Blueprint for success

How top performers consistently deliver on their commitments for infrastructure and capital projects

accenture

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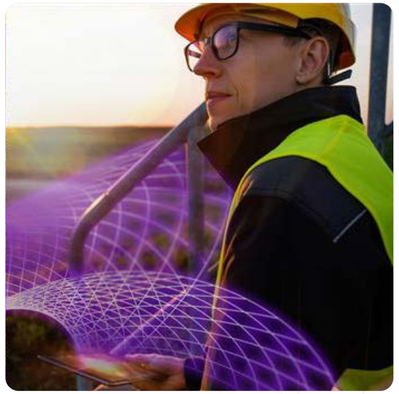


Blueprint for success

An astounding 92% of capital projects do not meet their commitments.

Only 6% of organizations consistently buck this trend. What are they doing differently and what can others do to become part of this elite group?

By the end of 2025, global spending on infrastructure and capital projects is expected to surpass $9 trillion (excluding residential), which is more than twice the amount spent 10 years ago.[1] As demand for these projects increases and the challenges become more complex, there is a pressing need to act in order to deliver on the project commitments. Missed deadlines and overshot budgets have a far-reaching impact on economies and on people's lives. Disrupted supply chains and missed net-zero carbon targets can increase the risk of financial and reputational losses for the organizations running those projects.

To find out what top performers are doing differently, Accenture surveyed 700 leaders responsible for large-scale infrastructure and capital projects around the world. Rare in its scope and insights, this research informs four action areas that set the best organizations apart. To be the best requires not only the right mix of talent, capabilities, processes, technology and delivery methods, but also laying the groundwork for sustained success.

This is the time for stakeholders to align and create more top performers.

Up to

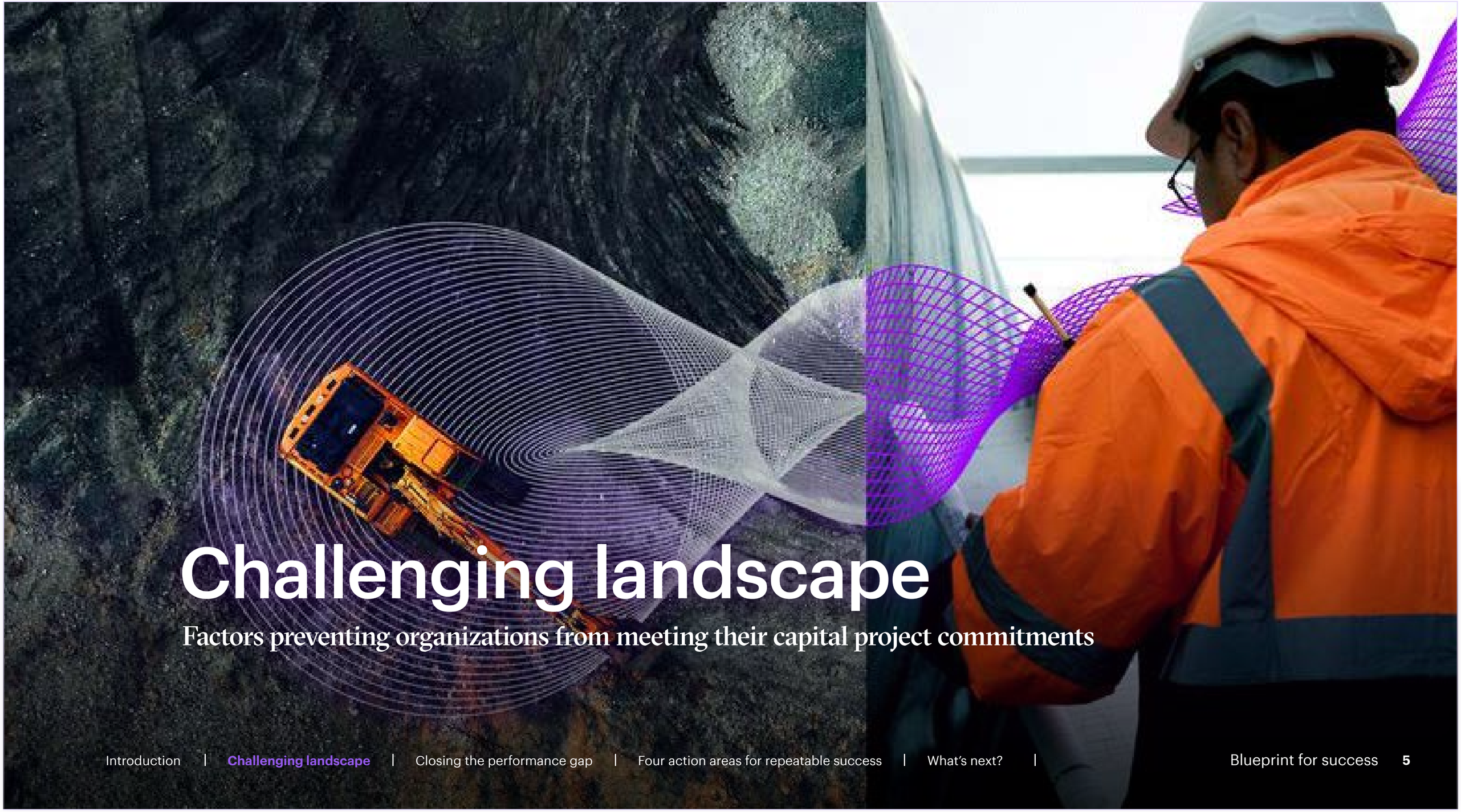
30%

project costs saved by companies delivering on commitments ahead of target

Research snapshot

Conducted between March-April 2024, this extensive research project spanned 23 countries and 12 industries, capturing leaders' perspectives on the underlying factors that contribute toward infrastructure and capital projects missing key milestones and commitments.

For full details, please see page 32.



