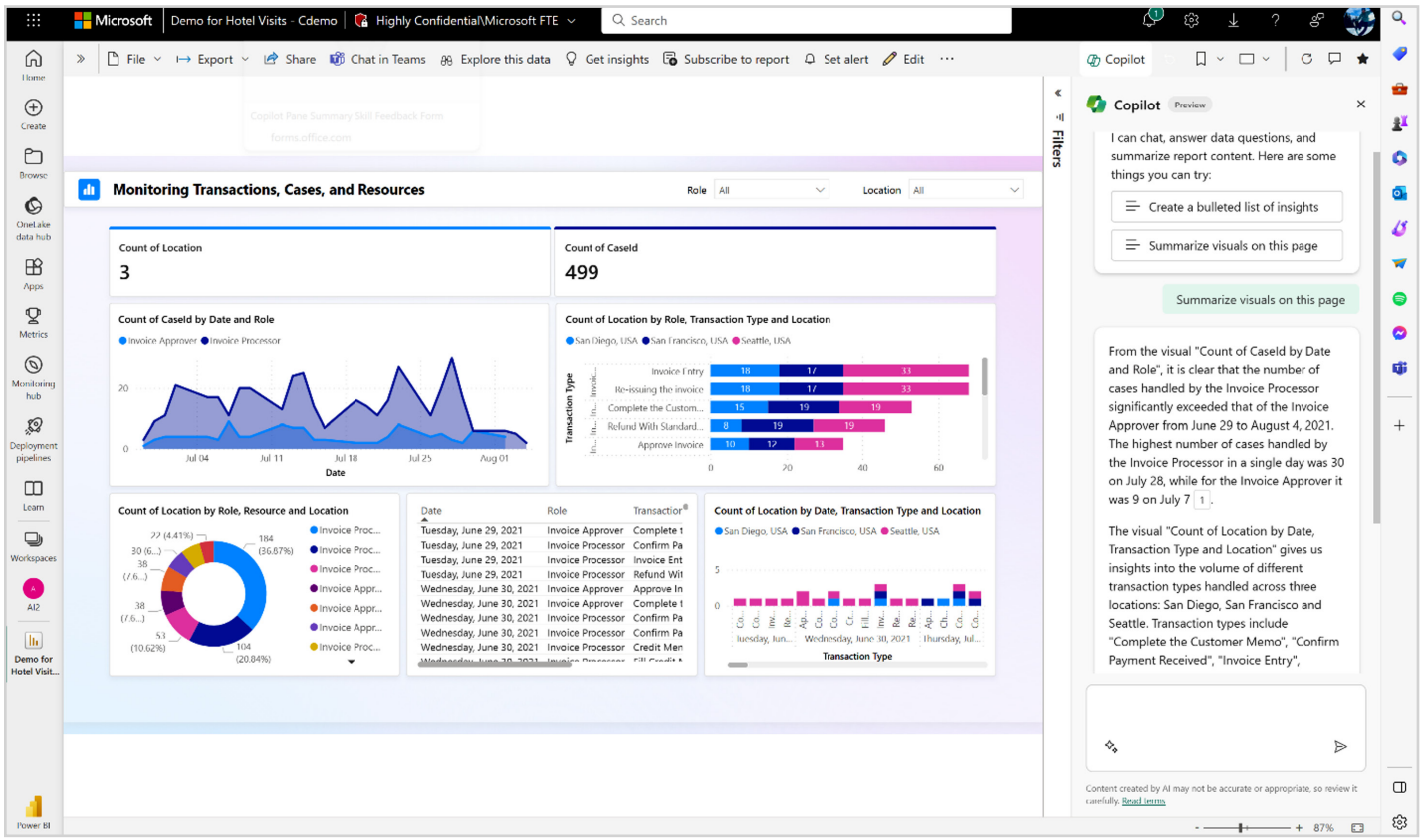
Copilot in Power BI serves as your AI assistant for data-driven decisions. It goes beyond traditional analytics by providing intelligent insights into your data and semantic structures. When working with Power BI datasets, Copilot can explain the meaning of specific fields, relationships between tables, and the significance of various measures. It helps users understand the semantic context of their data, making it easier to interpret and utilize in analytical tasks.

Whether you're building complex visualizations or crafting DAX expressions, Copilot's explanations enhance understanding and decision-making. Some examples:

1. **Automated report generation:**
   - Copilot streamlines report creation by providing suggestions.
   - Describe what you want and Copilot generates dashboards, charts, and narratives.
   - Speed the process of turning raw data into actionable insights.



2. **Natural language interaction:**
   - Copilot understands natural language queries.
   - You can describe the visuals, reports, or insights you need using plain language.
   - Copilot generates the necessary code, visualizations, or narratives, making data exploration more accessible.



3. **Coding assistance:**
   - Copilot DAX generation is a feature of Power BI Desktop that helps automatically generate DAX functions, custom measures and queries based on user requirements. For example, users can say “Give me the sales data by region and product category” and Copilot will generate the relevant DAX measures.

