ISG Provider Lens™

Next-Gen ADM Services

A research report comparing provider strengths, challenges and competitive differentiators

QUADRANT REPORT | SEPTEMBER 2023 | U.S.

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DevOps and SRE lead the way for application development and maintenance with AI support

The application development and maintenance (ADM) domain has undergone multiple changes over the last few years. These changes have been fast paced compared to the previous generations of application development. With organizations undergoing digital transformation, speed, cost and agility play a vital role in ADM. Enterprises seek partners that can help them realize the potential of digital innovation. Service providers have embedded this aspect in their digital offerings that are aligned with the most advanced ADM methodologies. The graphic below showcases the periodic changes in the ADM space.
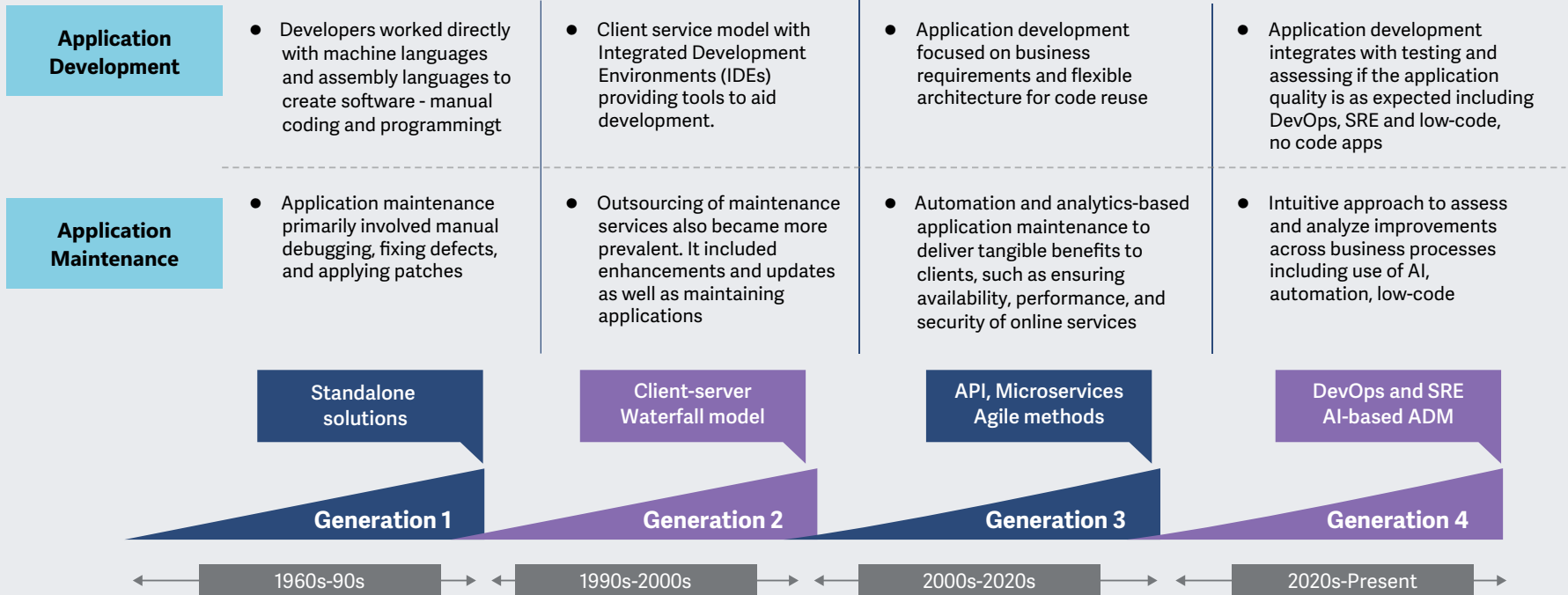
With the advent of new approaches and methodologies, there is a significant shift in the adoption of Agile and DevOps methodologies for application development. Increased emphasis is placed on developing applications aligned to enterprises' digital journey using Agile and DevOps methods. This engagement enables faster time-to-market, enhanced collaboration and improved quality. It also enables an innovative approach to delivering applications aligned with specific business requirements. With businesses' economic constraints, cost optimization has become a key focus area. Application maintenance has witnessed the use of technologies, such as automation, analytics and AI, to optimize the entire app maintenance process and reduce human intervention, delivering cost savings that can fuel new initiatives in app development for enterprises. Site reliability engineering (SRE) adoption has contributed to enhanced reliability, predictable operations, performance measurement and qualitative applications development. DevOps and SRE act as balancing factors to deliver a high-quality application. DevOps enables the disintegration of traditional silos into development and operations to improve the efficiency and reliability of software development and deployment processes. SRE focuses on creating highly scalable and reliable software systems while increasingly emphasizing automation and monitoring.

Generative AI assists developers by generating code and is increasingly in use.

ADM Evolution over years

Application Development

- Developers worked directly with machine languages and assembly languages to create software - manual coding and programmingt
- Client service model with Integrated Development Environments (IDEs) providing tools to aid development.
- Application development focused on business requirements and flexible architecture for code reuse
- Application development integrates with testing and assessing if the application quality is as expected including DevOps, SRE and low-code, no code apps

Application Maintenance

- Application maintenance primarily involved manual debugging, fixing defects, and applying patches
- Outsourcing of maintenance services also became more prevalent. It included enhancements and updates as well as maintaining applications
- Automation and analytics-based application maintenance to deliver tangible benefits to clients, such as ensuring availability, performance, and security of online services
- Intuitive approach to assess and analyze improvements across business processes including use of AI, automation, low-code

Standalone solutions	Client-server Waterfall model	API, Microservices Agile methods	DevOps and SRE AI-based ADM
Generation 1	**Generation 2**	**Generation 3**	**Generation 4**
1960s-90s	1990s-2000s	2000s-2020s	2020s-Present

Hence, DevOps and SRE are crucial in optimizing software development, deployment and operations processes. They contribute to the overall efficiency, reliability and success of digital products and services.

The increased adoption of AI and generative AI has a significant impact on the ADM lifecycle. Some of the use cases include the following tools: AI-driven predictive analytics that aids project planning by predicting resource requirements and potential bottlenecks; AI-driven design tools that generate user interfaces, layouts and prototypes based on user requirements and design principles; AI-powered testing tools that automate test case generation, increase test coverage and help quickly detect defects; AIOps platforms that use AI to monitor and manage application performance, predict and prevent downtime and optimize resource usage; predictive maintenance powered by AI that analyzes historical data to anticipate maintenance needs and proactively schedule updates; and AI-driven analytics that provides insights into application performance, user interactions and usage patterns, contributing to continuous improvements. Generative AI can assist developers by generating code snippets based on natural language descriptions or completing code lines. While AI has significantly impacted the ADM lifecycle, the generative AI impact is not entirely proven across the use cases. With these changes in the industry, the workforce plans to combine humans and machines. A combination of bots that perform routine tasks and cognitive functions and encompass analytical abilities will assist the human workforce.

In addition to these technical developments, there is an increased focus on establishing global capability centers (GCCs) that support businesses in the U.S. These GCCs are typically established in India, eastern Europe or Latin America. GCCs established in India had a tremendous increase in delivering innovative and cutting-edge applications and products developed in collaboration with service provider partners.

Top trends in ADM segments are listed below.

Agile application development outsourcing: The use of AI across application development and business-led, cloud-based application development are two major trends observed in this segment. Enterprises seek application development with an AI component in their contracts. They focus on transforming monolithic applications by incorporating them into cloud architecture. This process requires significant investments in upskilling the existing talent pool. Most application development is driven by enterprises' digital agendas, with an increased emphasis on delivering application development through Agile, DevOps and SRE aligned with digital product-oriented development (POD) models. Some of the unique contract models being used include experience-level agreements mapped to business imperatives.

Agile application development projects: Enterprises focus on CX and plan to emphasize the delivery of exceptional UX. They increasingly embrace Agile methodologies and DevOps practices to accelerate software development and enhance collaboration between development and operations teams. Agile and DevOps enable faster time-to-market, improved quality and increased flexibility in responding to changing business needs.

Enterprises increasingly focus on cloud engagements and infrastructure modernization. They further concentrate on transitioning their applications to cloud-native architectures, leveraging containerization and microservices. This shift allows for greater scalability, resilience and agility in deploying and managing applications.

Application managed services: Most enterprises attempt to optimize cost and efficiency in managing applications within their IT landscape. Service providers have devised methodologies and approaches to use technologies such as AI, automation and analytics to deliver tangible benefits to clients. Data-driven approaches deliver better experiences and adhere to the agreed-upon KPIs. As cloud adoption increases, the need to manage cloud applications and optimize infrastructure availability and application performance becomes essential. Service providers align with market expectations and leverage AI — to a certain extent, generative AI — to deliver application managed services to their clients.

Executive Summary

Application quality assurance: In today's rapidly evolving development landscape, organizations face shorter software release cycles, necessitating customized testing solutions and adopting DevOps practices and tools. Service providers' quality assurance (QA) practices focus on achieving exceptional UX. Providers also emphasize the development of cloud-based automation platforms that leverage AI and ML to address enterprise demands for faster cycles. These testing platforms use codeless, self-healing and predictive test automation to enable a faster and more efficient software delivery. The increased demand for shift-left testing approaches using AI and ML for test automation has helped improve application quality. Using SRE to improve application quality before deployment into the production environment, thus reducing application downtime, is also an emerging trend.

Continuous testing specialists:
Enterprises focus on leveraging cloud-based testing and ADM services to enhance scalability, flexibility and cost-effectiveness as the adoption of cloud applications increases.

This engagement enables enterprises to simulate real-world scenarios and perform comprehensive testing across different platforms. With the intense pressure to deliver efficient applications, leveraging AI and automation has become a mandate for service providers. This setup enables providers to use AI-powered testing and automation to help clients identify patterns, predict potential defects and optimize test cases. Advanced generative AI techniques are used for AI-led software testing. Firms prioritize security testing and compliance owing to the increasing number of cyber threats and data breaches. They incorporate robust security testing practices, including vulnerability assessments, penetration testing and code analysis.

AI has a significant impact across the ADM lifecycle, reducing the delivery time and improving the quality of applications delivered. As the industry is moving toward reducing the time required for testing, there is increased traction on adopting DevOps and SRE for ADM.

