AI-mpowering Customer Experience (CX) in Energy and Utilities (E&U)

The convergence of CRM, AI, and DATA is driving transformative innovations across industries. Integrating AI and DATA capabilities into CRM platforms enables highly personalized customer experiences, while also catalyzing a paradigm shift in overarching business processes and models.

However, unlocking AI-driven business transformation also presents challenges that must be addressed, including potential issues around privacy, fairness, algorithmic bias, transparency, ethical concerns, workforce displacement, and cybersecurity risks.

In this research, Everest Group, supported by NTT DATA, focused its analysis on the energy and utilities sector to examine industry-specific client trends, identified relevant and effective use cases demonstrating how organizations can leverage the powerful combination of CRM, AI, and DATA platforms to drive innovation and operational excellence. The research aims to provide insights into optimally harnessing their synergies to create sustained value, and the energy and utilities landscape serves as a pertinent industry lens for this exploration.

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AI-mpowering Customer Experience (CX) in Energy and Utilities (E&U)

Top Use Cases and a Blueprint for Effective Implementation

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Introduction

In the post-pandemic world, the customer is king (or queen if you will). Enterprises across industries are adopting customer-centric approaches to unlock growth avenues, sustain and future-proof their businesses, and provide more value to customers. Two crucial factors have helped to shape this shift: rapid technology advances and changes in customer dynamics and expectations. While the pandemic proved to be a catalyst for shifting customers' engagement to digital channels, it was also marked by the rise of a new customer segment – the digital-native customer, who prefers digital channels exclusively and expects frictionless and hassle-free interactions at every touchpoint with a brand.

Traditionally, the Energy and Utilities (E&U) industry has been operations oriented, with focus on infrastructure, reliability, and regulatory compliance. However, customer expectations from E&U enterprises have changed significantly in the past few years. Customers now demand personalized experiences driven by their data, seamless interactions across channels, and access to real-time information alongside self-serve options. Their use of digital channels has increased substantially to interact with E&U providers.

As customer expectations evolve, the E&U industry has started using Customer Experience (CX) technologies to enhance engagement. According to Everest Group's survey of 52 enterprises worldwide, 79% of surveyed enterprises, on average , spent more than US$50 million on CX initiatives in 2023. Many prominent energy providers are prioritizing CX enhancements to strengthen their customer connections. In competitive energy-retail markets, utilities enterprises are also feeling the pressure to optimize CX, develop new capabilities, and maximize customer acquisition and retention while remaining cost competitive.

We believe that data and AI will play the most significant role in transforming customer engagement in the E&U industry. In this report, we:

- Identify and address the challenges that enterprises face in enhancing CX in the E&U industry
- Provide a strategic blueprint for navigating the evolving CX landscape in the E&U industry
- Examine key Data + AI + CRM use cases for enterprises
- Offer guidance on vendor selection processes to ensure effective implementation

Client delight and innovation through AI are top enterprise objectives for CX inititaives.[1]

1 Based on findings from an Everest Group survey of technology leaders from 52 enterprises with revenues > US$500 million

Key enterprise challenges in scaling CX initiatives

Some of the key challenges that restrain enterprises from scaling their CX transformation initiatives are:

Regulatory environment

Challenges arise in scaling CX initiatives within the energy and utility industry due to the highly regulated environment. Government norms, regulations, and compliance requirements become paramount, posing significant hurdles to the expansion and effectiveness of CX efforts

Siloed data

Customer data is dispersed among different departments and creates challenges in accessing and sharing data across the organization. This fragmentation hinders effective communication, collaboration, and the development of a comprehensive understanding of customer interactions

Data security

Gathering and using customer data to improve experiences is accompanied by concerns regarding data security and privacy, emphasizing the need for strong measures to safeguard sensitive information

Legacy infrastructure

Obsolete infrastructure and systems hinder the prompt implementation of futuristic CX solutions and, demand substantial investments, and efforts for necessary upgrades

Leadership resistance

Transitioning to a customer-centric approach requires cultural and organizational shifts and is often met with resistance from the leadership and a conventional industry outlook

