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Microsoft

Reimagining Energy Supply, Trading & Risk Management for **Power & Utilities**

Create a data-centric digital ecosystem across Supply, Trading and Risk to unlock value by increasing agility, streamlining business processes, and enabling next-generation decision support and portfolio optimization capabilities.

Market changes have accelerated *the case for transformation*

OPPORTUNITY CREATED BY COMPLEXITY AND VOLATILITY

Global energy markets are becoming increasingly complex and experiencing unprecedented levels of volatility. The energy supply is constrained due to years of underinvestment, and its growth is being challenged by the financial impacts of the energy transition and rising inflation. Additionally, geopolitical unrest in Europe has exacerbated supply chain disruptions and reinforced the demand shift that began during the pandemic.

However, with complexity and volatility comes a unique opportunity to create exponential value by ensuring your organization has the systems and processes in place to respond with agility.

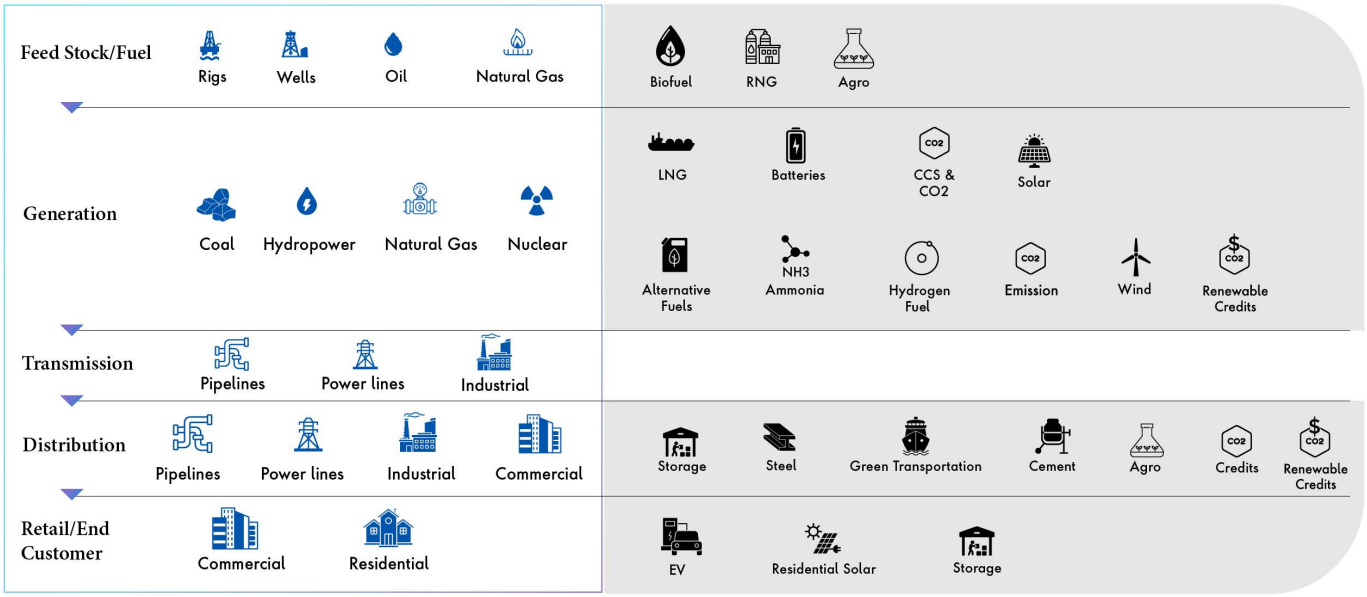
ADAPTING TO THE EVOLVING AND INTERCONNECTED COMMODITY MARKET LANDSCAPE

The rapid evolution and increasingly interconnected nature of global energy markets has accelerated the case for transformation. To thrive during the energy transition, Power & Utilities organizations must adapt quickly and develop new capabilities and digital pipelines to capture opportunities across geographies and asset types.