Provider Positioning

Page 1 of 5

	Agile Application Development Outsourcing	Agile Application Development Projects	Application Managed Services	Application Quality Assurance	Continuous Testing Specialists
a1qa	Not In	Not In	Not In	Contender	Not In
Accenture	Leader	Not In	Leader	Leader	Not In
Apexon	Not In	Not In	Not In	Not In	Leader
Aspire Systems	Not In	Contender	Not In	Contender	Not In
Birlasoft	Contender	Not In	Contender	Not In	Leader
Capgemini	Leader	Not In	Leader	Leader	Not In
Cigniti	Not In	Not In	Not In	Not In	Leader
Coforge	Contender	Not In	Product Challenger	Not In	Market Challenger
Cognizant	Leader	Not In	Leader	Leader	Not In
Concentrix	Not In	Contender	Not In	Not In	Contender

Provider Positioning

Page 2 of 5

	Agile Application Development Outsourcing	Agile Application Development Projects	Application Managed Services	Application Quality Assurance	Continuous Testing Specialists
Cybage	Not In	Leader	Contender	Not In	Product Challenger
Deloitte	Leader	Not In	Leader	Leader	Not In
DXC Technology	Market Challenger	Not In	Leader	Product Challenger	Not In
e-core	Not In	Contender	Not In	Not In	Not In
Encora	Not In	Leader	Contender	Product Challenger	Not In
Eviden	Product Challenger	Not In	Product Challenger	Not In	Leader
Fujitsu	Not In	Not In	Not In	Product Challenger	Not In
HCLTech	Leader	Not In	Leader	Leader	Not In
Hexaware	Not In	Product Challenger	Product Challenger	Not In	Leader
HTC Global	Not In	Leader	Product Challenger	Not In	Product Challenger

Provider Positioning

	Agile Application Development Outsourcing	Agile Application Development Projects	Application Managed Services	Application Quality Assurance	Continuous Testing Specialists
IBM	Contender	Not In	Contender	Contender	Not In
Indium	Not In	Not In	Not In	Contender	Not In
Infinite	Not In	Market Challenger	Contender	Product Challenger	Not In
Infosys	Leader	Not In	Leader	Leader	Not In
Innominds	Not In	Contender	Not In	Contender	Not In
ITC Infotech	Not In	Product Challenger	Not In	Not In	Contender
Iteris	Not In	Contender	Not In	Not In	Not In
Kyndryl	Product Challenger	Not In	Product Challenger	Product Challenger	Not In
LTIMindtree	Product Challenger	Not In	Leader	Rising Star ★	Not In
Marlabs	Contender	Not In	Contender	Not In	Contender

Provider Positioning

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	Agile Application Development Outsourcing	Agile Application Development Projects	Application Managed Services	Application Quality Assurance	Continuous Testing Specialists
Mastek	Not In	Product Challenger	Not In	Not In	Not In
Mphasis	Contender	Not In	Contender	Contender	Not In
N-iX	Not In	Product Challenger	Not In	Not In	Contender
NTT DATA	Contender	Not In	Not In	Not In	Not In
Persistent Systems	Contender	Not In	Product Challenger	Not In	Product Challenger
QA Consultants	Not In	Not In	Not In	Product Challenger	Not In
Qualitest	Not In	Not In	Not In	Not In	Leader
Quinnox	Not In	Product Challenger	Rising Star ★	Contender	Not In
SLK Software	Not In	Contender	Contender	Contender	Not In
Softtek	Product Challenger	Not In	Contender	Not In	Contender

Provider Positioning

Page 5 of 5

	Agile Application Development Outsourcing	Agile Application Development Projects	Application Managed Services	Application Quality Assurance	Continuous Testing Specialists
TCS	Leader	Not In	Leader	Leader	Not In
Tech Mahindra	Product Challenger	Not In	Leader	Not In	Leader
TestingXperts	Not In	Not In	Not In	Not In	Contender
Trigent Software	Not In	Product Challenger	Not In	Contender	Not In
UST	Not In	Leader	Contender	Not In	Leader
Wipro	Leader	Not In	Leader	Leader	Not In
Zensar	Not In	Leader	Contender	Not In	Product Challenger

Five quadrants cover the **key capabilities** in planning, development, quality control and deployment of software applications.

Agile Application Development Outsourcing

Agile Application Development Projects

Application Managed Services

Application Quality Assurance

Continuous Testing Specialists

Definition

Leveraging software capabilities to integrate all business layers, create new data sources and gain enterprise agility is an indispensable requirement for modern application outsourcing.

Next-gen ADM services include consulting, design, custom development, packaged software integration, application management and operations, quality assurance, security services and testing.

Cloud-based computing and the rising demand for automation and AI drive the market for cloud-native application development and give it a new focus. Service providers emphasize Agile methodologies and the continuous, secure delivery and automation of software development processes with DevSecOps, Tailor-made roadmaps combine digital, operational and technology goals to meet clients' objectives.

Service providers enable organizations to automate routine tasks and gain deeper insights into their application development processes using AI. This has led to the development of new tools and platforms that incorporate automation and AI capabilities to accelerate development cycles; ensure security, threat detection and vulnerability management; and improve end-user experience; this, in turn, helps deliver intuitive, engaging and personalized applications.

This study focuses on the recent developments that have taken place across the application development, application management and quality assurance markets. Simultaneously, ISG is launching the 2023 ISG Provider Lens™ Next-Gen ADM Solutions - Low-Code/No-Code Development Platforms 2023 study to offer clients a broader understanding of the application solutions market.

Scope of the Report

This ISG Provider Lens™ quadrant report covers the following five quadrants for services: Agile Application Development Outsourcing; Agile Application Development Projects; Application Managed Services; Application Quality Assurance; and Continuous Testing Specialists.

The ISG Provider Lens™ Next-Gen ADM Services 2023 study offers the following to businesses and IT decision-makers:

- Transparency on the strengths and weaknesses of relevant providers
- A differentiated positioning of providers by segments on their competitive strengths and portfolio attractiveness
- Focus on regional market

ISG studies serve as an important decision-making basis for positioning, key relationships and go-to-market considerations. ISG advisors and enterprise clients also use information from these reports to evaluate their current vendor relationships and potential engagements.

Provider Classifications

The provider position reflects the suitability of IT providers for a defined market segment (quadrant). Without further additions, the position always applies to all company sizes classes and industries. In case the IT service requirements from enterprise customers differ and the spectrum of IT providers operating in the local market is sufficiently wide, a further differentiation of the IT providers by performance is made according to the target group for products and services. In doing so, ISG either considers the industry requirements or the number of employees, as well as the corporate structures of customers and positions IT providers according to their focus area. As a result, ISG differentiates them, if necessary, into two client target groups that are defined as follows:

- **Midmarket:** Companies with 100 to 4,999 employees or revenues between $20 million and $999 million with central headquarters in the respective country, usually privately owned.

- **Large Accounts:** Multinational companies with more than 5,000 employees or revenue above $1 billion, with activities worldwide and globally distributed decision-making structures.

The ISG Provider Lens™ quadrants are created using an evaluation matrix containing four segments (Leader, Product Challenger, Market Challenger and Contender), and the providers are positioned accordingly. Each ISG Provider Lens™ quadrant may include service providers that ISG believes have strong potential to move into the Leader quadrant. This type of provider can be classified as a Rising Star.

- **Number of providers in each quadrant:** ISG rates and positions the most relevant providers according to the scope of the report for each quadrant and limits the maximum of providers per quadrant to 25 (exceptions are possible).

Provider Classifications: Quadrant Key

Product Challengers offer a product and service portfolio that reflect excellent service and technology stacks. These providers and vendors deliver an unmatched broad and deep range of capabilities. They show evidence of investing to enhance their market presence and competitive strengths.

Leaders have a comprehensive product and service offering, a strong market presence and established competitive position. The product portfolios and competitive strategies of Leaders are strongly positioned to win business in the markets covered by the study. The Leaders also represent innovative strength and competitive stability.

★ **Rising Stars** have promising portfolios or the market experience to become a Leader, including the required roadmap and adequate focus on key market trends and customer requirements. Rising Stars also have excellent management and understanding of the local market in the studied region. These vendors and service providers give evidence of significant progress toward their goals in the last 12 months. ISG expects Rising Stars to reach the Leader quadrant within the next 12 to 24 months if they continue their delivery of above-average market impact and strength of innovation.

Not in means the service provider or vendor was not included in this quadrant. Among the possible reasons for this designation: ISG could not obtain enough information to position the company; the company does not provide the relevant service or solution as defined for each quadrant of a study; or the company did not meet the eligibility criteria for the study quadrant. Omission from the quadrant does not imply that the service provider or vendor does not offer or plan to offer this service or solution.

Contenders offer services and products meeting the evaluation criteria that qualifies them to be included in the IPL quadrant. These promising service providers or vendors show evidence of rapidly investing in products/services and a follow sensible market approach with a goal of becoming a Product or Market Challenger within 12 to 18 months.

Market Challengers have a strong presence in the market and offer a significant edge over other vendors and providers based on competitive strength. Often, Market Challengers are the established and well-known vendors in the regions or vertical markets covered in the study.

Agile Application Development Outsourcing

Who Should Read This Section

This report is relevant to enterprises across multiple industries in the U.S. for evaluating providers that offer Agile application development outsourcing services.

In this quadrant, ISG highlights the current market positioning of providers offering Agile application development outsourcing services in the U.S. based on the depth of their service offerings and market presence.

Enterprises in the U.S. are investing time and effort in digital transformation. They are focusing on increasing automation using new technologies such as AI and ML to modernize legacy systems. Modernization will bring more autonomy and hyperinnovation to generate higher business value. Enterprises focus on legacy modernization, including rehosting, migration and rearchitecting for the cloud, reflecting the ongoing need to update and modernize the existing systems for greater efficiency and scalability. The emphasis on cloud-based development, microservices and containerization and the adoption of low-code solutions suggest a broader trend of modernizing applications and infrastructure for scalability and agility. These trends drive the demand for Agile app development services in the region.

Agile outsourcing offers resource flexibility, specialized skills, quick app releases, cost reduction by focusing on core functions and shortened time-to-market. As leading tech providers witness high demand, service providers invest in tools, frameworks and accelerators for the ADM lifecycle to satisfy enterprise requirements.

