

CONSTRUCTION AND ENGINEERING

Unlock Endless Possibilities

Enabling a resilient and modern organization for the journey ahead



Construction and engineering

Designing and building is universal, spanning every industry and region. 75% of the world's infrastructure that will exist in 2050 has yet to be built. It is estimated that 2.6 trillion square feet of new floor area will be added to the global building stock over the next 35 years. Projects depend on a complex web of suppliers and tradespeople and must adhere to safety and regulatory requirements. Despite best efforts, 50% of projects exceed their deadlines and budgets.

The construction industry is constantly striving to enhance efficiency, mitigate risks, and achieve more predictable outcomes. Technology has proven to be a valuable ally in this pursuit, and digital project management has played a significant role in documenting, sharing, and tracking the vast amount of project information.

[Explore owner/capital program solutions](#)

[Explore delivery team solutions](#)

Key imperatives for owners

Improve project planning, delivery, and operations

- 1** A finished asset that meets value, scope, quality expectations, delivered on time and on budget
- 2** No surprises—predictable outcomes facilitated by connecting people, process, and technology to support insights and visibility
- 3** Consistency across the entire portfolio by increasing efficiency and ensuring process adherence for continuous performance improvement

Forces shaping construction and engineering

Owners

INDUSTRY CHALLENGES

Lack of standardization inhibits portfolio optimization

Project selection and portfolio optimization is frequently inefficient and lacks a central repository for project requests, review, standardized scoring, and ranking. Data is scattered across multiple spreadsheets in siloed systems.

Lack of transparency, creating uncertainty and doubt

Asset owners have traditionally been on a need-to-know basis and given limited visibility into project status, schedules, and progress information. Lack of transparency left them surprised when change orders showed up for review and approval, often coming with an increased cost and impacts to the delivery date.

Inconsistency in performance across portfolio

Inconsistent outcomes with broken transitions throughout the asset lifecycle have been the industry norm. Owners need consistent and predictable outcomes across all their projects with solid transitions throughout the asset lifecycle.



Optimize your portfolio and projects

Leverage data insights to augment skills and decision-making, predict risk, and drive continuous improvement. Dynamic, continuous capital planning and resource allocation maximizes your returns, considers risk, and helps you proactively react to changes.

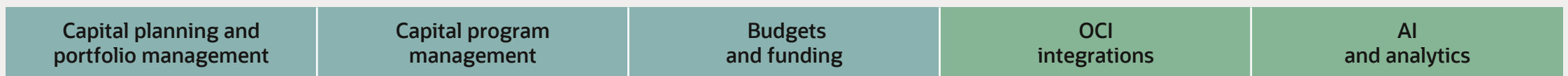
Recommended actions:

- Modernize operations tools to improve efficiency
- Provide a 360-degree view of all project requests across the organization
- Standardize project request process and scoring criteria
- Have clear organizational goals and initiatives to support project selection decisions
- Streamline the review process workflow
- Implement technology that supports these actions

How to get started:

- Implement a single repository for projects with a standardized project request process, scoring criteria, and review and approval workflows
- Select the projects that align with your initiatives and organizational goals by using evaluation scenarios (with your scoring criteria) and tools to rank and prioritize projects across your portfolio
- Manage the budget and all funding from various sources to ensure compliance

Oracle capabilities enabling strategic goals



Improve visibility and automation

Asset owners have stated they often have limited visibility into the status, schedule, and progress information as projects are being built. Lack of transparency results in surprises when change orders (often with increased cost and impacts to the schedule) show up for review and approval.