EXTERNAL FACTORS IMPACTING ORGANIZATIONS

- **Geopolitical unrest and the energy transition** are shifting global energy market dynamics and organization portfolio mix.
- **Hydrocarbon supply growth is challenged** by rising costs, longer lead times, increasing regulation, and fiscal constraints associated with rising inflation, increasing carbon taxes, and long-term reserve devaluation.
- Oil & Gas and Power & Utility **markets and infrastructure are becoming increasingly interconnected**, driving the need for greater transparency and risk management across value chains.
- **New energies and new energy markets** are rapidly emerging and changing the landscape.
- Businesses are **committing to net-zero** emissions more and more, putting increased pressure on power and grid.
- Expanded use of external financing by power and gas companies, and independent power producers (IPPs) to scale up their renewable assets is exposing their companies to interest rate risks
- Market regulators are increasingly looking at new market designs and innovative market regulations and mechanism to meet the ambition of energy transition and address the unique needs of renewables.

EVOLUTION OF THE COMMODITY MARKET LANDSCAPE



Addressing aging systems, manual business processes, and the proliferation of data silos across Supply, Trading and Risk to increase agility and harness the power of artificial intelligence (AI) is a critical step in capturing value during the energy transition.

Conducting business *across the front, middle, and back office*

MANAGING WITH LEGACY INFRASTRUCTURE AND MANUAL PROCESSES

Organizations rely on a suite of specialized commodity/energy trading and risk management (C/ETRM) packages, shadow systems, and extensive manual processes to manage their business.

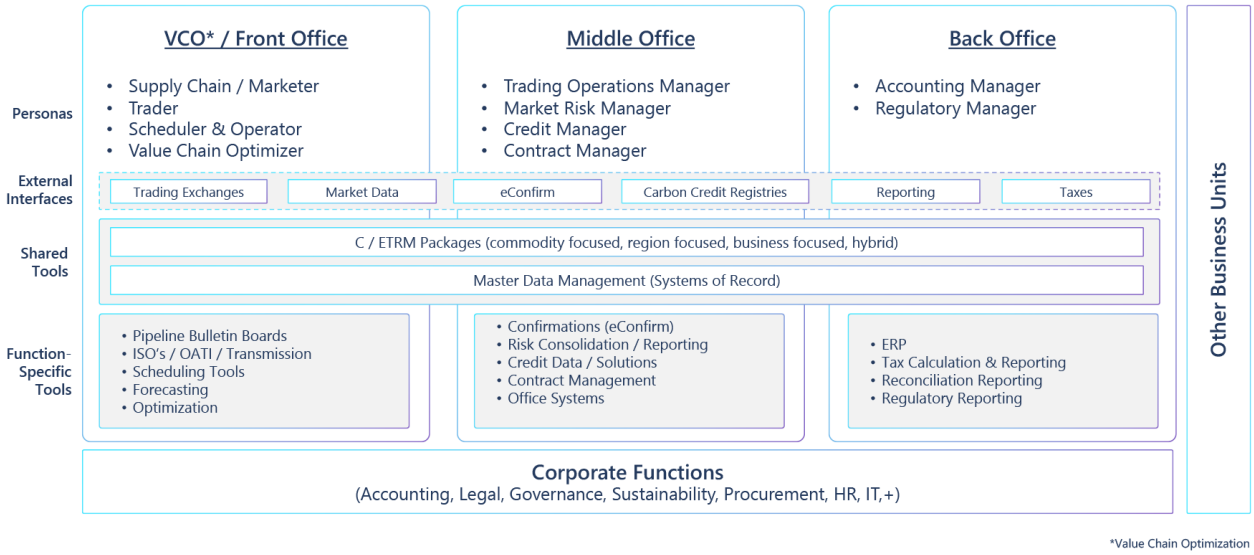
These specialized C/ETRM packages are effective for single commodity, single market operations, but they were not designed to support cross-commodity, multi-jurisdiction trading and risk analysis. Additionally, most C/ETRM systems lack integrated deal capture, contract management, scheduling, and reporting capabilities, and have limited front-office and mid-office capabilities.

Common efforts to address C/ETRM system capability gaps have resulted in complex business architectures that are inherently inflexible, inefficient, and costly to support. The prevalence of disconnected, highly customized solutions, complex system integrations, and manual data entry and reconciliation processes in these C/ETRM-centric business architectures restrict agility, hinder innovation, and increase the level of risk associated with security breaches and human error.