IT professionals should read this report to determine service providers' strengths and weaknesses in ADM and learn how to integrate cutting-edge technologies for market advantage.

Operations professionals should read this report to understand how service providers can help generate more business value while simplifying business operations and processes.

Business professionals should review this report to understand partner positioning for efficient application service procurement and favorable ROI in their business or industry.
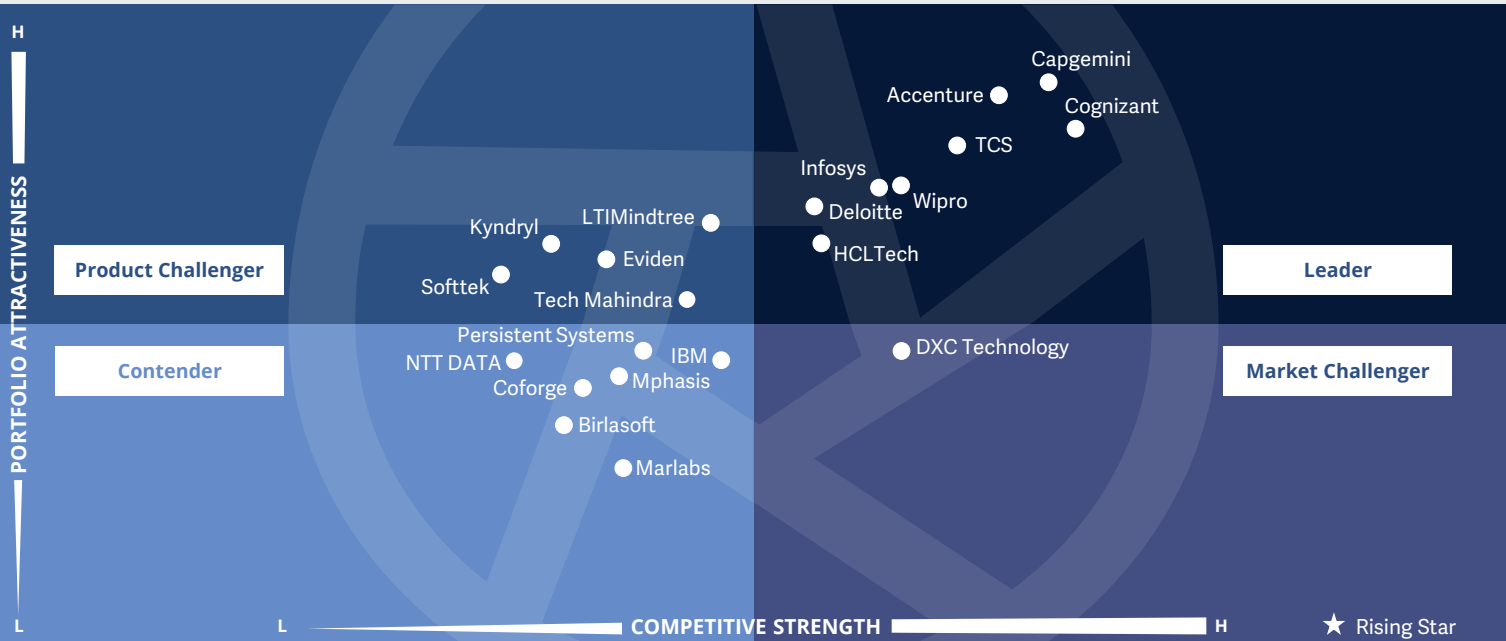
ISG Provider Lens™

Next-Gen ADM Services
Agile Application Development Outsourcing

U.S. 2023

PORTFOLIO ATTRACTIVENESS

H

Product Challenger

Contender

Leader

Market Challenger

Capgemini

Accenture

Cognizant

TCS

Infosys

Deloitte   Wipro

HCLTech

Kyndryl   LTIMindtree

Softtek   Eviden

Tech Mahindra

Persistent Systems

NTT DATA   IBM

Coforge   Mphasis

Birlasoft

Marlabs

DXC Technology

L

L   **COMPETITIVE STRENGTH**   H

★ Rising Star

This quadrant assesses **service providers that offer ADM expertise** using different technologies, spanning the complete application development and management landscape and most industry verticals.

Akhila Harinarayan

Agile Application Development Outsourcing

Definition

This quadrant assesses service providers that offer ADM expertise with the use of different technologies, spanning the complete application development and management landscape and most industry verticals, in outsourcing deals that are based on the delivery capacity for a specific time frame (three- to five-year contracts, renewable).

ADM outsourcing offers capacities, regardless of the number and size of projects and programming languages, to support clients' application portfolios or business units. It covers large and highly complex application landscapes that can span multiple geographic locations, lines of businesses and organizational entities. One of its roles is to break up silos in both organization and technologies, create unified technology platforms for the application development landscape, and thus allow faster and more innovative go-to-market on a large scale.

This study evaluates how service providers use project management tools, platform as a service (PaaS), software as a service (SaaS), low-code/no-code platforms or other accelerators to elevate clients' application development and management capabilities.

A typical service provider in this quadrant has extensive consulting expertise and high-end technology partnerships to implement CI/CD pipelines, application testing and DevOps to enable clients to achieve high performance while reducing time to market.

Eligibility Criteria

1. Management of more than 20 squads for a single client or being able to **scale up to more than 1,000 developers**, working simultaneously on several projects

2. Ability to **rapidly scale up or down** and add more than 100 developers in a week to meet the demands of a client as necessary

3. **Comprehensive Application Development Platform** that covers resource allocation, portfolio management, backlog prioritization, Agile methods, Waterfall methods, system integration, application modernization, cloud-native application development and other services to optimize development teams

4. **Certified to transform and deploy Agile** teams under frameworks such as Scaled Agile Framework (SAFe) and Large-Scale Scrum (LeSS)

5. **Certified experts** in Scrum, Kanban, Lean development or other Agile methodologies

Observations

Two prominent trends have emerged as powerful catalysts for innovation and transformation in application development outsourcing for large enterprises. The first trend involves the pervasive use of AI throughout the development process. Enterprises are not merely considering AI as an option; instead, they consider it as an integral component within their development contracts. This engagement reflects a strategic shift toward harnessing AI's capabilities to enhance application functionality, UX and efficiency.

The second trend revolves around cloud-based application development driven by business imperatives. Enterprises are strategically migrating from traditional monolithic applications to dynamic cloud architectures. This transformation necessitates substantial investments in upgrading the skills of the existing workforce to navigate the nuances of cloud environments effectively. Cost optimization has been a major factor for enterprises, and service providers have helped clients through various approaches, including low-code and no-code applications and increased focus on establishing global capability and microcapability centers. Optimizing managed application services to drive savings for new application development initiatives is also an approach service providers undertake to expand their footprint within their client base and across the industry/region.

From the 86 companies assessed for this study, 21 qualified for this quadrant, with eight being Leaders.

accenture

Accenture has many tools, frameworks and accelerators that help clients across the ADM lifecycle. The company's robust understanding of clients' businesses and industry segments helps it apply these to realize benefits for its clients.

Capgemini

Capgemini offers ADMnext, a global, unified approach to apply Agile, DevOps, cloud, API, data platforms and security at an industrial scale in the IT department. This approach entirely embraces the migration toward product-centricity.

cognizant

Cognizant has developed more than 100 IP assets covering hybrid cloud integration, API management and microservices to drive efficiency and enable faster time-to-market.

Deloitte.

Deloitte combines Agile methods and product mindset to deliver value-driven solutions. With platforms such as DevOps Cloud and innovative tools such as TurboCode, it exemplifies excellence in driving digital transformations and achieving superior business outcomes.

HCLTech

HCLTech offers out-of-the-box AI and ML platforms with no-code/low-code functionalities for data scientists and non-data scientists to create guided and guard-railed solutions, along with the ability for quick deployment, monitoring, governance and maintenance.

Infosys

Infosys AI and Automation Services follows a product-agnostic approach and has expertise in operating most of the leading AI platforms, including open-source technologies. The company has developed tools and accelerators to help accelerate clients' AI journeys.

tcs TATA CONSULTANCY SERVICES

TCS continues to invest in training, reskilling and upskilling its workforce to meet the evolving client demands and expanding the adoption of Agile methodologies. The company has a robust culture of continuous learning and talent upskilling.

wipro

Wipro has high-level partnerships with leading hyperscalers such as Amazon, Google and Microsoft. The company is investing significantly in startups with expertise in Agile, cloud technologies and DevOps, among other areas.

Leader

"Cognizant has developed new reference models for modern delivery, architecture and talent management and aligned software development capabilities with 55 industry offerings."

Akhila Harinarayan

Cognizant

Overview

Cognizant is headquartered in New Jersey, U.S. and operates in 42 countries. It has more than 351,500 employees across 162 global offices. In FY22 the company generated $19.4 billion in revenue, with Financial Services as its largest segment. The Cognizant application development practice is honed and nurtured under Cognizant's Software and Platform Engineering (SPE) Unit, which brings together offerings across software, data, platforms, industries and the cloud. Cognizant offers services through three strategic C-suite narratives for digital product development, application modernization and cost to value.

Strengths

Modern stack talent: Cognizant has a robust talent pool across varied technologies ranging from legacy to next-generation digital technology stack. It is building digital skills across full stack engineering (FSE), DevSecOps, SRE, containerization, Kubernetes and hybrid cloud management platforms, cloud/digital architecture and performance engineering, and microservices and API management.

Data science and AI and ML: Cognizant's data science centers of excellence (CoEs) have been helping clients develop and build AI and ML models. It has developed a minimum viable product (MVP)-based Agile approach for clients to deliver innovative data science solutions using open-source toolkits (Python/R/Github/Jupyter notebooks) to predict asset failure risks.

Vital assets for transformations: Cognizant has developed more than 100 IP assets covering hybrid cloud integration, API management and microservices for driving efficiency and enabling faster time-to-market. It has launched Cognizant Skygrade, a multi-hybrid cloud and edge management platform designed to help firms transition to modern cloud-native architectures and streamline cloud management operations. The platform operates seamlessly across multicloud environments, simplifying complex cloud management, enabling clients to operate cloud-native businesses and addressing cloud transformation lifecycle.