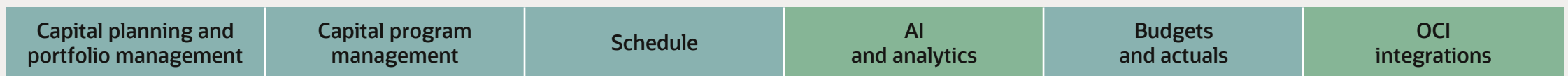
Recommended actions:

- Modernize operations technology to support cross-organizational collaboration that support your preferred workflows
- Provide a 360-degree view of project data across the portfolio
- Establish seamless integration to support interoperability across your organization
- Minimize risk through early visibility and business process automation
- Prevent errors with automated contract management to align contracts, cost codes, and the cost sheet

How to get started:

- Implement a platform of connected solutions that can unify data for better visibility and faster decision-making
- Identify the key data sources necessary for a complete picture of risk and operations and ensure integration of applications to allow for maximizing insights
- Analyze errors for biggest efficiency and margin improvements

Oracle capabilities enabling strategic goals



Create more consistent performance, with better outcomes

Inconsistent outcomes with broken transitions throughout the asset lifecycle have been the industry norm. Owners need predictable outcomes with solid transitions throughout the asset lifecycle.

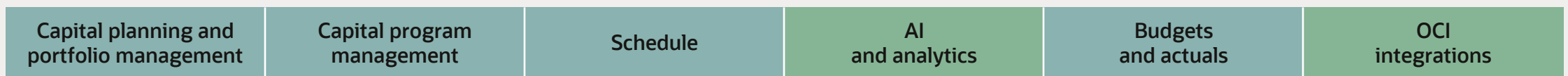
Recommended actions:

- Standardize and streamline your business processes
- Implement a program management system that is configurable to support your processes
- Leverage a seamless integration to support interoperability across the asset lifecycle

How to get started:

- Implement a configurable program management application that can connect applications and processes, unifying project data for maximum insights
- Configure the system to your business processes and leverage the dynamic routing to enable intelligent and efficient review and approval cycles so nothing falls through the cracks
- Ensure regulatory and other requirements are met through scope visibility, program control and insights, and have a complete asset record at handover

Oracle capabilities enabling strategic goals



Internal questions to get going

Data governance and control

- Do we feel like we have clear controls and governance in the utilization of our data?
- Do we understand how to implement successful change management procedures?
- What compliance and audit costs do we frequently run into?

Change management

- Do our employees feel like they're working with modern technology?
- What kind of upskilling will our teams need to administer and adopt this kind of cloud technology?
- Can we risk losing your top talent to other firms with more modern technology?
- Which teams do we foresee being the hardest to enable? Fastest?

Finance and planning modernization

- What kind of analytics and insights do we need on day one of going live?
- Do we have a clear understanding of our chart of accounts?
- Do we prefer to have all our data stored in the general ledger or should the data be consolidated before entering into the general ledger?

System architecture and consolidation

- What kind of analytics and insights do we need on day one of going live?
- What are the biggest regulatory and compliance risks we regularly face?
- As we look at cloud technology, do we see ourselves utilizing a native/in-house cloud platform or a third party?



Key imperatives for delivery teams

Construction and engineering projects

- 1 Safety first
- 2 Efficient subcontractor management and collaboration
- 3 Effective project management that delivers quality and compliance
- 4 Client satisfaction and consistent strong performance that reinforces their brand
- 5 Continuous improvement and adaptability to stay competitive in a highly dynamic industry

Forces shaping construction and engineering

Delivery teams

INDUSTRY CHALLENGES

Productivity, ROI, and margins

Inefficient output, high risk, and constant change can result in poor margins and ROI. Complex funding allocation across projects and programs can lead to cost overruns and inefficiencies.

Disconnected teams and data

Disconnected internal and external stakeholders, processes, and data create project delays and cost overruns which impede work and decision-making. It can be difficult to keep up with increased project speed, complexity, and new contract types.

Labor and knowledge shortage

The industry can expect continued trade labor and knowledge shortages. Attracting and retaining the next generation of talent will require creative new strategies.