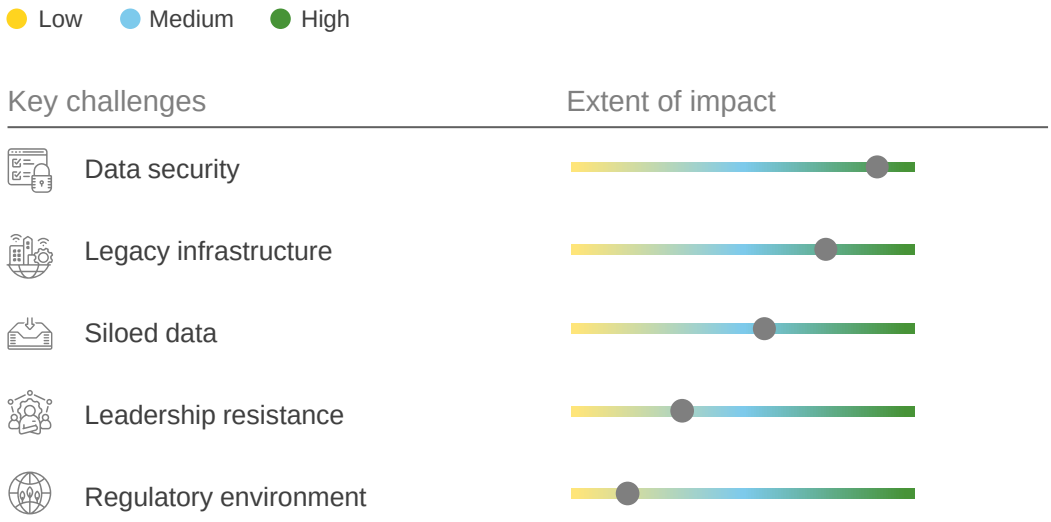
Exhibit 1 depicts the key challenges that E&U enterprises face in their CX journeys and the extent of their impact.

More than 61% of surveyed enterprises believe that data security and privacy is a key challenge in scaling CX initiatives.[1]

1 Based on findings from an Everest Group survey of technology leaders from 52 enterprises with revenues > US$500 million

Exhibit 1: Key challenges that E&U enterprises face in their CX journeys and the extent of their impact

Source: Everest Group (2024)



The business case for AI + data + CRM initiatives

With the emergence of technologies such as commerce platforms, AI-driven CRM, Customer Data Platforms (CDPs), and Content Management Systems (CMSs), E&U companies are increasingly prioritizing interactions that revolve around customers. In a growing competitive environment and an evolving market, making strategic investments in technology and organizational adjustments specific to CX is vital for fostering sustainable growth, remaining competitive, and maximizing business value.

"Launching a loyalty program that rewards energy-efficient behavior has not only encouraged sustainable practices, but also strengthened customer relationships, resulting in a 12% increase in customer retention over two years."

– Head of Customer Experience, a regional electricity retailer from EU

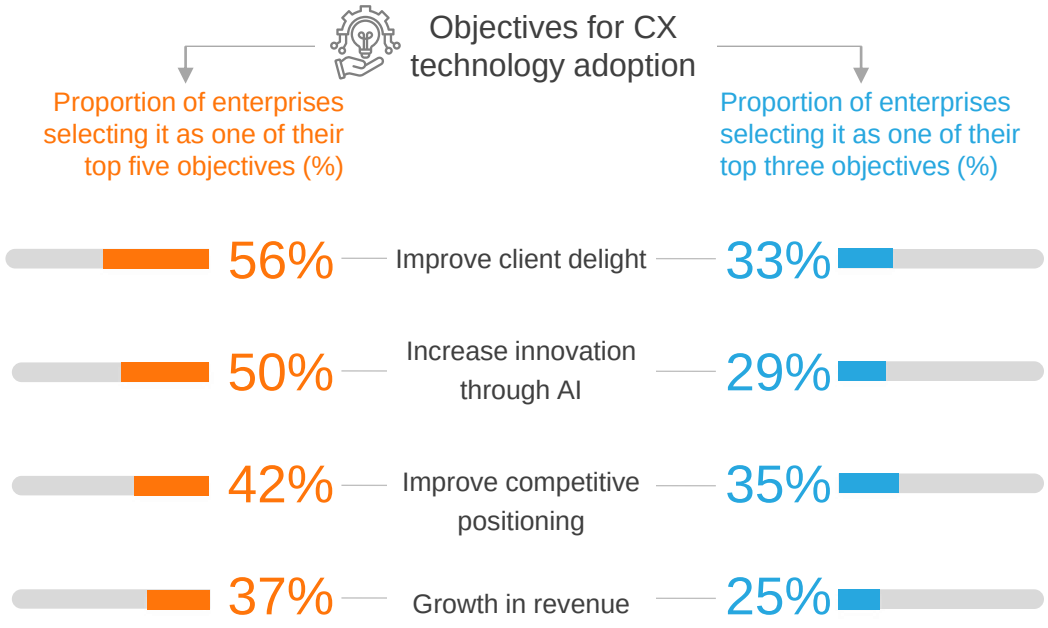
Below are some of the top business outcomes that enterprises achieve through CX transformation initiatives:

