

# Engineering and Construction Digital Services 2024 Market Insights

Transforming construction  
operations through digitization

January 2025

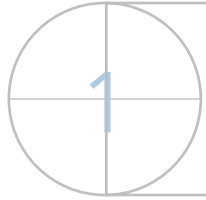




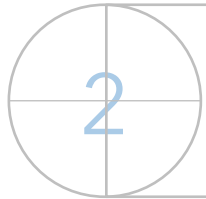
# Table of contents

- About the Avasant Engineering and Construction Digital Services 2024 Market Insights report 3
- Executive summary 4
- Demand-side trends 8
- Infosys profile 14
- Appendix 18
- Key contacts 22

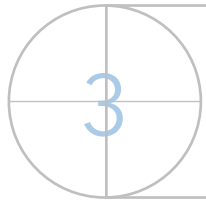
# About the Engineering and Construction Digital Services 2024 RadarView



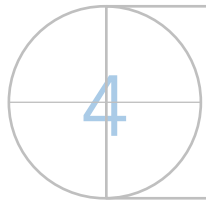
Service providers are driving digital transformation for engineering and construction (E&C) enterprises by transforming legacy technology infrastructure, strengthening supply chain operations, and managing workforce crises. They are also deploying predictive technologies and construction-specific platforms to improve project management and craft sustainable building designs.



Avasant evaluated 29 service providers using a rigorous methodology across the key dimensions of practice maturity, investments and innovation, and partner ecosystem in the E&C space. Through our analysis, we recognized 10 providers that brought the most value to the market over the past 12 months.



The *Engineering and Construction Digital Services 2024 RadarView* aims to provide an in-depth capability assessment of the leading service providers offering services to the E&C industry. Based on our methodology, we have categorized the service providers into four broad segments: leaders, innovators, disruptors, and challengers.



To enable decision-making for enterprises, Avasant has provided an overview of the major service providers in the industry. This includes details of their practice size, key IP assets/solutions, partnerships, sample clients, subindustries focus, and case studies. This is supported by an analyst's take on the providers across the three key dimensions as defined in the second point.



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## Executive summary



# Scope of coverage

The study focuses on digital services delivered to enterprise clients across the industry segments listed below.

Industry segments	Description	Enterprise examples
<p><b>Real estate</b></p>	<p>Enterprises involved in designing, planning, and constructing structures such as residential and commercial buildings (including government and public buildings)</p>	
<p><b>Transportation</b></p>	<p>Enterprises involved in designing, planning, and constructing structures supporting transportation, for example, airports, railways, metros, highways, bridges, and tunnels</p>	
<p><b>Infrastructure</b></p>	<p>Enterprises involved in designing, planning, and constructing structures such as dams, wastewater treatment infrastructures, telecommunication networks, and agricultural infrastructures</p>	
<p><b>Plants and facilities</b></p>	<p>Enterprises involved in designing, planning, and constructing structures such as industrial facilities, data centers, labs, factories, warehouses, plants, and refineries</p>	

**Digital services definition:** These are services that accelerate digital transformation using emerging technologies such as AI and data analytics, blockchain, cloud, cybersecurity, IA, digital twin, and IoT across engineering and construction services. The offerings of service providers to be assessed in this study are advisory and consulting, PoC development, build and test, implementation, system integration, and development and maintenance.

We will assess the offerings of service providers across the value chain components given below.



