

Next-Gen ADM Services

A research report comparing provider strengths,
challenges and competitive differentiators

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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.

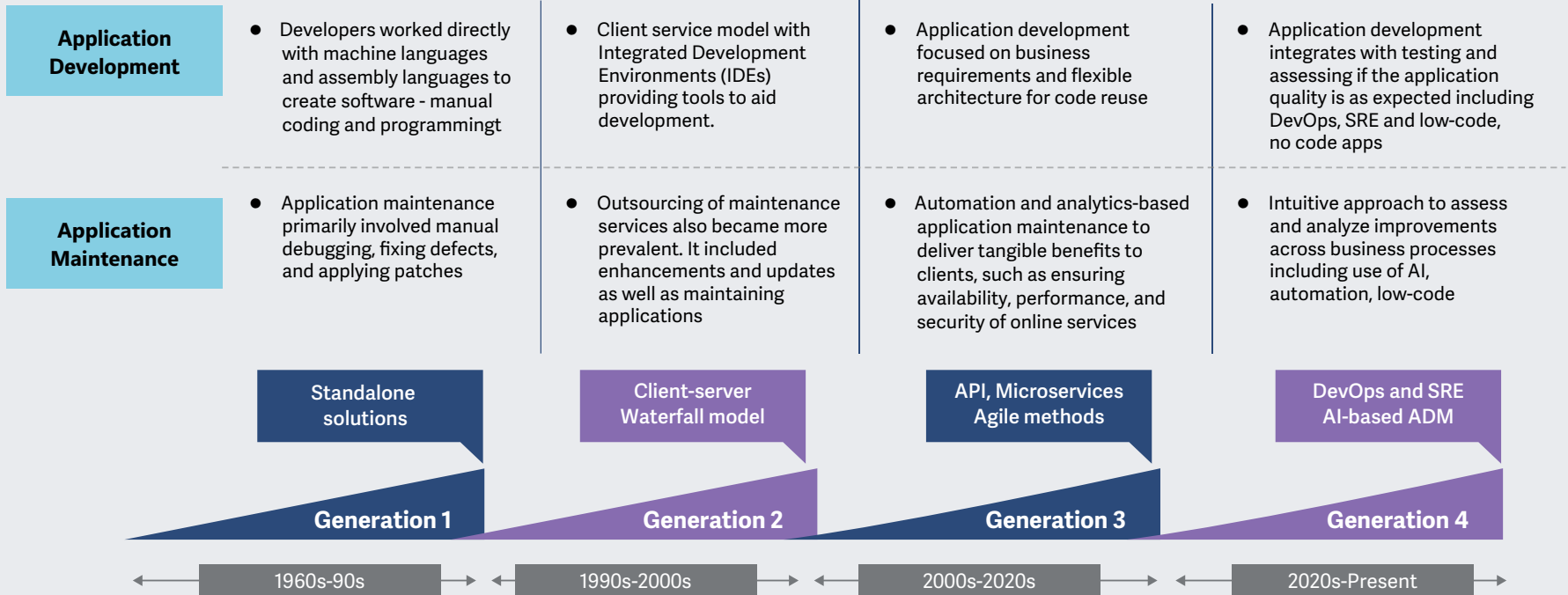
With the advent of new approaches and methodologies, there is a significant shift in the adoption of Agile and DevOps methodologies for application development. Increased emphasis is placed on developing applications

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



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.



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.



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

Simplified Illustration; Source: ISG 2023



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.





Sweet Spot

QA Consultants

Overview

QA Consultants, headquartered in Toronto, Canada, offers software quality assurance solutions for enterprise customers, including full-service management of their quality assurance and engineering programs. For almost 30 years, the firm has delivered over 12,000 mission-critical projects in the private, public and not-for-profit sectors. The firm has around 200 employees globally.

