



State of AI in Energy & Utilities

Research conducted by:



This report provides an analysis of the transformative impact of AI on the energy and utilities sector, drawing insights from a comprehensive survey conducted in the summer of 2024 by Neudesic and Databricks in collaboration with Hanover Research. The survey included 250 qualified respondents involved in AI implementation within utilities organizations serving over one million customer meters.

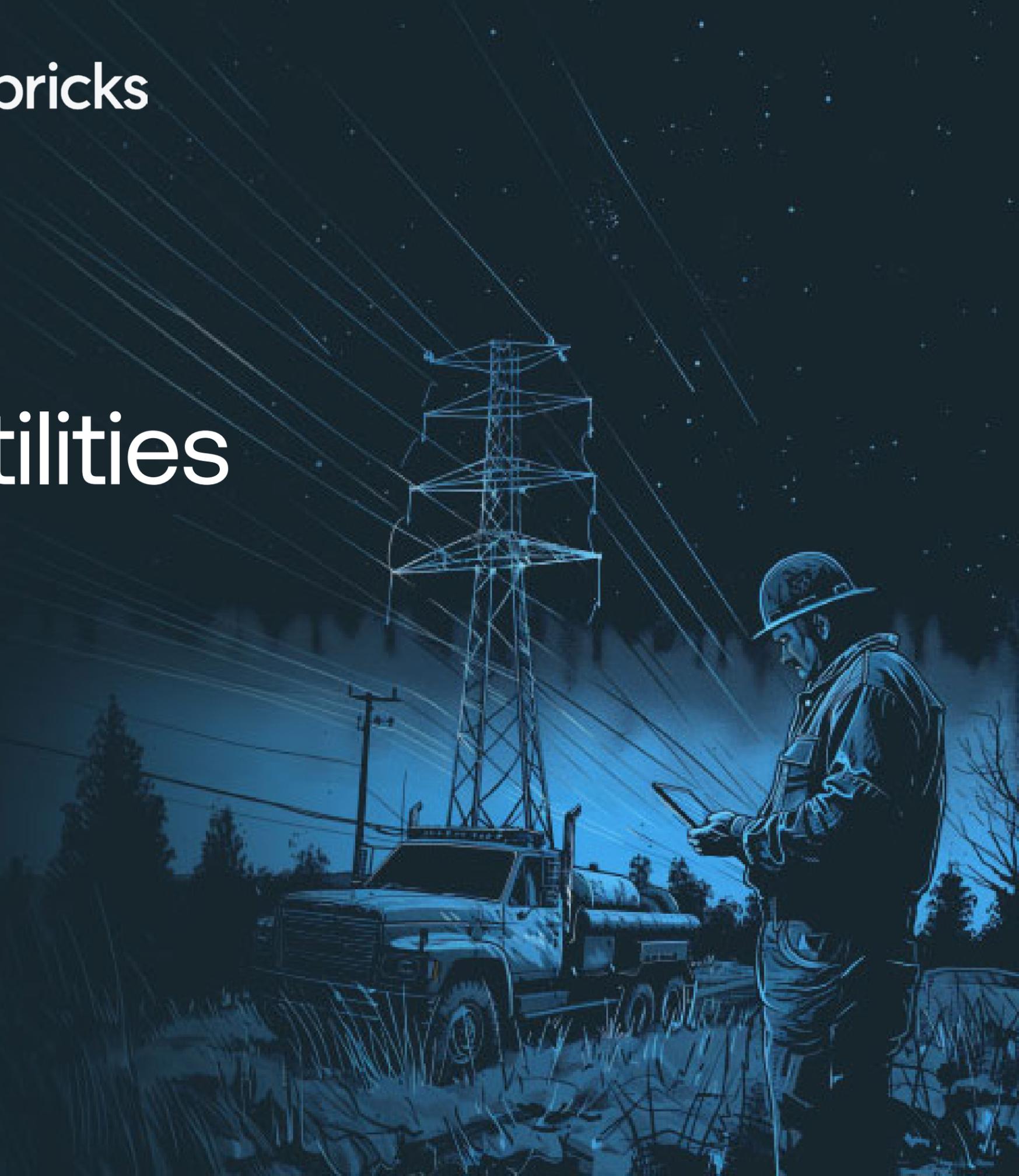
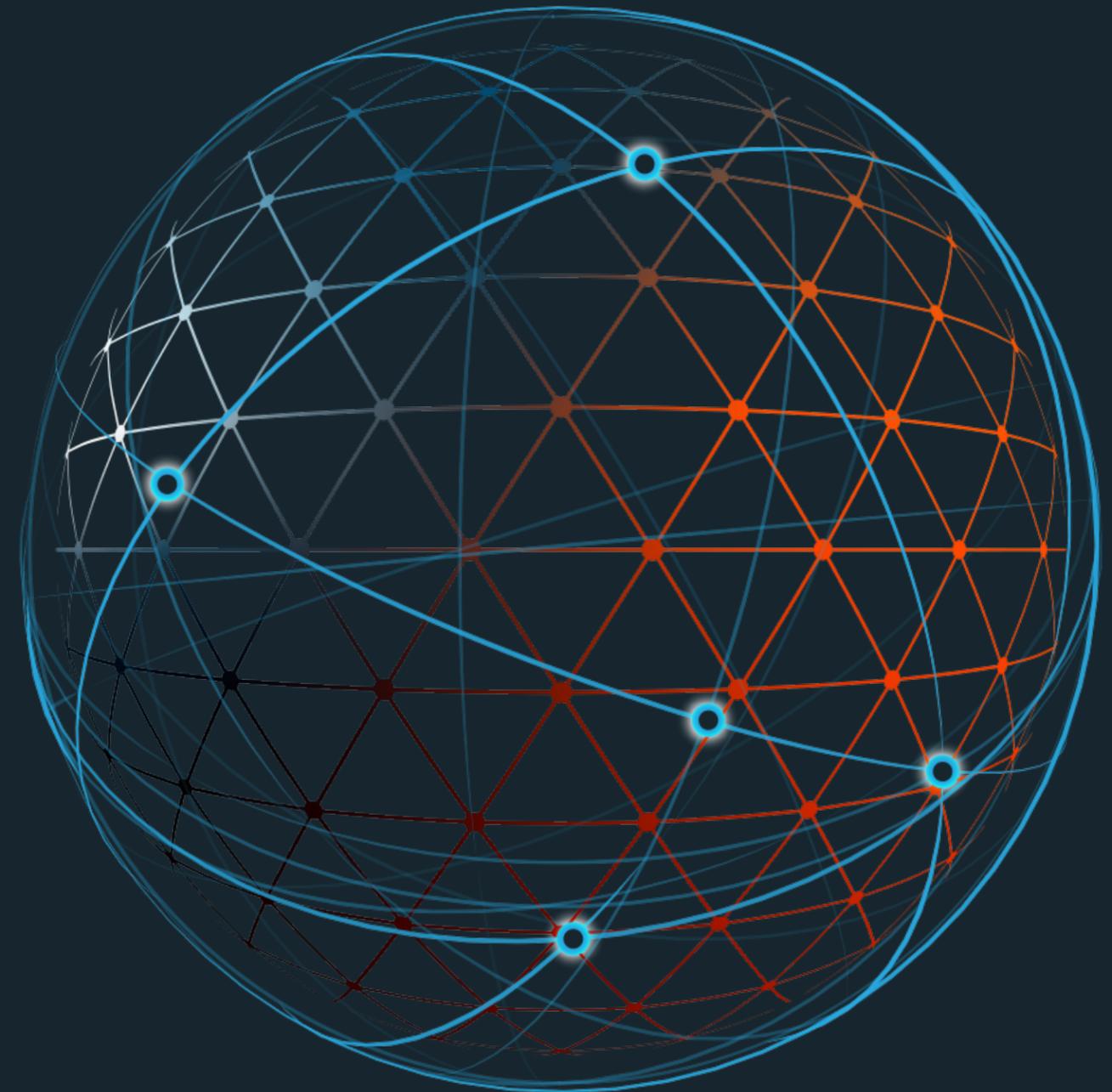


Table of Contents

Executive Summary	3
Chapter 1 Defining Success	4
Chapter 2 Industry Use Cases	10
Chapter 3 Challenges	16
Chapter 4 Realized Benefits	21
Chapter 5 Regulatory Compliance	27
Chapter 6 Investment Strategies	31



EXECUTIVE SUMMARY

Transformative impact of artificial intelligence (AI) on the energy and utilities sector

Drawing insights from a comprehensive study conducted in the summer of 2024 by Neudesic and Databricks in collaboration with Hanover Research. The study included 250 qualified respondents involved in AI implementation within utilities organizations serving over one million customer meters. Key findings from the study reveal that AI is increasingly seen as a pivotal technology for overcoming industry challenges, such as transitioning to renewable energy, data integration, and addressing aging infrastructure.

A few key themes from the study suggest overall positive adoption:

- Current usage and adoption of AI is increasing across departments
- AI investments are expected to increase over the next 12 months
- ROI and realized benefits exceed the initial expectations

Additionally, the study shows how efficiency and safety are key areas of focus for utilities as they move toward more sustainable and secure operations. AI serves as a critical role in minimizing costly outages by identifying issues prematurely while enhancing data protection to safeguard critical infrastructure. To further drive efficiency, findings indicate that AI will increasingly impact both strategic and operational aspects of utilities as a result of the growing role of AI permeating across other use cases.

These impacts are apparent in the positive results from the study on the expected impact on ROI when planning for and implementing AI solutions:

53% of respondents report improved safety and risk management as an expected impact

49% of respondents foresee a major impact on enhanced energy efficiency and sustainability

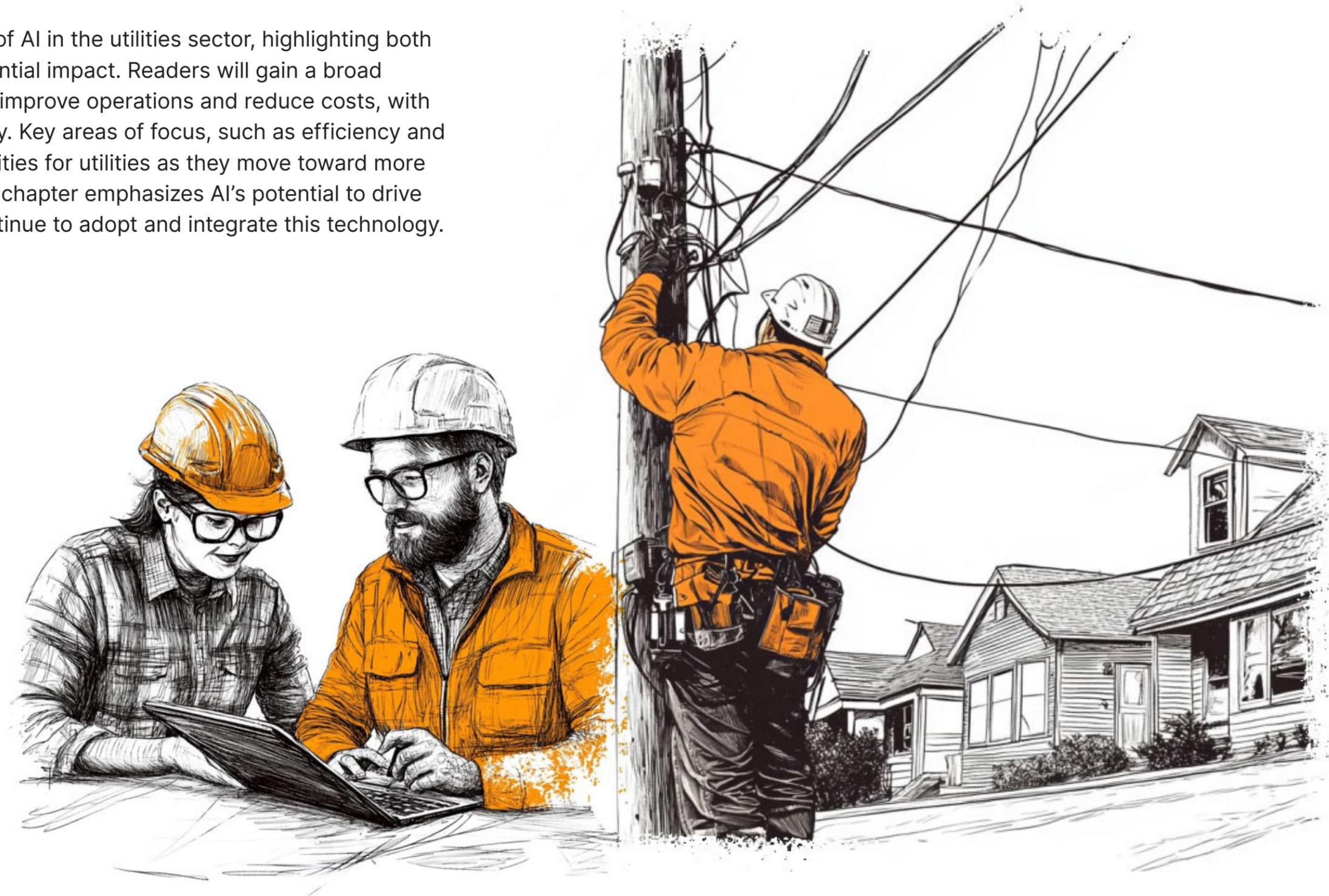
50% of respondents suggest a major impact on strengthened cybersecurity

50% of respondents anticipate impact on optimized resource allocation and asset management

This study is intended to help utilities navigate the AI landscape, drive adoption, and leverage AI's full potential to meet the evolving demands of the energy and utilities sector.

Defining AI Success

This chapter explores the evolving role of AI in the utilities sector, highlighting both optimism and caution regarding its potential impact. Readers will gain a broad understanding of how AI is expected to improve operations and reduce costs, with varying expectations across the industry. Key areas of focus, such as efficiency and safety, are discussed as important priorities for utilities as they move toward more sustainable and secure operations. The chapter emphasizes AI's potential to drive significant change as organizations continue to adopt and integrate this technology.



How Do You Define Successful AI Adoption at Your Organization?



