

Engineering and Construction Digital Services 2024 RadarView

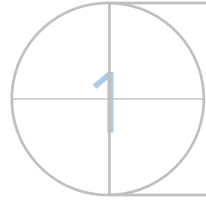
Transforming legacy construction
processes using digital technology

January 2024

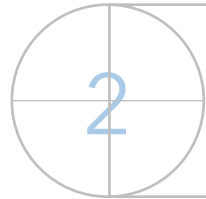
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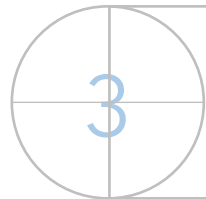
RadarView



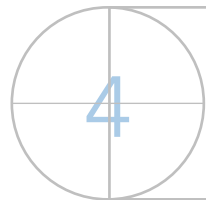
Service providers are driving digital transformation for engineering and construction (E&C) enterprises by transforming legacy technology infrastructure, strengthening supply chain operations, and managing workforce crises. They are also deploying predictive technologies and construction-specific platforms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



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

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.

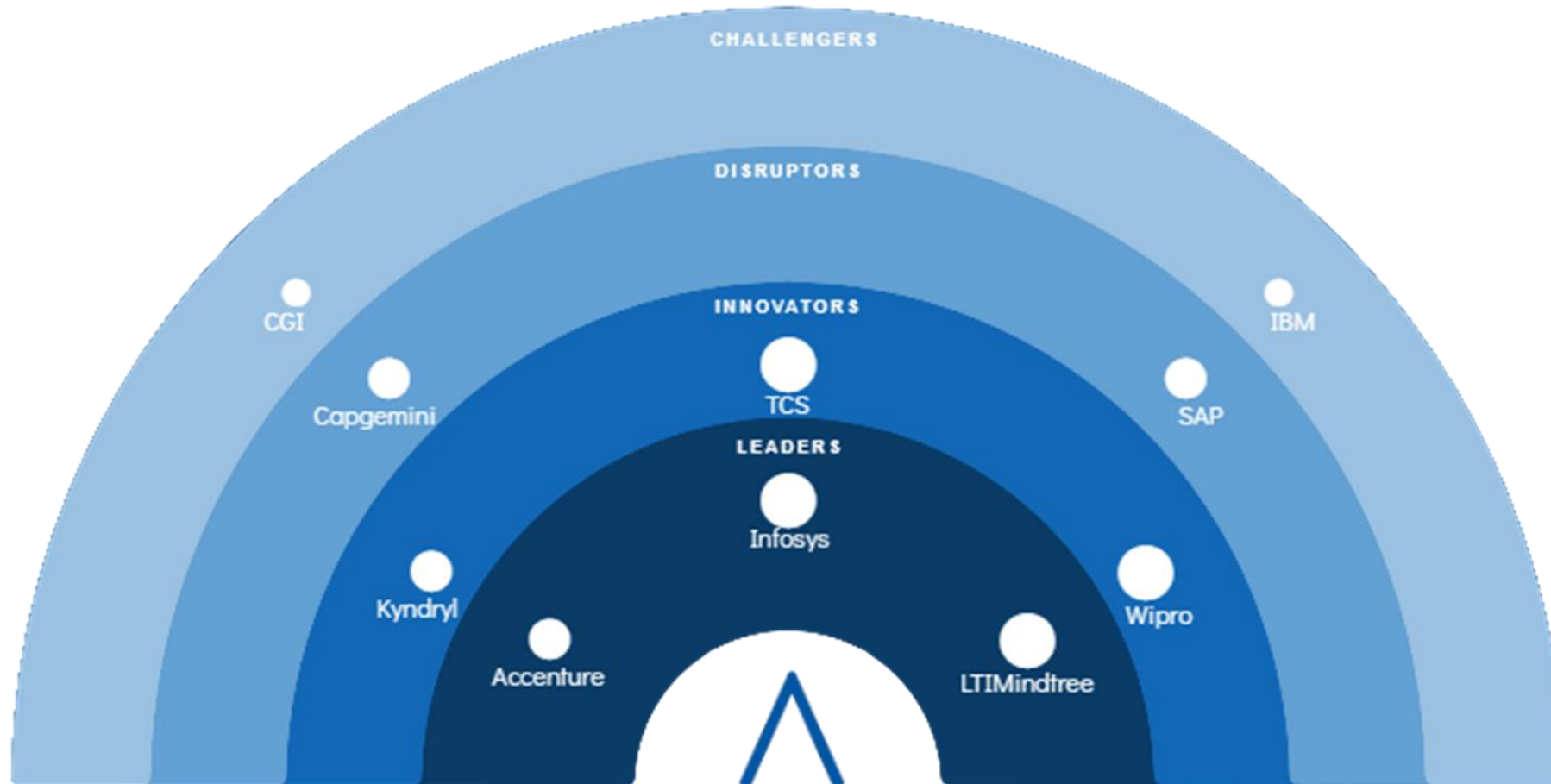
We will assess the offerings of service providers across the value chain components given below.



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.

Provider comparison

Service provider	Practice maturity	Investments and innovation	Partner ecosystem	Key highlights
	★★★★★	★★★★★★	★★★★★★	Leverages the CAPSTONE framework along with industry experience working with E&C clients to increase worker safety and operating margins for large capital projects.
	★★★★★	★★	★★★★	Delivers industrial asset management and financial transformation through proprietary tools developed for engineering and construction clients.
	★★★★	★★	★★	Delivers robust user experience transformation and cost optimization services to construction clients. Focuses on the Nordics market.
	★★★★	★★	★★★★	Demonstrates strong experience in providing cloud and AI services to the construction industry. Focuses primarily on planning, budgeting, and designing.
	★★★★★★	★★★★★★	★★★★★★	Supports E&C clients with enterprise-wide transformation using digital technologies. Utilizes its partnerships for joint go-to-market for its EPC solutions.
	★★★★★	★★★★★★	★★★★	Offers strong digital workspace and building management capabilities using its platforms and frameworks.
	★★★★★★	★★★★★★	★★★★★	Demonstrates robust construction services capabilities using its SAP expertise and portfolio of industry solutions. Focuses on E&C asset and workforce management.
	★★★★★	★★★★	★★	Utilizes its proprietary solutions, platforms, and frameworks to empower construction project management and support worker operations.
	★★★★★★	★★★★★	★★★★★	Provides IT and cloud transformation services to industry clients by automating their operation processes through its cloud partnerships and industry-specific offerings.
	★★★★★★	★★★★★	★★★★★	Has a robust portfolio of drone-based solutions and BIM offerings for construction process management. Has a large clientele of real-estate firms.



Supply-side trends

Service providers are using emerging technologies and industry-specific platforms to transform legacy construction processes

Service providers are transforming the engineering and construction sector by adopting digital technologies, which bolster supply chain resilience, aid asset management, expedite the construction process, cultivate skilled talent, and attain sustainability objectives. The capability analysis of 10 service providers has revealed interesting trends and insights, as shared below.

Enterprise focus

Service provider initiatives

Examples*

Improving supply chain efficiency

- More than 50% of service providers leverage predictive AI and supply chain analytics to forecast possible disruptions. They also use supply chain control tower solutions to enable a 360-degree view of raw material movement.
- About 30% of the service providers leverage in-house digital solutions to facilitate raw material procurement and expedite order placements and payments.