INTERNAL CHALLENGES

- The prevalence of **inflexible, commodity-specific, on-premise core C/ETRMsystems** with overlapping functionalities causes data silos and process inconsistency.
- **Data silos, limited automation, and a lack of collaboration** tools restrict timely, data-driven trade and risk analysis and hinder the use artificial intelligence (AI) to unlock next-generation business capabilities.
- "Systems of record" functionality of C/ETRM systems **limits the ability to support front office requirements** including forecasting, pricing, and negotiations.
- Commodity-specific system nuances drive **over-customization and complex, multi-system architectures** which are costly to support, difficult to integrate, and result in latency issues.
- **Capability gaps, limited solution options, and the slow pace of C/ETRM modernization** hampers the ability to optimize, innovate and support the Energy Transition.
- **Extensive manual intervention** in data aggregation, analysis and reporting across the front, mid and back office increases the risk of human error and security breaches and limits the time available for higher value-add activities.

COMMON SUPPLY, TRADING AND RISK PERSONAS AND TOOLS



Moving away from a C/ETRM-centric architecture and streamlining business processes across the front, mid, and back office is necessary to reduce cost, complexity, and risk and address the rapidly evolving needs of the business.

Transform your Supply and Trading landscape *to realize your business potential*

UNLOCKING VALUE WITH A DATA-CENTRIC DIGITAL ECOSYSTEM

Agility is crucial for businesses facing increasing geopolitical, regulatory, and financial market complexity, and an accelerating energy transition. Harnessing the power data of data is imperative for organizations to gain and maintain competitive advantages as the world enters a new era defined by artificial intelligence.

To increase business agility and unlock value through AI-enabled next-generation capabilities, organizations should recenter their systems and business operations around a connected data landscape.

Publicis Sapient and Microsoft envision that landscape as a ***data-centric Supply and Trading digital ecosystem*** that leverages an end-to-end, unified analytics platform and low code innovation tools to increase agility, streamline business processes, and enable next-generation decision support and portfolio optimization capabilities.

DIGITAL ECOSYSTEM VALUE DRIVERS

VALUE DRIVERS FOR SUPPLY AND TRADING MODERNIZATION

Creating a data-centric digital ecosystem that can adapt and scale with the utilities industry unlocks value across five axes of digital transformation:

Agility

Decouple systems, federate data, and create a data-centric ecosystem in the cloud to reduce complexity, enhance security, increase transparency, and promote scalability, adaptability, and accessibility.

Collaboration

Create mobile user interfaces and executive dashboards with embedded workflow collaboration tools to improve accessibility, expedite information sharing, and enable rapid decision-making across the business.

Visibility

Centralize data and apply data modeling, integration, and artificial intelligence to enable end-to-end carbon auditability, full-cycle cost analytics, and portfolio-level value chain optimization.

Innovation

Use low-code and no-code development tools, agile development principles, and a data-rich ecosystem to crowd-source business ideas and codify knowledge within modular applications.

Efficiency

Automate back-office processes for deal capture, contract management, scheduling, and reporting to reduce cycle time, mitigate risks and refocus resources on value creation. Leverage platform-enabled artificial intelligence (AI) to evolve trading algorithms and generate actionable insights in near real-time.

MAXIMIZING VALUE WHILE MAINTAINING CRITICAL OPERATIONS

Our approach to modernizing Supply and Trading builds upon existing capabilities to minimize disruption to the business while building a strong digital foundation to unlock value now and in the future. These objectives will be achieved by:

- Leverage existing C/ETRM systems or replace legacy C/ETRM systems are past their shelf-life with respect to new market regulations
- Embracing open, modular development
- Following foundational data integrity and security principles
- Enabling seamless business process automation to free up resources to focus on exceptions, validation, and analysis
- Integrating comprehensive artificial intelligence capabilities to accelerate data-driven decision-making and enhance trade and risk analysis
- Drastically improving the user experience to enable modern, mobile, real-time decision support and collaboration tools
- Reducing integration complexity to allow the business to unlock higher-value workflows without disrupting day-to-day business
- Enabling transformative capabilities and the creation of new revenue streams to accelerate value creation
- Delivering continuous value by employing agile methodology

