Generative AI for Advanced Data Analytics: Transforming Finance – Part 1

By Eric Cohen

Generative AI (GenAI) is a type of artificial intelligence that can create new content, such as text, images and code. In the realm of data analytics, GenAI is being used to automate tasks, generate insights and enhance decision making. Its ability to process and understand natural language makes it a powerful tool for finance professionals, enabling them to interact with data in more intuitive ways and extract valuable information more efficiently. The technology is rapidly evolving, with new applications and capabilities emerging regularly, promising to further transform the financial landscape. This is the first part of a series on this topic.

The landscape of data analytics is rapidly evolving, with generative AI (GenAI) emerging as a powerful force. This is particularly true in the finance sector, where professionals in accounting, audit, and tax are increasingly leveraging these technologies. While tools like Excel, Power BI, Tableau, and Alteryx have long been the stalwarts of financial data analysis, GenAI is beginning to carve out its own niche, offering new possibilities and efficiencies.

The Blurring Lines: AI in Analytics, Analytics in AI

As I pointed out in previous blogs, the convergence of AI, apps, platform and analytics is a key theme I am following. We're seeing "analytics in AI" with GenAI tools gaining analytical capabilities, and "AI in analytics" as traditional platforms like Alteryx, Tableau and Power BI integrate AI features. This reciprocal relationship is driving rapid innovation and expanding the toolkit for finance professionals. This convergence implies that finance professionals will increasingly need to be conversant in both traditional analytics tools and emerging GenAI technologies, blurring the lines between data analyst, business user and AI specialist. With Zoom adding Robotic Process Automation (RPA) in the form of Zoom Workflows, working with both Zoom and third-party applications, the convergence broadens.

Traditional Tools and Their Strengths

For many accountants, Excel remains the go-to tool for data manipulation, review and visualization. Its familiarity and versatility make it a powerful asset. Microsoft has expanded its analytics offerings with Power Query and Power BI, enabling more sophisticated data transformation and visualization. Power Query, for instance, allows users to extract, transform and load data from various sources, preparing it for analysis in Excel or Power BI. Power BI then provides a platform for creating interactive dashboards and reports, enabling users to gain deeper insights from their data.

For advanced analytics, tools such as Alteryx and the lesser known Knime provide robust platforms for data blending, predictive analytics and automation. Alteryx, with its visual workflow approach, allows users to design and execute complex analytical processes without writing code. Knime, an open-source platform, offers a similar visual workflow environment with a strong emphasis on data integration and machine learning. These tools empower finance professionals to tackle more sophisticated analytical challenges, such as forecasting financial performance, assessing risk and detecting fraud.

Visualization tools like Tableau and Qlik offer interactive dashboards and reports, facilitating collaboration and communication of insights. Tableau's strength lies in its ability to create

visually appealing and interactive dashboards that allow users to explore data and uncover hidden patterns. Qlik, with its associative engine, enables users to explore the relationships between data points in a non-linear fashion. These tools are crucial for communicating complex financial information to stakeholders, enabling them to make informed decisions.

These traditional tools excel in their specific domains:

- Excel: Versatile for quick data manipulation, calculations, and basic analysis.
- Power BI: Strong for business intelligence, interactive dashboards and reporting within the Microsoft ecosystem.
- Tableau: Excels in data visualization, exploration and storytelling, with robust collaboration features.
- Alteryx/Knime: Powerful for data blending, complex transformations and workflow automation.

The Rise of Generative AI in Analytics

The emergence of GenAI is changing the game., however. Solutions such as ChatGPT, Gemini and Claude are adding advanced analytics capabilities to their platforms.

- **Gemini:** Google's Gemini, with its Data Science agent in Colab, allows users to upload files and perform complex analyses through natural language prompts. This agentic approach streamlines the analytical process, making it more accessible to users with varying levels of technical expertise. As I have demonstrated in my LinkedIn posts, the agentic nature of Gemini in Colab is noteworthy, as it outlines its plan (load, explore, filter, analyze, visualize, summarize), writes code, reasons about its execution and delivers a summary. I also highlighted its ability to work with various file types, including Excel spreadsheets (after some initial processing). Gemini's ability to provide a clear roadmap of its analytical process enhances user trust and understanding, making it easier for them to follow the logic behind the results.
- **Claude:** Anthropic's Claude offers a user-friendly experience for data analysis, simplifying the process of extracting insights from data. I've highlighted Claude's strength with “Artifacts,” in providing both a Code and Preview view, enabling quick and painless results, especially with smaller datasets, and the ease of sharing artifacts. The dual Code and Preview functionality is particularly valuable for finance professionals who need to both understand the underlying logic of the analysis (Code) and quickly grasp the results (Preview). This facilitates a more efficient and transparent analytical workflow. (It should be noted that Gemini has, at the time of this writing, just introduced its own counterpart to Claude Artifacts and ChatGPT, somewhat confusingly also called Canvas. Like Claude, you can preview many types of code within the Gemini Canvas.)
- **ChatGPT:** OpenAI's ChatGPT, particularly with its Advanced Data Analysis (formerly Code Interpreter) feature, empowers users to analyze data, generate visualizations, and even

write and execute code (primarily Python) within the chat interface. My experience with ChatGPT highlights the evolving nature of these platforms, with capabilities varying across models and interfaces. The ability to execute code within the chat interface represents a significant step forward in making data analysis more interactive and accessible.

These GenAI tools are breaking down the barriers to advanced analytics by:

- **Enabling natural language queries:** Users can ask questions about their data in plain English and receive meaningful answers and visualizations. This natural language interface makes data analysis more accessible to a wider audience, including those without extensive technical skills. For example, a financial analyst could ask a GenAI tool, "What were our top-performing products in the last quarter?" and receive a clear, concise answer, along with supporting visualizations.
- **Automating code generation:** GenAI can write the necessary code (e.g., Python) to perform complex analyses and create visualizations, eliminating the need for users to be proficient programmers. This automation not only saves time but also reduces the risk of errors associated with manual coding. By generating code, GenAI tools also provide a valuable learning opportunity for users who want to improve their programming skills.
- **Providing contextual insights:** Some GenAI tools can offer domain-specific feedback and interpretations of the data, enhancing the user's understanding. This is particularly valuable in finance, where data needs to be interpreted within the context of accounting principles, regulatory requirements, and business objectives. For instance, a GenAI tool might not only identify a trend in revenue growth but also explain the factors that are likely driving that trend, such as changes in market conditions or pricing strategies.

Part 2, to follow very soon, will have a look at some examples of GenAI in Action, as well as a discussion of when to use what.