Challenging landscape

Factors preventing organizations from meeting their capital project commitments

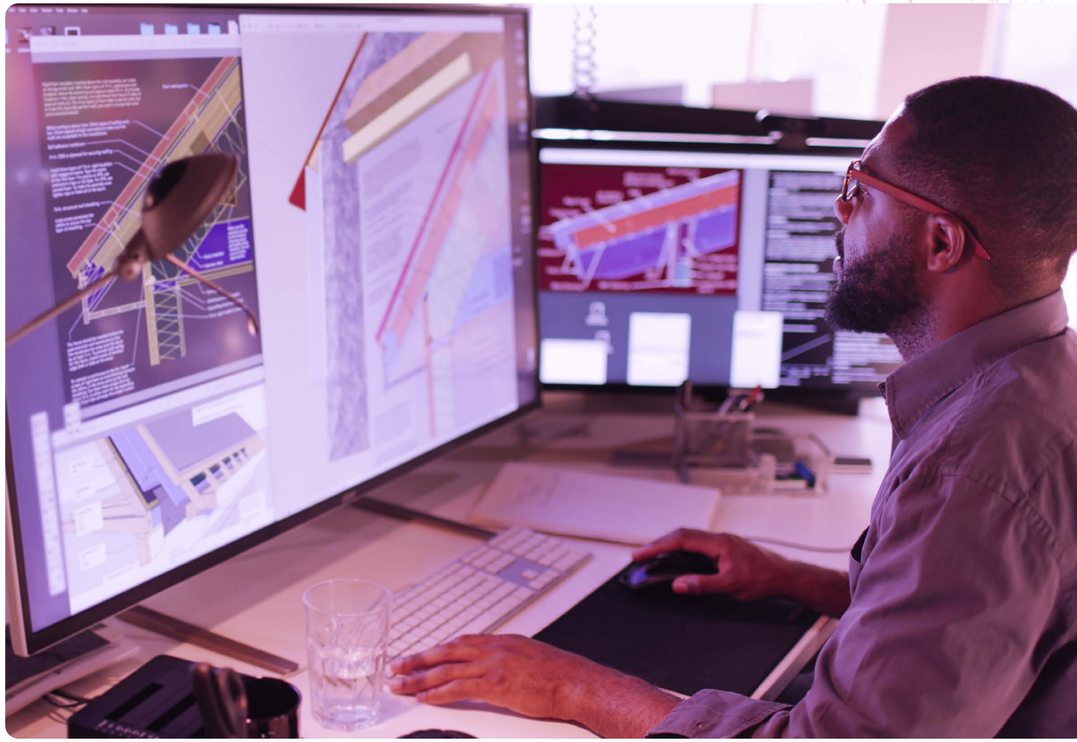
Delayed completion dates and spiraling costs are so common among capital projects they're almost expected, but the cause is a complex combination of factors.

Through conversations with owners and operators, engineering and design companies and construction and subcontracting firms, our research shines a light on a long list of challenges that lead to cost and schedule overruns. Some of the top factors include:

Increased project scrutiny from stakeholders was the most reported factor and has critical impact on cost and schedule outcomes. Some examples of stakeholder scrutiny include licensing and permitting review and approvals.

Availability of materials and equipment was also a key challenge, with a lack of front-end planning to account for supply chain uncertainty reported as a significant barrier to progress.

Regulatory and compliance complexities have also become more commonplace. The challenges of staying in line with evolving environmental, social and governance (ESG) regulations are one example of increasingly complex external factors that project teams must navigate.



The industry at large is also feeling the squeeze of talent constraints, which has a material impact on all other factors. The labor pool for infrastructure and capital projects is shrinking in many geographies, increasing recruitment timelines and costs. This shortage is particularly acute for deeply experienced capital project leaders, resulting in less experienced project teams and heightened risk.

Additionally, the overall gap in skilled engineering and construction resource capacity is causing significant delays and hindering project momentum. In the United States, for example, civil engineering graduates dropped 6% from 2019 to 2022[2], while job openings stand at 326,300[3]. A European utilities client needs five times more electricity transmission specialists in the next 12 months for technical assurance, to respond to a fourfold increase in connection requests over the last year. Many leaders are cautiously optimistic that talent issues will improve over the next four years but for now, the industry is struggling to attract skilled workers.

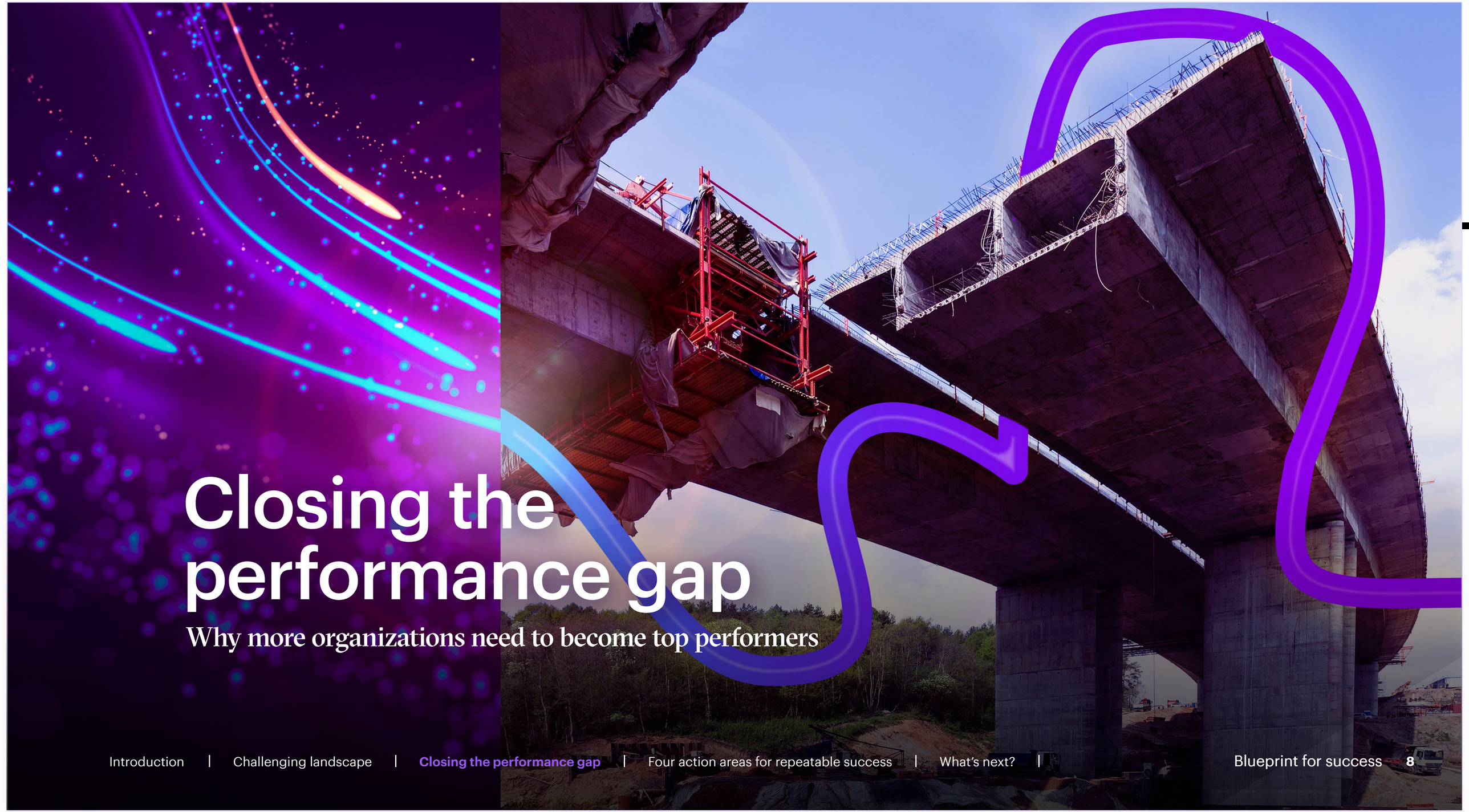
Our research identified three groups based on their ability to overcome these challenges to meet their project commitments. And we look into four action areas that the top performers amongst those groups focus on - planning, stakeholder management, embracing ESG and building and sustaining mission critical skills.

Figure 1

Main factors contributing to cost overruns and schedule delays

Factors preventing mega infrastructure and capital projects from meeting their commitments*

*Rated as one of the top three factors by respondents of Accenture Capital Projects executive survey 2024.



Closing the performance gap

Why more organizations need to become top performers

We've defined three groups based on organizations' ability to deliver capital projects with predictable outcomes on time and on budget.