Security measures with Copilot in PowerBI

As with any new technology, while performance and ROI could be primary factors for consideration, clients need to evaluate if it offers all the security considerations that are needed in their existing environment. Microsoft has implemented common security elements to ensure data is handled safely in transit and when stored.

1. **Privacy and data protection:**
    - Copilot adheres to Microsoft's existing privacy, security, and compliance commitments for Microsoft 365 commercial customers.
    - It complies with regulations such as the General Data Protection Regulation (GDPR) and the European Union (EU) Data Boundary.
2. **Tenant settings and geographic boundaries:**
    - Copilot requires enabling the tenant switch by the administrator.
    - It operates within specific geographic regions, ensuring data stays within compliance boundaries. Data sent to Azure OpenAI is processed within the tenant's region.

Compliance with data governance standards

Another important aspect to consider is how the implementation of a new technology affects existing compliances and certifications. Fabric supports most of the modern compliance standards as listed below:

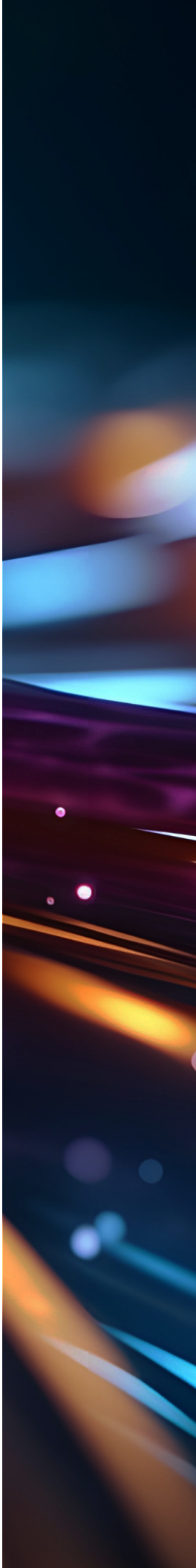
1. **ISO 27001, HIPAA, and GDPR:**
    - Power BI, including Copilot, complies with a wide range of international and industry-specific standards.
    - These include ISO 27001, HIPAA, and the General Data Protection Regulation (GDPR).
    - Microsoft's commitment to data security and privacy is reflected in these compliance measures.
2. **Commercial License Agreements:**
    - Commercial license agreements reinforce Copilot's governance.
    - The Microsoft Product Terms and the Data Protection Addendum lay down rules for using Copilot, ensuring compliance with legal standards.

In summary, Copilot in Power BI prioritizes privacy, security, and compliance, making it a reliable tool for data professionals while adhering to global standards.

Copilot in Power BI best practices

To improve results, take these best practices into account when using Copilot in Power BI:

1. **Understand your data.**
   - Before using Copilot, ensure you have a clear understanding of your data.
   - Define data sources, relationships, and business requirements.
   - Copilot works best when you provide context and specific prompts.
2. **Start with simple prompts.**
   - Begin with straightforward prompts to explore Copilot's capabilities.
   - Ask for basic visualizations or summaries to get familiar with the responses.
3. **Iterate and refine.**
   - Copilot provides starting points, but you can refine and customize the generated content.
   - Iterate by modifying visuals, narratives, and measures to align with your needs.
4. **Review generated content.**
   - Always review what Copilot generates.
   - Ensure accuracy, relevance, and alignment with your report objectives.
5. **Combine Copilot with manual edits.**
   - Copilot accelerates report creation, but manual adjustments are often necessary.
   - Use Copilot as a foundation and enhance it with your expertise.



Challenges and limitations of Copilot

While Copilot is an incredibly powerful tool, we have also experienced some limitations that should be kept in mind:

1. **Accuracy and quality assurance:**
   - **Challenge**: Copilot generates code and insights, but it's not completely failsafe.
   - **Recommendation**: Always review and verify Copilot's suggestions before using them in your projects. Human intelligence and creativity are still essential for complex or specific challenges.
2. **Learning curve and baseline knowledge:**
   - **Challenge**: Copilot simplifies tasks, but users should have a basic understanding of DAX (coding language), data modeling, and Power BI features.
   - **Recommendation**: Seek credible resources (blogs, videos, books) to build a solid foundation. Copilot can enhance your skills, but learning the concepts themselves is crucial.
3. **Specificity and context:**
   - **Challenge**: Copilot's responses depend on the context provided in prompts.
   - **Recommendation**: Be specific in your queries. Provide relevant context to get accurate results. Experiment with different phrasing to find optimal prompts.
4. **Throttling and GPU capacity:**
   - **Challenge**: Copilot may be throttled if too many requests are sent within a short time.
   - **Recommendation**: Be mindful of the rate of requests. Ensure you have sufficient GPU capacity for optimal performance.

In summary, we are very excited about the potential we see with Copilot in Fabric. It offers users AI-driven assistance in navigating and optimizing use of Fabric by providing intelligent recommendations, automating tasks, and enhancing the overall user experience with data-driven insights.

Need help?
You can rely on Inviso

If you have any questions or would like further information about optimal ways you could work with Copilot in Fabric, please reach out to us at info@invisocorp.com.

www.invisocorp.com

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