C-Suite /
Business Leader



46 Responded

Data Scientist
and Analyst



56 Responded

Information
Technologists



64 Responded

Operations
Managers



10 Responded

Project &
Product Managers



17 Responded

R&D
Innovators



12 Responded

Strategists

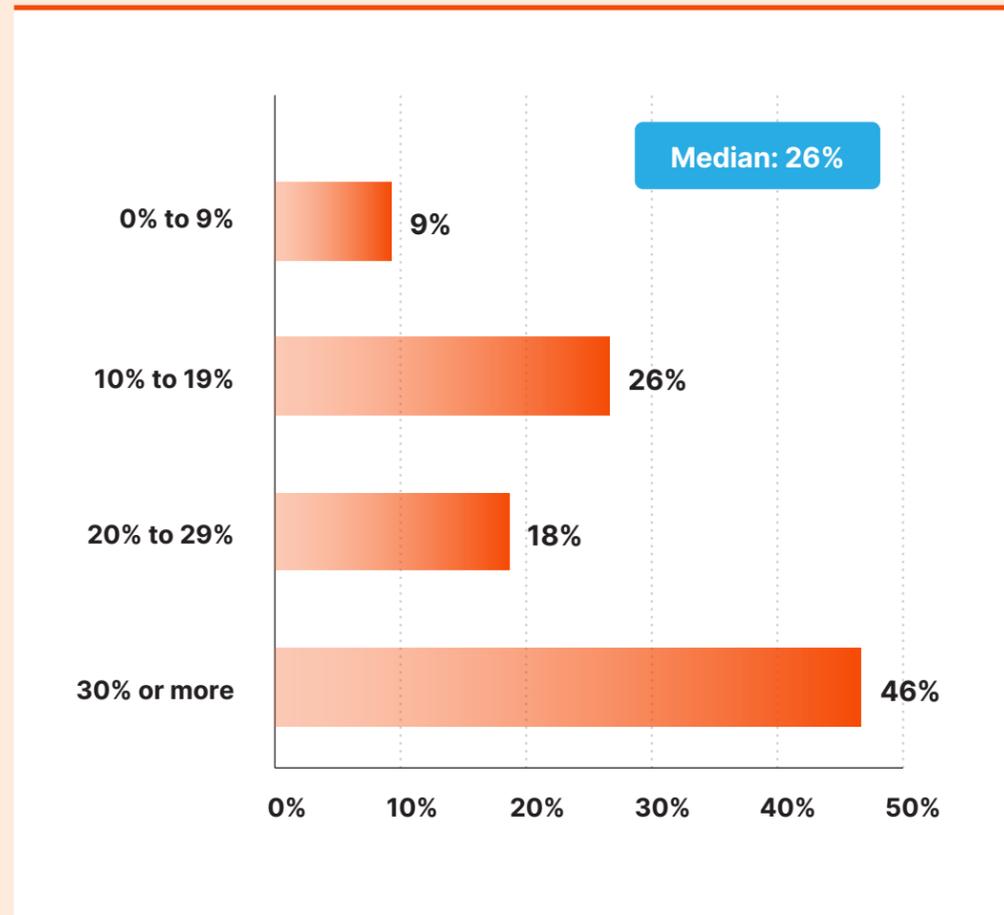


45 Responded

	C-Suite / Business Leader	Data Scientist and Analyst	Information Technologists	Operations Managers	Project & Product Managers	R&D Innovators	Strategists
1. Enhanced data-driven decision-making	28%	43%	53%	40%	53%	25%	44%
2. Improving operational efficiency and productivity	26%	48%	36%	40%	47%	50%	40%
3. Strengthened cybersecurity	17%	41%	42%	50%	47%	50%	42%
4. Creating new revenue streams or business models	30%	36%	42%	30%	53%	33%	40%
5. Workforce is capable of managing/working alongside AI	30%	45%	39%	50%	35%	50%	27%
6. Increasing uptime of services	33%	29%	41%	20%	35%	42%	33%
7. Improving safety and risk management	24%	34%	38%	20%	35%	50%	38%
8. Acheiving of sustainability goals	15%	45%	41%	40%	29%	8%	36%
9. Acheiving business objectives	20%	34%	38%	40%	29%	25%	38%
10. Compliance with regulations	28%	29%	30%	40%	35%	33%	40%
11. Reducing operational costs	28%	32%	30%	40%	29%	75%	24%
12. Positive impact on company culture	26%	32%	30%	30%	29%	33%	31%
13. Seamless integration with existing systems and processes	35%	29%	28%	50%	29%	17%	33%
14. Recognition as an innovation leader in the industry	22%	27%	20%	10%	24%	17%	16%

How Do You Define Successful AI Adoption at Your Organization?

Expected reduction in **service disruptions** with the adoption of AI when planning for / implementing AI

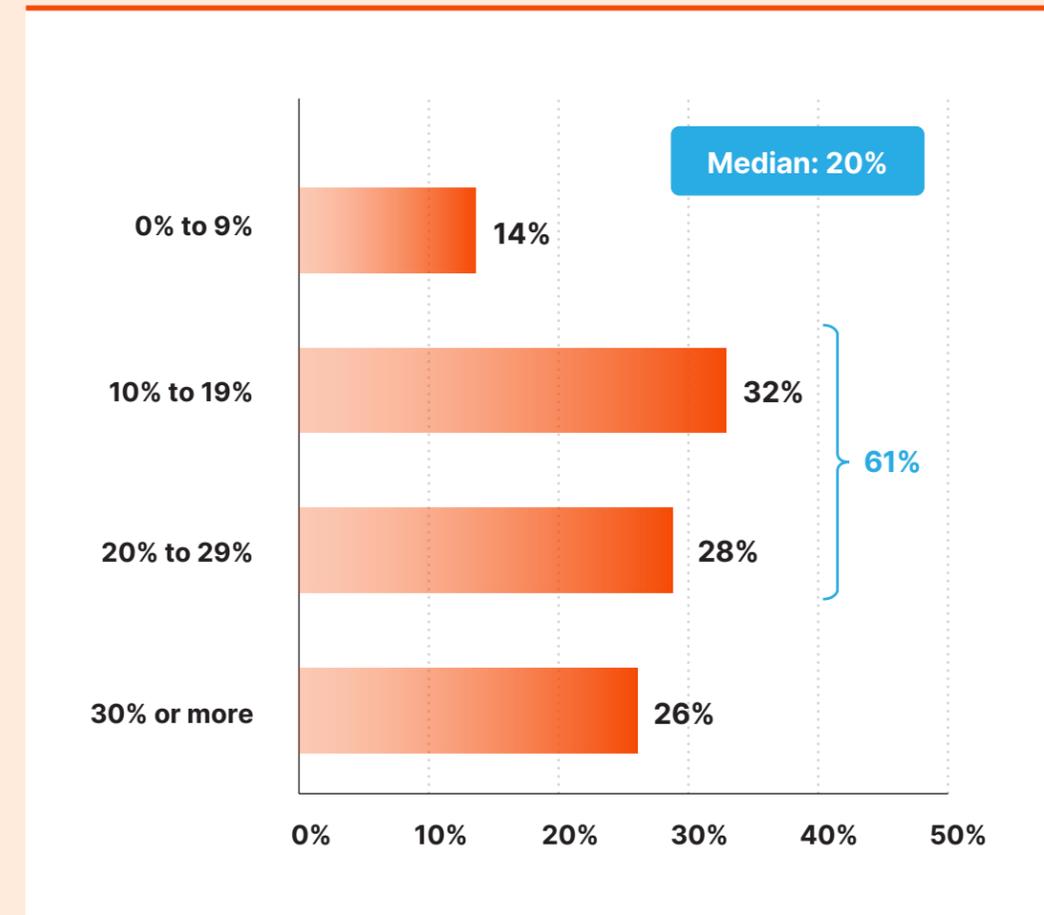


Significant Optimism Around AI: Nearly half (46%) of respondents expect a 30% or more reduction in service disruptions, indicating strong confidence in AI's potential impact on operational efficiency.

Moderate Impact: A smaller but notable group (26%) anticipates a reduction of 10-19%, suggesting that while AI may improve performance, some organizations have tempered expectations.

Diverse Expectations: The variance in expected reduction percentages (ranging from 10% to over 30%) highlights differing levels of AI adoption maturity and readiness across utilities organizations.

Expected reduction in **operational costs** due to use of AI when planning for / implementing AI



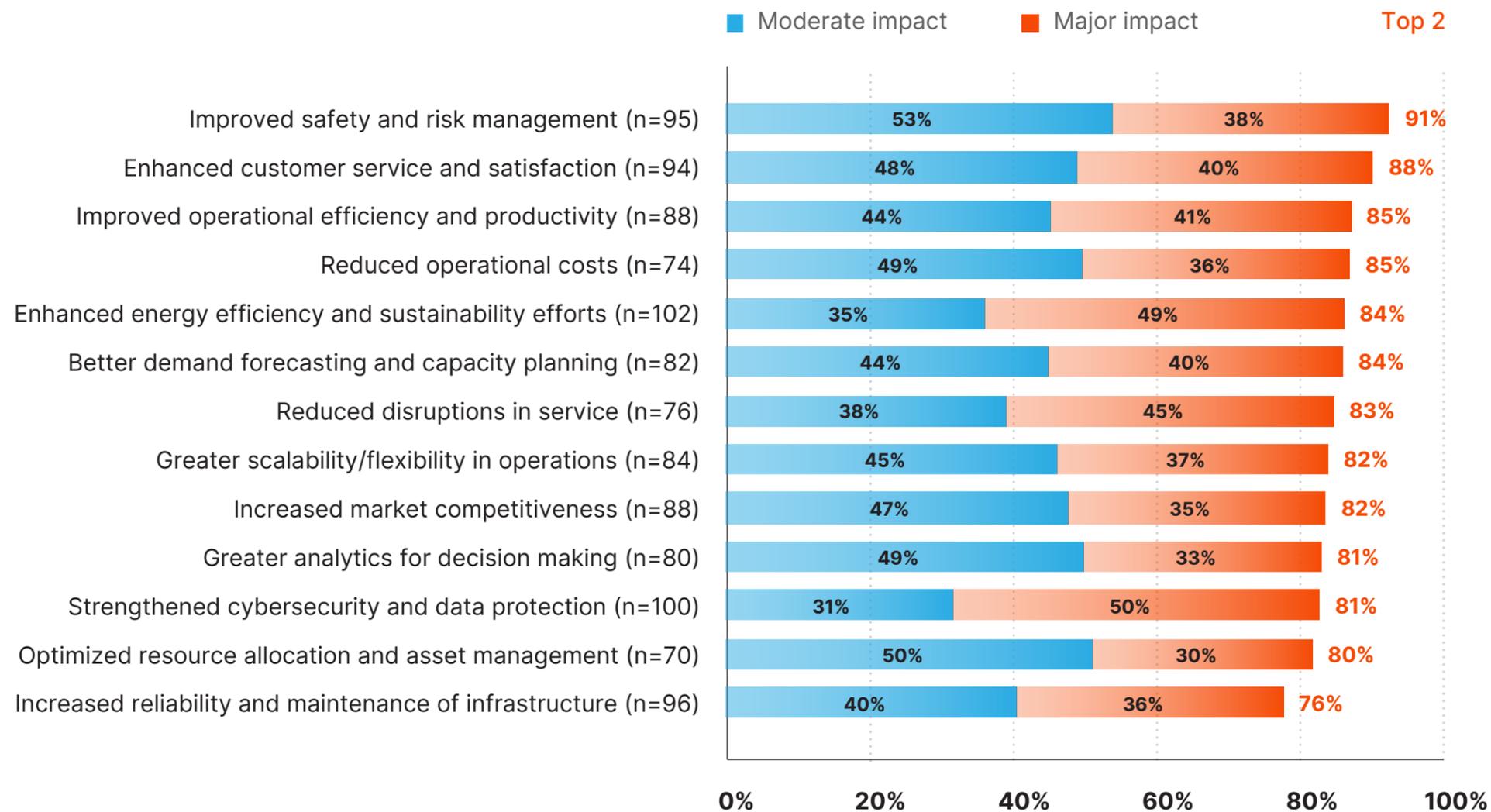
Majority Expect Moderate Cost Savings: A significant portion of respondents (32%) anticipates a 10-19% reduction in operational costs, reflecting cautious optimism regarding AI's ability to streamline operations.

Broad Range of Cost Reduction Expectations: The fairly even distribution across the 10-19%, 20-29%, and 30%+ categories (32%, 28%, and 26% respectively) suggests that utilities organizations have varying levels of confidence in AI's cost-saving potential.

Smaller Group Predicts Major Savings: Only 26% of respondents expect reductions of 30% or more, indicating that while many utilities foresee notable cost savings, fewer believe AI will deliver transformational reductions in the near term.

How Do You Define Successful AI Adoption at Your Organization?