Strengthening asset management

- Almost 60% of the service providers use geographic information systems to detect asset conditions and pair them up with data analytics to predict possible hazards.
- About 30% of service providers utilize technologies such as metaverse, digital twin, and AR/VR to enhance asset utilization and improve overall health. They also use IoT sensor-based connected construction platforms to gain real-time asset insights.

Enhancing workforce assistance

- About half of the service providers offer drone tech, AR/VR solutions, smart wearables, and IoT sensors to improve alert mechanisms and enhance worker safety. Furthermore, they use geofencing technology to prevent workers from entering hazardous sites.
- More than 40% of the service providers leverage automation, robotics, and SAP platforms to automate manual and hazardous tasks.


Augmenting construction project management

- Nearly all service providers help construction enterprises to digitally transform their IT infrastructure, adopt SaaS models, and deploy cloud-native platforms.
- About 60% of the service providers partner with PLM vendors to strengthen project management. They also use construction-specific platforms, such as BIM, to manage the timelines and costs of construction projects.

*Companies in the box are examples of service providers offering the initiatives. This is not an exhaustive list.

Sources: Avasant Research; percentages are based on capability discussions and information from public sources on 10 service providers providing specific solutions/offerings/IPs in the engineering and construction space.



Service provider profiles

Accenture: RadarView profile



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

Leverages the CAPSTONE framework along with industry experience working with E&C clients to increase worker safety and operating margins for large capital projects.

Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 30+ delivery centers

USD 6.3B
Industrial vertical revenue, including E&C, FY 2023

~14.8%
YOY growth for industrial vertical, including E&C

Industry-specific solutions/offerings

Engineering, Project and Data Management (EPDM) solution	A digital project management solution to effectively plan and estimate construction work volumes
Intelligent Operations	A digital solution to improve supply chain resilience and manage costs for capital projects
Capital Projects Control Tower	A platform to combine planning and scheduling, cost, and 3D model information for capital projects
Generative Design Studio	An AI and analytics solution to automatically generate and select the best feasible design options

Sample clients

- Ascendi
- An energy company
- An EPC company
- Johnson Controls
- MOQC
- Petrofac
- Red Sea Global

Partnerships/alliances

Delivered cloud-based managed services to its engineering and construction clients	Accelerated cloud migration for E&C customers using its cloud platforms
Leveraged its lease contract management solution to integrate real estate data with transactions	Leveraged its MindSphere platform to provide data insights from industrial assets on the cloud
Utilized its capabilities in industrial software development to optimize asset management	Partnered to expedite cloud migration and facilitate rapid app development for E&C customers
Used its IoT Cloud Service to monitor workspace temperature and worker presence at the site	Deployed its product life cycle management software to streamline engineering processes





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: ●●●●●

Accenture: RadarView profile

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Automation 	<ul style="list-style-type: none"> The client wanted to improve integration between siloed company functions and increase the operational efficiency of E&C projects. Accenture codeveloped an integrated business information system, enhancing project planning efficiency. It leveraged the workload management solution for workforce planning across all project phases. This integrated E&C processes, companies, and systems, enabling seamless information exchange among stakeholders. 	<ul style="list-style-type: none"> Ensured an increased degree of process and data standardization Enabled real-time access to information across the organization
	<ul style="list-style-type: none"> Automation Cloud 	<ul style="list-style-type: none"> The client wanted a digital solution to transition from its legacy contractual toll operations to a digital true tolling operation with minimal disruption while maintaining user trust and customer satisfaction. Accenture deployed its commercial off-the-shelf software tolling solution based on SAP billing, revenue, and innovation management that helped the client comply with the newer regulations while ensuring customer satisfaction. 	<ul style="list-style-type: none"> Improved process automation Created new self-service features
	<ul style="list-style-type: none"> Analytics Digital twin IoT Metaverse Web3 	<ul style="list-style-type: none"> The client wanted to develop a virtual and connected ecosystem named Idyllias to complement its real estate spaces to provide customers with smart and sustainable living. Accenture helped the client develop the virtual ecosystem leveraging digital technologies such as IoT, metaverse, digital twin, and Web3 technology. It also developed robust operational and financial models using its data analysis and business development capabilities for improved practicality and reach. 	<ul style="list-style-type: none"> Increased awareness among residents of the need to recycle Provided an additional channel of revenue for the client
	<ul style="list-style-type: none"> AI Cloud IoT 	<ul style="list-style-type: none"> The client aimed to transform the visitor experience technology by partnering with Accenture for the Smart Destination Programme. Accenture aided the program by designing the enterprise architecture and integrating cloud technology partners and IoT systems, ensuring efficiency in bringing the platform online. 	<ul style="list-style-type: none"> Enhanced the customer experience of the visitors Promoted ecotourism and reduced carbon footprint

Analyst insights

Practice maturity



- Accenture extensively leverages its data capabilities to help its engineering clients improve operating margins and return on capital investments. Its Capital Projects Strategic and Operating Network (CAPSTONE) framework helps owner-operators and construction firms increase margins by at least 5%.
- It offers the Connected Construction platform as a solution for EPCs designed to enhance safety and maximize the efficiency of workforce, equipment, and materials in E&C organizations. It achieves this by providing real-time connectivity using cloud technologies.
- It also utilizes off-the-shelf solutions to perform end-to-end back-office transformation for the construction industry's complex internal infrastructures. For instance, it upgraded Ascendi's entire back-office system to meet the required legislative compliance within 16 months, with minimal infrastructure disruption.
- To optimize construction costs and improve project efficiency through connected environments, Accenture leverages technologies such as IoT and AI. For example, it implemented an AI-based system to help Metro de Madrid reduce energy costs. It leveraged data from IoT sensors to effectively control and decrease ventilation by 25% and lower CO2 emissions by 1,800 tons annually.

Investments and innovation



- Accenture is focused on strengthening its engineering and construction presence through both industry-specific and horizontal acquisitions. For example, it acquired Anser Advisory in August 2023, to assist firms and public entities execute large, long-term construction projects efficiently and predictably. It also acquired Green Domus to enhance its sustainability services to aid clients across industries, including E&C, in decarbonizing their operations through carbon data insights.
- Accenture also aids in achieving sustainability in the real estate sector by transitioning clients to net-zero buildings. It is working with the World Economic Forum, collaborating with property developers, owners, and operators worldwide to accelerate action towards net zero through its Net Zero Carbon Cities program.

Partner ecosystem



- Accenture has a broad ecosystem of technology partners that it leverages to assist clients in optimizing their infrastructure life cycle for capital projects. For instance, it partners with PTC to leverage its IoT solutions and Dassault Systèmes to deploy its product life cycle management software.
- As part of its cloud strategy, it partners with all major hyperscalers and extends the services to its engineering and construction clients. It partners with AWS, Microsoft Azure, and Google to deliver cloud modernization projects and industry offerings.
- Accenture partners with niche companies such as AVEVA to leverage its combined experience applying digital technology and specialized solutions to EPC clients to reduce the total cost of ownership to support operational agility,

Capgemini: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 120+ delivery centers worldwide

EUR 571M	7%
Revenue from services from sector, including E&C, for H1 FY 2023	YOY increase in revenue from services sector, H1 FY 2023

Industry-specific solutions/offerings

Reflect IoD	A digital twin platform based on facilitating the operations and maintenance of industrial assets
ADMnext	A suite that delivers application development and management services using automation
Cool Tool	A solution to streamline invoicing processes and enable real-time progress tracking
IBX Purchase-to-Pay	A cloud-based eProcurement platform for spending pattern insights and better spend management

Sample clients

- AECOM
- Black & Veatch
- Bobcat
- Ferrovial
- A global engineering and construction firm

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

Delivers industrial asset management and financial transformation through proprietary tools developed for engineering and construction clients.