Next-Generation Supply and Trading *Solution Framework*

TRANSFORM YOUR BUSINESS WITH A DATA-CENTRIC DIGITAL ECOSYSTEM

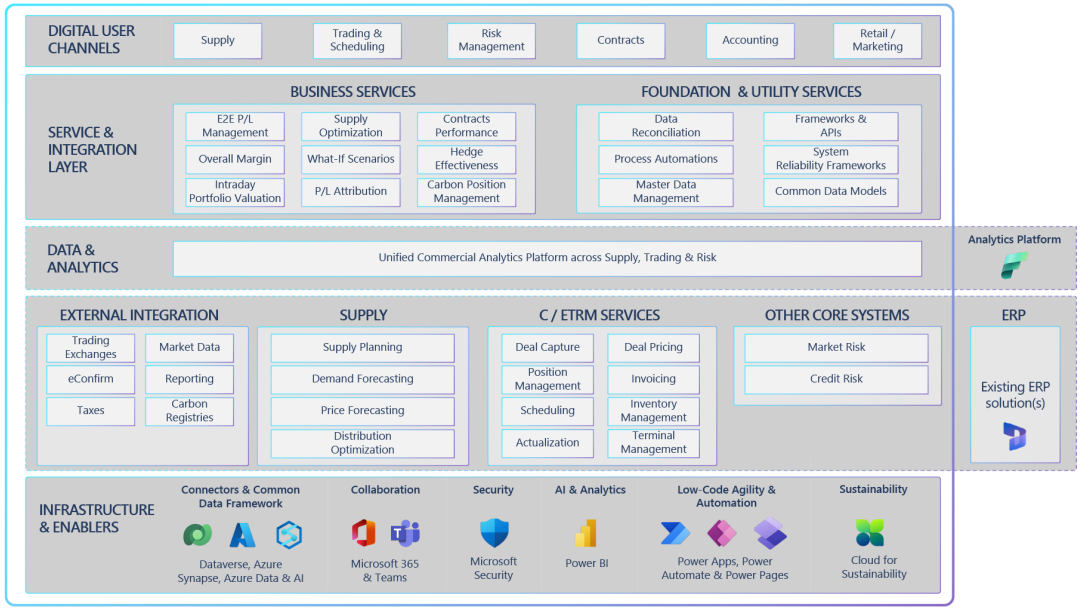
Our vision for a data-centric Supply and Trading digital ecosystem includes three core architectural components:

1. **Service and integration layer** leveraging comprehensive AI and low-code capabilities to create next-generation business services and digital user channels.

2. **Unified commercial analytics platform** to securely bring together data and analytics capabilities across Supply, Trading and Risk and unlock high-value AI-enabled workflows.

3. **Common commercial infrastructure layer** with core systems to execute and record business-critical processes across Supply, Trading and Risk.