Only 6% of organizations can consistently deliver ahead of target, underspending budget by 14% on average. For example, on a typical greenfield capital project costing ~$2b, this equates to potential cost savings of up to $275m on average, compared to plan.

A further 28% of organizations deliver within a +/-10% range of the planned budget.

Conversely, the vast majority of organizations (66%) miss their target commitments, resulting in additional labor costs and penalty fees totalling $570m (29%), on average. These sizeable deviations to planned budget and schedule, have material impact on a company's growth potential, cause stakeholder tensions and carry inherent financial risk.

The fact that the size of the group missing targets is more than tenfold larger than those delivering ahead, drives home the need for reinvention.

The time to act is now.

Figure 2

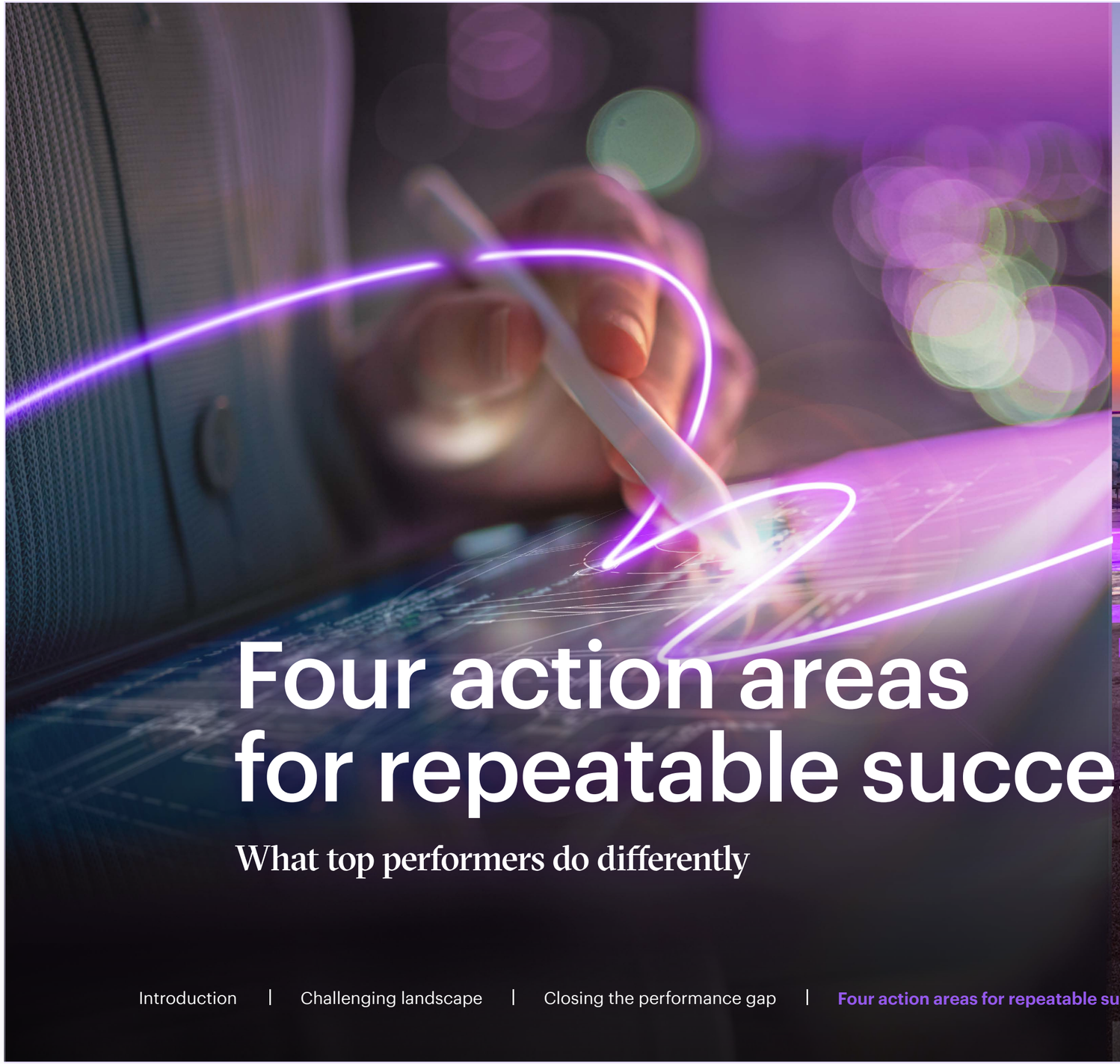
Value impact of budget overruns and schedule delays

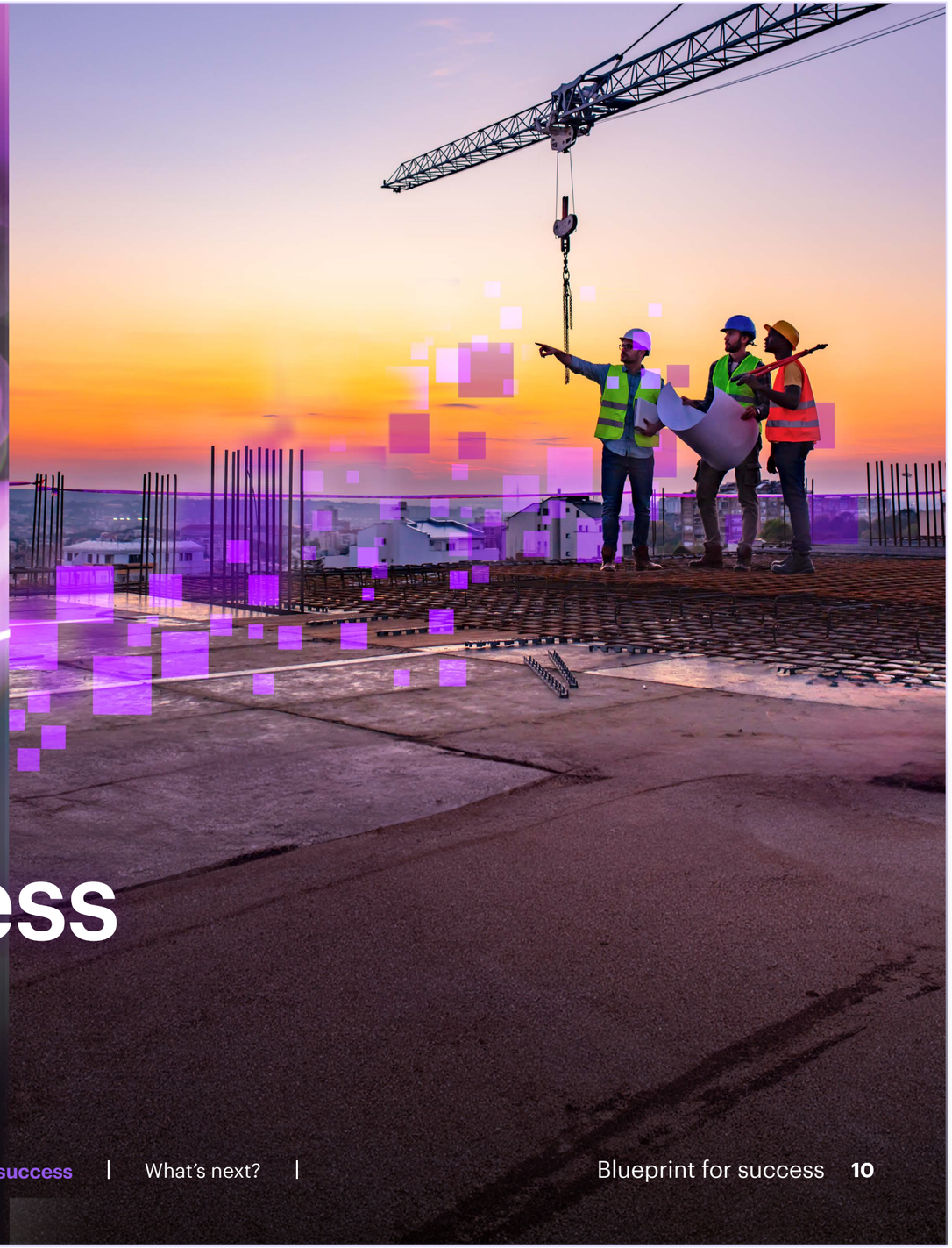
Source: Accenture Capital Projects Executive Survey 2024.