Caution

Cognizant should focus on improving the messaging around AI use across the ADM lifecycle. Most competitors are focused on delivering benefits to clients by using AI to reduce the entire lifecycle time.
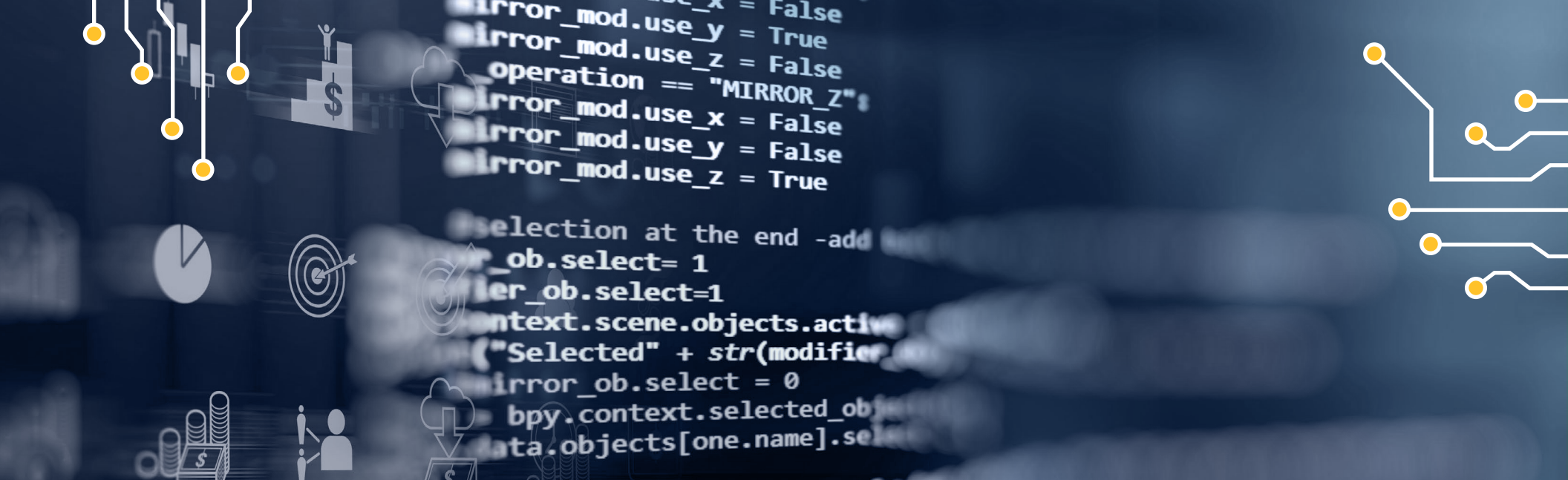
Agile Application Development Projects

Agile Application Development Projects

Who Should Read This Section

This report is relevant to enterprises across industries in the U.S. for evaluating providers that offer services for Agile application development projects. These engagements typically have restricted or limited delivery scope, and the requirement for squad deployment is less than 20.

In this quadrant, ISG highlights the current market positioning of providers that offer Agile application development project services in the U.S. based on the depth of their service offerings and market presence.

Enterprises prioritize quick project turnaround and exceptional CX, supporting the growing demand for advanced digital technologies, such as AI, ML and low-code/no-code platforms. AI and ML adoption helps enterprises increase automation by creating more business value. Low-code, no-code application development is on the rise, and this trend is driven by the demand for rapid innovation and agility in application development, especially for smaller-footprint applications. Enterprises seek service providers that offer Agile application

development and have expertise in new technologies and strong partnerships. These providers should also be able to expand their capabilities by investing in skill development and training.

Businesses are focusing on delivering seamless interactions through Agile methodologies and DevOps practices, driving cloud-based ADM growth and infrastructure modernization services. Cost-effectiveness, scalability and security are crucial considerations. As digital transformation drives business growth, providers must scale quickly, integrate NextGen technologies, and demonstrate proven security, scalability and integrity track records.

IT professionals should read this report to determine service providers' strengths and weaknesses in ADM and learn how to integrate cutting-edge technologies for market advantage.

Operations professionals should read this report to understand how service providers can help generate more business value while simplifying business operations and processes.

Business professionals should review this report to understand partner positioning for efficient application service procurement and favorable ROI in their business or industry.
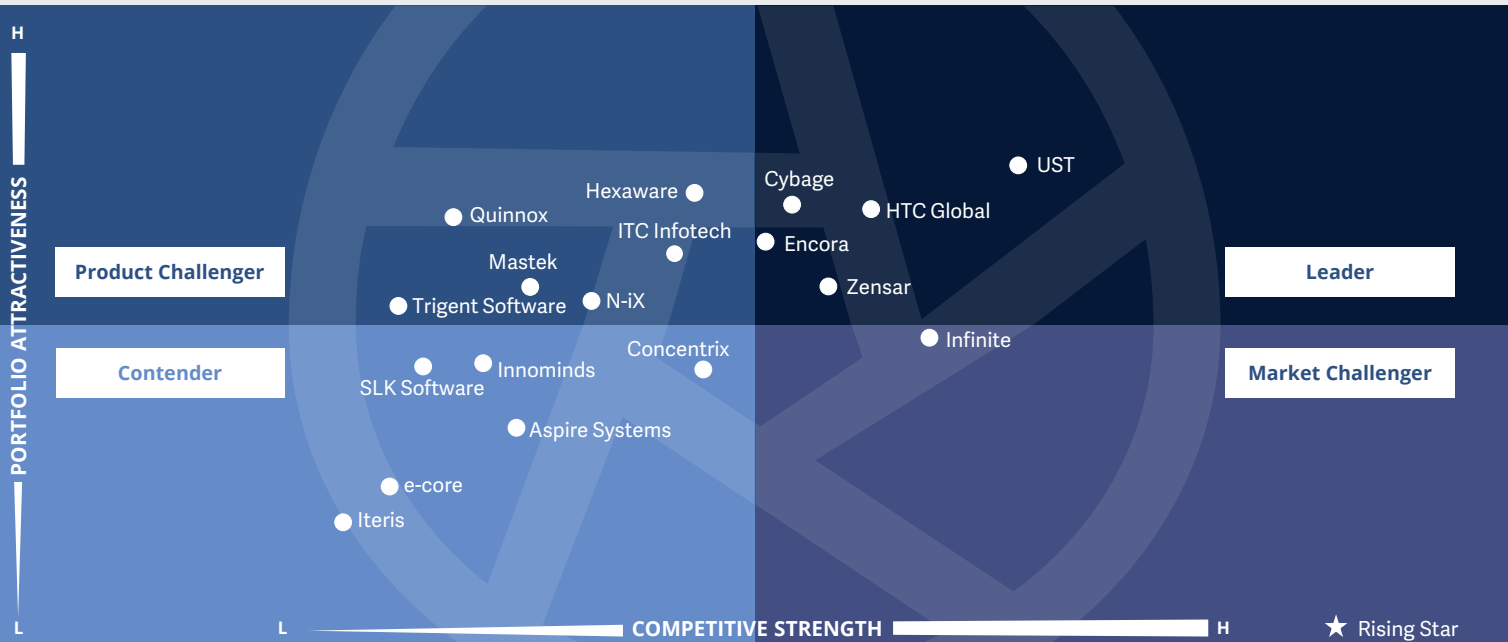
ISG Provider Lens™

Source: ISG RESEARCH

Next-Gen ADM Services
Agile Application Development Projects

U.S. 2023

PORTFOLIO ATTRACTIVENESS — H / L

COMPETITIVE STRENGTH — L / H

Product Challenger
Contender
Leader
Market Challenger

★ Rising Star

Hexaware
Quinnox
ITC Infotech
Mastek
Trigent Software
N-iX
Concentrix
SLK Software
Innominds
Aspire Systems
e-core
Iteris
Cybage
HTC Global
Encora
Zensar
UST
Infinite

This quadrant evaluates service providers that deliver Agile application development for projects with **well-defined scopes**, specific application development **expertise, business objectives or squad-based capabilities**.

Akhila Harinarayan

Agile Application Development Projects

Definition

This quadrant evaluates service providers that offer Agile application development in deals that include clear scope definitions for project outcomes, specific application development skills, business goals or squad capacity.

Typical service providers in this quadrant offer expertise to ensure successful business outcomes for each Agile project. Deals can include a fixed number of team members per squad or flexible models measured by application feature delivery or other pricing methods. Project engagements can vary from small mobile applications to large solution implementations. Typical engagements take less than 18 months. Large projects are exceptions and most likely have staggered releases or more sprints.

Service providers in this quadrant are also responsible for the full management of their delivery teams. The ability to engage many squads to support a client is considered, but application staff augmentation services are excluded from this quadrant. Providers should manage the squad size and offer experts according to throughput targets.

These service providers add specific knowledge and skills required by squads or projects and can differentiate themselves by offering business expertise; highly specialized expertise in dedicated industries, business environments or technology areas; or expertise in development accelerators. The commercial business model centers on the provision of squads for client-managed application development units.

Eligibility Criteria

1. **Projects are typically measured** by the **number of squad members**, user stories delivered, deployment rate/frequency, defect count, time to market and business-related indicators, such as shared business outcomes

2. **Certified experts** in Agile methods, such as Scrum, Kanban or Lean development; cloud-native data analytics; low-code/no-code development; system architecture; and CX design

3. **Proof-of-delivery capacity** with client references; they should not be startups or recently established companies

4. Talent acquisition programs, training programs, **knowledge management processes** and the provision of a healthy work environment to retain top talent

5. **Business expertise or development accelerators** for CRM, e-commerce, ERP or industry-specific technologies

Observations

Enterprises have shifted their strategic focus to prioritize exceptional CX. Recognizing that user satisfaction is a critical differentiator, businesses are directing their efforts toward delivering seamless and engaging interactions. They are embracing Agile methodologies and DevOps practices, revolutionizing the software development approach.

Cloud-based ADM offerings have experienced rapid growth due to their transformative benefits. Service providers focus on building offerings and skillsets/talent to cater to their clients' increasing demands. Cloud transformation and infrastructure modernizations are the most sought-after services by providers focused on building value propositions and positioning their tools and accelerators as differentiators.