Supply chain disruption and volatility

Unexpected material shortages, transportation problems, supplier challenges, and rapid fluctuations in material and labor costs can quickly cause project schedules and budgets to change. Managing large volumes of contractors can make onsite logistics complex.

Sustainable construction practices

Looking ahead, the industry is expected to face growing regulatory, economic, environmental, and social pressures to build more sustainably.

Multidimensional risks

Other industry challenges include identifying and mitigating jobsite safety risk, contractual disputes, IT risks, and security vulnerabilities more effectively with limited resources.



Drive performance and productivity

Inefficient output, high risk, and constant change can result in poor margins and ROI. High performing delivery teams are connected to information and technology that empower accurate decisions at speed, minimize rework, and the risk of delays and increased cost that can impact margins and negatively affect the company's brand.

Recommended actions:

- Have a collaboration culture
- Leverage technology to inform and empower accurate decisions at speed
- Implement workflow automation especially between your field and back office to improve efficiency and ensure compliance

How to get started:

- Implement technology that provides the ability to make swift, accurate, data-informed decisions
- Leverage data insights to augment skills and decision-making, predict risk, and drive continuous improvement
- Implement dynamic, continuous capital planning and resource allocation that maximizes returns, considers risk, and adjusts to changes
- Connect field execution applications with your enterprise financial systems for a single source of truth

Oracle capabilities enabling strategic goals



Collaborate effectively at scale

Connected internal and external stakeholders, processes, and data improve project delivery, prevent delays and cost overruns, and create better project outcomes. Delivery teams often state that it can be difficult to keep up and synchronize information as projects speed up, complexity increases, and/or new contract types are introduced.

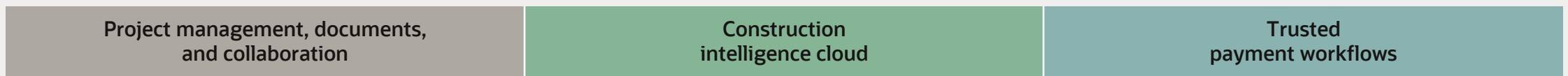
Recommended actions:

- Modernize operations applications to support interoperability across teams
- Promote a collaborative environment
- Provide secure access to documents, drawings, 3D models, and communication threads

How to get started:

- Implement technology that provides efficient and effective cross-organizational collaboration
- Support seamless collaboration between owners, general contractors, and subcontractors with control across project and asset lifecycles using secure cloud solution
- Access to shared analytics to predict schedule and workflow risks, inform decision-making, and support continuous improvement

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Transform the workforce

Labor and knowledge shortages have been significant challenges for the construction industry as the experienced workforce retires and fewer candidates are entering the industry. Organizations have turned to incentives, apprenticeships, and professional development to attract and retain the next generation of construction and engineering talent.

Recommended actions:

- Optimize project resourcing strategy
- Upskill talent to offset retiring workforce
- Develop partnerships with local educational institutions and vocational schools
- Encourage existing employees to refer qualified candidates
- Invest in employee skill enhancement to boost morale and loyalty and reduce churn
- Leverage contingent project labor
- Foster a positive company culture that values diversity and employee well-being

How to get started:

- Implement automation to help increase productivity, allowing employees to focus on more strategic tasks
- Enhance your relationships with subcontractors and suppliers with technology such as payment apps for prompt payment and secure document sharing with 3D models
- Use HCM solutions that can help improve recruiting and retention of talented employees and help you attract the next generation of workers

Oracle capabilities enabling strategic goals

Human Capital Management

Project management, documents,
and collaboration

AI/insights



Connect field and back office for business agility

Unexpected material shortages, transportation problems, supplier challenges, and rapid fluctuations in material and labor costs can quickly cause project schedules and budgets to change. Managing large volumes of contractors can make onsite logistics complex.