6% of organizations consistently deliver predicted outcomes on or ahead of schedule and budget, helping them save up to 30% of the project costs.

28% hit budget and schedule targets within an acceptable plus or minus 10% margin.

66% miss their targets by over 10%. This group suffers average cost overruns of 29%.





Four action areas for repeatable success

What top performers do differently

The burning question:

What are top performers doing differently to overcome common challenges, such that they meet or beat their budget and schedule targets while delivering predicted outcomes?

Note: We classified organizations that consistently deliver ahead of target and near target both as top performers. This accounts for typical contingencies associated with project estimates used in final project approvals.

First and foremost, their teams are deeply proficient in planning, including creating alignment across the project objectives, project strategy, scope, cost and schedule and through execution. This includes identifying the right project delivery method to align people, process and technology.

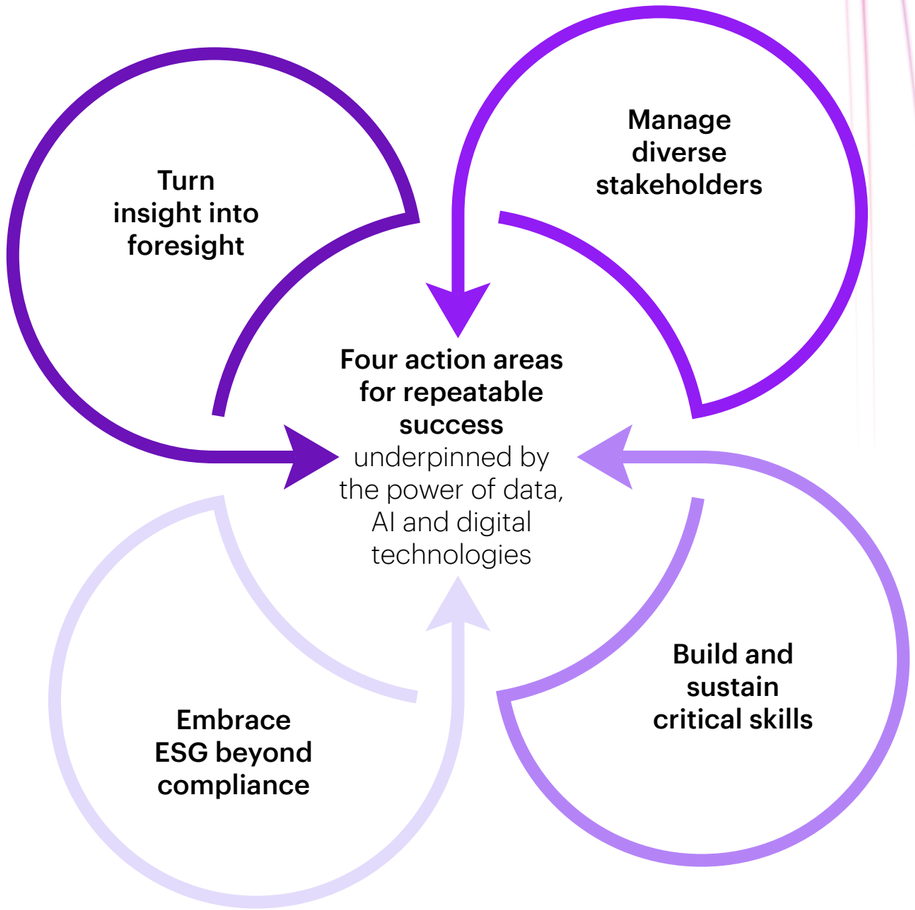
Their teams are also adept at managing both internal and external stakeholders to build collaboration and reduce risks.

Top perfomers embrace sustainability, not only as a requirement, but as an advantage. A means to drive efficiency as well as meet regulatory commitments.

Last but not least they prioritize attracting and developing talent, through innovative recruitment strategies as well as upskilling and training programs.

Additionally, while construction is typically slow to adopt new digital innovations due to the high degree of fragmentation across the supply chain, commercial agreements that drive conflict over collaboration, and chronic underinvestment in technology, top performers are starting to deploy new technologies including AI and build robust data foundations to set themselves up for future success.

These four action areas articulate how top performers behave differently and form a blueprint for success for others.



1. Turn insight into foresight

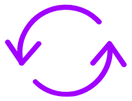
As we've covered, insufficient planning is the biggest challenge organizations face. Time constraints, lack of expertise and lack of stakeholder involvement are common occurrences.

Our research revealed three strategies top performers adopt to turn insight into foresight.

Prioritizing high-risk and high-value factors in early planning

In planning phases, dedicate resources to the factors that either constitute the highest risk or deliver the highest value. Eliminate factors that are low value and high risk early. Work collaboratively to identify and close gaps, set clear objectives, and account for potential delays due to financing, permitting, environmental impact and community concerns.

Involve the project supply chain early in decision making to understand major risks and opportunities in equipment, material, labor and execution approach. Ensure compliance and permit requirements are addressed, with clear ownership established before the project starts. Identify the right delivery method early and align people, processes and technology to it from the start.



Specialize in navigating uncertainty

Whilst it's imperative to focus on stabilizing the plan and design basis, unexpected shifts are inevitable. Treating change as a given enables leaders to run teams that can quickly pivot and keep progress on track. It's critical to spot obstacles or changes early and embed the flexibility to adjust plans, deploy contingencies and turn challenges into opportunities.

Using tools such as a Project Definition Rating Index (PDRI) assessment for example can identify gaps earlier to help reduce the risk of surprises as the project progresses.

Become data-driven

Give leaders closer control throughout a project by ensuring that data is accurate, delivered efficiently and with context that makes it actionable. Be more intentional about treating data as an asset for project analysis and decisions today and in the future to support incoming technologies.

Data helps people work with greater precision as it enables them to spot trends earlier, keep a closer eye on timelines and budget, and anticipate opportunities and challenges.

Planning sufficiently is easier to achieve with collaborative project delivery methods and by developing specific high impact capabilities that lead to stronger outcomes.

