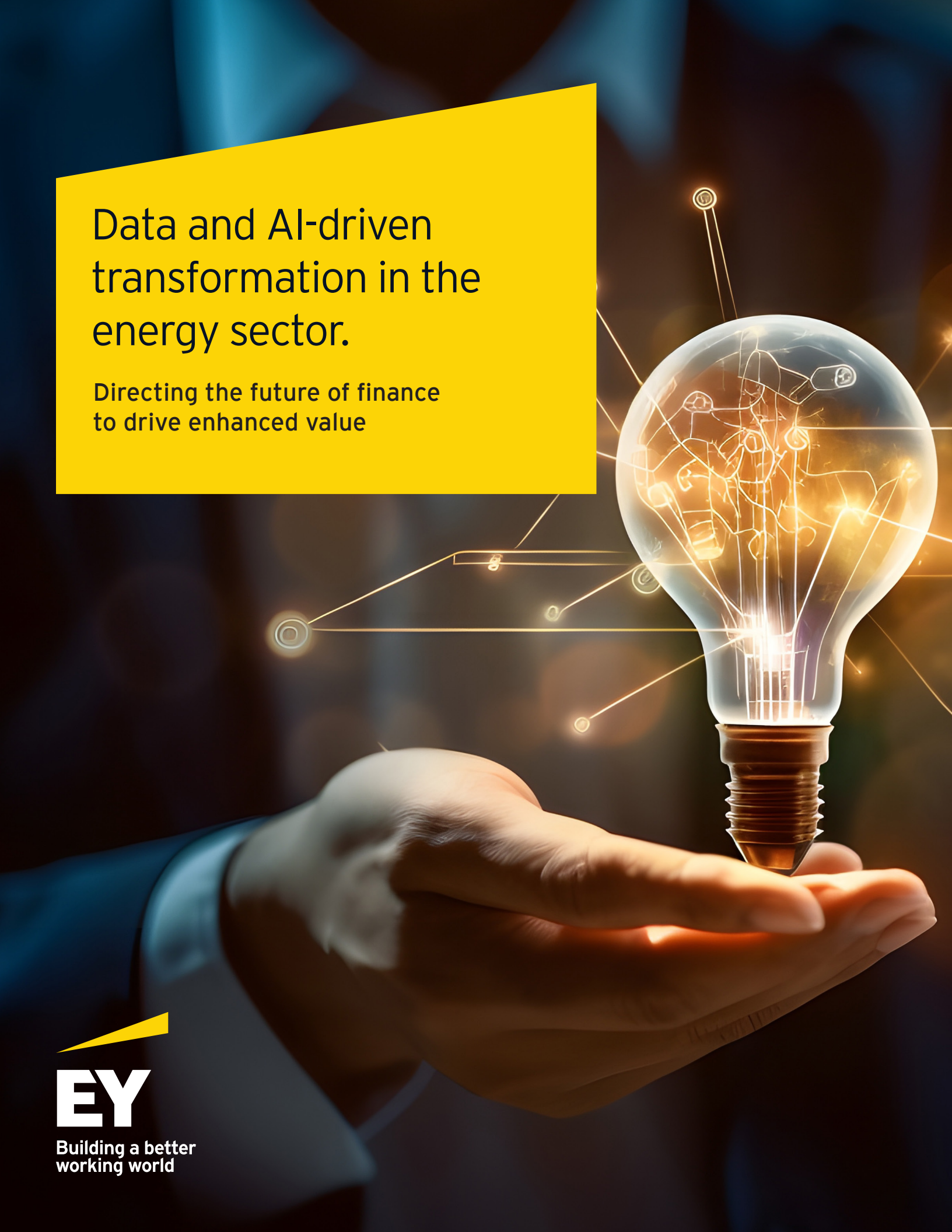
Data and AI-driven transformation in the energy sector.

Directing the future of finance to drive enhanced value



EY

Building a better working world

Contents

Introduction

The CFO is on a journey to becoming the CVO — the Chief Value Officer.

