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Power and Utilities Innovations Shaping the Future: 2024 Eye on Innovation Winners

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Initiatives: Energy and Utilities Industry Technology Insights

The Gartner Eye on Innovation Awards celebrates organizations globally for their best-in-class technological innovations. Power and utilities CIOs can use these insights to identify key technologies and outcomes, thereby inspiring their teams and guiding their own transformation initiatives.

Overview

Key Findings

- Data and analytics (D&A), cloud and AI are the leading technologies driving innovation among participants in the 2024 Gartner Eye of Innovation Awards for Power and Utilities.
- Operational efficiency and digital transformation are the primary goals of these innovations.
- Finalists for the 2024 awards utilized D&A technologies more frequently than nonfinalists, underscoring the role of D&A in enabling efficiency and reducing costs.
- Innovations addressed specific regional challenges such as overcoming natural obstacles to power delivery in the Americas, ensuring grid stability in EMEA, and optimizing electricity usage and energy trading in Asia/Pacific and EMEA.

Recommendations

- Use the real-world examples by sharing these Eye on Innovation case studies with internal stakeholders to gain C-suite support and secure funding for your initiatives.
- Ensure long-term success by aligning IT strategy with business goals, prioritizing data-driven decision making and fostering a culture of continuous improvement.
- Develop a technology investment strategy that aligns with business outcomes, addressing gaps between current technology and future objectives and promoting innovation through transparency.
- Deprioritize or redesign digital investments that do not align directly with your key business outcomes.

Analysis

Gartner Eye on Innovation Awards for Power and Utilities

The 2024 Gartner Eye on Innovation Awards for Power and Utilities resulted in 123 unique innovation project submissions from more than 81 power and utilities organizations worldwide. Gartner's analysis of these projects identified key innovation patterns and themes, highlighting what set finalists and winners apart. Power and utilities CIOs can leverage this analysis to make informed decisions on resource allocation to support innovation and maximize business outcomes.

To view the collection of technology innovation videos from the 2024 Gartner Eye on Innovation finalists and winners, see Video: Power and Utilities Technological Innovation Use Case Examples.