Methods like Integrated Project Delivery (IPD) and Progressive Design-Build are effective alternatives to more traditional approaches - such as design, bid and build - reducing cost variance by around 10%. Commercial approaches such as guaranteed maximum price and incentive-based contracts are helpful for managing costs and sharing project risks within collaborative delivery methods, and allow organizations to minimize unexpected expenses.

Whichever delivery method is chosen, its success depends on aligning the project team's capabilities with the needs of that delivery method. For example, in the US public sector, many organizations have elected to explore Progressive Design-Build in pursuit of greater certainty earlier in the development cycle. However, many organizations who are not equipped to adapt their delivery approach find that this approach simply leads to earlier commitments to a partner, without a meaningful reduction in cost or schedule risk.

Figure 3

Critical capabilities for project planning and governance

Capabilities driving success	Greenfield (new build)	Brownfield	Decommissioning
Collaborative project planning and scheduling	●	●	●
Construction visualization for enhanced site planning	●	●	●
Accurate forecasting	●	●	●
Budget and timeline projections	●	●	●
Efficient construction using pre-assembled modular components produced offsite	●	●	●
Simplified procurement	●	●	●
Optimized design solutions	●	●	●
Streamlined processes with advanced work packaging / lean construction	●	●	●
Superior risk control through scenario-based planning	●	●	●
Efficient design workflows with centralized project data	●	●	●
Continuous monitoring for timely interventions	●	●	●
Accurate site data gathering with advanced surveying methods	●	●	●

● High impact ● Medium impact ● Low impact Capabilities using emerging technologies, such as AI

Source: Accenture capital projects executive survey 2024. * Either owner, operator, or EPC company

Real-time collaboration in project planning transforms how teams handle complex projects by enabling them to efficiently evaluate and pressure test more alternatives to improve planning decisions. This impact is seen most in two key areas.

The first is that when supported by cloud-based engineering and construction collaboration tools, teams can quickly share and access project data, allowing stakeholders from multiple locations to fully participate in collaborative processes. Effective use of these collaboration tools ensures that scoping and planning are transparent, to support value and risk-based decision making and enables coordination helping teams adapt quickly to emerging project issues regardless of location and stakeholder group. Real-time collaboration is especially valuable for greenfield projects, boosting the chances of becoming a top performer by 32% (see Figure 3).

Additionally, these tools simplify work for project teams making it more efficient, thereby reducing cost and potential for errors and potential future change orders and claims. This is enabled by capabilities such as ability to remotely visualize construction sites integrated with designs and execution plans in granular detail, with features that make it easier to spot risks and issues such as automated clash detection. This includes geospatial data and augmented reality capabilities that increase the likelihood of being a top performer by 42%.

> “I would say that 50% of the success of a project comes from all the work that is done before getting the project approved.”
>
> **Director of Construction,**
> **European electronics company**

40%

Organizations using AI in their project planning are 40% more likely to meet their intended outcomes.

Organizations that are starting to use AI in their planning efforts are seeing promising results. For example, generative AI tools can analyze past data and current market trends to give accurate estimates, reducing the risk to the budget and schedule. As project conditions shift, AI can provide dynamic updates to help teams stay on track.

AI is also emerging to support execution planning including development and optimization of project plans and schedules. This includes leveraging AI models trained on very large historical project schedule data sets to identify potential risks and uncertainties in project schedules and enable proactive risk management. This is especially helpful when project teams are planning for project scope elements where they lack prior internal reference experience to guide them. AI can be further used for construction plan optioneering by exploring a massive variety of scenarios adjusting for labor, equipment, and sequencing.

Using digital twins to assist with planning also helps to reduce surprises later in delivery. In this environment, prior to any day of project execution, the operating plan is simulated in the digital twin to determine potential conflicts in construction, logistics or safety issues. This means activities can be de-conflicted early, significantly improving site productivity and safety, and reducing risk of change orders and claims.

Case study

Improving project outcomes with strategic planning

A government agency that manages a $50+ billion rapid transit portfolio wanted to establish seamless coordination across scheduling, cost control, contract management and risk mitigation. To achieve this, the agency turned to a dynamic suite of Project Management Information Systems (PMIS).

Through the PMIS, they have gained real-time visibility and traceability of project data. This has given them immediate access to critical information and enabled data-driven decision-making. Comprehensive program control applications and business intelligence systems provide centralized, accurate reporting for transparency across all projects. This in turn enabled the team to respond proactively to risks and opportunities while still maintaining compliance with industry standards.

The centralized nature of the PMIS provides a single source of truth for all project-related information. As a result, the agency can now monitor progress and track key performance indicators with precision. This system supports the implementation of best practices and lessons learned, helping to mitigate risks associated with scope, schedule, financials and reputation while also ensuring the successful delivery of critical infrastructure projects.

2. Manage diverse stakeholders

Complexity is common to all capital projects with multiple interested parties expecting their requirements to be met, while not appreciating how they could be in conflict with, or have impact on other requirements. These stakeholders include executive leadership, communities, regulators, investors, suppliers and more.

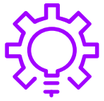
Top performers are their own harshest critics, ensuring their self scrutiny prepares them for any external input and helps them avoid surprises. They're strategic in their approach, making sure all voices are heard and that the project aligns with broader societal and regulatory expectations.

Our research revealed three strategies top performers adopt to improve transparency and manage diverse stakeholders.

Empower stakeholders

Work to proactively understand people's motivations, concerns and mindsets to identify barriers to project progress. Build a network of trusted voices within the organization that are accountable for fostering cohesion and collaboration with key internal and external stakeholders.

Frequently seek input and align it to clearly defined decision stage gates, to enable a higher level of decision-making at critical points in each project. This helps maintain control of the schedule by creating transparency, and ensures that decisions are considered and inclusive.



Communicate with clarity

Keeping all parties aligned is crucial, especially when engaging with licensing and permitting authorities, shaping people's role in their teams, finessing the chosen delivery methods and communicating across a broad range of stakeholders.

Apart from timing, the content being communicated also needs to be adapted to different groups to ensure relevancy.

Greater clarity reduces the opportunity for confusion and enables people to drive forward efficiently.

Use collaborative tools

Specialized tools and platforms enable real-time, transparent communication, allowing all team members to work in lockstep and react as the project evolves.

For example, project control towers provide real-time visibility and enhanced insights from project data to improve predictability and enhance productivity.

Internal project data in the control tower can also be expanded to include external sentiment monitoring, to track how a project is being perceived in the community and enable proactive communications that can mitigate barriers to progress.

Top performers have superior skills in managing complexity, setting them apart from the majority. Success here means ensuring every person involved is in the loop on the latest developments, clear on their role in moving the project forward and supported with the resources, information and tools needed to do so.

There are now multiple technologies and tools to support people and facilitate efficient communication between them. For instance, virtual reality (VR) visualizes projects in lifelike detail, engaging stakeholders, enhancing transparency and making design reviews and public consultation more useful. Sentiment monitoring analytics assess feedback across channels (including social media) to help organizations proactively manage public opinion and stakeholder expectations, making it highly impactful across all types of projects (see Figure 4).