Historically, a significant focus for finance has been value protection and risk mitigation, a defensive strategy. The onset of the artificial intelligence (AI era) is driving the organization, and CFOs in particular, to shift to a more offensively-oriented strategy. CFOs are being tasked with value creation, business empowerment and productivity gains while having to double down on risk management.

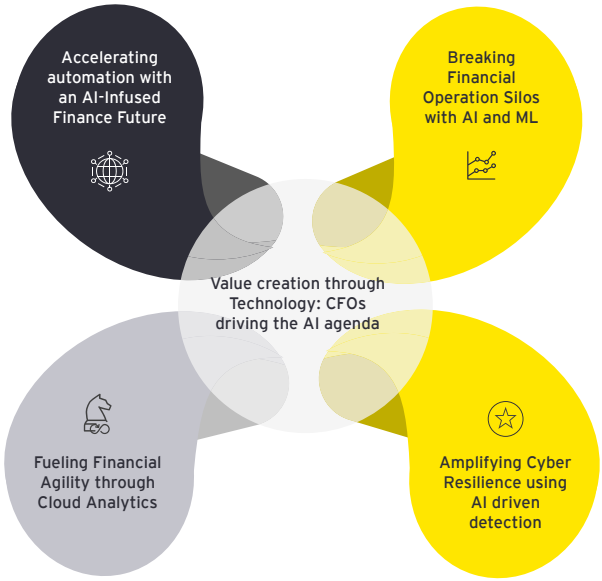
Now more than ever, CFOs need to prepare their workforces for new, more proactive ways of thinking that require a more holistic understanding of the interdependencies between data, technology and required capabilities.

For CFOs in the energy sector, the shift to this offense-oriented position gained traction as energy transition investments grew over the past decade. In a world that needs cleaner, more secure and affordable energy, the CFO's role as a value creator demands the ability to balance market desires for growth with the need to maintain, optimize and transform. To achieve this balance in an increasingly complex and volatile market, more accurate, comprehensive, accessible and timely information is required.

CFOs need access to deeper data and analytics capabilities to produce forward-looking business insights, enhanced capital and investment decision analysis, and sustainable financial reporting. These capabilities are also required to create value by identifying and assessing potential new revenue streams, including opportunities to monetize data and develop new products and services.

To realize this value, finance needs to demonstrate leadership in shaping data and technology strategies across the enterprise. Reframing the CFO's role as the CVO is a key step in delivering incremental value through better use of data and a deepening of analytics capabilities across the enterprise, which in turn is critical to growing the business throughout the energy transition.

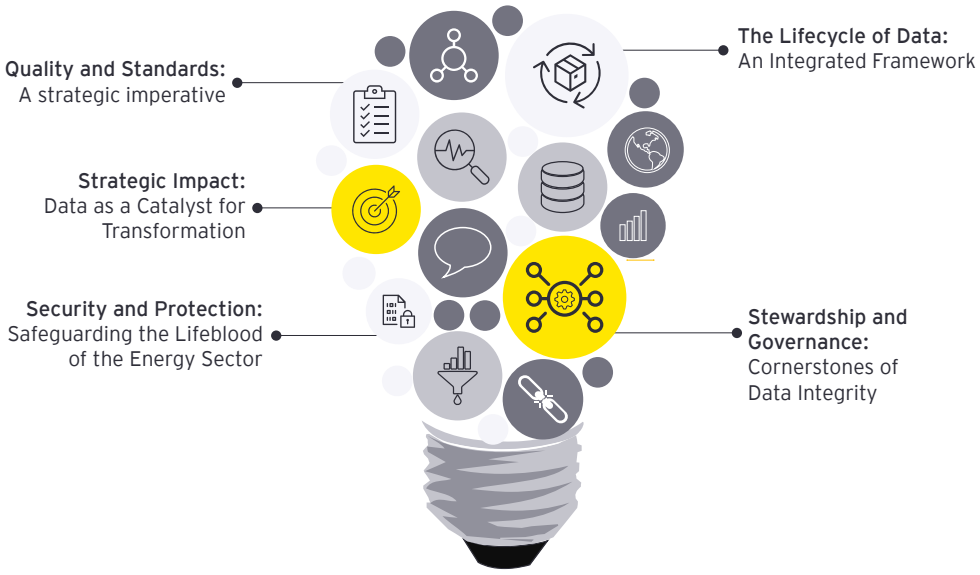
Value creation through Technology: CFOs driving the AI agenda