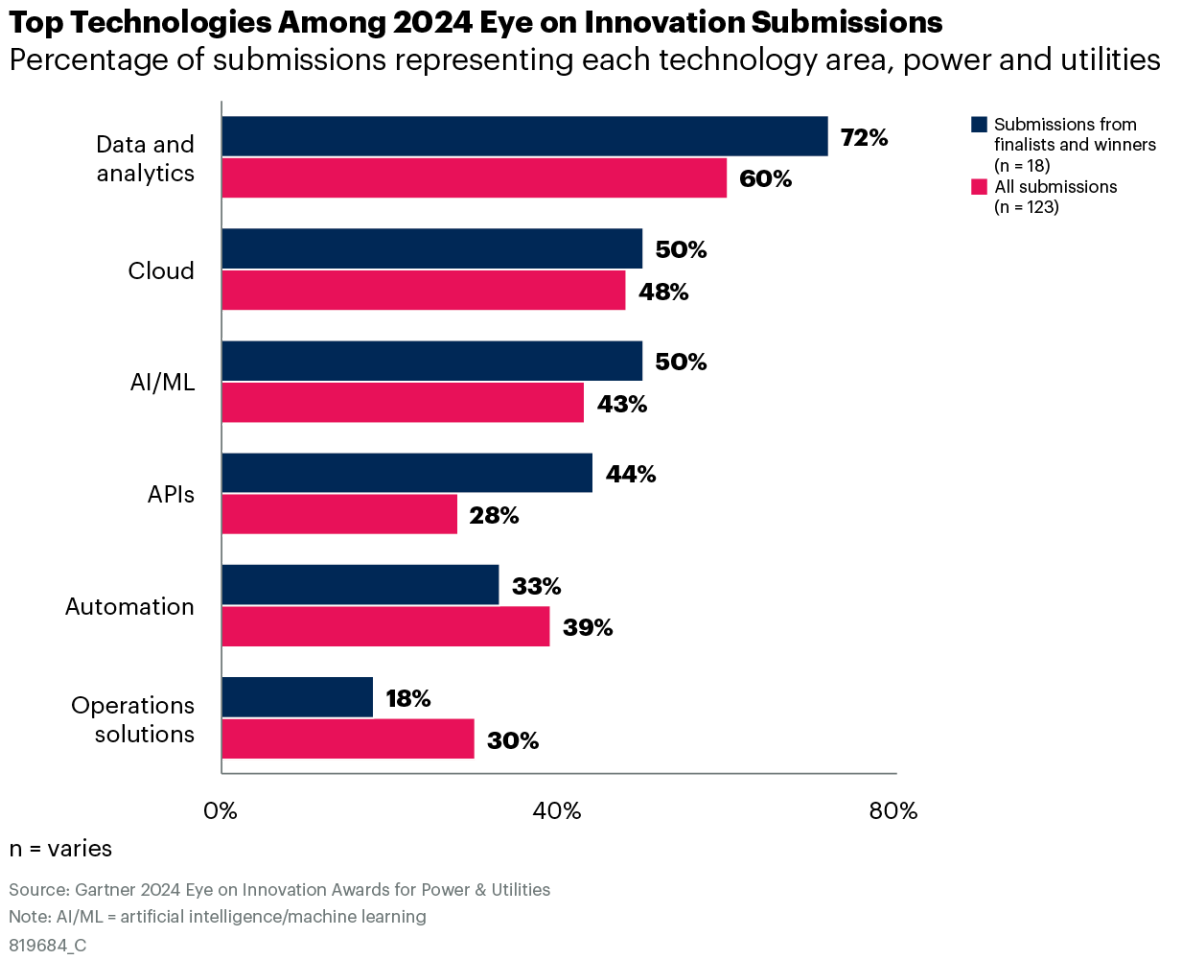
D&A Top Innovation Approaches

The Eye on Innovation submissions for power and utilities saw D&A technologies as the most frequently employed, with 60% of submissions using D&A to support their innovations. Cloud technologies followed at 48% and AI/machine learning (ML) at 43%. These technologies are pivotal in enabling intelligent operations across assets, customers and markets (see Utilities Embrace Intelligent Operations in 2023).

D&A Distinguish Award Finalists From Other Submissions

While 60% of all submissions used D&A technologies, 72% of finalists and winners in 2024 leveraged these technologies (see Figure 1). Additionally, cloud and AI/ML technologies were employed by half of the finalists, underscoring their importance in achieving superior outcomes.