Partnerships/alliances

AUTODESK Codeveloped a building information modeling (BIM) platform for facility operators	workday Utilized its platform to deliver human capital management services
SAP Used its real estate management platform to deliver property and lease management solutions	IBM Used its Maximo and TRIRIGA platforms to deliver enterprise asset management services
servicenow Utilized its platform to provide integrated enterprise systems	esri Used its mapping software to deliver geographic information systems solutions
Microsoft Leveraged its cloud platform to deliver a digital twin solution that enables intelligent industry	ORACLE Utilized its ERP cloud solutions to accelerate the cloud adoption process

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: ●●●●●

Capgemini: RadarView profile



Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Analytics 	<ul style="list-style-type: none"> AECOM wanted standardization across teams and regions through digital transformation and a new finance and accounting platform. Capgemini developed and implemented Cool Tool, a real-time customized solution to streamline the organization's invoicing process. It also helped design the iLabour tool, a digital platform enabling its employees to report and correct their working hours. 	<ul style="list-style-type: none"> Increased the efficiency and transparency of its invoice tracking database Reduced invoice processing time Saved 723 person-hours per month across the organization
	<ul style="list-style-type: none"> Automation Cybersecurity 	<ul style="list-style-type: none"> Black & Veatch wanted to enhance innovation and technical expertise, empowering clients to attain reliable cybersecurity solutions. Capgemini used its existing templates to deliver an automated DevOps life cycle, covering project initiation, security testing, and production, with the help of Microsoft Azure. 	<ul style="list-style-type: none"> Reduced project delivery time Increased efficiency in delivering projects Provided flexibility and agility in delivering clients' needs
	<ul style="list-style-type: none"> Analytics 	<ul style="list-style-type: none"> Ferrovial wished to enter the Spanish mobility market with its ZITY carsharing business and sought a comprehensive market study to comprehend the challenges associated with the expansion. Capgemini Invent assisted the client by conducting market analysis, performing user profiling, estimating demand, taking stock of the fleet, defining a positioning strategy, and supporting the development of the business plan to establish the carsharing service in Madrid. 	<ul style="list-style-type: none"> Enabled business growth, attaining 650 vehicles and 300,000 users

Analyst insights

Practice maturity



- Capgemini shows expertise in delivering asset and workforce management services for effective operations and maintenance management by leveraging its proprietary solutions and industry partnerships. For instance, it uses Reflect IoD for industrial asset operations and maintenance. It partners with IBM, leveraging its Maximo and TRIRIGA platforms, to deliver enterprise asset management services.
- It provides end-to-end financial transformation services and solutions to its engineering and construction clients leveraging custom tools, such as Cool Tool to streamline invoicing processes, IBX Purchase-to-Pay eProcurement platform to offer insights into spending patterns to improve spend management, and ADMnext tools and solutions to provide streamlined financial processes.
- It facilitates digital transformation for engineering, procurement, and construction clients to enhance competitiveness and improve productivity, product quality, and operational efficiency. It developed an electronic data interchange (EDI) and SharePoint integration solution for a global engineering and construction firm, saving \$6M in license costs and improving customer satisfaction.

Investments and innovation



- In July 2023, Capgemini planned to invest EUR 2B in AI over three years to strengthen its capabilities to deliver AI solutions to businesses, including engineering and construction, through its partnership with Microsoft and Google.
- Capgemini enhanced its product engineering portfolio by acquiring Altran in 2020. This strengthened its position in several industry verticals and global markets. It established Capgemini Engineering, a specialized division focusing on engineering, research, and development, to provide comprehensive end-to-end product engineering and operations support services.
- It focuses on technology innovation and digital use case development for industry clients with more than 150 CoEs and 90 research labs.

Partner ecosystem



- Capgemini partners with industry-leading providers to offer asset management services to clients in the engineering and construction sector. It partners with IBM to deliver Maximo-as-a-Service solution, optimizing enterprise asset management for enhanced productivity and life span. It also partners with SAP to deliver property and lease management services, leveraging the SAP real estate management platform.
- It partnered with Autodesk and Microsoft to codevelop a building information modeling platform on Microsoft Azure. This platform is designed to provide efficient industrial asset operations and maintenance services to building and infrastructure operators.

CGI: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 33 global delivery centers

54%

Share of revenue from managed IT and business process services, FY 2023

21%

Share of revenue from MRD* including E&C, FY 2023

Industry-specific solutions/offerings

CGI Profio360	An ERP solution to help construction firms streamline supply chain, operations, finance, and sales
CGI Mobilog workforce management solution	A digital solution to monitor and plan the work performance of field workers in industries such as E&C
CGI DigitalTrust360	A solution for digitizing business processes such as invoicing, contracting, and customer services
CGI GeoData360	A satellite imagery solution to capture and analyze locational data

Sample clients

- Newsec
- Peab
- Stara
- Taylor Wimpey
- YIT

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

Partnerships/alliances

Delivered geospatial and locational intelligence services using its platforms	Leveraged its cloud platforms to deliver cloud-based managed services to industry clients
Developed advanced engineering designs for industry clients using its solutions	Codeveloped the United Nations Industrial Development Organization Sustainability Planet Platform
Accelerated cloud migration using its Azure cloud platforms	Used its CRM platforms to transform customer operations
Accelerated ServiceNow implementations to streamline internal workflows	Implemented its platforms, such as S/4HANA and Hybris, to carry out back-office transformations

Value chain coverage


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

Delivers robust user experience transformation and cost optimization services to construction clients. Focuses on the Nordics market.

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

*Manufacturing, retail, and distribution

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Automation Cloud 	<ul style="list-style-type: none"> The client needed a new payroll system capable of handling multiple collective agreements, local regulations, and automatic time account adjustments as the system was outdated. CGI implemented a new payroll system that streamlined the process of additional payments and updates to hourly rates, handled multiple collective agreements, and ensured GDPR compliance, significantly reducing manual work and stress. 	<ul style="list-style-type: none"> Resulted in significant time savings and reduced errors Enabled improved and more detailed financial reporting
	<ul style="list-style-type: none"> Cloud 	<ul style="list-style-type: none"> The client, Stara, the City of Helsinki's construction services company, wanted to develop and manage its digital services more efficiently and flexibly. Stara, in partnership with CGI, implemented a new digital solution, Profio360, to streamline its complex project operations, manage data effectively, and facilitate change management. 	<ul style="list-style-type: none"> Reduced time to find information Decreased the possibility of errors
	<ul style="list-style-type: none"> AI Automation Cloud IoT 	<ul style="list-style-type: none"> The client needed a system to manage large volumes of property data, keep up with the digitalization of the real estate sector, and ensure data mobility and integration across platforms. CGI used its Koki360 system, a comprehensive and flexible property management system, to simplify lease management using features such as tenant selection, invoicing, and debt collection. 	<ul style="list-style-type: none"> Reduced manual effort leveraging automation

Analyst insights

Practice maturity



- CGI helps the housing, property, and construction industry solve project complexities by driving long-term digital transformation projects. Furthermore, it has a strong focus on the Nordic construction industry, with a strong clientele, including YIT, Newsec, and Peab.
- Its engineering and construction practice is strengthened by its robust portfolio of industry-specific solutions. For instance, its CGI Profio360 uses its ERP capabilities to improve project management by streamlining the supply chain, operations, finance, and sales. Similarly, its CGI Koki360 helps real estate firms manage property using data analytics.
- CGI plays a pivotal role in delivering user experience transformation. Under a five-year contract with Taylor Wimpey, a UK-based real estate developer, CGI digitized its end-user experience by implementing self-service tools and private cloud solutions. Likewise, CGI helped YIT, a Finnish construction firm, undergo a comprehensive digital transformation of its operations, resulting in cost savings and an enhanced end-user experience for its IT services.