Data as a strategic asset

In the rapidly evolving energy sector, the data lifecycle stands as the backbone of operational excellence, strategic decision-making and sustainable growth. As organizations transition towards more agile and data-centric models, understanding the intricacies of data management – from its inception to its analytical application – becomes paramount. This exploration, inspired by insights from Microsoft Modern Finance and EY's perspective on the evolving role of CFOs, sheds light on the pivotal stages of data's journey, underpinned by governance, quality and security.

Data as a Strategic Asset



The data lifecycle: an integrated framework

Creation to reporting: The genesis of data in the energy sector is diverse, ranging from real-time operational data from wells, pipelines and mines, to predictive maintenance data from renewable energy assets, through trading and logistics data from commodity and risk management platforms, to data residing in a large variety of ERP systems like SAP, Oracle and Microsoft Dynamics 365. Each data type should have a prescribed journey, guided by appropriate governance to ensure its integrity and value. This lifecycle typically encompasses collection, processing, analysis and, ultimately, reporting, analytics and artificial intelligence, where insights are distilled into actionable intelligence.

Real-world applications in the energy sector underscore the transformative power of this lifecycle. For instance, integrating operational internet of things (IoT) data with asset maintenance schedules and material availability forecasts with cloud-based analytics platforms like Microsoft Fabric enables energy firms to optimize production processes and reduce downtime. The deployment of composable enterprise architectures further supports this integration, providing a modular approach to adapt to evolving business needs while exploiting the "single source of truth" for each type of data.

Quality and standards: Ensuring data quality and adhering to standards is not merely a technical necessity but a strategic imperative. High-quality data fuels accurate analytics, empowering decision-makers to drive efficiency and innovation. Whether in asset operations, trading or back-office operations, the emphasis on data quality translates into enhanced operational performance and revenue growth (offence) or cost saving opportunities and risk mitigation (defence). Rigorous processes — many of which should be automated — from data cleansing to validation, coupled with a culture that values data integrity, are essential for maintaining these standards.

Stewardship and governance: the cornerstones of data integrity

Roles and responsibilities: Data stewards and governance bodies play a critical role in upholding data quality, ensuring compliance with internal policies and external regulations. Their responsibilities extend beyond oversight, encompassing the management of data access, lifecycle governance and the establishment of leading practices. In the energy sector, where data informs everything from investment decisions to environmental compliance, the stewardship role is pivotal for maintaining the trust and reliability of data systems. Successful companies have realized that these roles need to be embedded in the business units that are closest to the data, rather than a centralized function.

Accountability and compliance: As the energy sector navigates complex regulatory landscapes and shifting market dynamics, the frameworks that enforce accountability and ensure compliance with business rules are instrumental in mitigating risks and safeguarding the organization's reputation. Data governance roles such as Data Stewards play an important role in defining the compliance processes and ensuring day-to-day operations adhere to those processes. Many organizations are relying on technologies such as Microsoft Purview to capture and monitor these processes.

Strategic impact: data as a catalyst for transformation

Market analysis and forecasting: Employing data for market analysis and forecasting enables energy companies to anticipate trends, adapt strategies and stay competitive. Advanced analytics and machine learning models, such as those used in Microsoft's Modern Finance initiative, offer predictive insights that can guide investment decisions and resource allocation. The strategic use of data thus becomes a cornerstone for navigating the energy transition, supporting decisions that balance profitability with sustainability.

Promoting sustainable practices: In an era focused on environmental stewardship, data plays a crucial role in promoting sustainable practices in the energy sector. From optimizing energy production to reducing carbon emissions, data-driven strategies help companies align their operations with sustainability goals. The journey towards becoming a Chief Value Officer is an emblematic shift, with CFOs using data to drive not just financial performance but also environmental and social value.