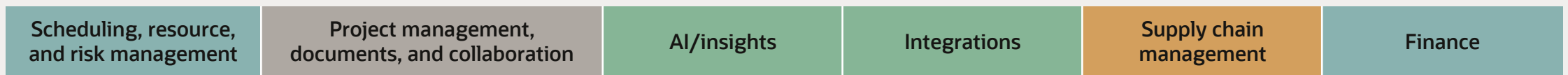
Recommended actions:

- Reduce the number of systems that manage costs and schedules
- Foster a strong supply chain through trusted payment workflows to ensure prompt and accurate payment
- Plan for meaningful integrations to better connect the back office with field
- Consider cloud solutions to facilitate best practices and future-proof your IT investment

How to get started:

- Implement cloud solutions for contracts and document control
- Implement secure subcontractor payment workflows with early payment options
- Implement cloud applications for planning and scheduling.
- Integrate ERP financials and project management applications for a seamless data flow
- Use data and intelligence to transform supply chain tracking and improve agility

Oracle capabilities enabling strategic goals



Build the future sustainably

The industry is feeling the pressure from governments, investors, and even the general public to reduce its carbon output. As prices of sustainable materials have softened, owners don't have to choose between cost and sustainability. Many owners are finding new ways to implement more ecofriendly practices, including the design-build contract method, collaboration, 3D models, and automated workflows. All of these can help reduce carbon emissions by preventing rework that results in wasted materials.

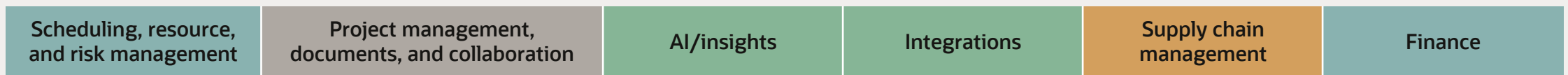
Recommended actions:

- Prioritize sustainability into your organizational goals and communicate with the entire team
- Incorporate sustainable materials into the project scope
- Plan sustainability into the asset lifecycle, including decommissioning
- Reduce waste and rework through unified schedule and task, collaboration, and a connected field and back office

How to get started:

- Implement an information management application that allows for cross-organizational collaboration and document and 3D model coordination
- Leverage technology for efficient review and approvals to ensure regulatory and scope requirements are met
- Enforce documentation across the lifecycle to achieve a complete asset record at handover for efficiency of operations and maintenance

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Improve risk prevention and mitigation

Identify and mitigate jobsite safety risk, contractual disputes, IT risks, and security vulnerabilities more effectively with limited resources. Better allocate contingency funds and resources.

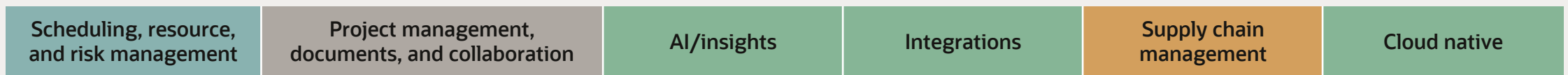
Recommended actions:

- Use modern image capture technology on all jobsites and AI to help review images and notify of anomalies or potential safety risks
- Align your contracts with industry-leading templates from AIA, NEC4, or FIDIC to reduce risk of disputes
- Ensure up-to-date system security and compliance through an always-current cloud infrastructure

How to get started:

- Implement “always-on” onsite and remote jobsite monitoring with intelligence to interpret, predict, and mitigate safety risks
- Monitor construction site and workforce data to use in predicting incidents
- Be sure your jobsite safety plans are understood by all team members and anyone entering the jobsite
- Track and report working conditions to improve safety protocols and prevent future incidents

Oracle capabilities enabling strategic goals



Internal questions to get going

Change management

Do our teams feel like they're working with modern technology?

Does our technology help bridge the knowledge gap between newer inexperienced workers and those retiring?

System architecture and consolidation

What kind of analytics and insights do we need on day one of going live?

What areas of our business need to share information across applications and functional areas?

Where do we need to incorporate external data?