Investments and innovation



- CGI continues to build new platforms and solutions for its clients through its global network of 16 innovation centers. These centers offer end-to-end services such as ideation, rapid prototyping, and test performance to industries, including engineering and construction.
- It also focuses on inorganic growth to strengthen its digital capabilities horizontally across industries, including engineering and construction. For instance, it acquired Momentum Consulting Corp in October 2023 to augment its digital consulting capabilities in the US market.
- CGI plans to invest over \$1B, expand its talent pool, and explore large language models. This would positively impact its engineering and construction practice.

Partner ecosystem



- CGI has partnered with all three major cloud platform providers, AWS, Microsoft Azure, and Google Cloud, to deliver industry offerings and cloud migration projects. Additionally, it has partnered with Google Cloud to codevelop the United Nations Industrial Development Organization Sustainability Planet Platform for driving innovations across industries, including engineering and construction.
- It also partners with technology companies to leverage their platforms. It uses the SAP S/4HANA suite and SAP Hybris to drive back-office transformation projects for its industry clients. Similarly, it partners with Salesforce to transform customer service portals using its CRM platforms.

IBM: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: Offices in more than 170 countries

~USD 15.2B
Revenue from infrastructure segment, FY 2022

14+
Years of working with E&C clients

Industry-specific solutions/offerings

OpenBuilt	An integration solution to connect multiple tech platforms for various stakeholders across the supply chain
DOORS® Next	A SaaS-based requirements management solution to support construction projects.
IBM Maximo®	An application suite for asset monitoring, predictive maintenance, and reliability planning
IBM Envizi	A digital solution that collects, manages, tracks, and reports ESG data

Sample clients

- Flour
- Rail Projects Victoria
- Sund & Bælt

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

Demonstrates strong experience in providing cloud and AI services to the construction industry. Focuses primarily on planning, budgeting, and designing.

Partnerships/alliances




Codeveloped a hybrid cloud platform for construction management	Partnered to leverage its AWS marketplace to provide hybrid cloud and AIOps offerings
Collaborated to create tools for predicting asset downtime and automating worker allocation	Leveraged partnership to aid E&C customers in detecting pipe leaks and managing water systems
Partnered to build a digital platform to streamline the supply chain for E&C customers	Utilized its S/4HANA and industry cloud platform to modernize processes for its industrial clients
Collaborated to create a digital platform for optimizing road design costs	Leveraged its 3DEXPERIENCE software for building digital twins

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: ●●●●●

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> AI Automation IoT 	<ul style="list-style-type: none"> The client wanted to reduce time, costs, and risks associated with manual inspections of bridges, tunnels, and other assets. IBM helped Sund & Bælt automate inspections and extend the lifespan of its civil infrastructures by leveraging the IBM Maximo application suite using AI, IoT sensors, and digital twins to identify cracks, rust, and corrosion in bridges and tunnels. 	<ul style="list-style-type: none"> Reduced risks and response time for maintenance activities Extended asset lifetime Increased productivity
	<ul style="list-style-type: none"> Analytics AI 	<ul style="list-style-type: none"> The client aimed to simplify and improve its planning and project management methods to help predict important project outcomes. IBM Research and IBM Services delivered the predictive analytics solutions EPC Project Health Diagnostics for project planning and Market Dynamics/Spend Analytics for budgeting, enabling the company to streamline its business model and boost its profitability. 	<ul style="list-style-type: none"> Improved operational efficiency and profitability Identified root causes of issues and potential impact of changes Reduced manual effort
	<ul style="list-style-type: none"> Cloud 	<ul style="list-style-type: none"> The client wanted a digital solution to manage requirements for complex and high-value projects and make project delivery time and budget efficient. IBM implemented a SaaS-based requirements management solution that helped the client standardize its processes and trace requirements in real time. 	<ul style="list-style-type: none"> Reduced risks of delays Improved operational efficiencies

Analyst insights

Practice maturity



- IBM's unique strength lies in its commitment to combat workforce attrition by promoting digital transformation in the E&C sector. It addresses the E&C industry challenges, such as low digital adoption and reliance on manual labor, by utilizing AI expertise through the Watson AI platform.
- The non-standardized practices of different stakeholders lead to project delays and cost escalation of large-scale E&C projects. IBM has developed the IBM Engineering Requirements Management DOORS Next solution to address this problem. They have had several production-grade implementations of the solution. For example, Rail Projects Victoria (RPV) deployed this software for increased visibility and traceability across the project life cycle. IBM also helped RPV recognize and mitigate risks, delays, and unwanted expenditures from unforeseen changes.
- It focuses on aiding enterprises in the E&C industry on their net-zero journeys through its portfolio of ESG solutions. For instance, it uses its Envizi solution to simplify sustainability reporting in accordance with global frameworks, including GRI and TCFD.

Investments and innovation



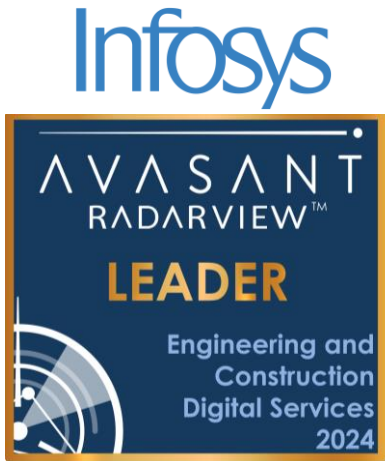
- IBM continuously leverages acquisitions to bolster its capabilities across vertical and horizontal industry segments in different emerging technologies and bring value to clients in different industries, including E&C. For instance, in 2021, it acquired myInvenio to strengthen its AI and automation capabilities for improved procurement, production, and supply chain management for clients, including those in engineering and construction. In June 2023, IBM acquired Aglya SAS, a France-based firm, to enhance its hybrid multicloud services.
- It launched a \$500M venture capital fund in November 2023, through which it plans to invest in a multitude of AI companies, including early-stage startups. This will enable the provider to bolster its AI partner ecosystem and develop solutions for clients of various industries, including E&C.

Partner ecosystem



- IBM has partnered with enterprises in the E&C space to codevelop industry-specific solutions. For example, it partners with CEMEX to streamline supply chains for E&C customers, Fluor for predictive maintenance systems for machines, and Lafarge Holcim to improve its construction design capabilities.
- It has partnered with Cobuilder and RedHat to form an industry consortium and develop an OpenBuilt platform, which allows construction companies to connect their technology platforms and digital solutions to their supply chain partners, offering E&C clients solutions for automation, business model innovation, and optimizing asset value.