CONCEPTUAL SOLUTION ARCHITECTURE

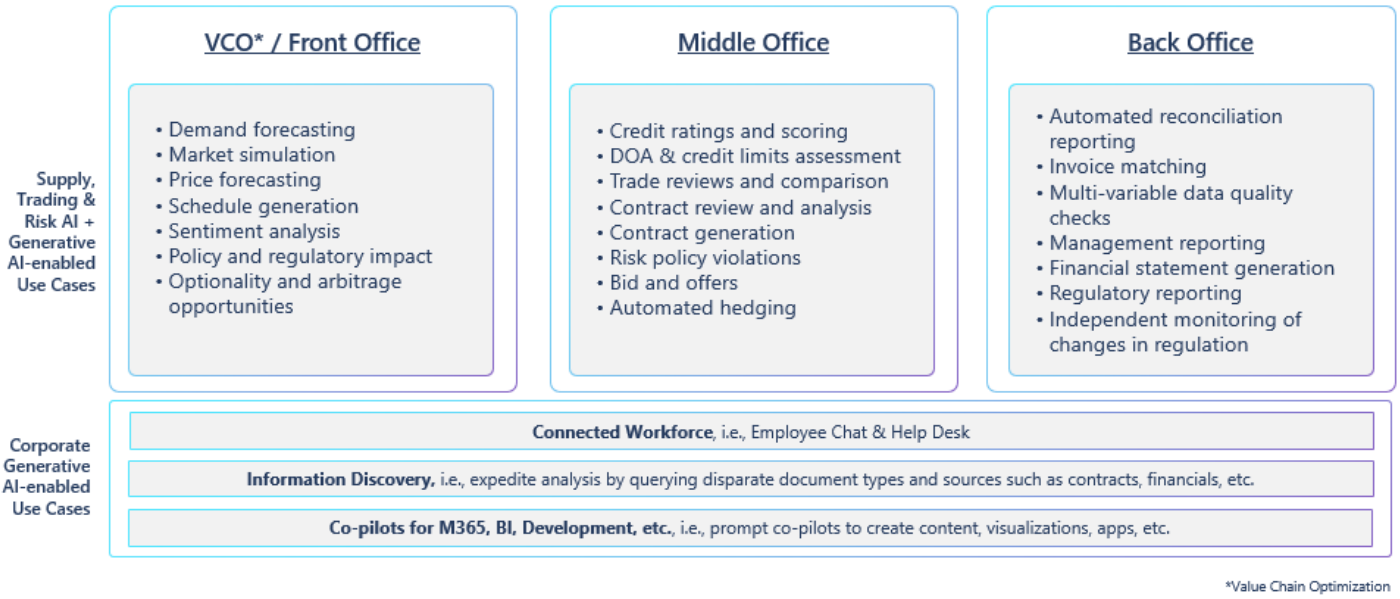


ACCELERATE VALUE WITH ARTIFICIAL INTELLIGENCE-ENABLED WORKFLOWS

One of the most significant benefits of moving to a data-centric architecture is the ability to unlock AI and Generative AI-enabled use cases.

Imagine traders using simple queries to analyze third-party demand forecast predictions, generate simulated forecasts, and get recommendations on hedge positions and value optimization. Demand forecasting is just one of a long list of potential use cases for real-time decision support across the front, middle and back office.

AI AND GENERATIVE AI-ENABLED USE CASES ACROSS SUPPLY, TRADING AND RISK



AI-enabled business use cases will define the next generation of Supply, Trading and Risk operations. Organizations who embrace artificial intelligence will accelerate their ability to thrive during the energy transition by improving margins, dramatically enhancing productivity, and developing transformative capabilities and new revenue streams.

Embarking on the *Transformation Journey*

A critical first step in shifting from a C/ETRM-centric architecture to a data-centric digital ecosystem across Supply, Trading and Risk is to define a framework for your transformation journey—one that prioritizes business outcomes and maps to a relevant value case.

Foundational activities to consider when defining the framework to move from a C/ETRM-centric architecture to a data-centric Supply and Trading ecosystem include:

- Decoupling front, middle, and back-office systems
- Identifying and reducing/eliminating shadow systems
- Using containers to migrate from in-house storage and compute to the cloud
- Federating and contextualizing data within the cloud to enable extensive analysis

Executing these steps while identifying, automating, and eliminating low-value add tasks will reduce complexity and risk, and deliver more than enough cost savings to fund the next phase of transformation: implementing platform-level AI and Generative AI, innovation, and collaboration capabilities to unlock new business use cases such as:

- Creating dashboards with real-time insights based on streaming market and peer data and intraday visibility to key trading and risk, portfolio and financial metrics
- Leverage AI and Generative AI to enable trader decision support and trade recommendations