# Executive summary

## Key market drivers



Increasing operational costs due to supply chain disruptions



Growing labor market transitions and an aging workforce



Ensuring compliance with climate regulations



Delaying project timelines causes significant budget overruns



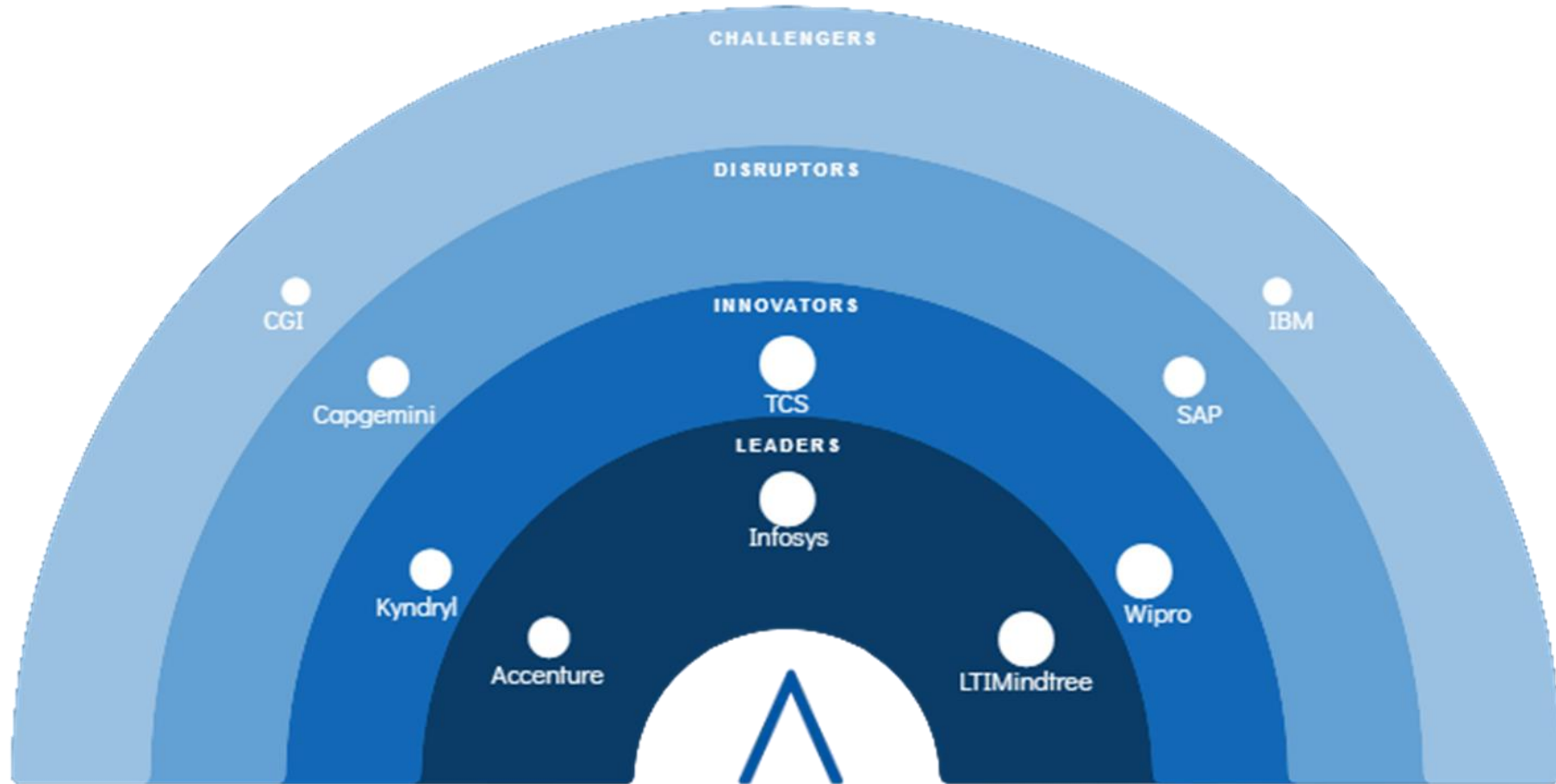
Exploring the adaptability of generative AI across the value chain

## Enterprise response

- E&C firms are accelerating the adoption of cloud platforms to enable supply chain visibility, integrate predictive analytics capabilities, and improve cost efficiencies.
- Construction companies are leveraging niche industry capabilities, such as BIM software, in their operations, offering real-time supply costs and availability updates to ensure timely deliveries.
- Construction companies are turning to robotics and automation. These advanced tools create new-age roles, promote safety, encourage teamwork, and attract the next generation of tech-savvy workers.
- These firms use modular construction and prefabrication technology in response to market changes, enabling engineers to design and assemble building components in controlled factory settings.
- E&C firms are using advanced sensors for real-time carbon emissions monitoring. This data-centric method aligns with sustainability and climate policies, optimizing resource use and reducing environmental impact.
- They also use VR and digital twin technology to explore possible emissions from construction projects before construction and make design revisions accordingly.
- E&C firms use project lifecycle management software to streamline workflows, boost efficiency, and enhance collaboration, improving overall project management and reducing project delays.
- These companies are accelerating their digital strategies by leveraging cloud platforms, such as SAP S/4HANA, to provide custom, scalable solutions on demand, reducing project timelines.
- E&C companies are exploring possible use cases of generative AI and how it can enhance the productivity of existing processes. They are investing in generative AI startups and are adopting niche AI platforms.
- Generative AI offers potential use cases such as sustainable design suggestions, enhanced material selection, and optimized layouts for enhanced energy use.