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: ●●●●●

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Intelligent automation 	<ul style="list-style-type: none"> The client wanted to enhance its service management processes by streamlining resource allocation to optimize costs and IT efficiencies. Infosys implemented its ServiceNow IT Service Management platform-based Enterprise Service Management Café solution. It streamlined onboarding/offboarding, procurement, asset management, and security operations. 	<ul style="list-style-type: none"> Deflected 20% volume through self-service Decreased mean time to repair by 25% Improved implementation time by 50% Lowered network issues by 90%
	<ul style="list-style-type: none"> Cloud AR/VR 	<ul style="list-style-type: none"> The client wanted to modernize its design development and employee collaboration process to accelerate project delivery. 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. 	<ul style="list-style-type: none"> Improved project collaboration Enhanced engineer productivity Optimized project timelines
<p>A Canadian E&C consulting company</p>	<ul style="list-style-type: none"> Cloud 	<ul style="list-style-type: none"> The client wanted to consolidate legacy systems into a single platform to get operational visibility into project allocation and costs. 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. 	<ul style="list-style-type: none"> Enabled month-end closure from 60 days to 35 days Improved project margins by 10% Lowered project margin erosion by 2%
<p>An E&C company</p>	<ul style="list-style-type: none"> Cloud Intelligent automation 	<ul style="list-style-type: none"> The client struggled with diverse design data sources, leading to performance issues. It also experienced reduced productivity due to manual material identification. 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. 	<ul style="list-style-type: none"> Improved operational efficiency Achieved code and infrastructure stabilization Reduced engineering design rework by 20%

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.

Kyndryl: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 17 delivery centers worldwide

~3,200

Patents filed

12%

Share of revenue from the industrial sector, including E&C

Industry-specific solutions/offerings

Smart Worker	A modern workplace solution leveraging AR/VR and wearables for worker safety and inspection
Asset Management	A cloud solution to monitor equipment effectiveness and aid in decision-making
Intelligent Supply Chain	An AI and cloud solution to predict demand and enable real-time visibility of the supply chain
Automating Quality Inspection Operations Solution	A digital solution developed on the AWS data and analytics platform to detect quality anomalies

Sample clients

- Dilip Buildcon
- Taisei
- A global real estate services firm

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

Offers strong digital workspace and building management capabilities using its platforms and frameworks.

Partnerships/alliances

Utilized its platforms to carry out supply chain transformation for industry clients	Accelerated prototyping, app testing, and cloud migrations using its Azure cloud
Partnered to leverage its asset management expertise to track and trace assets	Used its 5G and LTE capabilities to provide services to asset-intensive industries such as E&C
Carried out IT infrastructure modernization projects using its cloud platforms	Leveraged its cloud platforms to deliver ERP modernization and database consolidation services
Developed go-to-market strategies for IT service management and service desk modernization	

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: ●●●●●

Kyndryl: RadarView profile



Case studies

Client	Capability	Summary	Business impact
 <p>DILIP BUILDCON LIMITED INFRASTRUCTURE & BEYOND</p>	<ul style="list-style-type: none"> • Cloud 	<ul style="list-style-type: none"> • The client observed that different teams were working in silos, which made it difficult for the firm to maintain strict control over costs and resulted in inefficiencies. • Kyndryl leveraged SAP S/4HANA applications running on a managed IBM Cloud to enable integrated and standard workflows. This also minimized risks as the firm increased its capital-intensive infrastructure projects. 	<ul style="list-style-type: none"> • Enabled cost savings of USD 7M • Reduced working capital by 5%
 <p>TAISEI</p>	<ul style="list-style-type: none"> • Analytics • Automation 	<ul style="list-style-type: none"> • The client wanted to streamline maintenance and management processes and increase customer satisfaction. • Kyndryl aided in developing and managing LifeCycleOS, the firm's building platform that leverages building information management (BIM) and the Internet of Things (IoT). It also enabled the development and management of LifeCycle Management Console, the client's building life cycle management service. 	<ul style="list-style-type: none"> • Increased customer satisfaction • Enhanced data security
<p>A global real estate services firm</p>	<ul style="list-style-type: none"> • Analytics 	<ul style="list-style-type: none"> • The client wanted to ensure the privacy and security of customer-related information and improve global device compliance. • Kyndryl leveraged its Field Worker Managed Mobility Services solution to enable dynamic user authentication. It also added corporate security features such as the ability to delete data remotely. 	<ul style="list-style-type: none"> • Enhanced end-user experience • Increased productivity

Analyst insights

Practice maturity



- Kyndryl demonstrates a strong expertise in providing managed infrastructure services to its engineering and construction clients by converging individual strengths of its Kyndryl Consult, Kyndryl Bridge, and Kyndryl Vital business units. Kyndryl Consult helps envision digital transformation needs from a strategic viewpoint; Kyndryl Bridge leverages data to provide customers with insights; and Kyndryl Vital helps cocreate innovative solutions with clients.
- Its engineering and construction practice is strengthened by its suite of smart building solutions. It helps its clients monitor energy usage and manage building operations. It also helps them track construction progress using its geolocational capabilities.
- It specializes in providing digital and secure workspace engagements to its industry clients. For instance, it helped a global real estate services firm secure its customer information and employee access to the information outside of the workspace.
- To support building and construction project management, it delivers building infrastructure modeling solutions. For Taisei, it developed a platform integrating BIM with IoT to streamline building maintenance.

Investments and innovation



- Kyndryl's growth has relied on organic expansion strategies in recent years. It has established innovation labs with partners to create cutting-edge solutions for industries, including engineering and construction. It has developed an innovation lab with Nokia in Raleigh to accelerate edge computing adoption. Similarly, Kyndryl and Microsoft have launched a joint innovation lab to cocreate industry solutions and explore enterprise use cases for generative AI.
- It has also developed a CoE to expand its skill base of SAP practitioners to carry out rapid ERP transformations.
- To further augment its engineering and construction service, it plans to invest in digital twin technology for connected product development and enhancing supply chain visibility.

Partner ecosystem



- Kyndryl has a specialized partnership with all three major cloud platform providers, AWS, Microsoft Azure, and Google Cloud, to deliver multiple cloud-native use case development, such as IT infrastructure modernization, predictive maintenance and customer service, and rapid prototyping and testing. Furthermore, it is leveraging these partnerships to explore generative AI applications across industries, including engineering and construction.
- To streamline different IT applications for its industry clients, it partners with prominent technology players, such as SAP (for supply chain transformation), Oracle (for application modernization), ServiceNow (for service desk transformation), and Nokia (for 5G and LTE capabilities).
- It partners with niche industry firms such as Wesco to help its E&C clients track and trace assets and workers efficiently.

LTIMindtree: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 60+ delivery centers worldwide

USD 692.9M
Revenue from manufacturing, including E&C, FY 2022-2023

20+
Years of experience in the E&C industry

Industry-specific solutions/offerings

<p>Connected Construction</p> <p>LTIMindtree Smart Building</p> <p>Intelligent construction enterprise solution</p> <p>LTIMindtree Worker Safety solution</p>	<p>A platform to integrate IoT sensors, wearables, and geospatial data to streamline decision-making</p> <p>A digital platform to manage the real estate ecosystem using digital twin and building management systems</p> <p>An SAP S/4HANA and cloud-based solution for construction project management</p> <p>A computer vision and video analytics solution to ensure worker safety through monitoring and alerts</p>
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Sample clients

- Black & Veatch
- L&T Construction
- Power International Holding
- A global construction conglomerate
- A Qatar-based real estate developer
- An Indonesian engineering and construction firm

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

Partnerships/alliances

<p> Partnered to deliver ERP solutions to engineering and construction industry clients</p> <p> Developed predictive analytics and quality assurance solutions on its cloud platforms</p> <p> Utilized its Azure cloud platform to deliver smart building design and deployment services</p> <p> Embedded its ESG capabilities to enhance the Construction 360 solution</p>	<p> Leveraged its geospatial capabilities to provide locational data and analytics services</p> <p> Accelerated cloud migration and data modernization using its cloud platforms</p> <p> Integrated its solutions to enhance building infrastructure management (BIM) capabilities</p> <p> Codeveloped multiple industry solutions using its S/4HANA and Leonardo services</p>
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Value chain coverage

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

Demonstrates robust construction services capabilities using its SAP expertise and portfolio of industry solutions. Focuses on E&C asset and workforce management.