- **Enhanced client delight:** The use of customer data insights to craft personalized offers not only reduces customer churn but also strengthens customer loyalty. By providing the right experience tailored to each customer's preferences, businesses can retain their customer base, foster advocacy, and enhance customer lifecycle value
- **Increased revenue:** When an enterprise knows the exact needs of its customers, it opens additional revenue streams that it can capitalize on through bundled service offerings. Furthermore, initiatives such as marketplaces shift the perception of an enterprise from being a service provider to being that of a provider of value-add products
- **Improved brand value / competitiveness:** Being a customer-centric organization has a positive impact on increasing the brand value and trust of customers. Exceptional CX also becomes a key parameter to distinguish a firm from the competition
- **Reduced costs:** Enhanced CX and operational efficiencies can significantly reduce the investments and resources needed for customer service and related processes, reducing operational costs.

Exhibit 2 depicts the key enterprise objectives for CX initiatives.

Exhibit 2: Key enterprise objectives for CX initiatives

Source: Everest Group (2024)



"Our customers expect transparency and control over their energy usage. Our CX application empowers them with personalized energy dashboards and self-service options, leading to a 15% decline in peak-hour demand and a 10% increase in customer satisfaction."

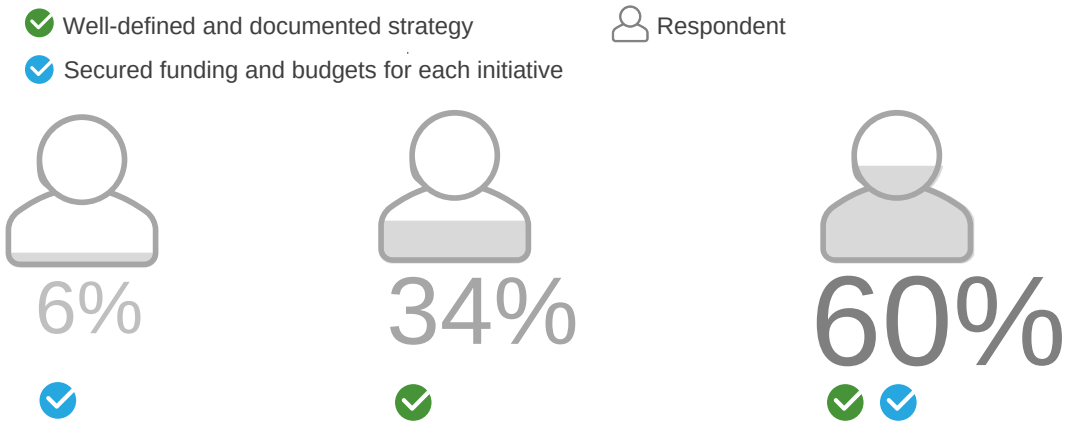
– Head of Customer Experience, a renewable energy company

CX initiatives present significant business outcomes and value for enterprises. Adding data and AI to the CX mix exponentially amplifies business outcomes. Our survey revealed that, after client delight, enterprises regarded innovation through AI as their second priority for CX initiatives.

Exhibit 3 sheds light on the percentage of enterprises that have well-defined and documented strategies and have secured funding allocations dedicated to advancing their CX endeavors.