# Avasant recognizes 10 top-tier service providers supporting the engineering and construction industry in digital transformation

Practice maturity 



Note: Please refer to Avasant's *Engineering and Construction Digital Services 2024 Market Insights* for a detailed analysis of the enterprises and demand-side trends.



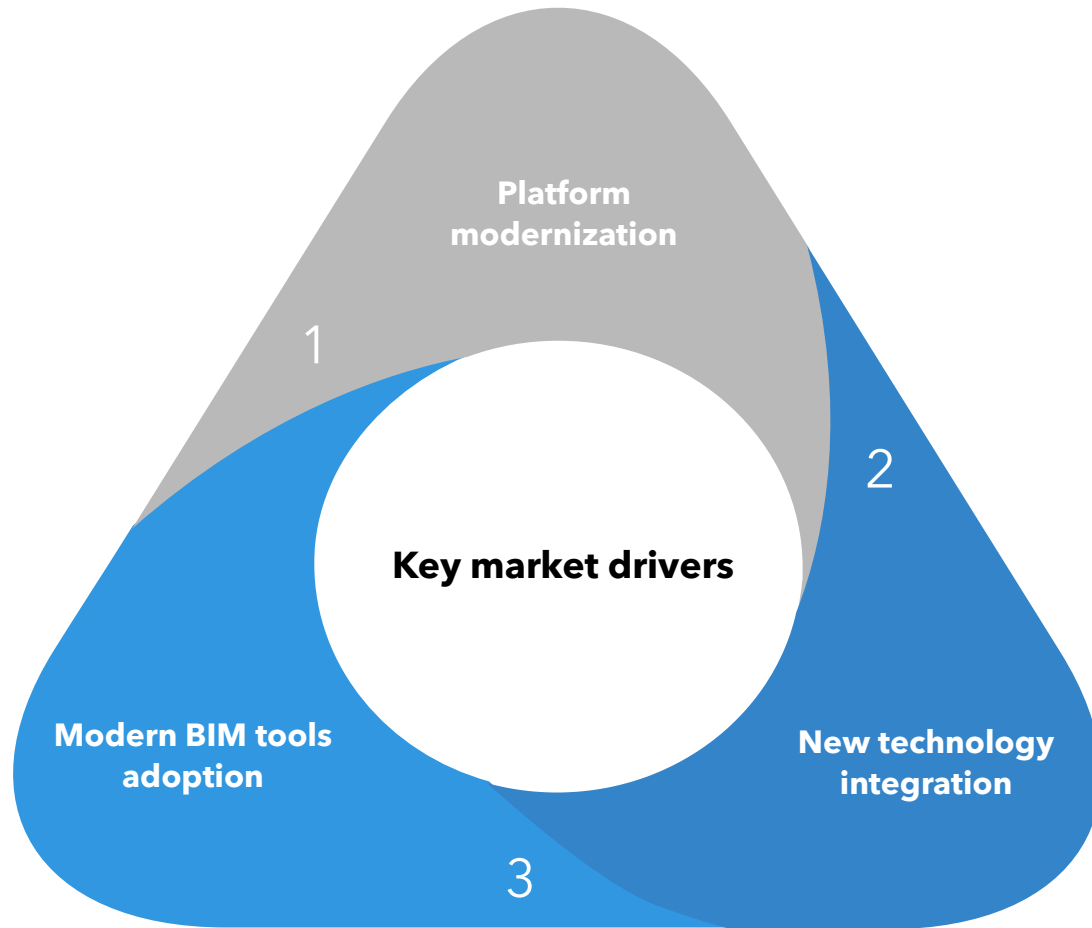



# Demand-side trends




# The E&C sector is accelerating the adoption of digital platforms and transformative technologies to manage supply chain risk

When construction materials do not arrive on schedule, it can lead to work stoppages and budget overruns. E&C firms' adoption of digital technologies and modern tools has enabled a better preparedness for supply chain disruptions.