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

Case studies

Client	Capability	Summary	Business impact
<p>An Indonesian engineering and construction firm</p>	<ul style="list-style-type: none"> • Analytics • Cloud 	<ul style="list-style-type: none"> • The client wanted to unify its disparate systems to improve end-to-end sales tracking and procurement processes and reduce data redundancies. • LTIMindtree streamlined E&C business processes by deploying cloud-based SAP IBP (Integrated Business Planning) solutions. This involved integrating core and adjoining functions, simplifying procurement, and creating a master data management platform for real-time decision-making and planning with analytics. 	<ul style="list-style-type: none"> • Improved inventory carrying cost/on-time delivery of materials by 15% • Increased project status visibility and transparency across business operation divisions
<p>A global construction conglomerate</p>	<ul style="list-style-type: none"> • AI • Cloud 	<ul style="list-style-type: none"> • The client wanted to reduce the time required for manually detecting individual trees in a large forest to speed up the design and planning process. • LTIMindtree leveraged the Geo AI deep learning model and used regressive training samples and a better system configuration to enhance it further. It deployed this open-source model, which could be used on various machines, on a cloud platform to enable the entire organization to use it. 	<ul style="list-style-type: none"> • Reduced manual labor for volumetric tree detection • Achieved a significant time advantage by leveraging drones instead of manual tagging methods
<p>A Qatar-based real estate developer</p>	<ul style="list-style-type: none"> • Automation • Cloud 	<ul style="list-style-type: none"> • The client had an end-of-life legacy ERP, which led to challenges in scaling, effective reporting, and generating insights. • LTIMindtree deployed its cloud business technology platform to develop an automation solution for multiple business challenges. It deployed Project Paychain to improve collaboration between clients and subcontractors and Planning Synchronizer for project management, ensuring high resource utilization. It also deployed a digital solution for project cash flow prediction. 	<ul style="list-style-type: none"> • Enabled cost savings of 34% • Achieved a 60% reduction in payroll run cycle time • Ensured productivity gains of 30% in transaction processing
	<ul style="list-style-type: none"> • Cloud • IoT 	<ul style="list-style-type: none"> • The client required an end-to-end solution for device engineering, connectivity, integrations, and labor productivity enhancement. • LTIMindtree developed a system for device engineering and connectivity, which uses a rules engine, machine learning, and alert workflows for asset monitoring and preventive maintenance. This system also proactively detects fraud in consuming fuel, spare parts, and lubricants. 	<ul style="list-style-type: none"> • Increased worker productivity by 12% • Improved asset utilization by 10% • Reduced overall material cost by 7%

Analyst insights

Practice maturity



- With over 20 years of industry experience, LTIMindtree brings IT and OT together while servicing engineering and construction clients. Its Connected Construction suite of solutions, comprising Insight NxT (for connecting workers and machines), Worker NxT (for worker safety), Material NxT (for supply chain tracking), Asset NxT (for asset monitoring), and GeoSpatial NxT (for locational services), uses AI, IoT, and cloud to help clients improve operational efficiency.
- Its strength lies in the asset and workforce management part of the E&C value chain, delivering tangible business outcomes to its clients. For instance, it helped an Indian construction firm connect 12,000 assets to a real-time dashboard and improved material optimization cost by 7%, asset utilization by 10%, and worker productivity by 12%. Similarly, it helped a US-based E&C firm reduce its mean time to repair by 70% by setting up monitoring solutions.
- SAP implementation is a major growth driver for its E&C practice. For instance, it has codeveloped LTIMindtree Digital EC&O Solution leveraging SAP S/4HANA and Leonardo to provide a 360-degree view of construction project performance. It has also developed an ICE solution using the SAP cloud platform.
- It leverages technologies such as AR/VR for worker training, computer vision for ensuring construction site safety, and drone analytics for project monitoring.

Investments and innovation



- In November 2022, L&T Infotech and Mindtree merged to form LTIMindtree Limited. This merger captures and complements individual practices of LTI and Mindtree and strengthens its position in the engineering and construction sector, providing differentiated solutions across the value chain, from design to project management.
- To enhance localization in different geographies, it has invested in new delivery centers to augment its outreach for different industries, including engineering and construction. For instance, it opened a delivery center in Poland in March 2023 and another in Mexico in December 2023 to strengthen its delivery capacity across Europe and Latin America, respectively.

Partner ecosystem



- LTIMindtree has a strong partnership with leading cloud providers, including AWS, Microsoft Azure, and Google Cloud Platform, to provide cloud migration and infrastructure modernization services to E&C clients. It has also partnered with AWS to develop a worker safety solution using its edge analytics solution.
- It has a specialized partnership with major technology firms to codevelop solutions specific to the engineering and construction industry. For instance, it leveraged Oracle platforms such as Aconex to enrich its project collaboration and EDMS solutions for the E&C industry. It also leveraged the Salesforce Service Cloud1 to develop a construction industry-specific smart service operations solution for ensuring worker safety and asset maintenance.
- It partners with niche firms such as DyFlex Solutions to offer E&C firms tailored ERP solutions, ensuring swift implementation and enhanced operational efficiency.

SAP: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: Innovation labs across 21 locations worldwide

EUR 4.35B Revenue from the services segment, FY 2022	~15.6% YOY revenue increase from services, FY 2022
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Industry-specific solutions/offerings

Virtual design and construction	A set of solutions, including 3D visualization, to develop virtual designs and aid decision-making
SAP Enterprise Portfolio and Project Management	A project management solution to forecast portfolio pressure and manage planning and accounting
SAP Field Service Management	An AI solution to manage field service for faster customer support
SAP real estate management	A cloud solution to manage contract and lease procedures for commercial real estate clients

Sample clients

- Atrium
- Casagrand
- Costain Group
- Graham Group
- Grupo Ezentis
- KEC International
- Kolektor
- Tamouh

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

Partnerships/alliances

Partnered to integrate mapping and locational analytics capabilities into its E&C offerings	Accelerated cloud migrations using its cloud platforms
Utilized its Azure cloud platform to implement cloud-based solutions and enhancements	Partnered to explore generative AI capabilities for open data cloud infrastructure
Leveraged its automation capabilities to eliminate manual efforts on its ERP applications	Partnered to develop building information modeling (BIM) and cloud solutions
Integrated Watson AI capabilities into its offering to develop predictive capabilities	Leveraged its IoT-as-a-service offering to deliver cloud services to its industry clients




Value chain coverage

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

Utilizes its proprietary solutions, platforms and frameworks to empower construction project management and support worker operations.