For example, National Grid[4] in the US recently announced the launch of their Doorstep app, which keeps communities up to date with information about major infrastructure projects in their area. Doorstep includes project timelines, regular project updates, opportunities for communities to customize information based on their interests and participate in polls that will allow users to provide feedback and dictate what information is shared on the tool.

> “It’s really about listening, asking good questions, and collaborating. Collaboration is huge on capital projects. The people that I see fail and struggle are the ones that go in with these very, very, very firm ideas.”
>
> **Senior Manager of Capital Project Assessment, Canadian provincial government**

Only 7% of organizations are adept at using new technologies to manage and communicate with stakeholders, yet they increase the likelihood of delivering on commitments by over 30% in brownfield and greenfield projects.

Figure 4

Critical capabilities that help manage stakeholders

Capabilities driving success	Greenfield (new build)	Brownfield	Decommissioning
Clear lines of communications with authorities for smoother compliance	High	High	Medium
Monitoring stakeholder sentiment to guide responsive actions	High	High	High
Protecting data accuracy through efficient information oversight	Medium	High	Medium
Fast and clear communication and updates	High	Low	Medium
Streamlining project workflow for better team alignment	Medium	Low	Medium
Connecting stakeholders through immersive experiences	Low	Medium	High
Streamlining design collaboration for unified project vision	Medium	Low	Low
Fostering collaboration using unified shared resources	Low	Medium	Low

High impact | Medium impact | Low impact | Capabilities using emerging technologies, such as AI

Source: Accenture capital projects executive survey 2024. * Either owner, operator, or EPC company

Case study

Stakeholder communications drive project delivery

A leading gas utility company sought to enhance gas delivery safety and reliability by replacing outdated infrastructure. The task? Replace over 1,000 miles of antiquated cast-iron and steel mains—including heavy capacity lines—with modern, high-pressure coated-steel mains, in a region that is home to almost 3 million people.

Our team supported the replacement of several hundred miles of gas mains and helped connect almost 40,000 customer service lines in the first phase of the highly complicated project. Building on this foundation, the second phase focused on detailed execution oversight, customized production tracking tools and proactive adjustments, helping to keep the program on track even through a period of uncertainty.

Year-over-year, the program continues to meet or exceed targets for pipeline replacement, ensuring reliable service for customers. Weekly updates on milestones, production, financials, risks and mitigation plans helped all stakeholders stay aligned and engaged. This transparency and dedication fostered a high level of trust and helped the project deliver on its commitments.

3. Embrace ESG beyond compliance

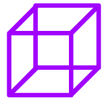
Infrastructure and capital projects are subject to influences from many rapidly changing environmental, social and governance forces. From changing government policies to the rapid evolution of net-zero technologies, organizations face uncertainty around requirements, which is increasing risk. ESG compliance is cited as the third biggest pain point in large capital projects (see Figure 1). Funding is also often a source of compliance complexity, as agreements often come with ESG conditions attached. Tracking and reporting against these requirements, if not considered from the start, can derail an otherwise well planned and executed project. Top performers regard operational resiliency and ESG compliance as non-negotiable, and consistently embed them from the outset.

Our research revealed three strategies top performers adopt to embrace ESG beyond compliance.

Design for sustainability

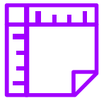
Sustainability is becoming increasingly important, so designing it into every corner of every project is critical. New buildings should be designed to consume less energy, with carbon-neutral, eco-friendly materials that bring lasting environmental benefits.

Using sustainable materials and energy efficient equipment also allows organizations to take advantage of funding and grant opportunities through programs like the US Inflation Reduction Act.



Build sustainably

Efficiency is directly linked to sustainability. By integrating sustainability into the project's core, the efficiency of construction and building operations will be optimized. This includes material sourcing, construction methods, energy usage, water consumption, and overall carbon impact. Contracting with ESG at the core enables compliance to become instinctive and removes pressures and potential financial consequences of non compliance.



Create transparency for compliance

Accuracy in reporting and ESG compliance ensures measures stand up to scrutiny. Precise reporting across the supply chain ensures that projects hit community- or investor-inspired sustainability targets and regulatory requirements.

Tracking and reporting, even when contracting with ESG at the core can be complex and time consuming. Technology can help. For example, using smart sensors, IoT devices and carbon accounting tools that track environmental data in real time.

Project and program controls can also be tied to an operational digital twin configured for a sustainable operations use case. This can significantly minimize the reporting burden both during construction and ongoing asset operations.

Some capabilities are now standard across organizations and can be considered essential "hygiene factors" for capital projects. For instance, 35% of organizations frequently use tools like lifecycle assessment software, green building certifications, and building information modeling (BIM).

Top performers go further, which works to their advantage. Our research found that organizations with advanced data and analytical capabilities are up to 65% more likely to be top performers, thanks to data-driven environmental insights that support resilience and ESG goals (see Figure 5).

For example, drones provide real-time data to monitor environmental risks like deforestation or water contamination, even in remote areas. Combined with simulation and analytics, this data helps optimize operations, improve ESG reporting and manage resources more effectively.

Using a generative bill of material solution can help organizations understand the carbon impact of materials provided by suppliers. It uses AI to automate the identification of materials in the design and to provide the best material selection based on cost, lead times, Global Warming Potential and other factors.

> “Coming up with creative solutions to meet your ESG goals or your sustainability goals... is a combination of you needing the political will, but frankly, you also need the good people, the right people.”
>
> **Director of Mobility Development,**
> **North American electric utility company**

Figure 5

Critical capabilities that enable resiliency and ESG compliance

Capabilities driving success	Greenfield (new build)	Brownfield	Decommissioning
Environmental compliance through structured assessments	●	●	○
Data-driven environmental insights	●	●	●
Responsible sourcing with end-to-end visibility	●	○	●
Eco-friendly construction adhering to green building frameworks	○	●	○
Sustainable design alignment through collaborative planning	○	○	○
Evaluating project sustainability across entire life cycle	○	○	○
Reducing waste through circular practices	○	○	●
Real-time oversight of environmental impact	○	○	○
Emissions control through precise carbon tracking	○	○	○

● High impact ○ Medium impact ○ Low impact

Capabilities using emerging technologies, such as AI

Source: Accenture capital projects executive survey 2024. * Either owner, operator, or EPC company

Case study

Empowering a sustainable infrastructure design

A large public institution serving over 10 million people sought to expand the electric vehicle (EV) charging infrastructure across its facilities to promote sustainable transportation. Faced with challenges like site prioritization, cost estimation and funding, they partnered with our team to go beyond basic solutions and leverage strategic skills.

Our team looked closely at 54 possible lots in 39 places and used physical site tests and data to decide which sites to focus on. Conceptual designs were created and project costs estimated using an exhaustive Electric Vehicle Supply Equipment (EVSE) Schedule of Values (SOV) tool. This innovative approach enabled the team to forecast capital and operating costs accurately, considering future-proofing and expansion.

By identifying grant opportunities and utility rebate programs, we helped the institution offset initial installation costs and positioned them to meet growing EV demands sustainably. This collaboration showcases the power of using advanced data and transparency tools to achieve environmental goals, setting a new standard for public institutions in sustainable infrastructure development.