Exhibit 3: Enterprises' near-term strategies and funding plans for AI-driven CX initiatives

Source: Everest Group (2024)



Overall, 78% of enterprises have increased their spend and 42% of enterprises plan to double their spend on AI-driven CX initiatives in the next two years.[1]

1 Based on findings from an Everest Group survey of technology leaders from 52 enterprises with revenues > US$500 million

Two in three enterprises have already allocated resources for AI-driven CX initiatives, and almost all believe they have a defined and documented strategy. While enterprises are optimistic about AI-driven CX initiatives, many struggle to achieve their desired outcomes. Therefore, a strong business case that focuses on both business impact and investment plan is crucial. The considerations in Exhibit 4 provide a high-level framework for establishing a business case for AI-driven CX initiatives.

Exhibit 4: Considerations to build a business case for AI-driven CX initiatives

Source: Everest Group (2024)

Imperatives	What to check for
Business impact 	• What are the expected business outcomes/impact? • To what extent will these business outcomes be influenced by the technology vs. the service provider? • How much can be realized in the near term (1-2 years) vs. long term (after 3 years)?
Investment plan 	• Overall, how much is my investment potential? • How long do I plan to invest in the initiatives? • How does my investment compare with industry standards for similar initiatives?

Additionally, identifying the right use cases and partnering with the best-fit technology and service providers are crucial for achieving desired outcomes within budgeted costs.

Top AI + data + CRM use cases in E&U

With the overall business case charted out, enterprises should identify and prioritize AI + data + CRM use cases that fit their business cases. Below we discuss the top AI + data + CRM use cases and specific processes/applications in the E&U industry. We have identified these use cases based on their market impact assessed though parameters such as value delivered, growth outlook, and ease of deployment.

1 **AI-powered chatbot and virtual assistant for customer service:** Chatbots can be used to answer customer inquiries, resolve issues, and disseminate information. They offer 24/7 personalized support across channels (phone, web, mobile) with AI-powered proactive assistance and knowledge base search. Some E&U-specific use cases are:

Outage management:

- Virtual assistants to handle outage reports from customers, provide real-time updates on outage statuses, and offer estimated restoration
- Assist customers in reporting specific details about outages, such as affected areas or equipment

Energy usage optimization:

- Chatbots to analyze customer energy usage data and provide personalized recommendations for optimizing energy consumption
- Suggest energy-efficient practices and offer insights into energy usage patterns

Billing and payment assistance:

- Chatbots to assist customers with billing inquiries, payment processing, and setting up payment plans
- Provide personalized billing information, notify customers of upcoming payments, and troubleshoot payment issues

Customer education and engagement:

- Chatbots serve as educational resources for customers, providing information about utility services, energy conservation tips, and regulatory updates
- Gather feedback through surveys or analyze interactions to identify areas for improvement

2 **Customized product recommendations:** AI can help analyze customer data and consumption patterns and suggest personalized energy plans, renewable energy options, and energy-saving strategies:

Energy saving strategies:

Provide personalized recommendations on energy-saving practices based on historical use and predictive analytics; this helps customers optimize their energy consumption and reduce costs.

Renewable energy adoption:

assess customers' suitability for renewable energy sources such as solar panels or wind turbines and recommend the most cost-effective and sustainable options

Personalized energy plans:

Analyze customer data and consumption patterns to recommend tailored energy plans (for example, time-of-use, fixed rate, renewable mix plans) that meet individual needs and preferences; this includes suggesting optimal tariff structures, contract terms, and renewable energy options

Cross-selling and upselling opportunities:

Identify opportunities to promote and sell additional services or products, such as energy storage systems, electric vehicle charging stations, or home automation solutions based on customer preferences

3 **Dynamic demand management:** Technology and data-driven approaches can help to dynamically adjust energy supply and demand in real-time based on changing grid conditions, customer behavior, and market dynamics. E&U-specific use cases include:

Peak demand management:
- Utilities can implement dynamic demand management strategies to reduce energy consumption during peak demand periods
- By incentivizing customers to reduce electricity use during peak times or offering time-of-use pricing, utilities can optimize energy distribution and reduce strain on the grid, leading to improved productivity and efficiency