Security and protection: safeguarding the lifeblood of the energy sector

The bedrock of trust and compliance: In an era marked by stringent regulatory requirements and heightened expectations for transparency and reliability, the energy sector stands at the forefront of needing to secure sensitive data against breaches and cyber threats. The transition towards a data-centric finance function brings to light the need to implement robust data security measures. These measures are not just technical safeguards — they form the bedrock of trust between energy companies and their stakeholders, including investors, regulators and the consuming public.

Data protection in the energy sector transcends mere compliance with regulations such SOX, SEC and others. It encompasses a comprehensive approach that integrates security into the data lifecycle — from collection and storage to analysis and reporting. For CFOs transitioning to the CVO role, this integration is pivotal. It ensures that as they employ data for strategic decision-making — from market analysis to forecasting and sustainable practice promotion — they also uphold the highest standards of data integrity and confidentiality.

A holistic security framework: The evolution of the CFO's role in the energy sector requires a holistic view of data security. This view encompasses not only the technical aspects of cybersecurity measures but also the governance frameworks that guide data handling and the cultural mindset that prioritizes data protection across the organization.

Real-world examples of implementing a holistic security framework can be drawn from the adoption of cloud technologies like Microsoft Azure. Azure's built-in security features — including advanced threat protection, encryption and integrated identity management — provide energy companies with the tools to protect data across its lifecycle. Moreover, Azure's compliance with international security standards exemplifies how technology platforms can aid in meeting regulatory requirements while enhancing data protection efforts.

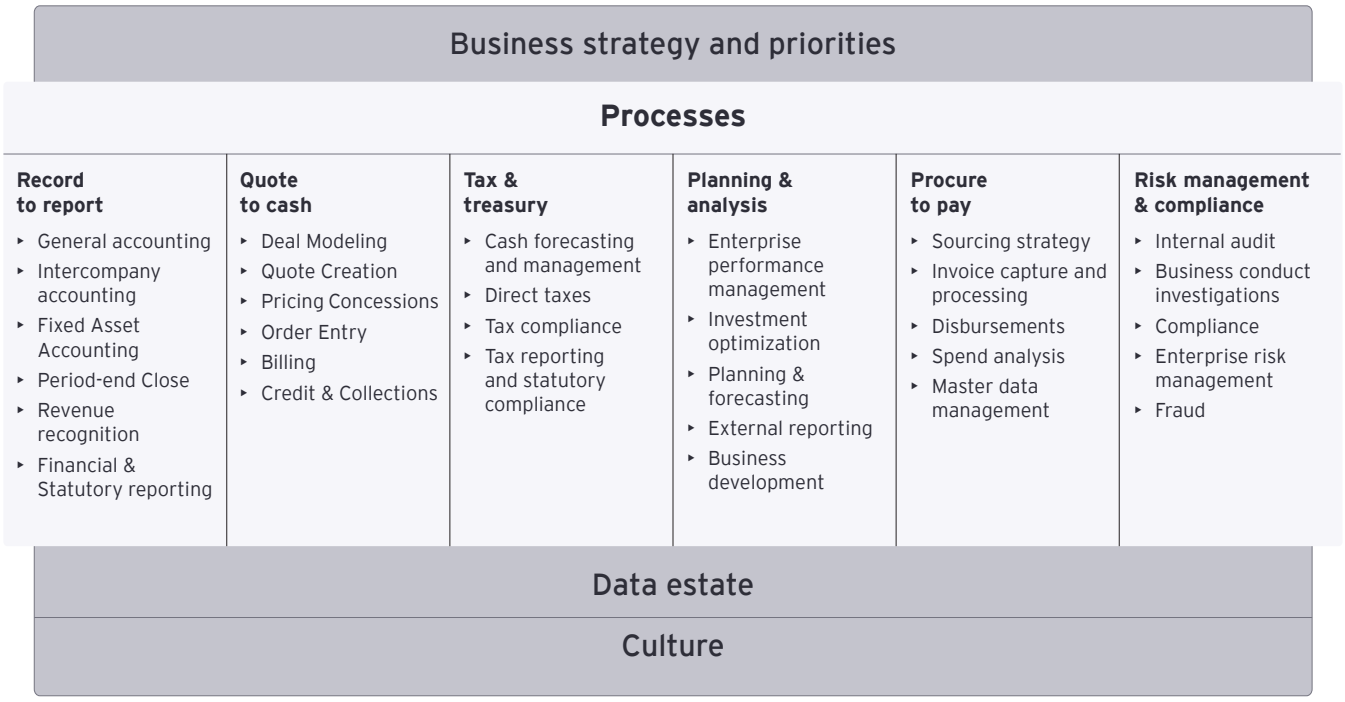
Driving efficiency and effectiveness through data and AI