Providers with ready PoCs that can help their clients quickly enter the market will stand out from competitors. Cost-effectiveness is also a major aspect of consideration. With clients seeking multiple benefits for their IT landscape and business requirements, application

development is focused on targeting the end goal while delivering qualitative applications at a rapid pace. These trends are expected to continue, with more and more enterprises opting to undergo digital transformation to grow their businesses and providers delivering these services through differentiated offerings and partner networks across the region.

From the 86 companies assessed for this study, 18 qualified for this quadrant, with five being Leaders.

CYBAGE
Delivering Value. Scientifically.

Cybage excels in diverse ADM streams, offering skilled staff for UX, COTS integration and frontend/backend services. Its Product Intensive Engineering (PIE) framework ensures quality, Agile development and faster time-to-market.

encora

Encora's extended delivery network includes one innovation lab and CoEs in the U.S. and delivery centers in the Americas, ensuring cultural affinity, rapid feedback and cost efficiency. It has a robust partner network worldwide that uses advanced technologies.

HTC Global Services

HTC Global Services excels in DevSecOps consulting, web-based enterprise app integration, COTS product integration, ERP systems implementation, and AI- and ML-driven innovations for process automation, fault prediction and personalized solutions.

UST

UST has established skills and committed assets in ADM fields such as COTS product integration, DevSecOps consulting and UX. Access to platforms, tools, accelerators and other IP enhances developer productivity, SDLC visibility, standardization and SRE model efficiency.

zensar
An RPG Company

Zensar focuses on CX, microservices, API, cloud-native and legacy modernization. It invests in platforms such as ZIIAS for Agile transformation. Trained resources, specialized frameworks and accelerators ensure DevSecOps and faster time-to-market.

Application Managed Services

Application Managed Services

Who Should Read This Section

This report is for U.S. enterprises that are evaluating application managed service providers. ISG's quadrant report outlines current market positions and evaluates how providers overcome challenges clients face.

The rising demand for app modernization, automation and value fuels the need for application managed services in the U.S. DevOps, DevSecOps and AIOps address cost and speed priorities. Hybrid systems and platform-independent application complexity drive the managed service demand. Clients seek L2/L3 support, security, incident management and maintenance. The local presence of providers is favored despite the remote work trend.

Service providers strategically leverage AI, automation and advanced analytics to optimize cost and operational efficiency while ensuring exceptional UX and adherence to predefined KPIs. Cloud infrastructure adoption emphasizes the need for proficient application management, including infrastructure optimization and sustaining its performance.

Service providers have harnessed AI, including generative AI, to proactively identify performance issues and vulnerabilities, thereby enabling preemptive measures and continuous operation. Outcome-based pricing models, aligned with KPIs and targets, benefit both providers and clients.

Providers excel with a KPI-focused strategy, employing AI tools and assets to boost automation, agility and quality. They prioritize cutting costs, achieving business goals and enhancing CX through inventive intellectual property. The emphasis is on predictive operations, employing AI-driven analytics, ML algorithms, accelerators and chatbots. Their services include intelligent operations, user-centered experiences and a platform-based method for achieving value.

IT professionals should read this report to determine service providers' strengths and weaknesses in ADM and learn how to integrate cutting-edge technologies for market advantage.
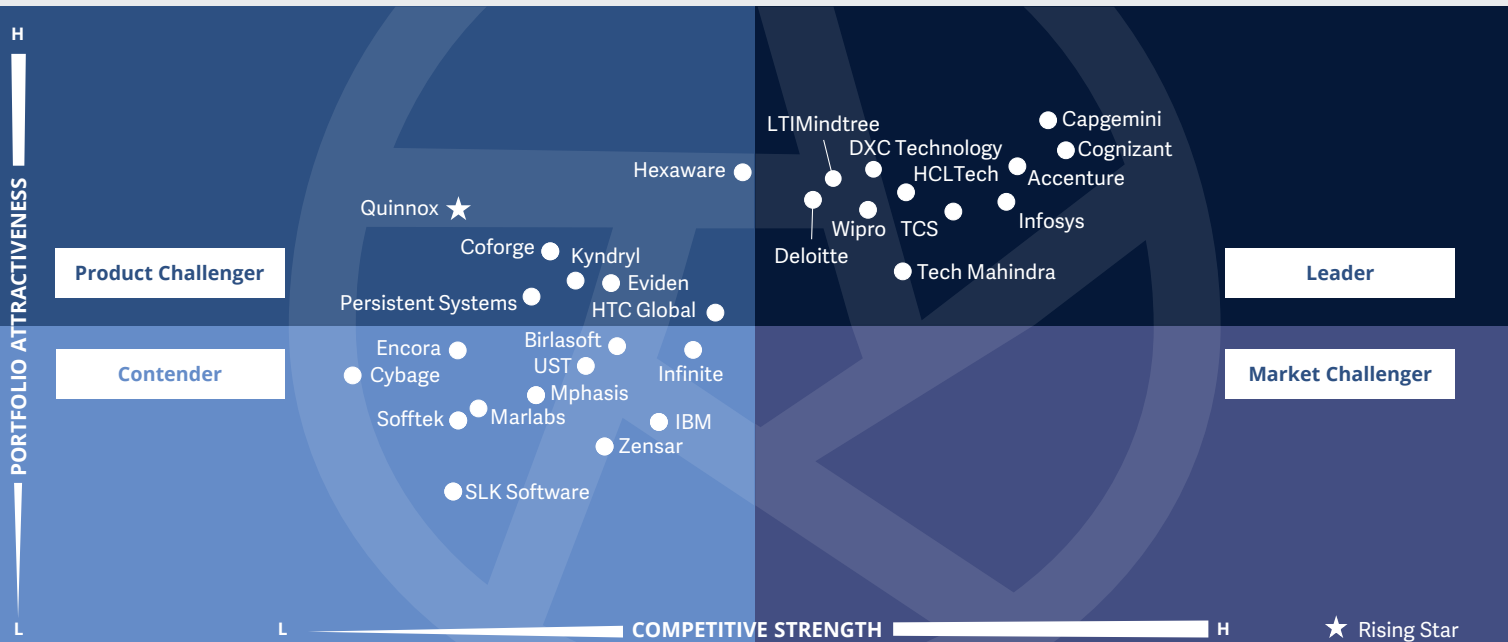
Procurement managers should read this report to understand the service provider ecosystem for application maintenance services in the U.S. and assess how various providers compare with each other.

Business professionals should review this report to understand partner positioning for efficient application service procurement and favorable ROI in their business or industry.

Next-Gen ADM Services
Application Managed Services

U.S. 2023

PORTFOLIO ATTRACTIVENESS

H

Hexaware

LTIMindtree
DXC Technology   ● Capgemini
HCLTech   ● Cognizant
Quinnox ★   Accenture

Coforge
Kyndryl
Product Challenger   Wipro   TCS   Infosys
Eviden
Persistent Systems   Deloitte
HTC Global   Tech Mahindra
Leader

Encora
Contender   Cybage   Birlasoft
UST   Infinite   Market Challenger
Mphasis
Sofftek   Marlabs
IBM
Zensar

SLK Software

L

L   **COMPETITIVE STRENGTH**   H   ★ Rising Star

The quadrant evaluates providers responsible for **managing enterprise applications in production**. Services comprise application support, enhancements, platform upgrades, security, bug fixing, troubleshooting and merging enhancements, among others.

Akhila Harinarayan

Application Managed Services

Definition

This quadrant assesses service providers responsible for managing clients' defined application portfolios (applications in production). It does not include niche application specialists. Application managed services (AMS) comprise application support, enhancements, platform upgrades, application security, bug fixing, troubleshooting, and merging enhancements and development backlogs under Kanban or similar methodologies. The leading service providers in this quadrant offer application monitoring, release management, version control, defect identification, and resolution and database query performance.

Typical service levels include the time taken to resolve an incident or service request, service availability, the defect rate, user satisfaction or Net Promoter Score (NPS) and user experience.

Service transition and client onboarding should include application documentation, service ticket records, knowledge transfer and expert transfer/hire optionally. Continuous service delivery starts after the transition period ends and often includes quality improvement programs and service knowledge refresh.

Large, long-term ADM contracts may include AMS in application outsourcing deals comprising Agile development, application modernization and quality assurance services. This quadrant specifically focuses on the AMS services offered by providers.

Eligibility Criteria

1. **Deployment and operation of service platforms** for performance and defect management, including troubleshooting, application tickets and service requests

2. Employment of **vendor-certified experts** in packaged e-commerce, ERP or CRM (at least one of these commercial applications)

3. Clearly supports **Microsoft and Oracle technologies**, Java programming and relational databases (such as MySQL, Oracle Database, PostgreSQL and SQL Server); mainframe and other technologies can add to a provider's rating but are not required for inclusion

4. **Integration of more than two service platforms**, such as Atlassian Jira, SAP Solution Manager, ServiceNow and application platforms, such as AWS, Google Anthos, IBM Rational and Microsoft Azure

5. Contracts are based on **fixed service fees or outcomes**, providing clients with options; staff augmentation is an accepted exception

Observations

Enterprises strategically aim to optimize cost and operational efficiency while managing their application portfolios within the IT landscape. Service providers have devised methodologies that harness cutting-edge technologies such as AI, automation and advanced analytics to deliver quantifiable advantages to their clientele. Leveraging data-driven approaches, they prioritize enhanced UX while meticulously adhering to predefined KPIs. The surging cloud infrastructure adoption underscores the criticality of proficiently managing applications in such environments. Timely optimization of infrastructure availability and sustained application performance emerge as non-negotiable imperatives. In response, service providers have effectively aligned with market expectations, harnessing the power of AI — to a certain extent, generative AI — to provide comprehensive application managed services for clients. AI's predictive analytics capabilities empower the proactive identification of potential performance fluctuations and vulnerabilities. This proactive stance facilitates

pre-emptive measures, ensuring continuous and seamless application operation. Service providers focus on delivering outcome-based pricing models based on the agreed-upon KPIs and targets, enabling a mutually beneficial situation for the provider and the client. This situation is expected to continue in addition to the other application managed services contract models.

From the 86 companies assessed for this study, 29 qualified for this quadrant, with 11 being Leaders and one a Rising Star.

accenture

Accenture is known for its KPIs and business value-driven approach in the ADM. Its myWizard® platform uses structured methodologies for automation. AI tools, along with more than 350 intellectual properties and other assets, bring speed, efficiency, agility and quality.