How much flexibility do we need from project to project?

Project execution

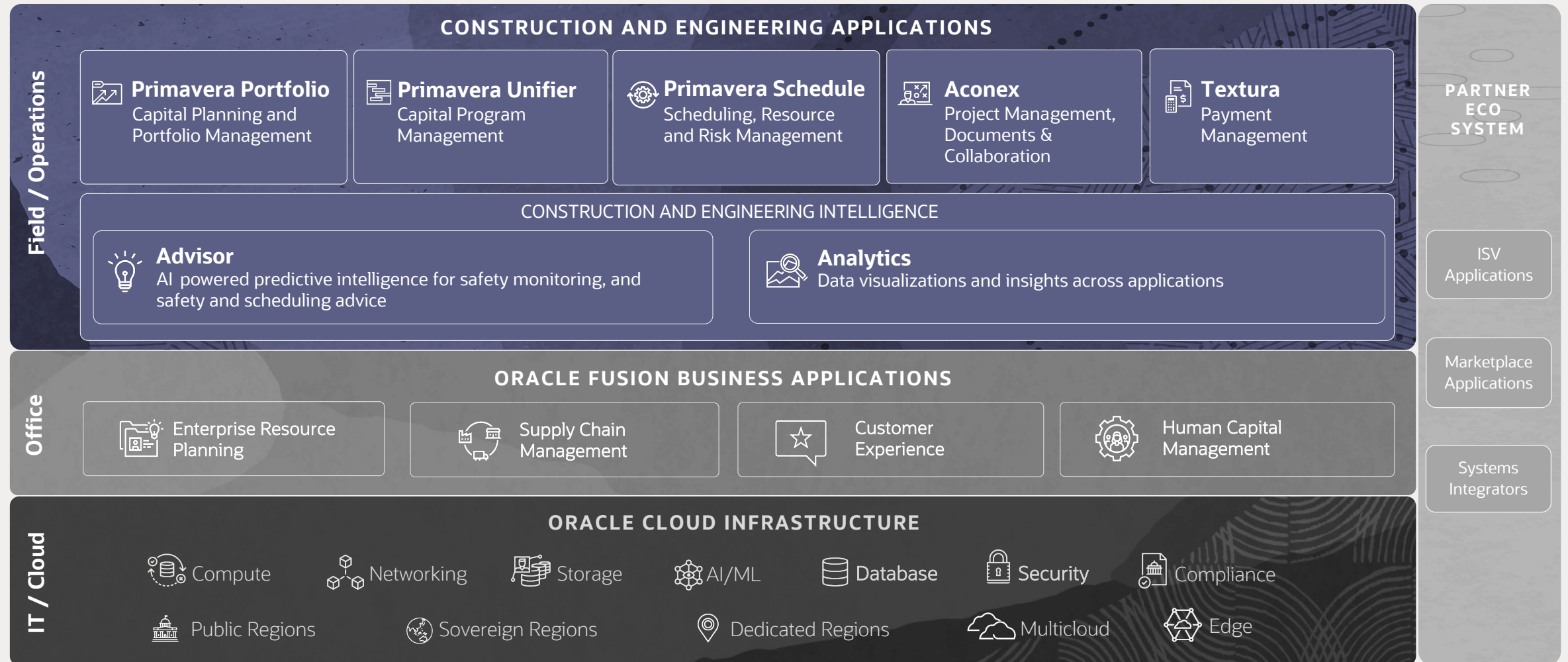
Are my project schedules centrally located to facilitate a move to the cloud?

Do external and internal team members have access to the right information?
If not, what are they lacking?

What are the critical workflows between my field and back office that should be automated?



Oracle Construction and Engineering



Why Oracle?