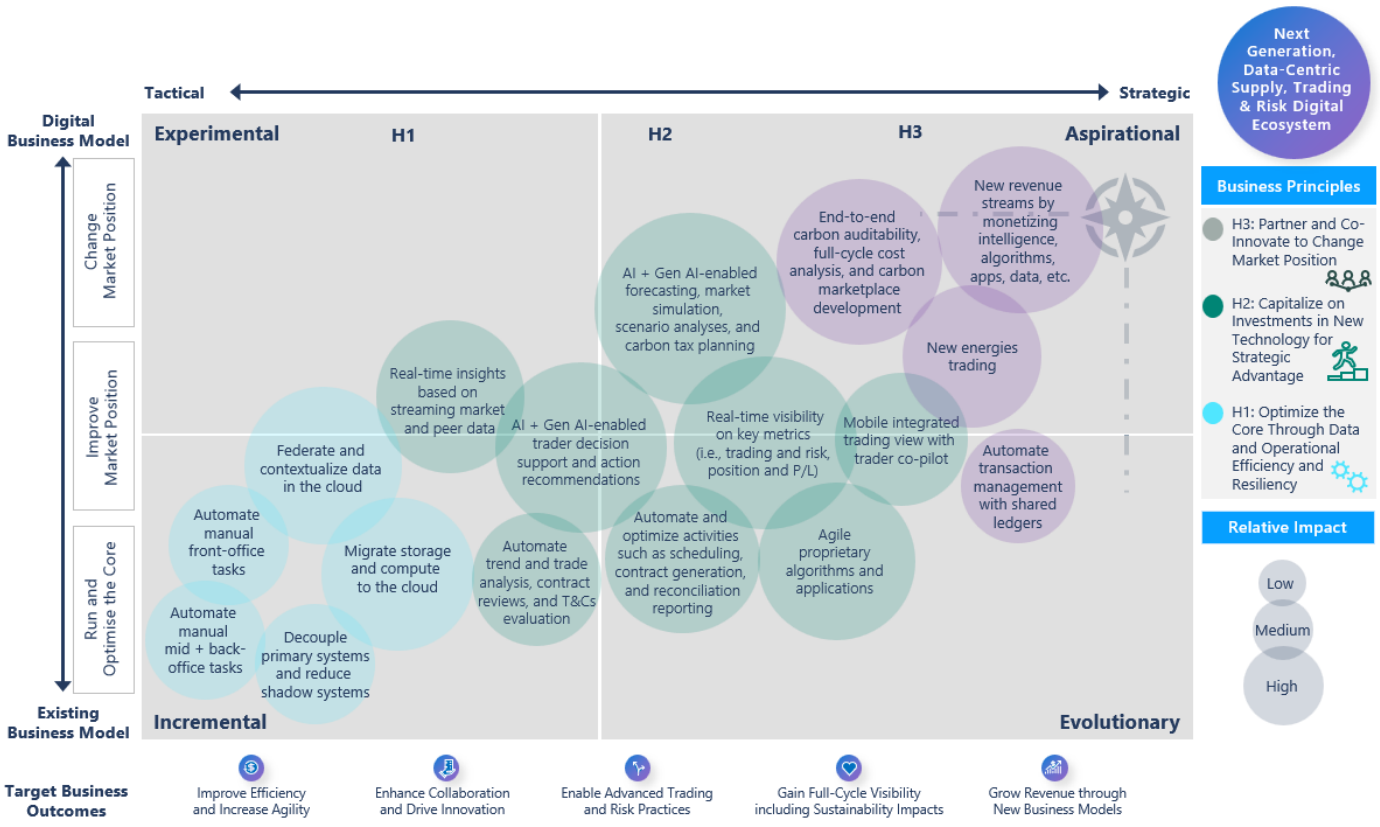
- Automating trend and trade analysis, contract reviews, and terms and conditions evaluation
- Developing a user-friendly, mobile, integrated trading view with co-pilot capabilities
- Optimizing and automating scheduling recommendation and contract generation
- Integrating open-source risk analytics

Finally, your organization can start creating incremental value for the business by developing transformative capabilities and new revenue streams:

- Cross-commodity, multi-jurisdiction portfolio optimization
- End-to-end carbon auditability and full-cycle cost analytics
- Carbon marketplace development and new energies trading
- Transaction management with shared ledgers
- Data, intelligence, algorithms, and application monetization

The key to success is to first unlock the value that already exists (H1) and then to build upon it to enable new capabilities (H2), and finally to create incremental value for the business through transformative capabilities and new revenue streams (H3).

TRANSFORMATION JOURNEY FRAMEWORK



Prioritizing where to start and how far to take your journey should be based on your organization's unique market position, ambitions, and transformation vision.

Enabling the future *with Publicis Sapient and Microsoft*

Leading Power & Utilities companies around the world are partnering with Publicis Sapient and Microsoft to drive strategic digital transformation initiatives across their business.

How a top Power & Utilities company implemented physical and financial trading and risk management capabilities for renewable assets of North American operations

IMPERATIVE FOR CHANGE

The organization is a global multinational energy company that generates and trades electricity within North America, Europe, and Asia-Pacific. It is one of the world's largest offshore wind power generation companies and aims to be climate-neutral by 2040, supported by a €55 billion investment into renewables and creating more than 60 gigawatts (GW) of green capacity over the same period of time.

The organization's Supply & Trading business unit was tasked with maximizing wholesale margins while effectively managing exposure in increasingly volatile energy markets. It saw asset optimization as key to driving value. The organization embarked on a journey to establish a common platform for its global Supply & Trading group so that it could:

- Integrate the company's various commercial capabilities it gained from acquisitions
- Standardize systems and processes
- Limit customizations to simplify the landscape

TRANSFORMATIVE SOLUTION

Publicis Sapient and Microsoft's objective was to standardize the company's operating model and leverage synergies across the portfolio for commercial optimization as much as possible. We aimed to:

• Provide our integrated end-to-end Trade to Cash business solution to maximize value, minimize risk, and be fit for the future

• Adopt standard business processes to enable synergies across the portfolio

• Stand up a standard and stable ETRM solution that meets both global and country-specific needs

We worked closely with the business to deepen capabilities to inform the target state architecture design on the ETRM platform. We also developed a phased integration roadmap—comprised of eight separate releases—which prioritized long-term trading and quickly enabling critical risk management activities and controls.