Grid optimization:
- Utilities can optimize grid operations based on real-time demand fluctuations and supply availability
- By dynamically adjusting energy generation, distribution, and transmission in response to changing demand patterns, utilities can minimize energy losses and improve system efficiency

Renewable energy integration:
- This is around integration of renewable energy sources, such as solar and wind power, into the grid
- By dynamically monitoring renewable energy generation variability, utilities can maximize the utilization of clean energy resources, reduce reliance on fossil fuels, and enhance environmental sustainability

4 **Personalized customer onboarding:** Advanced analytics and AI can help companies to create customized energy plans and recommendations based on individual consumption patterns and preferences. Key E&U-specific use cases are:

Proactive education:
- Offer proactive support and educational resources to customers during the onboarding phase to help them understand their utility services
- Such support may include video tutorials, FAQs, and tips for energy conservation, ensuring a positive customer experience from the outset

Personalized welcome communication:
- Create/Automate personalized welcome messages or emails to new customers that provide them with essential information, such as account details, billing information, and contact channels to facilitate the onboarding experience
- AI-driven personalization ensures that relevant content is delivered to customers based on their preferences and behavior

Automated meter activation:
- Streamline the process of activating new meters by automating workflows and reducing manual intervention
- This includes verifying customer information, assigning meter IDs, and enabling remote IoT-based activation

Digital documentation management:
- Digitize and manage customer documentation, such as contracts, agreements, and identification documents
- AI-powered document management systems can extract and classify relevant information and organize documents for efficient processing

Self-service account setup:
- Provide customers with online and mobile self-service options to set up their accounts, select service plans, and customize preferences
- Self-serve options help reduce the dependency on manual intervention and expedite onboarding

5 **Predictive maintenance of assets:** Predictive analytics can help utilities to refine maintenance timetables, mitigate downtime, and bolster their services' dependability. This proactive strategy plays a pivotal role in improving customer experience by minimizing service interruptions. E&U-specific use cases include:

Transformer maintenance:
- Anticipate transformer issues before they lead to failures
- By monitoring factors such as temperature, oil levels, and vibration, utilities can schedule maintenance during off-peak hours, preventing costly downtime

Sub-station equipment maintenance:
- Monitor sub-station assets such as circuit breakers and switches in real time
- This approach minimizes unplanned outages and enhances electrical grid reliability

Metering infrastructure maintenance:
- Monitor the performance of smart meters, detecting anomalies such as meter tampering and hardware failures
- This proactive approach ensures accurate billing, enhances customer satisfaction, and prevents revenue loss

Water plant maintenance:
- Optimize water and waste-water treatment plant equipment performance
- By monitoring flow rates, pressure levels, and chemical concentrations, utilities can detect issues early on, improving maintenance scheduling and efficiency

Other examples include predictive maintenance of turbines, transmission and distribution lines, water distribution networks, wind turbines, and solar panels

6 **Work schedule optimization and resource management:** Technology can help streamline and optimize workforce scheduling and resource allocation processes to enhance operational efficiency, reduce costs, and improve customer satisfaction. Key E&U-specific use cases are:

Training and Development:
- Enterprises invest in AI to personalize learning experiences based on employee needs and performance data
- Such training improves proficiency and engagement

Emergency Response:
- AI-powered scheduling mobilizes resources during power outages, minimizing disruption
- Real-time coordination enables faster service restoration and enhances public safety

Field Service Optimization:
- E&U companies leverage AI to optimize scheduling and resource allocation in field service operations
- This streamlining ensures efficient deployment of technicians based on availability, skillset, workload, and real-time needs, reducing travel time, enhancing response times, and maximizing resource utilization

Skills Gap Analysis:
- AI identifies and addresses skill gaps in meter reading and inspection teams, enhancing data collection and infrastructure assessments
- This analysis extends to customer-facing roles for comprehensive improvement

Exhibit 5 delves deeper into evaluating capability across various parameters to conduct a thorough market impact assessment of top 6 use cases.

In addition to these use cases, enterprises should consider and assess other high potential AI + data + CRM use cases. Please refer to the Appendix (Exhibit 9) for other high-potential AI + data + CRM use cases in E&U.