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**1** In October 2023, Tata Projects partnered with SAP to adopt S4/HANA across verticals to modernize its IT infrastructure. This will increase its efficiency in managing orders, inventory, and general contractors, easing supply chain problems.
- 







**2** Tecla House in Italy was built using local clay and a 3D printer for efficient, cost-saving construction with less waste, easing construction supply chain issues. WASP's Starter Kit provides all the tools for 3D printing for small communities anywhere.
- 

**3** TCE used BIM for intelligent information management, reducing vendor clashes, streamlining the supply chain, and improving cost efficiency through real-time updates, ensuring completion of phase 1 before its 2023 deadline.

Construction firms must invest in technology initiatives to mitigate supply chain risks and enable business agility. By investing in technology, they can deliver projects on time and within budget, ultimately meeting customer expectations and contributing toward a sustainable future.

# Construction firms are embracing advanced technologies to mitigate the impact of labor market transitions

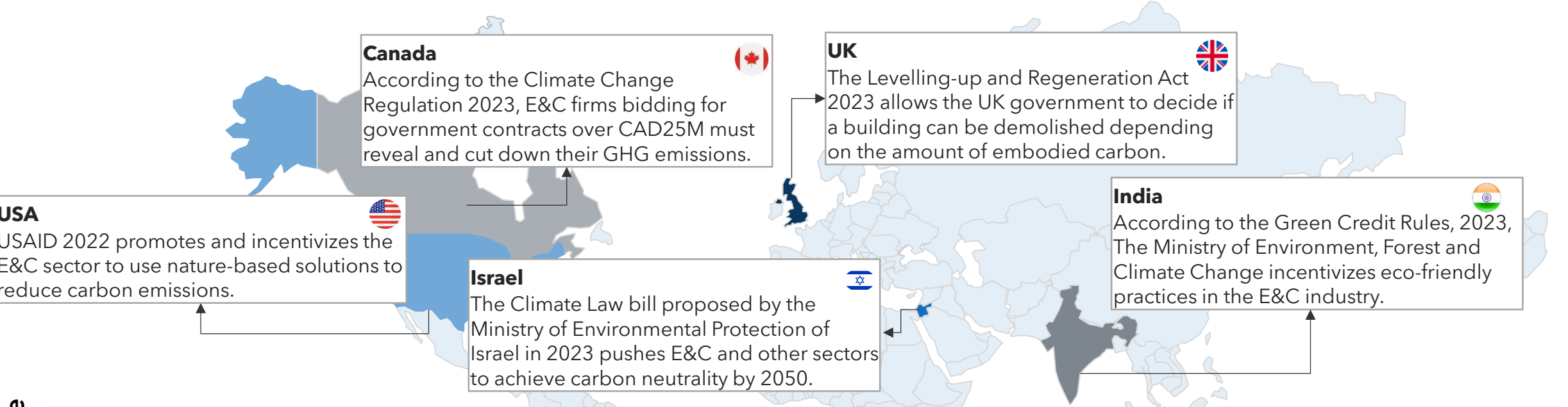
The E&C sector's sluggish approach to technology adoption and risk-prone nature make it less appealing to the tech-savvy younger workforce.

Key challenges	Description	Illustrative examples
 <b>Managing labor shortage</b>	<ul style="list-style-type: none"><li>The E&amp;C industry is using advanced technologies, such as robotics and modular construction, to meet project timelines and ease the pressure on the workforce.</li></ul>	 <ul style="list-style-type: none"><li>In September 2023, Forta PRO, a Latvian firm, completed the UNITY Malmö project in Sweden, with 90%-95% of the construction done off-site, reducing costs and health risks for workers.</li></ul>
 <b>Ensuring worker safety</b>	<ul style="list-style-type: none"><li>In construction, risks from heavy machinery, electrical equipment, and high-altitude work are common. Advanced technology, such as drones, can monitor site hazards, boosting worker safety.</li></ul>	 <ul style="list-style-type: none"><li>Worley, a construction firm, uses IoT devices for real-time worker tracking and safety incident reporting. This ensures increased productivity and efficient risk management on sites.</li></ul>
 <b>Increasing skill gap</b>	<ul style="list-style-type: none"><li>Rising industry costs stem from an aging workforce and a skilled labor shortage as safer, higher-paying technology jobs lure away younger tech-savvy workers. These factors add pressure to E&amp;C firms.</li></ul>	 <ul style="list-style-type: none"><li>Skanska leverages digital coaches to enhance employee efficiency and technology use. They bridge the gap between employees, construction sites, and subcontractors.</li></ul>





While addressing skill gaps, E&C companies should explore digital avenues to enhance the capabilities of their current employees, thereby accelerating the integration of future technologies. Digital skill enhancement platforms could solve this issue.