Expected impact on ROI when planning for and implementing AI solutions



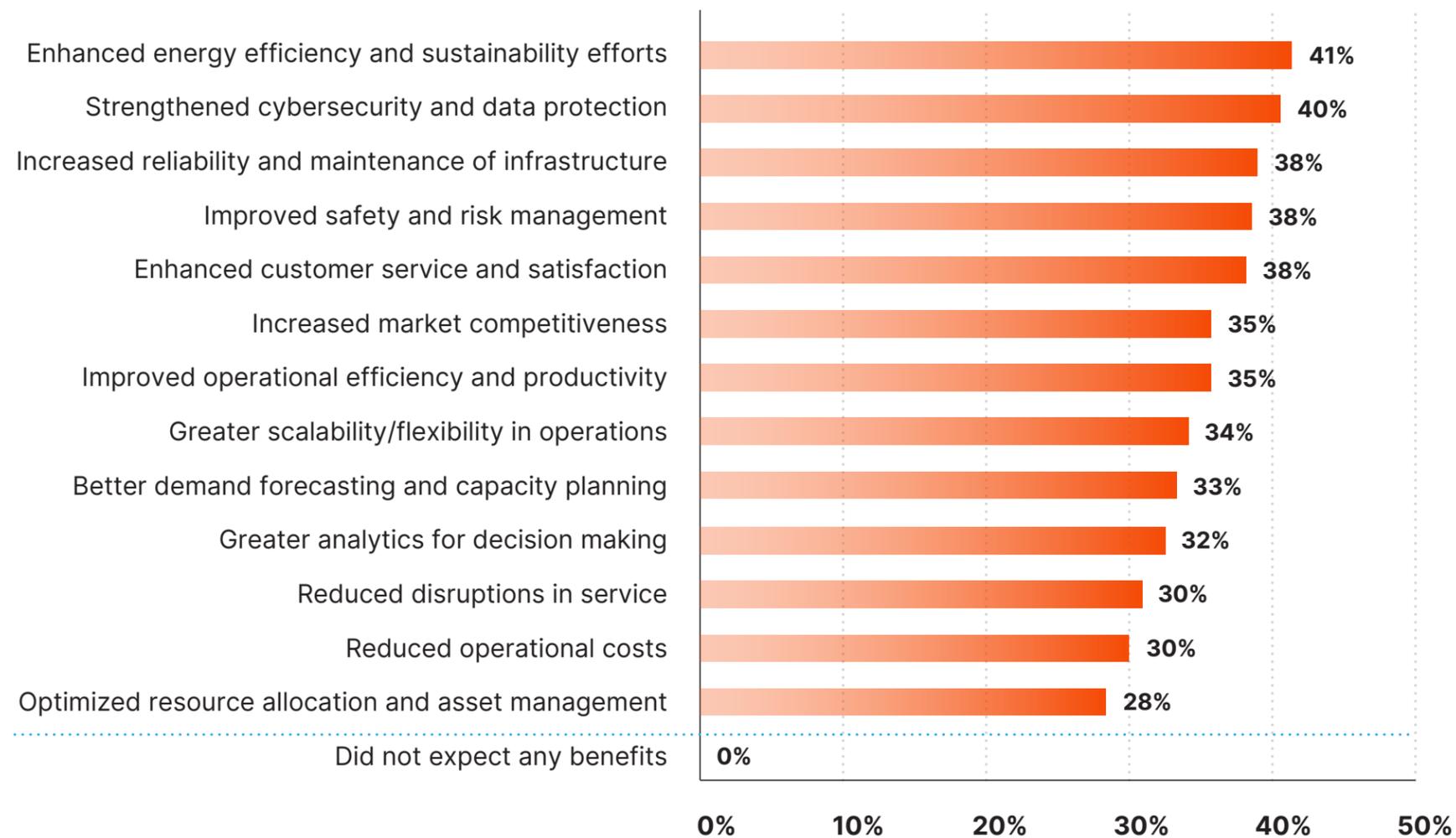
High Focus on Safety and Risk Management: With 53% of respondents reporting a moderate impact on safety and risk management, utilities view AI as a key tool for enhancing operational safety, though the expectations are measured rather than transformational.

Strong ROI in Energy Efficiency and Cybersecurity: Half of the respondents (49% and 50%) foresee a major impact of AI on energy efficiency, sustainability, and cybersecurity, highlighting these areas as high-priority investment targets for maximizing AI-driven returns.

Moderate Expectations for Resource Optimization: The 50% moderate impact reported for resource allocation and asset management suggests that while AI is expected to help streamline these areas, utilities are more cautiously optimistic about its potential to fully optimize resource usage.

How Do You Define Successful AI Adoption at Your Organization?

Benefits expected when planning for/implementing AI solutions



Energy and Sustainability Lead the Way: With 41% of utilities expecting enhanced energy and sustainability efforts through AI, this area is seen as the top benefit, aligning with broader industry trends toward greener, more efficient operations.

Cybersecurity Gains Close Behind: 40% of respondents anticipate strengthened cybersecurity and data protection, reflecting the growing importance of AI in safeguarding critical infrastructure from evolving digital threats.

Focus on Infrastructure Reliability and Maintenance: Utilities are particularly focused on leveraging AI to improve predictive maintenance, reduce downtime, and enhance the efficiency of infrastructure management. By identifying potential issues before they lead to failures, AI can help utilities minimize costly outages and extend the life of key assets, ultimately boosting service reliability for customers.

How Do You Define Successful AI Adoption at Your Organization?

Final Thoughts

The responses paint a promising picture of AI's potential to revolutionize the utilities sector. There is a strong sense of optimism, with nearly half of the respondents expecting AI to reduce service disruptions by 30% or more, signaling confidence in its ability to drive significant operational improvements. Cost savings are also anticipated across the board, with many utilities projecting notable reductions in operational expenses as AI continues to streamline processes.

Safety, energy efficiency, and cybersecurity stand out as areas where AI is expected to deliver the most impactful returns, aligning with the sector's shift toward greener, more resilient, and secure operations. Even smaller utilities, which prioritize reliability and maintenance, see AI as a critical tool to enhance infrastructure and reduce downtime. Overall, the outlook is positive—AI is poised to transform utilities, delivering substantial improvements as organizations advance in their AI adoption journey.



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Industry Use Cases

This chapter explores the growing role of AI in the utilities sector, highlighting how different areas are beginning to adopt and integrate this technology. Some departments are leading the way, using AI to improve performance and streamline operations, while others are still in the early stages of experimentation. The chapter also touches on the potential for AI to enhance customer experiences and operational efficiency across various business units. As AI adoption continues to expand, its role in driving innovation and improving reliability within the utilities sector is becoming increasingly evident.



When Planning for and implementing AI solutions, for which of the following use cases did you expect AI to provide the greatest efficiency for your Organization?



C-Suite /
Business Leader



46 Responded

Data Scientist
and Analyst



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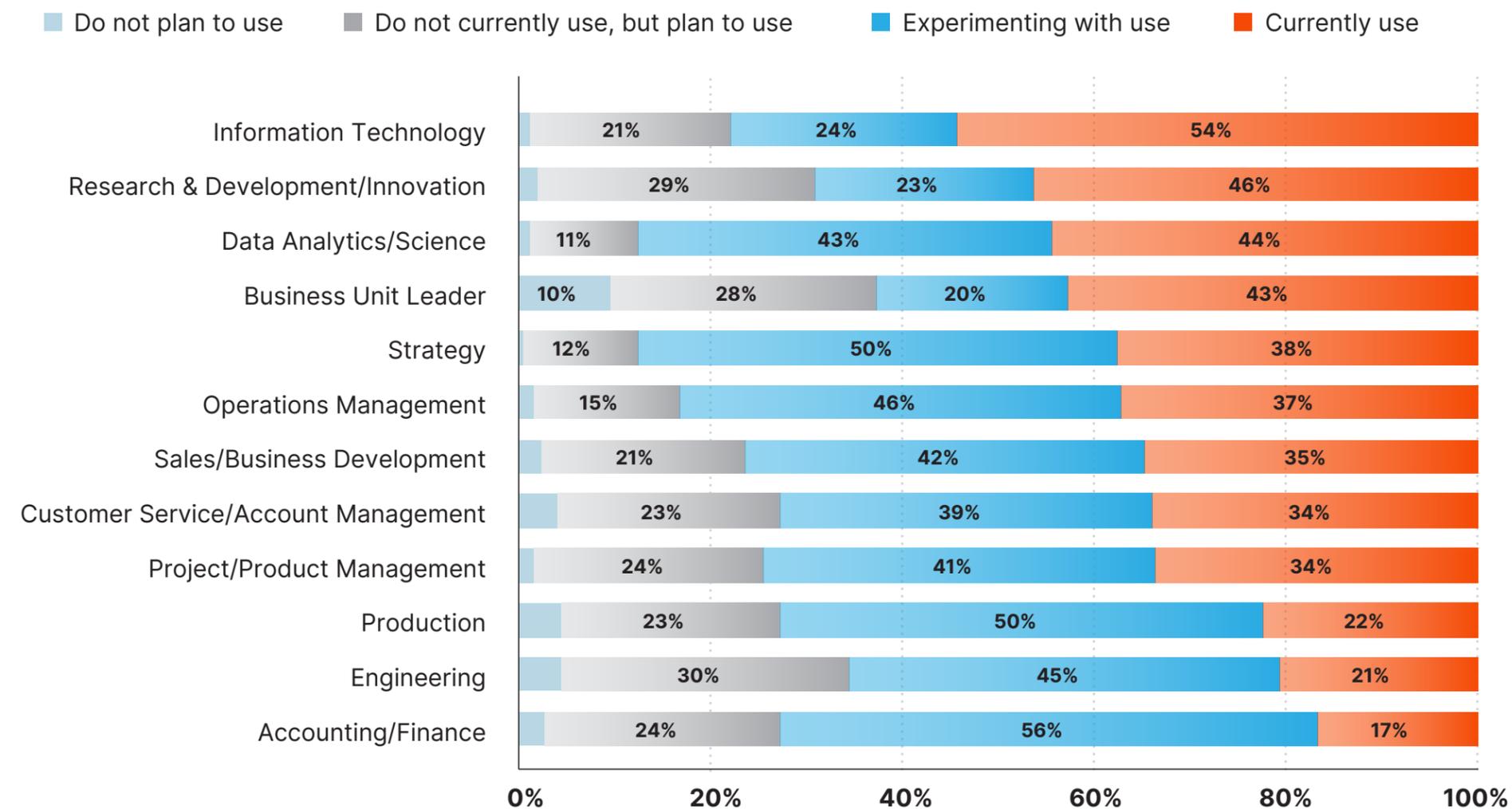


45 Responded

	C-Suite / Business Leader	Data Scientist and Analyst	Information Technologists	Operations Managers	Project & Product Managers	R&D Innovators	Strategists
1. Improve operational efficiency and Productivity	33%	54%	36%	50%	29%	50%	44%
2. Enhanced energy efficiency and sustainability	30%	43%	33%	30%	47%	42%	49%
3. Strengthened cybersecurity and data protection	30%	34%	38%	40%	41%	50%	44%
4. Increased market competitiveness	28%	39%	41%	20%	35%	50%	31%
5. Enhanced Customer Service and Satisfaction	13%	45%	31%	40%	47%	67%	38%
6. Increased reliability and maintenance of infrastructure	24%	38%	38%	20%	29%	17%	44%
7. Reduced operational costs	22%	36%	31%	60%	41%	33%	36%
8. Optimized resource allocation and asset mgmt	28%	38%	39%	50%	18%	8%	33%
9. Greater scalability/flexibility in Operations	37%	30%	31%	30%	53%	33%	24%
10. Improved safety and risk management	33%	30%	31%	40%	35%	42%	29%
11. Better demand forecasting and capacity planning	22%	27%	31%	20%	35%	17%	47%
12. Greater analytics for decision making	20%	34%	42%	0%	29%	25%	24%
13. Reduced disruptions in services	15%	32%	34%	10%	18%	33%	22%
14. Grid Modernization	17%	20%	41%	10%	18%	25%	24%

When Planning for and implementing AI solutions, for which of the following use cases did you expect AI to provide the greatest efficiency for your Organization?

Department usage rate of AI for business tasks



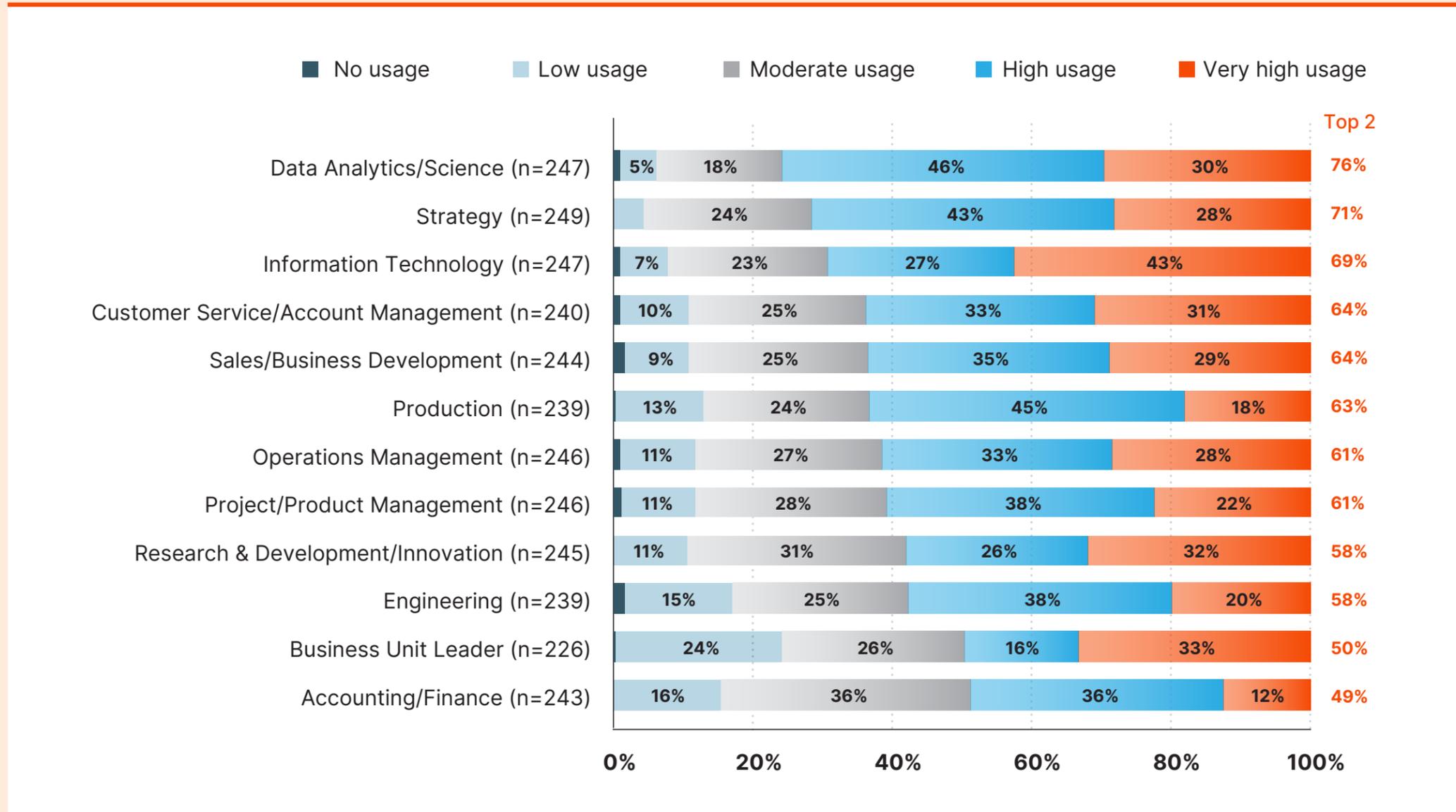
IT Leads in AI Adoption: With 54% of IT departments currently using AI, this group is at the forefront of AI integration, reflecting the natural alignment between AI technologies and IT's core functions of automation and system optimization.