In the context of the energy sector, CFOs are tasked not only with safeguarding the financial integrity of their organizations, but also driving significant improvements in operational efficiency and effectiveness.

We discussed above the importance of using data as a strategic asset. To help realize the full value of that asset, we must also think about technology. Technology such as AI and machine learning play a pivotal role in enabling the organization's strategic vision.

The impact of robust data management and innovative technology adoption in transforming the finance function can be highlighted across the following main use case areas in the finance function:

Where is opportunity for AI in Finance?



Source: Microsoft.

Microsoft Modern Finance journey

Microsoft's Modern Finance initiative epitomizes a paradigm shift in the organization, highlighting a journey towards digital transformation anchored in data and artificial intelligence. Launched in 2015 with the integration of machine learning technologies, this venture has dramatically improved financial processes, evidenced by reducing the forecast variance from approximately 3% to 1.5% and shortening the quarterly forecasting time from three weeks to 30 minutes. This initial success set the stage for further advancements and the widespread adoption of generative AI across the finance function.

As Microsoft deepened its commitment to AI, it expanded its use from mere forecasting to broader applications, including compliance, internal audits, recession forecasting and risk management in treasury operations. This broad application of AI was supported by the strategic consolidation of more than 100 data sources into a comprehensive data lake, enabling uniform data processing and analytics across the entire organization. This move not only facilitated a seamless flow of information, it also standardized reporting mechanisms globally.

Microsoft Modern Finance journey

Business Problem	Financial close process too long and error-prone	Forecasts not timely, low relevance, high cost	Poor analytics, laborious reviews	High volume of reviews and editing
Business Needs	Automation in Fin. Close Reduced Compliance Risks	Improved Accuracy Timeliness and Relevance	Automated Analytics Simplified User Experience	Automated Compliance Intelligent Text Processing
Solutions	Cases mostly enabled by Foundational AI and ML models / Cases requiring generative AI / custom copilot			
	▸ Introduce cross-system Journal Entry Automation to automate processes reaching across ERP boundaries ▸ Automate Journal Entry Anomaly Detection to reduce human error ▸ Enable human language interface to interact with closing process data	▸ Remove human bias from forecast using ML and AI ▸ Automate majority of forecasting process allowing for last mile human adjustments to handle "black swans" ▸ Integrate unstructured data (e.g. sentiment analysis) as input into forecast	▸ Enable easy data integration for ERP and non-ERP sources ▸ Automatically draft financial close review decks and write analytical comments and insights ▸ Provide natural language interface to advanced analytical tools, bridging technical skill gap	▸ Automate retrieval and analytics of policies and other documents ▸ Automate reviews of documents (e.g. contracts) to ensure compliance and reduce human error ▸ Synthesize complex workflow documents to highlight handoffs and commonalities
What can Generative AI Do?	▸ Finance Virtual Assistant: Automate the search and summary for content using an interactive chat bot ▸ Intelligent Document Processing: Automate the analysis and apply context to documents and generate content ▸ Unlocking Data Goldmine: Automate the synthesis of data to accelerate the development of insights			

Source: Microsoft.