Capgemini

Capgemini drives cost reduction and business outcomes with vertical stack models and uses its eAPM and EAF for automation. Implementing business XLAs empowers clients to actualize business value and enhance CX.

cognizant

Cognizant invests in innovative IPs such as Cognizant Neuro® IT Operations, Intelligent Virtual Agent and iGenie. These intellectual properties modernize apps with the help of automation, AI and analytics, focusing on continuous improvement and operational efficiency.

Deloitte.

Deloitte's robust service portfolio harnesses AI, ML and a rich partner ecosystem to help clients innovate, grow and manage risks in their core business.

DXC TECHNOLOGY

DXC's Platform X™ enables data-driven intelligent automation for resilient, self-healing IT. It offers intelligent automation solutions such as ASA and SPARK. Skilled resources and IPs ensure incident detection and resolution and can predict and prevent future problems.

HCLTech

HCLTech's managed application services focus on CX and CloudOps for secure app management. NextGen ASM Framework 2.0 powered by iONA enables predictive operations via extreme automation and AI-driven decision-making.

Infosys

Infosys offers LEAP, an AI-driven analytics platform, which integrates existing APM and AIOps tools and uses ML algorithms for proactive monitoring, anomaly detection and predictive maintenance. It also offers accelerators, assets and chatbots to increase AI adoption.

Application Managed Services

LTIMindtree

LTIMindtree's managed services prioritize transformative capabilities and IT transformation through a consulting-led approach. JORITZ digitizes IT operations with AIOps, and BRAIO streamlines end-to-end processes with workflow automation, driving enterprise-wide agility.

TATA CONSULTANCY SERVICES

TCS MasterCraft™ optimizes software development and service delivery. Supported by 24x7 services, it enables continuous deployment, aligning business strategy and execution. AI-based ignio™ automates alerts and incident resolution and enhances visibility.

TECH mahindra

Tech Mahindra offers amplifAI0->∞ is an AI and automation platform that supports digital transformation and offers anomaly detection, auto resolutions, virtual assistance and incident analytics.

wipro

Wipro employs smart operations, automation and user-centric experiences to enhance efficiency and resilience. Its platform-led enablement leverages the HOLMES AI platform and partner ecosystem for rapid value realization.

Quinnox

Quinnox's (Rising Star) AMS enhances IT landscapes via business-centered methods, employing in-house tools and data-driven evaluations. As a Rising Star, it has developed IPs, including Qinfinite for asset discovery, BizOps for monitoring and Qyrus for predictive test automation.

Cognizant

Leader

"Cognizant's investments in Cognizant Neuro® and AppLens help the company focus on modernization and automation using AI and analytics. Its AI-driven operations emphasize automation, debt management and SRE transformation for agility and reliability. "

Akhila Harinarayan

Overview

Cognizant is headquartered in New Jersey, U.S. and operates in 42 countries. It has more than 351,500 employees across 162 global offices. In FY22 the company generated $19.4 billion in revenue, with Financial Services as its largest segment. In 2022, AMS services in the U.S. contributed $2.2 billion to the company's revenue. The provider offers a wide range of services such as platform-led application management, application debt and automation management as-a-service, and SRE transformation after finding the proper fit for purpose and use. It leverages a global network of studios, CoEs and innovation labs to cater to clients across verticals.

Strengths

Application modernization and automation: Cognizant focuses on modernizing and managing applications to meet business needs effectively. The company uses automation, AI and analytics to deliver scalable and reliable solutions. Its AMS strategy emphasizes continuous improvement and operational efficiency.

AI-driven operations: Cognizant's application maintenance practice, part of the SPE unit, engineers modern applications for agile businesses. It adopts an automation-first approach, utilizing the Cognizant Neuro® IT Operations platform to optimize performance and reduce costs.

Investments in IPs and solutions: Cognizant invests in innovative IPs and other assets, including the Cognizant Neuro® IT Operations platform with AI-powered automation for improved resilience and visibility. Others include the Intelligent Virtual Agent, which offers precise, self-service support, Cognizant AppLens, which drives business relevance using a data-driven approach, Cognizant Business Outcomes and Experience Dashboard, which enable real-time monitoring, and iGenie, which is an intelligent data analysis tool with visualization capabilities.

Caution

The task automation level throughout Cognizant's managed application services cycle is almost equal to the industry average. In contrast, incidence elimination at 25 percent is slightly lower than the industry average (30-35 percent). Cognizant should focus on increasing the incidence elimination levels in its engagements.

Application Quality Assurance

Who Should Read This Section

This report is relevant to enterprises across industries in the U.S. for evaluating quality assurance services providers.

Enterprises anticipate QA providers to ensure application excellence through automated, intelligent and continuous testing within Agile and DevOps contexts. Seamless security integration (DevSecOps) is prioritized for collaboration, security testing and threat management. Requirements for this integration encompass real-time vulnerability detection, AI tools, app resilience and risk reduction.

Providers must leverage advanced technologies and proactive quality assurance to align solutions with business needs. Expedited software release cycles across ADM require tailored testing and DevOps integration. Providers adapt QA practices, emphasizing cloud-based automation with AI and ML. Shift-left testing strategies, bolstered by AI and ML automation, elevate app quality. Site reliability engineering (SRE) principles enhance app quality prior to deployment, minimizing downtimes and optimizing UX.

Providers combine Agile, automation, AI, DevOps and SRE principles for high app quality and reduced maintenance. A robust partner ecosystem caters to client needs. The quality engineering (QE) approach enhances IT app sustainability. AI-driven compliance ensures real-time regulatory alignment. Consulting follows an outcome-based approach spanning quality, testing, DevOps and Agile. Robust automation boosts testing efficiency, and AI and ML in SDLC tackle app quality.

IT professionals should read this report to determine service providers' strengths and weaknesses in ADM and learn how to integrate cutting-edge technologies for market advantage.
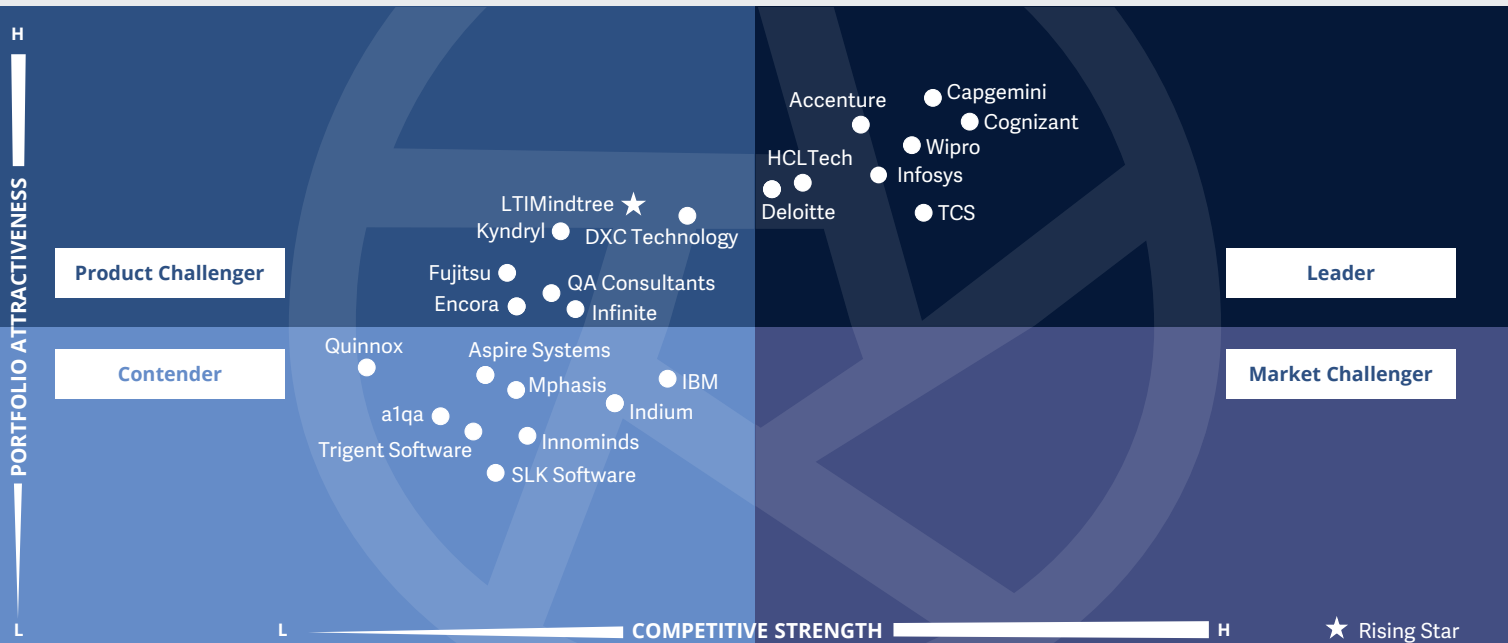
Business professionals should review this report to understand partner positioning for efficient application service procurement and favorable ROI in their business or industry.

Product professionals should read this report to understand the market landscape and provider offerings, which can be used to improve the production process.

ISG Provider Lens™

Next-Gen ADM Services
Application Quality Assurance

U.S. 2023

Source: ISG RESEARCH

PORTFOLIO ATTRACTIVENESS

COMPETITIVE STRENGTH

Product Challenger

Contender

Leader

Market Challenger

Accenture
Capgemini
Cognizant
HCLTech
Wipro
Infosys
Deloitte
TCS

LTIMindtree ★
Kyndryl
DXC Technology
Fujitsu
QA Consultants
Encora
Infinite

Quinnox
Aspire Systems
Mphasis
IBM
a1qa
Indium
Trigent Software
Innominds
SLK Software

★ Rising Star

This quadrant assesses providers that offer **comprehensive quality assurance (QA)** programs, including **assessments, design, implementation and QA services**, such as training and education offerings for developers, testers and operators.

Akhila Harinarayan

Application Quality Assurance

Definition

This quadrant assesses service providers that offer comprehensive quality assurance (QA) programs, including assessments, design, implementation and quality assurance managed services. Service deliverables include setting methods for effort estimation, project planning, documentation, sprint execution timelines, criteria for a product to be deemed complete, and testing strategies to identify bugs or defects in a product.