4. Build and sustain critical skills

A consistent theme emerged in our expert interviews: Leaders emphasized the importance of building and sustaining critical skills within their organizations, which is particularly challenging in construction projects.

Skilled workers often leave for higher pay and better health and safety conditions. The number of people retiring outnumbers those joining the workforce, creating an ongoing shortage of talent, especially engineers. Organizations need to think beyond traditional recruitment strategies, and prioritize the employee experience to ensure people feel Net better off for working there. Talent retention is critical to ongoing success.

Great leadership will always be crucial to large capital projects. However, when handling talent shortages, leaders must balance which tasks they can take on themselves versus those for which they seek external help.

Our research revealed three strategies top performers adopt to grow key skills.

Understand skills gaps

This means assessing today's capabilities against tomorrow's requirements to identify where to focus efforts across recruitment, leadership, training and development. Identifying both skills gaps and opportunities to improve the employee experience. In some cases, it will mean sourcing outside to help bridge gaps in either expertise or capacity.

Look at opportunities to build diverse teams with different backgrounds, experiences and skills. This strategy injects fresh perspectives that drive innovation and enhances the company's ability to operate across different markets and cultures.

Strategic talent acquisition

Most organizations operate in regions that lack enough engineers to deliver on project demand. In fact, 62% of the world's 702 million highly skilled workers live predominantly in countries across Asia Pacific, Africa and Latin America[5]. Refocus your talent lens to tap into global talent pools, where skilled talent is more abundant—including across organizational borders.

In addition, look at apprenticeships, internships and diversity in hiring as well as formal partnerships with workforce development agencies that connect with educational institutions. Use technology to extend reach, reduce costs, enable smarter credential verification and streamline the hiring process.

Create a network of specialists

Nurture experts who are dedicated to capital projects—supported by an external team—to form strong integrated owners teams. Embed high-impact skills on every capital project, scaled to project size, to inject advanced planning, technical, stakeholder engagement, supply chain and sustainability skills.

Consider implementing career frameworks that enable both managerial and technical employees to develop skills and personalize their career paths, thereby improving the employee experience and promoting retention. Also use Gen AI to unlock institutional knowledge using LLMs to upskill project teams.

Top performers invest in developing a wide range of skills and capabilities. Of organizations surveyed, while 36% excel at internal training, only 12% have strong external training programs, which are key for addressing skill shortages in large projects. External programs offer industry-recognized training which not only fills skill gaps for the organization to prepare it for the future, but also supports career growth that boosts employee engagement and retention (see Figure 6).

Talent management can be made more achievable with emerging technologies. About one-third of organizations are preparing to use blockchain credential verification technology, VR/AR for training and AI for talent matching. These innovations promise to improve accuracy, engagement and efficiency, making workforce optimization and development more dynamic and effective.

Generative AI is the most significant change to work since the agricultural and industrial revolutions, and will likely lead to a reinvention of work in capital projects, with more people centric processes such as planning, estimating, design, procurement, contracting and data handover. Deriving true value from generative AI relies on organizations' ability to weave it seamlessly into every aspect of the enterprise and value chain. The use of LLMs and Gen AI will help organizations shift from relying on individual knowledge to curating and harnessing institutional knowledge. For example, a global energy company is augmenting their project engineers with an AI advisor agent trained on their engineering standards while a utility company is tapping into their project lessons learned to advise engineers and planners on project risks based on relevant prior experiences.

> "We recently created a new program for a master's in engineering certificate at a local university. Partnering with the university means the program can train talent specifically for our industry and enables us to offer incentives for graduates to join our company once they're done."
>
> **Project and Contract Management Director, North American utility company**

Figure 6

Critical capabilities that help build and sustain critical skills

Capabilities driving success	Greenfield (new build)	Brownfield	Decommissioning
Drawing in talent through effective outreach strategies	●	●	●
Identifying skill gaps to rapidly onboard or elevate talent	●	●	●
Nurturing talent through tailored skill-building activities	●	●	●
Enhancing skills with hands-on, immersive training	●	●	●
Secure and transparent credential verification	●	●	●
Boosting skills using internal employee development initiatives	●	●	●
Structured data-driven talent management	●	●	●
Matching skills to roles with AI-powered talent matching	●	●	●

● High impact ● Medium impact ● Low impact Capabilities using emerging technologies, such as AI

Source: Accenture capital projects executive survey 2024. * Either owner, operator, or EPC company

Case study

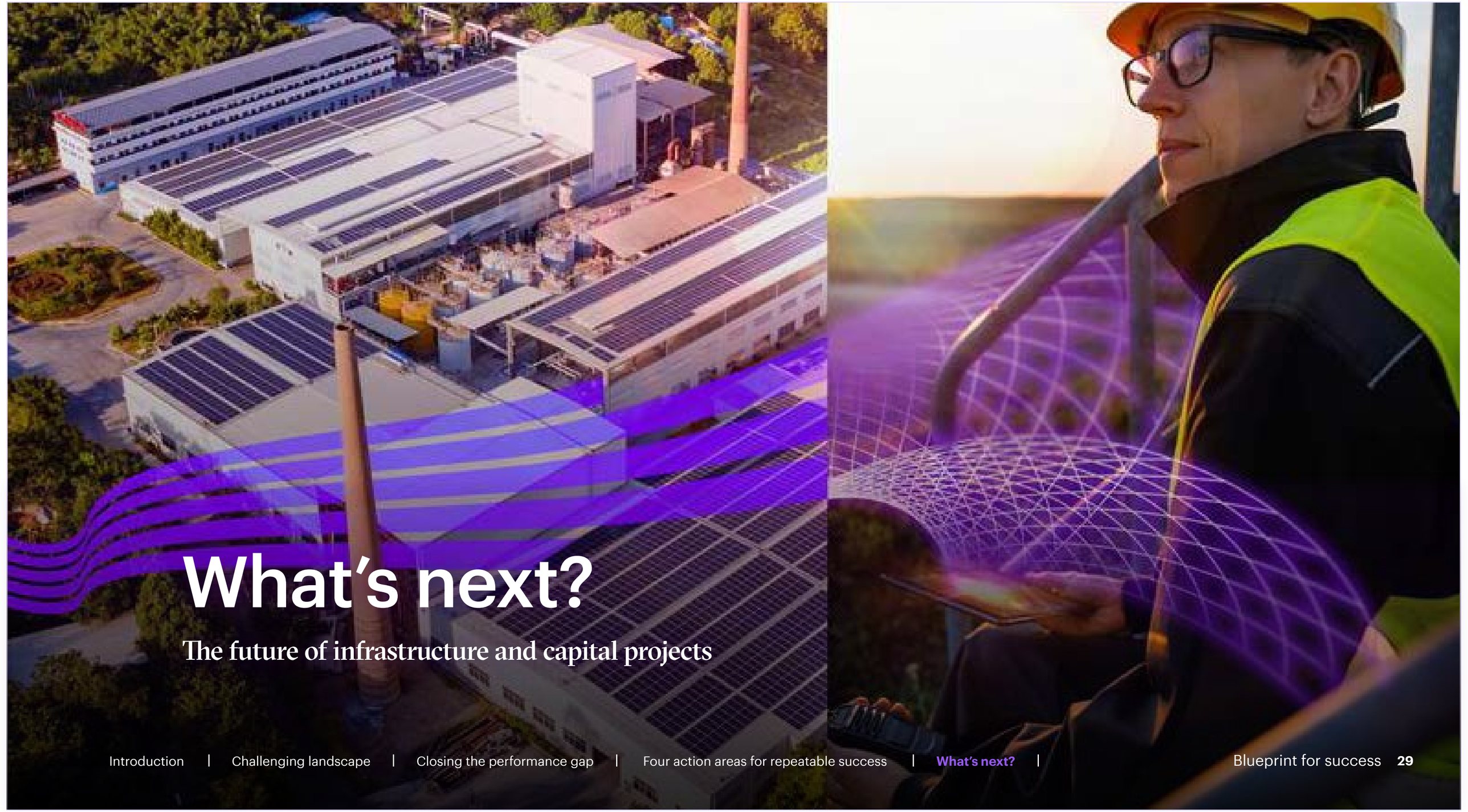
How to harness your talent's best potential to deliver better outcomes for your capital project