Exhibit 5: Market impact assessment of the top six use case capabilities

Source: Everest Group (2024)

Measure of awareness: Low High

Use case	Value delivered	Growth outlook	Ease of deployment	Market impact
AI-powered chatbot and virtual assistant for customer service				
Customized product recommendations				
Dynamic demand management				
Personalized customer onboarding				
Predictive maintenance for assets				
Work schedule optimization and resource management				

Key considerations for selecting the right partners

Following the selection of use cases, enterprises need to select the right partners to strategize and deliver results. The right technology provider offers not only technology solutions, but also business, domain, and process expertise. It also ensures that the use cases are best suited for the enterprise after assessing the client's current business and technical capabilities. To ascertain whether the provider(s) is the right fit, enterprises should answer the questions stated in Exhibit 6.

Only 41% of surveyed enterprises are highly satisfied with their providers' CX solutions.[1]

Based on findings from an Everest Group survey of technology leaders from 52 enterprises with revenues > US$500 million

Exhibit 6: Key considerations for enterprises to identify the right technology and service providers

Source: Everest Group (2024)

[REPRESENTATIVE LIST]

Platform provider

1. **Proof points:** Analyze publicly available named case studies / references in E&U with strong business outcomes
2. **Vendor lock-in:** Take a cautious approach to vendor lock-in, enforced by platform vendors pushing their other offerings
3. **Security and compliance:** Ensure that the products comply with E&U industry regulations and standards, if any
4. **Cloud agnosticism:** Ensure long-term support for the platform across hyperscalers and other cloud infrastructures; leveraging the cloud will be critical to further drive innovation
5. **Integration and emerging technologies:** Check for ease of integration with existing IT systems and emerging technology capabilities, such as (gen) AI, IoT, data, and analytics

Service provider

1. **Prior experience:** Check for named case studies / references with scaled CX (or select platform/s) transformations in E&U
2. **Outcome-focused:** Assess the service provider's willingness to contractually commit to KPIs with a strong governance model
3. **Partnerships with technology providers:** Depth of partnerships with the chosen technology provider in terms of joint solutions and GTM initiatives
4. **Investments in data and AI:** Evaluate the service provider's investments and capabilities for AI and data and analytics
5. **IP assets:** Look for mature E&U-specific IP assets for identified use cases that can drive time-to-market
6. **Talent:** Ensure talent availability; compare scale and quality of certified resources with other providers

Other considerations

For niche CX initiatives, enterprises should consider engaging specialist providers along with large global service providers

Enterprises should proactively assess off-the-shelf solutions/add-ons on technology vendor marketplaces or technology vendor-certified solutions with service providers / ISVs

Conclusion

The writing is on the wall. Enterprises with outdated CRM systems and CX processes should either embrace transformation now or risk being left (far) behind. Such enterprises face challenges such as high operational expenses, outdated functionalities, poor customer engagement/satisfaction, and high customer churn rate. To overcome the above challenges and unlock transformative business value, businesses should formulate long-term AI-led CX strategies to ensure sustained growth, enhance competitiveness, and address evolving customer needs.

However, despite the growing trend of AI-driven CX initiatives, many organizations struggle to implement them effectively, resulting in lower-than-anticipated benefits. To ensure successful implementation, businesses must devise well-structured strategies for solution development, adoption, and sourcing, as we outline below.

Navigate challenges effectively: To succeed in AI-driven CX initiatives, E&U enterprises need to effectively navigate and prioritize challenges to develop strategies for risk mitigation, resource allocation, and tailored solution implementation. They should focus their efforts on where they can make the greatest impact, maximizing the RoI from CX initiatives

Establish the right business case: Enterprises must establish a compelling business case for AI-driven CX initiatives to ensure that resources are directed to gain tangible value and support long-term growth. In the near term, they should focus on seizing quick-win investment opportunities by optimizing processes and experience, while, in the long term, enterprises should reinvest their gains to build differentiated customer experiences

Identify right fit use cases: Use cases to maximize the efficacy and value delivery of AI technologies. Use cases directly linked to customer pain points, especially focused on the customer engagement strategy, are crucial to enhance customer satisfaction and loyalty. Enterprises should have the necessary data to support the objectives of their AI-driven CX initiatives, addressing specific customer needs and organizational challenges.