# Climate mandates are compelling the E&C industry to adopt digital technologies to reduce carbon emissions








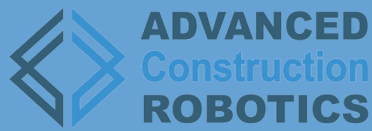
**Enterprise response**

 <p><b>NUBERG EPC</b> Making Ideas Happen</p> <p>In April 2023, Nuberg EPC constructed India's first hydrogen power plant using tools such as 3D printing and VR to reduce CO2 during its operation.</p>	 <p><b>Apollo International Limited</b></p> <p>In June 2023, Apollo International's E&amp;C division set up a specialized unit to earn carbon credits for its portfolio of green project constructions.</p>	 <p><b>Jacobs</b></p> <p>Jacobs has committed to the Get Nature Positive campaign. It employs digital twin technology to optimize design elements before construction to reduce energy use and minimize waste.</p>	 <p><b>Balfour Beatty</b> <b>VINCI</b></p> <p>In November 2023, Balfour Beatty VINCI used a digital measuring system to test concrete quality, enabling real-time monitoring and elimination of carbon emissions.</p>
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The future of the E&C industry is not just about building infrastructures but also creating sustainable ecosystems for generations. Technologies such as digital twin, AI, and IoT will redefine efficiency, but their impact depends on the scale of adoption.

# Construction firms are adopting diverse technologies to manage project timelines and avoid budget overspends

Inefficient designs, poor planning, and inaccurate estimates, often due to disjointed systems, cause project and cost overruns in the E&C sector. E&C firms are recognizing the need for technology adoption to tackle these project management challenges.

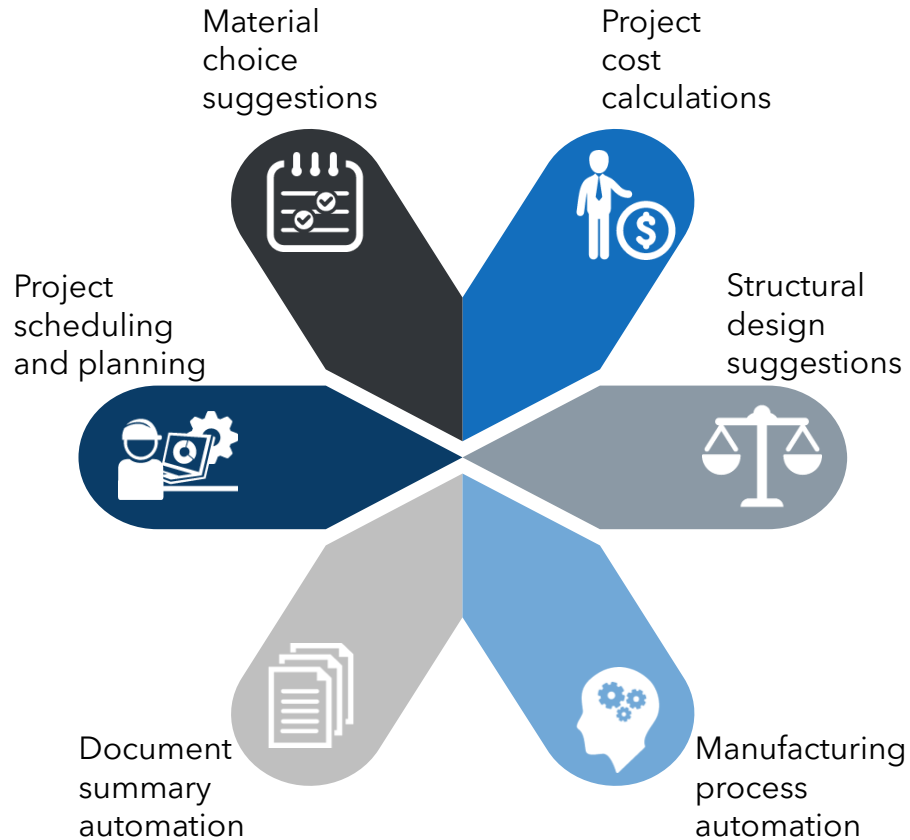
Key digital initiatives	Description	Illustrative examples
 Enterprise modernization	IT system modernization, particularly through cloud technologies, is acknowledged for its substantial benefits. These technologies are key in reducing project costs and boosting efficiency.	 Ferrovial partnered with Microsoft to deploy cloud-based solutions for earthwork operations, site preparation, and excavation.
 Connected construction	Connected technologies, such as IoT, drive the collaboration of people, processes, machines, and tools, ensuring greater visibility. They enable remote operation and monitoring of heavy equipment.	 Foundry Construction implemented connected IoT-based technologies to increase labor productivity and achieved a 10% decrease in project management costs.
 Advanced robotics	Advanced robotics in smart construction is streamlining laborious and complicated manual tasks, enhancing on-site support, driving efficiency, and reducing safety incidents.	 ACR has developed two robots, TyBOT for tying rebar and IronBOT for handling heavy loads. They increase productivity and can reduce installation time by half.