Experimentation vs. Full Deployment: Although 56% of accounting/finance departments and 50% of strategy teams are experimenting with AI, only 17% of accounting/finance and 38% of strategy teams have fully deployed solutions, signaling that AI implementation in these areas is still in early stages.

Slower Adoption of AI Use in Customer Service: With 34% of customer service departments currently using AI, adoption here is notably lower compared to IT, suggesting that while AI holds potential in customer interactions, its implementation may face more barriers or slower progress in this area.

When Planning for and implementing AI solutions, for which of the following use cases did you expect AI to provide the greatest efficiency for your Organization?

Department level of AI usage in the next 5 years



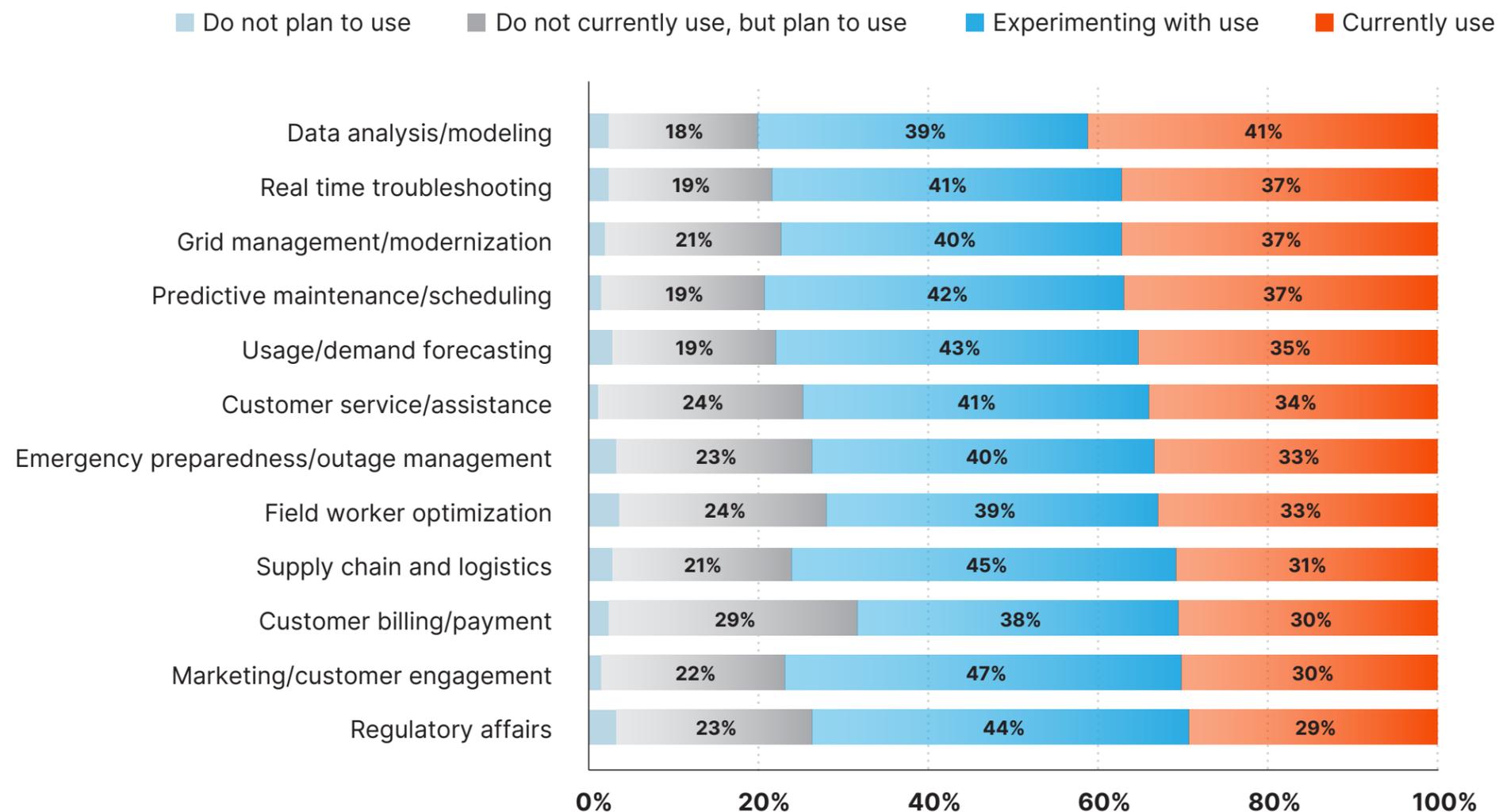
Data Analytics/Science Teams Expect Significant Growth: With 46% reporting high usage and 30% very high usage in the next 5 years, Data Analytics/Science teams are positioned to become major adopters of AI, reflecting the increasing reliance on data-driven insights for operational improvements.

IT Departments Set to Lead with AI: IT departments anticipate 43% very high usage, showcasing their role as key drivers of AI implementation, as they will likely spearhead the integration and management of AI systems across the organization.

Broad AI Adoption Across Business Units: While 33% of Business Unit Leaders foresee very high usage of AI, 45% of Production teams expect high usage, indicating that AI will increasingly permeate both strategic and operational aspects of utilities, driving efficiency across diverse areas.

When Planning for and implementing AI solutions, for which of the following use cases did you expect AI to provide the greatest efficiency for your Organization?

Organization's experience with using generative AI for tasks



GenAI Gaining Traction in Data Analysis:

With 41% of utilities currently using GenAI for data analysis and modeling, this task is the leading area of adoption, reflecting GenAI's strengths in processing large datasets and generating actionable insights.

High Experimentation in Marketing and Customer Engagement:

47% of respondents are experimenting with GenAI for marketing and customer engagement tasks, indicating that utilities are exploring how GenAI can enhance customer communication and service personalization, though full adoption may still be developing.

Predictive Maintenance and Grid Management:

Both predictive maintenance (37%) and grid management (37%) currently see significant GenAI usage, showcasing how utilities are leveraging AI to enhance the reliability and efficiency of their core operational systems.

When Planning for and implementing AI solutions, for which of the following use cases did you expect AI to provide the greatest efficiency for your Organization?

Final Thoughts

AI adoption across business units is advancing, with IT departments leading the charge. Over half of IT teams (54%) are already using AI, underscoring their pivotal role in driving integration and optimizing system performance. Other departments, such as accounting/finance and strategy, are actively experimenting with AI, though full deployment remains in its early stages. While customer service adoption lags behind at 39%, it highlights an area with great potential for AI-driven enhancements.

Looking ahead, data analytics and IT departments are poised for significant growth in AI usage, as utilities increasingly rely on data-driven insights and robust AI systems to drive operational improvements. With broad adoption expected across business units, from production to leadership, AI is set to transform both strategic and operational aspects of the sector. Additionally, GenAI is gaining traction, particularly in data analysis and predictive maintenance, positioning AI as a key enabler of efficiency, reliability, and personalized customer experiences across the industry.



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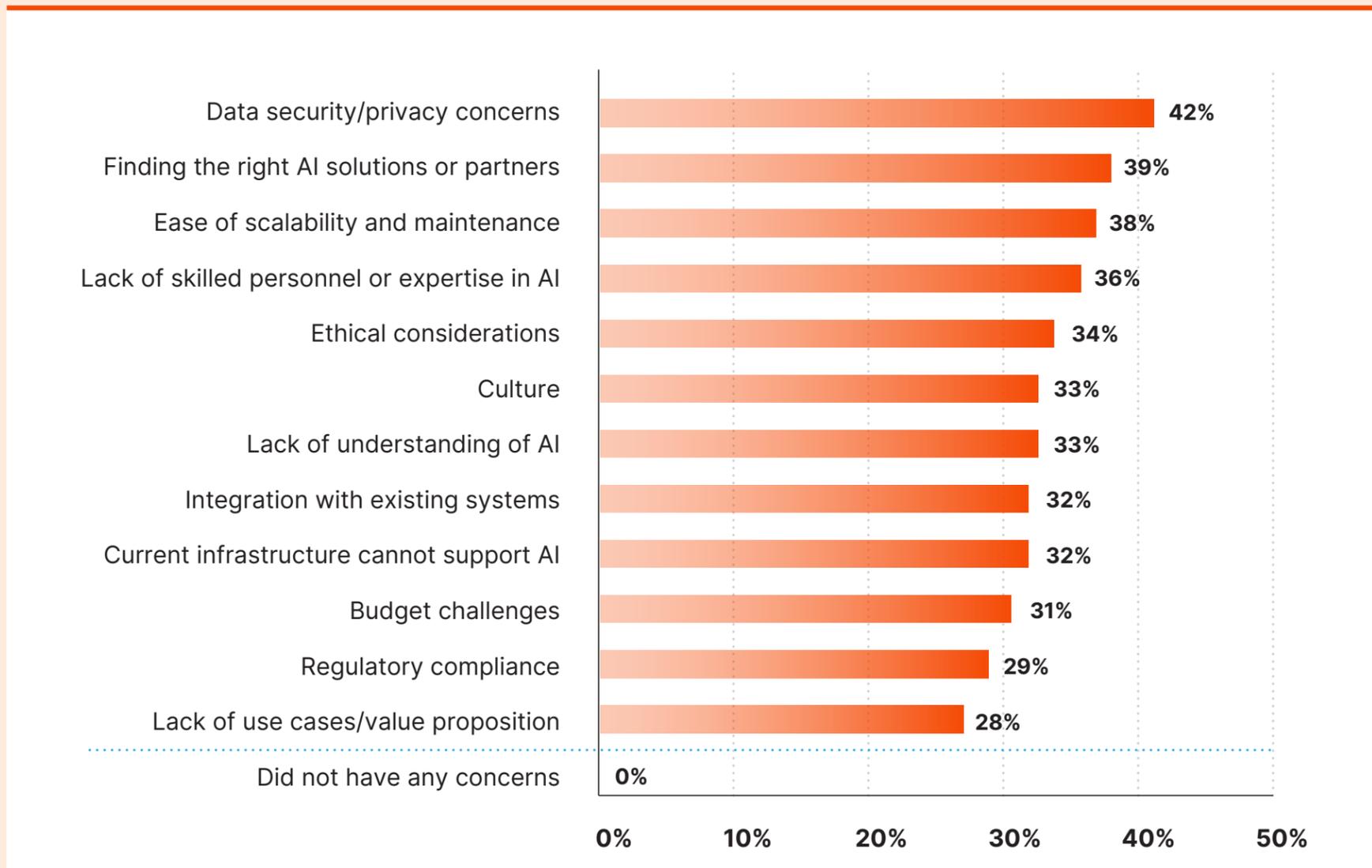
Overcoming Challenges

This chapter provides an overview of the challenges utilities encounter as they adopt AI, highlighting key barriers that could impact its full potential. Readers will explore common concerns such as data security, system integration, and the need for skilled personnel, all of which play a significant role in AI implementation. By understanding and addressing these challenges, utilities can better position themselves to harness AI's transformative power and drive future growth.



What Technology is Your Organization Implementing to Try and Solve the Challenges You are Facing?

Concerns organization had when planning for AI adoption



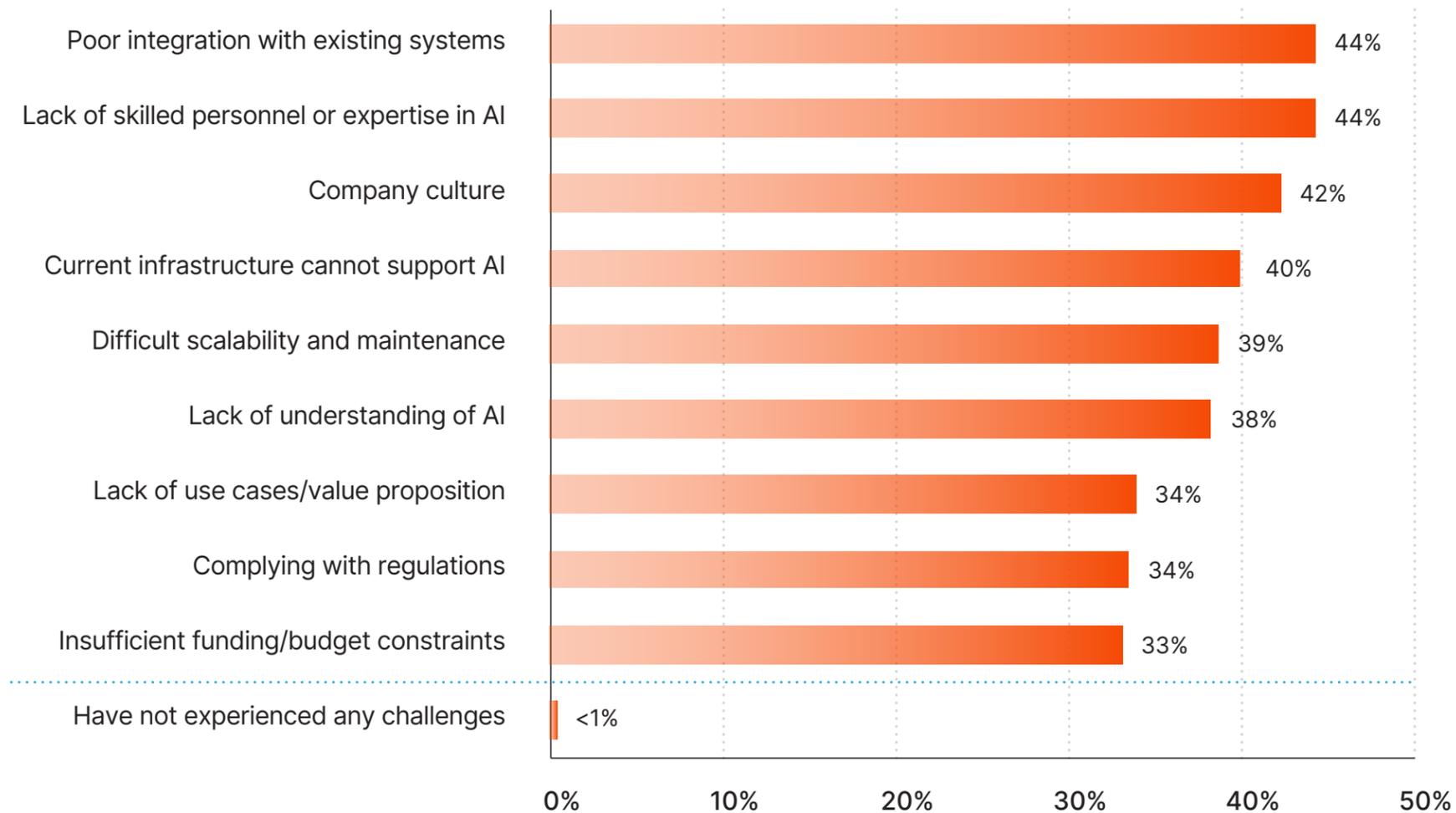
Data Security and Privacy Lead Concerns: With 42% of utilities citing data security and privacy as a top concern, safeguarding sensitive information remains a critical barrier to AI adoption, reflecting heightened awareness of potential cyber threats.