Figure 1: Top Technologies Among 2024 Eye on Innovation Submissions

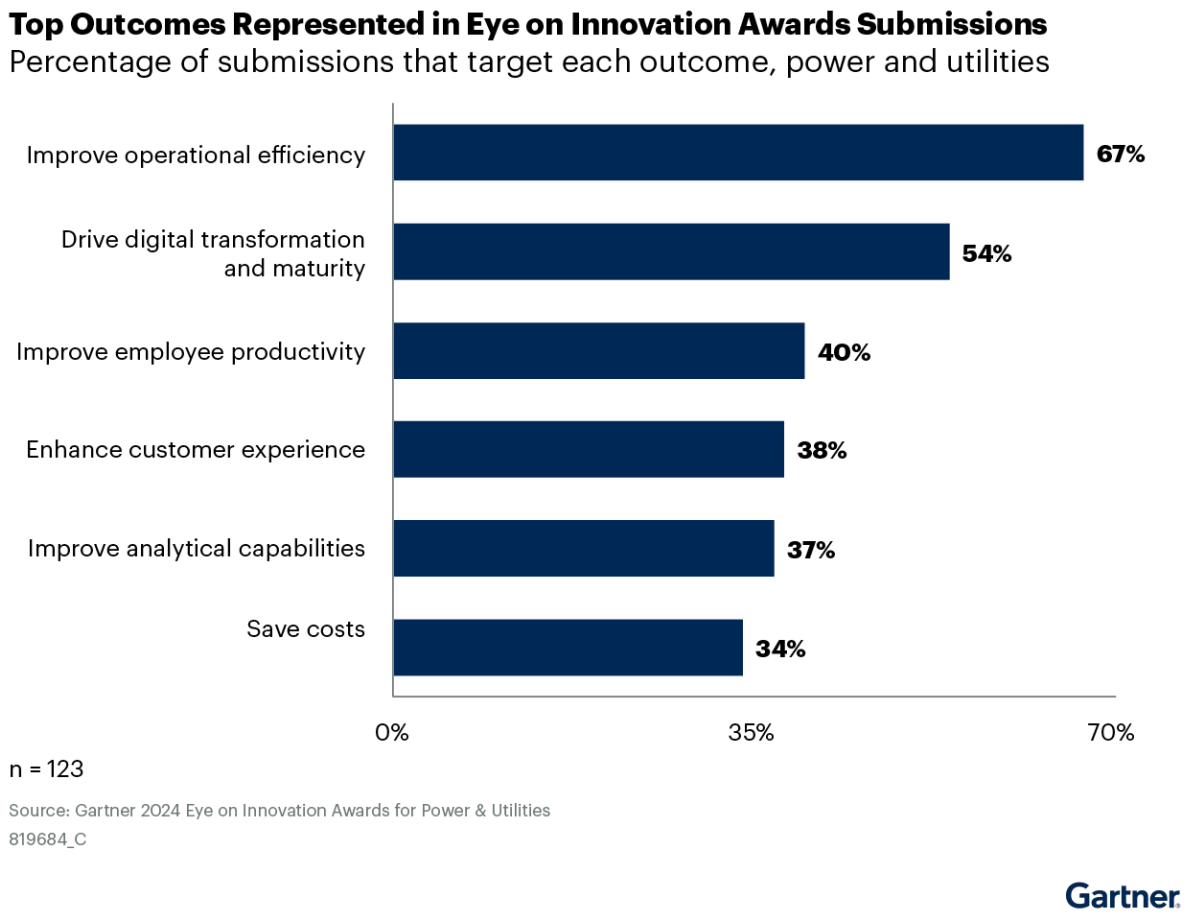


Power and utilities organizations are increasingly relying on technology to unlock business outcomes to mitigate risks and seize opportunities. Notably, 44% of power and utilities finalists used APIs to support their innovations, facilitating data integration across IT, operational technology, engineering technology and customer technology domains. This shift from vertical to horizontal technology integration underscores the importance of a data-driven backbone, enabling organizations to harness diverse data sources for improved insights and outcomes. Cloud investments are critical for delivering seamless digital services. Interestingly, operations solutions appeared in only 18% of finalists, highlighting a stronger focus on data-driven strategies.

Common Goals of Innovation Are Efficient Operations and Digital Transformation and Maturity

Improving operational efficiency and driving digital transformation were the most common goals of power and utilities innovations (see Figure 2). Sixty-seven percent of organizations reported achieving efficient operations, while 54% reported digital transformation and maturity. These outcomes were primarily driven by the top technologies: D&A, cloud and AI/ML.

Figure 2: Top Business Outcomes Represented in Eye on Innovation Awards Submissions



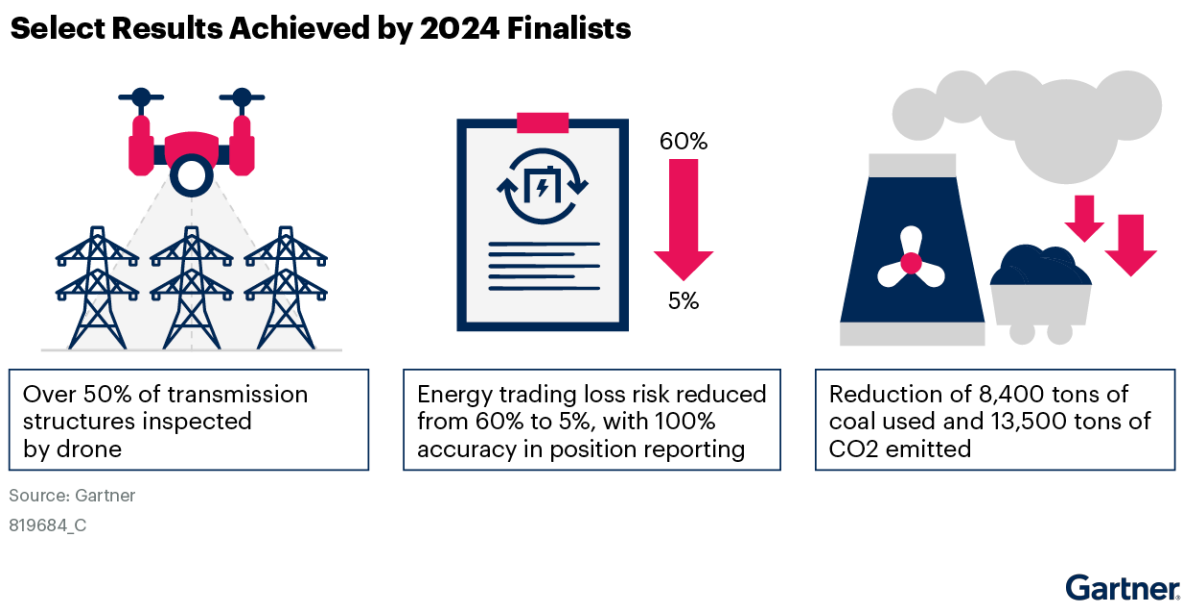
These business outcomes validate power and utilities organizations are beginning to take advantage of data-driven backbone to excel at operational excellence and meet new market opportunities. While operational efficiency remains a traditional focus, there is a growing emphasis on enhancing customer experience as organizations adopt an ecocentric approach (see Technology-Led Innovation Is Transforming the Utility Business Model).