The fusion of AI and IoT with machinery could transform the E&C sector, enhancing safety, efficiency, and speed while reducing labor costs. Major investments, such as India's \$130.57 billion investment in 2023, pave the way for a tech-driven, efficient future in the E&C industry.






# E&C firms are capitalizing on generative AI advancements by investing in startups and partnering with niche players

## Potential use cases of generative AI in the construction industry



## Enterprise response

<p>Investments in generative AI</p>	 <p><b>Augmenta</b></p> 	<ul style="list-style-type: none"> <li>In 2023, Suffolk Technologies, amongst other VC funds, invested \$11.75 million in Augmenta, a generative AI company that automates the building design process to reduce costs and time.</li> <li>ALICE Technologies developed an AI construction platform to enhance project efficiency. In 2023, it raised \$47 million in Series B funding.</li> </ul>
<p>Adoption of construction tech platforms</p>	 <p><b>Rabbet</b></p>	<ul style="list-style-type: none"> <li>In July 2023, Egnyte, a file-based collaboration services company, added a generative AI chatbot to its content intelligence software engine to automate workflows.</li> <li>Rabbet, a construction finance software provider, has released Rabbet Vantage, a generative AI feature allowing users to interact with their financial data using natural language.</li> </ul>

Generative AI could significantly improve efficiency, cost-effectiveness, and overall project outcomes. However, the successful implementation of generative AI will require ongoing investment in technology infrastructure, skills training, and regulatory compliance.



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Infosys profile



# Infosys: RadarView profile



**Practice overview**

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: Delivers projects through 300+ E&C domain experts

**12.9%**  
Revenue from the manufacturing business segment, incl E&C, FY 2023

**70%**  
E&C revenue from digital projects, FY 2023

**Industry-specific solutions/offerings**

Critical Rig Equipment Monitoring Solution	An AR solution for the maintenance crew to monitor the real-time health of industrial equipment
KRTI 4.0	An AI/ML solution to lower system maintenance costs using predictive maintenance capabilities
Infosys EPC solution	A solution to enable operational efficiency and traceability using analytical and reporting capabilities
Nia DocAI	A document extraction and processing platform to generate business insights from EPC contracts

**Sample clients**

- Black & Veatch
- A Canadian E&C consulting company
- A European consulting and engineering firm
- A Japanese engineering and construction firm
- A USA-based E&C firm
- An E&C company

- Practice maturity ★★★★★
- Investments & innovation ★★★★★
- Partner ecosystem ★★★★★

Supports E&C clients with enterprise-wide transformation using digital technologies. Utilizes its partnerships for joint go-to-market for its EPC solutions.

**Partnerships/alliances**

Utilized ServiceNow IT Service Management platform to optimize operations for clients	Leveraged iModel.js open-source framework to decrease design review time for EPC businesses
Implemented Oracle Cloud Fusion Suite for EPC clients to improve operational efficiency	Devised joint innovation and go-to-market strategies for EPC solutions
Partnered to migrate data centers to Azure to streamline business operations	Modernized IT infrastructure using its cloud by replacing legacy systems for EPC clients
Collaborated to replace legacy ERP systems with SAP S/4HANA systems to reduce manual effort	Teamed up to track the location of equipment for EPC businesses



**Value chain coverage**

- Design and planning
- Procurement
- Construction and commissioning
- Asset and workforce management
- Project management and operations
- Customer services
- Maintenance