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

Case studies

Client	Capability	Summary	Business impact
 <p>TAMOUH AMBITIONS UNLIMITED</p>	<ul style="list-style-type: none"> • Analytics • Cloud 	<ul style="list-style-type: none"> • The client wanted to streamline its decentralized processes and improve data visibility to improve core processes such as project management, procurement, and finance. • SAP implemented its S/4HANA platform to enable real-time insights gathering to optimize project management and deployed SAP Strategic Sourcing Suite and SAP Ariba Commerce Automation solutions to improve procurement processes. It also used its Fiori suite of solutions to improve user experience. 	<ul style="list-style-type: none"> • Improved operational efficiency • Reduced IT infrastructure cost
 <p>EZENTIS</p>	<ul style="list-style-type: none"> • Automation • Cloud 	<ul style="list-style-type: none"> • The client wanted to move away from its legacy IT infrastructure and manual processes to standardize its business operations. • SAP leveraged its S/4HANA cloud to modernize the client's ERP tools, automate workflows, improve employee productivity, and improve user experience. It also deployed SAP Preferred Success service to ensure proactive support to customers. 	<ul style="list-style-type: none"> • Reduced total cost of ownership • Optimized maintenance costs • Improved operational efficiencies
 <p>ATRIUM QUALITY CONTRACTORS</p>	<ul style="list-style-type: none"> • AI • Analytics • Cloud • ML 	<ul style="list-style-type: none"> • The client wanted a modernized ERP system that could improve its financial reporting. It also wanted to implement digital technologies to enable mobile access and enhance automation levels. • SAP implemented its S/4HANA suite to create a single source of truth and transform project management process. It also used AI, ML, and big data analytics to modernize business and financial forecasting. 	<ul style="list-style-type: none"> • Improved profitability • Automated manual tasks • Enhanced visibility of costs and productivity

Analyst insights

Practice maturity



- With a focus on the Asian engineering and construction and real estate market, SAP has a solid clientele comprising prominent firms such as Prestige Estates Projects, Pacific Development Corporation, Malbros International, Signature Global, Nambiar Builders, and Alekhya Homes.
- It uses its RISE with SAP model, tailored for various industries, including engineering and construction, to deliver business transformation services. For instance, in October 2023, Tata Projects chose RISE with SAP to drive business transformation using the cloud, AI, and augmented analytics. In October 2021, Puravankara, an Indian real estate firm, adopted RISE with SAP to carry out a complete cloud transformation of its operations.
- SAP leverages the capabilities of its flagship SAP S/4HANA platform to provide ERP modernization and digital transformation services, bridging gaps between isolated data and infrastructure for its engineering and construction clients. For example, it helped Atrium Quality Contractors, a construction firm, increase procurement efficiency by 42% by implementing the SAP S/4HANA Cloud.
- For efficient project, change, and bill of materials management throughout the E&C value chain, it leverages project life cycle management tools.

Investments and innovation



- In recent years, SAP has relied on organic growth strategies for expansion. It has established eight Industry 4.0 centers across the Americas, Europe, and Japan to develop cutting-edge solutions for asset-intensive industries, including engineering and construction. It aims to create an ecosystem of system integrators, platform vendors, and niche industry players to accelerate the innovation phase.
- It uses the Intelligent Service Delivery Hub, a cloud platform, to provide automated remote service delivery across the entire customer engagement life cycle.

Partner ecosystem



- SAP has established robust partnerships with all major cloud providers—Google Cloud, AWS, Azure, and IBM—to accelerate cloud migration and develop cloud-based solutions and enhancements. Furthermore, it is also partnering with Microsoft and Google to explore generative AI use cases and help E&C and other enterprises enhance employee productivity and close the talent gap.
- Together with Microsoft Azure, SAP is working as a member of the Open Manufacturing Platform and Open Industry 4.0 Alliance to advance asset management, business planning, and logistics capabilities.
- It is also partnering with niche E&C-specific firms such as Autodesk (for construction design and BIM offerings) and ESRI (for locational analytics services).

TCS: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: ~184 global delivery centers

USD 2.6B
Manufacturing revenue, including E&C, FY 2022-23

14.1%
YOY growth rate for manufacturing revenue

Industry-specific solutions/offerings

Machine First™ Delivery Model (MFDM™)	A framework that provides automation architecture design and bot development
TCS CHROMA™ Fastrack	A talent management solution on cloud that offers chatbot, reports, dashboards, and AI-driven insights
TCS Crystallus™	A set of preconfigured solutions based on SAP S/4HANA that provides predictive maintenance
TCS TwinX™	An AI solution that provides a virtual simulation of different scenarios, enabling situational preparedness

Sample clients

- Black Cat Engineering and Construction
- Fletcher Building
- Mace
- Saipem
- Skanska

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

Provides IT and cloud transformation services to industry clients by automating their operation processes through its cloud partnerships and industry-specific offerings.

Partnerships/alliances





Utilized its platforms to carry out supply chain transformation for E&C clients	Leveraged its cloud platform to deliver predictive asset maintenance for industry clients
Leveraged Oracle ERPM Cloud for future planning and predictive capabilities to streamline sourcing	Partnered to develop building information modeling (BIM) and cloud solutions
Used its Service Cloud and Quality Case Management Processes to improve business functions	Partnered to integrate mapping and locational analytics capabilities into its E&C offerings
Accelerated cloud migration and data modernization using its cloud platforms	Accelerated ServiceNow implementations to streamline internal workflows for clients

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: ●●●●●

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Automation Cybersecurity ML 	<ul style="list-style-type: none"> Saipem sought to achieve business innovation and simplification by managing its IT landscape and multivendor ecosystem. TCS delivered cybersecurity management services to the client, simultaneously enhancing user experience through cloud and automation. It also leveraged ML and cognitive automation via its ignio™ solution to deliver digital service management for the IT supplier ecosystem. 	<ul style="list-style-type: none"> Improved user experience Delivered streamlined and secure IT landscape
	<ul style="list-style-type: none"> Analytics Cloud 	<ul style="list-style-type: none"> Fletcher Building wanted to build a flexible Google Cloud-based enterprise platform and reduce carbon emissions to align with its sustainability goals. TCS utilized its cloud transformation framework to help the client build a new carbon-neutral infrastructure using Google Cloud, which provided better customer experience through data-driven insights and analytics. 	<ul style="list-style-type: none"> Simplified infrastructure landscape Reduced technology debt Provided a unified customer view Enabled better customer experience
	<ul style="list-style-type: none"> Analytics Automation Cloud 	<ul style="list-style-type: none"> Skanska wanted to migrate its IT operations to the cloud with automated processes. It also needed to manage its Oracle Cloud applications. TCS migrated the client's IT operations to the cloud by leveraging its MFDM framework and delivered automated processes such as chatbots for support services. It also provided application management for the clients' Oracle Cloud applications across finance, projects, procurement, supply chain, human capital management, and analytics planning functions. 	<ul style="list-style-type: none"> Improved employee efficiency Delivered better customer experience
	<ul style="list-style-type: none"> Automation Cloud 	<ul style="list-style-type: none"> Mace aimed to surpass traditional functional IT support and establish fully connected support processes for the organization. TCS established a next-gen Oracle Support Center by successfully deploying Oracle Fusion Cloud applications for the client, streamlining support processes, enhancing reporting capabilities through ERP, and automating key transactional processes. 	<ul style="list-style-type: none"> Improved transactional efficiency for procurement by 10%-20% Enhanced business user experience by 20%-30% Reduced efforts for transactional tasks

Analyst insights

Practice maturity



- TCS brings extensive expertise in executing IT automation projects for clients in the engineering and construction industry. The company utilizes its proprietary solutions, including ignio, MFDM, and TCS CHROMA Fastrack, to implement automated processes. For instance, it delivered Digital Service Management to Saipem, leveraging its ignio solution to oversee the client's IT supplier ecosystem.
- TCS accelerates cloud transformations and infrastructure modernization initiatives by utilizing industry-specific frameworks. For instance, it used its cloud transformation framework, Machine First™ Delivery Model (MFDM™), to help Fletcher Building build a new carbon-neutral infrastructure.
- It demonstrates significant proficiency in providing tailored Oracle implementation services for the engineering and construction sector, focusing on improving supply chain visibility. Notably, it effectively implemented the Oracle Cloud ERP solution for Black Cat, leading to notable improvements in procurement and vendor management processes.