Challenges in Identifying AI Partners: 39% of respondents are focused on finding the right AI solutions or partners, highlighting the complexity utilities face in selecting partners and integrating technologies that align with their specific needs and infrastructure.

Lower Concerns Around Regulatory Compliance and Use Cases: Only 29% are concerned about regulatory compliance, and just 28% about the lack of use cases, suggesting that most utilities feel confident navigating existing regulations and believe in the relevance of AI for their operations, despite other technical and operational challenges.

What Technology is Your Organization Implementing to Try and Solve the Challenges You are Facing?

Challenges experienced when implementing AI solutions



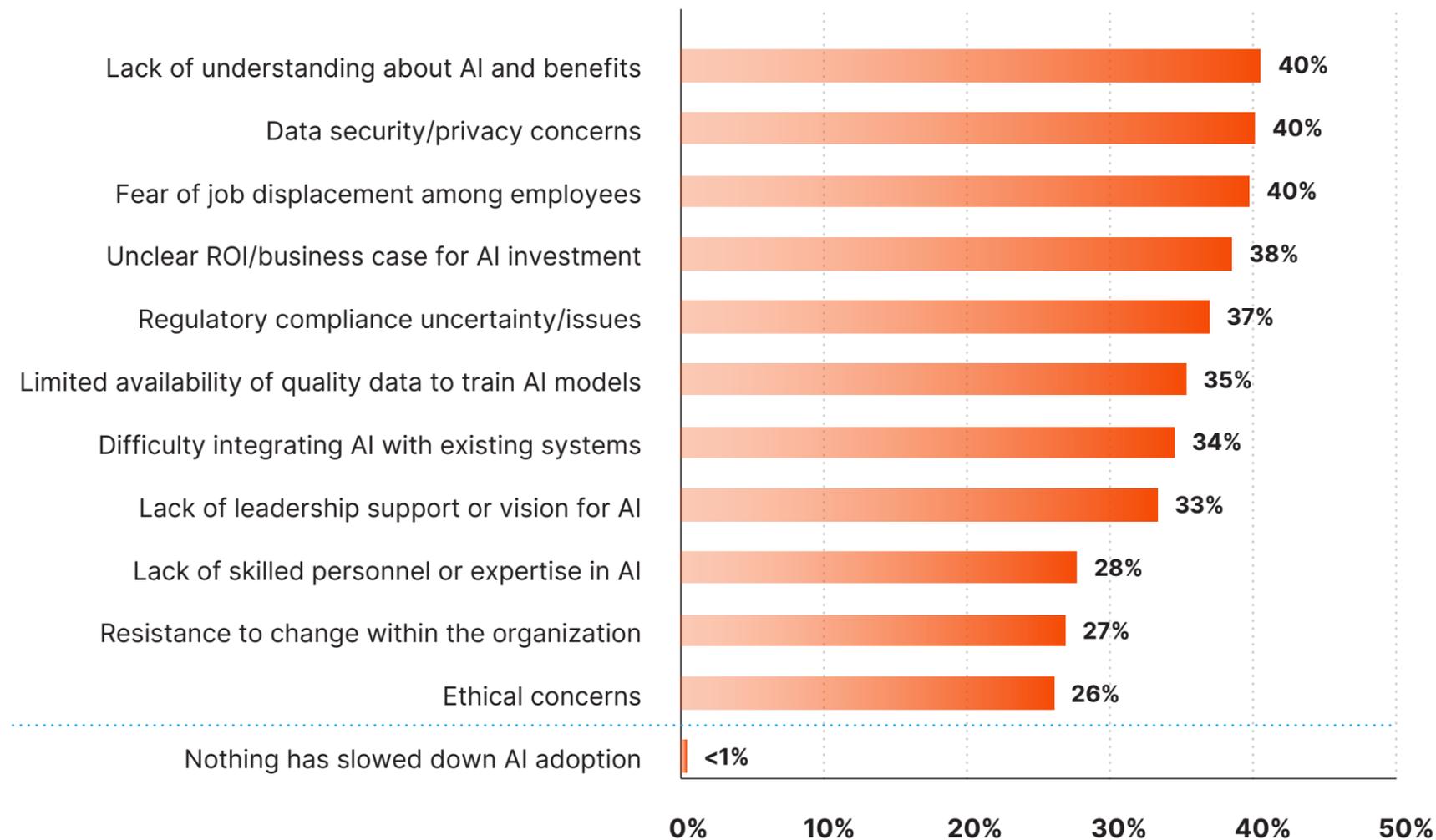
Integration with Legacy Systems is a Major Hurdle: With 44% of utilities citing poor integration with existing systems, ensuring AI solutions work seamlessly with legacy infrastructure is a significant challenge, indicating the need for more flexible and compatible AI technologies.

Skills Gap Limits AI Adoption: Another 44% point to a lack of skilled personnel or expertise in AI, highlighting the pressing need for utilities to invest in training and recruitment to build internal capabilities for successful AI implementation.

Regulatory Compliance is Less of a Barrier: Only 34% of respondents struggled with complying with regulations, suggesting that while navigating regulations is important, the larger obstacles to AI adoption lie in technical and human resource areas rather than legal compliance.

What Technology is Your Organization Implementing to Try and Solve the Challenges You are Facing?

What has slowed down adoption and use of AI at organization



Widespread Lack of AI Understanding:

With 40% of utilities citing a lack of understanding about AI, this theme echoes broader challenges across the sector, underscoring the need for better education and awareness of AI capabilities and applications to drive adoption.

Uncertainty Around ROI:

The fact that 38% report unclear return on investment (ROI) highlights the financial hesitation many utilities face, as organizations struggle to quantify the tangible benefits AI can deliver, slowing down decision-making and investment.

Leadership Gaps Hindering AI Adoption:

A lack of leadership or vision for AI, reported by 33% of respondents, indicates that without strong strategic direction from top executives, AI projects may stall or fail to gain momentum within utilities organizations.

What Technology is Your Organization Implementing to Try and Solve the Challenges You are Facing?

Final Thoughts

The data highlights that a clear vision and the right AI partnerships are essential for successful AI adoption in the utilities sector. With 39% of respondents emphasizing the challenge of finding the right AI solutions and partners, it's clear that utilities need to align with technology providers who understand their unique operational needs and infrastructure. Equally important, the lack of leadership or vision for AI, reported by 33%, shows that without strong executive guidance, AI initiatives may struggle to gain momentum.

To fully leverage AI's potential, utilities must prioritize both finding the right partners and fostering leadership that can provide a clear roadmap for AI integration. By addressing these key areas, utilities can overcome barriers like system integration, skills gaps, and uncertainty around ROI, unlocking AI's transformative benefits for the industry.



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Realized Benefits

The utilities sector is embracing AI as a powerful tool for transformation, with strong belief in its potential to enhance customer experience and operational efficiency. This chapter delves into the **realized benefits of AI adoption**, highlighting the overwhelming optimism across the industry. From improving customer interactions to streamlining billing accuracy and service reliability, AI is delivering tangible value. While some challenges remain, particularly in workforce transformation and regulatory compliance, the data shows that utilities are steadily overcoming obstacles. As AI continues to integrate into core operations, utilities are poised to unlock even greater benefits in the future, positioning AI as a key driver of innovation and growth.



After Implementing AI Solutions, What Benefits Has Your Organization Experienced from Using AI?



C-Suite / Business Leader



46 Responded

Data Scientist and Analyst



56 Responded

Information Technologists



64 Responded

Operations Managers



10 Responded

Project & Product Managers



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R&D Innovators



12 Responded

Strategists



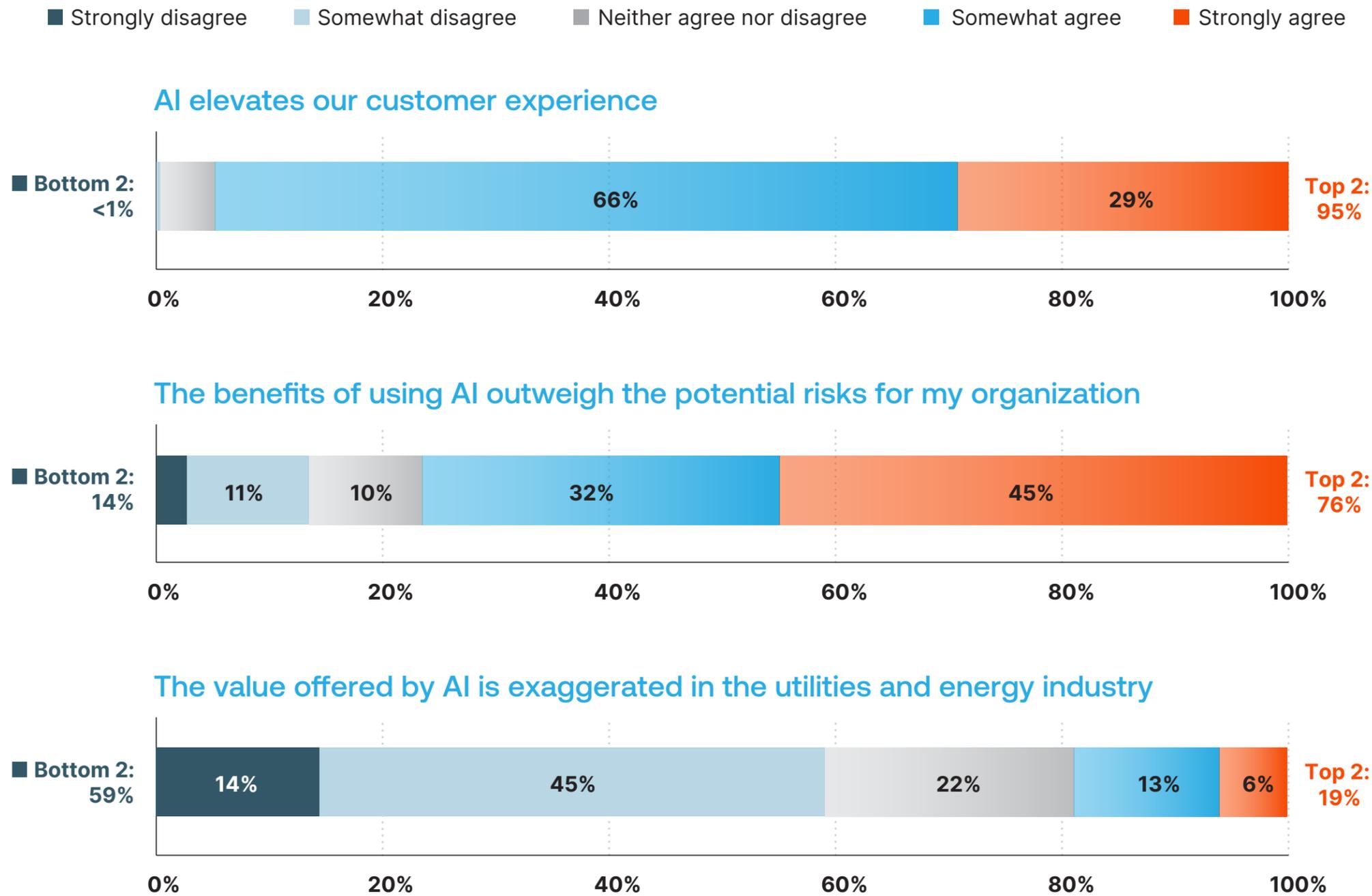
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1. Enhanced data-driven decision-making	28%	43%	53%	40%	53%	25%	44%
2. Improving operational efficiency and productivity	26%	48%	36%	40%	47%	50%	40%
3. Strengthened cybersecurity	17%	41%	42%	50%	47%	50%	42%
4. Creating new revenue streams or business models	30%	36%	42%	30%	53%	33%	40%
5. Workforce is capable of managing/working alongside AI	30%	45%	39%	50%	35%	50%	27%
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7. Improving safety and risk management	24%	34%	38%	20%	35%	50%	38%
8. Acheiving of sustainability goals	15%	45%	41%	40%	29%	8%	36%
9. Acheiving business objectives	20%	34%	38%	40%	29%	25%	38%
10. Compliance with regulations	28%	29%	30%	40%	35%	33%	40%
11. Reducing operational costs	28%	32%	30%	40%	29%	75%	24%
12. Positive impact on company culture	26%	32%	30%	30%	29%	33%	31%
13. Seamless integration with existing systems and processes	35%	29%	28%	50%	29%	17%	33%
14. Recognition as an innovation leader in the industry	22%	27%	20%	10%	24%	17%	16%



This survey was conducted in the summer of 2024 by Neudesic and Databricks in collaboration with Hanover Research. The survey included 250 qualified respondents from the United States (80%) and Canada (20%) involved in AI implementation within utilities organizations serving over one million customer meters. The respondents were predominantly between the ages of 35 to 44 (71%) and 45 to 54 (18%) and hold leadership positions at their respective organizations, including Managers and Senior Managers (43%), Directors and Senior Directors (38%), Vice Presidents and Senior Vice Presidents (6%), Presidents and CEOs (8%), and C-Suite Executives (5%).

After Implementing AI Solutions, What Benefits Has Your Organization Experienced from Using AI?