Engage with the right partners: To drive successful AI-driven CX initiatives, enterprises should have right partnership network with access to best-in-class expertise in AI technologies and proof points. Strategic partnerships with the right service/technology provider will provide ongoing strategic support and guidance to enterprises' long-term CX roadmaps. Enterprises can accelerate innovation using, external expertise and resources, ultimately driving enhanced CX. Also, the right service providers can help facilitate change management for successful implementation of AI-driven CX initiatives, overcoming adoption challenges and promoting stakeholder buy-in to navigate the transition.

Appendix

This report is partially based on a survey that Everest Group conducted among 52 enterprises over January-February 2024. Exhibit 7 provides respondent details.

Exhibit 7: Distribution of surveyed enterprises by geography, annual revenue, respondent designation, and industry

Source: Everest Group (2024)

Distribution of surveyed enterprises by geography[1]

North America	38%
Europe	40%
UK	17%
APAC	31%
LATAM	15%

Distribution of surveyed respondents by designation

CXOs	6%
Manager/Senior Manager	29%
Director	27%
Senior Director	9%
Vice President	8%
Senior VP / EVP / President	21%

Distribution of surveyed enterprises by annual revenue

US$500 million-5 billion	58%
US$5-25 billion	38%
>US$25 billion	4%

Distribution of surveyed enterprises by industry sub-segments[2]

Utilities: water supply	10%
Coal and mining	13%
Renewable energy	17%
Oil & gas: upstream	25%
Oil & gas: downstream	31%
Utilities: Electricity	33%

1 Some of the participating firms have presence across multiple geographies
2 Some of the participating firms have presence across multiple industry sub-segments

Below we list other high- potential AI + data + CRM use cases for E&U enterprises

Dynamic price forecasting	dynamically adjust energy pricing based on real-time demand, grid conditions, and individual customer data to optimize revenue and customer satisfaction.
Document generation and verification	• Generate documents based on templates to speed up sales and services procedures • Automate the verification of invoices for accuracy and compliance
Customer sentiment analysis	adoption of Natural Language Processing (NLP) and machine learning techniques to analyze customer feedback, comments, and interactions to understand customers' views on the utility company and its services.
Risk assessment and safety management	identify, evaluate, and mitigate potential risks and hazards associated with energy production, distribution, and consumption to ensure the safety of customers, employees, and assets while minimizing the risk of accidents, disruptions, and environmental damage.
Renewable energy forecasting and planning	use advanced analytics and predictive modeling techniques to forecast the generation of renewable energy sources, such as solar, wind, and hydroelectric power, to optimize energy production and improve grid stability.
Charging station for electric vehicles	• Implement a user-friendly interface and efficient payment system at charging stations to enhance CX • Encourage the adoption of electric vehicles by providing convenient and reliable charging solutions
ESG performance tracking and prediction	use data analytics to monitor sustainability metrics to proactively identify trends, predict future performance, and communicate transparently with stakeholders, fostering trust and accountability.
Exploration planning (Geospatial Analytics):	optimize exploration activities by analyzing geological data, identifying promising locations for resource extraction, and minimizing environmental impact, ultimately improving operational efficiencies and sustainability
Fraud detection and prevention	implement advanced data analytics and machine learning algorithms to detect anomalies and patterns indicative of fraudulent activities, safeguard against financial losses, and maintain the integrity of operations
Regulatory compliance audits	streamline the regulatory compliance auditing process, ensuring adherence to complex regulatory requirements, minimizing risks of non-compliance, and fostering a culture of transparency and accountability
Water conservation planning:	optimize water usage, identify conservation opportunities, and implement sustainable water management strategies, contributing to long-term resource sustainability
Water leak detection and prevention	deploy IoT sensors and data analytics to enable real-time monitoring of water infrastructure, facilitating early detection of leaks, prompt maintenance interventions, and optimization of water distribution networks
Water quality prediction	anticipate changes in water quality parameters, proactively address potential risks to water supply, and ensure compliance with regulatory standards

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