Notable Achievements in Operational Efficiency and Digital Transformation

The focus on operational efficiency and digital transformation is evident in the impressive outcomes achieved by various 2024 finalists (see Figure 3). Examples include:

- **Advanced drone enablement:** Over half of transmission structures inspected by drone; increased system, operator and community safety; reduced time, resources and risk; and enabled cost savings. Key technologies included unmanned autonomous vehicles (UAVs). *Submission from Pacific Gas and Electric Company (PG&E).*
- **VEGA:** Commercial loss risk in energy trading reduced from 60% to 5%, with 100% accuracy in position reporting. Key technologies included AI/ML, APIs, cloud (computing, technologies, platforms), CRM, D&A and operations solutions. *Submission from Enerjisa Üretim.*
- **Steam grid optimization:** Coal savings of approximately 8,400 tons annually, 3,800 tons reduction in solid waste annually, 13,500 reduction in CO_2 emissions. Key technologies included AI/ML, APIs, cyber-physical security, decision intelligence, model management and seamless automation leading to intelligent operations. *Submission from ITC's Paperboards and Specialty Papers Division (ITC-PSPD).*

Figure 3: Select Results Achieved by 2024 Finalists



Eye on the Future: What 2024 Signals for 2025 and Beyond

Interestingly, the top technologies and business outcomes in the 2024 Eye on Innovation submissions closely mirror the findings from the 2024 Gartner CIO and Technology Executive Survey. We expect the 2025 CIO survey results to be key indicators of future trends. CIOs can use these insights to inspire their teams and guide their transformation initiatives (see 2025 CIO Agenda: Top Priorities and Technology Plans for Power and Utilities).

Extrapolating from our analysis of the 2024 submissions, several patterns suggest which technologies and outcomes will likely drive success in the power and utilities sector in the coming years.

An eye on power and utilities technology:

- **AI:** While AI was tied for the second most used technology in 2024, Gartner expects it to become the top technology in 2025 due to its significant value potential (see Artificial Intelligence Use Case Examples in Power and Utilities). In 2024, AI was utilized in 42 of the 123 submissions.
- **Hyperautomation:** Gartner anticipates a greater focus on hyperautomation in 2025, driven by the combined effects of D&A, cloud and AI/ML technologies. Together, these technologies promise greater automation opportunities.

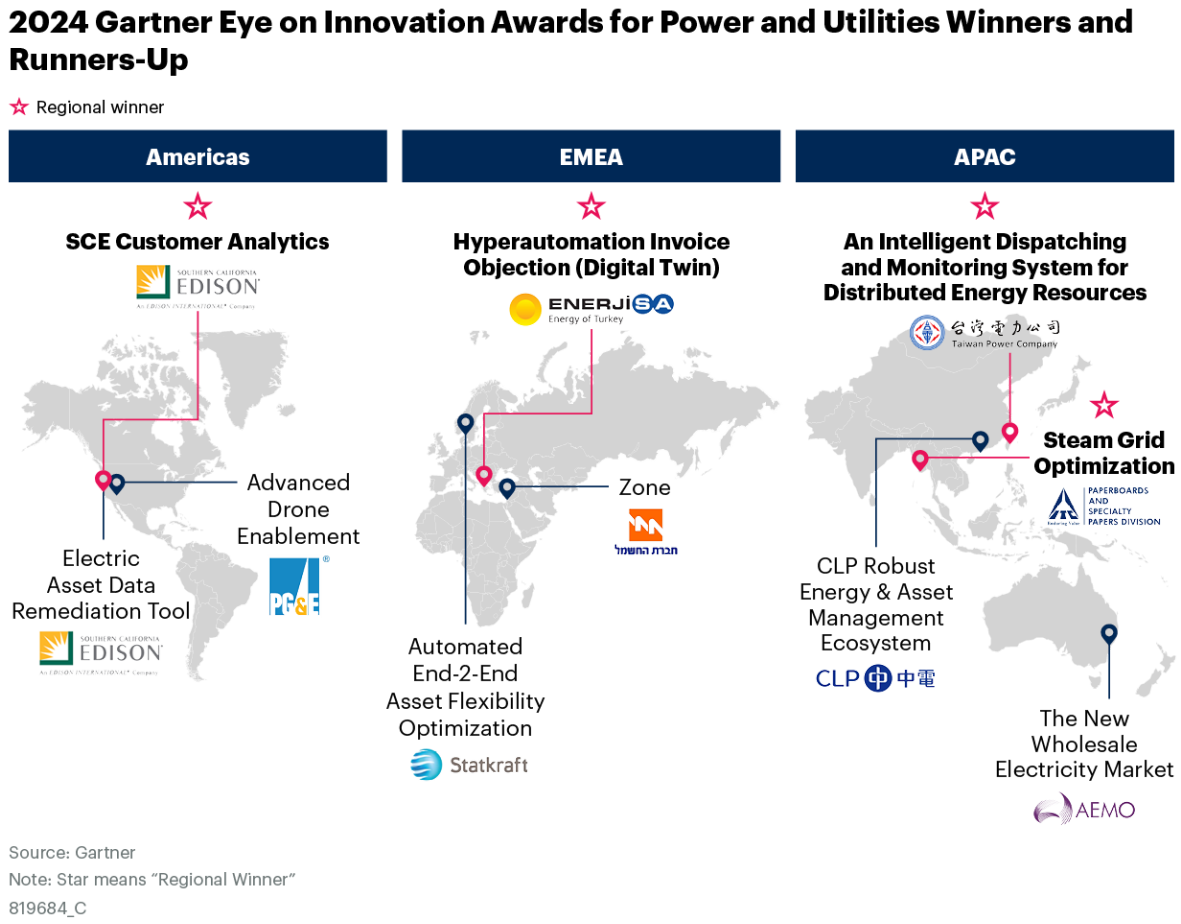
An eye on future outcomes:

- **Ensure compliance/minimize risk:** Surprisingly absent from the 2024 Eye on Innovation top outcomes (see Figure 2), Gartner expects compliance and risk to be a key priority in 2025. As power and utilities organizations advance their digital transformation, they face increasing compliance requirements and risks due to participation in external ecosystems, edge-to-grid capabilities and intelligent assets. Notably, 88% of power and utilities CIOs and tech executives identified ensuring compliance and minimizing risks as a critical outcome of digital technology investments, according to the 2025 Gartner CIO and Technology Executive Survey. [1]

The Winners: 2024 Eye on Innovation Awards for Power and Utilities

The winners were selected by a panel of peer senior industry executives across the three regions: the Americas, EMEA and APAC (see Figure 4).

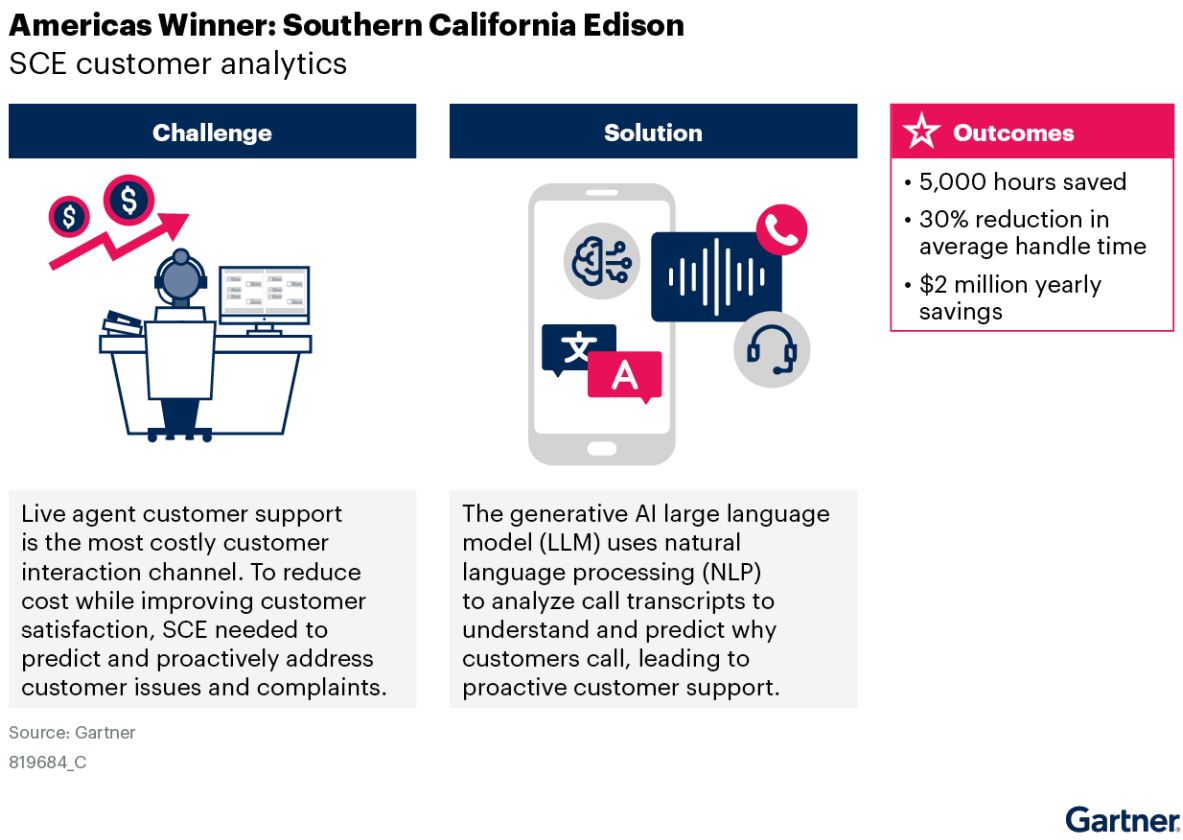
Figure 4: 2024 Gartner Eye on Innovation Awards for Power and Utilities Winners and Runners-Up