Financial forecasting case study

Challenge: A multinational corporation grappled with the complexity of creating accurate financial forecasts that encompassed the intricacies of diverse geographies, product lines and customer channels. The goal was to produce a comprehensive forecast that would include detailed analyses of the full profit and loss (P&L) statement and generate country-by-country automated cashflow statements.

Solution: To address this, the corporation established a strategic alliance with specialists in data engineering, data science and finance. They developed a system of automated data pipelines as the foundation for sophisticated machine learning (ML) models, designed to enhance forecasting for critical financial segments such as revenue, COGS, and operating expenses. The models were continuously refined through iterative testing and validation to ensure they captured the nuances of the company's global operations.

Result: The advanced ML models resulted in forecasts that exhibited a high degree of accuracy, with some achieving a near-perfect correlation with actual financial outcomes. This not only substantially reduced the time needed to generate forecasts, but also improved the reliability of the forecasts. Regular weekly updates became the new norm, empowering the organization to conduct in-depth analyses and make informed decisions with greater frequency and confidence.

Period-end close case study

Challenge: The company's finance department faced the cumbersome task of closing books at the end of each period, a process bogged down by manual journal entries that spanned adjustments for prepaid expenses, accruals, intercompany transactions and error corrections, all prone to human error and inefficiency.

Solution: The company introduced a solution using the Microsoft Power Platform, enhanced with MLand generative AI, to overhaul the journal entry process. The AI-driven system was engineered to automatically extract necessary data from documents and emails, while the ML component assessed the risk associated with each entry based on historical patterns, directing high-risk items for further human review.

Result: This innovative automation led to a substantial reduction, by half, of the time typically spent on journal entries, thereby streamlining the entire financial close process. The shift allowed the finance team to reallocate their focus to more strategic initiatives, such as data-driven decision-making and financial planning, enhancing the department's value and effectiveness.

Generative AI and Copilot

Challenge: With the aim of elevating the finance team's productivity, the company sought to reduce the time spent on repetitive and labour-intensive tasks such as data reconciliation and the drafting of various financial documents to pave the way for more analytical and strategic endeavours.

Solution: The finance team implemented Microsoft's Copilot ecosystem, equipped with generative AI capabilities and tools tailored for the finance sector. These tools, integrated with existing ERP systems like SAP, automated mundane tasks and transformed data processing and analysis. Custom solutions, like the Replay custom copilot, were developed to further streamline financial reporting, trend spotting and data analysis.

Result: The deployment of these AI tools resulted in a marked enhancement in both the efficiency and accuracy of financial processes. Finance professionals were able to focus on higher-value tasks, and the finance function itself evolved to become more strategic and data-centric. This shift not only led to gains in productivity, but also supported the finance team in playing a more pivotal role in guiding business growth and innovation.

Conclusion

In a world that needs cleaner, more secure and affordable energy, the CFO's role as a value creator is coming into focus. CFOs have the opportunity to shift from a defensive to an offensive strategy and use data as a strategic asset to drive growth, enhance productivity and optimize the business. By thinking of data as an asset, using data more strategically, and enhancing finance operations through use of technology like AI and machine learning, CFOs can reposition themselves as CVOs who enable value creation across the enterprise.

How EY teams can help

EY teams are dedicated to supporting organizations in both the public and private sectors along their AI and data analytics journeys through our broad offerings:

- **EY and Microsoft strategic alliance services:** Azure Cloud Strategy and Transformation, Data and AI, Dynamics 365 and Power Platform, Microsoft 365, Cybersecurity, Internet of Things
- **Advanced data and analytics:** data strategy and governance, data architecture and modelling, master data management, data visualization, data quality and metadata, data engineering, machine learning and operations
- **EY.ai:** gen AI enablement services, AI risk management (responsible AI) and governance solutions, Ai strategy and roadmap planning
- **Technology and business transformation:** Strategy and digital foundation design, capability assessment, operating model design, technology and data governance, organization design, product management/agile delivery support/devOps, IT post-merger integration/divestiture support
- **Operational excellence:** Safety and compliance, driving production efficiency, optimizing costs, supporting decarbonization and maintaining asset reliability, enhanced by digital solutions and AI

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