BUSINESS IMPACT

The solution delivered the following outcomes:

• Provided a streamlined and standardized business process framework for the North American front, middle, and back offices

• Developed a centralized certificate capability spanning North America and beyond, fostering operational efficiency and standardization

• Embraced a system-centric approach leveraging standard solutions (ENDUR platform) and replacing Excel-based solutions

• Established bid-to-ask models for trading congestion, day-ahead, and battery optimization, resulting in a significant increase in trading P&L

• Defined an implementation in progress for a global risk and revenue modeling platform

• Launched fully automated settlement and invoicing processes

How a Power & Gas company implemented a wholesale and retail ETRM platform

IMPERATIVE FOR CHANGE

A fully integrated North American Power & Gas business, the organization is active in both trading and marketing to retail and commercial/industrial customers. It provides a mix of power from wind- and gas-generation fleets and upstream gas production. Regulated in the United States and Canada, the business spans five geographies and two currencies.

The organization was undergoing a period of growth supported by a number of acquisitions. As a result, it needed to:

- Improve operational efficiencies
- Adopt an agile platform to support the organization's growth vision
- Upgrade aging systems and valuation and reporting silos to enable consistent reporting of complex positions

TRANSFORMATIVE SOLUTION

Publicis Sapient designed and implemented the ETRM platform to support the integrated wholesale/ retail power and gas business. This design helped:

- Integrate exchanges, pricing systems, ISOs, and enterprise resource planning systems
- Increase automation across the transaction lifecycle, replacing manual spreadsheet reporting
- Enhance data migration, involving mapping data elements across the source and targeting systems with tools to validate data quality
- Integrate the wholesale and retail power business
- Consolidate Power & Gas trading platforms for better visibility of the integrated business

Since the initial go-to-live date, we have continued to support the organization on an ongoing basis by providing upgrades and end-of-day services.

BUSINESS IMPACT

The solution delivered the following outcomes:

- Consolidated ETRM systems to support wholesale and commercial/industrial business
- Managed renewable identification numbers, power purchase agreements, and derivatives in a consolidated view of exposure and risk
- Improved operational efficiency with an agile ETRM platform
- Enhanced forecasting accuracy and reduction in margin leakage
- Improved the customer experience and provided enhanced customer analytics
- Enabled better decision-making through increased visibility into business driver performance
- Leveraged audit tracking functionality, internal data governance, and clear segregation of duties for better operational controls

Create *your digital future*

To win in a world of accelerating change, Power & Utilities companies must invest in digital capabilities that reduce complexity, increase scalability, and enable rapid adaptation.

Partner with Publicis Sapient and Microsoft to define those capabilities and develop a secure, scalable, and data-centric digital ecosystem across Supply, Trading and Risk that drives a virtuous cycle of efficiency gains and transformational value creation.

Let's create the future of Supply, Trading and Risk Management together. For

more information, please contact energyandcommodities@publicissapient.com.

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Publicis Sapient is a digital business transformation company. We partner with global organizations to help them create and sustain competitive advantage in a world that is increasingly digital. We operate through our expert SPEED capabilities: Strategy and Consulting, Product, Experience, Engineering and Data, which combined with our culture of curiosity and deep industry knowledge, enables us to deliver meaningful impact to our clients' businesses through reimagining the products and experiences their customers truly value. Our agile, data-driven approach equips our clients' businesses for change, making digital the core of how they think and what they do. Publicis Sapient is the digital business transformation hub of Publicis Groupe with 20,000 people and over 50 offices worldwide. For more information, visit https://www.publicissapient.com.

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Microsoft for Energy & Resources

Transform the energy and resources industry and achieve net zero with technology innovation to deliver safe, reliable, clean energy for a sustainable future. Microsoft enables companies to drive digital transformation, decarbonize, and achieve growth. With Microsoft, energy operators and providers have access to a global partner ecosystem and modern productivity platform at the scalability and reach they need with the security to protect their IP assets, operations, and data. By uniting productivity, intelligent cloud, intelligent edge, AI, and big data platforms, Microsoft helps companies solve their most complex challenges, accelerate the energy transition, and deliver better outcomes.