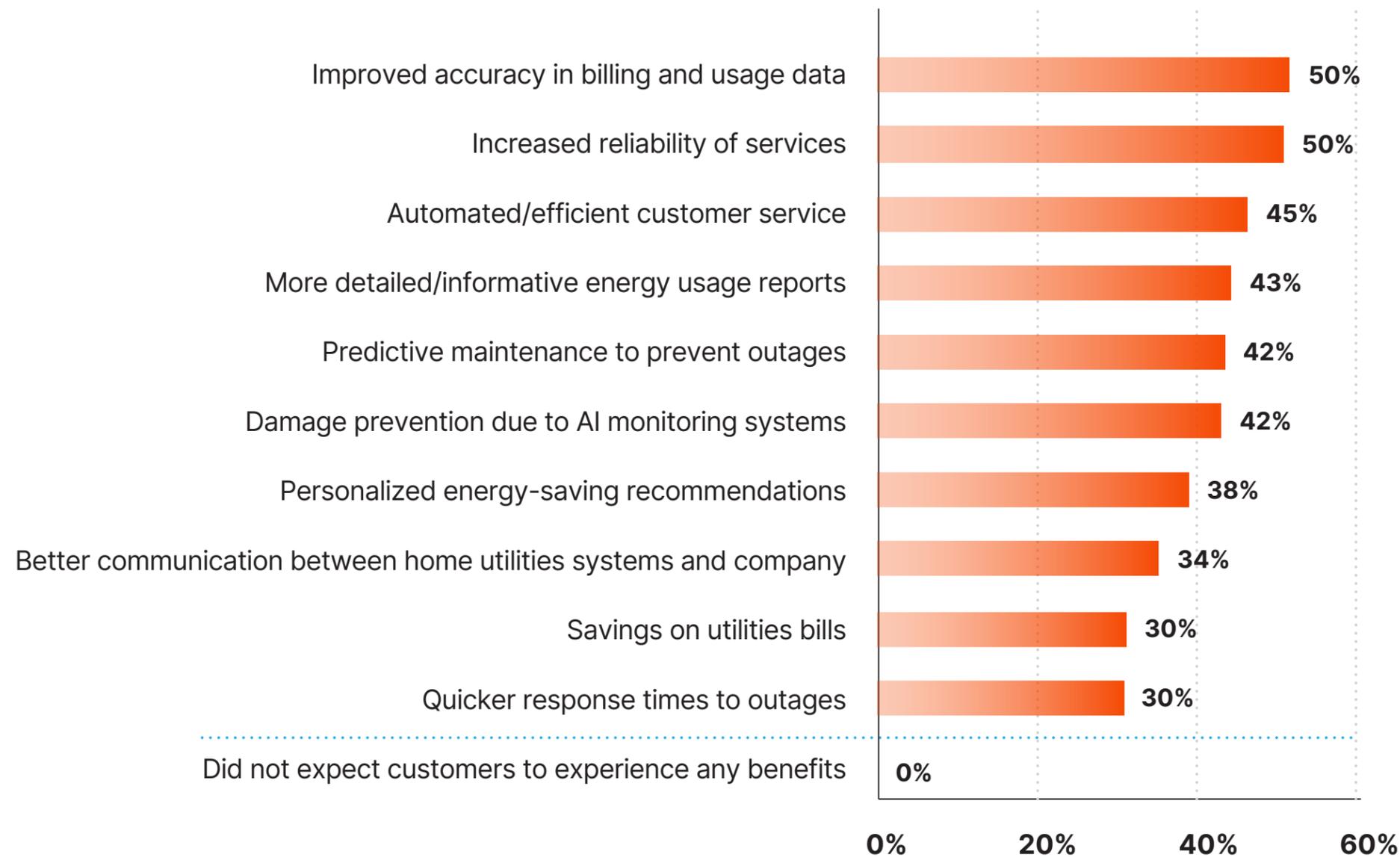
Broad Agreement on AI’s Impact on Customer Experience: With 29% strongly agreeing and 66% somewhat agreeing that “AI elevates our customer experience,” there is a near-universal belief in AI’s positive impact, though the majority remains cautiously optimistic rather than fully convinced.

Confidence in AI Benefits Despite Risks: In the second chart, 45% strongly agree that the benefits of AI outweigh the risks, while only 11% somewhat disagree. This reflects overall confidence in AI adoption, though some utilities still harbor concerns about potential risks or challenges.

The Industry Believes in AI: The final chart reveals that 45% somewhat disagree and 14% strongly disagree that “the value offered by AI is exaggerated,” indicating that most utilities believe AI’s potential is real and not overstated, with only 22% taking a neutral stance, suggesting that the majority see AI as a valuable tool rather than an industry trend inflated by hype.

After Implementing AI Solutions, What Benefits Has Your Organization Experienced from Using AI?

Benefits expected for customers from organization's use of AI when planning for and implementing AI solutions



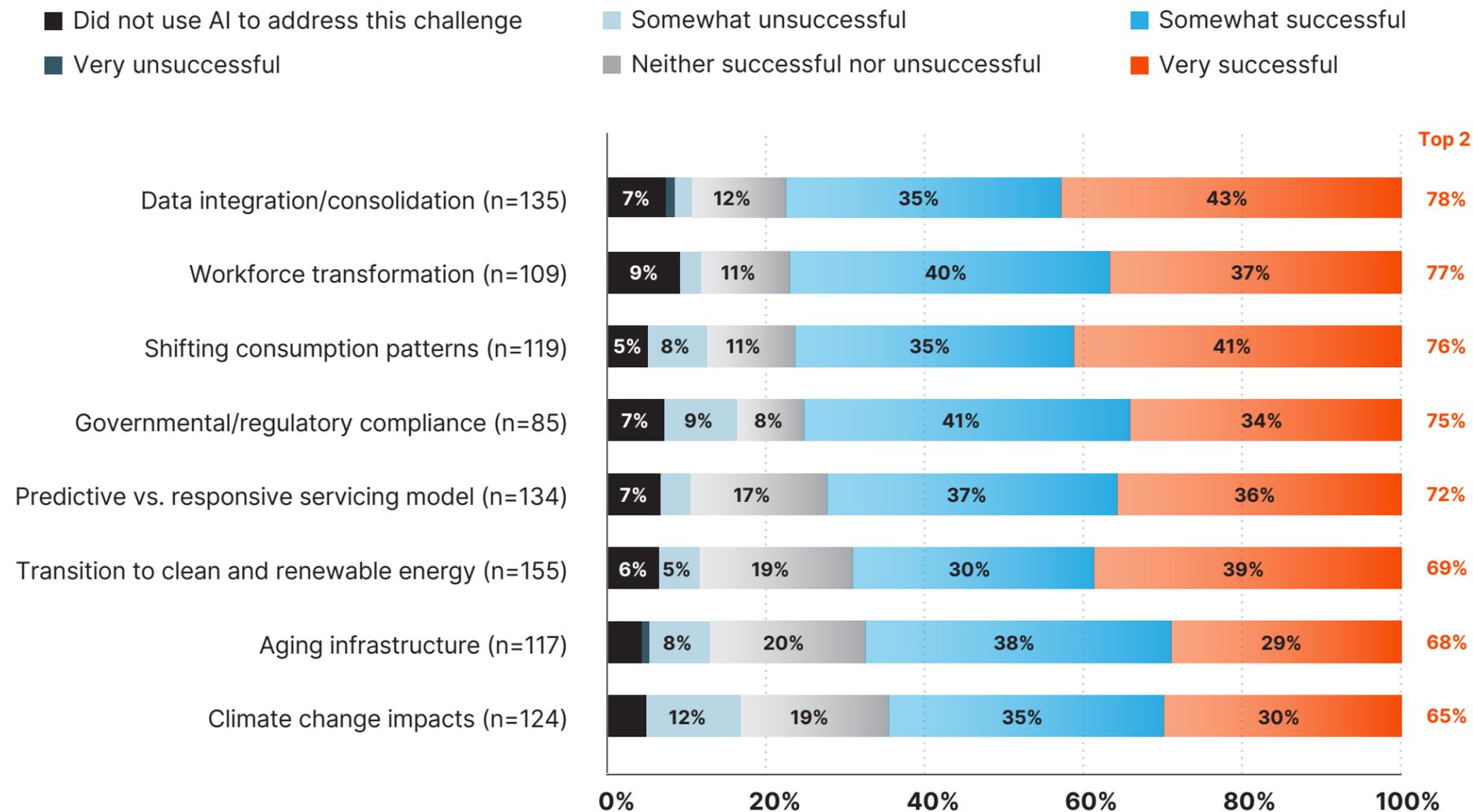
Billing Accuracy and Service Reliability Lead the Expected Benefits: Half of the utilities (50%) expect AI to improve the accuracy of billing and usage data, as well as increase the reliability of services, indicating that AI is anticipated to directly enhance operational efficiency and customer trust.

AI's Role in Enhancing Customer Service: 45% of respondents foresee improvements in customer service through AI, signaling that utilities expect AI to streamline customer interactions, reduce response times, and offer more effective support.

Personalized Energy Recommendations Emerging: While only 38% expect AI to deliver personalized energy-saving recommendations, this reflects growing potential for AI to drive tailored insights, helping customers optimize their energy consumption and lower costs over time.

After Implementing AI Solutions, What Benefits Has Your Organization Experienced from Using AI?

Success of AI in addressing the organizational challenges



Strong Success in Data Integration: With 43% of utilities reporting AI as very successful in addressing data integration and consolidation challenges, it's clear that AI is excelling in managing large, complex datasets and streamlining data-driven decision-making.

Moderate Success in Workforce Transformation: While 40% of respondents found AI somewhat successful in workforce transformation, 37% reported very successful outcomes. This suggests that while AI is helping reshape utility workforces, there is still progress to be made in achieving full transformation.

Mixed Results in Regulatory Compliance: Only 41% of utilities report AI as somewhat successful in handling governmental and regulatory compliance, reflecting ongoing challenges in using AI to navigate complex regulatory landscapes, despite AI's potential to streamline compliance processes.

After Implementing AI Solutions, What Benefits Has Your Organization Experienced from Using AI?

Final Thoughts

The data reveals a strong belief in the transformative potential of AI across the utilities sector, with broad agreement on its positive impact, particularly in enhancing customer experience and operational efficiency. Nearly all respondents agree that AI elevates customer interactions, with 95% expressing some level of optimism.

Confidence in AI's benefits is further reinforced by 45% strongly agreeing that the advantages outweigh the risks, indicating widespread trust in AI despite some lingering concerns. Importantly, most utilities reject the notion that AI's value is exaggerated, reflecting a clear industry consensus that AI is more than just hype. Specific areas like billing accuracy, service reliability, and data integration stand out as areas where AI is delivering meaningful benefits, helping utilities streamline operations and build customer trust.

While workforce transformation and regulatory compliance present more mixed results, the data shows that AI is steadily making progress, and with continued focus on integration and tailored solutions, the utilities sector stands to gain even more from AI in the future.



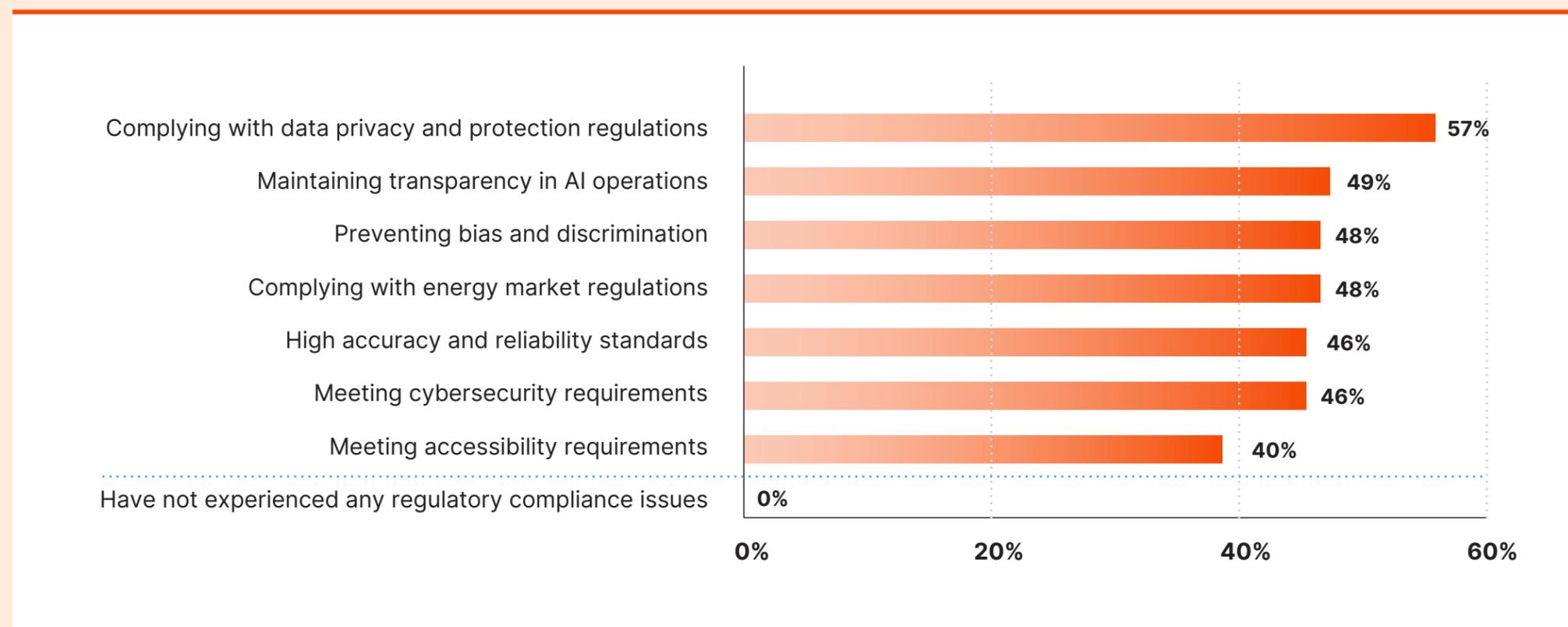
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Regulatory Compliance

As AI adoption accelerates within the utilities sector, regulatory compliance plays a crucial role in shaping its integration and success. Utilities must navigate challenges related to data privacy, transparency, and accuracy while ensuring that AI systems align with stringent regulatory standards. However, the overall outlook is optimistic. Utilities and regulators are increasingly aligned in recognizing AI's transformative potential, with a majority of respondents confident that regulatory bodies understand and support AI initiatives. This chapter explores the evolving regulatory landscape, highlighting how utilities are managing compliance while advancing AI-driven innovations that enhance efficiency, customer experience, and operational performance.