Investments and innovation



- TCS focuses on identifying opportunities for research and innovation of digital technologies through its Co-Innovation Network (COIN). TCS COIN facilitates industry collaborations between partners and TCS research and innovation to develop ideas using disruptive technologies. As part of the TCS COIN Accelerator program, a startup named Detect Technologies is focused on studying the use of AI in legacy transformation for industries, including engineering and construction.
- It is dedicated to cultivating future technology leaders through its TCS goIT program. The company is actively broadening its STEM training initiatives to promote digital innovation in various industries, including engineering and construction.

Partner ecosystem



- TCS has a strong partnership with leading cloud providers, including AWS and Microsoft Azure, to provide cloud migration and infrastructure modernization services to E&C clients. It also partnered with Google to leverage its Carbon Footprint reporting tool to measure, track, and report on the carbon footprint associated with its cloud usage. It collaborates with Oracle to provide application management across finance, projects, procurement, supply chain, human capital management, and analytics planning functions.
- It also partners with niche E&C-specific firms such as Autodesk (for construction design and BIM offerings) and ESRI (for geospatial and locational analytics services).

Wipro: RadarView profile



Practice overview

- Practice size: N/A
- Active clients: N/A
- Delivery highlights: 35+ delivery centers worldwide

USD 772.8M
Revenue from manufacturing, including E&C, FY 2023

~13%
YOY growth of the manufacturing sector, FY 2023

Industry-specific solutions/offerings

<p>Wipro Digital Reference Architecture (WiDiRa)</p> <p>Health safety security and environment (HSSE)</p> <p>Wipro's building information modeling (BIM) solution</p> <p>Digital site and operations solutions</p>	<p>A digital solution to manage E&C operations, such as back office, project site, and engineering design</p> <p>An AI solution to automate risk management in a construction workplace</p> <p>A simulation solution to digitize engineering planning and analyze design flaws</p> <p>A set of aerial imagery and computer vision solutions for progress monitoring and quality inspection</p>
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Sample clients

- TopHat
- Greater Toronto Airports Authority (GTAA)
- A global urban infrastructure company
- A real estate services firm based in the USA

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

Partnerships/alliances

<p> Leveraged its BIM solution to deliver workflow management and design services</p> <p> Utilized its Maximo Application Suite to provide asset management solutions</p> <p> Implemented its connected worker and wearables technology to enhance worker safety for clients</p> <p> Partnered to host the Wipro Smart i-Connect™ platform on Azure cloud</p>	<p> Used its graphic and design solutions to deliver engineering design services to E&C clients</p> <p> Deployed its map-based solution to deliver geo-locational services to its construction clients</p> <p> Leveraged its Intelligent Real Estate Enterprise solution for capital project management</p> <p> Leveraged its platforms to deliver project management and cost optimization for real estate clients</p>
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Value chain coverage

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

Has a robust portfolio of drone-based solutions and BIM offerings for construction process management. Has a large clientele of real-estate firms.

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

Case studies

Client	Capability	Summary	Business impact
	<ul style="list-style-type: none"> Analytics Cloud IoT 	<ul style="list-style-type: none"> The client aimed to leverage technology for better facilities management and turn its housing value chain into a connected ecosystem for real-time deep data analysis to enhance house designs. Wipro enabled a tech transformation by integrating design, manufacturing, and usage data to create a feedback loop. This helped the client manage smart devices through a central portal. It also integrated IoT cloud data with SAP Business Technology Platform using SAP S/4HANA as the database and created user-specific dashboards with SAP Fiori and SAP Analytics Cloud. 	<ul style="list-style-type: none"> Reduced infrastructure managed services cost Improved operational efficiency Enabled real-time tracking of facilities management
Greater Toronto Airports Authority (GTAA)	<ul style="list-style-type: none"> Analytics AI Cloud 	<ul style="list-style-type: none"> The client wanted to enhance airport operations for a seamless passenger experience and optimize IT services. Wipro developed a solution to transition from a workforce-centric model to an automated system leveraging the HOLMES platform. The solution used GTAA toolsets based on anticipated future operations. This helped streamline workflows by using cloud technologies and deploying AI solutions to eliminate redundancies and optimize processes. 	<ul style="list-style-type: none"> Reduced the IT systems outage by 85% Increased the automation of tickets per month by 25% Reduced the wait time from two days to an hour Decreased manual efforts to track spending data mapping by 70%
A global urban infrastructure company	<ul style="list-style-type: none"> Cloud 	<ul style="list-style-type: none"> The client aimed to develop and implement a comprehensive technology strategy for a state-of-the-art smart city covering an area of 900 sq. km. Wipro utilized its platforms and hyperautomation tools, such as HOLMES and BASE, to enhance integration, automation, agility, standardization, and predictability in IT operations to deliver a unified solution across applications, infrastructure, security, cloud, and end-user computing. 	<ul style="list-style-type: none"> Enabled higher availability and superior performance of IT processes

Analyst insights

Practice maturity



- Wipro empowers engineering and construction clients in their digital transformation through robust consulting, business process outsourcing, and digital practices. Leveraging expertise in AR/VR, IoT, holography, and big data analytics, it offers enhanced services to asset-intensive industries such as E&C.
- Its E&C practice is differentiated by its design and planning capabilities using 5D BIM, which integrates 3D models with time and cost data for improved project management. Its engineering information management service also helps clients improve their data quality using its data warehouse and document management features.
- It specializes in delivering key productivity improvements to its construction clients by eliminating data silos and enhancing end-to-end project visibility. For instance, it helped a Dutch E&C client implement drone-based solutions and augmented AI algorithms to improve worker productivity and safety. It also helped an engineering services firm reduce time spent on indirect work by 12% by deploying its design-led field force mobility and digital site solution.
- Its 2015 acquisition of design firm Designit, which added to its design transformation portfolio globally, augments its E&C innovation capabilities.

Investments and innovation



- Wipro leverages Topcoder, a leading crowdsourcing platform for deploying next-generation technologies such as AI, blockchain, automation, and IoT, to develop innovative and technologically advanced solutions for its real estate clients.
- In July 2023, it launched Wipro ai360 and announced a \$1 billion investment in AI over the next three years. This initiative aims to establish an end-to-end innovation ecosystem with responsible AI, focusing on expanding AI solutions, R&D, FullStride Cloud, and consulting capabilities for its clients across industries, including engineering and construction.

Partner ecosystem



- Wipro has a robust portfolio of technology partners to augment its sub-industry presence across the engineering and construction segment. For instance, it leverages SAP and Oracle for real estate management, TRIRIGA for facilities management, TIBCO for airport analytics, Cisco for smart buildings, and Ultra for airport operations.
- It partners with niche engineering firms such as Autodesk for construction design, Hexagon for building information modeling, and ESRI for geospatial services.
- It also partners with major cloud providers to offer infrastructure modernization services to E&C clients. Additionally, it partners with IBM to deliver asset management and with Microsoft to provide digital collaboration services to its construction clients.

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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:



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.

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