Darker color indicates higher industry concentration: ●●●●●

# Infosys: RadarView profile

## Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> <li>Intelligent automation</li> </ul>	<ul style="list-style-type: none"> <li>The client wanted to enhance its service management processes by streamlining resource allocation to optimize costs and IT efficiencies.</li> <li>Infosys implemented its ServiceNow IT Service Management platform-based Enterprise Service Management Café solution. It streamlined onboarding/offboarding, procurement, asset management, and security operations.</li> </ul>	<ul style="list-style-type: none"> <li>Deflected 20% volume through self-service</li> <li>Decreased mean time to repair by 25%</li> <li>Improved implementation time by 50%</li> <li>Lowered network issues by 90%</li> </ul>
	<ul style="list-style-type: none"> <li>Cloud</li> <li>AR/VR</li> </ul>	<ul style="list-style-type: none"> <li>The client wanted to modernize its design development and employee collaboration process to accelerate project delivery.</li> <li>Infosys deployed a VR solution on the cloud for the client that provided engineers with a real-time 3D view of designs and optimized the complexity of project construction and maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>Improved project collaboration</li> <li>Enhanced engineer productivity</li> <li>Optimized project timelines</li> </ul>
A Canadian E&C consulting company	<ul style="list-style-type: none"> <li>Cloud</li> </ul>	<ul style="list-style-type: none"> <li>The client wanted to consolidate legacy systems into a single platform to get operational visibility into project allocation and costs.</li> <li>Infosys utilized agile methodology and implemented Oracle Cloud Fusion Suite with HCM, financial, sales, and procurement solutions across its business units globally. It increased data-driven decision-making by empowering sales and HR users with predictive insights.</li> </ul>	<ul style="list-style-type: none"> <li>Enabled month-end closure from 60 days to 35 days</li> <li>Improved project margins by 10%</li> <li>Lowered project margin erosion by 2%</li> </ul>
An E&C company	<ul style="list-style-type: none"> <li>Cloud</li> <li>Intelligent automation</li> </ul>	<ul style="list-style-type: none"> <li>The client struggled with diverse design data sources, leading to performance issues. It also experienced reduced productivity due to manual material identification.</li> <li>Infosys designed an engineering data gateway to enable seamless engineering data synchronization using Siemens and AVEVA software. It further developed a material tracking system to augment material monitoring and reduce the material tracking time.</li> </ul>	<ul style="list-style-type: none"> <li>Improved operational efficiency</li> <li>Achieved code and infrastructure stabilization</li> <li>Reduced engineering design rework by 20%</li> </ul>



# Infosys: RadarView profile

## Analyst insights

### Practice maturity



- With years of experience serving engineering, procurement, and construction clients globally, Infosys has established a strong presence in this industry by assisting clients with end-to-end digital transformation, ERP upgradation, and integration and modernization of legacy systems.
- It utilizes emerging technologies such as VR, cloud, AI/ML, and automation, along with its portfolio of digital solutions to assist construction businesses. For instance, it assisted Hatch with real-time data exchange on a VR device using a cloud/automation building information modeling solution for immersive viewing.
- It helps engineering and construction clients with enterprise-wide digital transformation by leveraging emerging technologies such as advanced analytics, automation, and cloud. For instance, it helped WSP with enterprise-wide transformation across sales, procurement, finance, and human capital management by utilizing Oracle Cloud ERP, intelligent automation, and embedded analytics to deliver a unified system for augmenting operational efficiency.
- To support businesses with sustainability, it uses its decarbonization solutions, such as NextGen Grid and carbon management, to help reduce carbon emissions. It assists clients with sustainable IT advisory through capabilities such as sustainable IT governance, IT carbon footprint monitoring, and IT ESG reporting.

### Investments and innovation



- Over the past few years, it has invested strategically in strengthening its digital capabilities by acquiring companies such as Oddity to improve its digital design and experience capabilities, Simplus to augment its Salesforce competencies, Kaleidoscope Innovation to enhance its product design and engineering capabilities, Blue Acorn iCi to offer digital customer experience, and GuideVision to support E&C businesses with end-to-end ServiceNow offerings.
- It continuously invests in reskilling and upskilling its employees through Lex, its in-house learning and development platform, which covers courses across emerging technologies, including generative AI. It has also invested in expanding its local workforce across the US, the UK, Europe, Japan, Canada, and Australia.
- It also invests in startups through the Infosys Innovation Network to experiment with solutions and provide innovative services to E&C clients.