Regulatory compliance issues faced when planning, implementing, and/or adopting AI

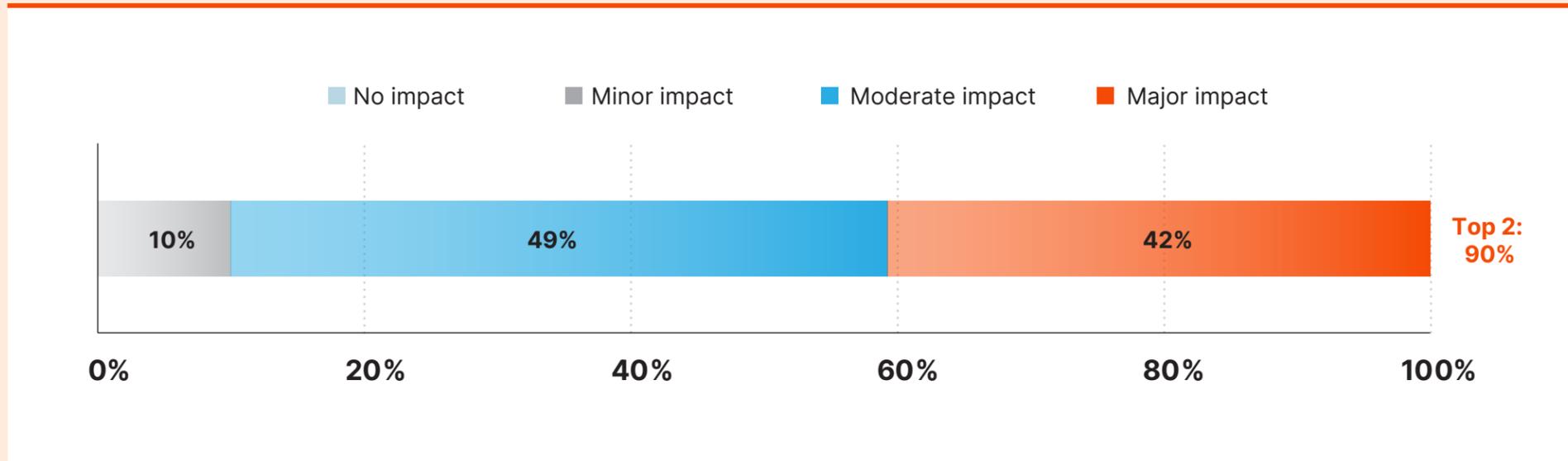


Data Privacy and Protection is the Primary Concern: With 57% of utilities highlighting compliance with data privacy and protection regulations as a major issue, safeguarding sensitive customer and operational data remains the top regulatory hurdle in AI adoption.

Challenges in Ensuring Transparency: Nearly half of respondents (49%) report difficulties in maintaining transparency in AI operations, suggesting that explaining and justifying AI-driven decisions to regulators and stakeholders is a significant concern for utilities.

Accuracy Requirements Present a Significant Barrier: 46% of utilities face challenges in ensuring the high accuracy of AI systems, reflecting the critical importance of precision in AI outputs to meet regulatory standards and avoid operational errors.

Impact of industry regulations on organization's adoption of AI

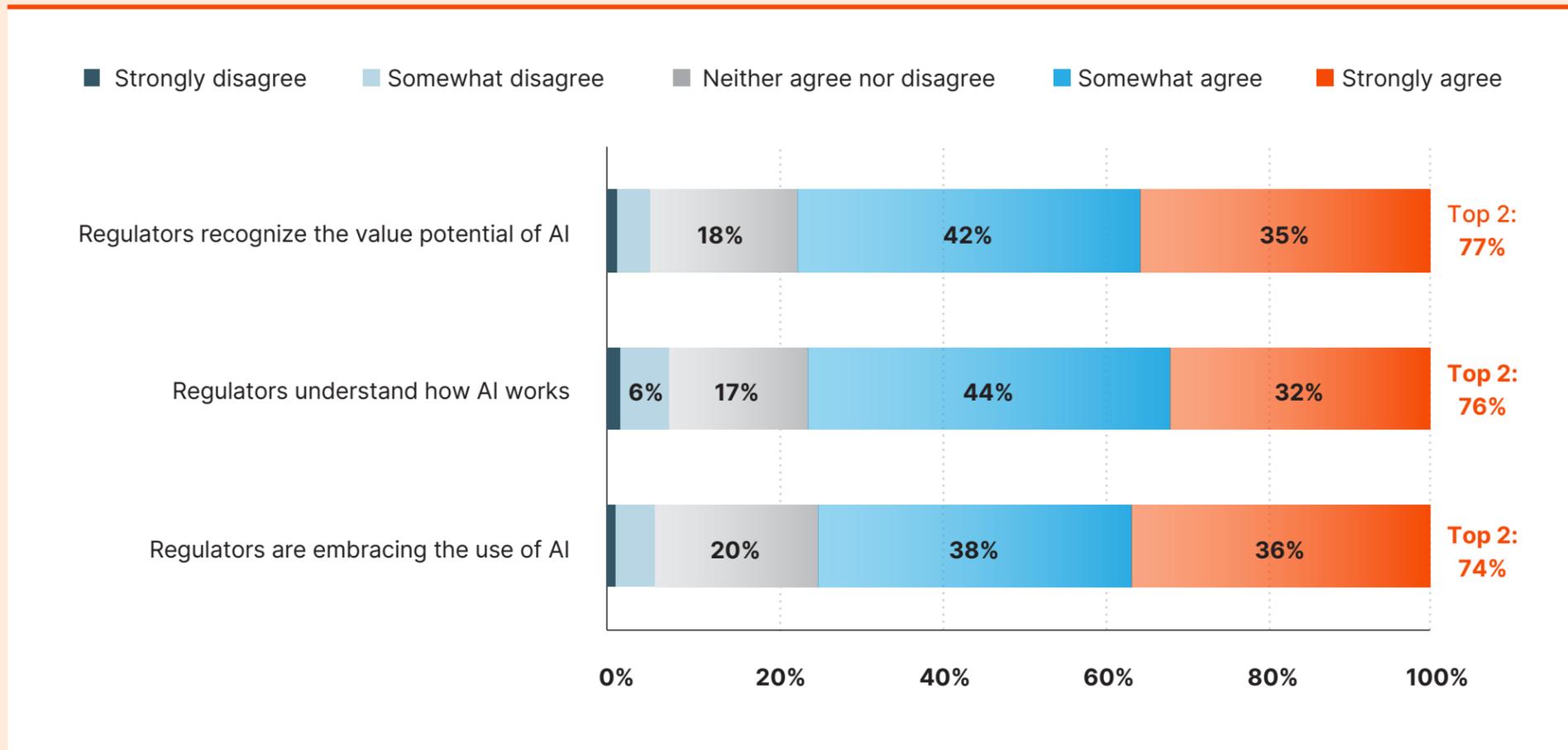


Widespread Regulatory Influence: With 42% of respondents reporting a major impact, industry regulations are a significant factor shaping AI adoption in utilities, driving careful consideration and compliance before implementation.

Moderate Regulatory Pressure for Most: 49% report a moderate impact from regulations, suggesting that while regulations do affect AI strategies, many utilities are finding ways to navigate or adapt to these requirements without facing overwhelming obstacles.

Minor Impact for a Small Group: Only 10% of respondents experience minor regulatory impact, indicating that a small portion of utilities either operate in less regulated environments or have already optimized their AI strategies to meet regulatory demands efficiently.

Regulators relationship to AI



Broad Recognition of AI's Value by Regulators: A combined 77% of respondents (35% strongly agree and 42% somewhat agree) believe regulators recognize AI's potential value, indicating that most utilities feel regulatory bodies are aware of AI's transformative capabilities for the industry.

Mixed Confidence in Regulators' Understanding of AI: Only 32% strongly believe that regulators understand how AI works, suggesting that while regulators appreciate AI's potential, there are still concerns about their technical knowledge and ability to fully grasp AI's complexities.

Positive Movement Toward AI Adoption by Regulators: A majority of respondents (36% strongly agree and 38% somewhat agree) feel that regulators are embracing the use of AI, reflecting optimism that regulatory bodies are not only recognizing AI's benefits but are actively supporting its adoption in the sector.

Final Thoughts

Regulatory compliance is a key consideration in AI adoption for utilities, but the outlook is overwhelmingly positive. Data privacy and protection are top priorities, with 57% of respondents focused on safeguarding sensitive information—a critical step in ensuring AI's success.

While transparency and accuracy remain challenges, many utilities are successfully navigating these requirements, with nearly half reporting they are finding ways to maintain compliance without being overwhelmed. Encouragingly, a significant 77% of respondents believe that regulators recognize AI's transformative potential, reflecting a strong alignment between regulatory bodies and the industry. Additionally, 74% feel that regulators are actively supporting AI adoption, demonstrating a positive movement toward collaboration and understanding.

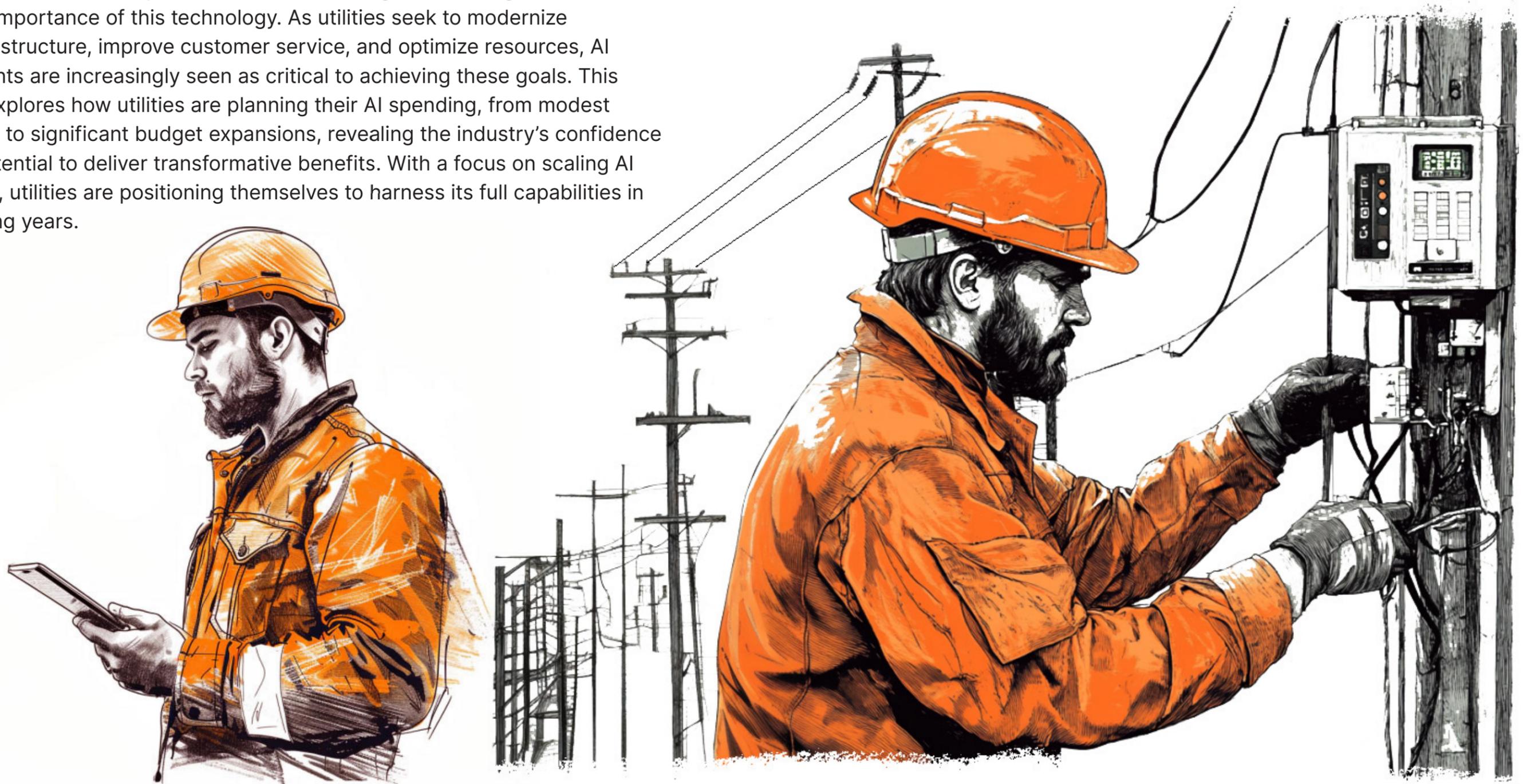
Though there are still areas where regulators can improve their technical grasp of AI, the overall landscape shows that both utilities and regulators are working together to harness AI's benefits while ensuring compliance. This collaboration paves the way for a future where AI not only meets regulatory standards but also thrives as a key driver of innovation and efficiency in the utilities sector.



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Investment Strategies

The utilities sector is rapidly embracing AI as a key driver of innovation and operational efficiency, with investment strategies reflecting the growing importance of this technology. As utilities seek to modernize their infrastructure, improve customer service, and optimize resources, AI investments are increasingly seen as critical to achieving these goals. This section explores how utilities are planning their AI spending, from modest increases to significant budget expansions, revealing the industry's confidence in AI's potential to deliver transformative benefits. With a focus on scaling AI initiatives, utilities are positioning themselves to harness its full capabilities in the coming years.



Where to Reinvest Cost Savings from AI?