Service providers in this quadrant can design processes to attain the desired product or service quality at project and business levels, ideally covering a client's complete application portfolio. They leverage quality frameworks to support application code quality improvements, infrastructure resiliency, digital testing, security and quality assurance artifacts, and products and vendor tools.

The quality assurance service should include training and education to help clients mature their software engineering capabilities. A quality assurance program should involve all the development teams, including experts from the outsourcing companies working for clients.

This quadrant also assesses how a provider leverages production logs to extract insights for improved application quality and performance and how the provider integrates application performance management tools with AI and ML for data monitoring to predict the quality of new applications.

Eligibility Criteria

1. **Centralized QA** unit that lays down quality standards for clients' projects

2. Comprehensive technical **QA framework**, which includes planning, implementation, monitoring, review and improvements

3. **Consulting team** focused on analyzing business demands and securing development and delivery according to the specific business requirements

4. Applying **technology to perform analytics** over logs and AI for continuous improvement in results

5. **Differentiation with proprietary tools** and multiple vendor partnerships for quality monitoring, application performance tools and testing tools

6. **Training and education** offering for developers, testers and operators to develop a **quality excellence** mindset and ensure that the overall product or service meets the desired quality

Observations

Service providers are constantly challenged to reduce software release cycles across ADM. Adopting tailored testing solutions and integrating DevOps practices and tools help firms achieve this. Providers' QA practices are strategically tailored to prioritize delivery experiences aligned with clients' requirements. They channel their efforts into crafting cloud-based automation tools and accelerators that harness the potential of AI and ML to address the escalating demand for swifter cycles. SaaS-based testing tools employ codeless, self-healing and predictive test automation mechanisms, culminating in an expedited and streamlined software delivery pipeline.

Increasing demand for shift-left testing strategies, fueled by AI- and ML-infused test automation, has tangibly elevated application quality. By performing comprehensive testing earlier in the software development lifecycle, enterprises proactively identify and rectify potential anomalies, resulting in software with increased resilience and dependability.

SRE demand has helped improve application quality even before its deployment into the production cycle. Through meticulous orchestration of software assessment across various facets, SRE effectively reduces application downtime, optimizing reliability and UX.

From the 86 companies assessed for this study, 24 qualified for this quadrant, with eight being Leaders and one a Rising Star.

accenture

Accenture combines Agile practices, automation, AI, DevOps and SRE principles to help clients maximize application quality and minimize maintenance requirements and costs. Its robust partner ecosystem helps the company address personalized client demands.

Capgemini

Capgemini offers an accelerator that was developed based on a three-dimensional quality engineering (QE) approach. It measures and improves the sustainability of clients' IT applications. Its sustainable QE dashboard aids in green assessment-driven reporting.

cognizant

Cognizant's AI-driven platform ensures real-time regulatory compliance for IT systems and products under life science regulations. It employs automation and AI technologies for continuous software delivery and maintaining compliance.

Deloitte.

Deloitte's Automation First Quality Engineering Practice offers a comprehensive service portfolio. Its rich array of IPs and assets drive cutting-edge testing solutions. Its strategic alliances with top testing tool vendors empower it to provide unmatched QE services.

HCLTech

HCLTech employs an outcome-based approach with its consulting team working in close collaboration to offer end-to-end consulting services for quality, testing, DevOps and Agile transformation.

Infosys

Infosys uses curated prompts and fine-tuned models for various use cases, including user story to test case generation, user story to script generation, script generation from commercial tools to open source and test scenario generation from legacy code base.

Application Quality Assurance

TCS specializes in QE processes, methodologies and industry best practices. Its well-developed testing frameworks help in identifying defects and improving product quality.

Wipro uses robust test automation frameworks to accelerate testing processes and improve test coverage. It employs various tools and frameworks to create efficient and reusable automation scripts.

LTIMindtree (Rising Star) integrates AI and ML into SDLC management to address application quality challenges. The provider collects data across the SDLC, mainly from user stories, test cases, defects, code repository and APM logs, among other sources.

Cognizant

Leader

> "Cognizant has a robust application quality assurance practice. The provider has more than 30 proven AI use cases in addition to IPs and accelerators across the testing lifecycle."
>
> *Akhila Harinarayan*

Overview

Cognizant is headquartered in New Jersey, U.S. and operates in 42 countries. It has more than 351,500 employees across 162 global offices. In FY22 the company generated $19.4 billion in revenue, with Financial Services as its largest segment. Cognizant has a dedicated Quality Engineering & Assurance Practice (QE&A) to engineer and deliver QE solutions for clients. The QE&A practice is housed within Cognizant's Software & Platform Engineering service line that focuses on transforming experience with modern engineering and quality.

Strengths

AI-driven platform for compliance: Cognizant offers an AI-driven platform to deliver real-time regulatory compliance for IT systems and products falling under life science regulations. The platform enables continuous software delivery with ongoing compliance using automation and AI technologies, which automate the validation and compliance assurance processes. It has an in-depth understanding of providing assurance for local compliances, such as GxP compliance, HIPAA compliance, FDA and FATCA, across industries.

Business-focused application QA: QA has moved from assuring IT systems to protecting the overall business and brand. Cognizant has scaled Continuous Testing - Automation First - QE approach to enterprise-level

DevOps with a platform-based lifecycle quality orchestration. It offers innovative QE solutions for applications and platforms built on next-gen technologies, including SaaS (S/4 HANA, Salesforce, Workday, Guidewire), cloud hyperscalers, IoT, AR/VR and AI, and for regulatory compliance with BASEL 2, GxP, FDA, GDPR, MDR and ISO 20022 migration.

Powerful IPs: Cognizant has adopted a platform-based approach to application development, modernization, management and QA. For example, its AppLens management platform provides automation and technical debt reduction as on-demand services and supports SRE functions.

Caution

Cognizant should focus on marketing and highlighting the benefits delivered to clients through outcome-based pricing for application quality assurance. Currently, Cognizant has low visibility in this area.

Continuous Testing Specialists

Who Should Read This Section

This report is relevant to U.S. enterprises for assessing continuous testing service providers.

Enterprises' demand for continuous testing services is on the rise as businesses across various industries in the U.S. seek to expedite software and application development cycles. Shorter time-to-market and increased operational efficiencies are driving factors, with testing integration into development processes further reducing development time and costs. The adoption of Agile methodologies and DevOps/DevSecOps practices is also contributing to the growing demand for testing services. The cloud application surge leads to a quest for scalability, flexibility and cost-efficiency through cloud-based testing and ADM services, enabling real-world scenario replication and comprehensive testing.

Providers harness AI and automation to predict defects, optimize test cases and enhance testing efficiency. They also prioritize security testing and compliance against cyber threats, and emphasize user-centric testing for enhanced usability, performance, accessibility and responsiveness across devices and platforms.

Providers specializing in continuous testing must possess traits that prioritize QE, utilizing AI and ML for efficient automation. They should employ frameworks, accelerators and other IP to automate test script creation, integrating AI and ML. Providers' proficiency should extend to their proprietary platforms and tools, enabling transformative and tool-agnostic automated solutions. Their team should be proficient in operating various automation tools and testing frameworks, thus ensuring effective service delivery.

IT professionals should read this report to determine service providers' strengths and weaknesses in ADM and learn how to integrate cutting-edge technologies for market advantage.

Business professionals should review this report to understand partner positioning for efficient application service procurement and favorable ROI in their business or industry.
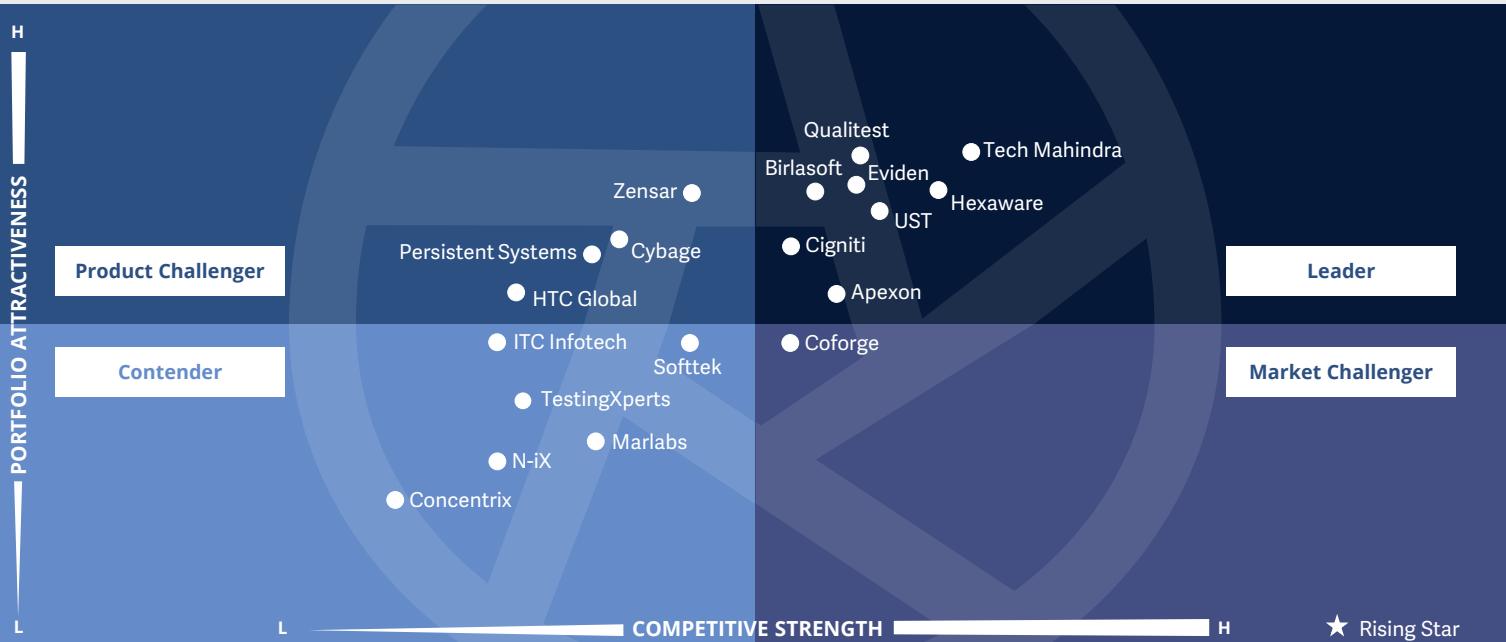
Product professionals should read this report to understand the market landscape and provider offerings, which can be used to improve the production process.