### Partner ecosystem



- It utilizes its robust network of cloud service providers such as Microsoft for migrating data centers to Azure to optimize business operations and AWS and Google Cloud to assist engineering and construction clients with the modernization of legacy systems to achieve operational efficiencies.
- It has strengthened its partner ecosystem through partnerships with technology providers such as ServiceNow to assist E&C clients with IT service management capabilities, Oracle to improve decision-making using Oracle Cloud Fusion Suite, and UiPath to support industrial clients with automation capabilities.
- It partners with industry players such as Dassault Systèmes and AVEVA for co-innovation and joint go-to-market strategies for E&C solutions and with Esri to assist engineering and construction businesses with equipment tracking by leveraging its geospatial capabilities.



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Appendix:  
About RadarView



# Engineering and Construction Digital Services 2024 RadarView

## assesses providers across three critical dimensions

### Practice maturity

- This dimension evaluates the type, market acceptance, and quality of offerings in the engineering and construction space. It also assesses the strength of the overall practice with respect to its size, certified employees, embedded expertise in emerging technologies, and value chain coverage.
- The width and depth of the client base, practice revenues, the use of proprietary/outsourced tools and platforms, and future strategy are important factors that contribute to this dimension.

### Investments and innovation

- This dimension measures the strategic direction of investments and resultant innovations in the offerings and commercial model and how these align with the future direction of the industry.
- The overall strategic investments, both organic and inorganic, in capability and growth, technology development, and human capital development, along with the innovations that the service provider develops, are critical aspects of this dimension.

### Partner ecosystem

- This dimension assesses the nature of the provider's partnerships and ecosystem engagement. It evaluates the partnerships' objective (codevelopment or co-innovation) and the provider's engagement with technology solutions or product providers, startup communities, and domain associations.
- The kind of joint development programs around offerings, go-to-market approaches, the overall depth of partnerships, and their ability to deliver superior value to clients are this dimension's important aspects.

# Research methodology and coverage

Avasant has based its analysis on several sources:

Public disclosures

Publicly available information from sources such as Securities and Exchange Commission filings, annual reports, quarterly earnings calls, and executive interviews and statements

Market interactions

Discussions with enterprise executives leading digital initiatives and influencing service provider selection and engagement

Provider inputs

Inputs collected through the service provider capability decks and structured briefings from October 2023 to December 2023

Of the 29 service providers assessed, the following are the final 10 featured in the Engineering and Construction Digital Services 2024 RadarView:

 **accenture**

 Capgemini

 **CGI**

 **IBM**

 Infosys

 kyndryl

 LTIMindtree

 **SAP**

 **tcs** TATA CONSULTANCY SERVICES

 wipro



# Reading the RadarView

Avasant has recognized service providers in four classifications:



Leaders show consistent excellence across all key dimensions of the RadarView assessment (practice maturity, investments and innovation, and partner ecosystem) and have had a superior impact on the market as a whole. These service providers have shown true creativity and innovation and have established trends and best practices for the industry. They have proven their commitment to the industry and are recognized as thought leaders, setting the standard for the rest of the industry to follow. Leaders display a superior quality of execution and a reliable depth and breadth across verticals.



Innovators show a penchant for reinventing concepts and avenues, changing the very nature of how things are done from the ground up. Unlike leaders, innovators have chosen to dominate in a few select areas or industries and distinguish themselves through superior innovation. These radicals are always hungry to create pioneering advancements in the industry and are actively sought after as trailblazers, redefining the rules of the game.



Disruptors enjoy inverting established norms and developing novel approaches that invigorate the industry. These service providers choose to have a razor-sharp focus on a few specific areas and address those at a high level of granularity and commitment, which results in tectonic shifts. While disruptors might not have the consistent depth and breadth across many verticals like leaders or the innovation capabilities of innovators, they exhibit superior capabilities in their areas of focus.



Challengers strive to break the mold and develop groundbreaking techniques, technologies, and methodologies on their way to establishing a unique position. While they may not have the scale of the service providers in other categories, challengers are eager and nimble and use their high speed of execution to great effect as they scale heights in the industry. Challengers have a track record of delivering quality projects for their most demanding Global 2000 clients. In select areas and industries, challengers might have capabilities that match or exceed those of the providers in other categories.

# Key contacts



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