The Americas

The winner in the Americas was Southern California Edison (see Figure 5).

Figure 5: Americas Winner — Southern California Edison



> "This submission showcases a highly innovative solution leveraging advanced AI, NLP, and machine learning technologies to transform customer service operations. The integration of these technologies has led to significant time savings, revenue recovery, and enhanced customer satisfaction. The well-defined quantitative metrics highlight the substantial business value and operational efficiency improvements, demonstrating the effectiveness of the initiatives in addressing key industry challenges."
>
> — *Eye on Innovation Judge*

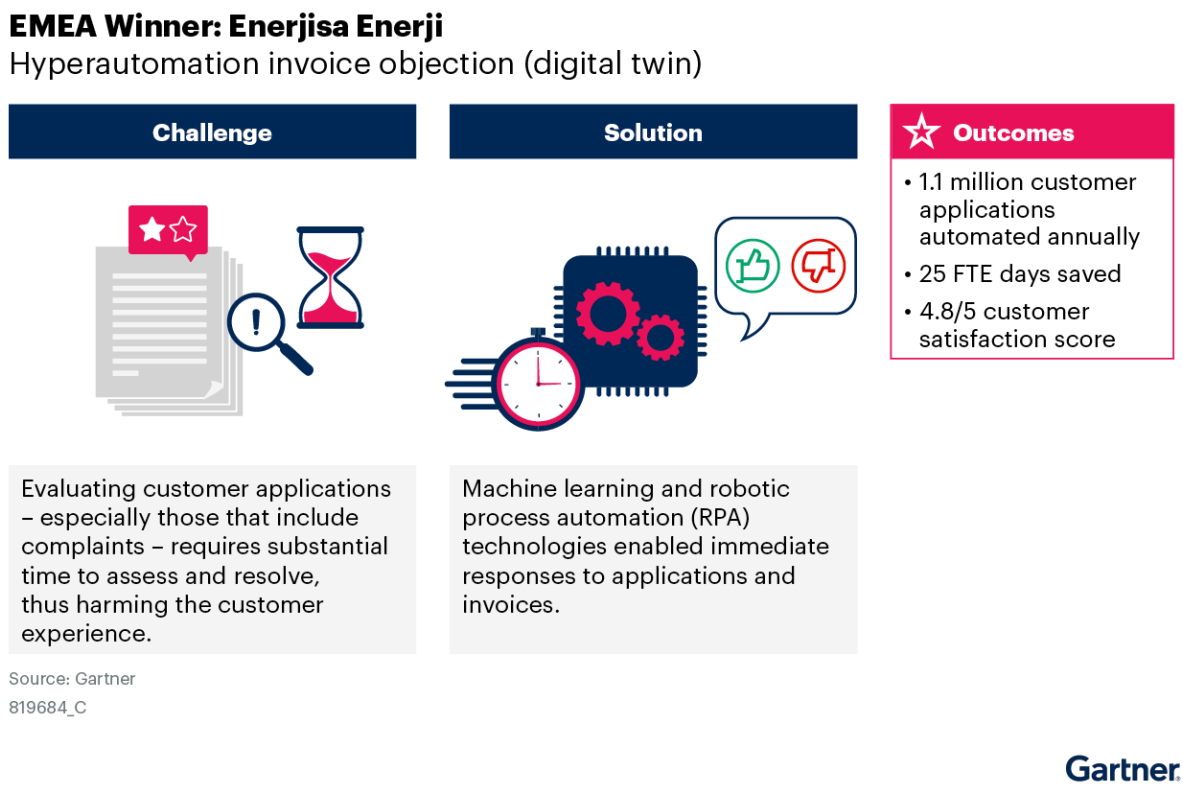
Common themes among finalists in the region:

- **Integration of information:** Finalists developed solutions like a "data elevator" for secure, real-time data flow across utility systems and applications for engineering teams to plan activities and prepare documentation for service employees in the field. *Submission examples from Chelan County Public Utility District (PUD) and Southern California Edison.*
- **Overcoming nature:** Finalists worked on mitigating wildfire risks, such as deploying remote grids with locally sited solar panels, batteries and backup generators. *Submission examples from PG&E.*

EMEA

The winner in EMEA was Enerjisa Enerji (see Figure 6).