C-Suite / Business Leader



46 Responded

Data Scientist and Analyst



56 Responded

Information Technologists



64 Responded

Operations Managers



10 Responded

Project & Product Managers



17 Responded

R&D Innovators



12 Responded

Strategists



45 Responded

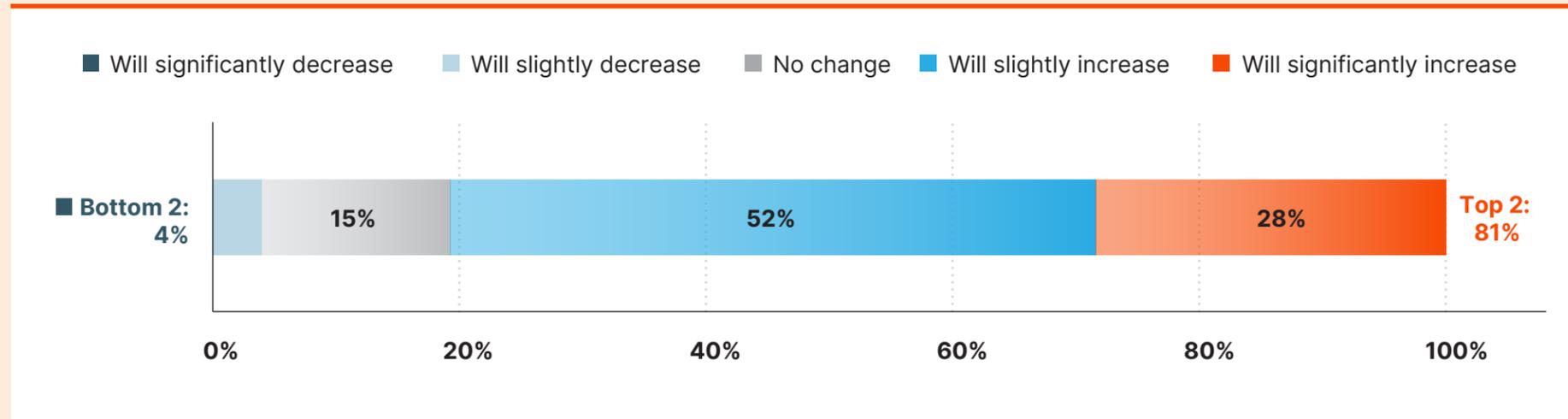
	C-Suite / Business Leader	Data Scientist and Analyst	Information Technologists	Operations Managers	Project & Product Managers	R&D Innovators	Strategists
1. Enhancing cybersecurity measures	60%	40%	45%	33%	57%	25%	50%
2. Other digital transformation initiatives	40%	50%	40%	50%	71%	75%	31%
3. Employee training and development programs	10%	65%	40%	33%	57%	50%	44%
4. Improving customer service platforms	50%	45%	55%	50%	57%	25%	25%
5. Expansion into new markets or service areas	40%	60%	30%	67%	0%	100%	44%
6. Research and development for new services/products	10%	55%	45%	33%	29%	25%	50%
7. Upgrading/modernizing infrastructure	20%	45%	40%	33%	43%	25%	50%
8. Renewable energy projects	60%	20%	40%	33%	29%	75%	31%
9. Hiring additional staff/experts	0%	25%	55%	33%	43%	50%	44%
10. Maintenance of existing systems and equipment	30%	35%	45%	17%	29%	25%	31%
11. Debt reduction or other financial obligations	50%	30%	30%	33%	29%	50%	25%



This survey was conducted in the summer of 2024 by Neudesic and Databricks in collaboration with Hanover Research. The survey included 250 qualified respondents from the United States (80%) and Canada (20%) involved in AI implementation within utilities organizations serving over one million customer meters. The respondents were predominantly between the ages of 35 to 44 (71%) and 45 to 54 (18%) and hold leadership positions at their respective organizations, including Managers and Senior Managers (43%), Directors and Senior Directors (38%), Vice Presidents and Senior Vice Presidents (6%), Presidents and CEOs (8%), and C-Suite Executives (5%).

Where to Reinvest Cost Savings from AI?

How organization's spending on AI will change in next 12 months

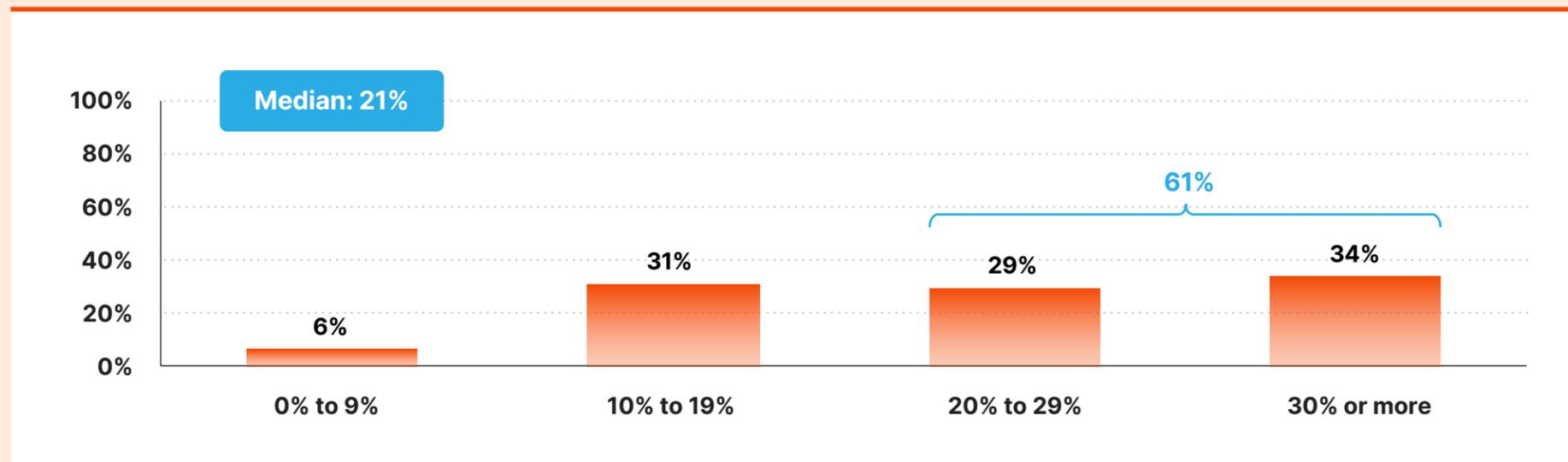


Majority Plan to Increase AI Investments: With 52% of utilities planning to slightly increase AI usage, the chart shows a strong overall commitment to AI, reflecting growing confidence in its potential to enhance operations and efficiency.

Significant Budget Increases for a Notable Portion: 28% of respondents expect to significantly increase their AI spend in the next 12 months, indicating that a sizable group of utilities sees AI as a critical area for transformative investment.

Minimal Decrease in AI Spending: Only 4% of respondents anticipate a slight decrease in AI spending, signaling that while the vast majority are increasing investments, there is still a small portion of the industry with hesitations about AI or budget constraints.

How much AI-related project / investment spend will increase in the next 12 months



Strong Growth in AI Investments: 34% of utilities plan to increase AI-related project spending by 30% or more, highlighting a substantial commitment to accelerating AI initiatives and signaling expectations of significant returns on investment.

Moderate Increases Also Common: 29% of respondents expect AI project costs to rise between 20-29%, indicating that a large portion of the industry is scaling up AI adoption at a steady pace, aiming to balance growth with manageable risk.

Minimal Spending Growth for a Small Group: Only 6% anticipate increases of 0 to 9%, showing that while most utilities are ramping up their AI spending, a small segment is proceeding cautiously, either due to resource constraints or uncertainty around AI benefits.

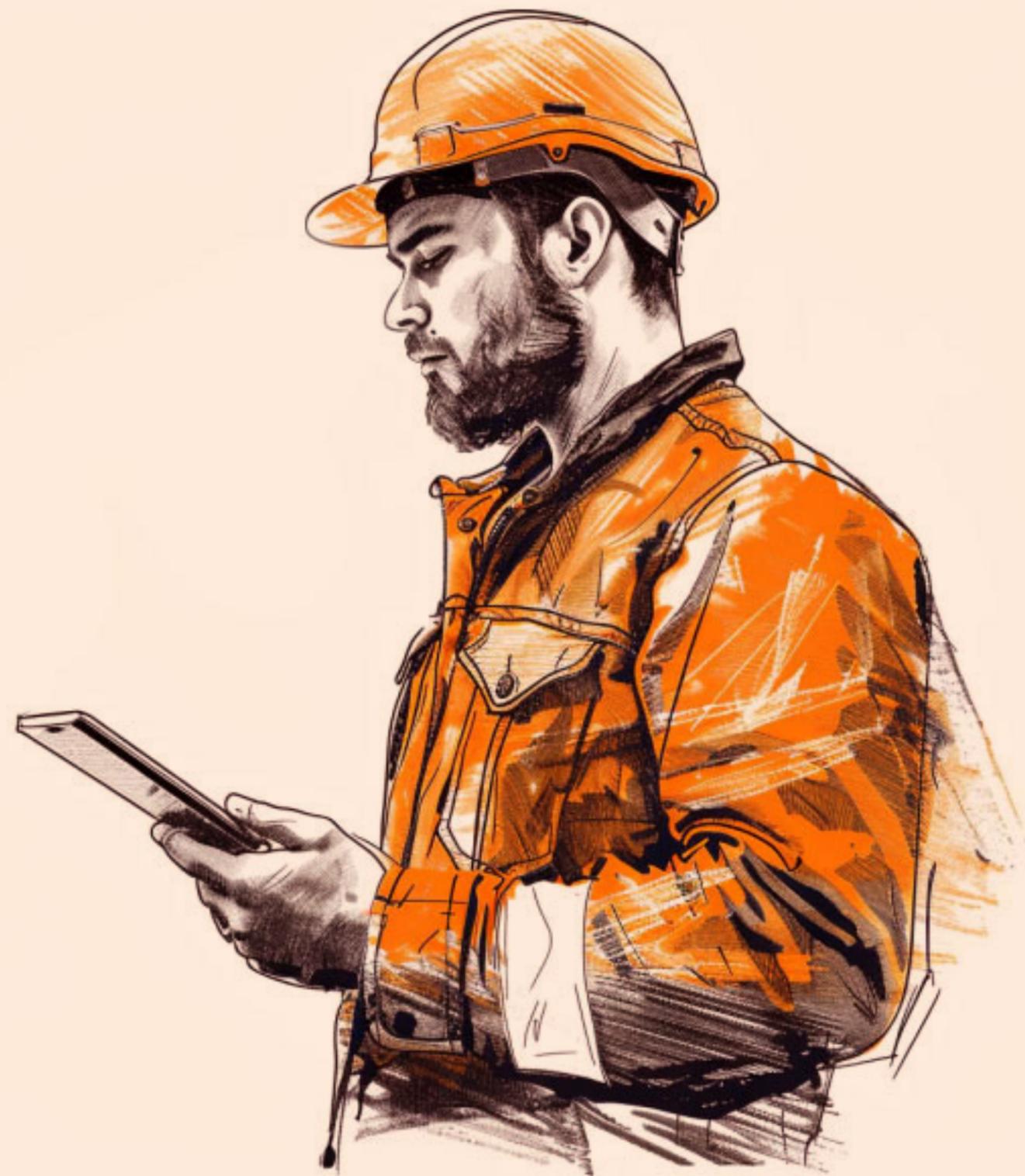
Where to Reinvest Cost Savings from AI?

Final Thoughts

The data reveals a strong commitment to AI investment within the utilities sector, with 52% of respondents planning to slightly increase their AI usage. This reflects growing confidence in AI's potential to enhance operations and drive efficiency. Notably, 28% of utilities expect to significantly boost their AI budgets in the next 12 months, demonstrating that many view AI as a critical area for transformative growth.

Only a small fraction (4%) anticipates a decrease in spending, indicating minimal hesitation or budgetary constraints in the industry. Additionally, 34% of respondents plan to increase AI-related project spending by 30% or more, signaling a robust push to accelerate AI initiatives and maximize returns.

Moderate growth is also common, with 29% expecting a 20-29% increase, showing that utilities are scaling up at a steady, manageable pace. While a small group remains cautious, the overall trend points toward continued and significant investment in AI, reinforcing the belief that AI will play a pivotal role in shaping the future of utility operations.



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Conclusion

The AI revolution in the energy and utilities sector is underway, offering unprecedented opportunities for innovation, efficiency, and strategic advancement. While many organizations are already implementing AI technologies into their workflows and experiencing some early successes, many obstacles remain.

The path forward for utilities lies in adopting a strategic, problem-centric approach to AI implementation. This involves defining clear success criteria, prioritizing high-impact use cases, and focusing on achieving quick wins to build momentum and secure stakeholder buy-in. By ensuring that AI initiatives align with organizational goals while also addressing key challenges proactively, utilities can harness the transformative power of AI to drive sustainable growth and innovation.

The insights and strategies outlined in this report provide a foundation for navigating this complex landscape and helping utilities to leverage AI to its fullest potential. Organizations that embrace these AI technologies and utilize a forward-thinking approach will be well-positioned to lead the industry into a new era of efficiency and resilience.



Action Items



Develop a Strategic AI Plan

- Define clear objectives and success criteria for AI projects.
- Engage cross-functional teams to align strategic goals and identify high-impact use cases.
- Prioritize use cases based on feasibility and value using the “Goldilocks” principle.



Address Data Security and Privacy Concerns

- Implement comprehensive data security policies tailored to AI technologies.
- Collaborate with cloud service providers to ensure robust security measures.
- Conduct regular security audits and vulnerability assessments.



Invest in Workforce Skills Development

- Upskill employees through targeted AI training and education programs.
- Foster a culture of continuous learning and adaptability to keep pace with AI advancements.
- Explore partnerships with technology providers for hands-on training and support.



Optimize System Integration

- Develop a detailed integration strategy that includes data migration, system updates, and interface adjustments.
- Modernize infrastructure as needed to support AI applications.
- Involve key stakeholders from IT and business units in the integration planning process.



Focus on Quick Wins and Building Momentum

- Identify and execute projects that offer immediate business value to demonstrate AI’s potential.
- Reinvest savings and efficiencies gained from AI into other strategic initiatives.



Establish an AI Center of Excellence (COE)

- Create a COE to promote best practices, provide ongoing support, and drive innovation.
- Ensure the COE addresses ethical considerations, governance, and effective deployment of AI tools.

Let Neudesic and Databricks show you the future, **today.**



Neudesic, an IBM Company, recognized as Microsoft's US AI Partner of the Year, possesses extensive experience and expertise in helping organizations in the energy and utilities sector to implement AI technologies.

Our team is dedicated to helping you leverage AI technologies to enhance efficiency, improve customer interactions, and ensure regulatory compliance. Contact us today to schedule a consultation and discover how Neudesic can help your organization unlock the full potential of AI.

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Databricks, Inc. is a leading global data, analytics, and artificial intelligence company. The company offers critical tools and solutions that can help energy and utilities organizations to harness the power of data and AI, driving operational excellence and strategic insights. Key Databricks solutions include a unified cloud-based platform that integrates the functionalities of a data warehouse with the scalability of a data lake, making it easy to manage both structured and unstructured data for advanced business analytics and AI applications. The company also recently launched its innovative Data Intelligence Platform which allows organizations to leverage their proprietary data more effectively.

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