Key Provider Capabilities

QA Consultants has the expertise to manage quality and provide transformative advisory consulting to enterprises, fostering continuous improvement in integrating quality into the software delivery lifecycle. Some of the key capabilities of the company are:

- A three-pronged approach to value-based quality services: QA Consultants caters to clients with a three-pillar approach focused on quality engineering, performance engineering and security engineering. With this combination, the firm focuses on responding to market demands using faster software cycles, more test coverage through automation, and virtual in-sprint services and offers consulting and advisory value,

especially with regards to operational (non-functional) QA and engineering services (security, performance, inclusivity and more).

- A consultative approach to quality engineering: QA Consultants' consultative approach for QE transformation starts by identifying critical areas of quality management and engineering deficiencies, covering four critical areas: culture, operations, engineering and risk management. The firm leveraged a QE maturity framework to support clients' specific needs. The firm offers services to clients with the necessary recommendations on both tactical and strategic levels, solving business challenges effectively.

- Outcome-based pricing: QA Consultants has a significant number of clients to whom it offers outcome-based pricing. In addition to fixed price and time/material pricing, outcome-based pricing constitutes a significant portion of the firm's deals. These deals are primarily considered for assessments encompassing quality maturity, security vulnerability, inclusivity and performance analysis engagements. Measuring outcome-based KPIs includes clear, single action engagements with measurable KPIs agreed upon between the provider and client.

Benefits Delivered

QA Consultants has delivered multiple benefits for clients, including:

- Improved quality testing feedback
- Improved confidence in every release
- Reduced regression testing effort by 40 percent
- Improved testing process efficiency by 60 percent
- Cost saving through automation
- Enhanced user experience
- Improved security
- Faster time-to-market



QA Consultants

Sweet Spot

QA Consultants' sweet spot lies in its focus on investing in emerging technologies. The company operates a robust emerging technologies practice, focusing on quality engineering solutions for connected and autonomous vehicles, AI, IoT and blockchain. The firm has delivered services for testing crypto/decentralized finance applications. For instance, one of the first provisionally chartered crypto banks needed a new core banking system to support both fiat and crypto products and custody, and QA Consultants swiftly provided a complete managed services QA solution. It also deployed a pod model for the bank for rapid knowledge transfer and QA asset creation. This approach enabled swift adaptations to changing directions, ensuring quick turnaround times.

QA Consultants has a strong focus on innovation and R&D. The firm has a software testing lab at the Automotive Center of Excellence in Oshawa. QA Consultants is also ramping up its CoE in Dallas, TX, for IoT and embedded software test automation, which is currently providing services to several clients, including a leading military defense drone manufacturer, an IoT manufacturer, and an energy infrastructure provider. Its new Toronto facility serves as an innovation lab for emerging technology practices, and its leadership oversees government-funded projects and spearheads test automation for AI research and solutions.

QA Consultant's testing accelerator, xCog, is an automated test solution tailored for cognitive, AI and non-deterministic systems, enabling the modeling of these complex systems and generating highly intricate

automated test solutions executable in high-speed, parallel environments. It is also a leading solution for testing cognitive/AI systems in autonomous vehicles and robots. Its implementation significantly reduced time-to-market, followed safety guidelines and ensured thorough testing of AI systems for specific use cases.

Future roadmap

QA Consultants focuses on delivering services to software product and digital service firms with a keen focus on enhancing customer experience, optimizing performance and ensuring scalability. It invests substantially in honing skills and developing solutions for emerging technologies, such as decentralized finance, blockchain, crypto e-commerce platforms and autonomous driving systems. It is also innovating new test automation accelerators for the automotive, insurance, banking and defense contractor sectors.

The firm aims to position itself as a full-service quality engineering firm, emphasizing its consultative approach to quality processes and operational areas such as security, performance engineering and inclusivity.





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.

She has authored many thought leadership papers, digital insight studies, devised go-to-market strategies across products/ industries/regions, built frameworks and maturity models across industries for both enterprises, vendors and service providers.

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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.





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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.



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™

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ISG

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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.

For more information, visit isg-one.com.





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