Partners in Performance, now part of Accenture, helped a global resources company to significantly enhance the collaborative performance of the joint owner-contractor teams on a multi-billion $ mega-project, resulting in recovered construction rates across all key workstreams.

Issues first emerged when the project had to absorb multiple changes within the owner and contracting teams, which were compounded by access to a limited local talent pool with suitable experience in complex mega-projects. Delays and limited transparency across siloed teams were driving an environment of reactive 'fire-fighting' and increased contractual tension.

Our team worked hands-on at all levels from the frontline to senior management to enable them with the necessary skills to drive daily high-performance results at the construction, procurement and engineering frontlines. We also helped drive a cultural and mindset change by putting systems and processes in place to ensure these behavioral changes transcended across all management levels up, down and across teams. This shift ensured teams were set-up for future high-performance success, as they resolved emerging issues early. In parallel, we embedded the right digitally enhanced processes, tools, reviews and transparency to support this common high-performance culture.

The project's three critical workstreams achieved significant acceleration (72%, 26%, 32%) within three months with each team focusing on a further set of similar improvements. Importantly, as our work concluded, the combined project team had adopted a visibly improved 'One team' proactive performance culture, informed by a single source of truth which gave confidence in achieving future project milestones.



What's next?

The future of infrastructure and capital projects

What’s next?

Focus planning on value and risk

Assemble a diverse team of internal and external experts, including project managers, financial analysts, engineers, commercial and legal advisors to identify value and risk from the outset. Include the project supply chain early to understand major risks and opportunities in equipment, material, labor, and execution approach.

Focus on removing low-value, high-risk options earlier in planning and defer low-value decisions to detailed engineering. This allows more time to focus on high-value opportunities and critical stakeholder challenges—including financing, environmental impact, regulatory and permitting approvals and community concerns. Define the project operating model early on and align it with the selected delivery method.

Use simulation and AI in design and execution planning to explore high-value opportunities with a data-driven approach, integrating project value models to enable fact-based decision making. Use AI to support cost estimating, planning and scheduling, risk analysis and site planning to help teams efficiently evaluate and pressure test more scenarios.

Engage your stakeholders

Managing increasing project scrutiny from multiple stakeholder groups is critical to staying on top of the project schedule. Develop a clear understanding of the motivations and concerns of key internal and external stakeholders, and engage each group with clear, timely and relevant communications. Utilize stakeholder communication tools for transparency and efficient feedback integration. Sentiment monitoring analytics, supported by Gen AI, helps track and analyze stakeholder perceptions throughout the project lifecycle, enabling proactive adjustments to project plans and communication strategies.

Look to ESG as an enabler of both alternative financing options and efficiency in construction and long term operations

Private capital infusion into infrastructure projects remains significant, especially through Public-Private Partnerships (P3). However, these transactions can be expensive and slow to reach Financial Close, relying on long-term Government commitments within short term political cycles. Private-only renewable investments operate faster due to ESG requirements. Tap into third-party expertise to navigate government funding programs, increase grant application success, and implement compliance processes.

Approach projects with sustainability at the core, across factors such as material sourcing, construction methods, energy usage, water consumption and overall carbon impact. Use advanced data and analytics for environmental insights that support resilience and ESG goals. Update contracting mechanisms to incorporate ESG requirements and make compliance part of regular ways of working. This removes the pressures and potential financial consequences of non-compliance.

Build a robust talent strategy

Identifying skills gaps is the first step to understanding talent needs - be it expertise or capacity. Use enterprise HR data, industry skills assessment frameworks (including certifications such as the Construction Management Association of America's Certified Construction Manager) and surveys to analyze workforce demographics, technical skills, leadership potential, and experience levels across the project phases and disciplines. Mitigate short term talent challenges by exploring internal and external options. Then build a strategy that balances hiring new talent (locally and globally) with investing in external or internal training programs to reskill employees.

Use AI to accelerate recruitment by increasing outreach effectiveness through proactive searching, matching and short-listing of candidates. Immersive VR/AR technologies and Gen AI agents that leverage industry and organizational knowledge can also accelerate skill development and project contributions.

Harness digital technology, especially AI

Developing a robust digital strategy starts with understanding current digital maturity and aligning it with business objectives. Conduct a digital maturity assessment and define a project data strategy. Establish foundational capabilities like a digital backbone to unify information across teams, platforms and project processes. This is critical to effectively manage the massive volumes of structured and unstructured data produced across project governance, administration and technical disciplines.

Streamline project data flows and underpin processes with tools like a capital project control tower for effective monitoring and decision-making.

Getting started doesn't need to be a big or complicated effort. With the right stakeholder alignment and focused effort, improvements can be achieved in weeks with limited technical complexity—including trying new AI capabilities.

About the research

Executive survey

The research utilized data from Accenture's global survey of 700 leaders responsible for large-scale infrastructure and capital projects. Conducted during March-April 2024, the survey spanned three regions covering 23 countries and 12 industries, capturing leaders' perspectives on the underlying factors that contribute toward mega infrastructure and capital projects missing key milestones and commitments.

By geography, survey respondents represented the following regions and countries: the US (140), Brazil (48), Mexico (32) and Canada (30) represent the Americas. France (40), Germany (40), Italy (40), Spain (30), UK (30), UAE (19), Saudi Arabia (17), Ireland (10) and Kuwait (4) represent EMEA. China (50), India (50), Australia (40), Japan (40), Singapore (13), Malaysia (9), Indonesia (8), Thailand (4), Philippines (3) and Vietnam (3) represent APAC.

By industry, the exact number of respondents come from the following sectors: Public Services (100), Comms & Media (51), Utilities (83), Life Sciences (51), High Tech (75), Chemicals (49), SW & Platforms (46), Automotive (40), Aerospace & Defense (32), Energy (55), Natural Resources (55) and Industrial (63).

Executive interviews

We interviewed 16 senior directors and vice presidents with decades of hands-on experience working across the infrastructure and capital projects value chain from a broad range of industries.

End notes

1. Global Construction Outlook
2. Civil Engineering graduates in US, Data USA, accessed August 2024.
3. Open civil engineering jobs, US Bureau of labor statistics, accessed August 2024.
4. National Grid
5. Re-focus your talent lens: Abundance awaits | Accenture

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