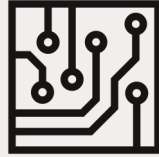


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Deloitte.


pwc

 **cohere**

 **Palantir**

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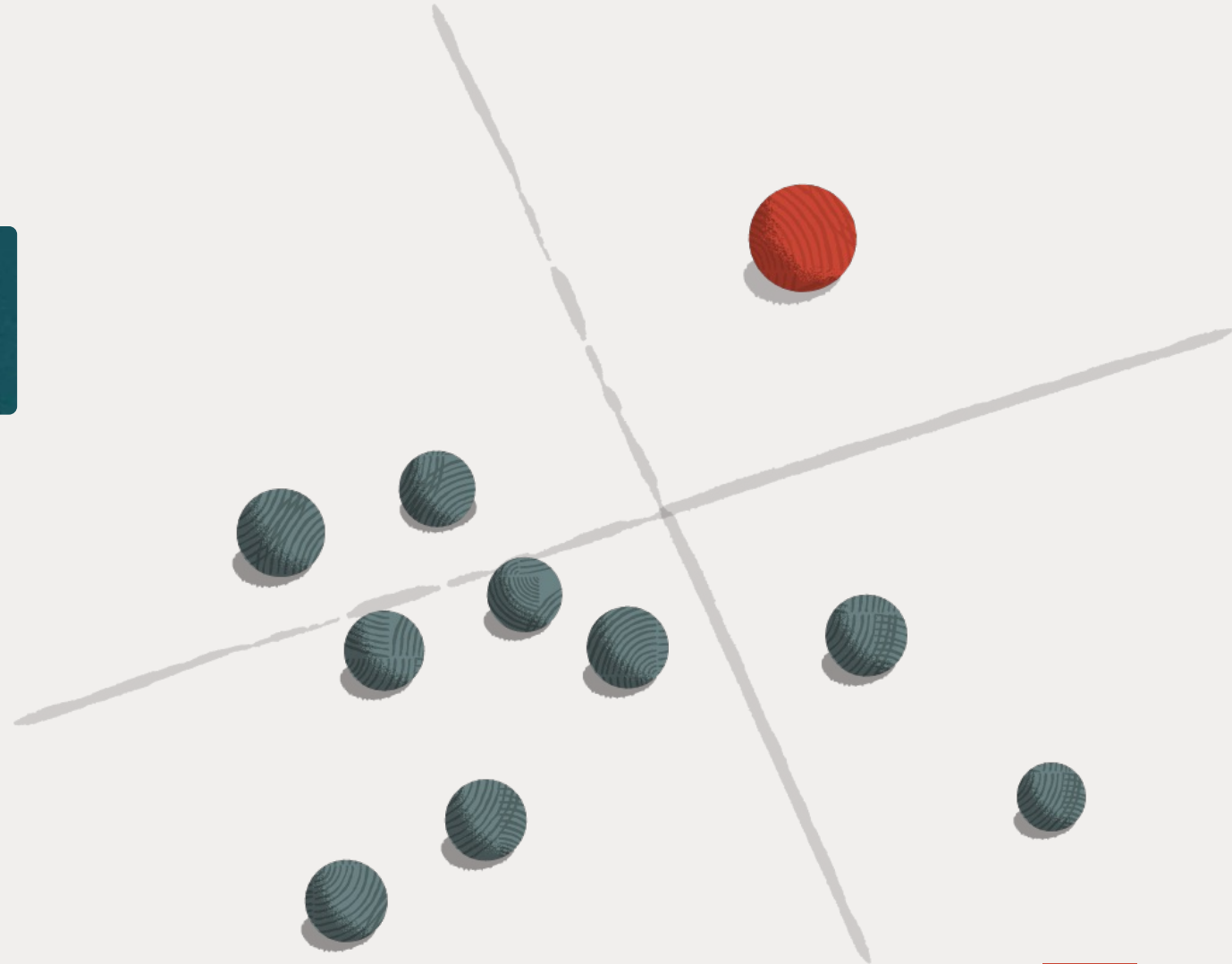

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