Figure 6: EMEA Winner — Enerjisa Enerji



> **"This submission appears to address significant business challenges with a real innovative approach across the application of advanced machine learning and RPA to improve response times. The hyperautomation to streamline operations shows a clear focus on customer and employee satisfaction, with clear benefits and being able to see a reduction in application assessment times and measurable CSAT scores is a clear indicator of business benefit and improvement."**
>
> — *Eye on Innovation Judge*

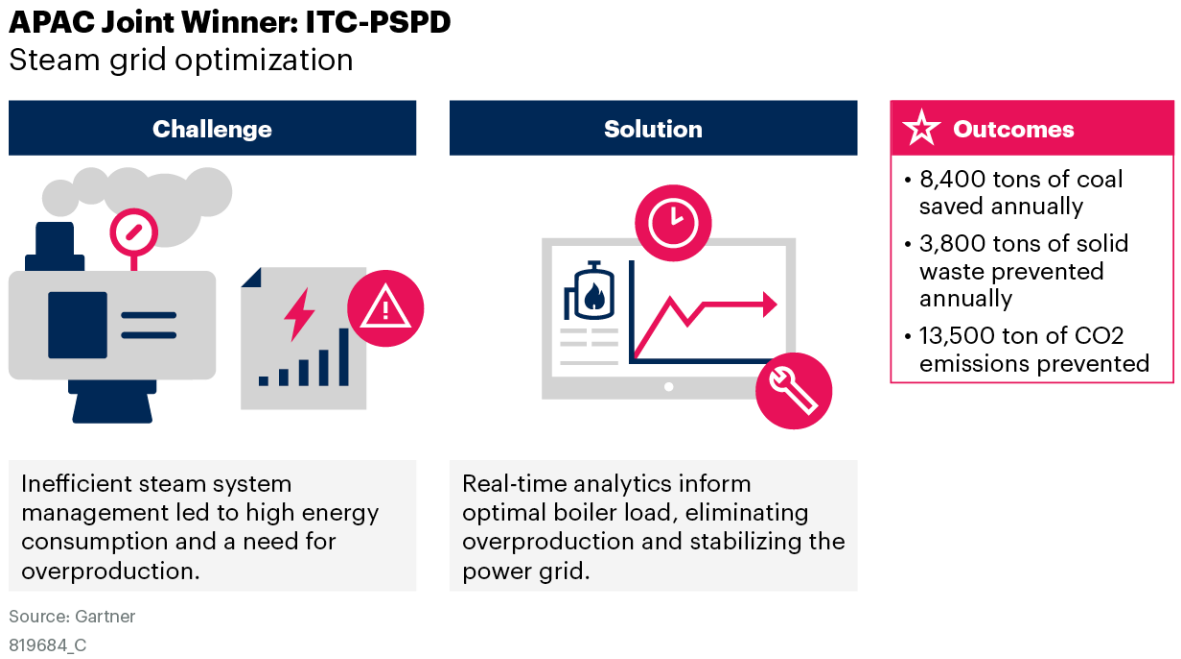
Common themes among finalists in the region:

- **Ensuring grid stability:** As power providers implement renewable energy sources and serve emerging customer needs (for example, electric vehicles), they must overcome issues of intermittence inherent to many sustainable sources of power generation. Finalists employed real-time modeling and digital twins to ensure grid stability across diverse assets and customer bases. *Submission examples from Israel Electric Corporation and Statkraft.*
- **Energy trading automation:** Finalists developed cloud-based AI solutions to automate energy trading and risk management, reducing manual tasks and errors while identifying new commercial opportunities. *Submission examples from Statkraft and Enerjisa Üretim Santralleri.*