ïSG Provider Lens™

Next-Gen ADM Services
Continuous Testing Specialists

U.S. 2023

PORTFOLIO ATTRACTIVENESS

H

L

Product Challenger

Contender

Leader

Market Challenger

Qualitest

Birlasoft
Eviden

Tech Mahindra

Hexaware

UST

Cigniti

Apexon

Zensar

Persistent Systems
Cybage

HTC Global

ITC Infotech

Softtek

Coforge

TestingXperts

Marlabs

N-iX

Concentrix

L   **COMPETITIVE STRENGTH**   H

★ Rising Star

This quadrant evaluates providers of **continuous testing services** involving **automated** software updates **testing** post-implementation to **prevent** new features and code alterations **from causing regressions or disruptions** to the existing functionality.

Akhila Harinarayan

Continuous Testing Specialists

Definition

This quadrant assesses providers of continuous testing services. Continuous testing is the process of automatically testing software changes as they are made to ensure that new features and code changes do not introduce regressions or break existing functionality. Providers execute application testing, including defining the testing strategy, scope, methods and scripts. They also can differentiate the best approach to manual testing before consuming automation resources in test execution. These providers have the skills to deploy automation, execute testing cycles and produce the necessary evidence to support compliance auditing.

Continuous application testing focuses on delivering quality in tandem with the speed of Agile development. In terms of technology, it encompasses various aspects of automated testing, such as shift-left and end-to-end automation across testing phases, in every phase of the continuous delivery process.

This discipline goes beyond automation-based testing regarding people and processes; it accomplishes better collaboration between the quality assurance and development teams in sprint cycles, besides feature-driven testing and responsiveness to changes. Providers' portfolios may include unit testing, system testing, regression testing, compliance testing, performance and load testing, user acceptance testing and smoke testing. The most comprehensive portfolio gets a better appraisal.

Eligibility Criteria

1. **Qualified professionals** for test-driven development (TDD), behavior-driven development (BDD) and other approaches

2. Capability to handle **large-scale testing** and continuous integration demands of complex systems, such as ERP and e-commerce with many test cases

3. **Consulting services** that include test automation implementation, which can be integrated with clients' development and DevOps tools and help clients optimize their continuous testing performance to reduce the testing time

4. **Continuous services**, including testing data and test coverage assessments, enabling automated testing across many continuous integration pipelines, and managing testing artifacts for the significant reutilization of such artifacts

5. **Replication and reuse of testing artifacts** to use in multiple projects

Continuous Testing Specialists

Observations

The surge in cloud application adoption has driven enterprises to seek enhanced scalability, flexibility and cost-efficiency through cloud-based testing and ADM services. This scenario facilitates the replication of real-world scenarios and comprehensive testing across diverse platforms. The need to deliver efficient applications under mounting pressure has led service providers to use AI and automation. These technologies empower providers to assist clients in identifying patterns, predicting potential defects and optimizing test cases. AI-driven testing and automation not only enhance testing efficiency but also proactively improve application quality by predicting potential issues.

The escalating frequency of cyber threats and data breaches compels firms to prioritize security testing and compliance, leading to the development of robust security practices that encompass vulnerability assessments, penetration testing and code analysis to safeguard applications.

Enterprises are pivoting toward user-centric testing that transcends traditional functional assessment. This approach entails evaluating an application's usability, performance, accessibility, responsiveness and compatibility across a spectrum of devices and platforms.

Overall, the interplay of cloud-based testing, AI-driven approaches, security testing and UX evaluation are the main trends for the continuous testing specialist domain. By integrating these elements, enterprises and service providers collectively focus on heightened application quality, robust security and improved UX.

From the 86 companies assessed for this study, 19 qualified for this quadrant, with eight being Leaders.

Apexon

Apexon offers testing services via its QA portfolio, which focuses on systems, processes and automation to enhance quality, agility and efficiency throughout every stage of the digital application development lifecycle.

birlasoft

Birlasoft's testing services prioritize QE and utilize AI and ML for streamlined automation, enhancing value by reinforcing QA in applications and business processes. It deploys frameworks, accelerators and other IPs to automate test script generation.

Cigniti

Cigniti provides continuous testing services, integrating QA into the delivery lifecycle. It implements shift-left and shift-right testing procedures, enabling early defect detection. Its proprietary QE platform, BlueSwan™, incorporates AI and ML for test automation.

EVIDEN

Eviden is an expert in the testing domain with its exclusive platforms and tools, providing transformative and tool-agnostic automated services. Its staff members are trained in diverse automation tools and testing frameworks, facilitating efficient service delivery.

HEXAWARE

Hexaware's ATOP, powered by AI and ML, is a comprehensive testing platform covering functional and nonfunctional testing across all layers. It automates multichannel testing, accelerates big data and ETL testing, and provides service virtualization.

Qualitest

Qualitest's next-gen QE, customer-centric GTM approach and strategic acquisitions drive its leadership in advanced testing. With AI, DevOps and AR/VR/MR, the company redefines quality assurance, serving diverse clients through tailored solutions and inorganic growth.

TECH mahindra

Tech Mahindra offers testing solutions such as MAGiX, an automation framework, eConvergence for integrated reporting and eAnalytics for predictive analytics. It possesses expertise across various testing frameworks, driven by people skilled in multiple automation tools.

U ▪ S T

UST offers NoSkript™, which enhances engineers' skills, reduces rework, accelerates testing and automates the test lifecycle. Past UST implementations show that the company has skilled staff and capabilities.

Appendix

The ISG Provider Lens™ 2023 – Next-Gen ADM Services study analyzes the relevant software vendors/service providers in the Brazilian, European and U.S. market, based on a multi-phased research and analysis process, and positions these providers based on the ISG Research™ methodology.

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The research and analysis presented in this report includes research from the ISG Provider Lens™ program, ongoing ISG Research™ programs, interviews with ISG advisors, briefings with services providers and analysis of publicly available market information from multiple sources. The data collected for this report represents information that ISG believes to be current as of August 2023, for providers who actively participated as well as for providers who did not. ISG recognizes that many mergers and acquisitions have taken place since that time, but those changes are not reflected in this report.

All revenue references are in U.S. dollars ($US) unless noted.

The study was divided into the following steps:

1. Definition of Next-Gen ADM Services market

2. Use of questionnaire-based surveys of service providers/ vendor across all trend topics

3. Interactive discussions with service providers/vendors on capabilities & use cases

4. Leverage ISG's internal databases & advisor knowledge & experience (wherever applicable)

5. Use of Star of Excellence CX-Data

6. Detailed analysis & evaluation of services & service documentation based on the facts & figures received from providers & other sources.

7. Use of the following key evaluation criteria:

   * Strategy & vision

   * Tech Innovation

   * Brand awareness and presence in the market

   * Sales and partner landscape

   * Breadth and depth of portfolio of services offered

   * CX and Recommendation

Author & Editor Biographies

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Akhila Harinarayan is Senior Lead Analyst and the lead author for ISG Provider Lens studies with a focus on Digital Business Transformation and SAP Services. She has more than 12 years of experience across research and consulting including provider strategy, enterprise strategy, industry roadmaps, point-of-view papers, service provider assessment across regions. She has strong expertise on strategy and transformation, digital insights, thought leadership, benchmarking, market assessments and go-to-market strategies.

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Maharshi Pandya is a Research Specialist at ISG and is responsible for supporting and co-authoring ISG Provider Lens™ studies on SAP HANA Ecosystem & Next-Gen ADM Solution and Services. He supports the lead analysts in the research process and authors the global summary report. Maharshi also develops content from an enterprise perspective and collaborates with advisors and enterprise clients on ad-hoc research assignments as well. Prior to this role, he has been associated with several syndicated and custom market research

firms, in which he has worked on both, secondary and primary interaction centric research projects around market sizing & forecasting, competitive benchmarking, pricing analysis vendor profiles and market share analysis for several industry verticals such as information and communication technology, media & information services, and automotive. His area of expertise includes analytics, application development and maintenance, and enterprise resource planning.

Author & Editor Biographies

IPL Product Owner

Jan Erik Aase
Partner and Global Head – ISG Provider Lens™

Mr. Aase brings extensive experience in the implementation and research of service integration and management of both IT and business processes. With over 35 years of experience, he is highly skilled at analyzing vendor governance trends and methodologies, identifying inefficiencies in current processes, and advising the industry. Jan Erik has experience on all four sides of the sourcing and vendor governance lifecycle - as a client, an industry analyst, a service provider and an advisor.

Now as a research director, principal analyst and global head of ISG Provider Lens™, he is very well positioned to assess and report on the state of the industry and make recommendations for both enterprises and service provider clients.

About Our Company & Research

ISG Provider Lens™

The ISG Provider Lens™ Quadrant research series is the only service provider evaluation of its kind to combine empirical, data-driven research and market analysis with the real-world experience and observations of ISG's global advisory team. Enterprises will find a wealth of detailed data and market analysis to help guide their selection of appropriate sourcing partners, while ISG advisors use the reports to validate their own market knowledge and make recommendations to ISG's enterprise clients. The research currently covers providers offering their services across multiple geographies globally.

For more information about ISG Provider Lens™ research, please visit this webpage.

ISG Research™

ISG Research™ provides subscription research, advisory consulting and executive event services focused on market trends and disruptive technologies driving change in business computing. ISG Research™ delivers guidance that helps businesses accelerate growth and create more value.

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ISG

ISG (Information Services Group) (Nasdaq: III) is a leading global technology research and advisory firm. A trusted business partner to more than 900 clients, including more than 75 of the world's top 100 enterprises, ISG is committed to helping corporations, public sector organizations, and service and technology providers achieve operational excellence and faster growth. The firm specializes in digital transformation services, including automation, cloud and data analytics; sourcing advisory; managed governance and risk services; network carrier services; strategy and operations design; change management; market intelligence and technology research and analysis.

Founded in 2006, and based in Stamford, Conn., ISG employs more than 1,600 digital-ready professionals operating in more than 20 countries—a global team known for its innovative thinking, market influence, deep industry and technology expertise, and world-class research and analytical capabilities based on the industry's most comprehensive marketplace data.

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