APAC

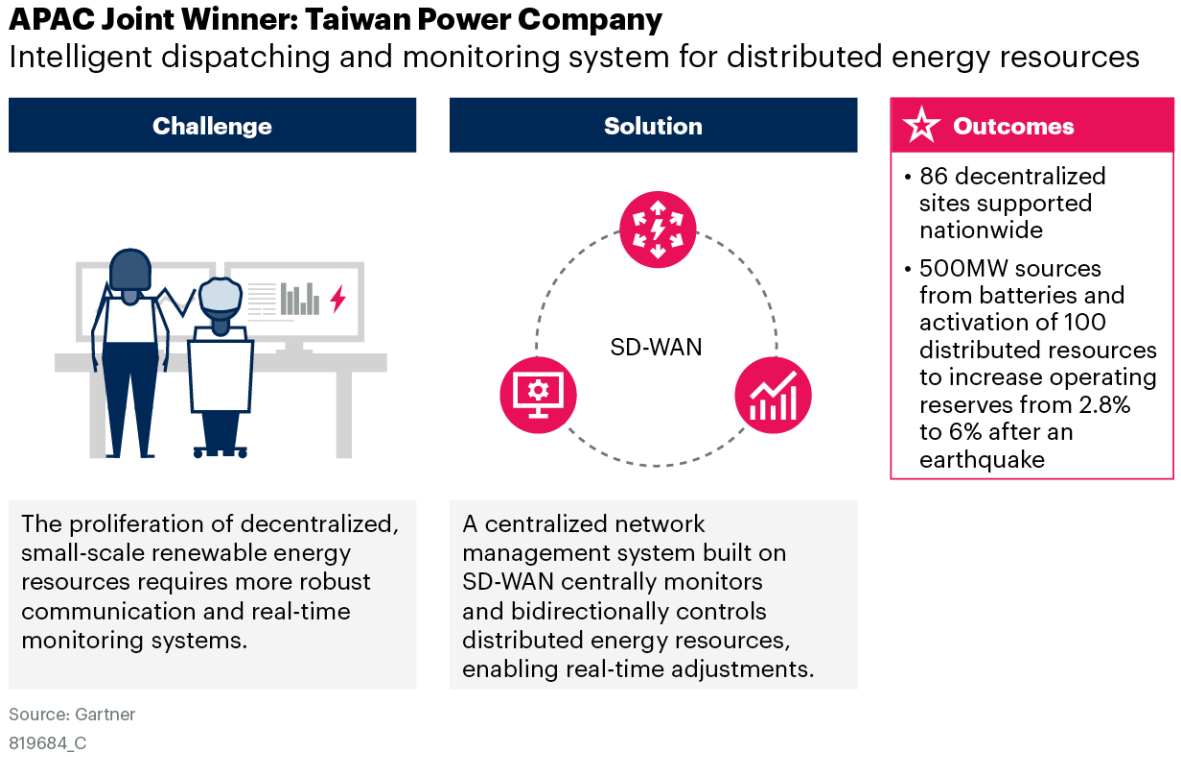
The tied winners in APAC were ITC-PSPD (see Figure 7) and Taiwan Power Company (see Figure 8).

Figure 7: APAC Winner — ITC-PSPD



> "Steam and Power Optimization Tool (SPOT) unique capability lies in its real-time, analytics-driven optimization, which differs from traditional reactive processes. It can dynamically adjust to operational constraints, providing optimal setpoints for equipment and ensuring efficient energy use across the steam and power network."
>
> — *Executive at ITC-PSPD*

Figure 8: APAC Winner — Taiwan Power Company



> "Strong solution; solves a clear problem in the utility industry; no mature solutions in the market to address this functionality; accelerated time to market big positive."
>
> — *Eye on Innovation Judge*

Common theme among finalists:

- **Electricity usage optimization:** Innovations aimed at maximizing electricity reliability while reducing waste often employing AI for accurate electricity usage forecasting. One finalist used three levels of analysis: short-term load forecasting, generator scheduling optimization and asset health monitoring. *Submission examples from CLP Power Hong Kong, Taiwan Power Company and ITC-PSPD.*

For power and utilities leaders interested in learning more about the 2024 award winners and finalists or participating in the 2025 awards, visit Gartner Eye on Innovation Awards for Power & Utilities.

Evidence

2024 Gartner Eye on Innovation Awards for Power and Utilities. The main objective was to understand innovative uses of technology to drive best-in-class initiatives at power and utilities organizations. Submissions were accepted online from 1 February through 31 May 2024. In total, we received 123 submissions from respondents who worked in power and utilities organizations. Respondents were sorted by region: Americas (n = 48), EMEA (n = 38) and APAC (n = 37).

[1] **2025 Gartner CIO and Technology Executive Survey.** This survey tracked how senior IT leaders worldwide prioritize strategic business, technical and management objectives. It was conducted online from 1 May through 28 June 2024. The survey includes respondents who lead an IT function, with a total of 3,186 CIOs and technology executives participating, including 105 from power and utilities companies. The survey participants are representative of various geographies, revenue bands and industry sectors, including both public and private organizations. Disclaimer: The results of the survey do not represent global findings or the market as a whole, but reflect the sentiments of the respondents and companies surveyed.

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